Surname copy

700

Murphy
Ellis
Kiilsgaard
Gubafa
Selfridge
Hopman

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

La Salle Mining Company
P. O. Box 217
Grand Junction, Colorado

MAR 7 1956

Re: Docket No. DMEA-3867 (Uranium)
Jasper Group
Coconino County, Arizona

Gentlemen:

Reference is made to your application for Government aid in an exploration project on the above-named group of 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,

H. G. Mittendorf

Administrator

FMMurphy/gla
3-6-56
cc to: Admr.'s Reading File
Operating Committee
Docket
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
Code 700
Mr. Murphy
DMEA Field Team, Region III (2)

R.C.L.

DOCKET COPY

Murphy
Ellis

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

March 6, 1956

Summary of Proposed Project

Object: Denial of application for exploration aid

Docket No.: DMEA-3867

Commodity: Uranium

Applicant: La Salle Mining Company, a partnership
P. O. Box 217, Grand Junction, Colorado

Property: Owners of the Jasper claims nos. 1 through 11, situated in secs. 21, 27, and 28, T. 39 N., R. 6 E., Gila and Salt River meridian, Coconino County, Arizona

Date of application: June 10, 1955

Referred to Field Team: July 13, 1955

Field examination made: November 9, 1955

Field report received: January 19, 1956

Amount of application: $30,559.00

Work proposed: 48 holes ranging from 120 to 400 feet in depth.

Estimated Costs:

120 hours bulldozer work @ $12.00/hr.	$ 1,440.00
12,600 feet plug drilling @ $1.50/ft.	18,900.00
1,440 feet core drilling @ $2.50/ft.	3,600.00
Supervision, Consultants, Labor	5,334.00
Operating equipment (rental)	850.00
Miscellaneous	435.00
Total cost of project	$30,559.00

Excerpts from Field Team report:

The Jasper group of claims are near the base of the Vermilion Cliffs which flank the Marble Canyon area of the Colorado River.

In the claim area a well-defined channel was scoured into the Moenkopi formation to depths ranging from 45 to 70 feet. This Shinarump scour channel is filled by a fairly clean, fine-to-coarse-grained sandstone ranging from 60 to 100 feet in thickness and from 600 to 900 feet in width. The channel is exposed on the rim in several places. Uranium mineralization on the Jasper group of claims is generally weak, and appears to be confined to the Shinarump conglomerate at or near the Moenkopi contact and within the stream channel.

The proposed drilling project appears to be well planned to encounter and define the stream channel back of the rim. However, since the stream channel and the Shinarump conglomerate filling are exposed over a considerable over-all distance along the rim, with only a few small areas of weak uranium mineralization, it is believed unlikely that commercial ore bodies will be found in the stream channel beyond the rim on the Jasper claims. Therefore, it is recommended that the application for Government aid be denied.

Commodity Members' comments (excerpts):

U. S. Geological Survey, N. E. Nelson, January 24, 1956.

No breaks or "windows" in the channel fill are indicated at any point in the 7,000-foot length of channel, but the field examiners state that "weak uranium mineralization . . . occurs at or near the base . . . of the Shinarump channel." Therefore, it is inferred that the bottom of the scour and fill are exposed in places.

In the channel fill, mudstone partings are lacking, carbonaceous trash is sparse, and the fossil wood is commonly silicified rather than carbonized. Hence, the examiners conclude, "no favorable trap for ore apparently exists in these thick Shinarump channel scours."

Mr. Nelson concurs in the Field Team's recommendation of denial.

U. S. Bureau of Mines, J. E. Crawford, January 27, 1956

No ore deposits of significant size and grade are known in thick Shinarump channel scours on the subject claims or in the surrounding area for a radius of 15 miles.

Because of the unfavorable geologic features reported by the field examiners, we concur in the recommendation that the application be denied.

Rare and Miscellaneous Metals Division, F. M. Murphy, March 6, 1956.

A memorandum, dated February 2, 1956, from F. M. Murphy to Ernest Wm. Ellis, cited a number of reasons why this Division should not concur in the Field Team's recommendation to deny the subject application. On February 6, the memoranda from the USGS, USBM, and Rare and Miscellaneous Metals Division were forwarded to Region III, with a request that the Field Team submit its further comments on the subject.

In a memorandum, dated February 17, J. W. Hasler clarified the reasons for the Field Team's recommendation of denial as follows:

> "Thick sandstone beds up to 100 feet thick are known to be favorable host rocks for uranium deposits in the Jurassic Morrison formation, but a similar thickness criterion of favorability is not necessarily applicable to the Triassic Shinarump conglomerate. Where the Shinarump is thick and blanket-like and of relatively uniform lithology, it is definitely unfavorable for significant uranium deposits. Apparently any ore-bearing solutions that may have passed through this type Shinarump tend to be dispersed through the thick blanket-like bed rather than concentrated at any one place. Also, thick blanket-like Shinarump conglomerate tends to have relatively uniform lithologies that do not provide good traps for ore deposits. To be really favorable for ore deposits the Shinarump should be relatively lenticular and even missing in part of the area (this tends to cause concentration of the ore-bearing solutions in the more permeable channelways) and should contain enough interbedded lenses of mudstone or siltstone in the sandstone or conglomerate to provide traps which will slow down or stop the ore-bearing solutions and facilitate precipitation of ore minerals (H. S. Johnson and Randall T. Chew, III, geologists, U. S. Geological Survey, personal communication.)

"The Shinarump channel scour on the Jasper group is exposed for about 2 miles of outcrop with weak or no uraniferous mineralization, and no Shinarump pinch-out is known for at least one mile on either side of the channel. Whatever ore solutions entered the channel were probably widely dispersed and deposited only sparse quantities of ore locally near the base."

"In the light of our present knowledge and the exposures on the Jasper group, we are still of the opinion that the La Salle Mining Company, application for DMEA assistance on the Jasper group of claims, Coconino County, Arizona, should be denied."

The original field examination report did not contain sufficient information to justify a recommendation to deny the subject application. However, J. W. Hasler's memorandum covers the questions raised by this Division and substantiates the denial recommendation. Therefore, this Division now concurs in the recommendation to deny the subject application.

Ernest Wm. Ellis

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

3/5/56 Lgm

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

RECEIVED
MAR - 5 1956

February 24, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Chairman, Operating Committee, DMEA

From: Field Team, Region III

Subject: Docket DMEA 3867 (Uranium), LaSalle Mining Company, Jasper Group, Coconino County, Arizona

In reply to your letter of February 6, 1956 enclosed are copies of memoranda dated February 17 and February 21, 1956 from J. William Hasler, USGS, and Stephen R. Wilson, USBM.

You will note in these memoranda that the field again recommend that the subject application be denied. We concur in this recommendation.

DMEA Field Team, Region III

W. M. Traver

W. M. Traver

E. N. Harshman

E. N. Harshman

Enclosures

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

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

MINERAL DEPOSITS
IN REPLY REFER TO:
RECEIVED
FEB 20 1956
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

February 17, 1956

Memorandum

RECEIVED
MAR 5 1956

To: Executive Officer, DMEA Field Team, Region III

Through: E. N. Harshman

From: J. William Hasler

Subject: DMEA docket 3867 (Uranium), La Salle Mining Company, Jasper group, Coconino County, Arizona

We have considered the comments of Mr. F. M. Murphy, DMEA Commodity Engineer, regarding the examining team's denial of La Salle Mining Company's application for DMEA assistance on the Jasper claims, Coconino County, Arizona.

"Thick sandstone beds up to 100 feet thick are known to be favorable host rocks for uranium deposits in the Jurassic Morrison formation, but a similar thickness criterion of favorability is not necessarily applicable to the Triassic Shinarump conglomerate. Where the Shinarump is thick and blanket-like and of relatively uniform lithology, it is definitely unfavorable for significant uranium deposits. Apparently any ore-bearing solutions that may have passed through this type Shinarump tend to be dispersed through the thick blanket-like bed rather than concentrated at any one place. Also, thick blanket-like Shinarump conglomerate tends to have relatively uniform lithologies that do not provide good traps for ore deposits. To be really favorable for ore deposits the Shinarump should be relatively lenticular and even missing in part of the area (this tends to cause concentration of the ore-bearing solutions in the more permeable channelways) and should contain enough interbedded lenses of mudstone or siltstone in the sandstone or conglomerate to provide traps which will slow down or stop the ore-bearing solutions and facilitate precipitation of ore minerals (H. S. Johnson and Randall T. Chew, III, geologists, U. S. Geological Survey, personal communication.)

The Shinarump channel scour on the Jasper group is exposed for about 2 miles of outcrop with weak or no uraniferous mineralization, and no Shinarump pinch-out is known for at least one mile on either side of the channel. Whatever ore solutions entered the channel were probably widely dispersed and deposited only sparse quantities of ore locally near the base."

Mr. Murphy further comments that a favorable mudstone trap might have been eroded on the inside of the meander bend between Jasper claims 1 and 10 and that, therefore, similar unexposed traps may occur under cover. Our general knowledge of thick Shinarump scours leads us to believe that mudstone beds or traps are not likely to occur anywhere along this channel in the vicinity of the Jasper group. In the absence of definite evidence of such mudstone traps, exploration of the thick channel on the Jasper group of claims would, in the opinion of the examining team, constitute prospecting and not exploration.

In the light of our present knowledge and the exposures on the Jasper group, we are still of the opinion that the La Salle Mining Company, application for DMEA assistance on the Jasper group of claims, Coconino County, Arizona, should be denied.

J. William Hasler

J. William Hasler,
Geologist

FMB/mlr

cc: S. R. Wilson

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 12, UTAH

RECEIVED
MAR - 5 1956

DMEA
Date Rec'd.
FEB 23 1956
BUREAU OF MINES
Denver, Colorado

February 21, 1956

Memorandum

To: W. M. Traver, Executive Officer, DMEA Field Team, Region III

From: Stephen R. Wilson

Subject: Docket No. DMEA-3867 (Uranium), La Salle Mining Co., Jasper group, Coconino County, Arizona

Reference is made to your memorandum dated February 13, 1956, wherein you have requested additional comments concerning the field report on the subject docket. Your memorandum was accompanied by copies of a letter from the Chairman of the Operating Committee and memoranda from DMEA commodity geologists and engineers.

A memorandum dated February 17, 1956, prepared by J. William Hasler, contains comments pertinent to the subject. This office is in accord with Hasler's interpretation of the geologic conditions as noted in his memorandum, and recommends that the application for DMEA assistance be denied.

Stephen R. Wilson
Stephen R. Wilson

IN REPLY REFER TO:

MINERAL DEPOSITS
DMEA
RECEIVED
FEB 20 1956

RECEIVED
MAR - 5 1956
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMEA
Date Rec'd.
FEB 21 1956

P. O. Box 360
Grand Junction, Colorado

BUREAU OF MINES
Denver, Colorado

February 17, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

Through: E. N. Harshman

From: J. William Hasler

Subject: DMEA docket 3867 (Uranium), La Salle Mining Company, Jasper group, Coconino County, Arizona

We have considered the comments of Mr. F. M. Murphy, DMEA Commodity Engineer, regarding the examining team's denial of La Salle Mining Company's application for DMEA assistance on the Jasper claims, Coconino County, Arizona.

Thick sandstone beds up to 100 feet thick are known to be favorable host rocks for uranium deposits in the Jurassic Morrison formation, but a similar thickness criterion of favorability is not necessarily applicable to the Triassic Shinarump conglomerate. Where the Shinarump is thick and blanket-like and of relatively uniform lithology, it is definitely unfavorable for significant uranium deposits. Apparently any ore-bearing solutions that may have passed through this type Shinarump tend to be dispersed through the thick blanket-like bed rather than concentrated at any one place. Also, thick blanket-like Shinarump conglomerate tends to have relatively uniform lithologies that do not provide good traps for ore deposits. To be really favorable for ore deposits the Shinarump should be relatively lenticular and even missing in part of the area (this tends to cause concentration of the ore-bearing solutions in the more permeable channelways) and should contain enough interbedded lenses of mudstone or siltstone in the sandstone or conglomerate to provide traps which will slow down or stop the ore-bearing solutions and facilitate precipitation of ore minerals (H. S. Johnson and Randall T. Chew, III, geologists, U. S. Geological Survey, personal communication.)

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In the light of our present knowledge and the exposures on the Jasper group, we are still of the opinion that the La Salle Mining Company, application for DMEA assistance on the Jasper group of claims, Coconino County, Arizona, should be denied.

J. William Hasler

J. William Hasler,
Geologist

FMB/mlr

cc: S. R. Wilson

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 12, UTAH

RECEIVED
MAR - 5 1956
DMEA
Date Rec'd.

FEB 23 1956
BUREAU OF MINES
Denver, Colorado

February 21, 1956

Memorandum

To: W. M. Traver, Executive Officer, DMEA Field Team, Region III

From: Stephen R. Wilson

Subject: Docket No. DMEA-3867 (Uranium), La Salle Mining Co., Jasper group, Coconino County, Arizona

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A memorandum dated February 17, 1956, prepared by J. William Hasler, contains comments pertinent to the subject. This office is in accord with Hasler's interpretation of the geologic conditions as noted in his memorandum, and recommends that the application for DMEA assistance be denied.

Stephen R. Wilson
Stephen R. Wilson

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

P. O. Box 360
Grand Junction, Colorado

IN REPLY REFER TO:
MINERAL DEPOSITS
DMEA
RECEIVED
FEB 20 1956
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

February 17, 1956

RECEIVED
MAR - 5 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

Through: E. N. Harshman

From: J. William Hasler

Subject: DMEA docket 3867 (Uranium), La Salle Mining Company, Jasper group, Coconino County, Arizona

We have considered the comments of Mr. F. M. Murphy, DMEA Commodity Engineer, regarding the examining team's denial of La Salle Mining Company's application for DMEA assistance on the Jasper claims, Coconino County, Arizona.

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In the light of our present knowledge and the exposures on the Jasper group, we are still of the opinion that the La Salle Mining Company, application for DMEA assistance on the Jasper group of claims, Coconino County, Arizona, should be denied.

J. William Hasler
J. William Hasler,
Geologist

FMB/mlr

cc: S. R. Wilson

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 12, UTAH

RECEIVED
MAR - 5 1956
DMEA
Date Rec'd.

FEB 23 1956

BUREAU OF MINES
Denver, Colorado

February 21, 1956

Memorandum

To: W. M. Traver, Executive Officer, DMEA Field Team, Region III

From: Stephen R. Wilson

Subject: Docket No. DMEA-3867 (Uranium), La Salle Mining Co., Jasper group, Coconino County, Arizona

Reference is made to your memorandum dated February 13, 1956, wherein you have requested additional comments concerning the field report on the subject docket. Your memorandum was accompanied by copies of a letter from the Chairman of the Operating Committee and memoranda from DMEA commodity geologists and engineers.

A memorandum dated February 17, 1956, prepared by J. William Hasler, contains comments pertinent to the subject. This office is in accord with Hasler's interpretation of the geologic conditions as noted in his memorandum, and recommends that the application for DMEA assistance be denied.

Stephen R. Wilson
Stephen R. Wilson

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

February 24, 1956

224 New Customhouse
Denver 2, Colorado

RECEIVED
MAR - 5 1956

Memorandum

To: Chairman, Operating Committee, DMEA

From: Field Team, Region III

Subject: Docket DMEA 3867 (Uranium), LaSalle Mining Company, Jasper Group, Coconino County, Arizona

In reply to your letter of February 6, 1956 enclosed are copies of memoranda dated February 17 and February 21, 1956 from J. William Hasler, USGS, and Stephen R. Wilson, USBM.

You will note in these memoranda that the field again recommend that the subject application be denied. We concur in this recommendation.

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

P. O. Box 300
Grand Junction, Colorado

IN REPLY REFER TO:
MINERAL DEPOSITS

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

DMEA
RECEIVED
FEB 20 1956
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

February 17, 1956

RECEIVED
MAR - 5 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

Through: L. N. Harshman

From: J. William Hasler

Subject: DMEA docket 3807 (Uranium), La Salle Mining Company, Jasper group, Coconino County, Arizona

We have considered the comments of Mr. F. M. Murphy, DMEA Commodity Engineer, regarding the examining team's denial of La Salle Mining Company's application for DMEA assistance on the Jasper claims, Coconino County, Arizona.

Thick sandstone beds up to 100 feet thick are known to be favorable host rocks for uranium deposits in the Jurassic Morrison formation, but a similar thickness criterion of favorability is not necessarily applicable to the Triassic Shinarump conglomerate. Where the Shinarump is thick and blanket-like and of relatively uniform lithology, it is definitely unfavorable for significant uranium deposits. Apparently any ore-bearing solutions that may have passed through this type Shinarump tend to be dispersed through the thick blanket-like bed rather than concentrated at any one place. Also, thick blanket-like Shinarump conglomerate tends to have relatively uniform lithologies that do not provide good traps for ore deposits. To be really favorable for ore deposits the Shinarump should be relatively lenticular and even missing in part of the area (this tends to cause concentration of the ore-bearing solutions in the more permeable channelways) and should contain enough interbedded lenses of mudstone or siltstone in the sandstone or conglomerate to provide traps which will slow down or stop the ore-bearing solutions and facilitate precipitation of ore minerals (H. S. Johnson and Randall T. Chew, III, geologists, U. S. Geological Survey, personal communication.)

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In the light of our present knowledge and the exposures on the Jasper group, we are still of the opinion that the La Salle Mining Company, application for DMEA assistance on the Jasper group of claims, Coconino County, Arizona, should be denied.

J. William Hasler
J. William Hasler,
Geologist

FMB/mlr

cc: S. R. Wilson

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 12, UTAH

RECEIVED
MAR - 5 1956
DMEA
Date Rec'd.

FEB 23 1956
BUREAU OF MINES
Denver, Colorado

February 21, 1956

Memorandum

To: W. M. Traver, Executive Officer, DMEA Field Team, Region III

From: Stephen R. Wilson

Subject: Docket No. DMEA-3867 (Uranium), La Salle Mining Co., Jasper group, Coconino County, Arizona

Reference is made to your memorandum dated February 13, 1956, wherein you have requested additional comments concerning the field report on the subject docket. Your memorandum was accompanied by copies of a letter from the Chairman of the Operating Committee and memoranda from DMEA commodity geologists and engineers.

A memorandum dated February 17, 1956, prepared by J. William Hasler, contains comments pertinent to the subject. This office is in accord with Hasler's interpretation of the geologic conditions as noted in his memorandum, and recommends that the application for DMEA assistance be denied.

Stephen R. Wilson
Stephen R. Wilson

2-15-56 dgm

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

RECEIVED
FEB 15 1956

February 13, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: S. R. Wilson
J. W. Hasler

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA 3867 (Uranium), LaSalle Mining Company, Jasper Group, Coconino County, Arizona

Enclosed are the following:

1. Copy of a letter from the Chairman of the Operating Committee dated February 6, 1956

2. Memorandum of review of the Report of Examination by N. E. Nelson, USGS

3. Memorandum of review of the Report of Examination by J. E. Crawford, USBM

4. Memorandum of review of the Report of Examination by F. M. Murphy, DMEA Commodity Engineer.

Mr. Murphy does not concur in the denial of this application, but the Commodity Members concur in your recommendation that the application should be denied.

Will you please submit your further comments so that we may reply to the Chairman's letter.

W. M. TRAVER,

W. M. Traver

Enclosures
HMC:ab
cc: Chair. Op. Comm. (2)
Harshman
Docket 3867
Chron.

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

RECEIVED FEB 1 1956

February 13, 1956

124 New Customhouse
Denver 2, Colorado

Memorandum

To: S. R. Wilson
J. W. Hasler

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA 3867 (Uranium), LaSalle Mining Company, Jasper Group, Coconino County, Arizona

Enclosed are the following:

1. Copy of a letter from the Chairman of the Operating Committee dated February 6, 1956

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4. Memorandum of review of the Report of Examination by F. M. Murphy, DMEA Commodity Engineer.

Mr. Murphy does not concur in the denial of this application, but the Commodity Members concur in your recommendation that the application should be denied.

Will you please submit your further comments so that we may reply to the Chairman's letter.

W. M. TRAVER,

W. M. Traver

Enclosures
HMC:ab
cc: Chair. Op. Comm. (2)
Harshman
Docket 3867
Chron.

Surname copy 700

Murphy
Ellis
Martin
Kjerson
Whitehead

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

FEB - 6 1956

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

Re: Docket No. DMEA-3867 (Uranium)
La Salle Mining Company
Jasper Group
Coconino County, Arizona

Dear Mr. Traver:

Enclosed are copies of memoranda, dated January 24 and 27, and February 2, 1956, from N. E. Nelson, USGS, J. E. Crawford, USBM, and F. M. Murphy, DMEA, respectively.

You will note in these memoranda that the Geological Survey and Bureau of Mines commodity members concur in the Field Team's recommendation that the captioned application should be denied.

However, the DMEA commodity engineer does not concur in the denial recommended and outlines the reasons for his belief that a DMEA contract to explore the subject property appears to be warranted.

In view of the difference of opinion expressed in the above-mentioned memoranda, it is suggested that the Field Team submit their further comments on the subject.

ITS

Sincerely yours,

W. S. Martin
ACTING Chairman, Operating Committee (246)

Enclosures

APPROVED:

/s/ Robert W. Geehan (246)
Member, Bureau of Mines

Thor H. Kiilsgaard (246)
Member, Geological Survey

FMMurphy/gla
2-2-56
cc to: Admr.'s Reading File
Operating Committee
Docket
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
Code 700
Mr. Murphy

RCH

700

Murphy
Ellis

UNITED STATES
DEPARTMENT OF THE INTERIOR

DOCKET COPY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

February 2, 1956

Memorandum

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

From: F. M. Murphy, Mining Engineer
Rare and Miscellaneous Metals Division

Subject: Review of Field Team report
DMEA-3867 (Uranium)
LaSalle Mining Company
Jasper Group
Coconino County, Arizona

1. The field examiners' report states that limited areas of mineralized rock, or low grade ore, are exposed on the Jasper claims at or near the base of a deep Shinarump scour channel into the underlying Moenkopi.

Gamma-ray measurements made by the field examiners, near the eastern end of the channel exposed on Jasper No. 1 claim, indicated that 2 feet of the Shinarump contained an estimated eU_3O_8 content of 0.10 percent.

The above certainly shows that some mineralization does occur in the known channel.

2. The field examiners report that Universal Allied Uranium Corporation (DMEA-3532 - withdrawn because Applicant did not supply additional information) only found small ore bodies and minor mineralization when they drilled a similar blanket type deposit on their property. The property referred to in DMEA-3532 is about 10 miles northeast of the subject property. To our knowledge, these are the only two properties called to DMEA's attention in this area and it seems a stretch of the imagination to promulgate a rule, in this instance, for ore deposition on the basis of one distant deposit, especially as the data we have in Docket No. DMEA-3532 indicates that the cross channel drill-hole fences were spaced about 900 feet apart, with two holes in the intermediate area to locate the center of the channel. Probing of the holes indicated weak mineralization in most cases. However, eU_3O_8 up to 0.1 percent was recorded in a few holes. It is quite possible that by using this wide-spaced drilling ore bodies of fair size could be missed. I agree that the drill pattern used was the most practical one for the initial phase to explore the channel; however, I do not agree that a rule stating all similar blanket type deposits are unfavorable is the logical conclusion to be arrived at as a result of this wide-spaced drilling.

3. Data available concerning the subject property indicate that a well-defined channel was scoured into the Moenkopi formation to depths ranging from 45 to 70 feet. This Shinarump scour channel is covered with conglomerate ranging from 60 to 100 feet in thickness. Towards the edges of the channel the Shinarump ranges from 15 to 30 feet in depth. As mapped, the channel ranges from 600 to 900 feet in width.

Map Figure 3 of the Field Team's geological report by F. M. Byers, Jr., USGS, shows a 1 to 3-foot thick weakly mineralized zone.

The above-described structure and indications of mineralization are in my opinion sufficient to warrant some aid from DMEA in exploratory drilling. The average estimated depth of the drill holes, about 250 feet, will allow the channel to be explored at not too great a cost.

The facts noted by the field examiners in regard to the favorability of the conglomerate as a host rock are noted; however, the maps indicate the subject channel appears to be that of a meandering stream. It is possible that trap structures may exist at points not exposed, where ore bodies could form in such a stream. A deposit of this type may have been eroded on the channel bend east of Jasper Nos. 1 and 10 claims.

The Field Team may have more knowledge relating to unfavorable results obtained from drilling in the immediate area of the claims under discussion. However, the report of examination mentioned only the Universal Allied Uranium Corporation's drilling and that a small tonnage of ore was shipped from the Sun Valley Mine, 3 miles southwest of the Jasper group. The latter mine is reported to be in a comparatively thin "shoe-string" type of Shinarump channel.

Unless more specific data are available which would indicate that the proposed drilling to explore the subject property has no justification, I believe a DMEA contract is warranted. I recommend that the Field Team be requested to reconsider the subject application and submit their findings.

F M Murphy

F. M. Murphy

1/30/56 gla

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

RECEIVED
JAN 27 1956

January 27, 1956

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4445

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

Subject: Report of Examination, DMEA Docket 3867, La Salle Mining Company, Jasper group, Coconino County, Arizona

I have reviewed the report of examination of La Salle Mining Company, DMEA Docket 3867, dated January 13 and received in this office January 24. I have also discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

The La Salle Mining Company requested DMEA assistance in exploring for uranium on the Jasper group of claims near Marble Canyon, Utah, by drilling 56 holes, averaging about 250 feet per hole, at an estimated cost of $30,559.

An examination of subject claims made by DMEA personnel on November 9, 1955, revealed that only weakly mineralized uraniferous conglomerate and sandstone occur at or near the base of a thick channel scour of Shinarump conglomerate. No ore deposits of significant size and grade are known in thick Shinarump channel scours on the subject claims or in the surrounding area for a radius of 15 miles. The Field Team recommends denial of the application.

Because of the unfavorable geologic features reported by the field examiners, we concur in the recommendation that the application for exploration assistance be denied.

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

1-25-56

IN REPLY REFER TO:

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

RECEIVED
JAN 24 1956

January 24, 1956

Re: DMEA 3867
LaSalle Mining Company
Jasper Group
Coconino County, Arizona
$30,559.00 - 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 requested assistance in drilling (core and non-core) undercover end sections of an arcuate channel scour cut in the Moenkopi formation and filled in large part with Shinarump conglomerate.

As mapped the channel is from 600 to 900 feet wide and it is fairly defined for over 7,000 feet. For 6,000 feet the Shinarump cover has been removed, but at both ends of the arc the channel with its filling goes under cover. At the northerly end where it disappears the channel, as mapped, is 900 feet wide and at the easterly end it is 600 feet wide. Along the irregular rims the outcrop is 1,300 feet long at the north rim, 1,800 feet long at the easterly end, and 1,100 feet is exposed around the "peninsula" on the Jasper No. 1 claim.

No breaks or 'windows' in the channel fill are indicated at any point in the 7,000-foot length of channel but we are told that the few spots showing "Weak uranium mineralization . . . at or near the base of a well defined, deep Shinarump channel scour into the underlying Moenkopi.", and infer the bottom of the scour and the fill are exposed in places.

The channel fill consists of a blanket-type Shinarump conglomerate and clean sand mass that reaches a maximum thickness of about 100 feet. Mudstone partings are lacking, carbonaceous trash is sparse and the fossil wood is commonly silicified rather than carbonized. Hence, the examiners conclude, "no favorable trap for ore apparently exists in these thick Shinarump channel scours like the one on the Jasper and the possibilities of discovering ore bodies of significant size are believed remote."

Despite the long exposure of channel fill, the applicant and the examiners found but one attention taking sign of radioactivity. The examiners decided that, on balance, the parts of the channel that are covered and which the applicant proposed to drill promise no more than the exposed parts and recommend denial of the application.

I concur with the recommendation.

N. E. Nelson

N. E. Nelson

IN REPLY REFER TO:

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

RECEIVED
JAN 24 1956

January 24, 1956

Re: DMEA 3867
LaSalle Mining Company
Jasper Group
Coconino County, Arizona
$30,559.00 - Uranium

Memorandum

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

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

Subject: Review of Field Team report.

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No breaks or 'windows' in the channel fill are indicated at any point in the 7,000-foot length of channel but we are told that the few spots showing "weak uranium mineralization . . . at or near the base of a well defined, deep Shinarump channel scour into the underlying Moenkopi.", and infer the bottom of the scour and the fill are exposed in places.

The channel fill consists of a blanket-type Shinarump conglomerate and clean sand wash that reaches a maximum thickness of about 100 feet. Mudstone partings are lacking, carbonaceous trash is sparse and the fossil wood is commonly silicified rather than carbonized. Hence, the examiners conclude, "no favorable trap for ore apparently exists in these thick Shinarump channel scours like the one on the Jasper and the possibilities of discovering ore bodies of significant size are believed remote."

Despite the long exposure of channel fill, the applicant and the examiners found but one attention taking sign of radioactivity. The examiners decided that, on balance, the parts of the channel that are covered and which the applicant proposed to drill promise no more than the exposed parts and recommend denial of the application.

I concur with the recommendation.

N. E. Nelson

N. E. Nelson

NENelson:fal
G-1/24/56

cc: Director's reading, 4212
Branch reading, 4212
DMEA (3)✓
Docket file
J. E. Crawford, 3641
J. O. Hosted, 3210

1-23-56

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

RECEIVED
JAN 19 1956

January 13, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Report of Examination, Docket DMEA 3867 (Uranium), La Salle Mining Company, Jasper group, Coconino County, Arizona

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

The field examiners found that the mineralization was weak in the rim exposures on the property, and they concur that the proposed exploration would not disclose deposits of uranium ore of commercial significance. They recommend that the application be denied, and we concur in this recommendation.

DMEA Field Team, Region III

W. M. Traver

W. M. Traver

E. N. Harshman

E. N. Harshman

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
1-23-56
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 12, UTAH

DMEA
Date Rec'd.
JAN 13 1956
BUREAU OF MINES
Denver, Colorado

JAN 19 1956

TRANSMITTED
JAN 13 1956

January 11, 1956

Memorandum

To: W. M. Traver, Executive Officer, DMEA Field Team, Region III

From: Stephen R. Wilson

Subject: Docket No. DMEA-3867 (Uranium), La Salle Mining Co., Jasper group, Coconino County, Arizona

Attached are eleven copies of an engineering report pertaining to the examination of the subject property. Also included are copies of a separate section, Summary, Conclusions and Recommendations, and a copy of the brochure. The examination was made by M. H. Howes to appraise a request for DMEA assistance in exploration.

The Jasper group includes 11 unpatented lode mining claims. The applicant has requested a loan of $30,559 to drill 56 diamond drill holes totaling 14,040 feet. It is proposed that the drilling will explore a well-defined scour in the Shinarump conglomerate. Rim exposures on the property indicate that mineralization is weak, and it is believed that the proposed exploration will not disclose deposits of commercial significance. The examining engineer recommends that the applicant's request be denied, and I concur in this recommendation.

The Jasper claims were discussed with Harlan Holen of the Atomic Energy Commission.

Stephen R. Wilson
Stephen R. Wilson

Enclosure

cc: J. B. Clemmer

Reviewed by
DMEA OPERATING COMMITTEE
1-23-56
(Date)

RECEIVED
JAN 19 1956
DMEA
Date Rec'd.
JAN 13 1956
BUREAU OF MINES
Denver, Colorado

LA SALLE MINING CO.
COCONINO COUNTY, ARIZONA
DMEA-3867
Uranium

TRANSMITTED
JAN 13 1956

Engineering Report

By M. H. Howes
Mining Engineer
Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE
1-23-56
(date)

RECEIVED
JAN 19 1956

LA SALLE MINING CO.
COCONINO COUNTY, ARIZONA

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ILLUSTRATIONS

Fig. 1 Location map, La Salle Mining Co., Coconino County, Arizona
Fig. 2 Claim map, showing geology, proposed drill holes, and access roads

INTRODUCTION

An application, dated June 10, 1955, was submitted by La Salle Mining Co. for Government aid in an exploratory project under docket No. DMEA-3867. The proposed program consists of 56 drill holes totaling 14,040 feet at an estimated cost of $30,559. The purpose of the drilling is to explore for uranium ores in the Triassic Shinarump conglomerate within the well-defined stream channel which occurs on the property.

A field examination of the property was made November 9, 1955, by Frank M. Byers, Jr., Geological Survey, and M. H. Howes, Bureau of Mines, for the purpose of determining the feasibility of the proposed exploration and for appraisal of the estimated costs and engineering aspects of the job. The field examiners were accompanied to the property by G. T. Rummel, partner in La Salle Mining Co. The possibilities for discovery of uranium ore deposits on the Jasper group of claims was discussed with Harlan Holen, AEC geologist, Kanab, Utah.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

The property is located on benches immediately south of the Vermilion Cliffs, about 10 miles west of the Navajo bridge in Coconino County, Arizona. The claims lie in Secs. 21, 27, and 28, T. 39 N., R. 6 E., G. and S.R.B. and M.

The property may be reached by traveling 0.9 mile westerly from Art Greene's Cliff Dweller's Lodge on U. S. Highway 89 and thence 5½ miles northerly and easterly on a steep, dirt, access road to the claims.

Vegetation is scarce and is comprised for the most part of desert plants. The climate is arid. Summers are hot and dry and winters are mild with snows rarely accumulating.

HISTORY AND PRODUCTION

The Jasper claims were located in 1953 and 1954. An access road to proposed drill sites on the property was constructed during May and June 1954 as part of the necessary assessment work for the year ending July 1, 1954. In addition to road building an unsuccessful attempt to explore the claims was made by wagon drilling, which was ineffective in penetrating the Shinarump conglomerate.

No production has been made from the property.

OWNERSHIP AND EXTENT

La Salle Mining Co., P. O. Box 217, Grand Junction, Colorado, is a partnership composed of:

G. T. Rummel, Grand Junction, Colorado
M. P. Rowe, Grand Junction, Colorado
M. M. Harden, Albuquerque, New Mexico
Roy M. Eidal, Albuquerque, New Mexico

Jasper Nos. 1 through 9, lode mining claims, were located by Phillip H. McCary, Jr., for Dolores Exploration Co. Phillip H. McCary, Jr., sole owner of Dolores Exploration Co., transferred the claims to La Salle Mining Co. by quit-claim deed dated June 18, 1953.

Jasper Nos. 10 and 11, lode mining claims, were located for La Salle Mining Co. by I. W. Andrews, Jr.

The above described unpatented lode mining claims (fig. 2), are recorded in the books of the County Recorder of Coconino County at Flagstagg, Arizona, as follows:

Name of Claim	Date of Location	Date of Recording	Book No.	Page No.	Date, Affidavit of Labor, 1954	Book No.	Page No.
Jasper No. 1	4/12/53	5/5/53	41	409	7/7/54	54	449
" " 2	4/21/53	"	"	410	"	"	"
" " 3	5/10/53	5/19/53	42	37	"	"	"
" " 4	"	"	"	38	"	"	"
" " 5	"	"	"	39	"	"	"
" " 6	"	"	"	40	"	"	"
" " 7	"	"	"	41	"	"	"
" " 8	"	"	"	42	"	"	"
" " 9	"	"	"	43	"	"	"
" " 10	3/24/54	4/14/54	50	533	"	"	"
" " 11	"	"	"	534	"	"	"

GENERAL GEOLOGY

Rocks outcropping in the vicinity of the Jasper claims consist of Shinarump conglomerate overlying Moenkopi formation and overlain by Chinle formation, all of Triassic age. The Shinarump conglomerate is composed mainly of fairly clean, fine- to coarse-grained sandstone. A well-defined stream channel, cutting the Moenkopi formation and filled with Shinarump conglomerate, is exposed along the rim in several places on the property (fig. 2). Uranium mineralization on the Jasper group of claims is generally weak, and appears to be confined to the Shinarump conglomerate at or near the Moenkopi contact and within the stream channel. Copper minerals are commonly associated with the uranium mineralization.

MINABLE ORE RESERVES

There are no known minable ore reserves on the property.

PRESENT STATUS

Access roads have been constructed to most of the claims of the group.

Several shallow wagon drill holes were driven into the Shinarump conglomerate. A few test pits have been excavated at mineralized spots on the property.

PROJECT PROPOSALS

The applicant proposes to map, by plane table methods, the Shinarump conglomerate-Moenkopi formation contact.

The applicant further proposes to drill 56 holes (fig. 2) totaling 14,040 feet, to explore the Shinarump conglomerate for uranium ores. The holes will vary in depth from 120 to 400 feet, with an average depth of approximately 251 feet. It is planned to noncore drill each hole an average of 225 feet and core drill each hole an average of 26 feet. Core drilling will be started at first signs of mineralization or within approximately 25 feet of the Shinarump-Moenkopi contact, and will be continued through the Shinarump-Moenkopi contact into the Moenkopi.

Access roads will be constructed to drill sites wherever necessary.

ESTIMATED COSTS OF PROJECT PROPOSALS

Independent Contracts

Drilling (56 holes)	
Noncore - 12,600 feet at $1.50 per foot --------	$18,900.00
Core - 1440 feet at $2.50 per foot ----------	3,600.00
Access roads	
Bulldozing - 120 hours at $12 per hour ---------	1,440.00
Total cost independent contracts ----------	$23,940.00

Supervision and Technical Services

Geologist - 3 months at $500 per month --------	$1,500.00	
Surveyor - 3 months at $400 per month ---------	1,200.00	
Rodman - 3 months at $350 per month ----------	1,050.00	
Total cost supervision, etc. ----------		$3,750.00

Operating Materials and Supplies

Miscellaneous surveying and drafting supplies ----------		$ 100.00

Operating Equipment

Rentals		
Plane table equipment - 3 months ---------- at $50 per month	$ 150.00	
Jeep Universal (including gasoline, oil and - repairs) - 3 months at $200 per month	600.00	
Total rentals ----------		$ 750.00

Miscellaneous

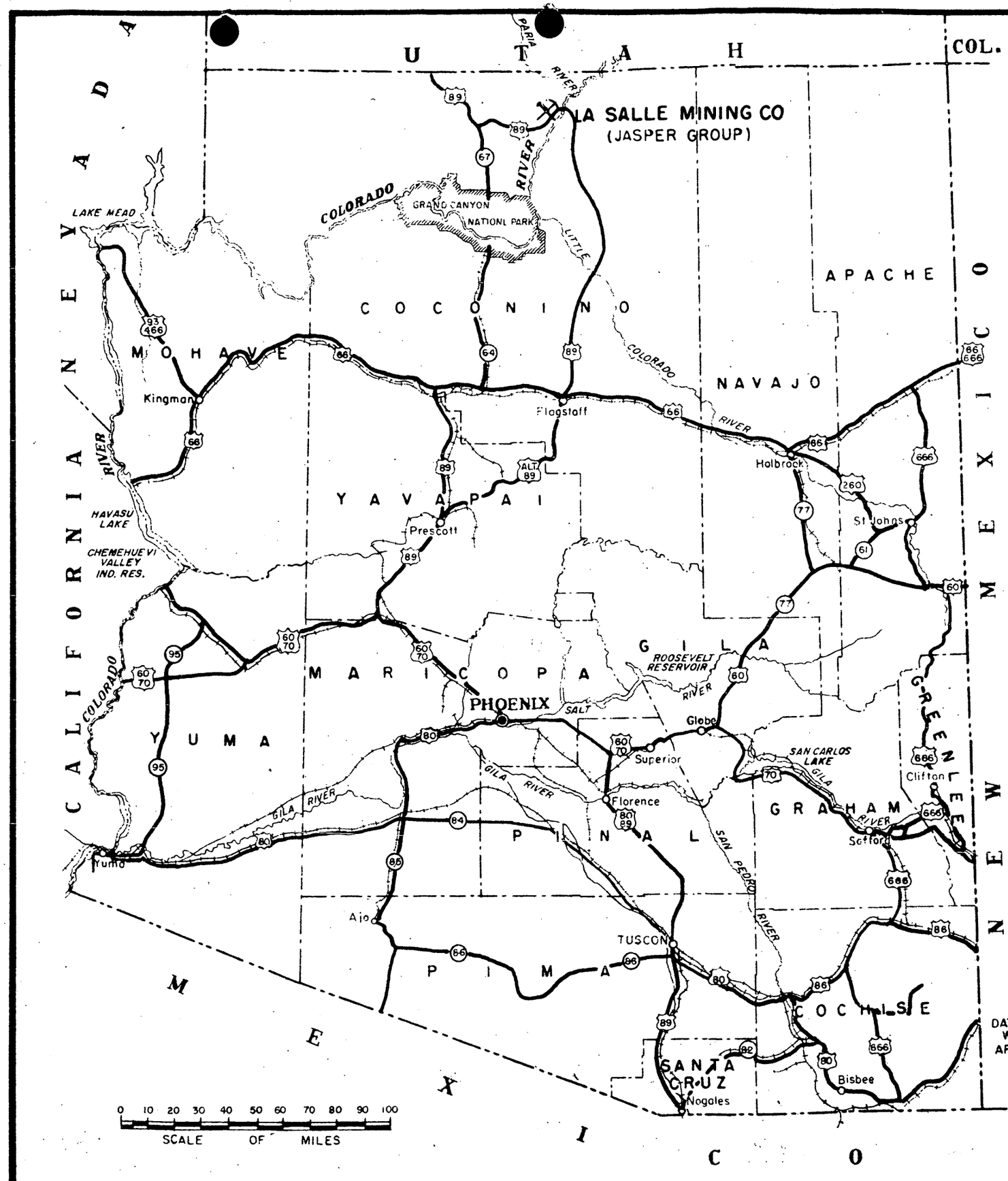
Assays - 50 at $3 each ----------	$ 150.00	
Accounting - 3 months at $50 per month --------	150.00	
Subsistence - 3 men at $8 per day each -------- for 66 days	1,584.00	
Payroll tax and compensation insurance -------- 3 men at $15 per month each for 3 months	135.00	
Total miscellaneous ----------		$ 2,019.00
Total estimated cost of project ----------		$30,559.00
Government participation at 75 percent ----------		$22,919.25

PROPOSED FINANCING

The applicant reports that he plans to invest $7,639.75 in the proposed exploratory project, which is 25 percent of the estimated cost of $30,559.00, in accordance with the regulations on Government participation, as stated in Section 7, DMEA Order No. 1 Amended.

CONCLUSIONS AND RECOMMENDATIONS

The proposed drilling project appears to be well planned to encounter and define the stream channel back of the rim. The applicant's estimated costs are considered to be fair and reasonable. However, since the stream channel and the Shinarump conglomerate filling are exposed over a considerable overall distance along the rim, with only a few small areas of weak uranium mineralization, it is believed unlikely that commercial ore bodies will be found in the stream channel beyond the rim on the Jasper claims. Therefore, it is recommended that the application for Government aid be denied.



NOTE

DATA TRACED FROM HAMMOND'S LIBRARY WORLD ATLAS. ROADS PLOTTED FROM ARIZONA TOURING MAP OF STANDARD OIL COMPANY OF CALIFORNIA, 1950.

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Fig. 1 DMEA Docket No. 3867
Location Map
STATE OF ARIZONA
LA SALLE MINING CO.
(JASPER GROUP)
COCONINO COUNTY

ENGINEER: M. H. HOWES	DATE: DEC. 23, 1955
DRAWN: DEC., 1955; A.P.T.S.	1900-368-F
CHECKED:	

DMEA
Date Rec'd.
JAN 13 1956
BUREAU OF MINES
Denver, Colorado
RECEIVED
JAN 19 1956
TRANSMITTED
JAN 12 1956

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By F. M. Byers, Jr. and M. H. Howes

La Salle Mining Co., Grand Junction, Colorado, has submitted an application, dated June 10, 1955, for Government aid in a uranium exploratory project, under docket No. DMEA-3867. It is proposed to map, by plane table methods, the Shinarump-Moenkopi contact, and to explore for uranium ores in the Triassic Shinarump conglomerate within a well-defined channel scour. The proposed exploratory work consists of 14,040 feet of diamond drilling in 56 holes. An examination was made November 9, 1955, by F. M. Byers, Jr., Geological Survey, and M. H. Howes, Bureau of Mines, to determine the feasibility of the proposed exploration and to appraise the estimated costs and the engineering aspects of the job.

The property, composed of 11 unpatented lode mining claims, called the Jasper group, is located near the base of the Vermilion Cliffs about 10 miles west of Navajo bridge, Coconino County, Arizona.

Rocks outcropping on the claims in ascending order consist of the upper part of the Moenkopi formation, the Shinarump conglomerate, and the lower 300 feet of the Chinle formation, all of Triassic age. Weak uranium mineralization is exposed in limited areas at or near the base of a well-defined, deep Shinarump channel scour into the underlying Moenkopi. The possibilities of discovering ore bodies of significant size and grade are believed to be remote, because the Shinarump channel scour is filled with

Reviewed by
DMEA OPERATING COMMITTEE
1-23-56
(date)

clean sandstone and conglomerate, mudstone partings are lacking, carbonaceous trash is sparse, and fossil wood is commonly silicified rather than carbonized.

It is therefore recommended that the application for Government aid be denied.

MINERAL DEPOSITS
DMEA
RECEIVED
DEC 19 1955
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

DMEA
Date Rec'd
DEC 19 1955
BUREAU OF MINES
Denver, Colorado

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

RECEIVED
JAN 19 1956

December 14, 1955

Memorandum

TRANSMITTED
JAN 13 1956

To: E. N. Harshman, DMEA Field Team, Region III

From: J. William Hasler

Subject: DMEA 3867 (Uranium), La Salle Mining Company, Jasper group of claims, Coconino County, Arizona

Transmitted herewith is a geologic report on the Jasper group of claims, Coconino County, Arizona, by Frank M. Byers, Jr., U. S. Geological Survey.

The La Salle Mining Company of Grand Junction, Colorado, applied for DMEA assistance to explore for uranium on the Jasper group of claims in Coconino County, Arizona. The application was referred to the field and an examination was made November 9, 1955, by Frank M. Byers, Jr., of the Geological Survey, and M. H. Howes, engineer of the U. S. Bureau of Mines. Mr. G. T. Rummel, a partner of La Salle Mining Company, accompanied the examining team. The Atomic Energy Commission was contacted regarding the evaluation of the property.

The claims are located in sections 21, 22, 27, and 28, T. 39 N., R. 6 E., on the Jila and Salt River Meridian, Coconino County, Arizona. The claims are north of U. S. Highway 89, about 10 miles west of Navajo Bridge where Highway 89 crosses Marble Canyon on the Colorado River. The Jasper group of claims are near the base of the Vermilion Cliffs which flank the Marble Canyon area in northernmost Arizona. The claims are

Reviewed by
DMEA OPERATING COMMITTEE
1-26-56
(date)

underlain by the upper part of the Triassic Moenkopi formation, the Triassic Shinarump conglomerate and the lower 300 feet of the Chinle formation.

Only limited areas of mineralized rock, or low-grade ore, are exposed on the claims at or near the base of the deep Shinarump channel. A small tonnage of ore has been shipped from the Sun Valley mine, three miles southwest of the Jasper group, but this mine is in a thin "shoe-string" type of Shinarump channel. The Jasper claims, however, are in a large blanket-type of Shinarump conglomerate mass that locally scours into the underlying Moenkopi. The large Shinarump channel on the subject group of claims are filled with rather clean sand and conglomerate. The mudstone partings are lacking and carbonaceous trash is sparse. The fossil wood within the channel is silicified rather than carbonized; hence, no favorable trap for ore appears to exist in these thick Shinarump scours as is found on the subject group of claims.

Because of the unfavorability on the Jasper group of claims with regard to possible occurrence of uranium ore bodies, it is recommended the application for DMEA assistance be denied. I concur with the recommendations of the examining team.

Enclosed are the required number of maps, as well as the applicant's brochure.

J. William Hasler

J. William Hasler,
Geologist.

JWH/mlr
Enclosures

RECEIVED
JAN 19 1956

UNITED STATES DEPARTMENT OF THE INTERIOR

DOUGLAS McKAY, SECRETARY

TRANSMITTED

JAN 1 ? 1956

DEFENSE MINERALS EXPLORATION ADMINISTRATION
REPORT OF EXAMINING TEAM
REGION III

DMEA 3867, La Salle Mining Company, Jasper group of claims
Coconino County, Arizona

Uranium

Geologic Report

by

F. M. Byers, Jr.,
U. S. Geological Survey

November 1955

Reviewed by
DMEA OPERATING COMMITTEE
1-23-56
(date)

INTRODUCTION AND SUMMARY

La Salle Mining Company, of Grand Junction, Colorado, has applied for DMEA assistance to explore for uranium by drilling, the total cost of which is estimated at $30,599.00. The company has proposed 56 drill holes comprising 14,040 feet of core and non-core drilling on the Jasper group of claims in sections 21, 22, 27, and 28, T. 39 N., R. 6 E., Gila and Salt River Meridians, Coconino County, Arizona.

The Jasper claims are just north of U. S. Highway 89 (fig. 1), about 10 miles southwest of Navajo Bridge, where Highway 89 crosses Marble Canyon of the Colorado River. The claims are about 72 miles via Highway 89 from Kanab, Utah. The nearest railroad terminal of any size is Flagstaff, Arizona, about 130 miles southerly via U. S. Highways 89 and 66. A jeep or drill road to the claims leaves Highway 89 about 0.9 mile southwest of the Cliff Dweller's Lodge (fig. 2) and continues 5 1/2 miles to the westernmost Jasper claims on the east side of Soap Creek (fig. 2). The drill road winds around the Shinarump bench for 1 1/2 miles farther southeast to the westernmost claims.

The eleven claims of the Jasper group are shown on figure 2. Jasper No. 1, from which the ore samples were taken by the applicant, is in conflict with the Uranium King No. 1, located on April 19, 1954, by Paul De Ross, Cameron, Arizona, but no drilling is proposed on this claim. The Jasper claims were examined on November 9, 1955, by the DMEA field team consisting of F. M. Byers, Jr., of the U. S. Geological Survey, and M. H. Howes of the U. S. Bureau of Mines. Mr. G. T. Rummel, one of the partners of the La Salle Mining Company, accompanied the examining team. Harlen K. Holen, of the U. S. Atomic Energy Commission, and H. S. Johnson of the U. S. Geological Survey, were consulted in evaluating the property.

Limited areas of mineralized rock, or low-grade ore, are exposed on the Jasper claims at or near the base of a deep Shinarump channel scour into the underlying Moenkopi. A small tonnage of ore has been shipped from the Sun Valley Mine, 3 miles airline southwest of the Jasper group,but this mine is in a comparatively thin "shoe-string" type of Shinarump channel that does not exceed 20 feet in thickness and pinches out completely on each side within a few hundred feet. The Jasper claims, however,are in a large, blanket-type Shinarump conglomerate mass that locally scours into the underlying Moenkopi and reaches a maximum thickness of about 100 feet. This type of Shinarump mass commonly extends for several miles along the outcrop at the base of the Vermilion Cliffs in the area around Marble Canyon, but eventually pinches out some miles from the deepest (thickest) channel scour. Universal Allied Uranium Corporation, which applied for a DMEA loan (Docket 3532), drilled such a Shinarump channel scour on the El Pequito and Fehfu claims, just east of the Colorado River near Lee's Ferry (fig. 1), and found no ore bodies larger than 100 tons, though a few holes are reported to have penetrated low-grade ore. Furthermore, these large Shinarump channel scours are filled with clean sand and conglomerate. Mudstone partings are lacking and carbonaceous trash is sparse; the fossil wood is commonly silicified rather than carbonized. Hence, no favorable trap for ore apparently exists in these thick Shinarump channel scours like the one on the Jasper and the possibilities of discovering ore bodies of significant size are believed remote.

Because of the geologic unfavorability on the Jasper group with regard to possible occurrences of uranium ore bodies, it is recommended that the application of the La Salle Mining Company for DMEA assistance under docket 3867 be denied.

GEOLOGY

The Jasper group of claims are near the base of the Vermilion Cliffs, which fringe the Marble Canyon area in northernmost Arizona (fig. 1). Marble Canyon is incised into the Permian Kaibab limestone and the lower part of the Triassic Moenkopi formation. The low benches within a mile or two of the Vermilion Cliffs consist of the upper part of the Moenkopi formation, discontinuous Triassic Shinarump conglomerate, which locally forms prominent benches and spurs, and the Triassic Chinle formation, which is several hundred feet thick. The Vermilion Cliffs are composed of about 400 feet of dark red Triassic Moehave and Kayenta formations in the lower part and about 1,000 feet of yellowish- to orange-red Jurassic Navajo sandstone in the upperpart. The Moehave formation looks like and occupies the same stratigraphic position as the Wingate sandstone, but, according to Harshbarger et al (1955, p. 1-4), the true Wingate underlies the Moenave and pinches out westward many miles east of Lee's Ferry on the Colorado River. The regional dip is about 2 degrees northward.

The applicant's Jasper claims are underlain in ascending order by the upper part of the Triassic Moenkopi formation, the Triassic Shinarump conglomerate, and the lower 300 feet of the Chinle formation (fig. 2). The Jasper group does not extend to the upper Triassic Moenave sandstone exposed in the Vermilion cliffs. Most of the drill holes proposed by the applicant would penetrate 150 feet of Chinle formation, or less.

The maximum thickness of the Shinarump conglomerate along the trend of the channel scour ranges from about 60 to 100 feet. Toward the edges of the channel on and adjacent to the Jasper claims, the Shinarump ranges from 15 to 30 feet in thickness. The degree of channel

scour into the underlying Moenkopi formation ranges from 45 to 70 feet along the channel, which is well exposed at several places (fig. 2). The Shinarump conglomerate is composed of clean intertonguing sandstone and pebble conglomerate. Siltstone and mudstone beds were not observed at any of the several exposures examined.

ORE DEPOSITS

Two open cuts, from which three samples were taken by the applicant, expose weakly mineralized, copper carbonate-stained conglomerate not more than 2 feet in thickness at the base of the Shinarump conglomerate. At the open cut from which samples 1 and 2 were taken (fig. 2) the basal foot of the Shinarump conglomerate is stained slightly with limonite and copper carbonates for about 10 feet along the exposure. The gamma-ray count is 3 to 4 times background, equivalent to about .05% of eU_3O_8. This cut is also the discovery of the Uranium King No. 1 claim, which conflicts with Jasper No. 1.

At the open cut from which the high grade sample No. 3 was taken, (fig. 2), the following section and gamma-ray measurements were observed:

Maximum thickness (feet)	Formation	Lithology	Gamma-ray count above background	Estimated eU_3O_8
1.0+	Shinarump	conglomerate	normal	barren
2.0	Shinarump	conglomerate, limonite-stained	$1\frac{1}{2}$ X	barren
2.0	Shinarump	conglomerate, malachite-stained	6 X	0.10 X
1.0	Moenkopi	siltstone, yellowish brown	3 X	0.05
0.5+ (Base)	Moenkopi	as above	$1\frac{1}{2}$ X	barren

The above thicknesses decrease along the strike of the exposure; within 10 feet of the maximum thickness of the mineralized conglomerate, no radiometric count above background was observed on the Geiger counter. Mr. G. T. Rummel reports that the high-grade sample from this cut was taken from a mineralized log, which has since been completely removed.

Analyses of samples 1 to 3 (see fig. 2), as taken from the applicant's brochure, are tabulated below:

Sample	U_3O_8	Cu	V_2O_5	$CaCO_3$
Mine cut #1	0.11	----	-----	----
Mine cut #2	0.14	----	-----	----
Highgrade #3	4.45	7.89	0.02	trace

A weakly mineralized zone, 1 to 3 feet in thickness, was found near the base of the Shinarump conglomerate cliff on the south end of Jasper Nos. 3 and 4 claims, (fig. 3). This zone was traced at intervals for about 200 feet along the outcrop and occurs on the eastern flank of the channel scour. The mineralized zone is composed of yellowish gray medium to coarse sandstone with sparse carbon flakes. Gamma-ray count is 2 to 5 times background, suggesting an eU_3O_8 content ranging from about 0.01 to possibly as much as 0.10 percent. The lateral limits of the mineralized zone were not reached.

Three miles to the southwest, the Sun Valley Mine on the Jaybird and Sun Valley claim groups has produced 31.2 tons of uranium ore ranging from 0.18 to 0.35 percent of U_3O_8, according to G. C. ("Abe") Bonham, owner of the claims. The reserves on these claims are based on private drilling and are tabulated below (after Harlen K. Holen, AEC geologist, Kanab, Utah).

	Tons	$\%U_3O_8$
Indicated ore	854	0.48
Inferred ore	655	0.26

The Sun Valley ore body occurs in a "shoestring" Shinarump channel, which is less than 20 feet thick and pinches out laterally about 400 feet on either side of the thickest part of the exposed lenticular cross-section. The Shinarump sandstone matrix and contained mudstone galls are light gray and the top of the underlying Moenkopi formation is mineralized and greenish gray for a thickness of at least one foot. The smaller size of the channel, presence of mudstone, and greenish gray alteration contrast with the yellowish grays observed in the mineralized Shinarump conglomerate and the Moenkopi formation on the applicant's claims.

Universal Allied Uranium Corporation explored a large blanket-type Shinarump channel scour just east of Lee's Ferry after applying for a DMEA loan (Docket 3532). According to H. S. Johnson, who made a field examination, the corporation failed to submit further information on the results of their drilling, but he later learned that their drilling program was unsuccessful in finding ore bodies of significant size and grade to mine.

CONCLUSIONS AND RECOMMENDATIONS

The La Salle Mining Company has applied for DMEA assistance to drill 56 holes, averaging about 250 feet per hole, on the Jasper group of claims near Marble Canyon, Utah. Only weakly mineralized uraniferous conglomerate and sandstone occur at or near the base of a thick channel scour of Shinarump conglomerate; no ore deposits of significant size and grade are known in thick Shinarump channel scours on the applicant's claims or in the surrounding area for a radius of 15 miles. The only commercial uranium deposit is in a thin "shoestring" Shinarump channel of limited extent, three miles southwest of the Jasper claims. Therefore, it is recommended that the request of the La Salle Mining Company for DMEA assistance under docket 3867 be denied.

REFERENCES CITED

Harshbarger, Repenning, and Irwin, April 1955, "Stratigraphy of the uppermost Triassic, and Jurassic rocks of the Navajo County," U. S. Geol. Survey open file report, 20 pp.

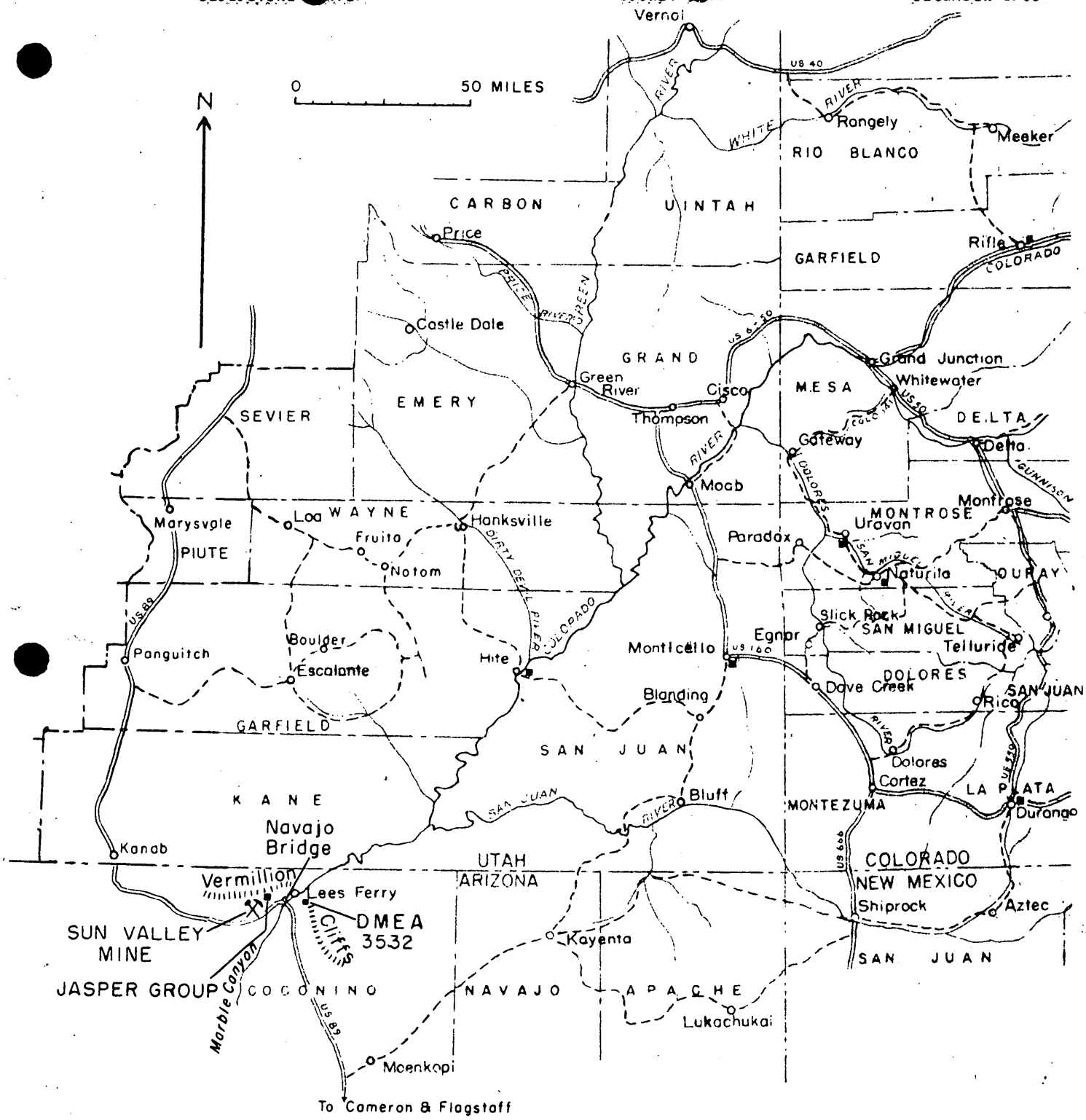
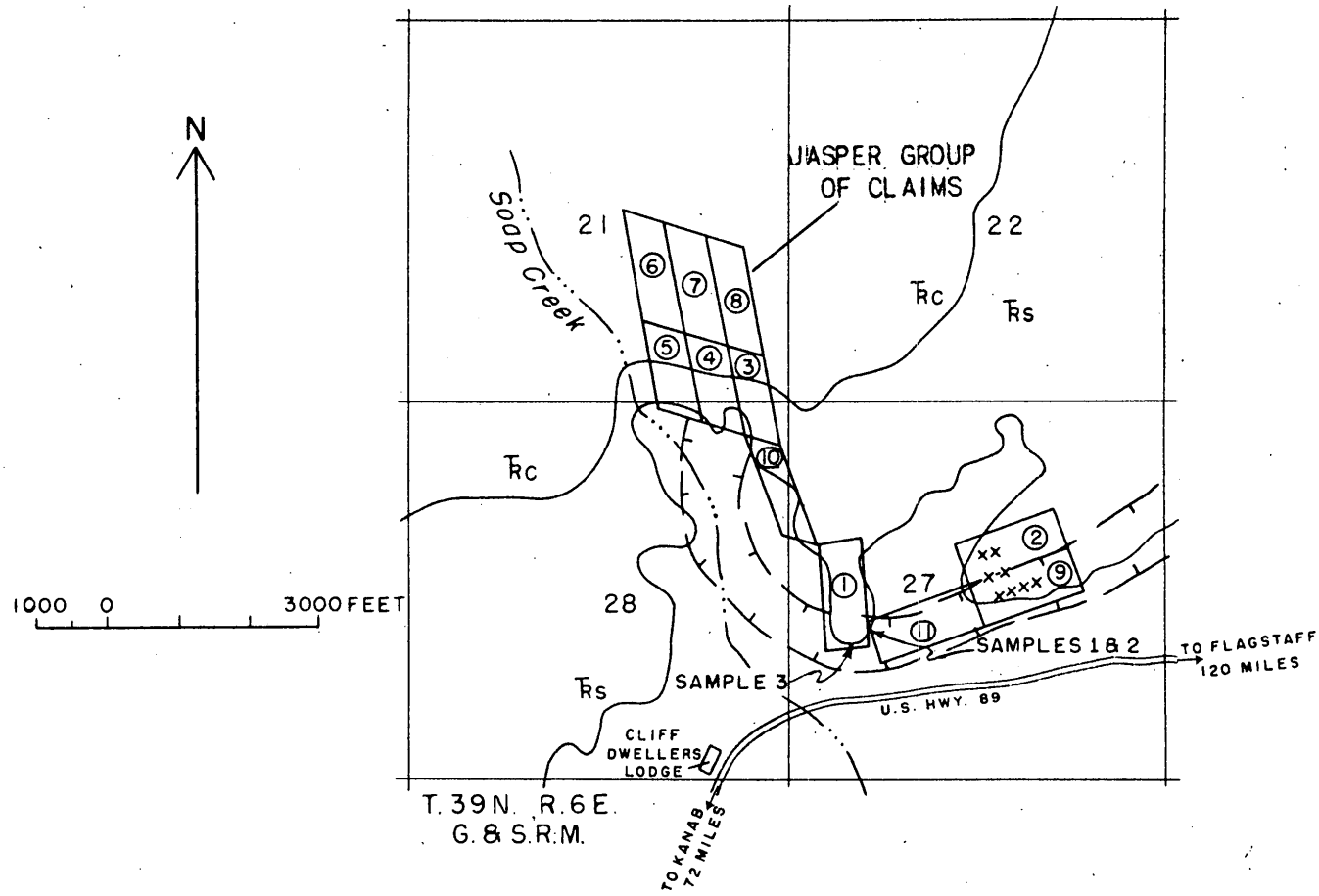


FIGURE 1. INDEX MAP OF THE COLORADO PLATEAU REGION, SHOWING LOCATION OF JASPER GROUP OF CLAIMS, LA SALLE MINING COMPANY, COCONINO COUNTY, ARIZ.



EXPLANATION

TRc	TRIASSIC CHINLE FORMATION
TRs	TRIASSIC SHINARUMP CONGLOMERATE
	CHANNEL BOUNDARIES
x	PROPOSED DRILL HOLE

Note: GEOLOGY, LAND LINES, CLAIM BOUNDARIES AND LOCATIONS OF PROPOSED DRILL HOLES FROM APPLICANTS MAP.

FIGURE 2. GEOLOGIC MAP SHOWING INFERRED CHANNEL AND PROPOSED DRILLING ON JASPER NO. 2 AND NO. 9 CLAIMS, JASPER GROUP OF CLAIMS, LA SALLE MINING COMPANY, COCONINO COUNTY, ARIZONA.

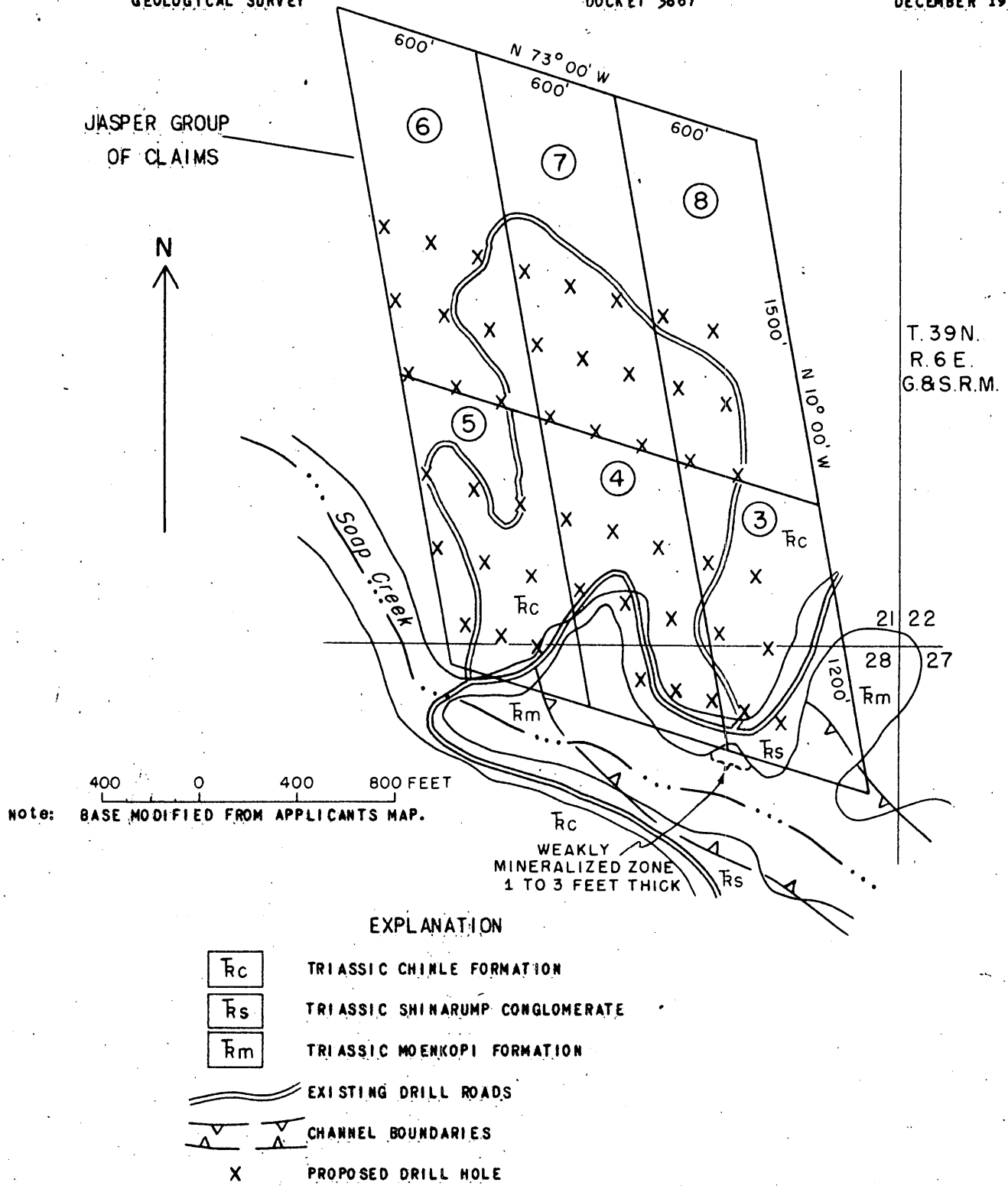


FIGURE 3. MAP OF JASPER CLAIMS NOS. 3 TO 8 SHOWING LOCATION OF PROPOSED DRILL HOLES, LA SALLE MINING COMPANY, COCONINO COUNTY, ARIZONA.

1-19-56 dgm

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

January 13, 1956

224 New Customhouse
Denver 2, Colorado

RECEIVED
JAN 19 1956

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Report of Examination, Docket DMEA 3867 (Uranium), La Salle Mining Company, Jasper group, Coconino County, Arizona

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

The field examiners found that the mineralization was weak in the rim exposures on the property, and they concur that the proposed exploration would not disclose deposits of uranium ore of commercial significance. They recommend that the application be denied, and we concur in this recommendation.

DMEA Field Team, Region III

W. M. Traver

W. M. Traver

E. N. Harshman

E. N. Harshman

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE

1-23-56
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 12, UTAH

DMEA
Date Rec'd
JAN 13 1956
BUREAU OF MINES
Denver, Colorado

RECEIVED JAN 19 1956

TRANSMITTED
JAN 13 1956

January 11, 1956

Memorandum

To: W. M. Truver, Executive Officer, DMEA Field Team, Region III

From: Stephen R. Wilson

Subject: Docket No. DMEA-3867 (Uranium), La Salle Mining Co., Jasper group, Coconino County, Arizona

Attached are eleven copies of an engineering report pertaining to the examination of the subject property. Also included are copies of a separate section, Summary, Conclusions and Recommendations, and a copy of the brochure. The examination was made by M. H. Howes to appraise a request for DMEA assistance in exploration.

The Jasper group includes 11 unpatented lode mining claims. The applicant has requested a loan of $30,559 to drill 56 diamond drill holes totaling 14,040 feet. It is proposed that the drilling will explore a well-defined scour in the Shinarump conglomerate. Rim exposures on the property indicate that mineralization is weak, and it is believed that the proposed exploration will not disclose deposits of commercial significance. The examining engineer recommends that the applicant's request be denied, and I concur in this recommendation.

The Jasper claims were discussed with Marlan Nolen of the Atomic Energy Commission.

Stephen R. Wilson
Stephen R. Wilson

Enclosure

cc: J. B. Clemmer

Reviewed by
DMEA OPERATING COMMITTEE
1-23-56
(date)

RECEIVED
JAN 19 1956

LA SALLE MINING CO.
COCONINO COUNTY, ARIZONA
DMEA-3867
Uranium

TRANSMITTED
JAN 13 1956

Engineering Report

By M. H. Bowen
Mining Engineer
Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE
1-23-56

RECEIVED
JAN 19 1955

LA SALLE MINING CO.
COCONINO COUNTY, ARIZONA

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Estimated costs of project proposals	5
Proposed financing	6
Conclusions and recommendations	7

ILLUSTRATIONS

Fig. 1 Location map, La Salle Mining Co., Coconino County, Arizona
Fig. 2 Claim map, showing geology, proposed drill holes, and access roads

INTRODUCTION

An application, dated June 10, 1955, was submitted by La Salle Mining Co. for Government aid in an exploratory project under docket No. DMA-3867. The proposed program consists of 56 drill holes totaling 14,040 feet at an estimated cost of $30,559. The purpose of the drilling is to explore for uranium ores in the Triassic Shinarump conglomerate within the well-defined stream channel which occurs on the property.

A field examination of the property was made November 9, 1955, by Frank M. Byers, Jr., Geological Survey, and M. M. House, Bureau of Mines, for the purpose of determining the feasibility of the proposed exploration and for appraisal of the estimated costs and engineering aspects of the job. The field examiners were accompanied to the property by G. T. Rummel, partner in La Salle Mining Co. The possibilities for discovery of uranium ore deposits on the Jasper group of claims was discussed with Marlan Nolan, AEC geologist, Kanab, Utah.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

The property is located on benches immediately south of the Vermilion Cliffs, about 10 miles west of the Navajo bridge in Coconino County, Arizona. The claims lie in Secs. 21, 27, and 28, T. 39 N., R. 6 E., G. and S.R.B. and M.

The property may be reached by traveling 0.9 mile westerly from Art Greene's Cliff Dweller's Lodge on U. S. Highway 89 and thence 5½ miles northerly and easterly on a steep, dirt, access road to the claims.

Vegetation is scarce and is comprised for the most part of desert plants. The climate is arid. Summers are hot and dry and winters are mild with snows rarely accumulating.

HISTORY AND PRODUCTION

The Jasper claims were located in 1953 and 1954. An access road to proposed drill sites on the property was constructed during May and June 1954 as part of the necessary assessment work for the year ending July 1, 1954. In addition to road building an unsuccessful attempt to explore the claims was made by wagon drilling, which was ineffective in penetrating the Shinarump conglomerate.

No production has been made from the property.

OWNERSHIP AND EXTENT

La Salle Mining Co., P. O. Box 217, Grand Junction, Colorado, is a partnership composed of:

G. T. Rummel, Grand Junction, Colorado
M. P. Rowe, Grand Junction, Colorado
M. M. Harden, Albuquerque, New Mexico
Roy M. Kidal, Albuquerque, New Mexico

Jasper Nos. 1 through 9, lode mining claims, were located by Phillip H. McCary, Jr., for Dolores Exploration Co. Phillip H. McCary, Jr., sole owner of Dolores Exploration Co., transferred the claims to La Salle Mining Co. by quit-claim deed dated June 18, 1953.

Jasper Nos. 10 and 11, lode mining claims, were located for La Salle Mining Co. by I. W. Andrews, Jr.

The above described unpatented lode mining claims (fig. 2), are recorded in the books of the County Recorder of Coconino County at Flagstaff, Arizona, as follows:

Name of Claim	Date of Location	Date of Recording	Book No.	Page No.	Date, Affidavit of Labor, 1954	Book No.	Page No.
Jasper No. 1	4/12/53	5/5/53	41	409	7/7/54	54	449
" " 2	4/21/53	"	"	410	"	"	"
" " 3	5/10/53	5/19/53	42	37	"	"	"
" " 4	"	"	"	38	"	"	"
" " 5	"	"	"	39	"	"	"
" " 6	"	"	"	40	"	"	"
" " 7	"	"	"	41	"	"	"
" " 8	"	"	"	42	"	"	"
" " 9	"	"	"	43	"	"	"
" " 10	3/24/54	4/14/54	50	533	"	"	"
" " 11	"	"	"	534	"	"	"

GENERAL GEOLOGY

Rocks outcropping in the vicinity of the Jasper claims consist of Shinarump conglomerate overlying Moenkopi formation and overlain by Chinle formation, all of Triassic age. The Shinarump conglomerate is composed mainly of fairly clean, fine- to coarse-grained sandstone. A well-defined stream channel, cutting the Moenkopi formation and filled with Shinarump conglomerate, is exposed along the rim in several places on the property (fig. 2). Uranium mineralization on the Jasper group of claims is generally weak, and appears to be confined to the Shinarump conglomerate at or near the Moenkopi contact and within the stream channel. Copper minerals are commonly associated with the uranium mineralization.

MINABLE ORE RESERVES

There are no known minable ore reserves on the property.

PRESENT STATUS

Access roads have been constructed to most of the claims of the group.

Several shallow wagon drill holes were driven into the Shinarump conglomerate. A few test pits have been excavated at mineralized spots on the property.

PROJECT PROPOSALS

The applicant proposes to map, by plane table methods, the Shinarump conglomerate-Moenkopi formation contact.

The applicant further proposes to drill 56 holes (fig. 2) totaling 14,040 feet, to explore the Shinarump conglomerate for uranium ores. The holes will vary in depth from 120 to 400 feet, with an average depth of approximately 251 feet. It is planned to rescore drill each hole an average of 225 feet and core drill each hole an average of 26 feet. Core drilling will be started at first signs of mineralization or within approximately 25 feet of the Shinarump-Moenkopi contact, and will be continued through the Shinarump-Moenkopi contact into the Moenkopi.

Access roads will be constructed to drill sites wherever necessary.

ESTIMATED COSTS OF PROJECT PROPOSALS

<u>Independent Contracts</u>

Drilling (56 holes)	
Rescore - 12,600 feet at $1.50 per foot ———	$18,900.00
Core - 1440 feet at $2.50 per foot ———	3,600.00
Access roads	
Bulldozing - 120 hours at $12 per hour ———	1,440.00
Total cost independent contracts ———	$23,940.00

Supervision and Technical Services

Geologist - 3 months at $500 per month	$1,500.00	
Surveyor - 3 months at $400 per month	1,200.00	
Rodman - 3 months at $350 per month	1,050.00	
Total cost supervision, etc.		$3,750.00

Operating Materials and Supplies

Miscellaneous surveying and drafting supplies		$ 100.00

Operating Equipment

Rentals		
Plane table equipment - 3 months at $50 per month	$ 150.00	
Jeep Universal (including gasoline, oil and repairs) - 3 months at $200 per month	600.00	
Total rentals		$ 750.00

Miscellaneous

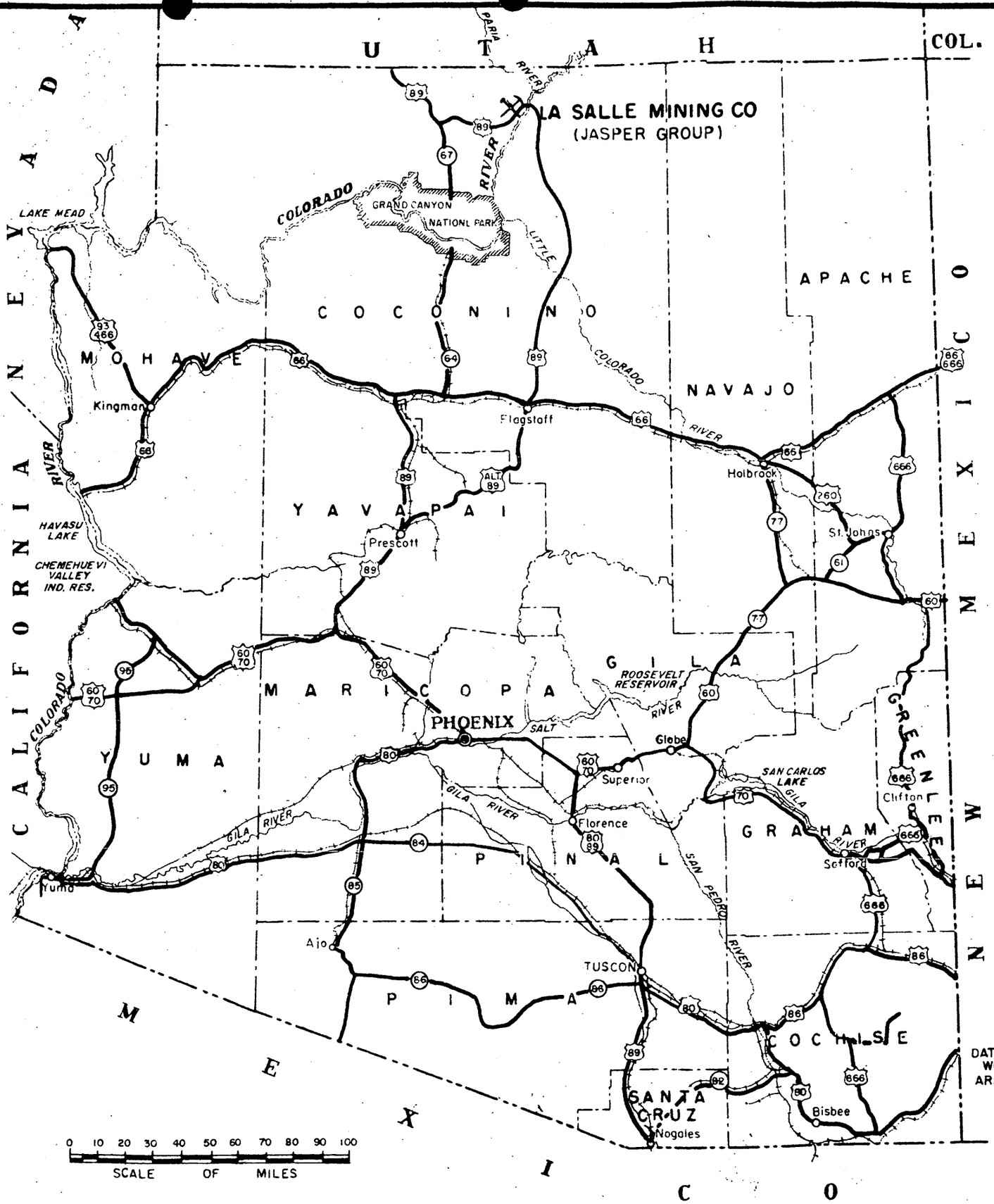
Assays - 50 at $3 each	$ 150.00	
Accounting - 3 months at $50 per month	150.00	
Subsistence - 3 men at $8 per day each for 66 days	1,584.00	
Payroll tax and compensation insurance 3 men at $15 per month each for 3 months	135.00	
Total miscellaneous		$ 2,019.00
Total estimated cost of project		$30,559.00
Government participation at 75 percent		$22,919.25

PROPOSED FINANCING

The applicant reports that he plans to invest $7,639.75 in the proposed exploratory project, which is 25 percent of the estimated cost of $30,559.00, in accordance with the regulations on Government participation, as stated in Section 7, DMMA Order No. 1 Amended.

CONCLUSIONS AND RECOMMENDATIONS

The proposed drilling project appears to be well planned to encounter and define the stream channel back of the rim. The applicant's estimated costs are considered to be fair and reasonable. However, since the stream channel and the Shinarump conglomerate filling are exposed over a considerable overall distance along the rim, with only a few small areas of weak uranium mineralization, it is believed unlikely that commercial ore bodies will be found in the stream channel beyond the rim on the Jasper claims. Therefore, it is recommended that the application for Government aid be denied.



NOTE

DATA TRACED FROM HAMMOND'S LIBRARY WORLD ATLAS. ROADS PLOTTED FROM ARIZONA TOURING MAP OF STANDARD OIL COMPANY OF CALIFORNIA, 1950.

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Fig. 1 DMEA Docket No. 3867
Location Map
STATE OF ARIZONA
LA SALLE MINING CO.
(JASPER GROUP)
COCONINO COUNTY

ENGINEER: M. H. HOWES	DATE: DEC. 23, 1955
DRAWN: DEC., 1955; A.P.T.S.	1900-368-F
CHECKED:	

RECEIVED
JAN 19 1956
TRANSMITTED
JAN 13 1956

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By F. M. Byers, Jr. and M. N. Howes

La Salle Mining Co., Grand Junction, Colorado, has submitted an application, dated June 10, 1955, for Government aid in a uranium exploratory project, under docket No. DMEA-3867. It is proposed to map, by plane table methods, the Shinarump-Moenkopi contact, and to explore for uranium ores in the Triassic Shinarump conglomerate within a well-defined channel scour. The proposed exploratory work consists of 14,040 feet of diamond drilling in 56 holes. An examination was made November 9, 1955, by F. M. Byers, Jr., Geological Survey, and M. N. Howes, Bureau of Mines, to determine the feasibility of the proposed exploration and to appraise the estimated costs and the engineering aspects of the job.

The property, composed of 11 unpatented lode mining claims, called the Jasper group, is located near the base of the Vermilion Cliffs about 10 miles west of Navajo bridge, Coconino County, Arizona.

Rocks outcropping on the claims in ascending order consist of the upper part of the Moenkopi formation, the Shinarump conglomerate, and the lower 300 feet of the Chinle formation, all of Triassic age. Weak uranium mineralization is exposed in limited areas at or near the base of a well-defined, deep Shinarump channel scour into the underlying Moenkopi. The possibilities of discovering ore bodies of significant size and grade are believed to be remote, because the Shinarump channel scour is filled with

Reviewed by
DMEA OPERATING COMMITTEE
1-23-56
(date)

clean sandstone and conglomerate, mudstone partings are lacking, carbonaceous trash is sparse, and fossil wood is commonly silicified rather than carbonized.

It is therefore recommended that the application for Government aid be denied.

DMEA
Date Rec'd.
DEC 19 1955
BUREAU OF MINES
Denver, Colorado

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

MINERAL DEPOSITS
RECEIVED
DEC 19 1955
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

December 14, 1955

RECEIVED
JAN 19 1956

TRANSMITTED
JAN 13 1956

Memorandum

To: E. N. Harshman, DMEA Field Team, Region III

From: J. William Hasler

Subject: DMEA 3867 (Uranium), La Salle Mining Company, Jasper group of claims, Coconino County, Arizona

Transmitted herewith is a geologic report on the Jasper group of claims, Coconino County, Arizona, by Frank M. Byers, Jr., U. S. Geological Survey.

The La Salle Mining Company of Grand Junction, Colorado, applied for DMEA assistance to explore for uranium on the Jasper group of claims in Coconino County, Arizona. The application was referred to the field and an examination was made November 9, 1955, by Frank M. Byers, Jr., of the Geological Survey, and M. H. Howes, engineer of the U. S. Bureau of Mines. Mr. G. T. Rummel, a partner of La Salle Mining Company, accompanied the examining team. The Atomic Energy Commission was contacted regarding the evaluation of the property.

The claims are located in sections 21, 22, 27, and 28, T. 39 N., R. 6 E., on the Jila and Salt River Meridian, Coconino County, Arizona. The claims are north of U. S. Highway 89, about 10 miles west of Navajo Bridge where Highway 89 crosses Marble Canyon on the Colorado River. The Jasper group of claims are near the base of the Vermilion Cliffs which flank the Marble Canyon area in northernmost Arizona. The claims are

Reviewed by
DMEA OPERATING CONTRACTS
1-23-56

underlain by the upper part of the Triassic Moenkopi formation, the Triassic Shinarump conglomerate and the lower 300 feet of the Chinle formation.

Only limited areas of mineralized rock, or low-grade ore, are exposed on the claims at or near the base of the deep Shinarump channel. A small tonnage of ore has been shipped from the Sun Valley mine, three miles southwest of the Jasper group, but this mine is in a thin "shoe-string" type of Shinarump channel. The Jasper claims, however, are in a large blanket-type of Shinarump conglomerate mass that locally scours into the underlying Moenkopi. The large Shinarump channel on the subject group of claims are filled with rather clean sand and conglomerate. The mudstone partings are lacking and carbonaceous trash is sparse. The fossil wood within the channel is silicified rather than carbonized; hence, no favorable trap for ore appears to exist in these thick Shinarump scours as is found on the subject group of claims.

Because of the unfavorability on the Jasper group of claims with regard to possible occurrence of uranium ore bodies, it is recommended the application for DMEA assistance be denied. I concur with the recommendations of the examining team.

Enclosed are the required number of maps, as well as the applicant's brochure.

J. William Hasler

J. William Hasler,
Geologist.

JWH/mlr
Enclosures

UNITED STATES DEPARTMENT OF THE INTERIOR

DOUGLAS McKAY, SECRETARY

TRANSMITTED

JAN 1 3 1956

DEFENSE MINERALS EXPLORATION ADMINISTRATION
REPORT OF EXAMINING TEAM
REGION III

DMEA 3867, La Salle Mining Company, Jasper group of claims
Coconino County, Arizona

Uranium

Geologic Report

by

F. M. Byers, Jr.,
U. S. Geological Survey

November 1955

Reviewed by
DMEA OPERATING COMMITTEE

_____
(date)

INTRODUCTION AND SUMMARY

La Salle Mining Company, of Grand Junction, Colorado, has applied for DMEA assistance to explore for uranium by drilling, the total cost of which is estimated at $30,599.00. The company has proposed 56 drill holes comprising 14,040 feet of core and non-core drilling on the Jasper group of claims in sections 21, 22, 27, and 28, T. 39 N., R. 6 E., Gila and Salt River Meridians, Coconino County, Arizona.

The Jasper claims are just north of U. S. Highway 89 (fig. 1), about 10 miles southwest of Navajo Bridge, where Highway 89 crosses Marble Canyon of the Colorado River. The claims are about 72 miles via Highway 89 from Kanab, Utah. The nearest railroad terminal of any size is Flagstaff, Arizona, about 130 miles southerly via U. S. Highways 89 and 66. A jeep or drill road to the claims leaves Highway 89 about 0.9 mile southwest of the Cliff Dweller's Lodge (fig. 2) and continues 5 1/2 miles to the westernmost Jasper claims on the east side of Soap Creek (fig. 2). The drill road winds around the Shinarump bench for 1 1/2 miles farther southeast to the westernmost claims.

The eleven claims of the Jasper group are shown on figure 2. Jasper No. 1, from which the ore samples were taken by the applicant, is in conflict with the Uranium King No. 1, located on April 19, 1954, by Paul De Ross, Cameron, Arizona, but no drilling is proposed on this claim. The Jasper claims were examined on November 9, 1955, by the DMEA field team consisting of F. M. Byers, Jr., of the U. S. Geological Survey, and M. H. Howes of the U. S. Bureau of Mines. Mr. G. T. Rummel, one of the partners of the La Salle Mining Company, accompanied the examining team. Harlen K. Holen, of the U. S. Atomic Energy Commission, and H. S. Johnson of the U. S. Geological Survey, were consulted in evaluating the property.

Limited areas of mineralized rock, or low-grade ore, are exposed on the Jasper claims at or near the base of a deep Shinarump channel scour into the underlying Moenkopi. A small tonnage of ore has been shipped from the Sun Valley Mine, 3 miles airline southwest of the Jasper group, but this mine is in a comparatively thin "shoe-string" type of Shinarump channel that does not exceed 20 feet in thickness and pinches out completely on each side within a few hundred feet. The Jasper claims, however, are in a large, blanket-type Shinarump conglomerate mass that locally scours into the underlying Moenkopi and reaches a maximum thickness of about 100 feet. This type of Shinarump mass commonly extends for several miles along the outcrop at the base of the Vermilion Cliffs in the area around Marble Canyon, but eventually pinches out some miles from the deepest (thickest) channel scour. Universal Allied Uranium Corporation, which applied for a DMEA loan (Docket 3532), drilled such a Shinarump channel scour on the El Pequito and Fehfu claims, just east of the Colorado River near Lee's Ferry (fig. 1), and found no ore bodies larger than 100 tons, though a few holes are reported to have penetrated low-grade ore. Furthermore, these large Shinarump channel scours are filled with clean sand and conglomerate. Mudstone partings are lacking and carbonaceous trash is sparse; the fossil wood is commonly silicified rather than carbonized. Hence, no favorable trap for ore apparently exists in these thick Shinarump channel scours like the one on the Jasper and the possibilities of discovering ore bodies of significant size are believed remote.

Because of the geologic unfavorability on the Jasper group with regard to possible occurrences of uranium ore bodies, it is recommended that the application of the La Salle Mining Company for DMEA assistance under docket 3867 be denied.

GEOLOGY

The Jasper group of claims are near the base of the Vermilion Cliffs, which fringe the Marble Canyon area in northernmost Arizona (fig. 1). Marble Canyon is incised into the Permian Kaibab limestone and the lower part of the Triassic Moenkopi formation. The low benches within a mile or two of the Vermilion Cliffs consist of the upper part of the Moenkopi formation, discontinuous Triassic Shinarump conglomerate, which locally forms prominent benches and spurs, and the Triassic Chinle formation, which is several hundred feet thick. The Vermilion Cliffs are composed of about 400 feet of dark red Triassic Moenave and Kayenta formations in the lower part and about 1,000 feet of yellowish- to orange-red Jurassic Navajo sandstone in the upperpart. The Moenave formation looks like and occupies the same stratigraphic position as the Wingate sandstone, but, according to Harshbarger et al (1955, p. 1-4), the true Wingate underlies the Moenave and pinches out westward many miles east of Lee's Ferry on the Colorado River. The regional dip is about 2 degrees northward.

The applicant's Jasper claims are underlain in ascending order by the upper part of the Triassic Moenkopi formation, the Triassic Shinarump conglomerate, and the lower 300 feet of the Chinle formation (fig. 2). The Jasper group does not extend to the upper Triassic Moenave sandstone exposed in the Vermilion cliffs. Most of the drill holes proposed by the applicant would penetrate 150 feet of Chinle formation, or less.

The maximum thickness of the Shinarump conglomerate along the trend of the channel scour ranges from about 60 to 100 feet. Toward the edges of the channel on and adjacent to the Jasper claims, the Shinarump ranges from 15 to 30 feet in thickness. The degree of channel

scour into the underlying Moenkopi formation ranges from 45 to 70 feet along the channel, which is well exposed at several places (fig. 2). The Shinarump conglomerate is composed of clean intertonguing sandstone and pebble conglomerate. Siltstone and mudstone beds were not observed at any of the several exposures examined.

ORE DEPOSITS

Two open cuts, from which three samples were taken by the applicant, expose weakly mineralized, copper carbonate-stained conglomerate not more than 2 feet in thickness at the base of the Shinarump conglomerate. At the open cut from which samples 1 and 2 were taken (fig. 2) the basal foot of the Shinarump conglomerate is stained slightly with limonite and copper carbonates for about 10 feet along the exposure. The gamma-ray count is 3 to 4 times background, equivalent to about .05% of eU_3O_8. This cut is also the discovery of the Uranium King No. 1 claim, which conflicts with Jasper No. 1.

At the open cut from which the high grade sample No. 3 was taken, (fig. 2), the following section and gamma-ray measurements were observed:

Maximum thickness (feet)	Formation	Lithology	Gamma-ray count above background	Estimated eU_3O_8
1.0+	Shinarump	conglomerate	normal	barren
2.0	Shinarump	conglomerate, limonite-stained	$1\frac{1}{2}$ X	barren
2.0	Shinarump	conglomerate, malachite-stained	6 X	0.10
1.0	Moenkopi	siltstone, yellowish brown	3 X	0.05
0.5+ (Base)	Moenkopi	as above	$1\frac{1}{2}$ X	barren

The above thicknesses decrease along the strike of the exposure; within 10 feet of the maximum thickness of the mineralized conglomerate, no radiometric count above background was observed on the Geiger counter. Mr. G. T. Rummel reports that the high-grade sample from this cut was taken from a mineralized log, which has since been completely removed.

Analyses of samples 1 to 3 (see fig. 2), as taken from the applicant's brochure, are tabulated below:

Sample	U_3O_8	Cu	V_2O_5	$CaCO_3$
Mine cut #1	0.11	----	-----	----
Mine cut #2	0.14	----	-----	----
Highgrade #3	4.45	7.89	0.02	trace

A weakly mineralized zone, 1 to 3 feet in thickness, was found near the base of the Shinarump conglomerate cliff on the south end of Jasper Nos. 3 and 4 claims, (fig. 3). This zone was traced at intervals for about 200 feet along the outcrop and occurs on the eastern flank of the channel scour. The mineralized zone is composed of yellowish gray medium to coarse sandstone with sparse carbon flakes. Gamma-ray count is 2 to 5 times background, suggesting an eU_3O_8 content ranging from about 0.01 to possibly as much as 0.10 percent. The lateral limits of the mineralized zone were not reached.

Three miles to the southwest, the Sun Valley Mine on the Jaybird and Sun Valley claim groups has produced 31.2 tons of uranium ore ranging from 0.18 to 0.35 percent of U_3O_8, according to G. C. ("Abe") Bonham, owner of the claims. The reserves on these claims are based on private drilling and are tabulated below (after Harlen K. Holen, AEC geologist, Kanab, Utah).

	Tons	$\%U_3O_8$
Indicated ore	854	0.48
Inferred ore	655	0.26

The Sun Valley ore body occurs in a "shoestring" Shinarump channel, which is less than 20 feet thick and pinches out laterally about 400 feet on either side of the thickest part of the exposed lenticular cross-section. The Shinarump sandstone matrix and contained mudstone galls are light gray and the top of the underlying Moenkopi formation is mineralized and greenish gray for a thickness of at least one foot. The smaller size of the channel, presence of mudstone, and greenish gray alteration contrast with the yellowish grays observed in the mineralized Shinarump conglomerate and the Moenkopi formation on the applicant's claims.

Universal Allied Uranium Corporation explored a large blanket-type Shinarump channel scour just east of Lee's Ferry after applying for a DMEA loan (Docket 3532). According to H. S. Johnson, who made a field examination, the corporation failed to submit further information on the results of their drilling, but he later learned that their drilling program was unsuccessful in finding ore bodies of significant size and grade to mine.

CONCLUSIONS AND RECOMMENDATIONS

The La Salle Mining Company has applied for DMEA assistance to drill 56 holes, averaging about 250 feet per hole, on the Jasper group of claims near Marble Canyon, Utah. Only weakly mineralized uraniferous conglomerate and sandstone occur at or near the base of a thick channel scour of Shinarump conglomerate; no ore deposits of significant size and grade are known in thick Shinarump channel scours on the applicant's claims or in the surrounding area for a radius of 15 miles. The only commercial uranium deposit is in a thin "shoestring" Shinarump channel of limited extent, three miles southwest of the Jasper claims. Therefore, it is recommended that the request of the La Salle Mining Company for DMEA assistance under docket 3867 be denied.

REFERENCES CITED

Harshbarger, Repenning, and Irwin, April 1955, "Stratigraphy of the uppermost Triassic, and Jurassic rocks of the Navajo County," U. S. Geol. Survey open file report, 20 pp.

U.S DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
DOCKET 3867
DECEMBER 1955

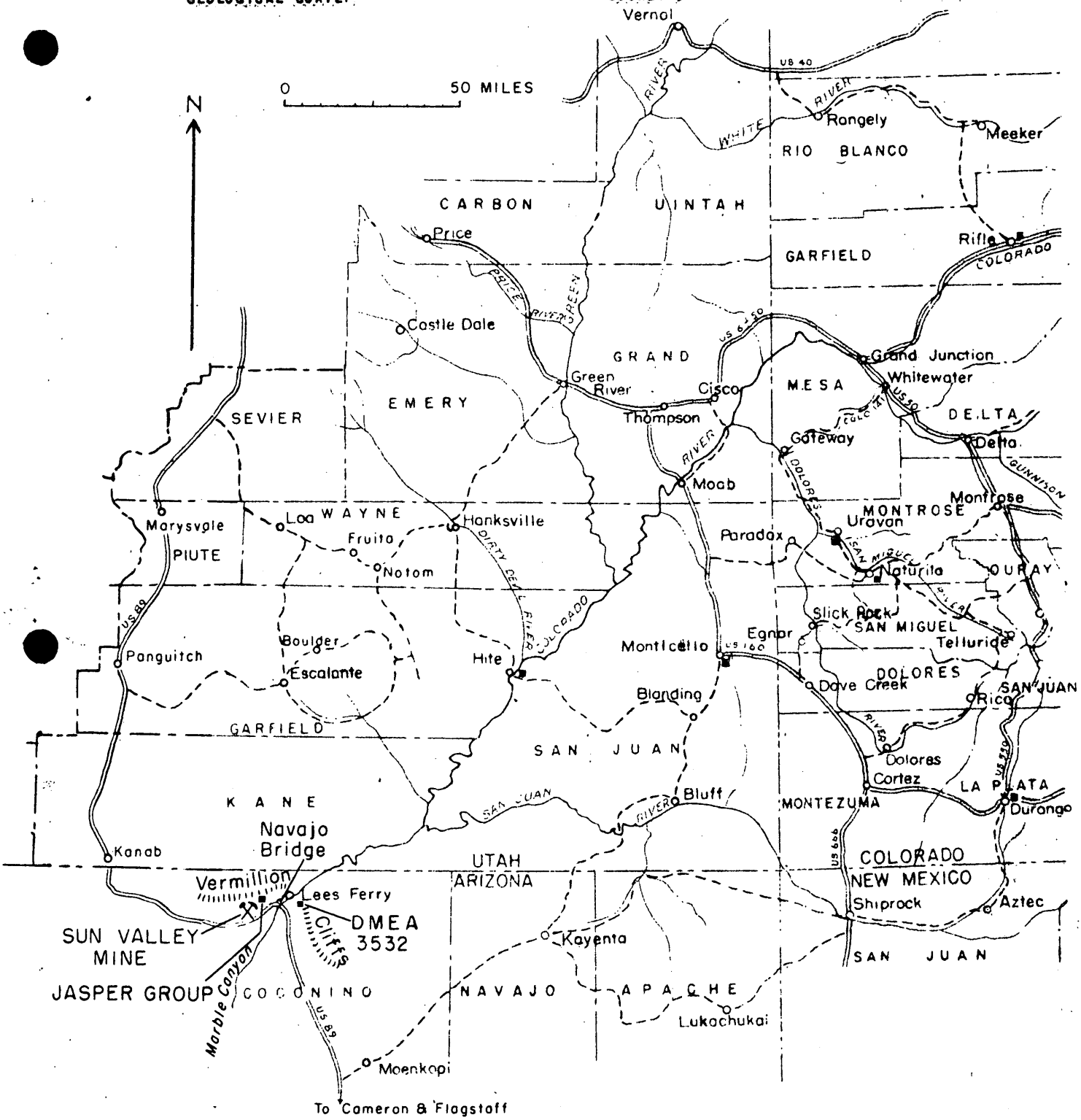
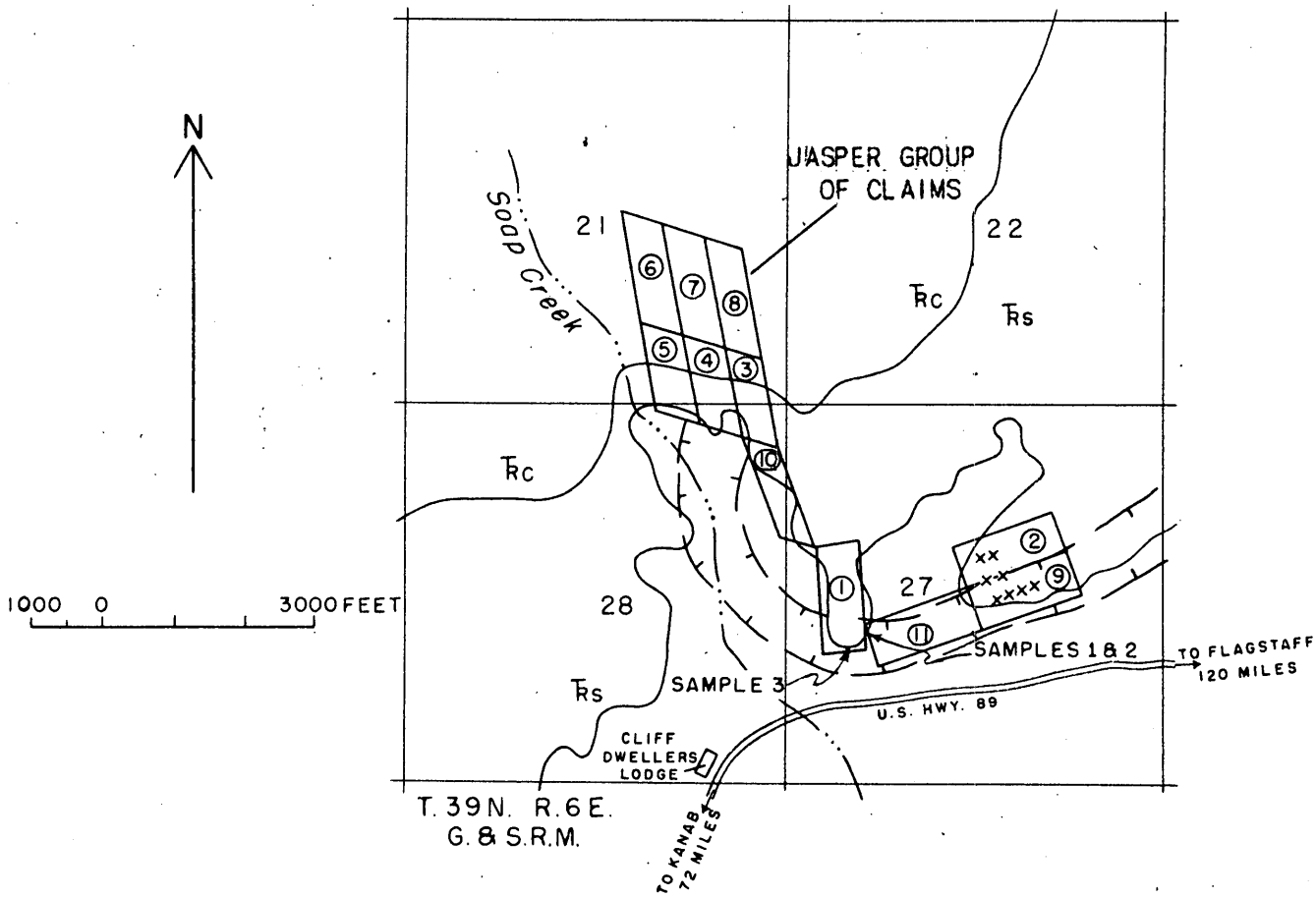


FIGURE 1. INDEX MAP OF THE COLORADO PLATEAU REGION, SHOWING LOCATION OF JASPER GROUP OF CLAIMS, LA SALLE MINING COMPANY, COCONINO COUNTY, ARIZ.



EXPLANATION

TRc	TRIASSIC CHINLE FORMATION
TRs	TRIASSIC SHINARUMP CONGLOMERATE
	CHANNEL BOUNDARIES
x	PROPOSED DRILL HOLE

Note: GEOLOGY, LAND LINES, CLAIM BOUNDARIES AND LOCATIONS OF PROPOSED DRILL HOLES FROM APPLICANTS MAP.

FIGURE 2. GEOLOGIC MAP SHOWING INFERRED CHANNEL AND PROPOSED DRILLING ON JASPER NO. 2 AND NO. 9 CLAIMS, JASPER GROUP OF CLAIMS, LA SALLE MINING COMPANY, COCONINO COUNTY, ARIZONA.

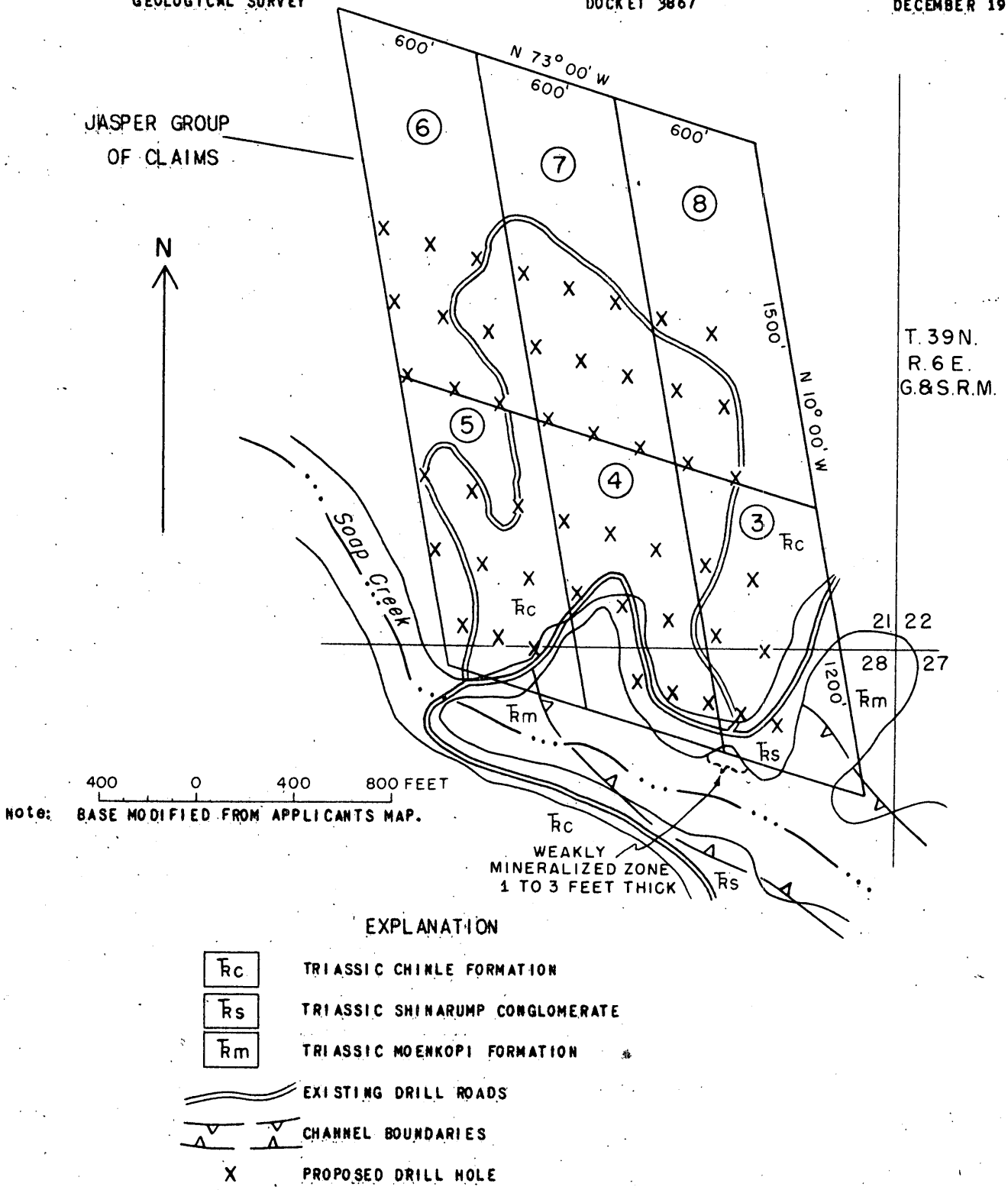


FIGURE 3. MAP OF JASPER CLAIMS NOS. 3 TO 8 SHOWING LOCATION OF PROPOSED DRILL HOLES, LA SALLE MINING COMPANY, COCONINO COUNTY, ARIZONA.

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

RECEIVED
JUL 25 1955

224 New Customhouse
Denver 2, Colorado

July 19, 1955

Memorandum

To: S. R. Wilson (w/brochure)
J. W. Hasler

From: Field Team, Region III

Subject: Docket DMA-3867 (Uranium), LaSelle Mining Company, Jasper Group, Coconino County, Arizona

Enclosed is the subject application in the amount of $30,550.00. A field examination and suitable report are required.

A copy of a letter from the Chairman of the Operating Committee with accompanying memoranda from the Uranium Commodity Committee are attached for your information.

W. M. TRAVER,

W. M. Traver

E. N. Harshman

E. N. Harshman

Enclosures
HMC:pw

cc: Sec.Op.Comm. (2)
Storms
Harshman
Subject
Chron

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

RECEIVED
JUL 25 1955

224 New Customhouse
Denver 2, Colorado

July 19, 1955

Memorandum

To: S. R. Wilson (w/brochure)
J. W. Hasler

From: Field Team, Region III

Subject: Docket DMM-3367 (Uranium), LaSelle Mining Company, Jasper Group, Coconino County, Arizona

Enclosed is the subject application in the amount of $30,000.00. A field examination and suitable report are required.

A copy of a letter from the Chairman of the Operating Committee with accompanying memoranda from the Uranium Commodity Committee are attached for your information.

W. M. TRAVER,

W. M. Traver

E. N. Harshman

E. N. Harshman

Enclosures
HMC:pw

cc: Sec.Op.Comm. (2)
Storms
Harshman
Subject
Chron

Surname 700

Murphy
Child
Kiloguard
Gehm
Selfridge
Fl. Green

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

LaSalle Mining Company
Box 217
Grand Junction, Colorado

JUL 13 1955

Re: Docket No. DMEA-3367 (Uranium)
Jasper Group
Coconino County, Arizona

Gentlemen:

The application for assistance in exploring the subject property in Coconino County, Arizona, 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 the Executive Officer of Region III at the following address:

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

The Regional Office will contact you in regard to your project if additional information is required.

Sincerely yours,

C. O. Mittendorf

Administrator

FMMurphy:am
7-12-55
cc to: Admr. Reading File
Docket
Code 700
Mr. Muphy
DMEA Field Team, Region III(2)

Surname 700
Murphy
Ching
Selfridge
Hyphen

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

JUL 13 1955

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

Re: Docket No. DMEA-3867 (Uranium)
LaSalle Mining Company
Jasper Group
Coconino County, Arizona

Dear Mr. Traver:

The captioned application is referred to Region III Field Team for investigation, a field examination, and recommendation. A copy of the application was forwarded to your office on June 27, 1955.

Enclosed are copies of memoranda from J. E. Crawford, dated July 6, and Thor H. Kiilsgaard, dated July 8, 1955, members of the Uranium Commodity Committee.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee (GCS)

Enclosures

APPROVED:

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

Thor H. Kiilsgaard (GCS)
Member, Geological Survey

FMMurphy:am
7-12-55
cc to: Admr. Reading File
Operating Committee
Docket
Messrs. J.E.Crawfortd, Rm. 3641
T.H.Kiilsgaard, Rm. 5222
J.O.Hosted, Rm. 3210, GSA
Code 700
Mr. Murphy

RC.4.

7/11/55 gla

IN REPLY REFER TO:

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

July 8, 1955

Memorandum

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

From: Thor H. Kiilsgaard, U. S. Geological Survey

Subject: Review of application submitted by the La Salle Mining Company, Jasper Group of Claims, Coconino County, Arizona, DMEA Docket 3867.

The applicant proposes to explore the Jasper property with 14,040 feet of core and plug bit drilling. Estimated cost of the project is $30,559.00. The holes will test the Shinarump member of the Chinle formation at depths ranging from 120 feet to 400 feet below the surface.

Attempts were made to explore this property in 1954 by the use of wagon drilling. Minerals Engineering Company wagon drilled 18 holes, the deepest being 90 feet. This type of drilling proved impractical because it did not reach to the depths desired.

According to the applicant's map there is a well-defined channel in the Shinarump extending through most of the property. Three samples taken show there is uranium mineralization in the channel.

In exploring the property, the applicant proposes to first plane table the Shinarump-Moenkopi contact and on the basis of this information project the channel trends in back of the outcrops. A drilling grid pattern will then be established to test the channel, with all of the ore zone to be cored. This appears to be a very logical way of exploration and if the property has any merit it would seem that a contract should be approved.

I recommend transmitting the application to the field for a field examination and report.

Thor H. Kiilsgaard

Thor H. Kiilsgaard

IN REPLY REFER TO:

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

July 6, 1955

Memorandum

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

From: Thor H. Killingsard, U. S. Geological Survey

Subject: Review of application submitted by the La Salle Mining Company, Jasper Group of Claims, Coconino County, Arizona, DMEA Docket 3867.

The applicant proposes to explore the Jasper property with 14,040 feet of core and plug bit drilling. Estimated cost of the project is $30,559.00. The holes will test the Shinarump member of the Chinle formation at depths ranging from 120 feet to 400 feet below the surface.

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I recommend transmitting the application to the field for a field examination and report.

Thor H. Killingsard

THKillingsard:iml
G-7/8/55

cc: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
J. E. Crawford, 3641

7/7/55 gla

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

RECEIVED
JUL - 7 1955

July 6, 1955

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4445

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

Subject: Application for assistance, DMEA Docket 3867, La Salle Mining Company, Jasper Group, Marble Canyon Area, Coconino County, Arizona

I have reviewed the attached application for assistance, La Salle Mining Company, Jasper Group, Marble Canyon Area, DMEA Docket 3867; and I have discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

We suggest that the application be referred to the Field Team for examination and report, and that the Field Team be requested to consult with Ernest R. Gordon, Atomic Energy Commission, Grand Junction, Colorado.

John E. Crawford

John E. Crawford

Attachment

La Salle Mining Co.
Box 217
Grand Junction

June 27, 1955
Subject: DMEA-3867
Re: Exploration Assistance
Jasper Group

Gentlemen:

The receipt of your application dated June 10, 1955 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-3867 and referred to the Rare and Miscellaneous 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

LA SALLE MINING CO.
BOX 217
GRAND JUNCTION, COLORADO

June 21, 1955

RECEIVED
JUN 24 1955

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

Gentlemen:

We are enclosing the following D.M.E.A. applications:

4 copies of the Utah School Section 3868
Lease, Cottonwood Wash Area.

4 copies of the Jasper Group X 3867
Marble Canyon, Arizona.

The field office in Denver, Colorado has been contacted, ?
and they advised that the applications should be mailed direct to
the Department of the Interior, Washington 25, D. C.

Very truly yours,

La Salle Mining Co.

by G. T. Rummel,
Partner

Encls.
sm

LA SALLE MINING CO.

Box 217

Grand Junction, Colorado

APPLICATION

for

D.M.E.A. LOAN

on

JASPER GROUP

MARBLE CANYON AREA

ARIZONA

RECEIVED
JUN 24 1955

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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

Not to be filled in by applicant

Docket No. 3867
Metal or Mineral Uranium
Date Received 6/24/55
Estimated Cost 30,559
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: LA SALLE MINING COMPANY, P.O.Box 217, Grand Junction, Colorado, a partnership consisting of: G. T. Rummel, Grand Jct., Colo. M. P. Rowe, Grand Jct., Colo., M. M. Hardin, Albuquerque, N. M. Roy M. Eidal, Albuquerque, N.M.

(*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 See report

(*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 Refer to 3c of report

(*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 None

(*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.

(*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.

RECEIVED 16—66551-1

JUN 24 1955

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 60 days and be completed within 6 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)?

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

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

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated June 10, 1955

LA SALLE MINING COMPANY
(Applicant)

By G. T. Rummel

G. T. Rummel, Partner

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

LA SALLE MINING CO.

Box 217

Grand Junction, Colorado

May 6, 1955

PROPERTY RIGHTS

3a. The Jasper Group, of eleven unpatented claims, is located in Township 39 North, Range 6 East of the G. & S. R. Meridian sections 21,22,27 and 28 in Coconino County, Arizona.

Jasper 1 through 9, inclusive, were located for Dolores Exploration Company by Phillip H. McCary, Jr., and then quit-claimed to La Salle Mining Company. Appendix "A" includes duplicate copies of the Quit Claim Deed.

Jasper 10 and 11 were located for La Salle Mining Company by I. W. Andrews, Jr.

The above described mining claims are located and recorded as follows:

3f.

Name of Claim	Date of Location	Recording Date	Book No.	Page No.	Affidavit of Labor 1954	Book No.	Page No.
Jasper # 1	4/12/53	5/5/53	41	409	7/7/54	54	449
" # 2	4/21/53	5/5/53	41	410	7/7/54	54	449
" # 3	5/10/53	5/19/53	42	37	7/7/54	54	449
" # 4	5/10/53	5/19/53	42	38	7/7/54	54	449
" # 5	5/10/53	5/19/53	42	39	7/7/54	54	449
" # 6	5/10/53	5/19/53	42	40	7/7/54	54	449
" # 7	5/10/53	5/19/53	42	41	7/7/54	54	449
" # 8	5/10/53	5/19/53	42	42	7/7/54	54	449
" # 9	5/10/53	5/19/53	42	43	7/7/54	54	449
" #10	3/24/54	4/14/54	50	533	7/7/54	54	449
" #11	3/24/54	4/14/54	50	534	7/7/54	54	449

4a. During May and June of 1954 a drill road was built to these claims as a part of the assessment work for 1954. In addition to this road, Minerals Engineering Company, of Grand Junction, Colorado attempted a drilling program at the request of the La Salle Mining Company. This Wagon drilling program proved unsuccessful because of the inability of a drill of this type to

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penetrate the Shinarump Conglomerate to the contact of the Shinarump-Moenkopi formations. Appendix "B" is a copy of the invoice rendered for this drilling, which shows the maximum depths obtained on all the holes. Since the contact zone is at least 170 feet from the surface in the area where these were drilled, no geologic data was obtained which might offer proof of the trend or outline of the channel.

4c. Ore zones in the Jasper Group area are confined to the Triassic Shinarump conglomerate which lies above the Moenkopi formation and below the Triassic Chinle formation. It can be classified as a typical copper-uranium-sandstone deposit. The Shinarump consists of fine-to coarse-grained sandstone which is white weathering to buff in color. The grains are angular to subrounded and range from poor to well cemented, with gypsum, calcite, or silica. Pebbles, where present, are quartz or quartzite.

Preliminary work in this area indicates that stream channels within the Shinarump conglomerate controls the ore deposition. Channel boundries have been determined on the basis of outcrop information and investigation. As indicated on Figure 1, channel boundries can be observed where marked. Within the boundries of this channel samples have been taken and assayed as follows:

Sample		U_3O_8	Cu.	V_2O_5	$CaCo_3$
Mine Cut	# 1	0.11	---	----	----
Mine Cut	# 2	0.14	---	----	----
Highgrade	# 3	4.45	7.89	0.02	Trace

The following facts are proven theory for ore control in the Shinarump formation.

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1. The Shinarump channel has proved to be the major control of ore.

2. Uranium increases in grade away from an outcrop, whereas copper suffers a decrease. This increase in grade of U_3O_8 is believed due to leaching of uranium minerals at the outcrop and not to secondary enrichment.

3. On an outcrop, ore in the form of secondary uranium minerals occurs at the bottom of a channel. Back from the rim, ore in the form of pitchblende usually rests on an impermeable mudstone.

4. A coarse carbonaceous standstone is the most favorable host rock for ore. Some organic material is completely or partially replaced by pitchblende.

Since all of the above indications or criteria are present on the Jasper Group, it does warrant further exploration in the following manner:

1. The contact of the Shinarump conglomerate and Moenkopi formations should be mapped by plane table. This information should be corrected for regional dip and then contoured. Channel trends at the outcrop can then be defined by cross-sections of the outcrop.

2. A grid drilling program should be instituted to deleniate the channel boundries in back of the outcrop.

3. Plane table and drilling information can then be combined and coordinated so that a final stage of development drilling can be carried out which will indicate the ore reserves on this group.

4d. The Jasper Group of claims is located approximately 72 miles south of Kanab, Utah and 80 miles North of Cameron, Arizona on U. S. Highway 89. The nearest buying station will be at Cameron, Arizona, which is reportedly now under construction. Supplies can be obtained from Flagstaff, Arizona, which

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is 133 miles to the South, or Kanab, Utah. Access to the claims is by jeep road which starts at a point approximately 1 mile Westerly from Art Greene's Cliff Dweller's Lodge. This road, although rough and sandy, is sufficient for the transportation of supplies and equipment necessary for a drilling project. Water is available for drilling on the South West edge of Jasper #5, which is crossed by a stream known locally as "Soap Creek". Food and lodging can be obtained at the Cliff Dweller's Lodge, which is located immediately below the Jasper Group.

5. THE EXPLORATION PROJECT

5a. The mineral to be explored for on the Jasper Group is Uranium.

5b. The drilling and mapping program shall be instituted in the following manner:

1. The contact of the Shinarump conglomerate and Moenkopi formations will be mapped by plane table methods.

2. Drill roads will be constructed to the drill sites as indicated on Figure #2 and the lower right hand corner of figure #1.

3. Holes will be drilled with a Portadrill mounted on a D-6 Caterpillar at the indicated sites. Drilling depths will range from 120 feet on hole 4[illegible] to 400 feet on hole #48. These holes will be logged and probed by a competent geologist now employed by the La Salle Mining Company. Cores will be cut when first signs of mineralization occur or at least 30 feet above the Shinarump-Moenkopi contact. This will be determined by carrying the depth of the channel from hole to hole and then correcting for actual elevation at the collar. The 30 foot margin should be sufficient to insure that the ore zone

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and actual contact is drilled while core is being cut.

4. All the information realized from the above described drilling and mapping program will be transmitted to sub-surface contour maps of the channel. This information will then be digested and a development drilling program will then be instituted by, and at the expense, of La Salle Mining Company, to determine the ore reserves of the Jasper Group. If these prove sufficient, La Salle Mining Company will act as the operator in mining these ores.

5d. La Salle Mining Company was organized in 1949. Since that time it has had considerable uranium exploration and mining experience consisting of the following:

Drilling and mining in the John Brown District of the Uravan Area, Colorado. Mining on the Club Mesa Lease, or more technically known as Reserve Blocks #5, of the Atomic Energy Commission. This mine has and is producing considerable tonnages of Uranium bearing ores.

Drilling and mining of the "A" Group, located in the Inter-River Area, Grand County, Utah. This mine is located in the Shinarump formation and has been producing steadily since January of 1955.

Exploring and developing several groups of claims located in the Circle Cliffs Area, Garfield County, Utah. This area is still under exploration and no mining has been started. Ore in the Circle Cliffs Area occurs in the Shinarump formation.

Exploring and developing several groups of claims in the Red Canyon Area, San Juan County, Utah. These groups are still being explored and no mining has commenced. Ore in the Red Canyon Area occurs in the Shinarump formation

La Salle Mining Company does have interests in other areas, but as yet has not started any exploration projects.

A fully trained geologist, now employed by La Salle Mining Company, will be in charge of the proposed project.

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ESTIMATE OF COSTS

*6a. Independent Contracts:

Wes Meyer Construction Company

12,600 feet of plug drilling @ 1.50 per foot - $18,900.00

1,440 feet of core drilling @ 2.50 per foot - $ 3,600.00

Abe Bonham Road Contractor

120 hours Bulldozer Work @ 12.00 - $ 1,440.00

6b. Supervision:

Geologist - 3 months @ 500.00 per month - $ 1,500.00

Surveyor - 3 months @ 400.00 per month - $ 1,200.00

Rodman - 3 months @ 350.00 per month - $ 1,050.00

Expenses for above (Room & Board)

3 men @ 8.00 per day each - 66 days @ 24.00 - $ 1,584.00

6c. Operating Equipment:

3 months rental on plane table equipment

@ 50.00 per month - $ 150.00

3 months rental on Jeep Universal

gas, oil & repair included @ 200.00 - $ 600.00

Miscellaneous Surveying and Mapping Equipment - $ 100.00

6g. Miscellaneous:

Accounting - 3 months @ 100.00 per - $ 300.00

Workmen's Compensation 3 men - 3 months @ 10.00 - $ 90.00

Liability Insurance 3 men - 3 months @ 5.00 - $ 45.00

Total Cost of Project.....$30,559.00

By _____

I. W. Andrews, Jr.

QUIT CLAIM MINING DEED

For the consideration of Ten Dollars and other valuable consideration, I, PHILLIP H. McCARY, Jr., of Mesa County, Colorado, individually and as the sole owner and only person represented by the name Dolores Exploration Company, the same being a trade name used by grantor, hereby quitclaims to G. T. RUMMEL and MATTHEW P. ROWE of Mesa County, Colorado, and ROY M. EIDAL and M. M. HARDIN of Bernalillo County, New Mexico, all of my interest in the following described property situated lying and being in Coconino County, State of Arizona, to-wit:

The Jasper Lode Mining Claims No. 1 to 9, both inclusive;
(Consideration for this deed is less than $100.00)

together with all and singular the lodes and veins within the lines of said claims, and the dips, spurs, mines, minerals, dumps, fixtures, improvements, rights, privileges and appurtenances thereunto in anywise belonging.

IN WITNESS WHEREOF I have hereunto set my hand and seal this 18th day of June, 1953.

Phillip H. McCary, Jr., individually and as the sole owner and only person represented by the name Dolores Exploration Company.

STATE OF COLORADO)
) ss
COUNTY OF M E S A)

This instrument was acknowledged before me this 18th day of June, 1953, by Phillip H. McCary, Jr., individually and as the sole owner and only person represented by the name Dolores Exploration Company.

Witness my hand and official seal. My commission expires December 13, 1953.

Notary Public

Photostated No. 1995 INDEXED
RECORDED AT REQUEST OF Eugene H. Mast
July 1st A.D. 1953 At 9:00 o'clock A.M.
In Book 43 Official Records Page 166
Records of Coconino County, Ariz.
County Recorder
By Deputy

INVOICE

INVOICE NO.

E-2469

MINERALS ENGINEERING COMPANY

GRAND JUNCTION, COLORADO

Date: May 1, 1954

To

LaSalle Mining Co.
First National Bank Bldg.
Grand Junction, Colorado

TERMS:

Time of Shipment:

F. O. B.:

Via:

TM 5-14 EB

QUANTITY	DESCRIPTION	UNIT PRICE	TOTAL

Wagon Drilling - LaSalle Mining Co. - Kaibab Canyon
May 1954

Date	Hole #	Footage
5/5/54	1	65
5/6	2	50
5/7	3	14
	4	14
	5	10
	6	89
5/10	7	89
	9	36
5/11	10A	85
	11	85
	12	18
	13	68

Date	Hole #	Footage
5/12	14	65
	15	85
5/13	16	72
	17	90
	18	72

1027 [illegible] 30/ft. 6616.20
Hauling [illegible] 150.00
6766.20

Appendix "B"

WEST [illegible] CONSTRUCTION CO.
Box 3567
Phoenix, Arizona

May 6, 1955

La Salle Mining Company
P.O. Box 217
Grand Junction, Colorado

Dear Sirs:

We wish to submit our bid for 1[illegible],000 feet of Rotary Drilling on your Jasper Group of claims, located at Marble Canyon, Arizona.

The type of drill rig that we will use on this job is a Portadrill mounted on a D-6 Caterpillar tractor. This rig is equiped to drill either dry, wet or with mud.

The prices we wish to quote are as follows:

Pl[illegible]	- 0 to 35[illegible] feet	- $1.50 per foot
	over 3[illegible] ft.	- [illegible] per foot
Coring	- 0 to 350 feet	- $2.50 per foot
	over 350 feet	- [illegible].50 per foot

Thank you,

James K. Carter, Jr.

JKC:eps

MINERALS ENGINEERING COMPANY
P. O. Box 1951
GRAND JUNCTION, COLORADO

May 25, 1955

Mr. G. T. Kurmel
LaSalle Mining Company
First National Bank Building
Grand Junction, Colorado

Dear Mr. Kurmel:

Pursuant to our conversation, we wish to submit the following bid for a minimum of 14,000 lineal feet of vertical diamond drilling on your Jasper Group Claims, Coconino County, Arizona:

	Price per Foot			
	Non Core		Core	
Depth	Air	Wet	Air	Wet
0-200 feet	$ 1.35	$ 1.75	$ 2.90	$ 2.90
200-400 feet	2.00	2.75	3.50	3.50

All delays caused or requested by you we bid as standby time at $12 per hour. There will be no moving charge. It is presumed that you will furnish all access roads and drill sites for the movement of our equipment.

We are including four types of exploratory drilling in the above depth categories in order to afford you the opportunity for highest dust and core recovery possible during your U.M.E.A. investigative program.

We anticipate starting this drilling sometime after August 1, 1955.

It will be a pleasure to hear from you concerning this bid.

Very truly yours,

MINERALS ENGINEERING COMPANY

John B. King
Drilling Division

JBK/k

AIR MAIL - SPECIAL DELIVERY

RANSDELL ENTERPRISES INC.

SUITE ~~XXXXXX~~ 212
~~FIRST SECURITY BUILDING~~ 65 E. 4th S.
SALT LAKE CITY, UTAH

June 17, 1955

Mr. G. T. Rummel, President
LaSal Mining Company
First National Bank Building
Grand Junction, Colorado

Dear Mr. Rummel:

We submit the following bid for approximately 14,500 feet of vertical plug hit drilling and coring on your Jasper Group of claims in the Marble Canyon area, Coconino County, Arizona:

DEPTH	DRY	WET	CORING
0 - 400	$2.00	$3.00	$4.75

STAND-BY TIME AT $12.00 PER HOUR

If we are awarded this contract, we could move in within 15 days of receipt of notice of award.

Thank you for considering our bid.

Sincerely,

RANSDELL ENTERPRISES, INC.

By CARL RANSDELL - President

CR:pp

Abe Bonham, Road Contractor
Kanab, Utah

May 6, 1955

La Salle Mining Company
P.O. Box 217
Grand Junction, Colorado

Dear Sirs:

I wish to submit the following bid on approximately 120 hours of bulldozer work on your Jasper Group of Claims located at Marble Canyon, Arizona.

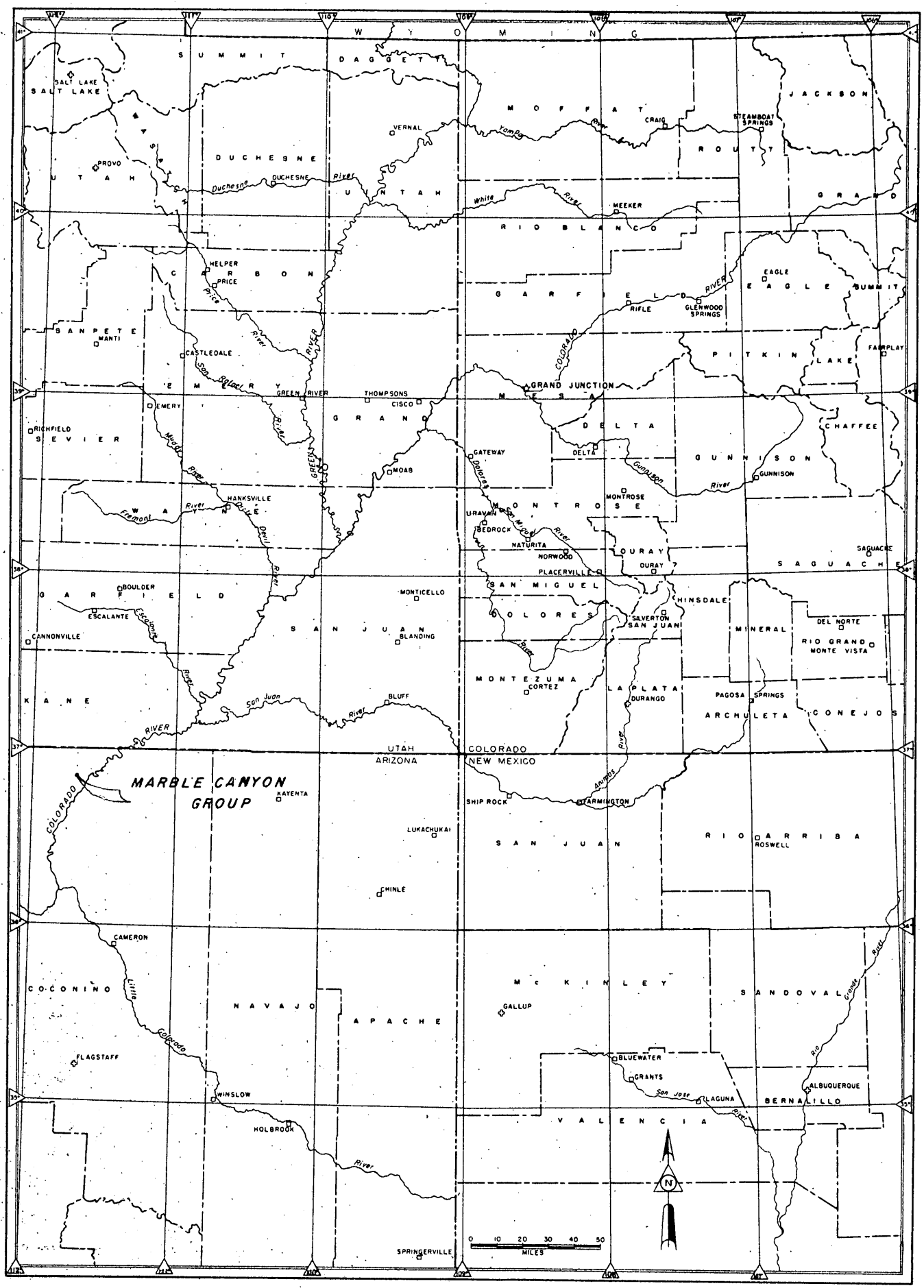
The type of bulldozer to be used on this job is a D-6 Caterpillar Tractor with an angle blade.

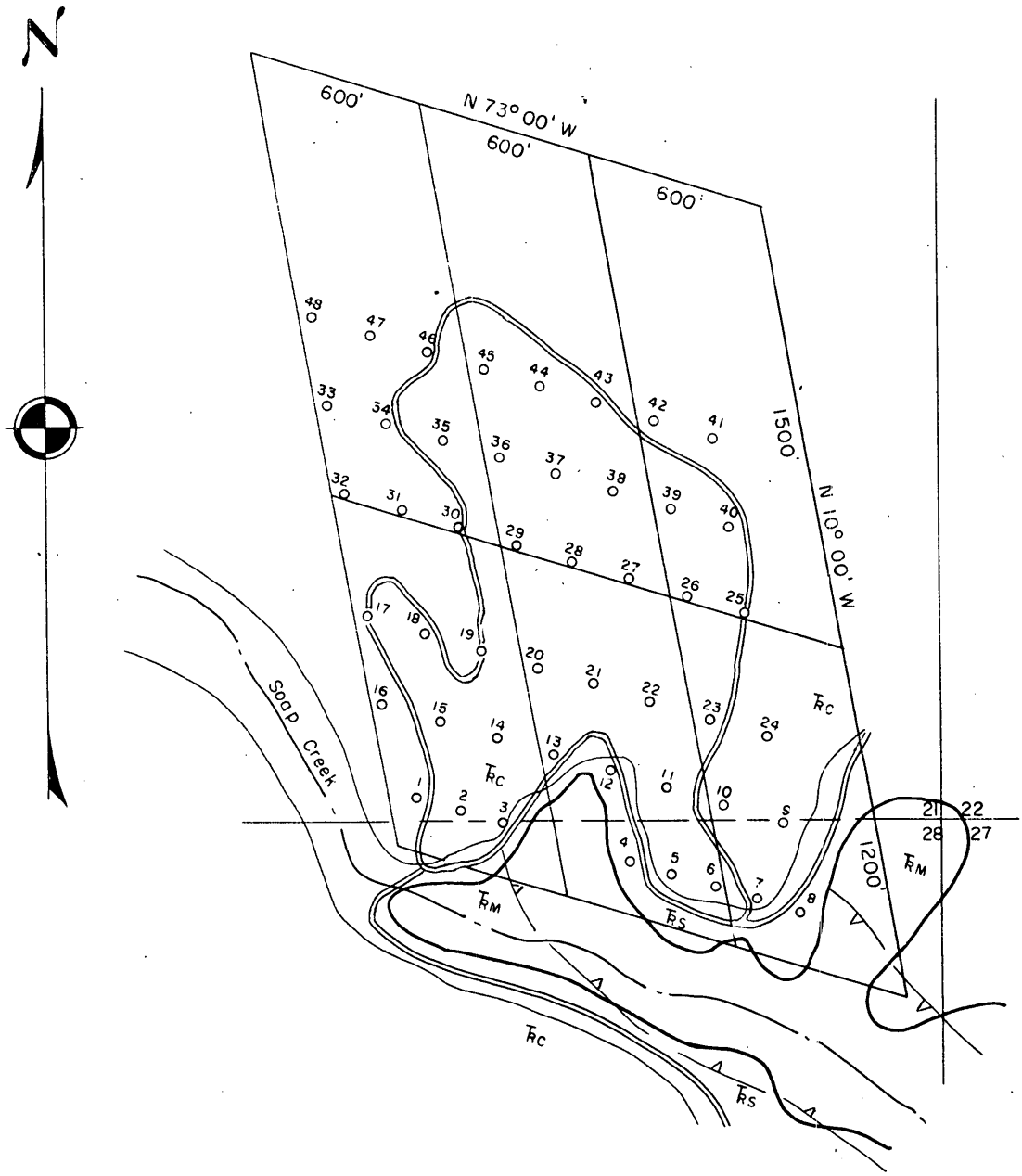
The price I wish to quote is $12.00 per hour.

Thank you,

Abe Bonham

AB:epa


WYOMING
SUMMIT
DAGGETT
SALT LAKE
SALT LAKE
MOFFAT
JACKSON
VERNAL
CRAIG
STEAMBOAT SPRINGS
Yampa River
PROVO
UTAH
DUCHESNE
DUCHESNE
Duchesne River
UINTAH
ROUTT
White River
MEEKER
GRAND
RIO BLANCO
HELPER
CARBON
PRICE
Price River
GARFIELD
EAGLE
SUMMIT
RIFLE
GLENWOOD SPRINGS
SANPETE
MANTI
CASTLEDALE
San Rafael River
EMERY
GREEN RIVER
THOMPSONS
CISCO
COLORADO RIVER
PITKIN
LAKE
FAIRPLAY
GRAND JUNCTION
MESA
RICHFIELD
SEVIER
Muddy River
GRAND
DELTA
CHAFFEE
GATEWAY
DELTA
GUNNISON
GUNNISON
Gunnison River
MOAB
Dolores River
MONTROSE
WAYNE
HANKSVILLE
Fremont River
Dirty Devil River
URAVAN
BEDROCK
Mancos River
NATURITA
NORWOOD
OURAY
OURAY
SAGUACHE
PLACERVILLE
SAN MIGUEL
GARFIELD
BOULDER
MONTICELLO
HINSDALE
ESCALANTE
Escalante River
DOLORES
SILVERTON
SAN JUAN
MINERAL
DEL NORTE
RIO GRANDE
MONTE VISTA
CANNONVILLE
SAN JUAN
BLANDING
MONTEZUMA
CORTEZ
LA PLATA
DURANGO
PAGOSA SPRINGS
KANE
San Juan River
BLUFF
ARCHULETA
CONEJOS
UTAH
ARIZONA
COLORADO
NEW MEXICO
MARBLE CANYON GROUP
KAYENTA
Colorado River
Animas River
SHIP ROCK
FARMINGTON
LUKACHUKAI
SAN JUAN
RIO ARRIBA
ROSWELL
CHINLE
CAMERON
COCONINO
Little Colorado River
NAVAJO
APACHE
McKINLEY
GALLUP
SANDOVAL
Rio Grande River
FLAGSTAFF
BLUEWATER
GRANTS
San Jose River
LAGUNA
ALBUQUERQUE
BERNALILLO
WINSLOW
HOLBROOK
VALENCIA
River
SPRINGERVILLE
N
0 10 20 30 40 50
MILES



TRC	Chinle Formation
TRS	Shinarump Formation
TRM	Moenkopi Formation
	Existing Drill Roads
13	Proposed Drill Hole
	Channel Boundaries

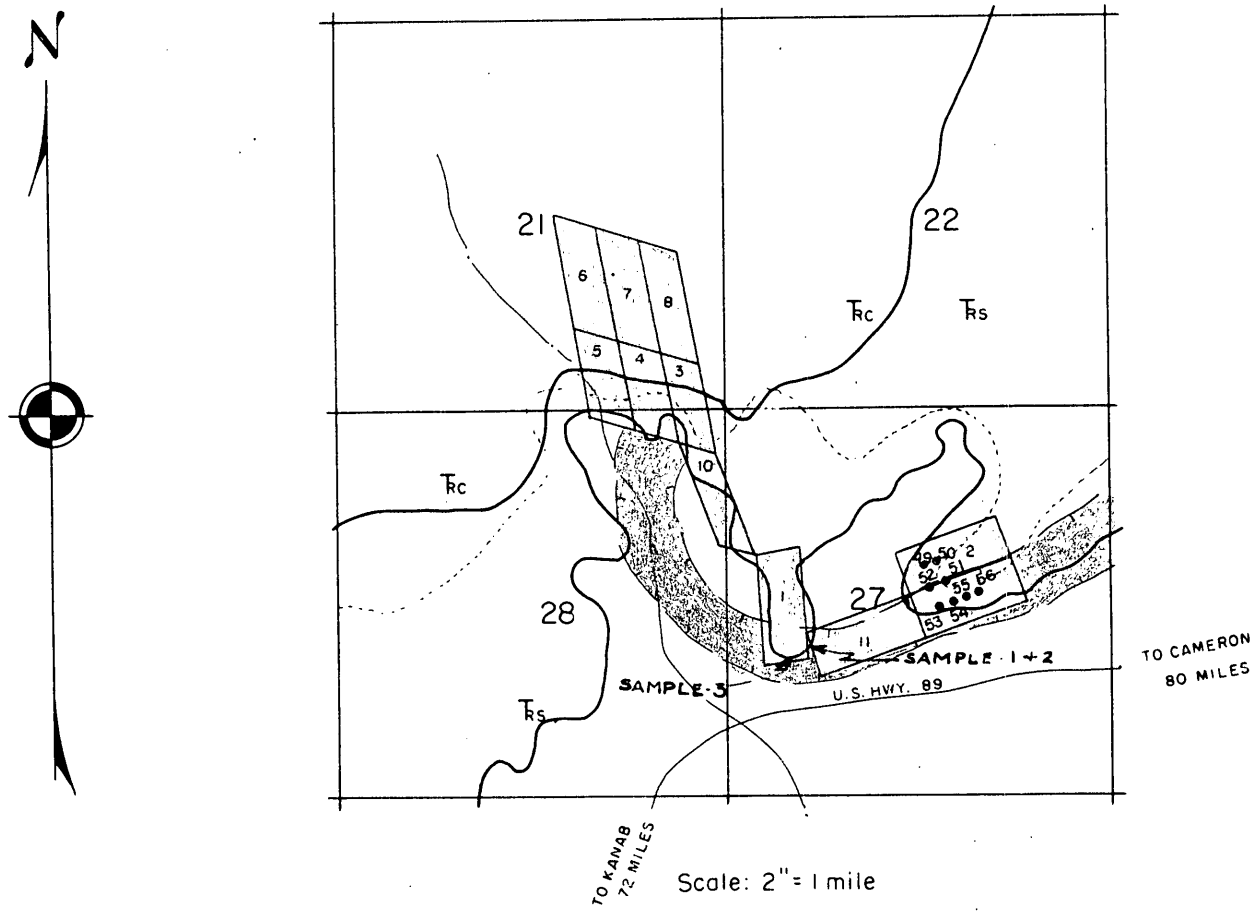
LA SALLE MINING COMPANY

JASPER GROUP

MARBLE CANYON AREA

T 39 N R 6 E G. & S.R.M.

COCONINO COUNTY, ARIZONA

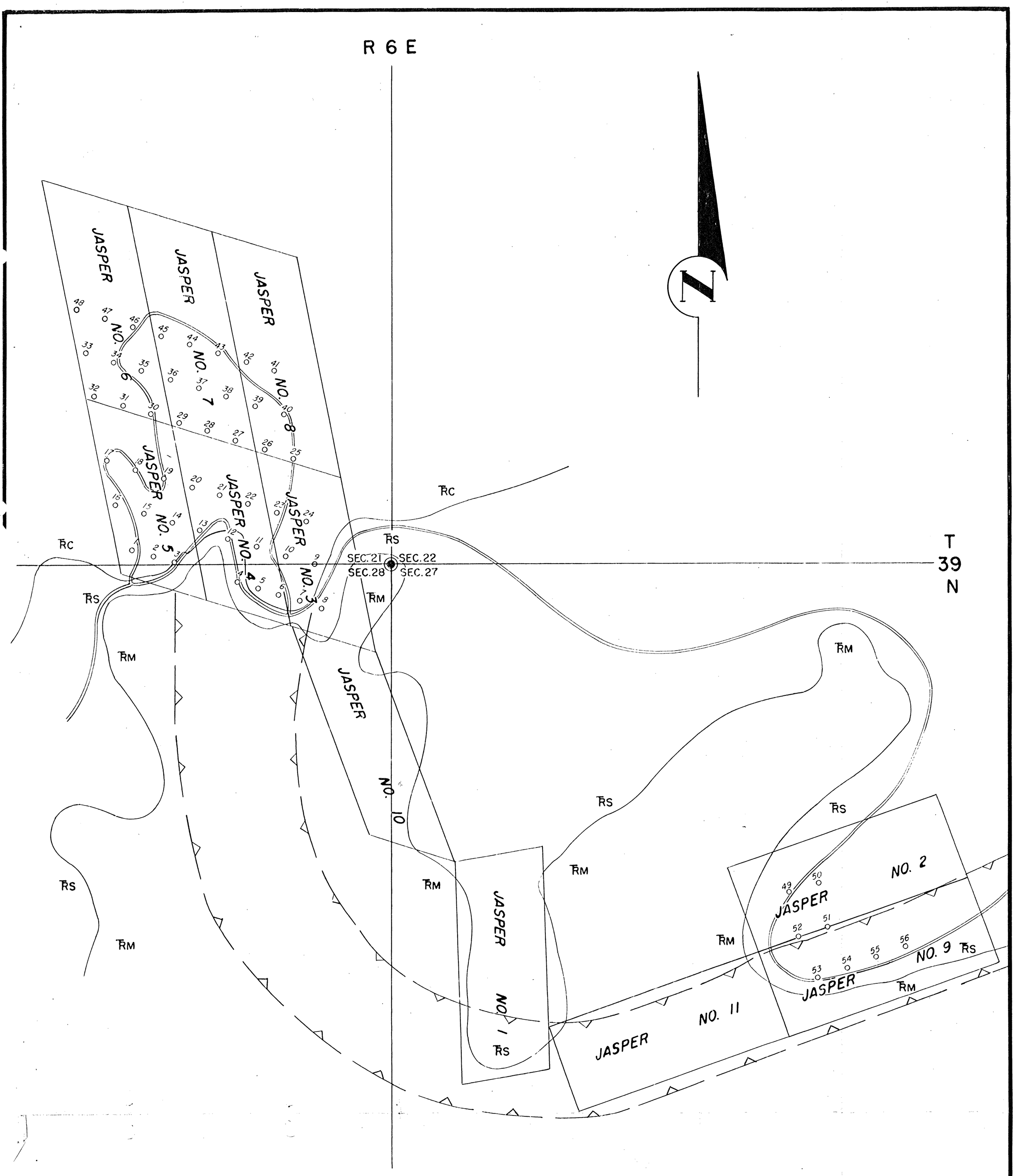


Trc	Chinle Formation
Trs	Shinarump Formation
7	Jasper Claim
	Drill Road
	Channel Boundaries
53	Proposed Drill Hole

LA SALLE MINING COMPANY
JASPER GROUP
MARBLE CANYON AREA

T 39 N R 6 E G. & S.R.M.

COCONINO COUNTY, ARIZONA



LEGEND

TRC	CHINLE FORMATION
TRS	SHINERUMP CONGLOMERATE
TRM	MOENKOPI FORMATION
	CONTACT
	STREAM CHANNEL BOUNDARIES
o 20	PROPOSED DRILL HOLE
	EXISTING ACCESS ROAD

0 400 800 1200 1600
SCALE OF FEET

NOTE

DATA TAKEN FROM APPLICANT'S MAPS.

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Fig. 2 DMEA Docket No. 3867

Geologic Map, Proposed Drill Holes, Claims & Roads

LA SALLE MINING CO.
(JASPER GROUP)
COCONINO COUNTY, ARIZONA

ENGINEER: *M. H. HOWES*	DATE: DEC. 28, 1955
TRACED: DEC., 1955, BY: A.P.T.S.	1900 - 369 - C
CHECKED:	