700

FILE COPY

Surname:

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

MAR 26 1956

Mr. William James Stark
O. A. Sutton, et al.
Suite 407 Insurance Building
Wichita, Kansas

Re: Docket No. DMEA-4084 (Uranium)
Freeman group of claims
Saguache County, Colorado

Dear Mr. Stark:

Your application for aid in an exploration project and other information available to us in Washington concerning the above-named property have been reviewed.

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 uranium mineralization on your property, indicates to us that the probability of disclosing significant ore reserves is not sufficiently promising to justify Government participation. 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,

Administrator

FLKnouse/izm 3-23-56
cc to: Docket
Code 700
Mr. Knouse
Admr.'s Reading File
Operating Committee
DMEA Field Team, Region III (2)
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHOsted, Rm. 3210, GSA

Docket Copy
700

Summary of Proposed Project

March 23, 1956

Object: Denial of application for an exploration project.

Docket No.: DMEA-4048

Commodity: Uranium

Applicant: O. A. Sutton et al.
Suite 407 Insurance Building
Wichita, Kansas

Property: Consists of 21 unpatented lode claims as follows: Lone Tree, Bell Air, Bell Air Extension, Outpose Nos. 1 and 3, Outpost Extension No. 1, Maybe Nos. 1, 2, and 3, Stormy, Columbine Nos. 1, 2, and 3, Divide Nos. 1, 2, and 3, Hilltop, Morning Star, and Piney Nos. 2, 3, and 5, located in secs. 23 and 28, T. 48 N., R. 2 E., N.M.P.&.M., Saguache County, Colorado. The claims are held by an option to purchase dated October 6, 1955 from A. D. Freeman and E. D. Willson, Owners.

Date of Application: November 11, 1955

Amount of Application: $30,867.54. Modified to $26,799.28.

Work Proposed:

To explore a radioactive shear zone that had been traced on the property for 1,700 feet having an average thickness of 43 feet (strikes N. 22° E., and dips 55° to 60° SE.) by means of 9 vertical drill holes from the surface aggregating 3,154 feet, distributed as 556 feet of core drilling and 2,598 feet of non-core drilling. Program later modified to drill 8 vertical holes ranging from 176 to 500 feet deep having the same total footage.

The fault shear zone was exposed by seven trenches for a strike distance of 630 feet, and secondary autunite was reported to be visible in all the trenches. Also the zone was reported to be mineralized by pyrite and iron oxide and exhibits an average radioactivity in the order of 0.04 to 0.08 mr/hr.

Cost of Proposed Work: <u>Original Proposal</u>

(1) Independent Contracts		
Non-core drilling 2,598 feet		
Core drilling 556 feet		
Total 3,154 feet @ $7.00/ft.		$22,078.00
6 hrs. tractor w/dozer operation @ $12/hr.		768.00
(2) Labor Supervision and Consultants		5,442.00
(3) Operating Materials and Supplies		95.00

(4) Operating Equipment			
Rental	$474.00		
Purchase	484.00		
Total		$958.00	
(5) New Buildings, Improvements, Installations		100.00	
(6) Miscellaneous		1,446.54	
Total Estimate Cost (original proposal)			$30,867.54

Modified Proposal

(1) Independent Contracts			
2,598 feet non-core drilling @ $7/ft.		$18,186.00	
556 feet core drilling @ $7/ft.		3,892.00	
64 hrs. tractor w/dozer operation @ $12/hr.		768.00	
Total			$22,846.00
(2) Labor, Supervision and Consultants			2,616.00
(3) Operating Materials and Supplies			239.00
(4) Operating Equipment			
Depreciation	$194.28		
Rental	54.00		
Total			248.28
(5) New Buildings, Improvements, Installations			100.00
(6) Miscellaneous			750.00
Total Estimate Cost of Project (Modified Proposal)			$26,799.28

Field Team Report:

(Joint report by D.M. MacLaren, USGS, & C.M. Harrer, USBM, Feb. 13, 1955)

"The only rock exposed on the applicant's claims is Precambrian Schist. A fault zone that strikes N. 22 degrees E. and dips 55 degrees to 60 degrees S.E. was found to contain small amounts of radioactive material, not seen by the examiners but said by the applicant to be secondary uranium minerals and possibly pitchblend. Assays of samples taken by the examiners in trenches showing the highest radioactivity showed the uranium content to be in equilibrium and to amount to 0.03 percent U_3O_8. According to the Denver Exploration Branch of the Atomic Energy Commission the Precambrian Schist is a poor host rock for the formation of uranium ore bodies in the district.

"It is concluded that the chance of this proposed project resulting in a significant discovery of uranium ore is poor, and denial of the application is recommended."

Field Team members concur with the above recommendation that the application be denied.

Comments of Commodity Specialists:

USGS, N. E. Nelson, March 13, 1956, concurs with Field Team.

USBM, J. E. Crawford, March 22, 1956, concurs with Field Team.

Rare & Miscellaneous Metals Division, F. L. Knouse, March 23, 1956:

Because of the low uranium values in the most favorable exposures made across the shear zone, the unfavorable host rock for uranium deposits, and also, unfavorable exploration history in the area in the Pre-Cambrian rocks, as well as no sound geological reason that primary or secondary ore grades will be found in depth, this Division concurs with the field examiners, Field Team and Commodity specialists that the application be denied. Therefore, a letter has been written to the Applicant denying the application.

Ernest Wm. Ellis

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

3/22/56

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

RECEIVED
MAR 22 1956

March 21, 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 4084, O. A. Sutton, et al., Freeman Group, Saguache County, Colorado

I have reviewed the report of examination, O. A. Sutton, et al., DMEA Docket 4084, dated March 7 and received in this office March 14. I have also discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

The subject property was examined by DMEA personnel to determine the suitability of the area for an exploration program for uranium. The examiners found the exposed rock on the property to be pre-Cambrian schist, which is not a likely host rock for uranium. Therefore, the examiners recommend denial of the application, since it is not probable that the weak mineralization found near the surface will increase with depth.

We concur in the recommendation for denial.

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

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

RECEIVED
MAR 22 1956

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John E. Crawford

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

RECEIVED
MAR 22 1956

March 21, 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 4064, O. A. Sutton, et al., Freeman Group, Saguache County, Colorado

I have reviewed the report of Examination, O. A. Sutton, et al., DMEA Docket 4064, dated March 7 and received in this office March 14. I have also discussediit with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

The subject property was examined by DMEA personnel to determine the suitability of the area for an exploration program for uranium. The examiners found the exposed rock on the property to be pre-Cambrian schist, which is not a likely host rock for uranium. Therefore, the examiners recommend denial of the application, since it is not probable that the weak mineralization found near the surface will increase with depth.

We concur in the recommendation for denial.

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

John E. Crawford

3-14-56

IN REPLY REFER TO:

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

RECEIVED
MAR 14 1956

March 13, 1956

Re: DMEA 4084
O. A. Sutton, et al.
Saguache Co., Colorado
$26,799.28 - 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 applicants requested assistance in drilling a fault zone in Precambrian schist. Trenches to bedrock were said to trace a radioactive zone for over 600 feet, and secondary autunite was said to be visible in the trenches.

The revised estimated cost of the proposed drilling is $26,799.28.

The examiners saw no secondary uranium minerals, only two trenches showed radioactivity substantially above background and samples taken 6 feet below surface showed only:--

Sample No.	Width (ft.)	% eU_3O_8	% U_3O_8
H-826	3	0.03	0.033
H-827	4	0.04	0.031

The examiners conclude that the Precambrian schist, the only rock exposed on the property, is not a likely host rock and no improvement in values, over those found in the trenches, is to be expected with depth.

The examiners and the Field Team 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
MAR 14 1956

March 13, 1956

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O. A. Sutton, et al.
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The revised estimated cost of the proposed drilling is $26,799.28.

The examiners saw no secondary uranium minerals, only two trenches showed radioactivity substantially above background and samples taken 6 feet below surface showed only:--

Sample No.	Width (ft.)	% eU_3O_8	% U_3O_8
N-826	3	0.03	0.033
N-827	4	0.04	0.031

The examiners conclude that the Precambrian schist, the only rock exposed on the property, is not a likely host rock and no improvement in values, over those found in the trenches, is to be expected with depth.

The examiners and the Field Team recommend denial of the application.

I concur with the recommendation.

N. E. Nelson

N. E. Nelson

NENelson:iml
G-3/13/56
cc: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
J. E. Crawford, 3641; J. O. Hosted, 3210

IN REPLY REFER TO:

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

RECEIVED
MAR 14 1956

March 13, 1956

Re: DMEA 4084
O. A. Sutton, et al.
Saguache Co., Colorado
$86,799.28 - 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 applicants requested assistance in drilling a fault zone in Precambrian schist. Trenches to bedrock were said to trace a radioactive zone for over 600 feet, and secondary autunite was said to be visible in the trenches.

The revised estimated cost of the proposed drilling is $86,799.28.

The examiners saw no secondary uranium minerals, only two trenches showed radioactivity substantially above background and samples taken 6 feet below surface showed only:--

Sample No.	Width (ft.)	% eU_3O_8	% U_3O_8
E-886	3	0.03	0.033
E-887	4	0.04	0.031

The examiners conclude that the Precambrian schist, the only rock exposed on the property, is not a likely host rock and no improvement in values, over those found in the trenches, is to be expected with depth.

The examiners and the Field Team recommend denial of the application.

I concur with the recommendation.

N. E. Nelson

N. E. Nelson

NENelson:iml
G-3/13/56
cc: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
J. E. Crawford, 3641; J. O. Hosted, 3210

IN REPLY REFER TO:

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

RECEIVED
MAR 14 1956

March 13, 1956

Re: DMEA 4084
O. A. Sutton, et al.
Saguache Co., Colorado
$26,799.28 - 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 applicants requested assistance in drilling a fault zone in Precambrian schist. Trenches to bedrock were said to trace a radioactive zone for over 600 feet, and secondary autunite was said to be visible in the trenches.

The revised estimated cost of the proposed drilling is $26,799.28.

The examiners saw no secondary uranium minerals, only two trenches showed radioactivity substantially above background and samples taken 6 feet below surface showed only:—

Sample No.	Width (ft.)	% eU_3O_8	% U_3O_8
E-826	3	0.03	0.033
E-827	4	0.04	0.031

The examiners conclude that the Precambrian schist, the only rock exposed on the property, is not a likely host rock and no improvement in values, over those found in the trenches, is to be expected with depth.

The examiners and the Field Team recommend denial of the application.

I concur with the recommendation.

N. E. Nelson

N. E. Nelson

NENelson:iml
G-3/13/56
cc: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
J. E. Crawford, 3641; J. O. Hosted, 3210

3-15-56 [illegible]

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

RECEIVED
MAR 12 1956

March 7, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Joint Report of Examination, Docket DMEA 4084 (Uranium), O. A. Sutton, et al., Freeman Group, Saguache County, Colorado

Enclosed are the original and three copies of the joint engineering and geologic report covering the subject docket.

The field examiners conclude, with the concurrence of the Atomic Energy Commission, that in the Cochetopa district the pre-Cambrian schist is not a good host for the formation of uranium ore bodies. The only rocks exposed on the applicant's property are pre-Cambrian schists, and the uranium values in the structure which the applicant proposes to explore are very low. There is little possibility of discovering a significant amount of uranium on this property, and the examiners recommend that the application be denied. We concur in this recommendation.

DMEA Field Team, Region III

W. M. Traver

By W. M. Traver
Executive Officer

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
3-14-56
(date)

RECEIVED
MAR 12 1956
TRANSMITTED

DMEA
Date Rec'd.
MAR 6 1956
BUREAU OF MINES
Denver, Colorado

Region III

Building 20
Denver Federal Center
Denver 2, Colorado
March 5, 1956

MAR 7 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: E. N. Harshman
John F. Shaw

Subject: Joint Examination Report, Docket DMEA 4064, O. A. Sutton et al, Saguache County, Colorado

Enclosed are the original and 9 copies of the Joint Examination Report covering Docket DMEA 4064.

O. A. Sutton et al applied for exploration assistance to explore the Freeman Group of claims by core and plug-bit drilling at an estimated cost of $30,867.57. This cost was later revised to $26,799.28.

The property was examined on Jan. 12, 1956 by D. R. MacLaren, Geologist and C. M. Harrer, Mining Engineer. The examining team concluded that there is little possibility of discovering a significant amount of uranium on this property.

It is recommended that the application be denied.

E. N. Harshman

E. N. Harshman
Member Field Team

John F. Shaw

John F. Shaw
Supervising Mining Engineer

cc 9
ENHarshman
DMEA 4064
Chron.

JFS/eh

REVIEWED BY
DMEA OFFICERS COMMITTEE
3-14-56
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

RECEIVED
MAR 12 1956
DMEA
Date Rec'd.
MAR 6 1956
BUREAU OF MINES
Denver, Colorado
TRANSMITTED
MAR 7 1956

DEFENSE MINERALS EXPLORATION ADMINISTRATION

JOINT REPORT OF EXAMINATION BY EXAMINING TEAM
REGION III

DMEA 4084

O.A. SUTTON, ET AL

Freeman Group

Saguache County, Colorado

Uranium

Joint Geologic and Engineering Report

By

D. R. MacLaren, Geologist
Geological Survey

C. M. Harrer, Mining Engineer
Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE
3-14-56
(date)

February 24, 1956

DMEA 4084

O. A. SUTTON, ET AL
FREEMAN GROUP
SAGUACHE COUNTY, COLORADO

RECEIVED
MAR 12 1956

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Mining, milling and other facilities 7
Project proposals 7
Conclusions and recommendations 11

ILLUSTRATIONS

Figure — Follows Page

1. Location map, O. A. Sutton et al., Freeman Group, Saguache County, Colorado (DMEA 4084) 2
2. Claim and exploration map, O. A. Sutton et al., Freeman Group, Saguache County, Colorado (DMEA 4084)..... 2

DMEA 4084

O. A. SUTTON ET AL
Freeman Group
Saguache County, Colorado

RECEIVED
MAR 12 1956

SUMMARY

A joint venture known as O. A. Sutton, et al, has applied for Defense Minerals Exploration Administration assistance to explore their Freeman Group of standard lode locations for uranium at an overall cost of $30,867.54. This cost was later revised to $26,799.28.

O. A. Sutton, et al, have 33 lode claims under a one year option-to-purchase agreement which will end on July 15, 1956, with no provisions for renewal. The claims are the property of A. O. Freeman and E. O. Willson of Gunnison, Colorado, by right of location. Only 21 claims are included in the request for exploration assistance.

The claims are in Secs. 28 and 23, T. 48 N., R. 2 E., Cochetopa Mining District, Saguache County, Colorado, and at an altitude of about 8,400 feet above sea-level. The claims are readily accessible from Gunnison over 17 miles of paved highways and 2.5 miles of dirt access road.

At present the nearest Atomic Energy Commission uranium purchasing depot is at Grand Junction, Colorado.

The only rock exposed on the applicant's claims is Precambrian Schist. A fault zone that strikes N. 22 degrees E. and dips 55 degrees to 60 degrees S.E. was found to contain small amounts of radioactive material, not seen by the examiners but said by the applicant to be secondary uranium minerals and possibly pitchblend. Assays of samples taken by the examiners in trenches showing the highest radioactivity showed the uranium content to be in equilibrium and to amount to

0.03 percent U_3O_8. According to the Denver Exploration Branch of the Atomic Energy Commission the Precambrian Schist is a poor host rock for the formation of uranium ore bodies in the district.

It is concluded that the chance of this proposed project resulting in a significant discovery of uranium ore is poor, and denial of the application is recommended.

INTRODUCTION AND ACKNOWLEDGMENTS

Messrs. Glenn E. Sheppard, Physicist and Andrew J. Lang, geologist for O. A. Sutton, et al., represented the applicants and accompanied the examining team on the inspection of the property on January 12, 1956.

The applicants, O. A. Sutton, Dianne S. McCarthy, Ottis Sutton McCarthy, Michael Sutton, W. J. Stark, P. R. Kitch and J. G. Paulsen are engaged in a joint uranium venture under the name of O. A. Sutton, et al. They have 33 lode claims under an option-to-purchase agreement which will end on July 15, 1956.

They have applied for DMEA assistance to explore 21 of their claims with an exploration program limited to the Outpost No. 1 and Piney No. 3 claims of this group. Exploration would consist of diamond drill holes through a mineralized shear zone at depths up to 500 feet. A total of 3,154 feet of size NX hole is requested. Drilling would be completed at an overall cost of $30,867.54. This was later revised to $26,799.28.

The Denver Exploration Branch of the Atomic Energy Commission was consulted regarding the property.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

The applicant's property is in secs. 28 and 33, T. 48 N., R. 2 E., in the Cochetopa Mining District of Saguache County, Colorado, figs. 1 and 2. The claims are in rough country at an altitude of about 8,400 feet.

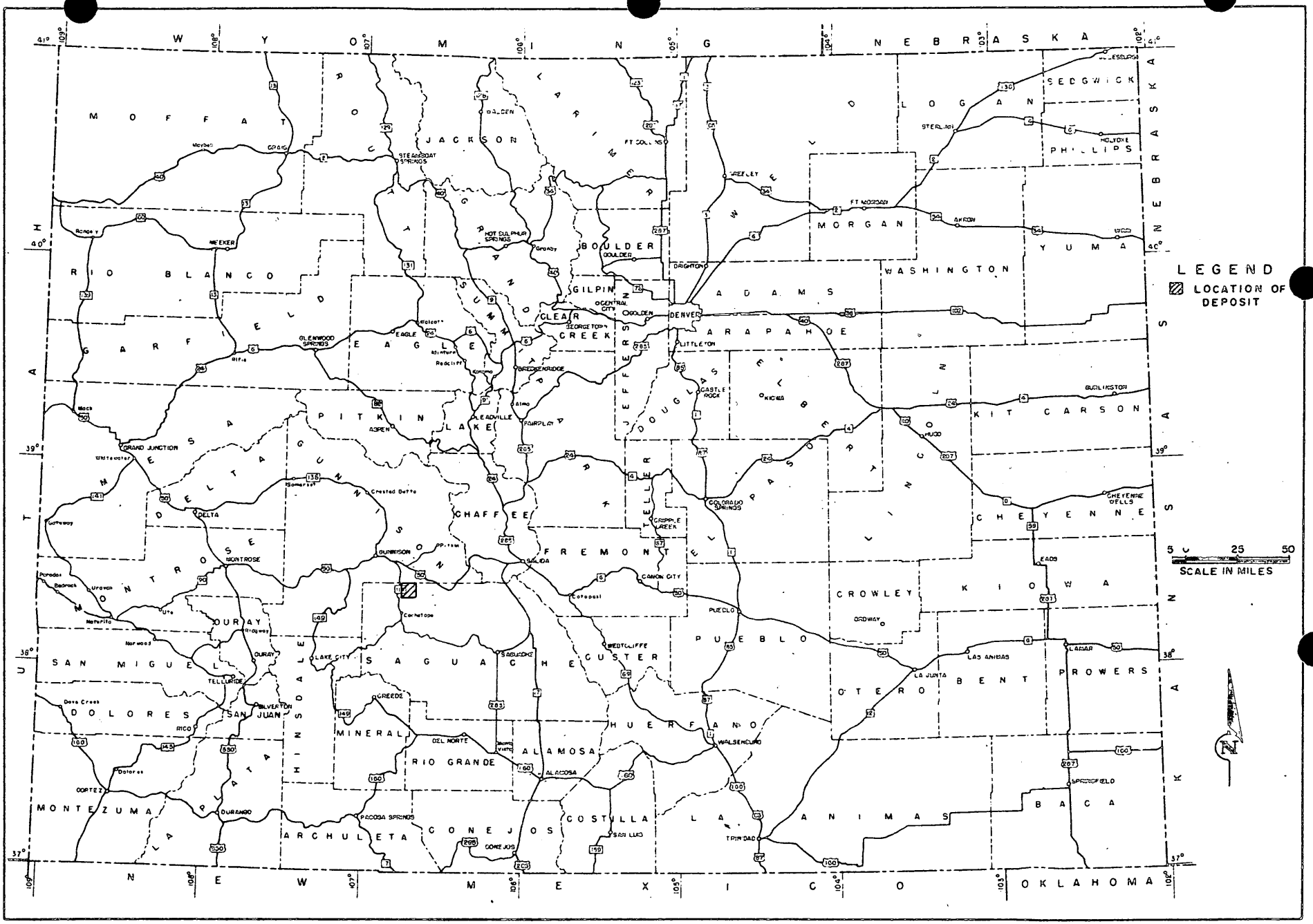

FIGURE 1 - LOCATION MAP, O. A. SUTTON, ET AL., FREEMAN GROUP, SAGUACHE COUNTY, COLO. DMEA 4084

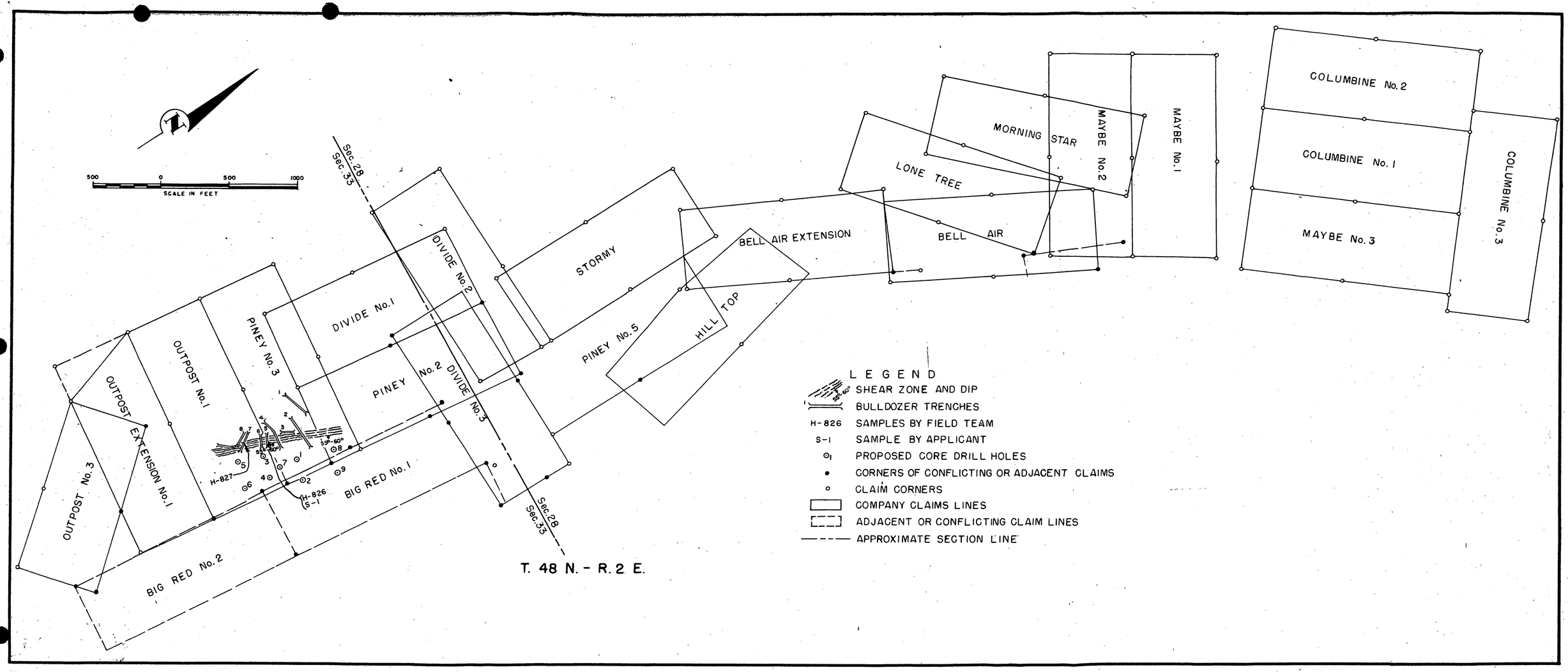

FIGURE 2 - CLAIM AND EXPLORATION MAP, O. A. SUTTON ET AL., FREEMAN GROUP, SAGUACHE COUNTY, COLO. DMEA 4084

The claims are readily accessible from Gunnison, Colo., over 17 miles of paved roads comprising Colorado Highways 50 and 115; thence 2.5 miles over a dirt access road to the claim area. Gunnison is the nearest important town. At the present time, the nearest Atomic Energy Commission uranium purchasing depot is at Grand Junction. Water is available from Cochetopa Creek about 2.5 miles from the property. R.E.A. electric energy is obtainable a few miles from the property.

HISTORY AND PRODUCTION

There has been no production of uranium or other ore from the property to date. It has been used as grazing land for cattle and sheep.

OWNERSHIP

O. A. Sutton, et al., includes the following people engaged in a joint venture to explore for uranium:

Name	Interest	Address
O. A. Sutton	9/20	407 Insurance Bldg., Wichita, Kansas
Dianne Sutton McCarthy	1/10	441 S. Glendale, Wichita, Kansas
The Fourth Nat'l. Bank of Wichita, Trustees for Ottis Sutton McCarthy and Michael Sutton	2/10	P. O. Box 1090, Wichita, Kansas
William J. Stark	1/10	5433 Lambsdale, Wichita, Kansas
Paul R. Kitch	1/10	901 First Nat'l. Bank Bldg., Wichita, Kans.
Jack G. Paulsen	1/20	2628 N. Clarence, Wichita, Kansas

The applicants have 33 lode locations under an option-to-purchase agreement which will terminate on July 15, 1956. Of the above 33 lode claims, the applicant mentions 21 claims in his application for exploration assistance. Some of these claims are not on the extensions of the shear structure to be explored. The claims are shown on figure 2 and are listed as follows:

Claim	Located	Recorded	Book	Page	Owner
Lone Tree	8/4/54	11/3/54	248	233	A. O. Freeman
Bell Air	8/5/54	11/3/54	248	251	A. O. Freeman
Outpost No. 1	8/24/54	11/3/54	248	258	A. O. Freeman
Maybe No. 1	8/29/54	11/3/54	248	238	A. O. Freeman
Maybe No. 3	8/29/54	11/3/54	248	239	A. O. Freeman
Outpost Extension#1	9/4/54	11/3/54	248	259	A. O. Freeman
Stormy	9/4/54	11/3/54	248	236	A. O. Freeman
Columbine No. 1	9/15/54	11/3/54	248	261	A. O. Freeman
Columbine No. 2	9/15/54	11/3/54	248	262	A. O. Freeman
Columbine No. 3	10/5/54	11/3/54	248	263	A. O. Freeman
Outpost No. 3	9/29/54	11/3/54	248	260	A. O. Freeman
Maybe No. 2	8/29/54	11/12/54	248	403	A. O. Freeman
Divide No. 2	9/13/54	11/12/54	248	404	A. O. Freeman
Bell Air Extension	10/28/54	11/3/54	248	252	A. O. Freeman
Hilltop	8/17/54	11/3/54	243	163	A. O. Freeman E. O. Willson
Morning Star	8/17/54	8/23/54	243	162	A. O. Freeman E. O. Willson
Piney No. 2	11/2/54	11/3/54	243	157	A. O. Freeman E. O. Willson
Piney No. 3	8/18/54	11/3/54	248	256	A. O. Freeman E. O. Willson
Piney No. 5	8/19/54	11/3/54	243	160	A. O. Freeman E. O. Willson
Divide No. 1	9/7/54	11/3/54	248	253	A. O. Freeman E. O. Willson
Divide No. 3	9/13/54	11/3/54	248	254	A. O. Freeman E. O. Willson

O. A. Sutton et al., secured a subordination agreement from the lessors A. O. Freeman and E. O. Willson on January 26, 1956 and are making an effort to secure the Big Red claims nos. 1 and 2, east of Outpost No. 1, Outpost Extension and Piney No. 3 claims.

O. A. Sutton, et al., are confident that they can secure any extension in time necessary to satisfy the requirements of DMEA.

GEOLOGY

The geology of the Cochetopa mining district is fairly simple. The oldest rocks in the area are Precambrian granite, gneiss, schist, and quartzite. Unconformably overlying the Precambrian rocks is the

Morrison formation of Jurassic age which in turn is overlain by the Dakota formation of Cretaceous age. Locally, Tertiary volcanic rocks, principally quartz-latite and rhyolite, occur as domes, dikes, and flows.

There are two major sets of faults in the area. The stronger set has a general easterly trend. Some of the faults of this set can be traced on the ground for more than 3 miles. The other set of faults has a general northeasterly trend. These are much shorter in length, and are not as strong as those of the easterly-trending set. Although a few of the northeasterly faults appear to cut across the easterly faults, most of them have been offset by the latter. Radiometric anomalies have been encountered on several faults of both sets, and shallow trenching has disclosed the presence of secondary uranium-bearing minerals identified by the AEC as autunite, uranophane, and metazunerite.

The only deposits of uranium ore so far discovered in the area are along a strong fault of the easterly-striking set that strikes N. 70° to 80° E. and dips nearly vertically. The ore bodies have been more or less localized at fault intersections, and, with one exception, within the sedimentary rocks. These deposits are being developed by the Thornburg Brothers, on the Los Ocho claims about a mile southeast of the applicant's property. At the west end of the Los Ocho claims, secondary uranium minerals were found in moderate amounts at the surface in a shattered and weathered Precambrian granite. A few tens of feet below the surface, the Thornburgs report, primary pitchblende was found. This ore body, as described in Vol. 45, No. 3, page 56, of Colorado Mines Magazine, is 80 feet long, 10 to 20 feet wide and contains 1.0 percent U_3O_8. Elsewhere on the Los Ocho claims secondary uranium minerals were

found in moderate amounts on the surface at several fault intersections. According to the Atomic Energy Commission, several of these showings were diamond-drilled and in every case they were found to overlie primary pitchblende. Also in every case the pitchblende did not continue more than a few feet below the sedimentary rocks into the Precambrian schist. Although the approximate depth to which the ore body continues in the granite is not known, it is understood that drilling has shown it to be relatively shallow.

The applicant proposes to explore a northeasterly-trending fault which was first discovered by a radiometric survey and has been traced for a distance of 1,700 feet. There are 8 trenches (fig. 2) on the property, five of them exposing the full width of the fault zone, and two others exposing part of the zone. The trenches range in depth from 2 to 15 feet. The hanging wall portion of the fault zone consists of up to 3 feet of brown iron-stained schist. The center portion is up to 2 feet of red iron-stained gouge that contains fragments of schist, veinlets of quartz, and a few small crystals of pyrite. In two of the trenches the footwall is an altered basic rock, probably amphibolite, but where it was seen in the other trenches it is schist. The fault zone has a general strike of N. 22 degrees E. and dips 55 degrees to 60 degrees SE.

Although in the application mention is made of the occurrence of secondary uranium minerals in the deeper trenches, none could be found by the examiners at the time of the inspection. The Geiger counter registered a background of 0.05 MR/hr. In one trench a maximum recording of 0.20 MR/hr was made, and in another the maximum was 0.10 MR/hr. All other readings were either background or only slightly above. Two samples taken by the examiners assayed:

Sample No.	Width feet	Percent eU_3O_8	Percent U_3O_8	Location
H-826	3	0.03	0.033	6 ft. below surface, trench No. 5
H-827	4	0.04	0.031	6 ft. " " " No. 7

A 3-pound grab sample taken over a width of 6 feet by the applicant from the same location as H-826 assayed 0.05 percent eU_3O_8 and 0.055 percent U_3O_8. These assay results indicate that the uranium is essentially in equilibrium, and therefore that the removal of uranium from the oxidized zone, as postulated by the applicant, has not been shown to have taken place.

ORE RESERVES

There is no basis on which to estimate ore reserves and there has been no production from the property.

PRESENT STATUS

Exploration and Development

Prospecting and exploration to date is limited to 8 bulldozer trenches as shown on figure 2, geologic mapping of the shear structure and one sample analyzed for equivalent and chemical uranium content.

Mining, Milling and Other Facilities

There are no mining, milling or other facilities on the property and any uranium ore found would be hand sorted and shipped on the instructions of the Atomic Energy Commission. The nearest ore purchasing depot of the Atomic Energy Commission is at Grand Junction, Colorado.

PROJECT PROPOSALS

The applicant, O. A. Sutton, et al originally proposed to explore a radioactive shear zone on the Outpost No. 1 and Piney Nos. 2 and 3 claims (fig. 2) with 9 vertical diamond drill holes. The holes would

be drilled by plug-bit to the shear zone and cored through the shear zone. Holes would be drilled size NX and would total 3,154 feet, distributed as 556 feet of core drilling and 2,598 feet of non-core drilling. Total cost of the project was estimated at $30,867.54.

On February 3, 1956 the applicant submitted a revised exploration program at a total estimated cost of $26,799.28. Stage I of the program would consist of 8 size NX core drilled holes.

Hole No.	Size NX Core drilling	Description of holes: Non-core plug-bit drilling	Approximate Total footage	Dip of hole	True Bearing of hole	Location of hole collar
1	46	217	263	-57°	Normal to shear zone N. 72° W.	140' W.(inside) of Piney #3 claim & 95' W. of Big Red #1 claim conflict line.
2	60	300	360	-69-1/2°	ditto	18' W. (inside) of Piney #3 claim & 28' E.(outside) of Big Red #1 claim conflict line.
3	56	176	232	Vertical	--	270' W.(inside) of Outpost #1 claim & 230' W. (inside) of Big Red #1 claim conflict line.
4	56	344	400	Vertical	--	110' W.(inside) of Outpost #1 claim and 68' W. (inside) of Big Red #1 claim conflict line.
5	62	103	165	Vertical	--	310' W.(inside) of Outpost #1 claim & 280' W. (inside) of Big Red #2 conflict line.
6	62	438	500	Vertical	--	110' W.(inside) of Outpost #1 claim & 78' W. (inside) of Big Red #2 claim conflict line.

Hole No.	Size NX Core drilling	Description of holes: Non-core plug-bit drilling	Approximate Total footage	Dip of hole	True Bearing of hole	Location of hole collar
7	65	268	333	Vertical	--	142' W.(inside) of Piney #3 claim line and 100' W.(inside) of Big Red #1 claim conflict line.
8	69	207	276	Vertical	--	100' W.(inside) of Piney Nos. 2 & 3 claim lines & 65' W.(inside) of Big Red #1 claim conflict line.
Totals	476	2,053	2,529			

Stage I would consist of approximately 476 feet of size NX core drilling and 2,053 feet of size NX plug-bit drilling. The applicant requests a total of 556 feet of size NX core drilling and 2,598 feet of non-core plug-bit drilling. Hole No. 9 (fig. 2)was eliminated.

The remaining 80 feet of core drilling and 545 feet of non-core drilling plus any unused footage from Stage I is requested as a Stage II which would be applied to diamond drilling either to the north or south, indicated by prior drilling.

The applicant's proposed diamond drill holes nos. 2 and 9 are within the boundaries of the conflicting Big Red No. 1 claim which the applicants do not control. Hole No. 4 is only 65 feet from the conflicting side line of the Big Red No. 1 claim. Hole No. 6 is only 75 feet from the conflicting side line of the Big Red No. 2 claim. Drill holes less than 100 feet from a property line are not deemed acceptable to DMEA.

O. A. Sutton et al has submitted the following estimate of costs:

Independent Contracts	Units	Unit Cost	Total Cost	Totals
Size NX diamond drilling by Joy Mfg. Co.				
Non-core drilling	2,598 ft.	$7.00	$18,186.00	
Core drilling	556 ft.	7.00	3,892.00	
Bulldozing, access roads and drill locations	64 hrs.	12.00	768.00	
				$22,846.00
Labor, Supervision and Consultants:				
Supervision and Engineering				
1 man part-time (G.E. Sheppard)	45 days	38.40	$1,728.00	
Consulting geologist, A.J. Lang Wichita Univ., Wichita, Kansas	6 days	100.00	600.00	
Travelling expenses for consultant Three trips to property from Wichita	3,600 miles	.08	288.00	
				$ 2,616.00
Operating Materials and Supplies:				
Core boxes and packing	--	--	$50.00	
Spare batteries for Geiger counter	--	--	15.00	
Sample bags	200	.15	30.00	
Operating expense for Jeep- 45 round trips from Gunnison to drill sites	1,800 miles	.08	144.00	
				$ 239.00
Operating Equipment:				
1 - 1955 Jeep station wagon costing $2,638.00 depreciated in 5 years	3 mos.	$43.94	$131.82	
1 - Model 435 Babble hole probe, reel and recorder costing $1,250.00 depreciated in 5 yrs.	3 mos.	20.82	62.46	
Surveying transit rental	10 days	2.00	20.00	
Core splitter rental	--	34.00	34.00	
				$ 248.28

	Units	Unit Cost	Total Cost	Totals
New Bldgs., Improvements & Installations:				
Access dock to water at Cochetopa Creek. Lumber and posts	1	$100.00	$100.00	$100.00
Miscellaneous:				
Analyses of samples for U_3O_8 and eU_3O_8.	100	$ 6.00	$600.00	
Shipping charges on core samples	100	$ 1.50	$150.00	
				$750.00
Total cost of exploration including assays				$26,799.28
Total cost of exploration, not including assays				$26,049.28

The project would be completed in three months.

On February 7, 1956, the applicant further revised his exploration program, eliminating holes 1 and 9 (fig. 2) and assigning the footages estimated for holes 1 and 2 to drilling to the north and south on the basis of the results obtained from drilling holes 2 to 8. Total footages and costs would remain the same.

CONCLUSIONS AND RECOMMENDATIONS

It is concluded, with the concurrence of the Denver Exploration Branch of the Atomic Energy Commission, that in the Cochetopa district the Precambrian schist is not a good host for the formation of uranium ore bodies; that the only rocks exposed on the applicant's property are Precambrian schist; that the uranium values in the structure which the applicant proposes to explore are very low; and that, because the uranium is in equilibrium within a few feet of the surface, the applicant's postulation that an enriched secondary ore body or primary material of considerably higher grade than that found at the surface will be found at depth is not proven.

Therefore, it is recommended that this application be denied.

3/12/56 dym

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

March 7, 1956

224 New Customhouse
Denver 2, Colorado

RECEIVED
MAR 12 1956

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Joint Report of Examination, Docket DMEA 4084 (Uranium), O. A. Sutton, et al., Freeman Group, Saguache County, Colorado

Enclosed are the original and three copies of the joint engineering and geologic report covering the subject docket.

The field examiners conclude, with the concurrence of the Atomic Energy Commission, that in the Cochetopa district the pre-Cambrian schist is not a good host for the formation of uranium ore bodies. The only rocks exposed on the applicant's property are pre-Cambrian schists, and the uranium values in the structure which the applicant proposes to explore are very low. There is little possibility of discovering a significant amount of uranium on this property, and the examiners recommend that the application be denied. We concur in this recommendation.

DMEA Field Team, Region III

By W. M. Traver
Executive Officer

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
3-14-56
(date)

DMEA
Date Rec'd.
MAR 6 1956
BUREAU OF MINES
Denver, Colorado

RECEIVED
MAR 12 1956

Region III

Building 20
Denver Federal Center
Denver 2, Colorado
March 5, 1956

TRANSMITTED
MAR 7 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: E. N. Harshman
John F. Shaw

Subject: Joint Examination Report, Docket DMEA 4084, O. A. Sutton et al, Saguache County, Colorado

Enclosed are the original and 9 copies of the Joint Examination Report covering Docket DMEA 4084.

O. A. Sutton et al applied for exploration assistance to explore the Freeman Group of claims by core and plug-bit drilling at an estimated cost of $30,867.57. This cost was later revised to $26,799.28.

The property was examined on Jan. 12, 1956 by D. R. MacLaren, Geologist and G. M. Harver, Mining Engineer. The examining team concluded that there is little possibility of discovering a significant amount of uranium on this property.

It is recommended that the application be denied.

E. N. Harshman

E. N. Harshman
Member Field Team

John F. Shaw

John F. Shaw
Supervising Mining Engineer

cc 9
EN Harshman
DMEA 4084
Chron.

JFS/eh

3-14-56

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

RECEIVED
MAR 12 1956

DMEA
Date Rec'd
MAR 6 1956
BUREAU OF MINES
Denver, Colorado

DEFENSE MINERALS EXPLORATION ADMINISTRATION

JOINT REPORT OF EXAMINATION BY EXAMINING TEAM
REGION III

TRANSMITTED
MAR 7 1956

DMEA ACM

G.A. SUTTON, ET AL

Freeman Group

Saguache County, Colorado

Uranium

Joint Geologic and Engineering Report

By

D. R. MacLaren, Geologist
Geological Survey

C. M. Harrer, Mining Engineer
Bureau of Mines

February 24, 1956

RECEIVED BY
DMEA OPERATING COMMITTEE
3-14-56
(Date)

DMEA 4064

O. A. SUTTON, ET AL
FREEMAN GROUP
SAGUACHE COUNTY, COLORADO

RECEIVED
MAR 1 2 1956

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Mining, milling and other facilities 7
Project proposals 7
Conclusions and recommendations 11

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2. Claim and exploration map, O. A. Sutton et al., Freeman Group, Saguache County, Colorado (DMEA 4064)..... 2

DMEA 4084

O. A. SUTTON ET AL
Freeman Group
Saguache County, Colorado

RECEIVED
MAR 12 1956

SUMMARY

A joint venture known as O. A. Sutton, et al, has applied for Defense Minerals Exploration Administration assistance to explore their Freeman Group of standard lode locations for uranium at an overall cost of $30,867.54. This cost was later revised to $26,799.28.

O. A. Sutton, et al, have 33 lode claims under a one year option-to-purchase agreement which will end on July 15, 1956, with no provisions for renewal. The claims are the property of A. O. Freeman and E. O. Willson of Gunnison, Colorado, by right of location. Only 21 claims are included in the request for exploration assistance.

The claims are in Secs. 28 and 23, T. 48 N., R. 2 E., Cochetopa Mining District, Saguache County, Colorado, and at an altitude of about 8,400 feet above sea-level. The claims are readily accessible from Gunnison over 17 miles of paved highways and 2.5 miles of dirt access road.

At present the nearest Atomic Energy Commission uranium purchasing depot is at Grand Junction, Colorado.

The only rock exposed on the applicant's claims is Precambrian Schist. A fault zone that strikes N. 22 degrees E. and dips 55 degrees to 60 degrees S.E. was found to contain small amounts of radioactive material, not seen by the examiners but said by the applicant to be secondary uranium minerals and possibly pitchblend. Assays of samples taken by the examiners in trenches showing the highest radioactivity showed the uranium content to be in equilibrium and to amount to

0.03 percent U_3O_8. According to the Denver Exploration Branch of the Atomic Energy Commission the Precambrian Schist is a poor host rock for the formation of uranium ore bodies in the district.

It is concluded that the chance of the proposed project resulting in a significant discovery of uranium ore is poor, and denial of the application is recommended.

INTRODUCTION AND ACKNOWLEDGMENTS

Messrs. Glenn E. Sheppard, Physicist and Andrew J. Lang, geologist for O. A. Sutton, et al., represented the applicants and accompanied the examining team on the inspection of the property on January 12, 1956.

The applicants, O. A. Sutton, Dianne S. McCarthy, Ottis Sutton McCarthy, Michael Sutton, W. J. Stark, P. R. Kitch and J. G. Paulsen are engaged in a joint uranium venture under the name of O. A. Sutton, et al. They have 33 lode claims under an option-to-purchase agreement which will end on July 15, 1956.

They have applied for DMEA assistance to explore 21 of their claims with an exploration program limited to the Outpost No. 1 and Piney No. 3 claims of this group. Exploration would consist of diamond drill holes through a mineralized shear zone at depths up to 500 feet. A total of 3,154 feet of size NX hole is requested. Drilling would be completed at an overall cost of $30,867.54. This was later revised to $26,799.28.

The Denver Exploration Branch of the Atomic Energy Commission was consulted regarding the property.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

The applicant's property is in secs. 28 and 33, T. 48 N., R. 2 E., in the Cochetopa Mining District of Saguache County, Colorado, figs. 1 and 2. The claims are in rough country at an altitude of about 8,400 feet.

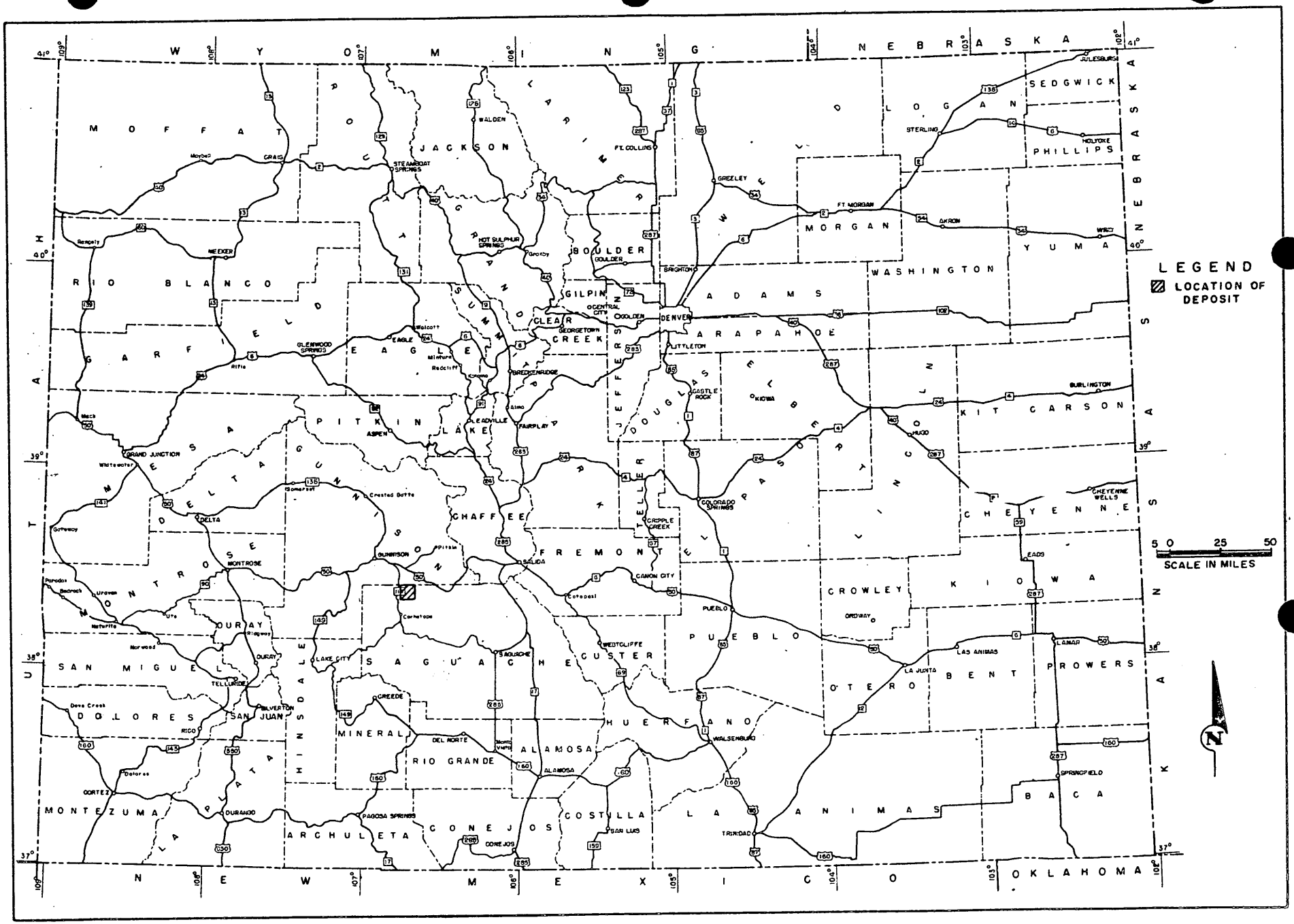

FIGURE 1 - LOCATION MAP, O. A. SUTTON, ET AL., FREEMAN GROUP, SAGUACHE COUNTY, COLO. DMEA 4084

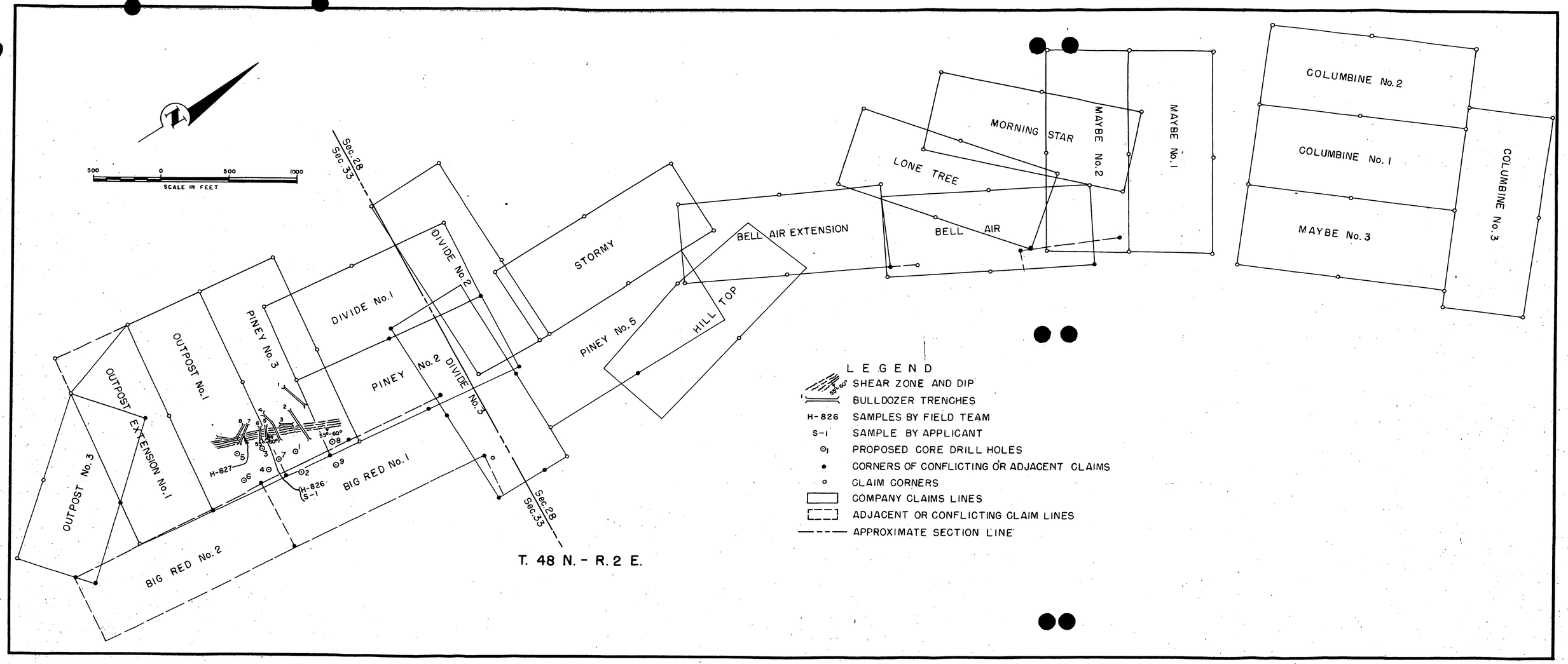

FIGURE 2 - CLAIM AND EXPLORATION MAP, O. A. SUTTON ET AL., FREEMAN GROUP, SAGUACHE COUNTY, COLO. DMEA 4084

The claims are readily accessible from Gunnison, Colo., over 17 miles of paved roads comprising Colorado Highways 50 and 115; thence 2.5 miles over a dirt access road to the claim area. Gunnison is the nearest important town. At the present time, the nearest Atomic Energy Commission uranium purchasing depot is at Grand Junction. Water is available from Cochetopa Creek about 2.5 miles from the property. R.E.A. electric energy is obtainable a few miles from the property.

HISTORY AND PRODUCTION

There has been no production of uranium or other ore from the property to date. It has been used as grazing land for cattle and sheep.

OWNERSHIP

O. A. Sutton, et al., includes the following people engaged in a joint venture to explore for uranium:

Name	Interest	Address
O. A. Sutton	9/20	407 Insurance Bldg., Wichita, Kansas
Dianne Sutton McCarthy	1/10	441 S. Glendale, Wichita, Kansas
The Fourth Nat'l. Bank of Wichita, Trustees for Ottis Sutton McCarthy and Michael Sutton	2/10	P. O. Box 1090, Wichita, Kansas
William J. Stark	1/10	5433 Lambdale, Wichita, Kansas
Paul R. Kitch	1/10	901 First Nat'l. Bank Bldg, Wichita, Kans
Jack G. Paulsen	1/20	2622 N. Clarence, Wichita, Kansas

The applicants have 33 lode locations under an option-to-purchase agreement which will terminate on July 15, 1956. Of the above 33 lode claims, the applicant mentions 21 claims in his application for exploration assistance. Some of these claims are not on the extensions of the shear structure to be explored. The claims are shown on figure 2 and are listed as follows:

Claim	Located	Recorded	Book	Page	Owner
Lone Tree	8/4/54	11/3/54	248	233	A. O. Freeman
Bell Air	8/5/54	11/3/54	248	251	A. O. Freeman
Outpost No. 1	8/24/54	11/3/54	248	258	A. O. Freeman
Maybe No. 1	8/29/54	11/3/54	248	238	A. O. Freeman
Maybe No. 3	8/29/54	11/3/54	248	239	A. O. Freeman
Outpost Extension #1	9/4/54	11/3/54	248	259	A. O. Freeman
Sterny	9/4/54	11/3/54	248	236	A. O. Freeman
Columbine No. 1	9/15/54	11/3/54	248	261	A. O. Freeman
Columbine No. 2	9/15/54	11/3/54	248	262	A. O. Freeman
Columbine No. 3	10/5/54	11/3/54	248	263	A. O. Freeman
Outpost No. 3	9/29/54	11/3/54	248	260	A. O. Freeman
Maybe No. 2	8/29/54	11/12/54	248	403	A. O. Freeman
Divide No. 2	9/13/54	11/12/54	248	404	A. O. Freeman
Bell Air Extension	10/28/54	11/3/54	248	252	A. O. Freeman
Hilltop	8/17/54	11/3/54	243	163	A. O. Freeman E. O. Willson
Morning Star	8/17/54	8/23/54	243	162	A. O. Freeman E. O. Willson
Piney No. 2	11/2/54	11/3/54	243	157	A. O. Freeman E. O. Willson
Piney No. 3	8/18/54	11/3/54	248	256	A. O. Freeman E. O. Willson
Piney No. 5	8/19/54	11/3/54	243	160	A. O. Freeman E. O. Willson
Divide No. 1	9/7/54	11/3/54	248	253	A. O. Freeman E. O. Willson
Divide No. 3	9/13/54	11/3/54	248	254	A. O. Freeman E. O. Willson

O. A. Sutton et al., secured a subordination agreement from the lessors A. O. Freeman and E. O. Willson on January 26, 1956 and are making an effort to secure the Big Red claims nos. 1 and 2, east of Outpost No. 1, Outpost Extension and Piney No. 3 claims.

O. A. Sutton, et al., are confident that they can secure any extension in time necessary to satisfy the requirements of DMEA.

GEOLOGY

The geology of the Cochetopa mining district is fairly simple. The oldest rocks in the area are Precambrian granite, gneiss, schist, and quartzite. Unconformably overlying the Precambrian rocks is the

Morrison formation of Jurassic age which in turn is overlain by the Dakota formation of Cretaceous age. Locally, Tertiary volcanic rocks, principally quartz-latite and rhyolite, occur as domes, dikes, and flows.

There are two major sets of faults in the area. The stronger set has a general easterly trend. Some of the faults of this set can be traced on the ground for more than 3 miles. The other set of faults has a general northeasterly trend. These are much shorter in length, and are not as strong as those of the easterly-trending set. Although a few of the northeasterly faults appear to cut across the easterly faults, most of them have been offset by the latter. Radiometric anomalies have been encountered on several faults of both sets, and shallow trenching has disclosed the presence of secondary uranium-bearing minerals identified by the AEC as autunite, uranophane, and metauranerite.

The only deposits of uranium ore so far discovered in the area are along a strong fault of the easterly-striking set that strikes N. 70° to 80° E. and dips nearly vertically. The ore bodies have been more or less localized at fault intersections, and, with one exception, within the sedimentary rocks. These deposits are being developed by the Thornburg Brothers, on the Los Ochs claims about a mile southeast of the applicant's property. At the west end of the Los Ochs claims, secondary uranium minerals were found in moderate amounts at the surface in a shattered and weathered Precambrian granite. A few tens of feet below the surface, the Thornburgs report, primary pitchblende was found. This ore body, as described in Vol. 45, No. 3, page 56, of Colorado Mines Magazine, is 80 feet long, 10 to 20 feet wide and contains 1.0 percent U_3O_8. Elsewhere on the Los Ochs claims secondary uranium minerals were

found in moderate amounts on the surface at several fault intersections. According to the Atomic Energy Commission, several of these showings were diamond-drilled and in every case they were found to overlie primary pitchblende. Also in every case the pitchblende did not continue more than a few feet below the sedimentary rocks into the Precambrian schist. Although the approximate depth to which the ore body continues in the granite is not known, it is understood that drilling has shown it to be relatively shallow.

The applicant proposes to explore a northeasterly-trending fault which was first discovered by a radiometric survey and has been traced for a distance of 1,700 feet. There are 8 trenches (fig. 2) on the property, five of them exposing the full width of the fault zone, and two others exposing part of the zone. The trenches range in depth from 2 to 15 feet. The hanging wall portion of the fault zone consists of up to 3 feet of brown iron-stained schist. The center portion is up to 2 feet of red iron-stained gouge that contains fragments of schist, veinlets of quartz, and a few small crystals of pyrite. In two of the trenches the footwall is an altered basic rock, probably amphibolite, but where it was seen in the other trenches it is schist. The fault zone has a general strike of N. 22 degrees E. and dips 55 degrees to 60 degrees SE.

Although in the application mention is made of the occurrence of secondary uranium minerals in the deeper trenches, none could be found by the examiners at the time of the inspection. The Geiger counter registered a background of 0.05 MR/hr. In one trench a maximum recording of 0.20 MR/hr was made, and in another the maximum was 0.10 MR/hr. All other readings were either background or only slightly above. Two samples taken by the examiners assayed:

Sample No.	Width feet	Percent eU_3O_8	Percent U_3O_8	Location
H-826	3	0.05	0.055	6 ft. below surface, trench No. 5
H-827	4	0.04	0.031	6 ft. " " " No. 7

A 3-pound grab sample taken over a width of 6 feet by the applicant from the same location as H-826 assayed 0.05 percent eU_3O_8 and 0.055 percent U_3O_8. These assay results indicate that the uranium is essentially in equilibrium, and therefore that the removal of uranium from the oxidized zone, as postulated by the applicant, has not been shown to have taken place.

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There is no basis on which to estimate ore reserves and there has been no production from the property.

PRESENT STATUS

Exploration and Development

Prospecting and exploration to date is limited to 8 bulldozer trenches as shown on figure 2, geologic mapping of the shear structure and one sample analyzed for equivalent and chemical uranium content.

Mining, Milling and Other Facilities

There are no mining, milling or other facilities on the property and any uranium ore found would be hand sorted and shipped on the instructions of the Atomic Energy Commission. The nearest ore purchasing depot of the Atomic Energy Commission is at Grand Junction, Colorado.

PROJECT PROPOSALS

The applicant, O. A. Sutton, et al originally proposed to explore a radioactive shear zone on the Outpost No. 1 and Pinny Nos. 2 and 3 claims (fig. 2) with 9 vertical diamond drill holes. The holes would

be drilled by plug-bit to the shear zone and cored through the shear zone. Holes would be drilled size NX and would total 3,154 feet, distributed as 556 feet of core drilling and 2,598 feet of non-core drilling. Total cost of the project was estimated at $30,867.54.

On February 3, 1954 the applicant submitted a revised exploration program at a total estimated cost of $26,799.28. Stage I of the program would consist of 6 size NX core drilled holes.

Hole No.	Size NX Core drilling	Description of holes: Non-core plug-bit drilling	Approximate Total footage	Dip of hole	True Bearing of hole	Location of hole collar
1	46	217	263	-57°	Normal to shear zone N. 72° W.	140' W. (inside) of Piney #3 claim & 95' W. of Big Red #1 claim conflict line.
2	60	300	360	-69-1/2°	ditto	18' W. (inside) of Piney #3 claim & 28' E. (outside) of Big Red #1 claim conflict line.
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5	62	103	165	Vertical	--	310' W. (inside) of Outpost #1 claim & 280' W. (inside) of Big Red #2 conflict line.
6	62	438	500	Vertical	--	110' W. (inside) of Outpost #1 claim & 78' W. (inside) of Big Red #2 claim conflict line.

Hole No.	Description of holes: Size NX Core drilling	Non-core plug-bit drilling	Approximate Total footage	Dip of hole	True Bearing of hole	Location of hole collar
7	65	268	333	Vertical	--	142' W.(inside) of Pinay #3 claim line and 100+ W.(inside) of Big Red #1 claim conflict line.
8	69	207	276	Vertical	--	100' W.(inside) of Pinay Nos. 2 & 3 claim lines & 65' W.(inside) of Big Red #1 claim conflict line.
Totals	476	2,053	2,529			

Stage I would consist of approximately 476 feet of size NX core drilling and 2,053 feet of size NX plug-bit drilling. The applicant requests a total of 556 feet of size NX core drilling and 2,598 feet of non-core plug-bit drilling. Hole No. 9 (fig. 2)was eliminated.

The remaining 80 feet of core drilling and 545 feet of non-core drilling plus any unused footage from Stage I is requested as a Stage II which would be applied to diamond drilling either to the north or south, indicated by prior drilling.

The applicant's proposed diamond drill holes nos. 2 and 9 are within the boundaries of the conflicting Big Red No. 1 claim which the applicants do not control. Hole No. 4 is only 65 feet from the conflicting side line of the Big Red No. 1 claim. Hole No. 6 is only 75 feet from the conflicting side line of the Big Red No. 2 claim. Drill holes less than 100 feet from a property line are not deemed acceptable to BMEA.

G. A. Sutton et al has submitted the following estimate of costs:

Independent Contracts	Units	Unit Cost	Total Cost	Totals
Size NX diamond drilling by Joy Mfg. Co.				
Non-core drilling	2,598 ft.	$7.00	$18,186.00	
Core drilling	556 ft.	7.00	3,892.00	
Bulldozing, access roads and drill locations	64 hrs.	12.00	768.00	
				$22,846.00
Labor, Supervision and Consultants:				
Supervision and Engineering				
1 man part-time (G.E. Sheppard)	45 days	38.40	$1,728.00	
Consulting geologist, A.J. Lang Wichita Univ., Wichita, Kansas	6 days	100.00	600.00	
Travelling expenses for consultant Three trips to property from Wichita	3,600 miles	.08	288.00	
				$ 2,616.00
Operating Materials and Supplies:				
Core boxes and packing	--	--	$50.00	
Spare batteries for Geiger counter	--	--	15.00	
Sample bags	200	.15	30.00	
Operating expense for Jeep- 45 round trips from Gunnison to drill sites	1,800 miles	.08	144.00	
				$ 239.00
Operating Equipment:				
1 - 1955 Jeep station wagon costing $2,638.00 depreciated in 5 years	3 mos.	$43.94	$131.82	
1 - Model 435 Bubble hole probe, reel and recorder costing $1,250.00 depreciated in 5 yrs.	3 mos.	20.82	62.46	
Surveying transit rental	10 days	2.00	20.00	
Core splitter rental	--	34.00	34.00	
				$ 248.28

	Units	Unit Cost	Total Cost	Totals
Map Bldgs., Improvements & Installations:				
Access dock to water at Cochetopa Creek. Lumber and posts	1	$100.00	$100.00	$100.00
Miscellaneous:				
Analyses of samples for U_3O_8 and eU_3O_8.	100	$ 6.00	$600.00	
Shipping charges on core samples	100	$ 1.50	$150.00	
				$750.00
Total cost of exploration including assays				$26,799.28
Total cost of exploration, not including assays				$26,049.28

The project would be completed in three months.

On February 7, 1956, the applicant further revised his exploration program, eliminating holes 1 and 9 (fig. 2) and assigning the footages estimated for holes 1 and 2 to drilling to the north and south on the basis of the results obtained from drilling holes 2 to 8. Total footages and costs would remain the same.

CONCLUSIONS AND RECOMMENDATIONS

It is concluded, with the concurrence of the Denver Exploration Branch of the Atomic Energy Commission, that in the Cochetopa district the Precambrian schist is not a good host for the formation of uranium ore bodies; that the only rocks exposed on the applicant's property are Precambrian schist; that the uranium values in the structure which the applicant proposes to explore are very low; and that, because the uranium is in equilibrium within a few feet of the surface, the applicant's postulation that an enriched secondary ore body or primary material of considerably higher grade than that found at the surface will be found at depth is not proven.

Therefore, it is recommended that this application be denied.

FEB 27 1956

RECEIVED
FEB 27 1956

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

February 24, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA 4084 (Uranium), O. A. Sutton, et al., Freeman group of claims, Saguache County, Colorado

Enclosed are two sets of revised maps and revised drilling estimates submitted by the applicant to be placed with and become a part of his Amendment to his original application which was forwarded you by our memorandum dated February 10, 1956.

Copies of the revised maps and revised drilling estimates have been forwarded to the field to be placed with the brochures they now have.

W. M. Traver

W. M. Traver

Enclosures

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

RECEIVED
FEB 27 1956

February 24, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

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

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA 4084 (Uranium), O. A. Sutton, et al., Freeman group of claims, Saguache County, Colorado

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Will you please attach the enclosed data with the brochure you now have on the subject docket.

W. M. TRAVER

W. M. Traver

Enclosure

HMC:ab

cc: Sec. Op. Comm. (2)
Docket 4084
Chron.

DMEA
Date Rec'd.

FEB 24 1956

RECEIVED

FEB 27 1956

BUREAU OF MINES

REVISED DRILLING ESTIMATES-FREEMAN CLAIMS

The following is a revised drilling program for the Freeman Claims, Saguache County, Colorado. Reference should be made to the accompanying map and cross sections.

DDH	Total Depth	Lg. Core	Lg. Non-core	Collar Elev.
1	290'	70'	220'	8537'
2	490	66	424	8438
4	352	52	300	8456
5	165	62	103	8404
6	428	62	366	8453
7	318	65	253	8502
8	178	66	112	8530

The original proposed drill sites have been altered as follows:

DDH	Proposed Move
1	Move 12 feet west.
2	Moved as shown on map.
3	Out.
4	Move 41 feet west.
5	Keep at original site.
6	Move 38 feet west.
7	Move 20 feet west.
8	Move 65 feet west.
9	Out.

Two additional diamond drill holes are proposed. The exact location cannot be determined at the present time and must await structural information gained by drilling. DDH #10 should be located N 82° W. 90 feet

from the NE center stake of the Outpost No. 3 claim; total length 490 feet, non-core 430 feet, and core 60 feet. DDH #11 should be located N. 88° W., 140 feet from the SE corner stake of the Pinoy No. 5 claim; total length 443 feet, non-core 390 feet, and core 53 feet.

The footage estimates will remain the same as originally proposed.

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

RECEIVED
FEB 13 1956

February 10, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA 4084 (Uranium), O. A. Sutton, et al., Freeman group of claims, Saguache County, Colorado

Enclosed are two copies of an Amendment to the subject application which was delivered to this office by the applicant stating that he would submit four copies of a map showing the outline changes in the drilling program within a very few days.

Copies of the Amendment have been forwarded to the field to be placed with the brochures they now have.

W. M. TRAVER,

W. M. Traver

Enclosures

O. A. SUTTON
OIL PROPERTIES - INVESTMENTS
SUITE 407 INSURANCE BLDG.
WICHITA, KANSAS

February 7, 1956

RECEIVED
FEB 13 1956

Executive Officer
Region III
D.M.E.A.
224 New Customhouse
Denver 2, Colorado

Dear Sir:

Reference is made to the application for exploration assistance submitted by O. A. Sutton Docket DMEA 4084.

At the request of the government geologist and mining engineer that examined our property on January 12, 1956, we are submitting some changes in the location of diamond drill holes in order to keep all drilling within 100 feet from the outside boundary of our claims. The following proposal is made:

(1) Diamond drill hole #2 move 30 ft. west; drill it 65½ degrees west for 400 ft.
(2) Diamond drill hole #1 "out".
(3) Diamond drill hole #9 "out".
(4) Diamond drill hole #8 move 18' west; drill vertically 250 ft.
(5) Use 757 ft. originally planned in diamond drill holes #1 and #9 as follows:
    (a) Drill one hole 600 ft. northeast of diamond drill hole #8 (hole will be located so that it will be no less than 100 ft. from the outside boundary of our claims and will be drilled at such an angle that it will encounter the shear zone at a depth of 300 ft.).
    (b) Drill one hole southwest diamond drill hole #5 to encounter the shear zone at a depth of approximately 200 ft. (this hole will be drilled no less than 100 ft. from the outside boundary of our claims).

These changes should satisfy the requirements made by your inspecting team, and enable D.M.E.A. to finish processing our application.

Sincerely yours,

Wm. James Stark

Wm. James Stark
For O. A. Sutton

WJS/hs

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

RECEIVED
FEB 27 1956

February 24, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA 4084 (Uranium), O. A. Sutton, et al., Freeman group of claims, Saguache County, Colorado

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W. M. TRAVER

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Enclosures

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

RECEIVED
FEB 27 1956

February 24, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: J. F. Shaw
E. H. Harshman

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W. M. TRAVER
W. M. Traver

Enclosure

HMC:ab

cc: Sec. Op. Comm. (2)
Docket 4084
Chron.

DMEA
Date Rec'd.

FEB 24 1956

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FEB 27 1956

BUREAU OF MINES
Denver, Colorado

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2-13-56 lgm

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

RECEIVED
FEB 13 1956

February 10, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

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

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA 4084 (Uranium), O. A. Sutton, et al., Freeman group of claims, Saguache County, Colorado

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W. M. TRAVER,

W. M. Traver

Enclosure

HMC:ab

cc: Sec. Op. Comm. (2)
Docket 4084
Chron.

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

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FEB 13 1956

February 10, 1956

224 New Customhouse
Denver 2, Colorado

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Enclosure

HMC:ab

cc: Sec. Op. Comm. (2)
Docket 4084
Chron.

2-13-56 [illegible]

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

RECEIVED
FEB 13 1956

February 10, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

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W. M. Traver

W. M. Traver

Enclosures

O. A. SUTTON
OIL PROPERTIES - INVESTMENTS
SUITE 407 INSURANCE BLDG.
WICHITA, KANSAS

February 7, 1956

RECEIVED
FEB 13 1956

Executive Officer
Region III
D.M.E.A.
224 New Customhouse
Denver 2, Colorado

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Sincerely yours,

Wm. James Stark

Wm. James Stark
For O. A. Sutton

WJS/hs

DMEA
Date Rec'd.

DEC 22 1955 December 21, 1955

BUREAU OF MINES
Denver, Colorado

Memorandum

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

From: Acting Superintendent, Denver Experiment Station, Reg. III

Subject: Docket DMEA 4084 (Uranium), O. A. Sutton, et al, Freeman group of claims, Saguache County, Colorado

The above brochure was received in this office on December 21, 1955.

A field examination will be made and report prepared by an engineer from the Denver office.

JOHN F. SHAW
John F. Shaw

cc: w/orig (2)
R. N. Barshman
J. F. Shaw
Sec. Op. Com. (2)

DEC 27 1955
BUREAU OF MINES
Denver, Colorado

December 21, 1955

Memorandum

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

From: Acting Superintendent, Denver Experiment Station, Reg. III

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cc: w/orig (2)
R. N. Harshman
J. F. Shaw
See. Op. Com. (2)

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

December 20, 1955

224 New Customhouse
Denver 2, Colorado

Memorandum

To: J. F. Shaw (With brochure)
H. M. Harshman

From: Acting Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA 4084 (Uranium), O. A. Sutton, et al., Freeman group of claims, Saguache County, Colorado

Enclosed is the subject application in the amount of $30,867.54. Also enclosed is a copy of a letter from the Chairman of the Operating Committee dated December 14, 1955 which notes that the "Outpost Extension" is shown on the claim map, but the application lists the claim as "Outpost Extension I". In the event that an exploration project is recommended, please clarify this question.

Also attached are memoranda of review of the application by members of the Uranium Commodity Committee.

A field examination and suitable report are requested.

H. M. Harshman

H. M. Harshman

Enclosures

HMC:ab

cc: Sec. Op. Comm. (2)
Docket 4084
Chron.

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

December 20, 1955

224 New Customhouse
Denver 2, Colorado

Memorandum

To: J. F. Shaw (With brochure)
E. N. Harshman

From: Acting Executive Officer, DMEA Field Team, Region III

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E. N. Harshman

E. N. Harshman

Enclosures

HMC:ab

cc: Sec. Op. Comm. (2)
Docket 4084
Chron.

Surname copy

700

F L Knouse
Ellis
Kilgoard
Leehan
Selfridge
Fellman

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

DEC 14 1955

Mr. Wm. James Stark
C. A. Sutton, et al.
Suite 407 Insurance Building
Wichita, Kansas

Re: Docket No. DMEA-408h (Uranium)
Freeman Group of claims
Saguache County, Colorado

Dear Mr. Stark:

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

Mr. W. N. Traver
Executive Officer
DMEA Field Team, Region III
22h 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

FLKnouse/gla
12-12-55
cc to: Admr.'s Reading File
Docket
Code 700
Mr. Knouse
DMEA Field Team, Region III (2)

Surname copy

F L Knouse
Ellis
Selfridge
F L Nelson

700

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

DEC 14 1955

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

Re: Docket No. DMEA-4084 (Uranium)
O. A. Sutton, et al.
Freeman Group of claims
Saguache County, Colorado

Dear Mr. Traver:

The captioned application is referred to your office for either a field examination and report on the proposed project or your recommendations based on information available to your office. A copy of the application was retained in your office.

Enclosed are copies of memoranda, dated December 7 and 8, 1955, from Mr. N. E. Nelson, USGS, and Mr. John E.Crawford, USBM, respectively, relating to the subject project.

If the Field Team recommends an exploration program as submitted or revised by the Applicant, we will require nine copies of a map showing the proposed work and mineralized exposures in relation to the claim boundaries. Also, in this connection, we will require Consents to Lien signed by all of the property owners. Your attention is directed to the claim "Outpost Extension" as is shown on the claim map submitted by the Applicant, whereas the application lists a claim as "Outpost Extension I." Please clarify this question if an exploration project is recommended.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (GLB)

Enclosures

APPROVED:

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

Thor H. Kiilsgaard (GLB)
Member, Geological Survey

FLKnouse/gla
12-12-55
cc to: Admr.'s Reading File
Operating Committee
Docket
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
Code 700
Mr. Knouse

R. Ellis

12/8/55 gla

IN REPLY REFER TO:

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

RECEIVED
DEC - 8 1955

December 7, 1955

Re: DMEA 4084
A. O. Sutton
FREEMAN ~~Foreman~~ Group
Saguache Co., Colorado
$30,867.54 - Uranium

Memorandum

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

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

Subject: Review of application.

Aid is requested in exploring by drilling--core and non-core--a shear zone which has been prospected by 7 shallow trenches to bedrock.

The shear zone which ranges in width from 32 to 61 feet and averages 43 feet occurs in and near the contact of quartz mica schist and amphibolite which may be a metamorphosed basic dike. The zone is exposed in 7 trenches for a distance of 630 feet and has been traced for 1,700 feet.

The shear zone is mineralized by pyrite and iron oxide and exhibits an average radioactivity in the order of 0.04 to 0.08 mr/hr. Highs of 0.14 to 0.16 mr/hr have been noted. Secondary autunite can be seen in all trenches, but no primary uranium mineral has been seen and it is considered possible that the primary minerals may have been leached from the outcrop.

A diamond drilling program is proposed to test the sheared rock below the probable zone of oxidation.

Nine holes are planned with an estimated total length of 3,154 feet, of which 556 feet would be cored and 2,598 feet non-core hole. As proposed the deepest hole would have a length of 492 feet and would test the zone, which has a presumed dip of 53°, at a slope depth of 500 feet.

The estimated cost of the drilling is $22,078.00 or $7.00 per foot. Auxiliary costs including labor, supervision, consultation, etc., amount to $8,789.54.

The applicant states the shear zone resembles that at the Los Ocho property two-thirds of a mile to the southeast. Probably the Field Team has information concerning the Los Ocho mine and possibly can appraise the Freeman shear zone without a field examination. At any rate, referral to the Field Team is deemed necessary and so recommended.

N. E. Nelson

N. E. Nelson

IN REPLY REFER TO:

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

RECEIVED
DEC - 8 1955

December 7, 1955

To: DMEA 4084
A. O. Sutton
Freeman ~~Fuquania~~ Group
Saguache Co., Colorado
$30,847.54 - Uranium

Memorandum

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N. E. Nelson

N. E. Nelson

NENelson:iml
G-12/7/55

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

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

RECEIVED
DEC - 9 1955

December 8, 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 of assistance, DMEA Docket 4084, O. A. Sutton et al, Cochetopa Mining District, Saguache County, Colorado

I have reviewed the attached application of O. A. Sutton et al, DMEA Docket 4084, dated November 23 and received in this office December 6. I have also discussed it with Jack Kratchman, Washington representative of the Atomic Energy Commission.

The applicant has requested Federal participation in a uranium exploration project on a group of claims located in the Cochetopa Mining District in Saguache County, Colorado.

The applicant cut 8 shallow exploration trenches on the Piney No. 3 claim and the Outpost No. 1 claim to crosscut and expose a mineralized shear zone, after first determining the approximate position and trend of the zone by a radiometric survey. One hole drilled by a previous lessee did not encounter any mineralization because of insufficient depth.

In the deeper cuts the applicant indicates thin films of autunite on fractures were found. One 3-pound grab sample assayed 0.055 percent U_3O_8. Radioactivity surveys of the mineralized zones showed low to moderate radiation.

The applicant proposes to diamond drill 9 holes to intersect the mineralized shear zone at depths ranging from 97 to 392 feet. A total of 3,154 feet of drilling is requested; 2,598 feet of which would be non-core and 556 feet core drilling. Drilling costs are apparently high in the area as the applicant indicates the drilling costs would be $7.00 per foot, for a total of $22,078.00. Costs for consultant and his expenses seem excessive.

We suggest that the application be referred to the Field Team for review, and that they consult with Donald L. Everhart, Atomic Energy Commission, Denver, Colorado, for the benefit of any information which he may have about the area.

John E Crawford

John E. Crawford

Attachment

December 6, 1955
Subject: DMEA-4084
Re: Exploration Assistance

Mr. O. A. Sutton
407 Insurance Building
Wishita, Kansas

My dear Mr. Sutton:

The receipt of your application dated November 23, 1955, for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-4084 and referred to the Rare & Misc. Metals Division.

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

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

December 6, 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

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

DMEA- 4084 O. A. Sutton, et al

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

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

RECEIVED
DEC - 5 1955

December 2, 1955

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Acting Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA Aid (Uranium), O. A. Sutton, et al, Joint Venture, Cochetopa Mining District, Saguache County, Colorado

Enclosed are three copies of the subject application in the amount of $30,867.54. One copy of the application is being retained in our file.

E. N. Harshman

E. N. Harshman

Enclosures

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

RECEIVED
DEC - 6 1955

December 2, 1955

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Acting Executive Officer, DMEA Field Team, Region III

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E. N. Herzlman

E. N. Herzlman

Enclosures

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

DMEA Rec'd 1955
RECEIVED DEC - 5 1955 BUREAU OF MINES Denver, Colorado

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

Not to be filled in by applicant

Docket No. DMEA-4084
Metal or Mineral Uranium
Date Received 12-5-55
Estimated Cost $30,867.54
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: This report has followed the instruction outline and all portions of the application are covered on the following pages.

(*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

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

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

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

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

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

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

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

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

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

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

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

.....

(*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 ..... days and be completed within ..... 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?

☐ 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 November 23, 1955

O. A. SUTTON, ET AL
(Applicant)

By Wm. James Stark

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

O. A. SUTTON
OIL PROPERTIES - INVESTMENTS
SUITE 407 INSURANCE BLDG.
WICHITA, KANSAS

November 23, 1955

DMEA
Date Rec'd
DEC 1 1955
BUREAU OF MINES
Denver, Colorado

U. S. Department of Interior
Defense Minerals Exploration Administration
Grand Junction, Colorado

RECEIVED
DEC - 5 1955

Gentlemen:

We are submitting four (4) copies of an application for aid in an exploration project, pursuant to D.M.E.A. Order 1, under the Defense Production Act of 1950, as amended. We have followed the outline of the instructions in preparation of our application.

The only point in the application which we feel needs clarification is "6 (a)" where we have listed the cost per foot of diamond drilling at $7.00 for both drilling and coring. This is a firm bid from Joy Manufacturing Company, 1626 Wazee Street, Denver, Colorado. Two other core drilling concerns were contacted and neither would give us a firm bid for core drilling in this area. Both concerns indicated they would drill for us at the rate of $16.00 per hour, which would include three (3) crews operating 8-hour shifts 24-hours per day with the supervision of a tool pusher. We feel that the safer way to plan our operation is on the basis of a firm bid of $7.00 per foot since the number of feet we believe should be drilled is quite accurately estimated.

If any further information is required before this application can be processed, please feel free to call upon our office and we will furnish the information immediately.

Sincerely yours,

Wm. James Stark

Wm. James Stark
For O. A. Sutton

WJS/hs

D. M. E. A. LOAN APPLICATION

RECEIVED
DEC - 5 1955

1. NAME OF APPLICANT.

(a)

Name	Mailing Address
O. A. Sutton	407 Insurance Building Wichita, Kansas
Dianne Sutton McCarthy	441 South Glendale, Wichita, Kansas
The Fourth National Bank of Wichita, Trustee for Ottis Sutton McCarthy	P. O. Box 1090, Wichita, Kansas
The Fourth National Bank of Wichita, Trustee for Michael Sutton	P. O. Box 1090, Wichita, Kansas
William J. Stark	5433 Lambsdale, Wichita, Kansas
Paul R. Kitch	901 First National Bank Bldg., Wichita, Kansas
Jack G. Paulsen	2628 North Clarence, Wichita, Kansas

(b) This is a joint venture of the above mentioned individuals.

(c) Not applicable.

(d) Not applicable.

2. GENERAL.

3. APPLICANT'S PROPERTY RIGHTS.

(a) Legal description of the land to be explored.

The following described unpatented lode mining claims and premises, all situated in the Cochetopa Mining District in the County of Saguache and State of Colorado.

RECEIVED
DEC - 5 1956

NAME OF CLAIM	RECEPTION NO. OF ORIGINAL LOCATION CERTIFICATE	RECORDED BOOK	RECORDED PAGE	DATE
Lone Tree	146658	248	233	11-3-54
Bell Air	146676	248	251	11-3-54
Outpost 1	146683	248	258	11-3-54
Maybe 1	146663	248	238	11-3-54
Maybe 3	146664	248	239	11-3-54
Outpost Extension 1 2	146684	248	259	11-3-54
Stormy	146661	248	236	11-3-54
Columbine 1	146686	248	261	11-3-54
Columbine 2	146687	248	262	11-3-54
Columbine 3	146688	248	263	11-3-54
Outpost 3	146685	248	260	11-3-54
Maybe 2	146691	248	403	11-12-54
Divide 2	146892	248	404	11-12-54
Bell Air Extension	146677	248	252	11-3-54
Hilltop	144757	243	163	8-23-54
Morning Star	144756	243	162	8-23-54
Piney #2	144751	243	157	8-23-54
Piney #3	144752	243	158	8-23-54
Piney #5	144754	243	160	8-23-54
Divide #1	146678	248	253	11-3-54
Divide #3	146679	248	254	11-3-54

NAME OF CLAIM	RECEPTION NO. OF ORIGINAL LOCATION CERTIFICATE	RECORDED BOOK	RECORDED PAGE	DATE
Hilltop	146659	248	234	11-3-54
Morning Star	146660	248	235	11-3-54
Piney #2	146680	248	255	11-3-54
Piney #3	146681	248	256	11-3-54
Piney #5	146682	248	257	11-3-54

NAME OF CLAIM	RECEPTION NO. OF ORIGINAL LOCATION CERTIFICATE	RECORDED BOOK	RECORDED PAGE	DATE
Piney #3	146893	248	405	11-12-54

All of record in the office of the County Clerk and Recorder of Saguache County, Colorado.

(b) None

(c) Our interest in the land is in the form of an option to buy.

(d) Copies of Option and Assignment are attached.

(e) Not applicable.

(f) See 3. (a)

4. PHYSICAL DESCRIPTION.

(a) For purpose of exploration 8 shallow trenches have been cut on the Piney No. 3 claim and Outpost No. 1 claim. These trenches (pl. 1) were located to cross cut and expose a northeast-southwest trending mineralized shear zone. The approximate position and trend of the mineralized zone was first determined by radiometric survey with a gamma-scintillation meter and by surface discoloration of the mantle. Subsequently, the trenches were cut to determine as accurately as possible the thickness, trend and dip of the zone. The most northerly trench was cut to intersect, if possible, one or more additional narrow mineralized zones west of the large shear zone as observed in at least three other trenches. The trench failed to intersect a zone of mineralization.

All trenches were cut at least to bedrock. The depth of the cuts in the Piney No. 3 claim ranges from 2 to 5 feet. The trenches in the Outpost No. 1 claim have an average depth of about 6 feet, and one was cut to a maximum depth of 15 feet.

A vertical diamond drill hole was drilled on the Piney No. 3 claim during the winter of 1954 by a former lessee. The drilling site was located about 50 feet southwest of proposed D. D. H. No. 1. Reportedly the depth of the hole was about 75 feet, and at this depth drilling was discontinued because of severe weather conditions. The mineralized zone was not encountered because of insufficient depth of drilling. No further

drilling was subsequently undertaken.

No exploratory operations other than those mentioned above or mining operations have been undertaken on the claim area.

(b) There has been no production of minerals from the claim area. Calculation of ore reserves in not possible at the present time.

(c) DESCRIPTIVE GEOLOGY

Metamorphic Rocks

The rock units in the mapped area consist of pre-Cambrian metamorphic quartz-mica schist and amphibolite. The quartz-mica schist underlies most of the mapped area. The amphibolite was exposed in the footwall of the large shear zone in 4 trenches in the Outpost No. 1 claim. Lack of outcrop did not permit mapping the boundaries between the two units.

Quartz-mica schist

The quartz-mica schist is a light to dark-gray, very fine-grained, poorly foliated rock. It is composed of about 70 percent quartz, 15 percent biotite, and 12 percent microcline. The accessory minerals include plagioclase, muscovite, magnetite, apatite and zircon.

The rock is too fine-grained to show a well-developed foliation. Poor exposures do not permit a statement concerning the extent of bedding. However, several hand specimens from

this unit show thin discontinuous laminae of dark colored schist, and in these biotite forms about 25 percent of the rock.

Amphibolite

The amphibolite is poorly exposed and was found mainly as float. It is also exposed as the footwall of the shear zone in several trenches. The rock is dark-green, medium-grained, strongly porphyroblastic, and shows weak foliation. It has an average composition of 60 percent hornblende, 30 percent plagioclase, and 8 percent quartz. The accessory minerals include sphene, biotite and apatite. The plagioclase is andesine with an average composition of An_{20}. It occurs as medium sized grains in the groundmass, and as abundant porphyroblasts which average about 3 mm. in length. Both groundmass and porphyroblastic andesine show some alteration to clinozoisite, sericite and kaolin.

It is difficult to determine the structure of the amphibolite. The apparent restricted areal extent of the unit may indicate the amphibolite is a metamorphosed basic dike.

Mineralized Shear Zone

The mineralized shear zone (pl. 1) is partly or entirely exposed in 7 trenches. Between the trenches and beyond the north and south limits of the mapped area the zone can be traced by radiometric surveying and surface discoloration of the mantle.

The full width of the shear zone is exposed in 5 trenches, and in one trench the zone has been exposed to a depth of 15 feet.

The quartz-mica schist and amphibolite wall rock adjacent to the mineralized zone has been intensely altered by hydrothermal action. The schist is altered for a distance of 2 to 3 feet outward from the hanging wall. Thin-sections of the highly altered schist show the biotite bleached and chloritized, and the feldspar altered to kaolin and sericite. The altered schist is stained light brown to red in color. The schist is jointed and hydrothermal solutions have penetrated outward locally for a distance of about 20 feet. This now appears as thin films of iron oxide along the joint planes. Hydrothermal alteration of the quartz-mica schist adjacent to the footwall appears to be less intense. The amphibolite exposed in the trenches along the footwall has been intensely altered as much as 3 feet outward from the shear zone. The altered rock is brownish-green in color, friable, and the original texture has been completely destroyed. Thin-sections show the rock contains abundant disseminated iron oxide, the hornblende altered to chlorite (penninite), and the plagioclase to sericite, epidote, clinozoisite, and kaolin. Hydrothermal solutions have penetrated outside the zone of intense alteration and is evidenced by films of iron oxide along the joint planes.

Within the mineralized shear zone the quartz-mica schist and amphibolite have been severly altered and brecciated. Along the footwall portion of the shear zone, where amphibolite is the wall rock, the sheared material is composed almost entirely of banded brown to red clayey limonitic gossan. The schist in the sheared zone shows intense brecciation and bleaching. Uncemented fragments of schist in a light green to reddish-brown clay gouge are abundant. The schist fragments contain numerous tiny veinlets of quartz, and abundant disseminations of dusty hematite.

The shear zone is intensely stained yellow, brown and red by iron oxide resulting mostly from oxidation of iron-bearing sulphides. Color banding parallel to the walls of the structure is common. Black manganese oxide coats some of the fractures. A few minute grains of pyrite were separated in bromoform. No other primary minerals were found. The clay gouge often contains small molds filled with limonite, probably pseudomorphous after a pre-existing iron-bearing sulphide.

STRUCTURE

The prevailing foliation of the schist in the mapped area is about N. 30° E. and dips from 70° to 78° SE (pl. 1). Two

prominent directions of shear jointing were observed; one trending N. 53° W. with an average dip of about 53° SW, and a second trending N. 88° W. with an average dip of about 71° S.

The dominant structural feature in the mapped area (pls. 1 and 2) is a mineralized shear zone. Evidence concerning its size and structure is limited to exposures in 6 shallow trenches. The shear zone has a general trend of N. 23° E. and has an average dip of about 53° SE. The regional trend of the foliation of the schist is approximately parallel to the trend of the shear zone, which may indicate a structural control. Whether faulting has been normal or reverse is not evident.

Variations in width of the shear zone on the surface reflects topography and changes in thickness of the zone along strike. The thickness of the zone measured in the trenches ranges from 32 feet to 61 feet, and the average thickness is about 43 feet. It can be traced along the surface by means of trenches (pl. 1) for a distance of 630 feet. The zone, however, continues outside the mapped area. It is known to extend southwest for an additional distance of at least 900 feet where the mineralized zone is exposed in a large prospect pit near the south center stake of Outpost No. 3 claim. The shear zone has been traced by radiometric surveying a minimum distance

of 190 feet north of the most northerly trench exposing the zone. It has a strike length of at least 1,700 feet.

URANIUM DEPOSITS

The mineralized shear zone in the mapped area shows abnormal radioactivity. The average radioactivity in the shear zone found with a Geiger-Mueller counter ranges from 0.04 to 0.08 mr/hr (background about 0.015 mr/hr). The highest radioactivity measured in the trenches ranges from 0.14 to 0.16 mr/hr. Peak readings of this magnitude were found in trenches in the Outpost No. 1 claim. Abnormal radioactivity extends as much as 15 feet into the enclosing wall rocks.

No primary uranium-bearing mineral was observed in any of the exposures. Secondary autunite was observed in all the deeper trenches. The mineral occurs as thin films along fractures, and can be seen by its fluorescence under ultra-violet light. A 3-pound grab sample was taken from a 6-foot zone showing peak radioactivity in the deepest trench. This zone contained 0.055 percent U_3O_8 and 0.050 equivalent U_3O_8.

The mineralized shear zone exposed is entirely within the zone of oxidation. There were no primary hypogene minerals found with the exception of a few minute grains of pyrite. The shear zone is intensely colored by iron oxides

derived mostly from chemical alteration of pre-existing iron-bearing sulphides. The action of meteoric waters and sulphuric acid produced in the pyritic environment apparently had considerable affect in leaching the upper portion of the zone of its primary minerals. In a mineralized shear zone the primary mineral would be pitchblende. Recent studies of pitchblende in sulphuric acid solutions prove that uranium trioxide is extremely soluble in an acid environment. This explains the absence of pitchblende and scarcity of secondary uranium minerals from the oxidized zone. Radio activity measurements in the mineralized zone were low to moderate, but this would be expected on the basis of leaching of uranium from the zone of oxidation. Studies at the surface and radiometric measurements indicate the strong possibility of the existence of pitchblende below the zone of oxidation.

According to published information, (1), the shear zone in the mapped area is similar to the Los Ocho property two-thirds of a mile southeast. This property contains a mineralized shear zone exposed at the surface. Autunite was found in small quantities in the zone of oxidation. Subsequently, drilling and mining operations encountered considerable primary pitchblende below the zone of oxidation.

A diamond drilling exploration program is proposed (see below) to determine whether or not uranium mineralization is present at depth and is of ore grade.

(d) The claim area is easily accessible. It may be reached from Gunnison, a residence point and county seat of Gunnison County, over U. S. Highway No. 50 to a point 7.7 miles east of the city, thence south 9.4 miles over Colorado State Highway No. 114, thence southeast 2.4 miles over a dirt road to the mapped area. U. S. Highway No. 50 and Colorado State Highway No. 114 are hard surface roads and are kept open the year around.

Gunnison is the nearest trucking point. Montrose, a distance of 67 miles west of Gunnison on U. S. Highway No. 50 is the nearest suitable railhead. Heavy equipment and supplies may be obtained at Grand Junction and trucked directly to Gunnison, or transported over railroad to Montrose and then trucked to Gunnison.

At the present time the nearest Atomic Energy Commission buying station and mill is located at Grand Junction. However, it is our understanding that the Gunnison Mining Company, owner of the Los Ocho property, is negotiating with the Commission for a mill to be located at Gunnison. If this mill is approved the ore could be processed at Gunnison, since the ore from the Freeman claims and Los Ocho claims would be of the same type.

(e) Manpower is available locally in Gunnison and Saguache Counties, since this area has been one of mining activity for

many years. Materials, supplies and equipment are available either in Gunnison or Grand Junction. Water is available from Cochetopa Creek, a distance of 2.4 miles from the mapped area. REA electric power is available a few miles distance from the mapped area.

REFERENCE CITED: (1) Derzay, Raymond C., 1955, Development of recently discovered uranium deposits near Gunnison, Colorado: Mines Mag., V. 45, No. 4, P. 16.

5. THE EXPLORATION PROJECT.

(a) The mineral for which we wish to explore is uranium (pitchblende).

(b) PROPOSED EXPLORATION PROGRAM

A total of 9 diamond drill holes have been located (pl. 1) to intersect the mineralized shear zone at depths ranging from 97 feet to 392 feet (pl. 2). A total of 3,154 feet of diamond drilling is proposed of which 2,598 feet is non-core drilling and 556 feet is core drilling (table 1).

Table 1. --Proposed diamond drilling.

D. D. H. No.	Lg. of core, feet	Lg. of non core, feet	Total lg., feet
1	46	217	263
2	71	422	493
3	56	176	232
4	56	344	400
5	62	103	165
6	62	438	500
7	65	268	333
8	69	207	276
9	69	423	492
Totals	556	2,598	3,154

The drill holes do not exceed a depth of 500 feet. Diamond drill holes nos. 1 and 3 extend 85 feet and 60 feet respectively past the large shear zone at depth to intersect, if present, at least two possible minor shear zones near the footwall which were seen in surface exposures.

The dip of the shear zone determined at the surface has

been projected downward at constant dip. It is not possible to determine at the present time whether or not a change in dip of the shear zone occurs at depth. Diamond drill hole no. 1 is located to intersect the shear zone at a shallow depth to determine any change in structure near the surface. Diamond drill hole no. 2 will intersect the shear zone at a greater depth to determine any major change in structure. If a significant change is found it will be necessary to relocate subsequent drilling sites in order to keep within the proposed amount of drilling.

The drill holes have been placed to intersect the shear zone at various depths to determine: (a) the depth of the zone of oxidation; (b) the presence of uranium mineralization below the zone of oxidation and, if present, at what level or levels does it occur; (c) whether or not significant changes in structure are present below the surface.

The drilling sites have been located to drill a minimum of country rock. Secondly, they were located so that only a small amount of bulldozing would be necessary for road construction to, and excavation for, drilling platforms.

It is known from surface observations that the shear zone continues southwest and northeast of the mapped area. The proposed drilling program is designed to explore only the known section of the shear zone. In the event that ore is found in diamond

drill holes nos. 1 and 2, it will probably not be necessary to drill holes nos. 3, 4, 5, 7 and 8. Instead holes nos. 6 and 9 will be drilled, and if ore is encountered, the remaining drilling footage will be used to explore the shear zone to the northeast and southwest.

In addition to the proposed diamond drilling program it will be necessary to chemically analyze the core and sludge recovered from the shear zone. Analyses will be undertaken providing radiometric tests indicate uranium mineralization to be present. Chemical analysis should be made every 5 feet on properly quartered samples of core and sludge. A radiometric survey of each diamond drill hole will also be made.

(c) The work will start within 135 days and be completed within 7 months from the date of an exploration project contract.

(d) Operating experience and background:

APPLICANT: Mr. O. A. Sutton, et al

The applicant possessing controlling interest has extensive operation in oil, manufacturing and other industries. He is President and principal owner of the O. A. Sutton Corporation. He also maintains a complete oil development and operating organization having drilled or participated in 91 wells, 76 of which were productive in 1955. Several of the personnel involved in the oil operations are co-applicants on this application. Mr. Sutton possesses all the operating facilities from management

personnel to field employees to carry out a complete mining and exploration program. His financial background is such that he is able to undertake any operation in which he should decide to engage. Direct supervision of the proposed exploration is delegated to William James Stark and Glenn E. Sheppard, who will be assisted by various technicians required for the special skills needed in this program.

SUPERVISORS: William James Stark

William James Stark attended the University of California at Los Angeles, and was graduated with a B. S. in Accounting in 1946. He attended the University of Washington and after receiving a B. S. in Geology, was granted a Masters degree in Geology in 1950. He was employed as a geologist by the Magnolia Petroleum Company for one year. Following this he served as a consulting petroleum geologist in the mid-continent area for three years. For the past year Mr. Stark has been employed by O. A. Sutton, Oil Properties and Investments, as managing geologist.

Glenn E. Sheppard

Glenn E. Sheppard attended Emporia State College and the University of Kansas and was granted a Masters degree in Physics in 1941. He was employed by the Radio Corporation of American as an electronics engineer from 1941 - 1945 and by the Westinghouse Research Laboratories as a research physicist

from 1946-1951. He was in business for himself from 1951-1954. He was Head of the Department of Physics and Electronics of the Research Foundation of the University of Wichita from 1954-1955. He has had extensive experience in electronic circuitry and radiation measurements as applied to uranium exploration. At the present time he is employed by O. A. Sutton, Oil Properties and Investments, as a physicist.

GEOLOGICAL CONSULTANT: Andrew J. Lang

Andrew J. Lang attended the South Dakota School of Mines and Technology and was graduated with a B. S. degree in Geology in 1947. He attended the University of Washington for four years doing graduate work in hard rock geology. He has worked four field seasons for the United States Geological Survey. He has worked for one summer in the Gunnison area as a geological consultant. At the present time, Mr. Lang is an Assistant Professor of Geology at the University of Wichita, Wichita, Kansas.

6. ESTIMATE OF COSTS

q (a) Independent Contracts

Diamond Drilling		
Non-core drilling	2598 feet	
Core drilling	556 feet	
Total	3154 feet	
Drilling Cost $7.00 per Ft.		
Total Drilling Cost		$ 22,078.00
Bulldozer Operations to construct access roads and drilling locations - Cost $12.00 per hr. - Estimated Hrs. 64		
Total Bulldozer Cost		768.00

(b) Labor, Supervision, Consultants:

Labor - 1 man 90 days time @ $15.00 per day	1,350.00
Supervision & Engineering - 2 men part time 30 days @ $38.40 per day (O. A. Sutton Employee - Glenn E. Sheppard)	1,152.00
10 days @ $70.00 per day (O. A. Sutton Employee - Wm. James Stark)	700.00
Consulting - 1 man 10 days @ $100.00 per day (Andrew J. Lang - Professor of Geology, Wichita University, Wichita, Kansas)	1,000.00
Travel Expense for Consultant - Engineering & Supervision - 7 round trips, Wichita, Kansas, to Gunnison, Colorado (1200 miles per trip) @ $0.10 per mi. (total 7200 mi.)	720.00
Per Diem Expense for Consultant, Engineering & Supervision @ $10.00 per day - total time 50 days	500.00

(c) Operating Materials & Supplies -

Core Packing Material	50.00
Spare Batteries for Geiger Counter	15.00
Sample Bags - 200 @ $15.00 per hundred	30.00

(d) Operating Equipment -

1955 Jeep Station Wagon -	
1 month @ $70.00 Use Allowance	70.00
Mileage (30 round trips - Gunnison, Colo. to drill locations @ 40 miles per trip) @ $0.08 per mile - total miles 1200	
Mileage Cost	96.00
Pickup Truck -	
Mileage (90 round trips - Gunnison, Colo. to drill locations @ 40 miles per trip) @ $0.08 per mile - total miles 3600	
Mileage Cost	288.00
One Model 435 Babble Hole Probe, complete with recorder (to be purchased) - Use Allowance	450.00
Transit Rental - 10 days @ $2.00 per day	20.00
Core Splitter	34.00

(e) Rehabilitation - None

(f) New Buildings, Improvements & Installations -

Access dock to water at Cochetopa Creek - Estimated Cost of Lumber & Posts	100.00

(g) Miscellaneous -

Analytical Work - 15 days @ $25.00	375.00
Sample Analysis - Analysis - Wet Chemical plus radiometric assays - 100 samples @ $6.00 ea.	600.00
Shipping Charges on core samples - 100 @ $1.50 ea.	150.00
Accounting - 6 days @ $25.00 per day	150.00
Workman's Compensation) Employers Liability) Estimated	80.00
Payroll Taxes - 2% x $4577.00	91.54
Total Cost	$ 30,867.54

(h) Contingencies - None

7. (a) Yes, we are prepared to furnish our share of the cost of the proposed project, in accordance with the regulations on Government participation.

(b) (x) Money (x) Use of Equipment

We propose to furnish our share of the costs in the following manner:

We are prepared to furnish our share of the costs in cash with the exception of the following items of equipment which we propose to furnish on a use allowance basis -

1955 Jeep Station Wagon - 1 month use allowance	$ 70.00
Model 435 Babble Hole Probe, complete with recorder	450.00
Total	$ 520.00

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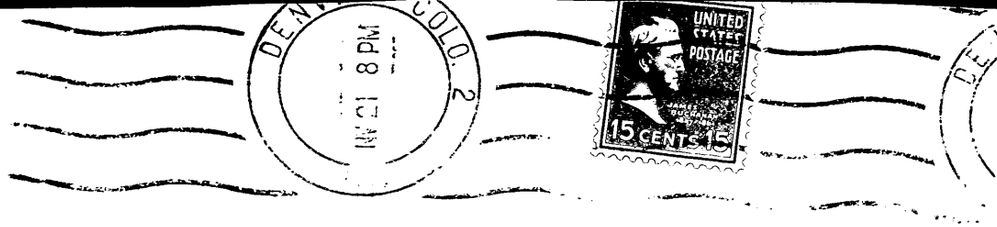

Defense Minerals Exploration Administration
U. S. Department of the Interior
Interior Building
Washington 25, D. C.

O P T I O N

KNOW ALL MEN BY THESE PRESENTS That the undersigned, A. O. FREEMAN and E. O. WILLSON of Gunnison, Colorado, hereinafter called the Parties of the First Part, for and in consideration of the sum of Three Thousand Dollars ($3,000.00) in hand paid by the following named persons and parties in the proportions specified opposite their respective names, to-wit:

O. A. SUTTON, an undivided one-half interest
DIANNE SUTTON McCARTHY, an undivided one-tenth interest
THE FOURTH NATIONAL BANK of WICHITA, Trustee for OTTIS SUTTON McCARTHY, an undivided one-tenth interest
THE FOURTH NATIONAL BANK of WICHITA, Trustee for MICHAEL SUTTON, an undivided one-tenth interest
WILLIAM J. STARK, an undivided one-tenth interest
PAUL R. KITCH, an undivided one-tenth interest

all of the city of Wichita, Kansas, hereinafter called the Parties of the Second Part, the receipt whereof is hereby acknowledged and confessed, do hereby give and grant unto the Parties of the Second Part the first right, privilege and option to purchase, during the term hereinafter specified, for the sum of Fifteen Thousand Dollars ($15,000.00) with the reservation for royalty, all as hereinafter provided, the following described unpatented lode mining claims and premises, all situate in the Cochetopa Mining District in the County of Saguache and State of Colorado, to-wit:

GROUP NO. 1

Name of Claim	Reception No. of Original Location Certificates	Reception No. of Amended Location Certificates
North Slope 1	144759	146665
North Slope 2	144760	146666
North Slope 3	144761	146667
North Slope 4	144762	146668
North Slope 5	144763	146669
North Slope 6	144764	146670
North Slope 7	144765	146671
North Slope 8	146672	
North Slope 9	146673	
North Slope 10	146674	
North Slope 11	146675	
Valloy	146662	

GROUP NO. 2

Name of Claim	Reception No. of Original Location Certificates	Reception No. of Amended Location Certificates
Lone Tree	144759	146658
Bell Air	144760	146676
Outpost 1	146683	
Maybe 1	146663	
Maybe 3	146664	
Outpost Ext 1	146684	
Stormy	146661	
Columbine 1	146686	
Columbine 2	146687	
Columbine 3	146688	
Outpost 3	146685	
Maybe 2	146691	
Divide 2	146892	
Bell Air Extension	146677	

Hilltop, location certificate recorded in Book 243 at Page 163
Morning Star, location certificate recorded in Book 243 at Page 162
Piney #2, location certificate recorded in Book 243 at Page 157
Piney #3, location certificate recorded in Book 243 at Page 158
Piney #5, location certificate recorded in Book 243 at Page 160
Divide #1
Divide #3

All of record in the office of the County Clerk and Recorder of Saguache County, Colorado

The Parties of the Second Part are hereby given the first right and privilege to purchase said property above described up to and including the 15th day of July, 1956, unless this Option is sooner cancelled and terminated as hereinafter provided, by paying the amount of the purchase price as above specified, which shall be in addition to the $3,000.00 paid for the consideration for this Option, and upon the payment of the purchase price, the Parties of the First Part hereby agree to make, execute and deliver unto the said Second Parties a good and sufficient mining deed covering said mining property above described and which deed shall be free and clear of all liens and encumbrances and which deed shall contain the following reservations and provisions:

a. The Parties of the First Part reserve and shall be paid a royalty equivalent to ten per cent (10%) of the net proceeds from all ore and minerals of every kind and character mined and extracted, and marketed and sold from said property above described in perpetuity, all of said royalties to be paid directly to the First Parties by the mill, smelter or other purchaser or purchasers of said ores and minerals and, in addition thereto, the Parties of the First Part shall be paid a sum equivalent to ten per cent (10%) of all bonuses allowed on minerals and ores mined and extracted from said property; provided, however, that any advances or allowances made by the U. S. Government for development purposes shall be expended on the property and the Parties of the First Part shall not be entitled to share in such development allowances.

b. The Parties of the Second Part shall do all annual assessment work on said mining claims above described by the 10th day of June of each and every year, and that if they fail, refuse or neglect to do such annual assessment work by June the 10th of each year, the Parties of the Second Part agree to give all of said mining claims back to the Parties of the First Part on the 11th day of June of the year wherein such Second Parties default in the performance of said assessment work; provided, however, that if, after the Second Parties exercise their rights and privileges under this Option, they determine that they are no longer interested in one or the other of the two groups of mining claims above set forth, they have the right to do and perform the annual assessment work on that group of claims they are desirous of keeping and they shall reconvey the other group in which they might not be interested to the First Parties, said deed to be executed and delivered to the First Parties on or before the 11th day of June of the year wherein said decision shall be made by said Second Parties. The annual affidavits of assessment work shall be prepared and recorded by the Second Parties as provided by law.

The Parties of the Second Part specifically agree that they

will enter in and upon said mining claims above described or some portion thereof on or before May 15, 1956, and in good faith commence exploring and examining said property to determine whether there are sufficient ore bodies and deposits of commercial value to justify the operation and development of said mining property, such explorations to be in the nature of geophysical examinations, core-drilling, development work and discovery work, and the Second Parties further agree that they will do and perform the necessary annual assessment work for that period commencing July 1, 1955, and ending July 1, 1956, by the 10th day of June, 1956, and they will execute and record the necessary Affidavit of Annual Labor by that date; and if the said Second Parties fail, refuse or neglect to comply with the requirements contained in this paragraph, this Option shall thereupon be considered cancelled and of no further force or effect.

It is further agreed that if the Parties of the Second Part exercise their rights and privileges under this Option, the purchase price shall be paid, the Second Parties obligations hereunder shall be bourn and the title to said claims shall be shared by said Second Parties in the proportions specified opposite their respective names above.

It is mutually understood and agreed that time of payment and performance is an essential part of this Option and of the essence hereof and that all of the terms, covenants and conditions herein contained shall extend to and become obligatory upon the heirs, executors, administrators, successors and assigns of the respective parties.

IN WITNESS WHEREOF the Parties of the First Part have subscribed their names and affixed their seals this 6th day of October, A. D. 1955.

A O Freeman (SEAL)
A. O. Freeman

E. O. Willson (SEAL)
E. O. Willson

STATE OF COLORADO)
) SS
COUNTY OF GUNNISON)

The above and foregoing Option was acknowledged before me this 6th day of October, A. D. 1955, by A. O. Freeman and E. O. Willson.

WITNESS My hand and notarial seal.

My commission expires June 20th 1959

Alton L. Jordon
Notary Public

ASSIGNMENT

The undersigned, O. A. SUTTON, for a good and valuable consideration does hereby sell and assign to JACK G. PAULSEN a one-twentieth (1/20) interest in and to the rights created by a certain option contract, dated October 6, 1955 between A. O. FREEMAN and E. O. WILLSON and O. A. SUTTON ET AL on the 6th day of October, 1955 covering the following described unpatented lode mining claims and premises, all situate in the Cochetopa Mining District in the County of Saguache and State of Colorado, to-wit:

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North Slope 8	146672	
North Slope 9	146673	
North Slope 10	146674	
North Slope 11	146675	
Valley	146662	

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Piney #5, location certificate recorded in Book 243 at Page 160
Divide #1
Divide #3

All of record in the office of the County Clerk and Recorder of Saguache County, Colorado.

This assignment is subject to the rights of Glenn E. Sheppard to participate in the profits of said venture if said option is exercised.

Dated at Wichita, Kansas, this 2nd day of November, 1955.

OA Sutton

STATE OF KANSAS)
) SS:
COUNTY OF SEDGWICK)

Before me, the undersigned, a Notary Public, within and for said County and State, on this 2nd day of November, 1955, personally appeared O. A. Sutton to me personally known to be the identical person who executed the within and foregoing instrument and acknowledged to me that he executed the same as his free and voluntary act and deed for the uses and purposes therein set forth.

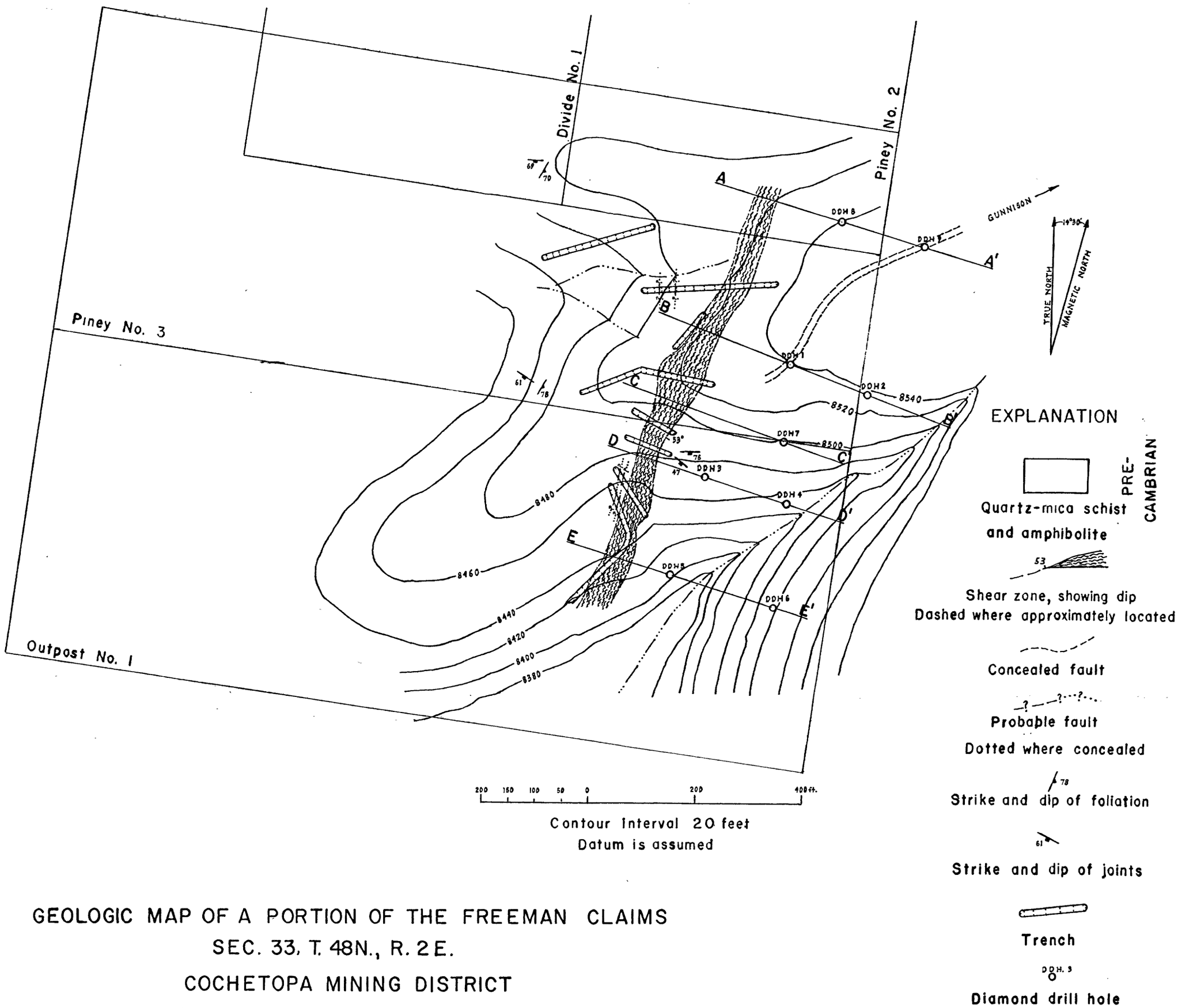
IN WITNESS WHEREOF, I have hereunto set my hand and official seal the day and year last above written.

HAZEL STARK NOTARY PUBLIC SEDGWICK COUNTY, KANSAS

My commission expires November 15, 1956

Hazel Stark
Hazel Stark, Notary Public

PLATE I



GEOLOGIC MAP OF A PORTION OF THE FREEMAN CLAIMS
SEC. 33, T. 48N., R. 2E.
COCHETOPA MINING DISTRICT
SAGUACHE COUNTY, COLORADO

GEOLOGY BY A.J. LANG OCT. 1955

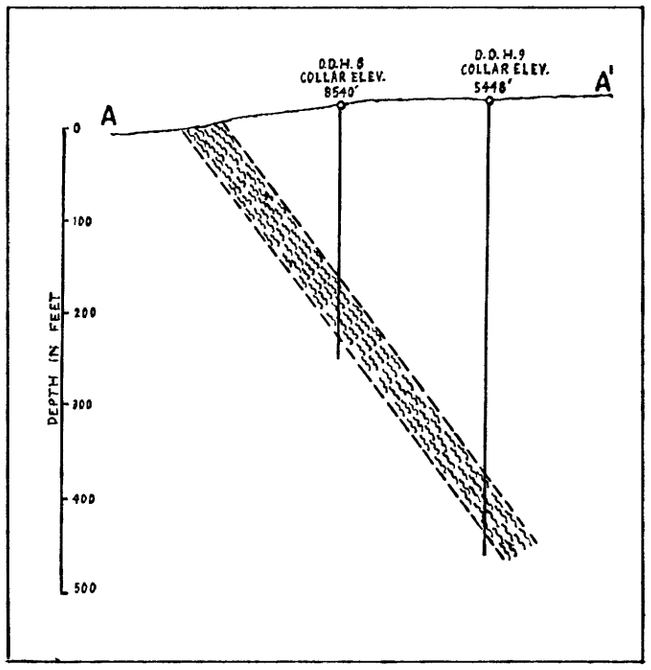
Note: Solid Circles Indicate Boundry Posts on Conflicting or Adjacent Claims (Known Boundries Shown By Dashed Lines) Where Question Marks Are Shown Boundary Posts Could Not Be Located In Sufficient Number to Determine Claim Boundries.

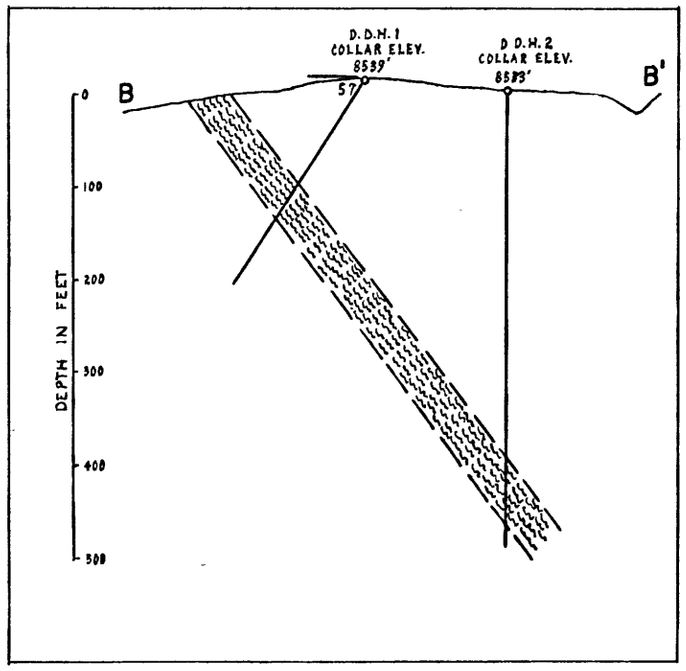
AMENDED CLAIM MAP
OF
FREEMAN GROUP

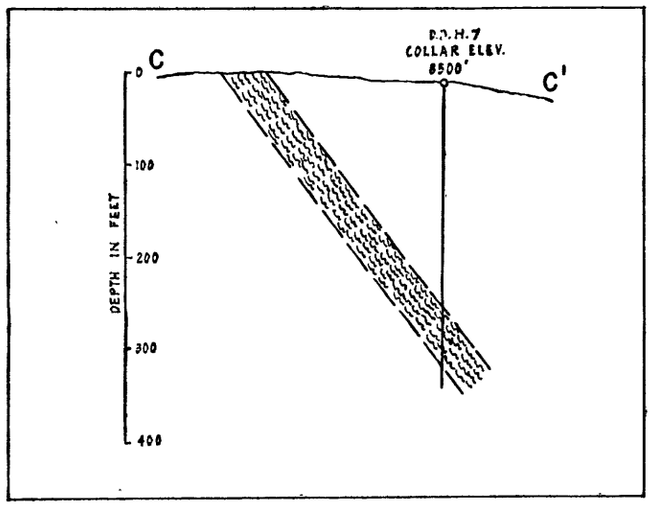
TWP. 48 N.-RGE. 2 E.
COCHETOPA MINING DISTRICT
SAGUACHE COUNTY COLORADO

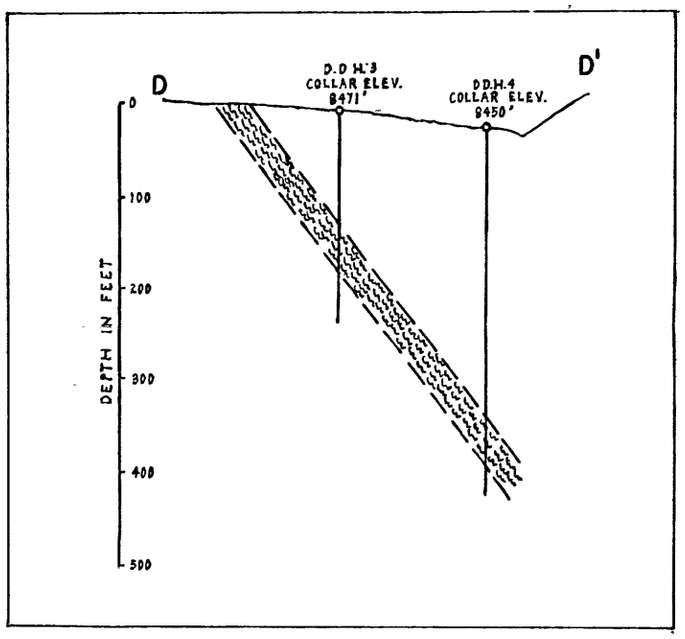
December 1954 Scale: 1" = 500'

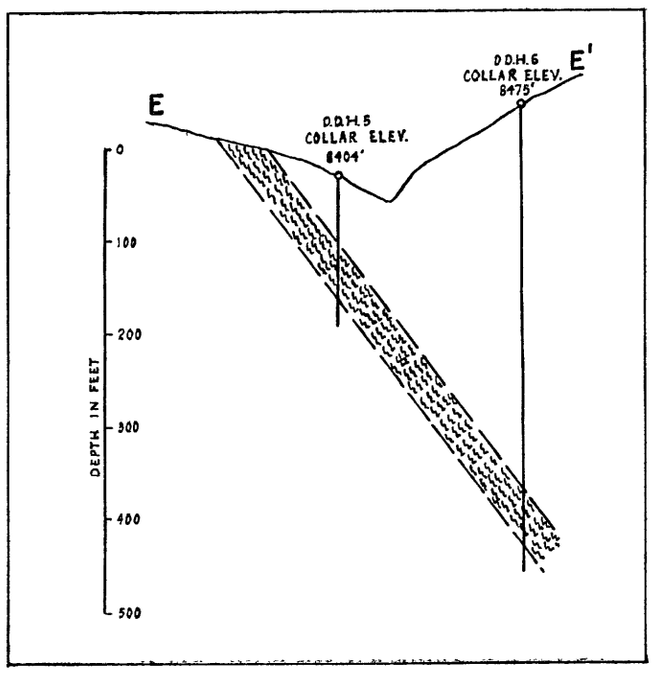
MINERALS EXPLORATION RESEARCH CORP.







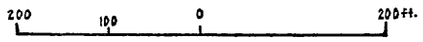




EXPLANATION

Shear zone

Approximately located

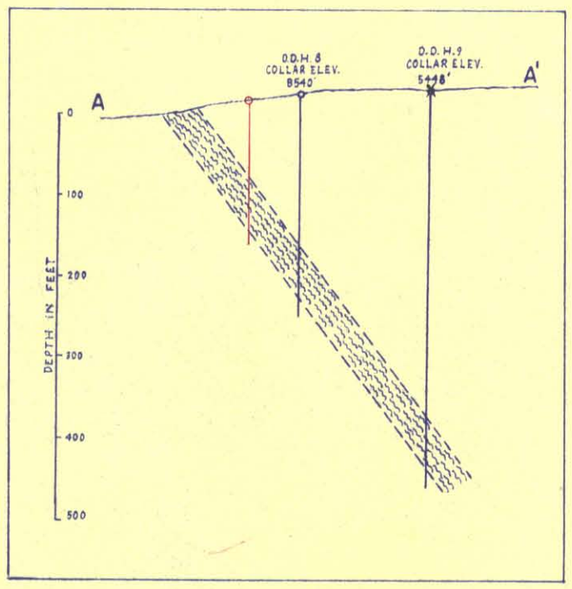


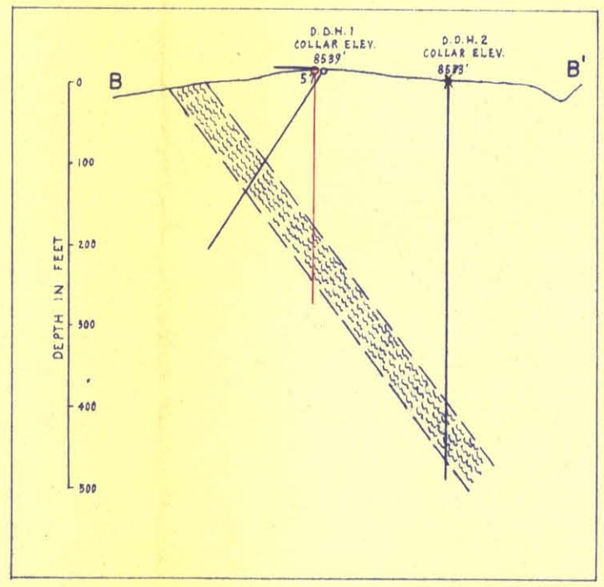
SECTIONS THROUGH PROPOSED DIAMOND DRILL HOLES

FREEMAN CLAIMS

COCHETOPA MINING DISTRICT

SAGUACHE COUNTY, COLORADO

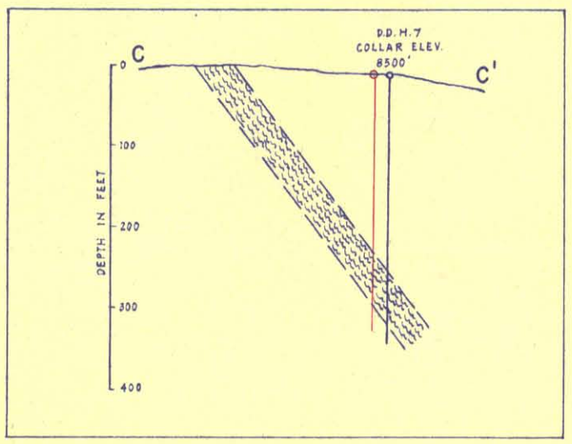


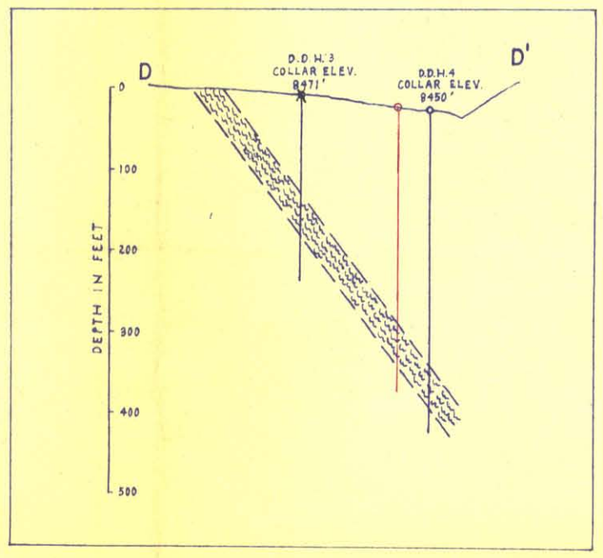


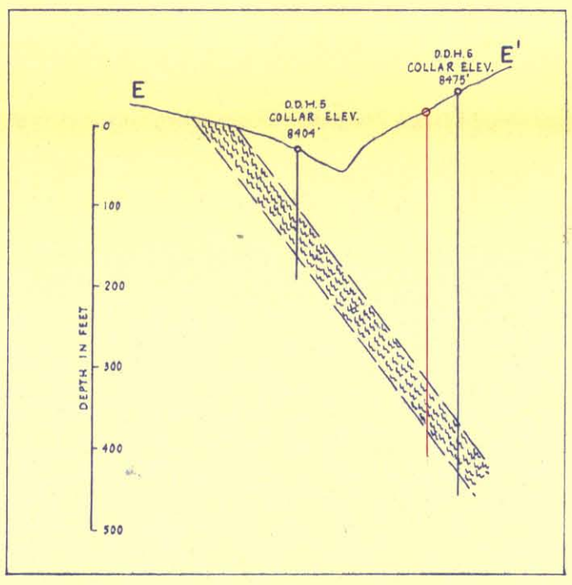
EXPLANATION

Shear zone

Approximately located







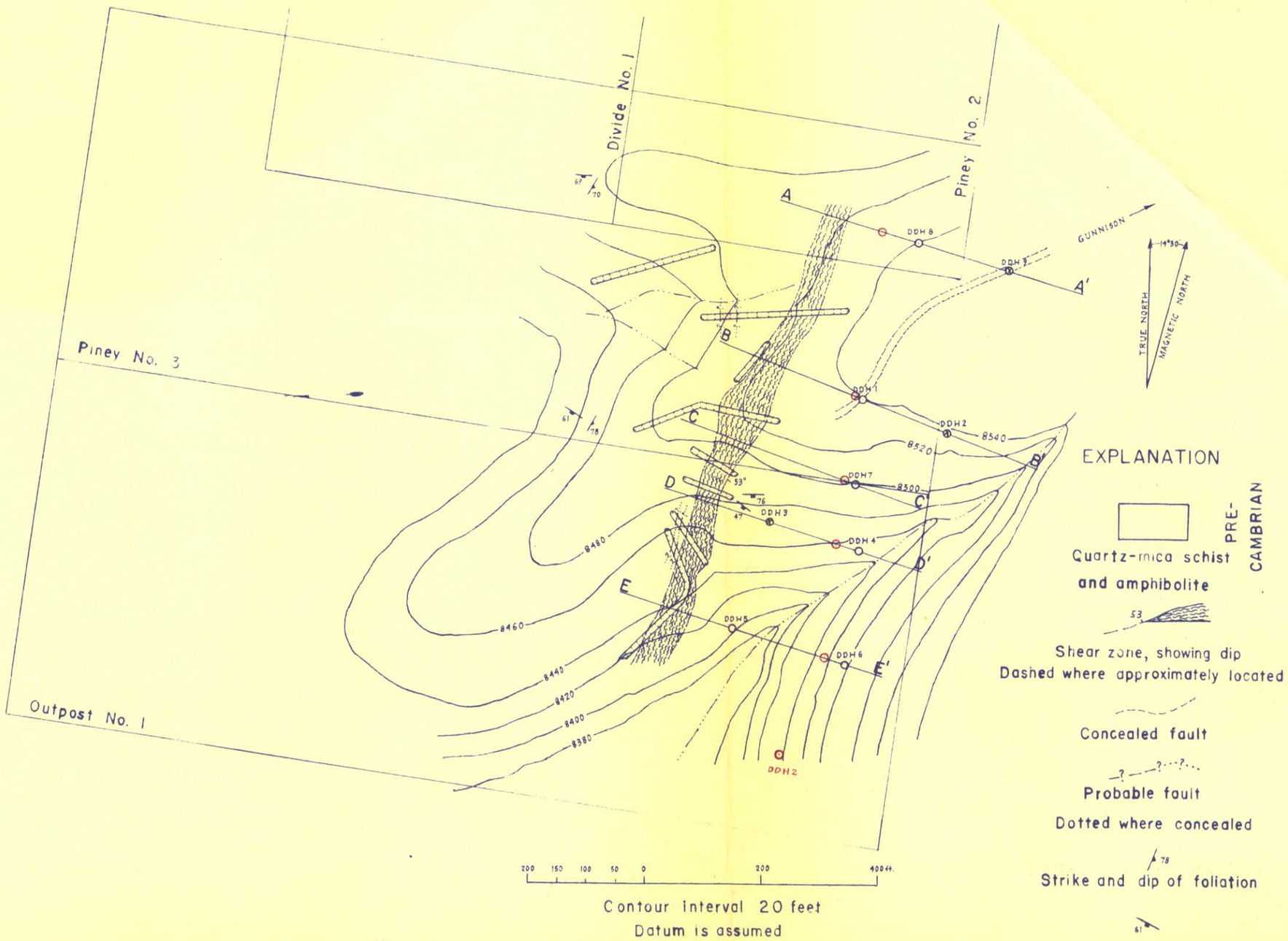
200 100 0 200 ft.

SECTIONS THROUGH PROPOSED DIAMOND DRILL HOLES

FREEMAN CLAIMS

COCHETOPA MINING DISTRICT

SAGUACHE COUNTY, COLORADO



EXPLANATION

PRE-CAMBRIAN

Quartz-mica schist and amphibolite

Shear zone, showing dip
Dashed where approximately located

Concealed fault

Probable fault
Dotted where concealed

Strike and dip of foliation

Strike and dip of joints

Trench

Diamond drill hole

Revised diamond drill hole

GEOLOGIC MAP OF A PORTION OF THE FREEMAN CLAIMS
SEC. 33, T. 48N., R. 2E.
COCHETOPA MINING DISTRICT
SAGUACHE COUNTY, COLORADO

GEOLOGY BY A.J. LANG OCT. 1955