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

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MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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 need 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 ab

NOTE.—No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or 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

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.

NAME OF CLAIM	RECEPTION NO. OF ORIGINAL LOCATION CERTIFICATE	RECORDED BOOK	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	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	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	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 is 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 severely 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. Radioactivity 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 America 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

(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) Estimated	
Employers Liability)	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

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:

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	
Valley	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
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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.

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.

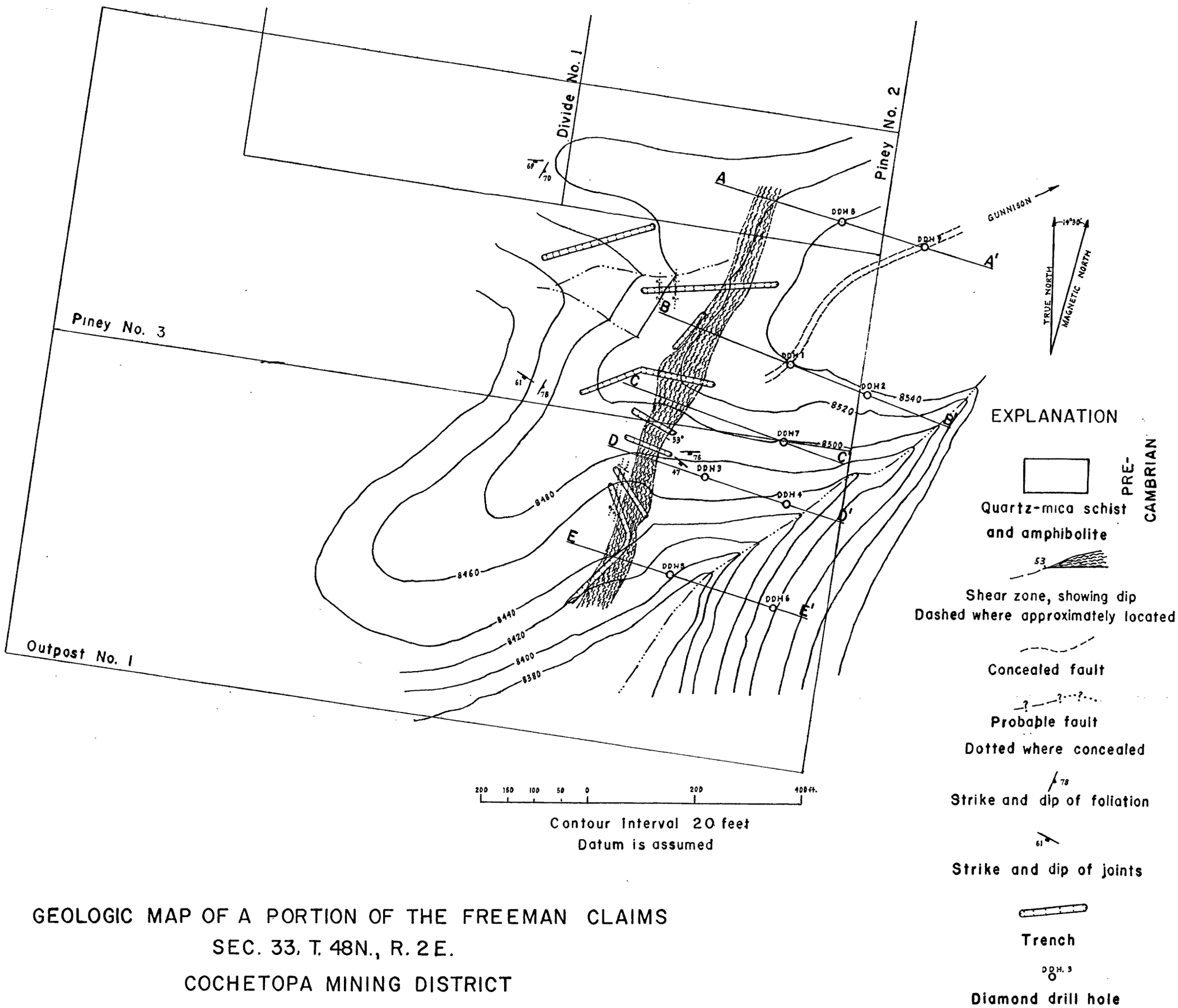
IN WITNESS WHEREOF, I have hereunto set my hand and official seal the day and year last above written.

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

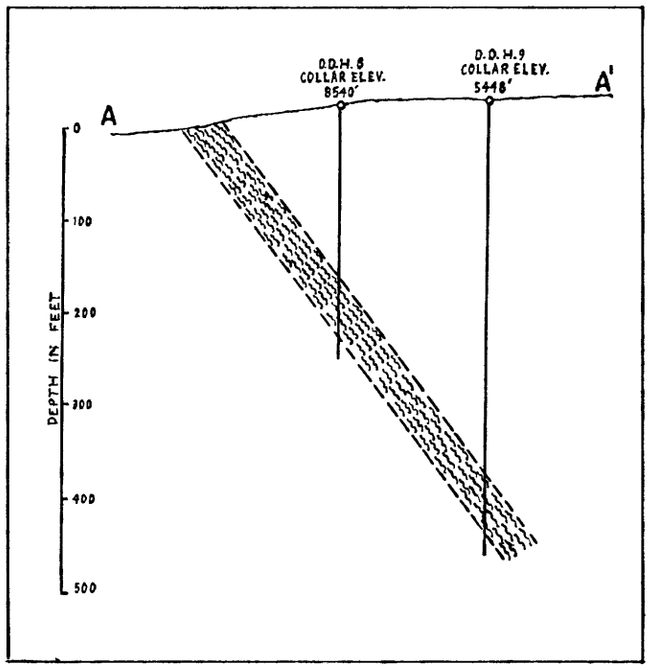
Note: Solid Circles Indicate Boundry Posts on Conflicting or Adjacent Claims (Known Boundries Shown By Dashed Lines) Where Question Marks Are Shown Boundary Posts Could Not Be Located In Sufficient Number to Determine Claim Boundries.

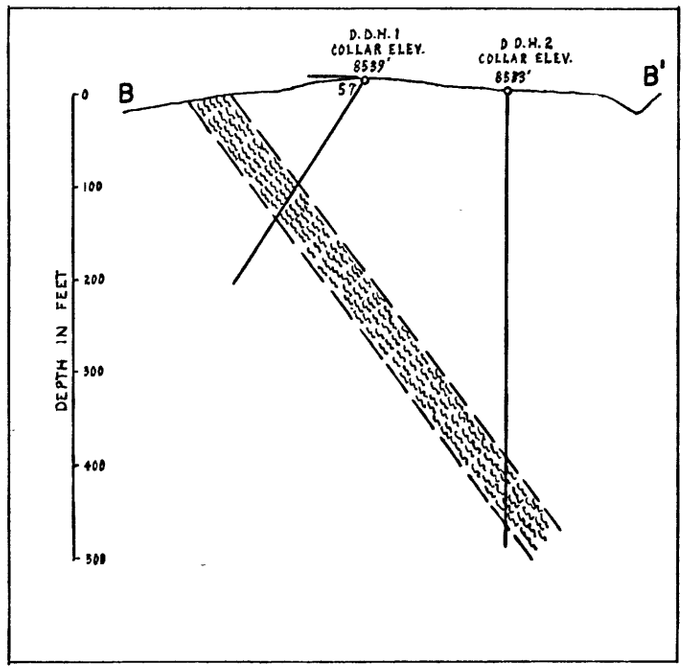
AMENDED CLAIM MAP
OF
FREEMAN GROUP

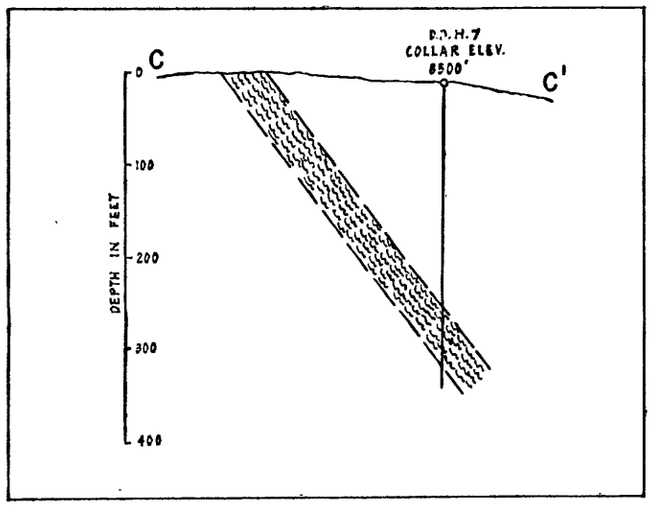
TWP. 48 N.-RGE. 2 E.
COCHETOPA MINING DISTRICT
SAGUACHE COUNTY COLORADO

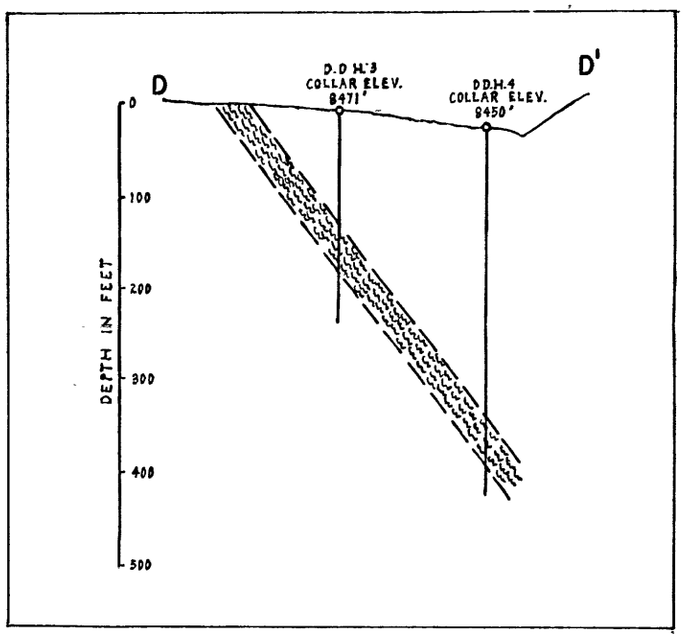
December 1954 Scale: 1" = 500'

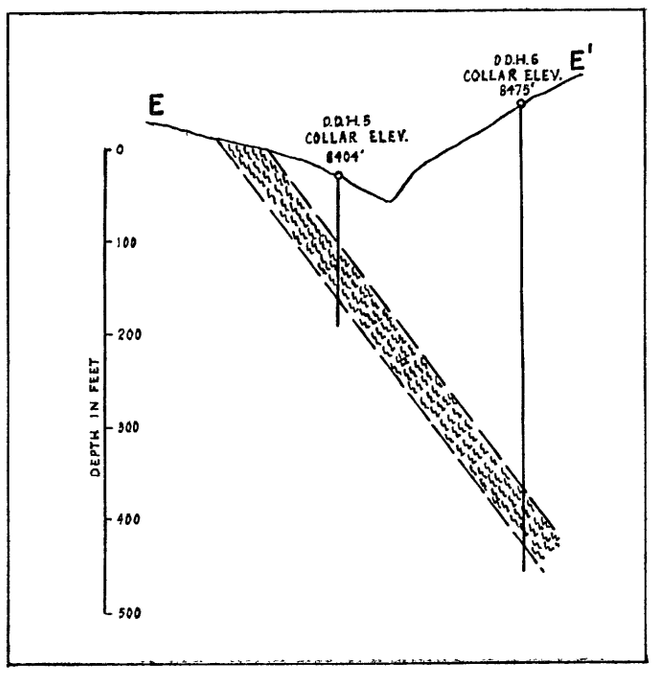
MINERALS EXPLORATION RESEARCH CORP.







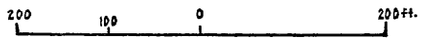




EXPLANATION

Shear zone

Approximately located



SECTIONS THROUGH PROPOSED DIAMOND DRILL HOLES

FREEMAN CLAIMS

COCHETOPA MINING DISTRICT

SAGUACHE COUNTY, COLORADO