700

[redacted] Surname copy

Ching
Ellis
Valin
Trace
Martin
Johnson

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

MAY - 3 1955

Mr. Charles A. Wilcox, President
W.H.B.F. Mining & Engineering Co.,
c/o Wilcox Skelly Service
3040 Broadway
Boulder, Colorado

Re: Docket No. DMEA-3606 (Uranium)
Wright Lease
Jefferson County, Colorado

Dear Mr. Wilcox:

Your application for aid in an exploration project and other information available to us in Washington concerning your 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 a small amount of uranium mineralization on your property, indicates to us that the probability of disclosing minable ore reserves by your proposed program is not sufficiently promising to justify Government participation. We regret to advise you, under these circumstances, that your application for exploration assistance is denied. Such denial, however, is made without prejudice. In the event further work on your part discloses new and more favorable evidence of ore deposition on the property, we shall be pleased to consider a new application.

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

Sincerely yours,

G. O. Mitterdorf (fw)

Administrator

MChing/gla
4-29-55
cc to: Admr.'s Reading File
Operating Committee
Docket
Messrs. J. E. Crawford, Rm. 3641
T. H. Kiilsgaard, Rm. 5224
J.O. Hosted, Rm. 3210, GSA
Code 700 Mr.Ching
DMEA Field Team, Region III (2)

R.C.

DOCKET COPY

Ching
Volin
Martin

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

April 29, 1955

Summary of Proposed Project

Object: Denial of application for an exploration project

Docket No. DMEA-3606

Commodity: Uranium

Applicant: W.H.B.F. Mining & Engineering Co., a partnership
c/o Wilcox Skelly Service
3040 Broadway
Boulder, Colorado

Property: The NE$\frac{1}{4}$ of NW$\frac{1}{4}$ Sec. 32, T. 4 S., R. 70 W., (Wright Lease), excepting that portion of said property owned by the State Highway Department as right of way for State Highway 74 and the access road to Starbuck Ranch Heights and Little Park, Jefferson County, Colorado

Applicant's Property Rights: M. J. Kraft, Treasurer of applicant company holds a lease on the property from Marcus A. Wright. No other evidence of Applicant's property rights was presented.

Date of application: Undated. Received in Washington December 13, 1954.

Amount of Application: $17,244.83.

Work proposed:

Bulldozing of 4 trenches across radioactive zone and preparation of drill sites	$ 400.00
8 core drill holes - 1150 ft. @ $7.91/ft.	9,096.00
150 ft. drifting @ $37.64/ft.	5,646.50
Miscellaneous and contingencies	2,102.33
Total	$17,244.83
Government participation @ 75%	$12,933.62

Field Team Report: March 16, 1955 - C. M. Harrer, USBM
D. R. Maclaren, USGS

Field Team
Report (cont.) A southeasterly striking zone of brecciation and shearing was traced for a distance of 900 feet on the property. Uranium occurs in small amounts throughout the length of this structure. Near surface leaching of uranium has probably occurred. Seven out of nine samples, ranging in width from 6" to 20", were below ore grade despite compensation for leaching. A selected grab sample and a selected cut sample 3 inches wide assayed below ore grade, but indicated a uranium content before leaching of 0.16 and 0.26 percent uranium respectively. It is concluded that the samples are too low grade to indicate any specific exploration target, and the chances of making a significant discovery through the proposed exploration work would be poor. It is recommended that the application be denied without prejudice and subject to review on the basis of new and more favorable evidence.

Commodity Committee Members' comments:

Geological Survey - R. D. Trace, April 20, 1955

Notes that the available data suggest that a minable quantity of ore grade material is not present. Concurs with the Field Team and recommends that the application be denied without prejudice.

Bureau of Mines - John E. Crawford, April 21, 1955

Discussed project with AEC representative and concurs with the Field Team recommendation that the application be denied without prejudice.

Rare and Miscellaneous Metals Division - Michael Ching, April 29, 1955.

The nine samples taken by Government engineers were from the most radioactive areas of the mineralized structure. Two specially selected samples were barely of ore grade. The only encouraging factor in connection with this property lies in the possibility that near surface leaching and secondary enrichment in depth may have taken place. However, the assays after correction for leaching, remained very low and do not suggest that the degree of mineralization in depth would be great.

Conclusions and Recommendations:

Uranium mineralization occurs along a zone of brecciation on the property, but the mineralized portions are too low grade and limited in extent to encourage further exploration. It is recommended that the application be denied without prejudice.

Ernest Wm. Ellis

Ernest Wm. Ellis

4/22/55 gla

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

Division Minerals Administration
RECEIVED
APR 22 1955

April 21, 1955

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

From: Bureau of Mines Member
Uranium Commodity Committee

Subject: Field Team report of examination, DMEA Docket 3606, W.H.B.F. Mining and Engineering Company, Wright Lease, Jefferson County, Colorado

I have reviewed the Field Team report of examination, DMEA Docket 3606, W.H.B.F. Mining and Engineering Company, Wright Lease, Jefferson County, Colorado; and I have discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

We concur with the Field Team's recommendation that the application for assistance be denied without prejudice.

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

April 21, 1955

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

From: Bureau of Mines Member
Uranium Commodity Committee

Subject: Field Team report of examination, DMEA Docket 3606, W.H.B.F. Mining and Engineering Company, Wright Lease, Jefferson County, Colorado

I have reviewed the Field Team report of examination, DMEA Docket 3606, W.H.B.F. Mining and Engineering Company, Wright Lease, Jefferson County, Colorado; and I have discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

We concur with the Field Team's recommendation that the application for assistance be denied without prejudice.

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

John E. Crawford

JECrawford:ds
Copy to: Division of Minerals
Branch of Rare and Precious Metals
J. O. Hosted (2)
J. E. Crawford (2)
F i l e s

4/21/55 gla

IN REPLY REFER TO:

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

DEPARTMENT OF THE INTERIOR
Bureau of Mines
APR 21 1955

April 20, 1955

Re: DMEA-3606
WHBF M. & E. Co.
Jefferson Co., Colo.
$17,244.83 - Uranium

Memorandum

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

From: R. D. Trace, U. S. Geological Survey

Subject: Review of Field Team report

I concur with the Field Team, and recommend that the application be denied without prejudice.

The available data suggest that a minable quantity of ore grade material is not present.

R. D. Trace

R. D. Trace

IN REPLY REFER TO:

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 21 1955

April 20, 1955

Re: DMEA-3006
WERF M. & E. Co.
Jefferson Co., Colo.
$17,244.83 - Uranium

Memorandum

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

From: R. D. Trace, U. S. Geological Survey

Subject: Review of Field Team report

I concur with the Field Team, and recommend that the application be denied without prejudice.

The available data suggest that a minable quantity of ore grade material is not present.

R. D. Trace

RDTrace:hlm
G-4/20/55

Copy to: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
J. E. Crawford, 3641 Interior
J. O. Hosted, 3210 GSA

IN REPLY REFER TO:

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 21 1955

April 20, 1955

Re: DMEA-3606
WEEP M. & E. Co.
Jefferson Co., Colo.
$17,244.83 - Uranium

Memorandum

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

From: R. D. Trace, U. S. Geological Survey

Subject: Review of Field Team report

I concur with the Field Team, and recommend that the application be denied without prejudice.

The available data suggest that a minable quantity of ore grade material is not present.

R. D. Trace

RDTrace:hlm
G-4/20/55

Copy to: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
J. E. Crawford, 3641 Interior
J. O. Hosted, 3210 GSA

IN REPLY REFER TO:

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 21 1955

April 20, 1955

Re: DMEA-3106
[illegible] M. & E. Co.
Jefferson Co., Colo.
$17,244.83 - Uranium

Memorandum

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

From: R. D. Trace, U. S. Geological Survey

Subject: Review of Field Team report

I concur with the Field Team, and recommend that the application be denied without prejudice.

The available data suggest that a minable quantity of ore grade material is not present.

R. D. Trace

RDTrace:hlm
G-4/20/55

Copy to: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
J. E. Crawford, 3641 Interior
J. O. Hosted, 3210 GSA

4/20/55 gla

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

Defense Minerals Administration
RECEIVED
APR 14 1955

224 New Customhouse
Denver 2, Colorado

April 11, 1955

Memorandum

To: Secretary to the Operating Committee, D.M.E.A.

From: D.M.E.A. Field Team, Region III

Subject: Report of Examination, DMEA Docket 3606, (Uranium)
W.H.B.F. Mining and Engineering Company (Wright Lease)
Jefferson County, Colorado

Enclosed are the original and three copies of the report pertaining to the above application.

We concur in the recommendation of the Field Examiners that the application be denied without prejudice to the property until such time as the applicant can show more favorable indications of the presence of a specific exploration target.

W. M. Traver

E. N. Harshman

Encs.

Reviewed by
DMEA OPERATING COMMITTEE
4-20-55
(Date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

DMEA
Date Rec'd.
MAR 24 1955
BUREAU OF MINES
Denver, Colorado

TRANSMITTED
APR 1 1 1955 INTERIOR
Minerals Administration
RECEIVED
APR 14 1955

Region III

Building 20, Room 137
Denver Federal Center
Denver 2, Colorado
March 21, 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: John F. Shaw, Project Supervisor

Subject: Examination Report, Docket DMEA 3606, (Uranium) W.H.B.F. Mining and Engineering Company (Wright lease), Jefferson County, Colorado.

Enclosed are the original and ten copies of a "Summary, Conclusions and Recommendations" by C. M. Harrer, mining engineer and D. R. MacLaren, geologist. Also enclosed are the original and ten copies of an engineering report by C. M. Harrer.

The applicant applied for exploration assistance in the amount of $17,244.83, to explore for uranium in the NE1/4, NW1/4, sec. 32, T. 4 S., R. 70 W. The proposed exploration work consisted of trenching, core drilling and possible crosscutting and drifting or shaft sinking. Uranium mineralization is indicated in a zone of sheared, iron-stained and brecciated pre-Cambrian schist, gneiss and granite. Chemical analyses were very low and the examining team concluded that there is little possibility of making a significant discovery of uranium.

It is recommended that the applicant's request for exploration assistance be denied.

The brochure covering this docket is enclosed.

John F. Shaw
John F. Shaw

cc 10
DMEA 3606
DMEA Chron

JFS/cm

Reviewed by
DMEA OPERATING COMMITTEE
4-20-55
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMEA 3606, Wright Lease

W.H.B.F. Mining and Engineering Co.

Jefferson County, Colorado

Uranium

C. M. Harrer, Mining Engineer
Bureau of Mines

D. R. MacLaren, Geologist
Geological Survey

March 16, 1955

Reviewed by
DMEA OPERATING COMMITTEE
4-20-55
(date)

DMEA 3606

WRIGHT LEASE
W.H.B.F. MINING AND ENGINEERING CO.
JEFFERSON COUNTY, COLORADO

Summary, Conclusions, and Recommendations

By C. M. Harrer
Mining Engineer
Bureau of Mines

D. R. MacLaren
Geologist
Geological Survey

Reviewed by
DMEA OPERATING COMMITTEE
4-20-55
(date)

DMEA 3606

WRIGHT LEASE
W.H.B.F. MINING AND ENGINEERING CO.
JEFFERSON COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By C. M. Harrer and D. R. MacLaren

The W.H.B.F. Mining and Engineering Company of 3040 Broadway, Boulder, Colorado, has applied for Defense Minerals Exploration Administration assistance in the amount of $17,244.83 to explore for uranium on the NE1/4, NW1/4 sec. 32, T. 4 S., R. 70 W., Jefferson County, Colorado, which they hold under a 5-year lease from the owner, M. G. Wright of 1300 South Bannock, Denver, Colorado.

GEOLOGY

Rocks in the area are pre-Cambrian granite, pegmatite, schist, and gneiss. A wide breccia reef that strikes S. 80° E. and dips 50° NE crosses the property but shows no evidence of containing radioactive minerals. A zone of brecciation and shearing that strikes S. 40°-60° E. and dips 45°-65° NE has been traced for about 900 feet on the property. Uranium occurs in small amounts throughout the length of this structure. Although near surface leaching has taken place, the values of assays can be corrected to show what their uranium content was before leaching. Seven out of nine samples indicate that the uranium content before leaching was below ore grade. The other two samples--one a selected grab sample and one a selected cut sample 3 inches wide--indicate a uranium content before leaching of slightly more than 0.16 percent U and 0.26 percent U respectively.

An exploration program is not sufficiently justified for the intent of Defense Minerals Exploration Administration, i.e., the making of a significant discovery of uranium and further work is in the nature of prospecting or "wild cat" exploration.

It is, therefore, recommended that the applicant's request for exploration assistance be denied without prejudice and subject to review on the basis of new and more favorable evidence.

DMEA 3606

WRIGHT LEASE
W.H.B.F. MINING AND ENGINEERING CO.
JEFFERSON COUNTY, COLORADO

Engineering Report

By C. M. Harrer
Mining Engineer
Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE
4-20-55
(date)

DMEA 3606

WRIGHT LEASE
W.H.B.F. MINING AND ENGINEERING CO.
JEFFERSON COUNTY, COLORADO

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ILLUSTRATIONS

Figure — Follows page

1. Location map, W.H.B.F. Mining and Engineering Company, lease, (Uranium) Jefferson County, Colorado..... 2
2. Property map showing existing and proposed exploration, W.H.B.F. Mining and Engineering Company, lease, (Uranium) Jefferson County, Colorado..... 2

DMEA 3606

WRIGHT LEASE
W.H.B.F. MINING AND ENGINEERING CO.
JEFFERSON COUNTY, COLORADO

ENGINEERING REPORT

By C. M. Harrer

INTRODUCTION

The W.H.B.F. Mining and Engineering Company of 3040 Broadway, Boulder, Colorado, has applied for Defense Minerals Exploration Administration assistance in the amount of $17,244.83 to explore for uranium on land which they hold under lease in Jefferson County, Colorado.

The property has been examined by members of the Denver Exploration Branch of the Atomic Energy Commission and the Geological Survey during 1954. The property was examined for the Region III Defense Minerals Exploration Administration by the writer, accompanied by Don R. MacLaren and R. V. King of the Geological Survey, on January 17, 1955.

ACKNOWLEDGMENTS

Mess'rs. M. J. Kraft, Duane Kraft and Verne Wilcox, members of the partnership known as the W.H.B.F. Mining and Engineering Company, were met at the property and conducted the examining team over the property. The Denver Exploration Branch of the Atomic Energy Commission made the results of their investigation of the property available to the examining team.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The W.H.B.F. Mining and Engineering Company lease, also known as the Wright lease, is in sec. 32, T. 4S., R. 70 W., sixth principal meridian, Jefferson County, Colorado (figs. 1 and 2) at altitudes ranging between 6,400 and 6,800 feet above sea level. The property is in rugged mountain area, which is about a mile from Idle Dale, 3 miles west of Morrison, 13 miles southwest of Denver and is readily accessible by paved State Highway No. 74. Water is obtainable from nearby springs, wells, and Bear Creek. Power is readily available in the nearby community of Idle Dale. The nearest railroad transportation is at Denver.

HISTORY AND PRODUCTION

There is no record of prior mineral production of any kind. The land has heretofore been valuable only for grazing.

OWNERSHIP AND EXTENT

The W.H.B.F. Mining and Engineering Company is a partnership in the process of incorporation. Officers and members include:

C. A. Wilcox, president	3040 Broadway, Boulder, Colo.
Verne Wilcox, secretary	3040 Broadway, Boulder, Colo.
M. J. Kraft, treasurer	635 Hawthorn Ave., Boulder, Colo.
Duane Kraft	635 Hawthorn Ave., Boulder, Colo.
Dr. W. J. Huls, vice-president	2490 Iris, Boulder, Colorado
Cody Bish	2490 Iris, Boulder, Colorado
Earl Lambeth	2925 Moorhead Ave., Boulder, Colo.
Clarence Swaeby, director	Rt. 1, Box 124, Lafayette, Colo.
H. L. Bird, director	P. O. Box 383, Berthoud, Colo.
Leo Jonick	809 Beulah Ave., Pueblo, Colo.

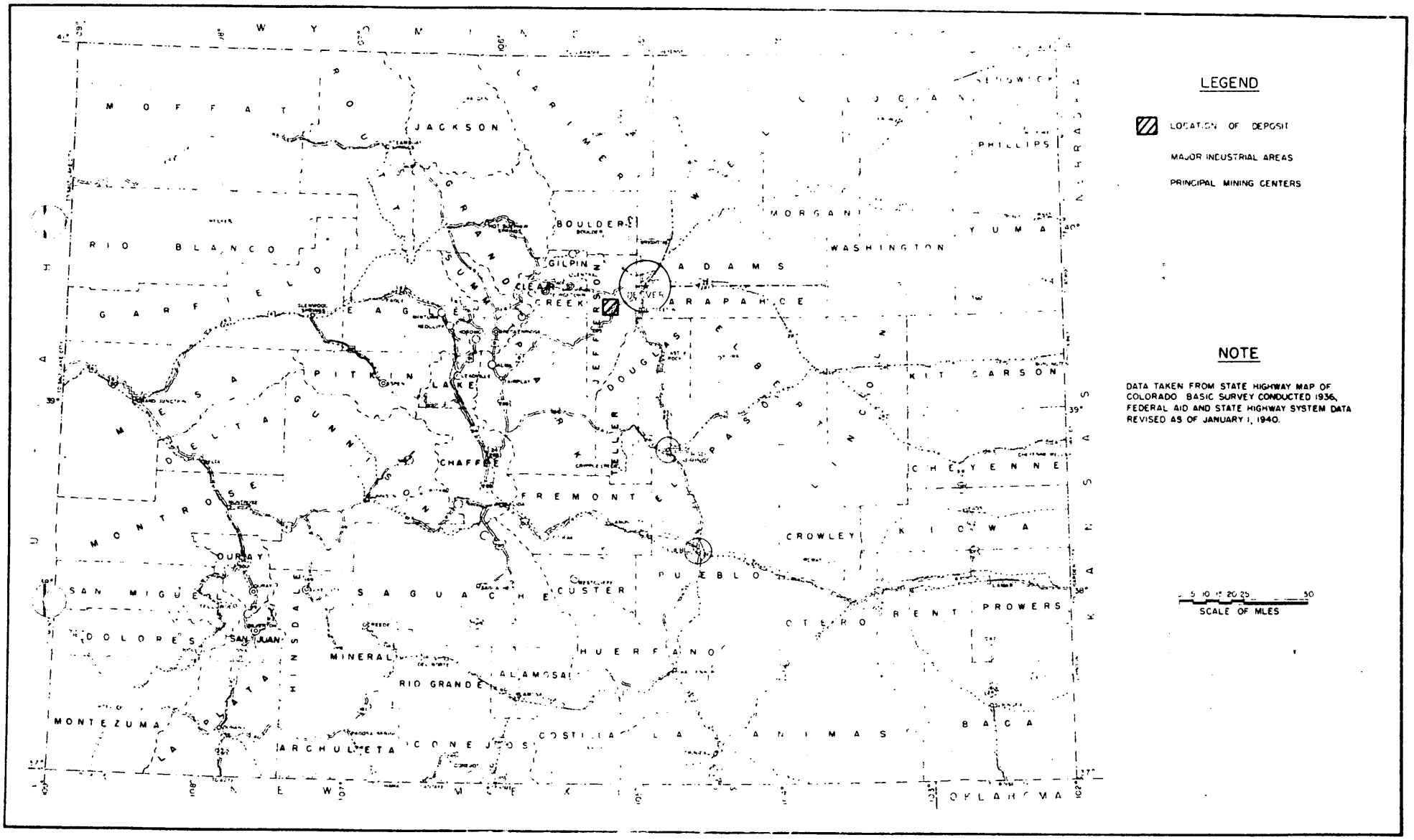


FIGURE 1 - LOCATION MAP, W. H. B. F. MINING COMPANY PROSPECT (URANIUM), JEFFERSON COUNTY, COLO. (DMEA 3[illegible])

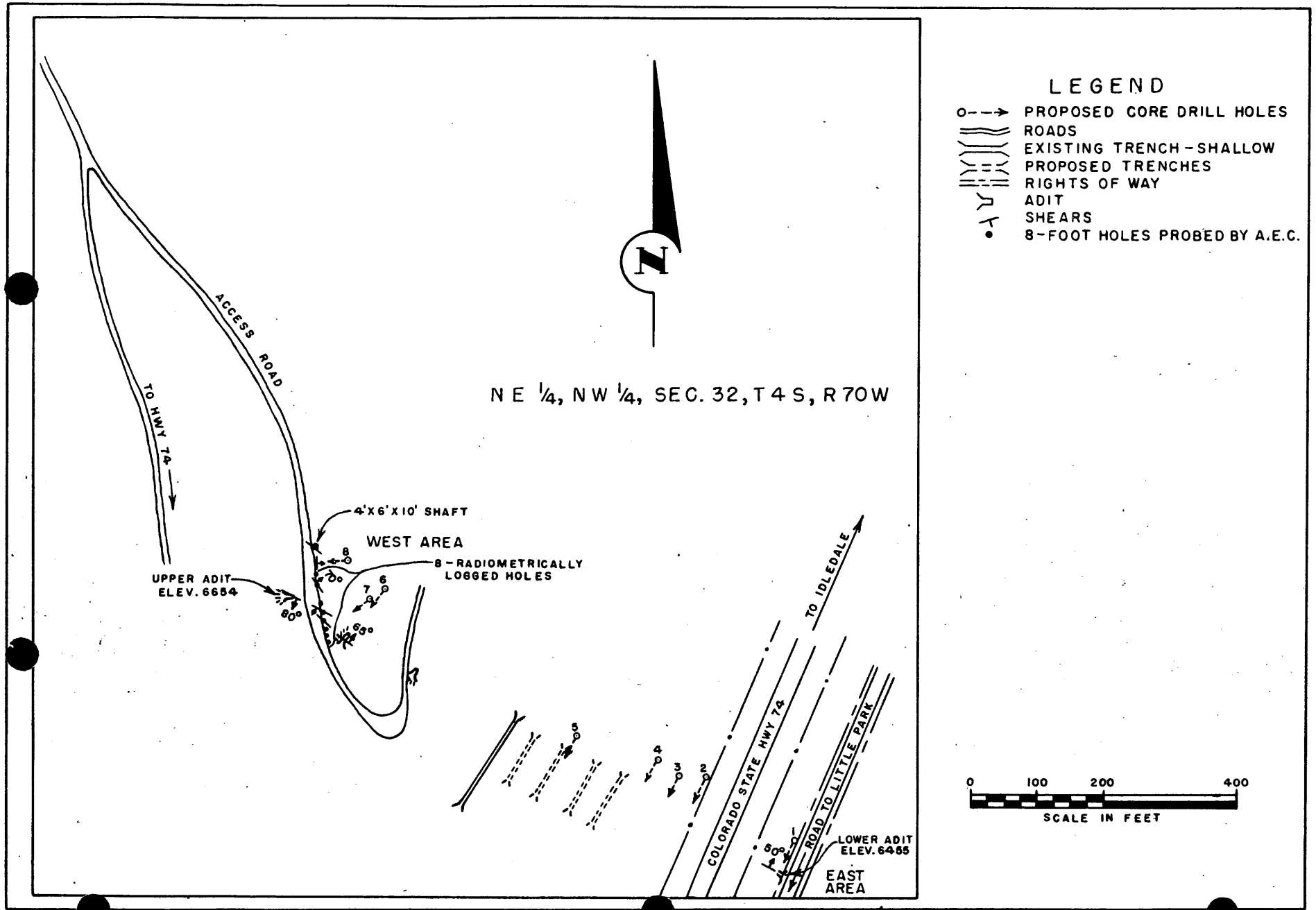


FIGURE 2 - PROPERTY MAP SHOWING EXISTING AND PROPOSED EXPLORATION, W.H.B.F. MNG. AND ENG'RING CO., LEASE (URANIUM), JEFFERSON COUNTY, COLO. (DMEA 3606)

The above mentioned group possess an active mineral lease on the northeast quarter of the northwest quarter of sec. 32, T. 4 S., R. 70 W., Jefferson County, Colorado (fig. 2). The owner is Marcus G. Wright, who resides at Idle Dale and whose place of business is the Wright Engineering and Supply Company of 1300 South Bannock Street, Denver, phone SPruce 7-4458. The lease is for all minerals and fissionable material and is active for 5 years from September 27, 1954, with no provision for renewal. W.H.B.F. Mining and Engineering Company agrees to pay a 15 percent royalty on all payments received from ore buying stations or mills for all ores and minerals, including fissionable minerals. The royalty shall be after deductions for assaying, milling and railroad charges. It shall not include any development allowances by the Government, but will include any other premiums or bonuses.

The southeast portion of the ground under lease includes a 100-foot right-of-way for Colorado State Highway No. 74 and a 40-foot right-of-way for an access road to Starbuck Ranch Heights and Little Park which are in the vicinity of part of the proposed exploration program. Their effect on any proposed contract should be clarified.

DESCRIPTION OF THE DEPOSIT

W.H.B.F. Mining and Engineering Company's uranium occurrence is within an area of pre-Cambrian gneiss, schist and granite constituting part of the Rocky Mountain Front Range in Jefferson County, Colorado. Weak uranium mineralization was traced for about 900 feet along a weathered, iron-stained and brecciated shear zone in schist and gneiss

which has been prospected with shallow cuts, a shallow shaft and the start of two adits (fig. 2). The shear zone was checked with a zig-zag scintillation counter traverse which indicated some radioactivity. The area of strongest radioactivity was at the face of the lower adit in the southeast corner of the lease (fig. 2), where readings up to 3.0 MR/hr were noted. No uranium minerals were identifiable. Evidence of uranium mineralization is given by the following analyses of samples taken by the Denver Exploration Branch of the Atomic Energy Commission, the Geological Survey, the applicant, and the examining team:

Sample number	Equivalent U	Chemical U	Calculated chemical U_3O_8	Description	Reference
32258	0.061	0.014	0.0165	20-inch channel sample of radioactive, oxidized, iron-stained shear zone at lower adit.	Denver Exploration Branch, Atomic Energy Commission
32259	0.160	0.023	0.0271	Select grab-sample in lower adit	Denver Exploration Branch, Atomic Energy Commission
32260	0.089	0.027	0.0319	12-inch channel sample of oxidized, iron-stained, radioactive shear zone in lower adit.	Denver Exploration Branch, Atomic Energy Commission
32261	0.260	0.095	0.1121	Select 3-inch portion of the most radioactive part of the above shear zone in the lower adit.	Denver Exploration Branch, Atomic Energy Commission
32262	0.078	0.020	0.0236	Select 8-inch portion of the above radioactive shear zone in the lower adit.	Denver Exploration Branch, Atomic Energy Commission
32263	0.020	0.008	0.0083	Selected radioactive rock from bottom of lower adit. Heavily iron-stained.	Denver Exploration Branch, Atomic Energy Commission

Sample number	Equivalent U	Chemical U	Calculated chemical U_3O_8	Description	Reference
RUK1-55	0.065	0.005	0.0077	6-inch sample of iron-stained shear zone lower adit.	U. S. Geological Survey
Nov. 16, 1954, H. E. Wood Assaying Co.	--	0.085	0.1000	Selected 12-inch sample of radioactive, iron-stained breccia shear zone in lower adit.	W.H.B.F. Mining and Engineering Co.
RUK31-54	0.023	0.020	0.0236	Grab sample of iron-stained, radioactive rock in shallow shaft.	U. S. Geological Survey
Oct. 5, 1954, H. E. Wood Assaying Co.	--	0.047	0.0550	Selected 2 to 3-inch sample of radioactive, iron-stained shear zone exposed in shallow shaft.	W.H.B.F. Mining and Engineering Co.
H-1	0.057	--	--	Grab sample of iron-stained, leached, and weakly radioactive shear zone 10 feet south of shallow shaft.	Defense Minerals Exploration Administration

In addition, eight jackhammer drill holes put down by the applicant (fig. 2) were logged radiometrically by the Atomic Energy Commission. The results in milliroentgens per hour are included in the following table:

Hole number	Depth in feet 0	1	2	3	4	5	6	7	8
1	0.19	0.20	0.25	caved					
2	0.20	0.20	0.15	0.20	0.23	0.25	0.30	0.38	0.40
3	0.16	0.20	0.20	caved					
4	0.30	0.36	0.50	0.68	0.78	0.72	0.55		
5	0.50	0.82	0.75	0.50	0.50	0.35	0.30	0.50	
6	0.32	0.36	0.35	0.28	0.25	0.20	0.26	0.28	0.28
7	0.18	0.22	0.23	0.30	0.40	0.41	0.50		
8	0.08	0.11	0.12	0.22	0.38	caved			

The results of sampling show equivalent uranium values 2.5 to 12 times greater than corresponding chemical determinations, indicating

disequilibrium due to an excess of radioactive disintegration products of uranium. This implies the possible leaching out of uranium minerals in the outcrop with the retention of less soluble but gamma ray emitting radium compounds that register on radiometric instruments. Low uranium content is noted in all samples taken in the most promising locations, with the exception of two narrow and selected samples at the lower adit. These assayed 0.1 and 0.11 percent U_3O_8. No thorium was detected in an analysis by the Geological Survey laboratory.

The possibility of making a significant discovery of uranium rests on the premise that uranium leached out of outcrops in the oxide zone has been redeposited and concentrated in depth to form enriched bodies of uranium of ore grade.

Due to lack of information, the possibility of making a significant discovery cannot be evaluated with any certainty and further work is in the nature of prospecting or "wild cat" exploration.

MINEABLE ORE RESERVES

Data is not available on which to base an estimate of any type of ore reserves and no uranium minerals were identifiable.

PRESENT STATUS

Exploration and Development

During 1954, a steep access road, completed over part of the property, partly exposed a radioactive zone. This has been explored by eight jackhammer drill holes about 8 feet deep which were probed by the Atomic Energy Commission. The radioactive zone has also been explored by a shallow shaft, two shallow adits and two shallow trenches.

Mining and Milling and Other Facilities

There are no mining, milling or other facilites on the property.

APPLICANT'S PROJECT PROPOSALS WITH COSTS

W.H.B.F. Mining and Engineering Company proposes to explore further the uranium indications on their lease in Jefferson County, Colorado, with a program of trenching, core drilling and possible cross-cutting and drifting or shaft sinking (fig. 2). Their proposal includes four bulldozer trenches, to bed rock,about 50 feet apart, between Colorado State Highway No. 74 and the crest of a hill to the west, to uncover a silicified and brecciated shear zone. A second stage of their program would include five core drill holes (fig. 2) totalling 750 feet, across the trace of the same radioactive shear zone to intersect it at a depth of 50 feet. If the results of core drilling prove encouraging, the applicant proposes to explore this structure with about 150 feet of adit, or a shaft.

A second radioactive zone, about 300 feet west, which is an extension of the above, would be explored with three core drill holes totalling 400 feet (fig. 2) or about 150 feet of adit, or a shaft.

Costs of the total project were estimated at $17,244.83, distributed as follows:

Stage I:

Trenching by bulldozer - 12 hours at $10.00 per hour		$120.00
Moving		30.00
	Total	$150.00

Stage II:

			Cost per foot
Core drilling 1,150 feet			
Preparing 8 drill sites		$250.00	$0.22
Core drilling			
Labor	$2,436.00		
Compensation	282.09		
Supplies	2,610.00		
Casing and cementing	345.00		
Equipment rental	2,220.00		
Tank, pipe, etc.	160.00		
Supervision	750.00		
Maintenance	575.00		
Contingencies	952.00		
Total		$10,330.09	$8.98

Stage III:

Drifting and crosscuting 150 feet			
Labor	$3,180.00		
Compensation	368.24		
Oper. equipment rental	675.00		
Oper. equipment purchase	125.00		
Oper. materials and supplies	936.50		
Supervision	750.00		
Maintenance	100.00		
Total		$6,134.74	40.90
Analytical work		500.00	

Total estimated cost of the project is $17,364.83, which is $120.00 more than the applicant's amount due to an error in his addition.

An analysis of the applicant's costs indicates that they are too high for both core drilling and drifting and crosscutting and probably too low for trenching.

CONCLUSIONS

While no uranium minerals were identifiable, a leached zone of uranium mineralization is indicated by chemical uranium analyses, and the disagreement between equivalent and chemical uranium analyses which indicates disequilibrium, possibly due to leaching out of uranium minerals in the outcrop with the retention of less soluble but radioactive radium compounds.

Uranium mineralization is indicated in a zone of sheared, iron-stained and brecciated pre-Cambrian schist, gneiss and granite, by chemical and equivalent uranium analyses and a zig-zag, scintillation counter traverse.

Chemical uranium analyses were very low, except at the lower adit in the southeast corner of the lease where values of about 0.1 percent U_3O_8 were obtained from samples 3 and 12 inches wide.

The possibility of making a significant discovery of uranium rests on a premise which cannot be properly evaluated, but appears poor on the basis of present information.

An exploration program is not sufficiently justified for the intent of Defense Minerals Exploration Administration, i.e., the making of a significant discovery of uranium and further work is in the nature of prospecting or "wild cat" exploration.

RECOMMENDATIONS

The applicant's request for exploration assistance is recommended denied without prejudice and subject to review on the basis of new and more favorable evidence.

/cm

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Defense Minerals Exploration Administration
Denver Federal Center
Denver 2, Colorado

DMEA
Date Rec'd.
MAR 11 1955
BUREAU OF MINES
Denver, Colorado

March 11, 1955

TRANSMITTED
APR 11 1955

Memorandum

To: Field Team, Region III

From: E. N. Harshman

Subject: DMEA Docket 3606, W.H.B.F. Mining and Engineering Co., Jefferson County, Colorado (uranium)

Enclosed are eleven copies of a geologic report by D. R. MacLaren, U. S. Geological Survey, on the above subject application.

The applicant proposes to explore for uranium by trenching, core drilling, and tunneling or winzing. Uranium has been detected by scintillometer and sampling along a zone of shearing and brecciation. Little prospecting has been done, the assay values are low, and there is no specific target for drilling. Therefore, MacLaren concludes that the chance of finding a significant amount of ore would be poor. He recommends that the application be denied without prejudice to the property until such time as the applicant can show more favorable indications of the presence of a specific exploration target.

I concur with this recommendation.

for DRMacLaren
E. N. Harshman
Member, Field Team

Enclosures (11)

DRMacLaren:arh

4-20-55

W.H.B.F. MINING AND ENGINEERING CO.

JEFFERSON COUNTY, COLORADO

DMEA DOCKET 3606

Geologic Report

By D. R. MacLaren
U. S. Geological Survey

Reviewed by
DMEA OPERATING COMMITTEE
4-20-55
(Date)

Department of the Interior
Defense Minerals Administration
RECEIVED
APR 14 1955

W.H.B.F. MINING AND ENGINEERING CO.
JEFFERSON COUNTY, COLORADO
DMEA Docket 3606

INTRODUCTION

The W.H.B.F. Mining and Engineering Company of 3040 Broadway, Boulder County, Colorado, has applied to the Defense Minerals Exploration Administration for assistance to explore for uranium on the Wright lease, Jefferson County, Colorado. The Wright lease comprises the NE 1/4 of the NW 1/4, sec. 32, T 4 S., R 70 W., 6th P. M., excepting that portion of the property owned by the Colorado State Highway Department as right-of-way for State Highway 74, and the access road to Starbuck Ranch Heights and Little Park.

The applicant proposes to explore for uranium in successive stages by bulldozing four trenches across a radioactive zone, drilling five diamond drill holes to an average depth of 200 feet, and driving an adit or sinking a shaft a distance of 100 feet, at an estimated total cost of $17,244.83 (Government's share 75 percent or $12,933.62).

The property is easily accessible throughout the year over State Highway 74 which passes across the southeast corner of the lease about 1 mile southwest of the town of Idle Dale, Colorado. An examination was made January 17, 1955, in the company of R. U. King of the U. S. Geological Survey, C. M. Harrer of the U. S. Bureau of Mines, and M. J. Kraft, Duane Kraft, and Verne Wilcox representing the applicant company. It is concluded that an exploration program would be extremely wild-cat in nature and that the chance of finding a significant amount of ore would be poor. Therefore, it is recommended that the application be denied.

Geologists for the Atomic Energy Commission, familiar with this property, were consulted and supplied much helpful information from their files.

GEOLOGY

The rocks of the area are pre-Cambrian granite, pegmatite, schist, and gneiss. On the Wright lease the schist and gneiss have a general strike to the southeast and steep dips to the southwest. A wide breccia reef that enters the property from the northwest in the vicinity of the northwest corner, and crosses the lease, has a strike of S 80° E. and a dip of about 50° N. (fig. 3). A second breccia zone that strikes S 47°-56° E. and dips 44°-50° NE can be traced from the lower adit to a point about 150 feet northwest of Highway 74. A bulldozed trench about 200 feet northwest of the last exposure of the second breccia zone cuts across the projected strike of the breccia. No breccia is exposed in the trench but at its projected position is a strong shear zone about 12 inches wide that strikes S 60° E., and dips 68° NE. A second trench about 290 feet northwest of the first one also exposes a shear zone that strikes S 55° E. and dips 65° NE. Along the access road northwest of the second trench at least 4 shears ranging in strike from S 35° E. to S 60° E. and in dip from 45° NE to 80° SW, are in a zone about 100 feet wide. A radiometric traverse was made from a 10-foot deep winze along the access road to the lower adit. At each crossing of the shear-breccia zone there was a marked increase over background of radioactivity.

Within the shear zone along the access road the applicant put down 8 drill holes to a depth of 8 feet. The holes were logged radiometrically by the A. E. C. The highest value in each hole is:

Hole no.	MR/hr.	Depth in feet of highest value
1	0.25	2 (hole caved below 2 feet)
2	0.40	8
3	0.20	2 (hole caved below 2 feet)
4	0.78	4 (last reading at 6 feet)
5	0.82	1 (last reading at 7 feet)
6	0.36	1
7	0.50	6 (last reading at 6 feet)
8	0.38	4 (hole caved below 4 feet)

A grab sample taken by R. U. King near these holes assayed 0.023 percent eU and 0.020 percent U.

The applicant took a selected sample of a 2-3 inch seam in the winze along the access road that assayed 0.047 percent U (no determination was made for eU). From the lower adit, geologists for the A. E. C. took seven samples and R. U. King took one. Assays of these eight samples are:

Sampled by	Description of sample	percent eU	percent U
AEC	20-inch channel, altered iron stained shear zone	0.061	0.014
AEC	selected grab sample	0.160	0.023
AEC	12-inch channel, oxidized iron stained shear zone	0.089	0.027
AEC	selected from most radioactive 3-inch portion of shear zone	0.260	0.095
AEC	selected over 8 inches, same as above	0.078	0.020
AEC	selected from bottom of adit, iron stained shear	0.042	0.008
AEC (or applicant)	12-inch channel	N.A.	0.085
R.U. King	6-inch channel, iron stained, radioactive shear	0.065	0.005

The ratio of the radioactivity to the uranium content of these eight samples, taken within a small area, ranges from 3 to 12. In order to find the cause of the disequilibrium between eU and U, radio-chemical determinations were made. These indicate that the disequilibrium is caused by the presence of radioactive disintegration products of uranium and not by the presence of thorium minerals. Therefore, the low content of uranium in the surface material sampled may well be the result of near surface leaching. It is

reasonable to assume that the leaching would also remove, to some degree, the radioactive disintegration products. Had no leaching taken place, the eU would probably have been slightly higher and would have been essentially equal to the uranium content, and seven out of the nine samples taken would still have been well below ore grade. The other two samples, both of which were carefully selected, would have been slightly more than 0.16 percent U and 0.26 percent U.

About one-half mile northwest of the Wright lease is the Malachite mine, and about one-half mile further northwest is the FMD mine. Although the mineralized structure has not been traced between them in the field, on the map all three properties appear to be on structures that line up and have the same general strike. No uranium has been found on the Malachite property, but some copper has been produced from there. Samples from the FMD mine have assayed as much as 0.21 percent eU.

CONCLUSIONS AND RECOMMENDATIONS

A strong structural zone, containing uranium mineralization extends across the Wright lease. There is evidence of uranium and small ore deposits of other minerals apparently along the northwest extension of this structural zone. It is concluded that uranium bodies of unpredictable size may occur along this structure, possibly on the Wright lease. However, the assays are too low in grade to indicate the probable location of any specific exploration target that can be expected to be developed into an ore body. Therefore, it is concluded that, although the evidence appears to justify further prospecting along the mineralized structure,

a DMEA exploration program at this time would be extremely wild-cat in nature, and the chance of making a significant discovery would be poor. Therefore, it is recommended that this application be denied without prejudice to the property, until such time as the applicant can show more favorable indications of the presence of a specific target for exploration.

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

224 New Customhouse
Denver 2, Colorado

December 10, 1954

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: Code 200

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docketing for Exploration Assistance

Enclosed herewith in duplicate is DMEA Form 3a and MF-103 and supporting data pertaining to the following applications for Government assistance in exploration work:

Hurst Majors — Lead-Copper-Zinc
Manhattan, Kansas

W.H.B.F. Mining & Engineering Co. — Uranium
3040 Broadway
Boulder, Colorado

W. H. King

Enclosures

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 30 days and be completed within 12 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)? Yes

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

☑ Money ☐ Use of equipment owned by you ☑ Other (Labor)

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 _____, 195__

(Applicant)

By Charles A. Mulloy - Pres.

M. J. Kraft Treas.

W. L. Bird

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

1 (c) At present a partnership, but in process of incorporation.

C. A. Wilcox, President	3040 Broadway, Boulder, Colo.
Verne Wilcox, Secretary	" " " "
M. J. Kraft, Treasurer	635 Hawthorn Ave., Boulder, Colo.
Duane Kraft	" " " " "
Dr. W. J. Huls, Vice Pres.	2490 Iris, Boulder, Colo.
Cody Bish	" " " "
Earl Lambeth	2925 Moorhead Ave., Boulder, Colo.
Clarence Swaeby, Director	Rt. 1, Box 124, Lafayette, Colo.
H. L. Bird, Director	P. O. Box 383, Berthoud, Colo.
Leo Jonick	809 Buclah Ave., Pueblo, Colo.

3 (b) Wright Lease

4 (a) Exploration activities include small cuts made by hand, bulldozed cuts as indicated on map, a shallow shaft at Station 27, and an opening for an adit at Station 26. Hand trenching near points 3a and 3b has been done to cross-cut the radioactive zone. All openings are accessible for examination.

4 (b) The property is favorably situated geologically, being traversed by formations and structures similar to those existing in the Ralston Creek and Golden Gate Canon areas. The country rocks, of Pre-Cambrian age, are mainly Idaho Springs formation and Swandyke hornblende gneiss, the latter occuring as tabular bodies suggestive of sills and in larger, irregular masses. Those formations strike in an east-southeasterly direction for the most part, and have high southerly dips. Locally quite different attitudes are present as at Station 32, where a very steep, synclinal fold is present in beds of Idaho Springs formation.

These formations are cut by major zones of faulting showing typical "breccia-reef" characteristics. Near the north boundary of the property a large reef of this type is well exposed at Stations 29, 22, 21, and a short distance north of Station 20. This is a wide and continuous zone trending about S. 80°E. and dipping northward at an angle of around 50° where clearly observable.

A divergent and minor zone of brecciation is exposed on the eastern side of the property between Stations X-1 and 3b. This zone strikes N. 50°-60°W. and dips about 50°N.E. according to limited exposures available. An area on the opposite side of Bear Creek on the projected strike of this zone is similarly brecciated and radioactive. This is on property under lease to the W.H.B.F. Company. This minor breccia is of interest because of the radioactivity with which it is associated. At the point on the map near Station X-1 where the breccia is exposed there is a wide zone of fracturing with a sparse but significant showing of copper minerals, and in one sample from the shear zone showing the most radioactivity, a lemon-yellow mineral believed to be autunite. The following results of assays are from this point, and were taken by Mr. Roger Malan of the Atomic Energy Commission.

Field No.	e U_3O_8	U_3O_8	Description
F 32258	0.072	0.017	20" Channel
F 32259	0.19	0.027	Select
F 32260	0.089		12" Channel
F 32261	0.26		3" Most R.A. Portion Heavily Iron Stained
F 32262	.078		8" at Same Point as 32261 & Includ. that Portion
F 32263	.042		Selected to Determine Distribution of Ore Minerals

The following assay was taken by us and run by Henry E. Wood Assaying Co.

November 16, 1954 U_3O_8 - 0.1% This was taken over a 12" width.

The wide disparity between eU_3O_8 and Chemical U_3O_8 is believed to be due to leaching since these are practically surface samples.

Readings on a scintillator of over 3MR/hr have been obtained in this shear zone. This is on the State Highway right of way and negotiations are being conducted to secure permission to explore this occurence further.

On the west side of the hill near its crest is another zone of fracturing with significant magnitude of radioactivity lying mainly between Stations 16 and 27, hereafter referred to as the Western Area. The best exposures are in a cut bulldozed to serve as both a road and a prospecting trench. Here the wall rocks of schist and hornblende gneiss with minor amounts of pegmatite are very strongly altered and fractured with strong radiation present at several points, notably at Station 27, where a 3 foot vein of shattered limonitic quartz is exposed in a shallow shaft. A thin seam on the hanging wall is quite radioactive and assays here showed the following values:

October 5, 1954: Selected from hanging wall seam at 27 - % U_3O_8 - .055
It was intended to state at this point values of two assays taken by Mr. Tom Riley, in the employ of the Atomic Energy Commission at the time the samples were cut, but prolonged search has not been successful in finding them. An effort is being made to secure these results and add them, as soon as possible, to this report.

Drill holes at the points marked "D-1" - "D-2", etc., on the map between stations 24 and 18 showed the following results:

Readings in MR/hr

Hole No.	Depth in feet 0	1	2	3	4	5	6	7	8
1	0.19	0.20	0.25	caved					
2	0.20	0.20	0.15	0.20	0.23	0.25	0.30	0.38	0.40
3	0.16	0.20	0.20	caved					
4	0.30	0.36	0.50	0.68	0.78	0.72	0.55		
5	0.50	0.82	0.75	0.50	0.50	0.35	0.30	0.50	
6	0.32	0.36	0.35	0.28	0.25	0.20	0.26	0.28	0.28
7	0.18	0.22	0.25	0.30	0.40	0.41	0.50		
8	0.08	0.11	0.12	0.22	0.38	caved			

The highest readings correspond with definite vein zones and therefore are significant.

The adit started at station 26 is on a fracture zone in hydrothermally altered schist. Radioactivity here is only moderate but has shown a consistent increase as depth has been gained. This drift is designed to cut the mineralized zone at a depth of 30 to 40 feet below the outcrops higher on the hill. The dips and strikes of fissures exposed in the road cut are such as to justify the inference that intersections occur at depths that can be tested with comparatively shallow drill holes or other types of openings. At station 18 a bulldozer cut which exposes a definite fissure and strong zone of altered wall rock that exhibits radioactivity of a moderate degree and samples of carbonate breccia obtained near this point show a marked similarity to carbonate breccia from the Schwartzwalder property at Ralston Creek.

Other evidence of mineralization on the property is found in the presence of wide zones of bydro-thermally altered schist and hornblende gneiss that show no radioactivity but give proof of wide spread and copious presence of mineralizing solutions. Such zones are exposed at many places on the property and the observation of the zone near station 1 led to the first discovery of radioactivity higher up on the hill near station 12.

We regard these occurances of mineralization and radioactivity as favorable for further exploration. Throughout our prospecting of the property, we have been fortunate in having the cooperation of the Atomic Energy Commission's Field Geology branch, headed by Mr. Ray Derzay, and the active help on the property of geologists Malan, Bird, and Riley.

4 (d) As to accessibility of the project, it is second to none in this respect. It is served by State Highway No. 74, a modern paved road, and an access road of moderate grade has been built to the western area of interest. The eastern area is close to the highway and can be easily reached. The closest railroad point is Denver, Colo., about 15miles from the property. The town of Idledale is ½ to ¾ mile distant and housing for a working crew is available.

4 (e) Manpower materials, equipment and supplies are easily obtainable. Water and power can be secured at a very reasonable expense since they are close by in the general area.

5 Exploration

(b) Description of proposed work.

Area 1 - Eastern Area:

The work in this area can be handled in stages, the first stage being the dozing of 3 or 4 cuts across the radioactive zone between point 3b and the dozer cut northeast of station A. Strongly radioactive float has been found above point 3b and its source should be determined before drilling is begun. In this particular area The second stage involves the drilling of holes as outlined on the map and accompanying sketches. It is desirable to cut the ore bearing zone at a depth of 50 feet or more where leaching can be assumed to be negligible. It is estimated that 5 holes will be required and the maximum depth contemplated is around 200 feet. If results are satisfactory, then development by an adit or shaft as conditions dictate will be in order. At the present time we estimate that a minimum of 100 feet of such openings will be required.

Details of this section are on accompanying sketch.

Area 2 - Western Area:

If core-drilling is feasible in the broken formations existing in this area, we believe that several holes to cut the mineralized zone at the most favorable horizon should be drilled. If this is not practical on account of caving conditions, then we recommend the driving of the adit begun at station 26 for a distance of 150 feet minimum and, if necessary, the sinking of a winze at the most logical point to a depth where the fissures should intersect, say 60 feet, as shown on the accompanying sketch.

5 (d) The work will be under the general supervision of Mr. M. J. Kraft of Boulder, Colorado, a man with years of mining experience. Assisting will be H. L. Bird of Berthoud, Colorado, with a background of prospecting and geologic work, including geologic and mine surveying. We have every reason to believe that the counsel of the Atomic Energy Commission will be as available in the future as it has been in the past.

STATEMENT OF ESTIMATED COSTS

ITEMS C (a to h)

BULLDOZING SECTION

Bulldozing 4 Prospecting Cuts - 12 hrs. @ $10.00 per hr. plus $50.00 moving time	$ 150.00	
Preparing 7 Core-Drilling Sites, est. total	250.00	
	$ 400.00	
Total Bulldozing		$ 400.00

CORE DRILLING SECTION

LABOR

Core Drill Operator @ $3.25 hr.	$ 18.00	
2 Helpers @ $1.50 hr.	24.00	
Total Direct Labor Per Day	$ 42.00	
Total footage 1,150 - Average progress 20 ft. per day		
58 Days Drilling Time - Total Cost		$2,436.00

OPERATING MATERIALS AND SUPPLIES

Gasoline and Oil - per day	$ 5.00	
Steel and Bits - per day	20.00	
Water - per day	20.00	
Total Materials and Supplies per day	$ 45.00	
58 Days Drilling Time - Total Cost		$ 2,610.00

CASING AND CEMENTING

Estimated at 30¢ per ft. on total footage of 1,150 ft.		$ 345.00

OPERATING EQUIPMENT

Core Drill Rental @ $500.00 mo. Estimated 3 mos. time	$1,500.00	
Truck Rental for Water Hauling @ $8.00 per day	720.00	
Alternate plan is to buy second-hand truck and sell at end of drilling operation		
Water Tank, Pipe, etc.	160.00	
	$2,380.00	
Total Operating Equipment Cost		$2,380.00

SUPERINTENDENCE

Geologist - Salary $500.00 mo. Est. on half-time basis and 3 mos. drilling time		$ 750.00

CORE DRILLING SECTION (CONT'D)

MAINTENANCE

Estimated Maintenance Cost per foot of hole - 50¢		
1,150 ft. of drill hole @ 50¢ per ft.		$ 575.00
TOTAL COST OF CORE DRILLING		$9,096.00

DRIFTING SECTION

LABOR

1 Foreman @ $2.00 hr.	$ 16.00	
2 Miners @ $1.65 hr.	26.40	
Total Labor Cost Per Shift	$ 42.40	
At an average advance of 2 ft. per day, 150 ft. of drifting will require 75 shifts - 75 shifts at $42.40		$3,180.00

OPERATING MATERIALS AND SUPPLIES

Timber:			
Possible 30 five foot sets required. Cost per set of 2 posts and 1 cap, 10 to 12 lagging, and 2 braces-$5.00			
30 sets @ $5.00 per set		$150.00	
Powder, Fuse, and Caps - per day	$4.00		
Bits and Steel - per day	1.00		
Carbide - per day	.25		
Gasoline and Oil - per day	1.65		
Cost of Supplies per day	$6.90		
75 Days at $6.90 per day		$517.50	
Total Cost of Materials and Supplies		$667.50	$ 667.50

OPERATING EQUIPMENT

Compressor, Jackhammer, and Jacking Rental Estimated 3 months use @ $225.00 mo.	$675.00	
Air Line - 300 ft.	75.00	
Mine Car - second-hand	125.00	
Rails - 12 lbs. per yard - 400 Lineal Ft. @ 44¢ ft.	176.00	
Total Cost of Operating Equipment	$931.00	$ 931.00

SUPERINTENDENCE

Mine Superintendent & Geologist - Salary $500.00 mo. Estimated on half-time basis and 3 mos. drifting time	$ 750.00

DRIFTING SECTION (CONT'D)

MAINTENANCE

Estimated at $100.00 for 3 mos. work		$ 100.00
TOTAL DRIFTING COST		$5,646.50

MISCELLANEOUS

Analytical Work	$ 500.00	
Accounting (Included in Supervision)		
Compensation - 11.56% of total direct labor cost	650.53	
	$1,150.53	
Total Miscellaneous Cost		$1,150.53

CONTINGENCIES

Extra Drill Bits	$ 500.00	
Extra Casing	102.00	
Core Drill Steel	250.00	
	$ 852.00	
Allowance for Contingencies		$ 852.00

SUMMARY OF COSTS

BULLDOZING SECTION		$ 400.00
CORE DRILLING SECTION		
Labor	$2,436.00	
Materials & Supplies	2,610.00	
Casing & Cementing	345.00	
Operating Equipment	2,500.00	
Superintendence	750.00	
Maintenance	575.00	
	$9,036.00	
TOTAL COST		$9,036.00

Cost Per Foot Drilled - $7.20
(For purposes of comparison Superintendence costs are omitted)

DRIFTING SECTION		
Labor	$3,190.00	
Materials & Supplies	635.50	
Operating Equipment	931.00	
Superintendence	750.00	
Maintenance	200.00	
	$5,646.50	
TOTAL COST		$5,646.50

Cost Per Foot Drifted - $33.65
(For purposes of comparison Superintendence costs are omitted)

SUMMARY OF COSTS (CONT'D)

MISCELLANEOUS

Analytical Work	$ 500.00	
Accounting (Included in Supervision)		
Compensation	650.33	
	$1,150.33	
TOTAL MISCELLANEOUS COST		$1,150.33

CONTINGENCIES

Extra Drill Bits	$ 600.00	
Extra Casing	102.00	
Core Drill Steel	250.00	
	$ 952.00	
Allowance for Contingencies		$ 952.00
GRAND TOTAL OF ALL COSTS		$17,244.33

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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

Not to be filled in by applicant

Docket No. 3606
Metal or Mineral URANIUM
Date Received
Estimated Cost $17,245
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: A.R.P. Mining & Engineering Co., c/o Alex Kelly Service, 1645 Broadway, Boulder, Colorado

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract North East quarter of Northwest quarter, Sec. 3, Township 4 South, Range 70 West, excepting that portion of said property owned by the State Highway Dept. as right of way for State Highway 74 and the access road to Sterbuck Ranch Heights and Little Park.

(*b*) State any mine name by which the property is known. Denver Mountain Park, Jefferson Co.

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

(*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.

16—66551-1

See accompanying sheets for additional information

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 30 days and be completed within 12 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)? Yes

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

☑ Money ☐ Use of equipment owned by you ☑ Other (Labor)

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 _____, 195__

_____
(Applicant)

By Charles H. Milroy - Pres.

M. J. Kraft Treas.

H. L. Bird

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

Recorded at 2:10 P. M., Sept. 28, 1954
at Jefferson County Courthouse,
Golden, Colorado Robert W. Newton, Recorder

586842

MINING LEASE

THIS INDENTURE, made this 27th day of September, A. D., 1954, between MARCUS G. WRIGHT, party of the first part, hereinafter referred to as the Lessor, and MELVIN J. KRAFT, party of the second part, hereinafter referred to as the Lessee.

W I T N E S S E T H:

That the Lessor for and in consideration of the royalties, covenants and agreements hereinafter reserved to be paid, kept and performed by the Lessee, has leased, let and demised, and by these presents does lease, let and demise unto the Lessee the following described premises situate, lying and being in the County of Jefferson and State of Colorado, to-wit:

The Northeast Quarter (NE¼) of the Northwest Quarter (NW¼) of Section 32, Township 4 South, Range 70 West

TO HAVE AND TO HOLD the same unto the Lessee for the purpose of mining, removing and selling ore therefrom for a term beginning on the date hereof and expiring five (5) years from the date hereof, unless sooner forfeited or terminated under any of the provisions herein contained.

In consideration of such demise and of the covenants mutually agreed to be performed, the Lessor and Lessee hereby covenant and agree with the other as follows, to-wit:

1. The Lessee agrees to enter upon and take possession of the demised premises immediately upon the execution of this lease and to commence work on the said premises within ten (10) days from the date hereof and after a ninety (90) day prospecting period, to work the same continously in a thorough and workmanlike manner, employing at least two (2) men underground and working at least twenty (20) shifts each calendar month during the continuance of this lease; the work performed by the Lessee should be done in accordance with good mining practice and in the manner necessary to good and economical mining so as to take out the greatest amount of ore possible with due regard to the development and preservation of the premises as a workable mining property; to install and maintain all workings in a safe condition and to keep all openings of standard size, securely timbered and thoroughly drained and cleared of loose rocks, rubbish and obstructions.

2. The Lessee agrees to pay to the Lessor during the existence of this lease, as royalty, 15% of the amount

of payments received by the Lessee from ore buying stations or mills for all ores and minerals, including fissionable minerals produced from the said premises, be they concentrates or otherwise.

It is expressly understood and agreed by and between the parties hereto that the Lessor reserves the property and right of property in and to all ores and minerals extracted from the premises during the term hereof, and that all settlements for royalty payments shall be made upon the assay value of the mineral and ore that may be taken from the said premises or shall be based on and applied to the established market price posted by the Atomic Energy Commission as the same is established from time to time by the said Commission. Said payment of royalty shall be after deductions have been made of all assaying and milling charges and railroad transportation charges. The said payment of royalty shall not include any portion or percentage of the development allowance made, paid or given to the Lessee by the United States Government or any agency or division or any department thereof, for and on account of development work performed by the Lessee on the premises described hereinabove and particularly any government bonus for such purpose as provided and set out by the Atomic Energy Commission, Title 10, Code of Federal Regulations, Part 60, as amended, and Sections 60.5 and 60.5A. The Lessee, however, agrees to expend in the development and operation of the leased property, an amount of money at least equal to any such development allowance or bonus so paid. The Lessee agrees, however, to pay in addition to the 15% royalty above stated, 15% of any other premiums or bonuses paid by the United States Government to the Lessee, including the initial or gross production bonus and anyother bonus paid to the Lessee for and on account of the quality of the ore produced from the said premises and as set out and described by the Atomic Energy Commission, Title 10, Code of Federal Regulations, Part 60, as amended, under Domestic Uranium Program, Section 60.6, Bonus for Initial Production of Uranium Ores from New Domestic Mines. The Lessee agrees to pay to the Lessor the same royalty percentage on anyother ore, concentrate or other minerals, other than uranium, which may be developed and recovered from the said premises by the Lessee. The Lessee shall be entitled to all transportation allowances paid by the Atomic Energy Commission or otherwise, but said allowance shall be taken to apply against the cost of railroad transportation in the computation of royalty payments. The sampling works, mill, smelter or ore buyer purchasing any ore produced from the said premises shall retain the amount of royalty herein stated and shall pay the amount to the Lessor at each settlement for ore purchased.

3. The Lessee agrees to obtain, carry and maintain in force, complete Workmen's Compensation Insurance

for any and all persons employed in or upon said property by the Lessee, and to conduct all operations so as to comply fully with the laws of the State of Colorado, including, specifically, those pertaining to mining and safety.

4. The Lessee agrees to comply with all federal laws and regulations, including those relating to Social Security, Unemployment Compensation and Withholding Tax.

5. The Lessee agrees to post a notice in a conspicuous place on the said premises, showing that the premises are being operated by the Lessee and that all creditors of the Lessee must look to him for payment of any accounts incurred after operations are commenced by the Lessee, and that the owner is not, nor will the said premises be liable for any labor performed upon, or materials furnished to the said premises at the instance or request of the Lessee who covenants and agrees to pay in full for all labor performed or material furnished to the said premises at his instance or request, and to keep the said premises free and clear from any and all liens of mechanics or materialmen. The Lessee further agrees to hold and save the Lessor harmless from any and all claims or demands arising or growing out of the exploration, development and operation of said premises by the Lessee.

6. The Lessee covenants and agrees to allow the Lessor, his agents or attorneys, at any and all times, to enter upon and descend into any and every part of the said premises for the purpose of inspection, sampling and surveying. The Lessee will render to the Lessor all the assistance in his power in so doing and to furnish to the Lessor duplicate copies of all maps, engineering reports, core-loggings and assays.

7. The Lessee agrees to maintain full and complete books of account covering all phases of the development and operation of the mining property, said books shall be open to the inspection of the Lessor at any and all reasonable times, and the Lessee agrees to furnish the Lessor quarterly statements of all operations.

8. The Lessee covenants and agrees to pay all taxes levied and assessed against the demised property, or any part thereof, including taxes measured on production, and also including taxes levied and assessed on improvements placed upon the premises by the Lessee during the continuance of this agreement, and further shall pay all taxes and fees levied by any government or agency thereof by reason of the Lessee's operations hereunder.

9. The Lessee covenants and agrees to occupy and hold all side veins, spurs, feeders, cross-lodes,

parallel lodes or mineral deposits of any kind or nature, which may be discovered by the said Lessee or by any person working under him or in privity with him, in any manner, by working within or from the said premises, as the property of the Lessor and as part of the premises demised, and to not allow any person not in privity with the parties hereto to take or hold possession of the said premises or any part thereof under any pretense whatever.

10. The Lessee covenants and agrees to complete the road that presently exists leading into the premises from the public highway, as far as the point of highest elevation of the said premises, and in addition to make or build a road leading therefrom to the site of the proposed well.

11. The Lessee agrees to fill all prospect holes in the event no ore in paying quantities is developed during exploration, if requested to do so by the Lessor.

12. The Lessee furthermore covenants and agrees that in case he fails in any respect to keep and fulfill any one or more of the covenants or agreements herein expressed or implied, then, and in that case it shall be lawful for the Lessor, his agent or attorney, to declare said term ended, upon written notice of default, and with or without process of law to enter upon and take possession of said premises, and in such case, and also at the expiration of this lease by limitation, the Lessee agrees to surrender, yield and deliver to the Lessor quiet and peaceable possession of said premises in good condition, and that time shall be of the essence hereof, and that all the covenants and agreements herein contained shall extend to and be binding upon the heirs, executors, administrators, successors and lawful assigns of the respective parties hereto.

13. This lease may not be assigned, nor the demised premises sub-let, in whole or in part, without the express written consent of the Lessor.

IN WITNESS WHEREOF, the parties hereto have executed these presents the day and year first above written.

(Signed) M. G. WRIGHT
Party of the First Part

(Signed) MELVIN J. KRAFT
Party of the Second Part

ESTABLISHED 1878

GAYLE F. FARNHAM

Certificate of Assay

THE HENRY E. WOOD ASSAYING COMPANY

TELEPHONE KEYSTONE 4-4816

DENVER 4, COLORADO

733 W. COLFAX AVE.

Nov. 29, 1954

We hereby certify that the samples assayed for W.H.B.F. Mining Company gave the following results per ton of 2000 lbs.

MARKED	GOLD OZS.	SILVER OZS.	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	IRON PER CENT	INSOL. PER CENT	SULPHUR PER CENT	PER CENT	VALUE
									Uranium U308	
Oct. 5, 1954	Selected from hangingwall seam at 27								0.055	
Nov. 16, 1954	Across 12", 3' above road level at X-1								0.100	

Gold at $_____ per ounce
Silver at _____ per ounce
Lead at _____ per lb.
Copper at _____ per lb.
Zinc at _____ per lb.

Charges

$ 10.00 Paid

The Henry E. Wood Assaying Co.

By S. F. R.

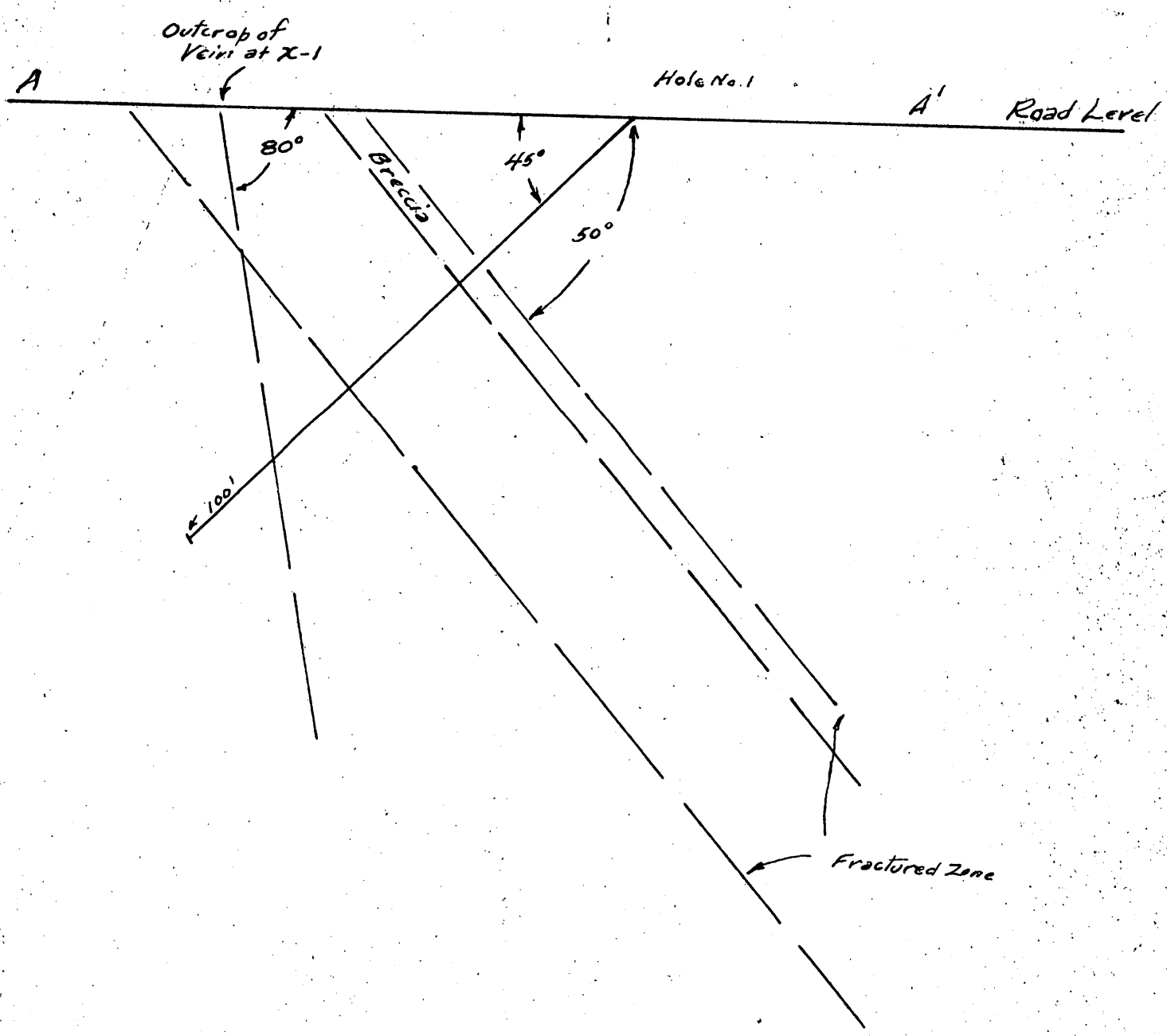
OFFICIAL BUSINESS

U. S. Bureau of Mines
420 Custom House
555 Battery Street
San Francisco 11, California

Defense Minerals Exploration Administration
Interior Building
Washington 25, D. C.

Wright Lease

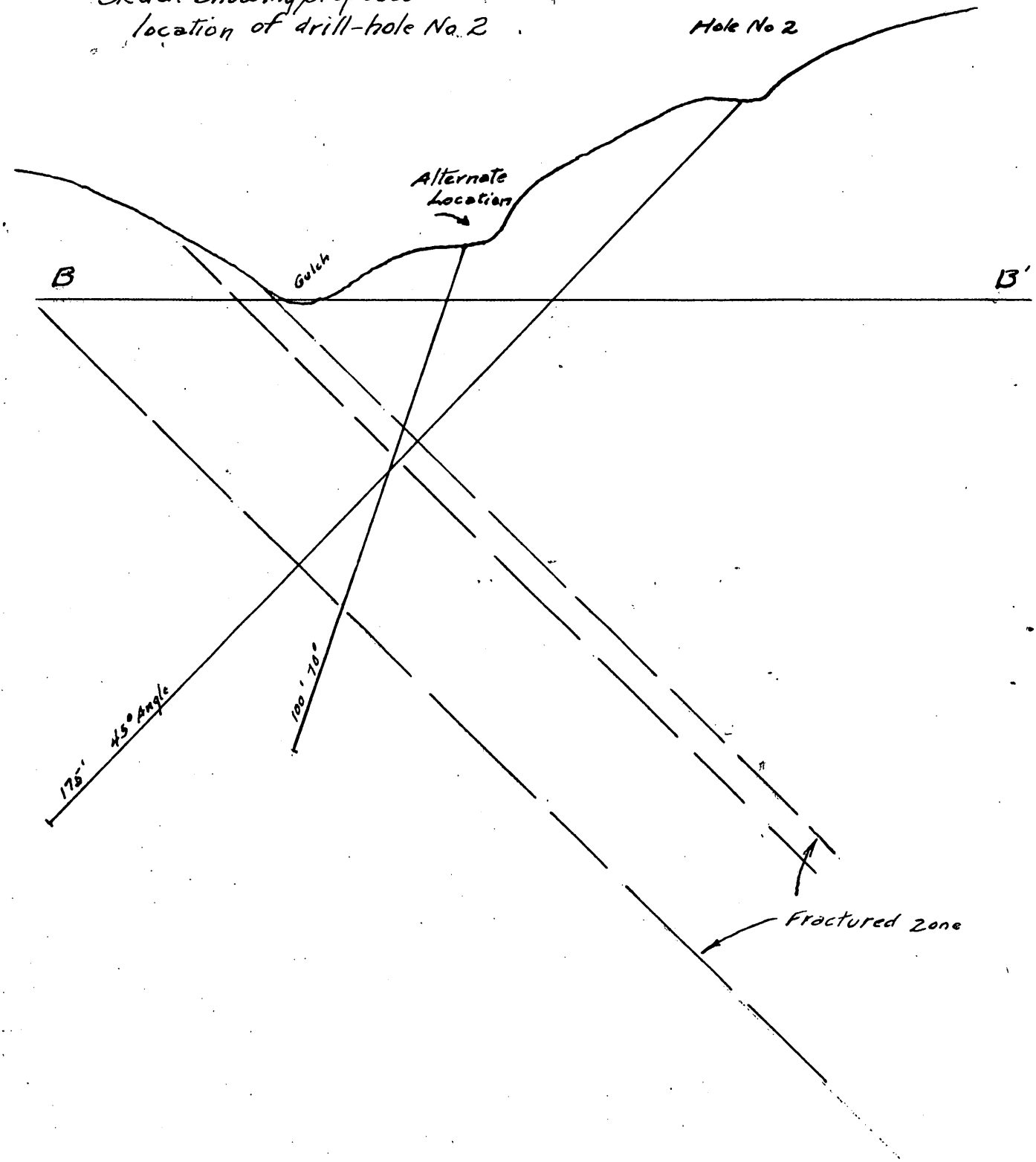
Sketch showing proposed location of drill-hole No. 1



Scale - 1" = 25'

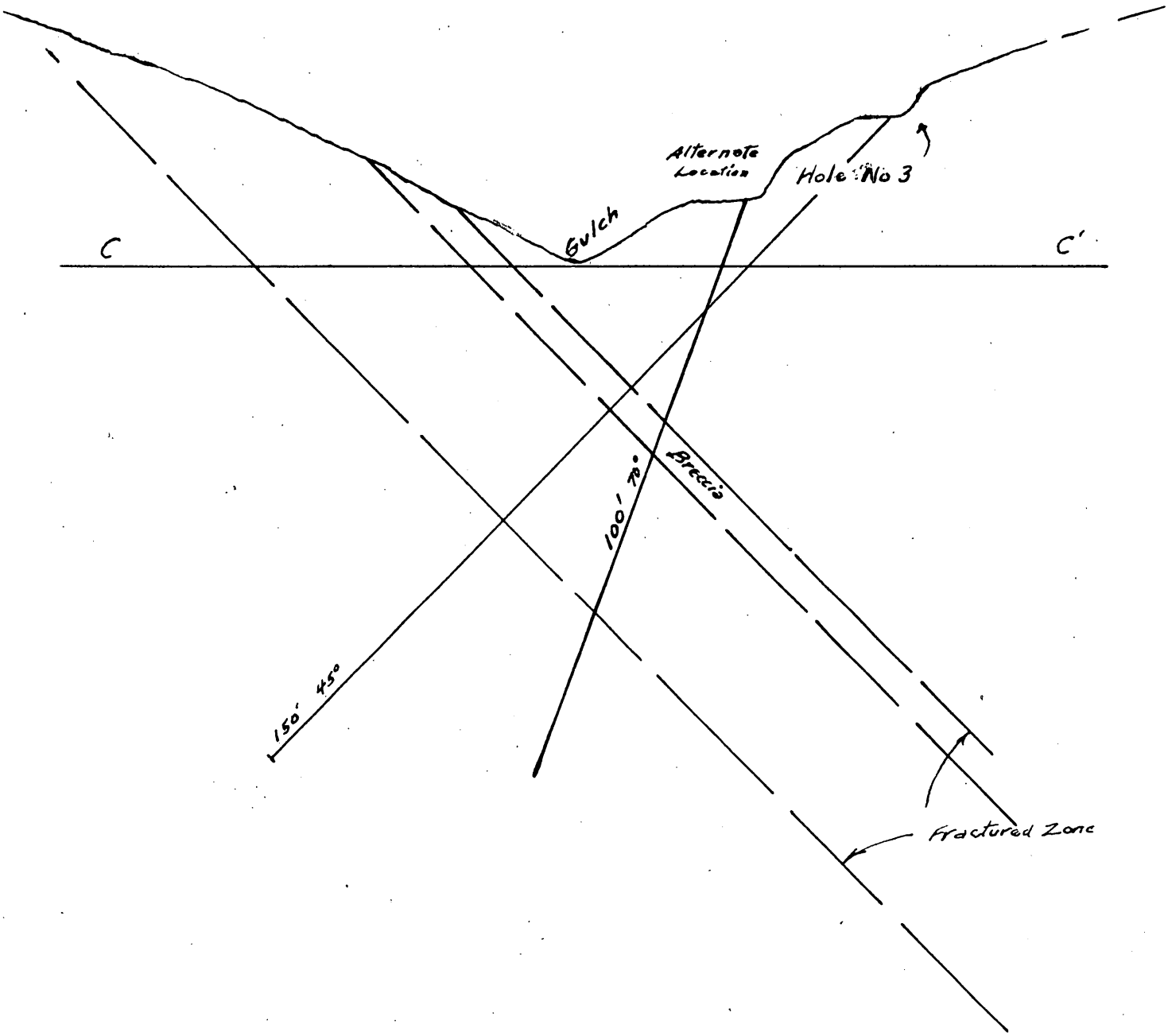
Wright Lease

Sketch showing proposed location of drill-hole No. 2



Scale - 1" = 25'

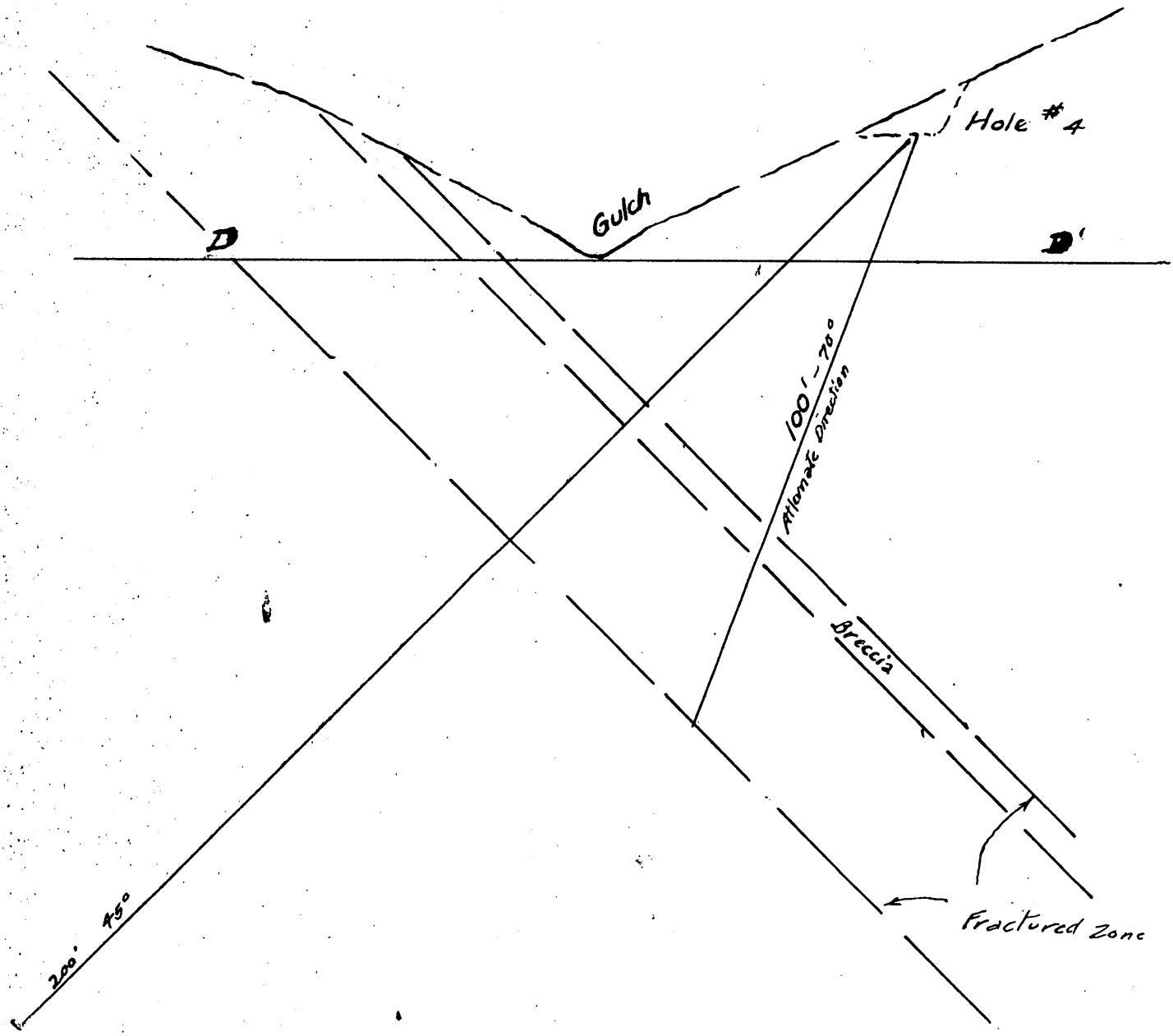
Sketch showing proposed location of drill-hole No. 3



Scale - 1" = 25'

Sketch showing proposed location of drill-hole No. 4

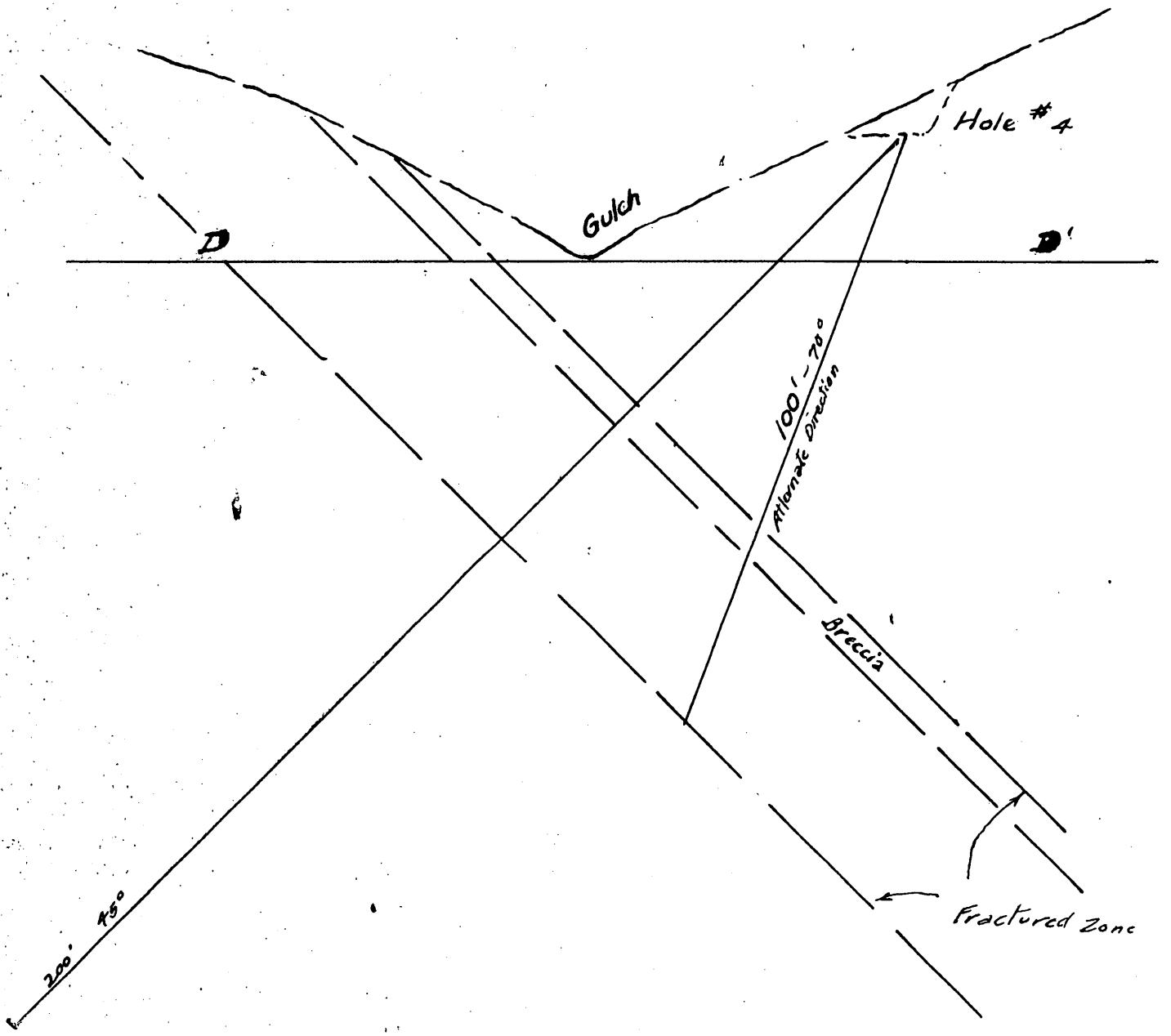
Wright Lease



Scale- 1" = 25'

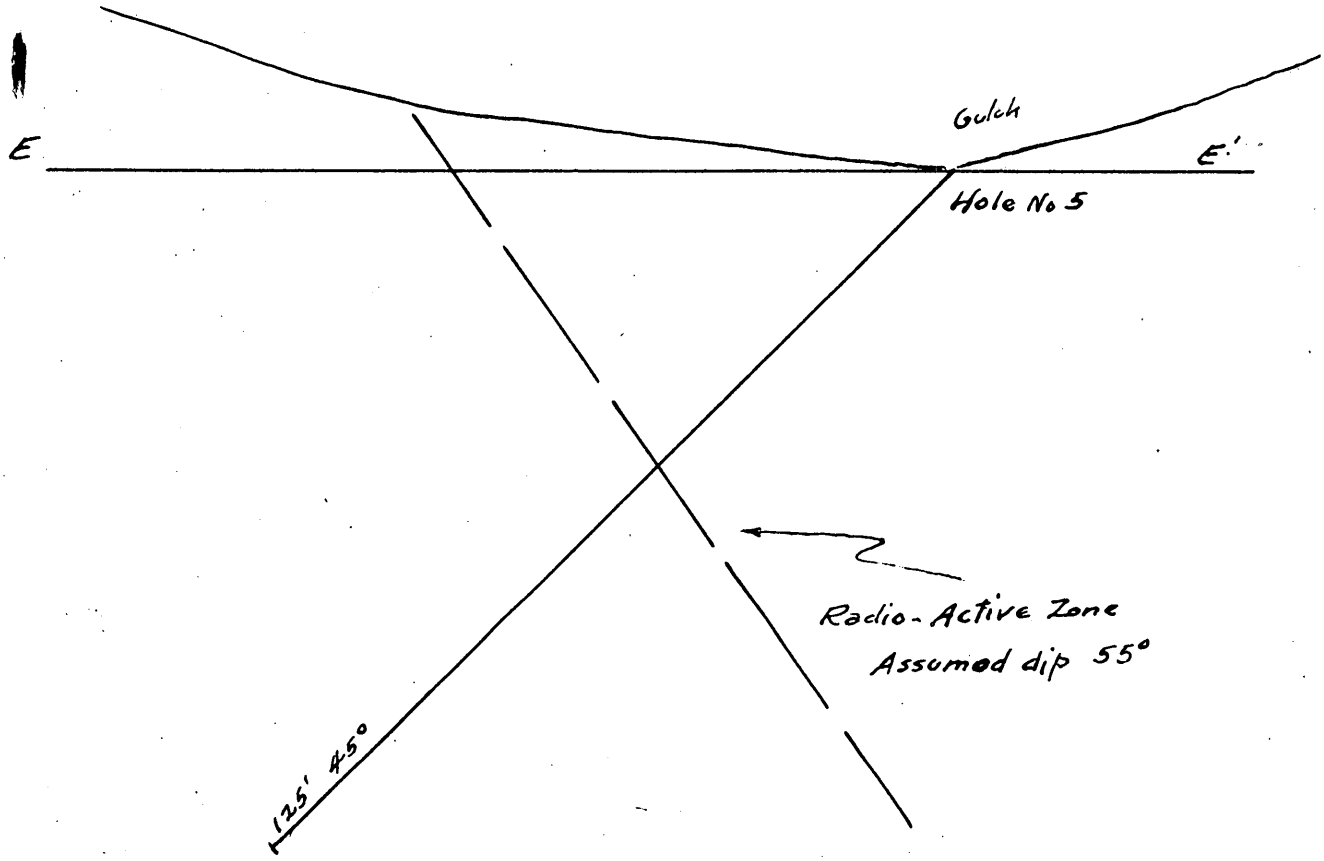
Sketch showing proposed location of drill-hole No. 4.

Wright Lease



Wright Lease

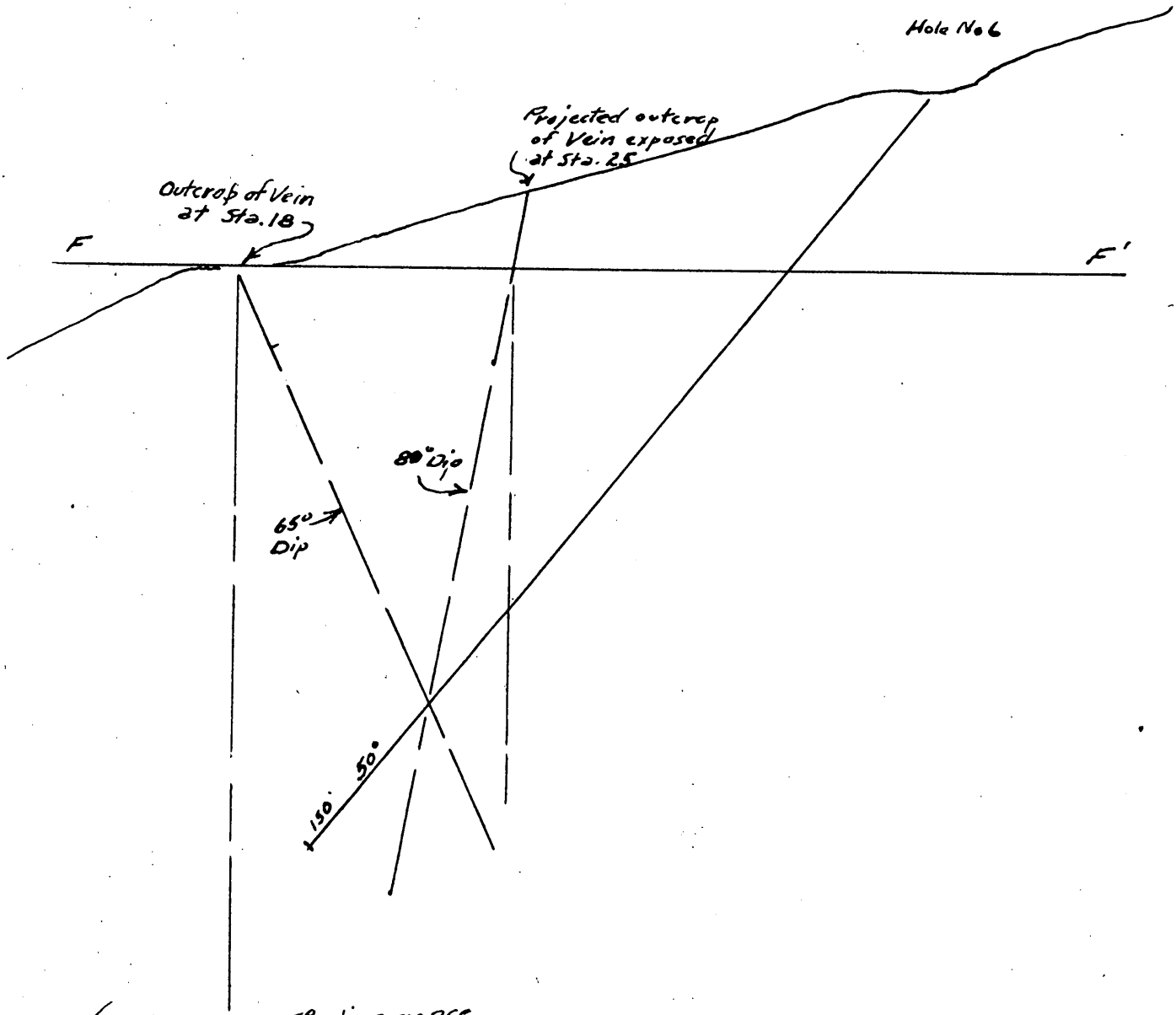
Sketch Showing proposed location of drill-hole No. 5



Scale - 1" = 25'

Sketch showing proposed location of drill-hole No. 6

Wright Lease

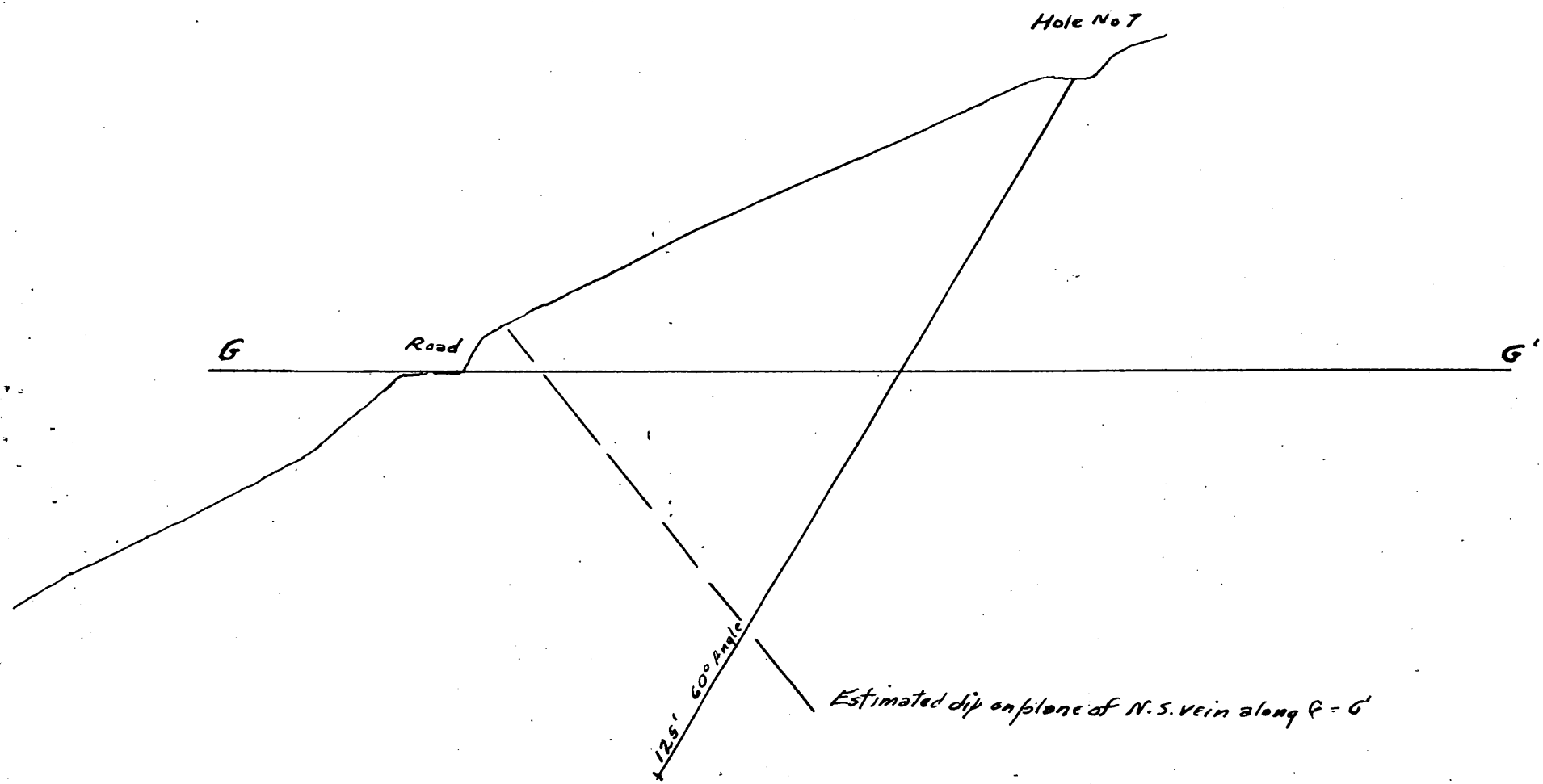


(Disregards 5° divergence in strike of veins)

Scale- 1" = 25'

Wright Leas

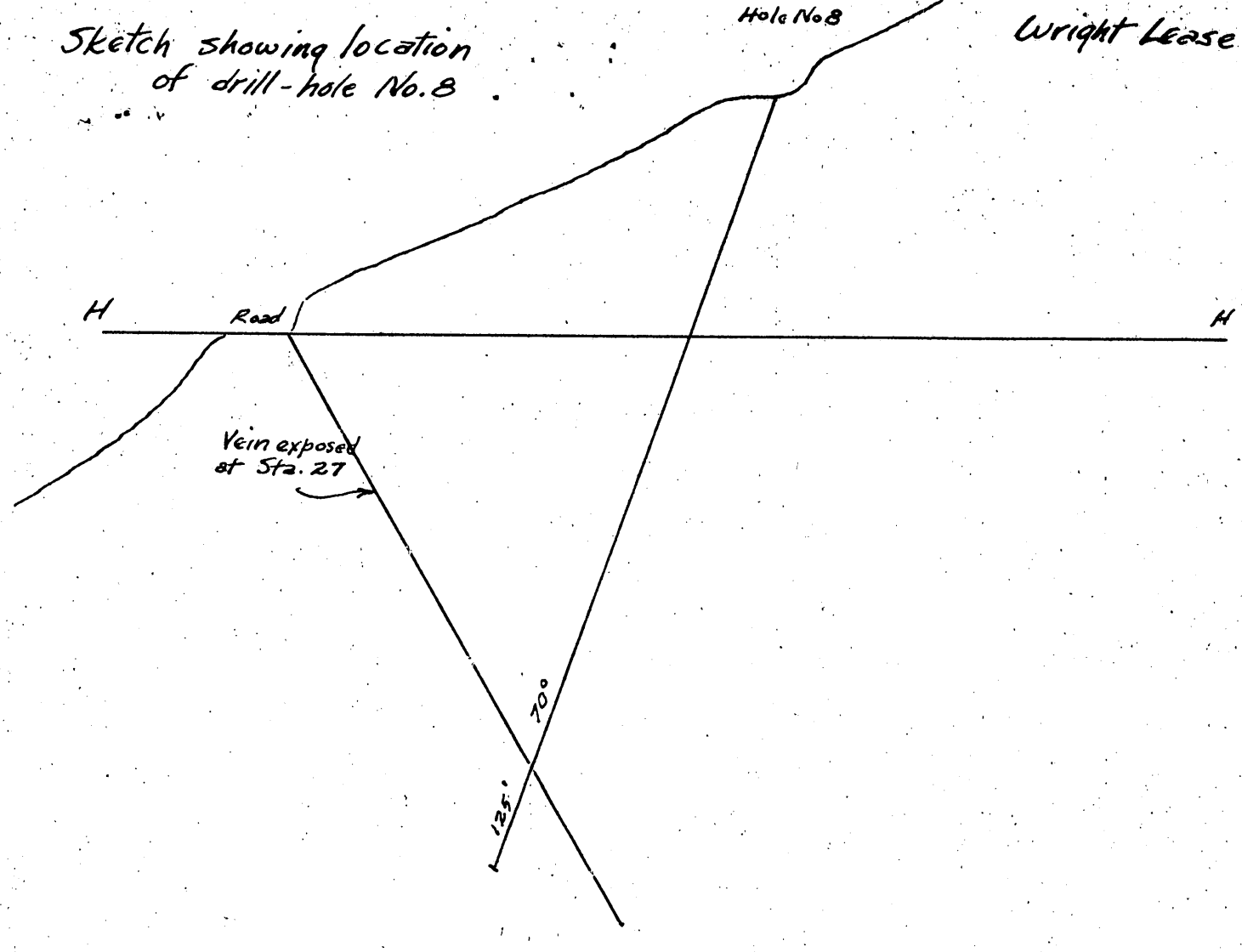
Sketch Showing proposed location of drill-hole No. 7



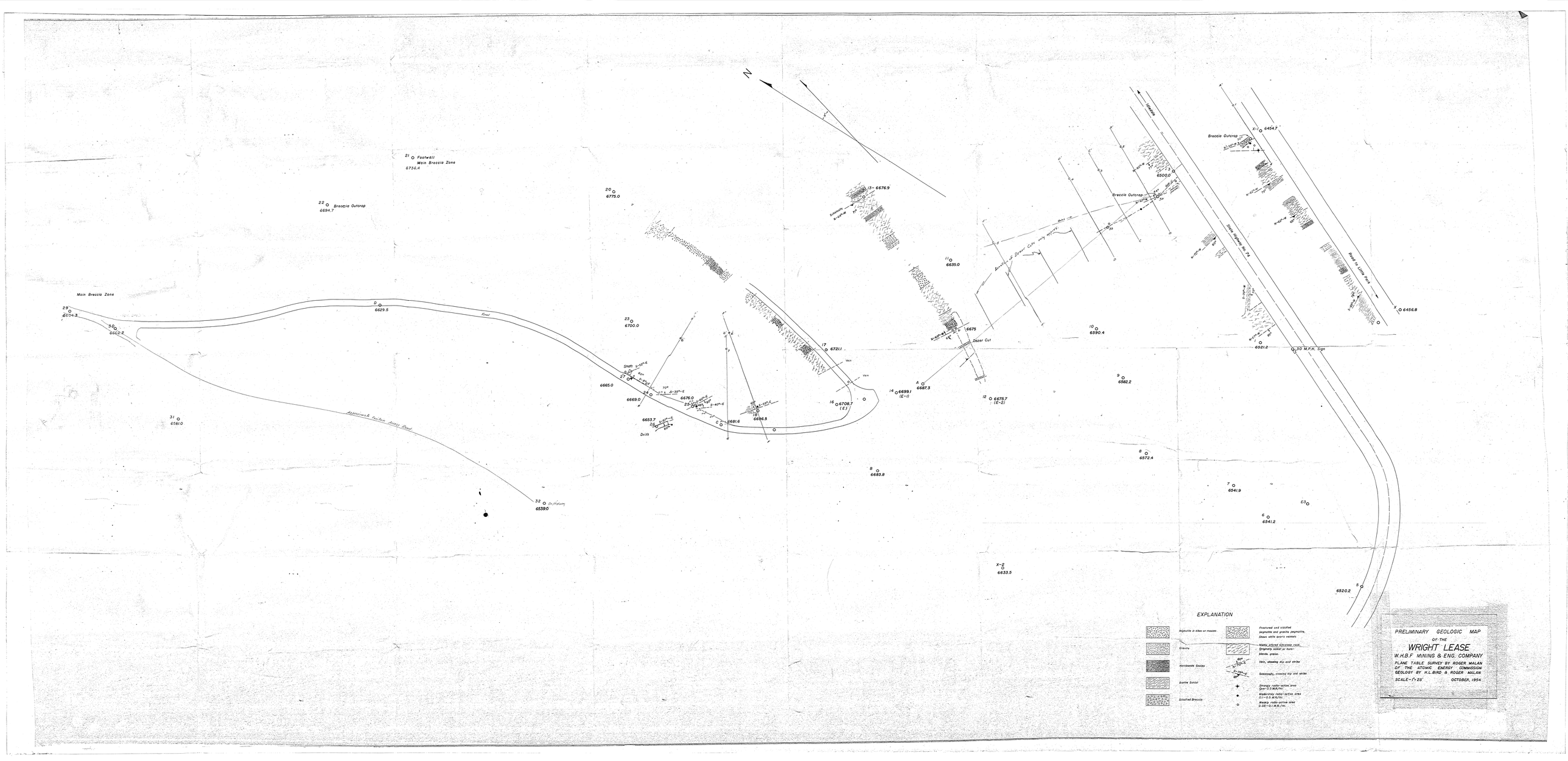
Scale - 1" = 25'

Sketch showing location of drill-hole No. 8

Wright Lease



Scale - 1" = 25'


N
Main Breccia Zone
29
6604.3
30
6602.2
0
6629.5
Road
Appleriver Parker Ferry Road
31
6581.0
32
6539.0
Dry Hydrant
21 Footwall
Main Breccia Zone
6734.4
22 Breccia Outcrop
6694.7
20
6775.0
23
6700.0
Shaft
6665.0
6669.0
6676.0
6653.7
Drift
6681.6
6696.5
Vein
17
6721.1
16
6708.7
(E-1)
14
6699.1
(E-1)
A
6687.3
12
6675.7
(E-2)
8
6683.3
13
6676.9
Stockwork
11
6635.0
6675
Dozer Cut
Excavation of Dozer Cut only 1ft.
10
6590.4
9
6582.2
8
6572.4
7
6541.9
6
6541.2
X-2
6633.5
5
6520.2
Breccia Outcrop
6500.0
Road
Stony Mountain Mt. Fk.
6521.2
50 M.K.H. Sign
Breccia Outcrop
X-1
6454.7
Road to Little Fork
X
6456.8
EXPLANATION
Pegmatite in dikes or masses
Granite
Hornblende Gneiss
Biotite Schist
Silicified Breccia
Fractured and silicified pegmatite and granite pegmatite. Shows white quartz veinlets
Highly altered siliceous rock.
Originally schist or hornblende gneiss
Vein, showing dip and strike
Stockwork, showing dip and strike
Strongly radio-active area Over 0.5 M.R./Hr.
Moderately radio-active area 0.1—0.5 M.R./Hr.
Weakly radio-active area 0.05—0.1 M.R./Hr.
PRELIMINARY GEOLOGIC MAP
OF THE
WRIGHT LEASE
W.H.B.F. MINING & ENG. COMPANY
PLANE TABLE SURVEY BY ROGER MALAN
OF THE ATOMIC ENERGY COMMISSION
GEOLOGY BY H.L.BIRD & ROGER MALAN
SCALE—1" 25'
OCTOBER, 1954

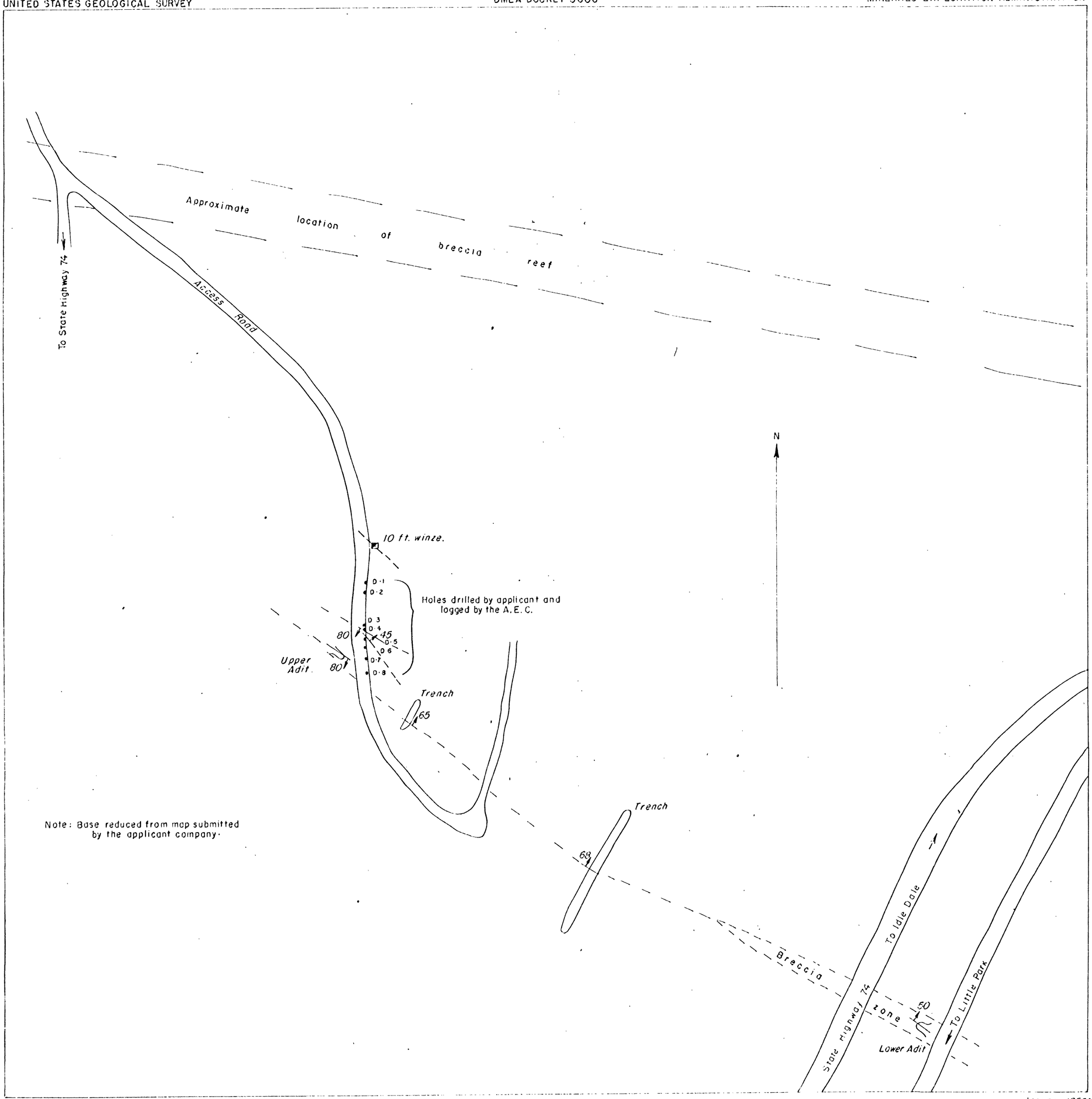


FIGURE 3 — SKETCH OF WRIGHT LEASE SHOWING PRINCIPAL STRUCTURAL FEATURES AND EXISTING WORKINGS, W. H. B. F. MINING AND ENGINEERING COMPANY, JEFFERSON COUNTY, COLORADO.

100 50 0 150 Feet