MME Form 9
Rev. Nov. 65

UNITED STATES
DEPARTMENT OF THE INTERIOR
Geological Survey

OFFICIAL DOCKET FILE Contract No. ~~2242~~ Docket No. 6717

Application
- [ ] Denied
- [x] Withdrawn

Contract
- [ ] Terminated - Not Certified
- [ ] Terminated - Certified
- [ ] Cancelled
- [ ] Royalty Agreement

The records contained in this file are marked (x) and arranged in this order:

Folder No. 1:

Left Side

- [ ] Royalty Audits
- [ ] Certification of Discovery
- [ ] Closing Letter
- [ ] Cost Audits
- [ ] Termination Notice or Agreement
- [x] ~~Recision Notice of Exploration Contract~~ dated ~~7/30/68~~
- [ ] Assignment of Contract
- [ ] Contract Amendments
- [ ] Contract with all exhibits and annexes
- [ ] Owner's Consent to Lien and Subordination Agreement
- [x] Application and Attachments
  Revised dtd 5/18/68

Right Side

- [ ] Project Summary (final)
- [ ] Work Completed Analysis (final)
- All other material filed in chronological order including the following reports if checked:
- [ ] Field Team Semiannual Report for Certified Project
- [ ] Final Field Team Report (Tab)
- [ ] Operator's Final Report (Tab)
- [ ] Interim Field Team Reports
- [ ] Operator's monthly reports and all attachments
- [ ] On-site Exam. Report (Tab)
- [ ] Settlement Sheets
- [ ] Drill Logs

Additional Folders:

Left Side

Folders No. _____: Reports
- [ ] Analysis of Semiannual Inspection Reports
- [ ] Project Summary (Interim) by MME Engineers

Right Side

- [ ] Field Team Semiannual Report for Certified Project
- [ ] Field Team Interim Reports
- [ ] Operator's Monthly Reports with Transmittal, Narrative and Maps

Folders No. _____: Maps (Use pocket folder or envelope)

Folders No. _____: Settlement Sheets

Folders No. _____: Drill Logs

Folders No. _____: Royalty Material

72195-65

MME Form 40
Jan. 65

Budget Bureau No. 42-R1508
Approval expires Dec. 31, 1968

OME

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR FINANCIAL ASSISTANCE IN MINERALS EXPLORATION

Pursuant to Public Law 85–701 (72 Stat. 700; 30 U.S.C. 641)

NAME OF APPLICANT *(Full legal name and mailing address as they should appear on contract if one is executed.)*

THE KEMMERER COAL COMPANY
FRONTIER, WYOMING 83121

Address all correspondence to:
The Kemmerer Coal Company
c/o John J. Wanner
410 Boston Building
Denver, Colorado 80202

APPLICANT DO NOT USE THIS BLOCK

DOCKET NUMBER: 6717

DATE RECEIVED: 4/24/68

REGION: III

DIVISION CODE:

BUSINESS ORGANIZATION *(Check one)*

INDIVIDUAL	
CORPORATION	X
PARTNERSHIP	
OTHER *(Specify)*	

STATE IN WHICH FIRM IS ORGANIZED: Wyoming

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

NAME	ADDRESS	TITLE
John L. Kemmerer, Jr.	120 Broadway, N.Y.C.	Chairman - Board
G. E. Sorensen	Frontier, Wyoming	President
C. D. Cavanaugh, Jr.	120 Broadway, N.Y.C.	Vice-Pres. & Treas.
Lila M. Schooley	Kemmerer, Wyoming	Secretary
O. F. Lorenzi	Frontier, Wyoming	Assistant Treas.
James F. Smith	120 Broadway, N.Y.C.	Assistant Sec.

MINERAL(S) FOR WHICH YOU WISH TO EXPLORE: Silver, Uranium, Bismuth, Copper, Gold

ESTIMATED COST OF PROJECT: $ 307,563.00

PROPERTY NAME	LOCATION COUNTY	STATE
MENA MINE	JEFFERSON	COLORADO

GENERAL INSTRUCTIONS

Before filling out this application, please read the *OME Regulations for Obtaining Federal Assistance in Financing Explorations for Mineral Reserves* (30 CFR Chap. III). To assure prompt action, your application must provide all applicable material and information specified on the back of this application form. Avoid unnecessary correspondence and delays by submitting complete and accurate information. *Please submit two copies of this application and all accompanying papers* except as otherwise noted. Place your name and address on each sheet. Each item of information, maps, and reports required as a part of this application is described on the back of this form. Identify each attached statement by the item number to which it applies. If an item does not apply to your application, show the item number on your statement and after it write "not applicable." Maps or sketches should be used to supplement narrative descriptions of the property location and boundaries in item 2, existing mine workings and geology in item 3, and the proposed exploration work in item 5. When this information is not too complex, all of it may be shown on one map or sketch. All documents and other attachments submitted as a part of this application, except those in item 3(g) which you mark to be returned, become the property of the Government and will not be returned to the applicant. Send true copies, *not originals*, of leases, contracts, and other documents which are an essential part of your business records. *File this application with the Office of Minerals Exploration, Department of the Interior,* ~~Washington 25, D. C., or with the nearest OME Field Office~~ Washington, D. C., 20242, or with the nearest OME Field Office.

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, and that he would not ordinarily undertake the proposed exploration under current conditions and circumstances at his sole expense.

THE KEMMERER COAL COMPANY

April 16, 1968
DATED

G. E. Sorensen
BY *(Signature)*

President
TITLE

A wilfully false statement or certification to any Department or Agency of the United States Government is a criminal offense. U. S. Code, Title 18, Sec. 1001.

INFORMATION REQUIRED WITH THIS APPLICATION

1. Financial Eligibility:

(a) Submit evidence of efforts made within 90 days preceding the filing of this application to obtain credit from your bank of account and at least one other banking institution or other private source of credit. Such evidence shall include true copies of correspondence which show: (1) date of loan request, (2) amount and terms requested, (3) proposed use of loan funds, and (4) the replies from credit sources. If the loan was offered under terms which you consider unreasonable, state why you consider them so.

(b) List names and addresses of affiliated, parent, or controlling companies or organizations and state extent and nature of their interest.

(c) State how you propose to furnish your share of the cost of the exploration work.

2. Applicant's Rights in Land:

(a) State your interest in the land and mineral rights, whether owner, lessee, purchaser under contract, or other. If you are not the owner, submit one true copy of the lease, contract, or other document (with address of owner) under which you control the property. Describe all liens, mortgages, or other encumbrances on the land and state book and page number and official place where recorded.

(b) State the legal description (section, township, and range; metes and bounds; patent number of claims) of the land upon which you wish to explore and all adjacent land which you own or control. Describe any part of the land or workings which should not be subject to Government royalty and liens. If the land consists of unpatented claims, state book and page number for each recorded location notice, including amended locations, and official place where recorded. State all the names by which you know the property.

(c) For all land or mineral rights encumbered or not owned, submit five copies of Lien and Subordination Agreements on MME Form 52. If the agreements cannot be obtained, state reasons and provide copies of letters of refusal.

3. Physical Description:

(a) Describe in detail and illustrate with maps or sketches all mining or exploration operations which you know have been or are being conducted upon the land. Include existing mine workings and all production facilities.

(b) State your interest, if any, in operations described in (a).

(c) State, if you know, the past and current production, supporting your statement with copies of settlement sheets, mine records, or published data if available.

(d) Describe known ore reserves, giving quantities and grades and sampling methods used. Support your statement with copies of assay certificates and assay maps if available.

(e) Describe by narrative and maps or sketches the geologic features of the property, including ore minerals, geologic formations if known, and type of deposit (vein, bedded, etc.).

(f) State your reasons for expecting to find ore, and if you have sampled the area you propose to explore, show where the samples were taken, describe sampling methods used, and provide copies of assay certificates.

(g) Send with your application at least *two* copies of all geologic or engineering reports, assay maps, or technologic information which you have, indicating whether you require their return.

4. Accessibility of Property:

(a) To aid the OME representative who may examine the property, state name and address of person who will meet him; give directions for reaching the property; and describe accessibility of property and of any mine workings.

(b) Name the shipping and supply points and state the distances to the property.

5. Exploration Work:

(a) Describe fully the proposed exploration work giving individual footages and sizes of openings *for each item of work.* Use narrative, maps, plans, and sections as necessary. Show location of the proposed work as related to geologic features such as veins, ore-bearing beds, contacts of rock formations, etc. Show also the relation of the proposed work to any existing mine workings and to *land boundaries* or to the closest identifiable corner.

(b) If an access road must be built, show the proposed location on the property map and state the length, type and construction methods proposed.

(c) If an OME contract is executed, state how soon thereafter work would be started and finished. State your anticipated average daily or monthly rate of progress for each type of work.

6. Experience:

State your operating experience and background to conduct this exploration work and also that of the person who will supervise the work.

7. Estimate of Costs:

Furnish detailed estimates of the necessary costs *for each item of the work proposed in 5(a)* under the headings listed below with a total for each heading and the estimated total cost of the work. Costs for any work to be performed by an independent contractor should be listed separately under category (a) below. Costs for any work that is not to be performed by an independent contractor should be listed under categories (b) through (g).

(a) Independent contracts. State the total cost of any proposed independent contract for all or any part of the work, and the number of units and the unit cost for each type of work, such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, or per cubic yard of material moved. Cost estimates should be supported by bids from three contractors if possible. (*Note*—If none of the work is to be contracted, write "none" after this item.)

(b) Personal services. The cost of supervision, engineering and geological services, outside consultants, and labor should be itemized by numbers and classes of employees; rates of wages, salaries or fees; and periods of employment. State whether these services are available.

(c) Operating materials and supplies. List items of material and supplies giving quantity and cost of each. Include under this heading power, water, and fuel, and units of equipment and tools costing less than $50 each.

(d) Operating equipment. List items of equipment and tools costing $50 or more per unit. Give specifications and indicate how each item is to be acquired—i.e., rented, purchased or provided by the applicant. If rented or purchased, state the estimated rental or purchase price. If furnished by the applicant, state condition and present fair market value.

(e) Initial rehabilitation and repairs. Describe the type and the cost of *initial* rehabilitation or repair of existing buildings, fixtures, installations (exclusive of mine workings), and movable operating equipment now owned by the applicant which will be used in the exploration work.

(f) New buildings, fixtures, installations. Describe each building, fixed improvement, and installation to be purchased, constructed, or installed for the exploration work, stating specifications and cost including labor, materials, and supervision.

(g) Miscellaneous. Describe the type and estimate the cost of repairs and maintenance of the operating equipment listed in 7(d). Do not repeat initial repairs listed in 7(e). Show also the costs of analytical work, accounting, workmen's compensation and employees' liability insurance, payroll taxes, and other required costs that do not fall within the previous categories. [*Note*—The Government will not contribute to costs incurred before the date of the contract, or to costs of or incident to: (1) acquiring, using, or possessing land and any existing improvements, facilities, buildings, installations, and appurtenances, or the depreciation and depletion thereof; (2) general overhead, corporate management, interest and taxes (other than payroll and sales taxes); (3) insurance (other than employees' liability insurance); and (4) damages to persons or property (other than authorized repair to or replacement of equipment or other property used in the work).]

INT.-DUP. SEC., WASH., D.C

THE KEMMERER COAL COMPANY
MINERS AND SHIPPERS OF ALL SIZES OF THE BEST STEAM AND DOMESTIC COALS
Frontier, Wyoming
83121

G. E. SORENSEN
PRESIDENT

April 16, 1968

Mr. Frank Johnson
Chief, Office of Minerals Exploration, U.S.G.S.
Room 4460
Interior Building
Washington, D. C. 20242

Dear Sir:

I am enclosing herewith, completed application for financial assistance in minerals exploration.

You will note a copy of this application is being furnished to Mr. J. William Hasler.

We shall appreciate your expeditious handling of this application.

Yours very truly,

THE KEMMERER COAL COMPANY

G. E. Sorensen

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GES/ls
cc: JLKemmerer, Jr.
JJWanner
JWHasler

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APPLICATION FOR FINANCIAL ASSISTANCE IN MINERALS EXPLORATION

AT THE MENA MINE, JEFFERSON COUNTY, COLORADO

Details of data required on MME Form 40 (Jan. 1965) by the Office of Minerals Exploration in the application for an exploration contract by The Kemmerer Coal Company of Frontier, Wyoming, 83121.

Docket No._____

Contract No._____

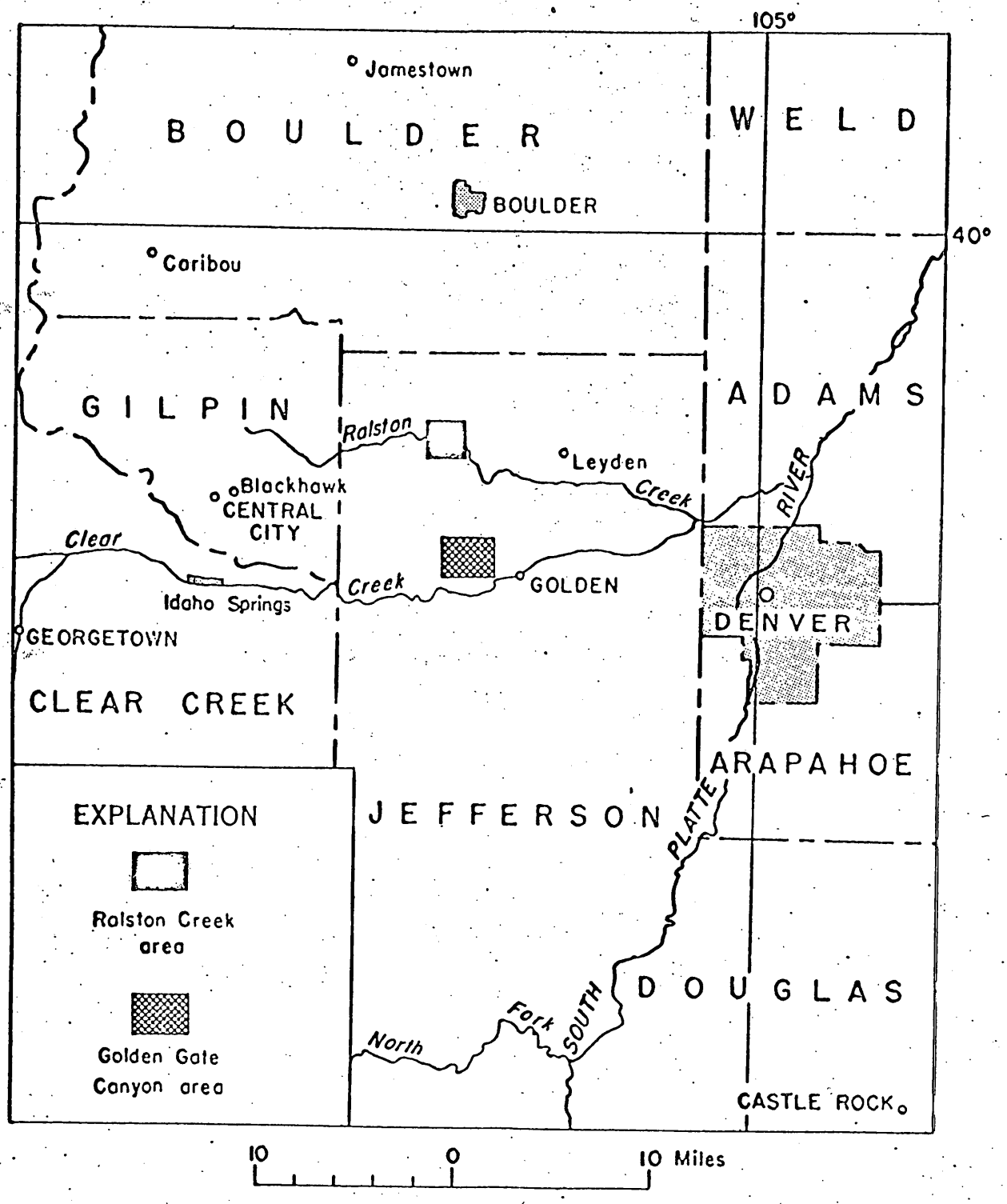

Figure 1.—Index map of central Colorado showing location of Golden Gate Canyon and Ralston Creek areas.

The Kemmerer Coal Company
Frontier, Wyoming 83121

1. Financial Eligibility

(a) Attached are copies of applications made to banks for obtaining financing for exploration work at the Mena Mine.

Items (1), (2), (3) and (4) are fulfilled in the applications for loans which are attached.

(b) None

(c) Funds are immediately available to provide The Kemmerer Coal Company's share of the cost of the exploration work.

2. Applicant's Rights in Land

(a) The Kemmerer Coal Company is a sub-lessee of the Mena mine property. Copy of the sub-lease is attached; also copy of original lease.

There are no liens, mortgages, or other encumbrances on this land.

(b) Legal Description of the Land: (See Figure 1 and Exhibit B)

Township 2 South, Range 71 West, 6th P.M.

Section 26:

NW/4	160 acres
N/2 NE/4	80
SW/4 NE/4	40
NW/4 SE/4	40
	320 acres

This fee land is located on Ralston Creek in Jefferson County, Colorado.

The Mena Mine is also known as the Nigger Shaft, Hoffmeister Prospect, and the Black Judge Mine.

(c) Mineral rights are intact and are not encumbered.

3. Physical Description

(a) Refer to accompanying map marked "Exhibit A". This map shows the mine workings. The Mena shaft and associated underground workings are full of water. The North and South adits are open and require only minor cleaning out. The Hoffmeister adit has been abandoned.

(b) None

(c) The total production of the mine through 1960 was 999.01 tons that averaged 0.27% U_3O_8. (See p.87 USGS Prof. Paper #520 "Geology and Uranium Deposits of the Ralston Buttes District, Jefferson County, Colo." which is attached.)

(d) There are no known ore reserves in the Mena Mine.

(e) The regional and local geology of this area is adequately described in USGS Professional Paper #520. Attention is particularly directed to pages 87-91, copies of which are attached to this report.

"Exhibit A" shows the geology of the Mena Mine area as known at present.

The ore minerals encountered at the Mena Mine are Pitchblende, gold, native silver, native bismuth, native copper, chalcopyrite, chalcocite, tetrahedrite, tennantite, bornite, pyrite, galena, covellite, niccolite, and secondary copper minerals. The ore minerals are associated with the mineralized veins and breccia reefs of the area. The ore deposits are of the vein type.

Geologic formations in the area are composed of the Pre-cambrian gneisses, schists and hornblendites together with Tertiary ore deposits.

The main structural control at the Mena Mine is the Rogers breccia reef fault system with associated fractures.

"Exhibit B" shows the relationship and similarity of the vein and fault systems at the Mena Mine to those at the Schwartzwalder Mine.

3. Physical Description

In all probability the Rogers breccia reef has served as the channelway along which the mineralizing fluids ascended and deposited the ore minerals at the Schwartzwalder and Mena mines.

(f) It should be emphasized that the Schwartzwalder mine is a great uranium producer, much greater than had previously been expected. In addition, it must be pointed out that more and more rich ore is being found at depth and along the strike of the veins. New veins are being found and yet the limits of ore development at the mine have not by any means been determined. Practically all of the new ore has been found by coring. Mr. Al Bird, chief geologist at the Schwartzwalder, told me that in many cases his original core holes missed ore deposits and additional coring in close proximity found the ore.

Previous core holes at the Mena mine (AEC DDHs #9, 10 and DMEA DDHs #1, 2, 4, 5) have confirmed the existence of other veins than the Mena Vein. There is no reason to suppose that all of these other veins and fractures are non-mineralized; in fact, using the Schwartzwalder mine as a criterion, it is more likely that they will prove to be mineralized along strike or at depth. Certainly, the work previously done at the Mena mine has not condemned the probability of finding additional ore on this property.

Previous work at the Mena mine has proven the existence of commercial uranium ore. In addition, samples from the mine have been assayed that show bismuth content as high as 5.8%, copper 19.65%, uranium 4.95%, silver 97.2 oz. per ton, and gold 1.51 oz. per ton. Copies of assays are attached. Where the locations of these assayed samples have been determined from the data on the assay certificates, they are plotted on exhibit A, particularly the channel samples. These assays emphasize that in places along the veins

3. Physical Description

in the Mena mine there is exceptionally good mineralization which has developed into two mineable ore shoots, one in the North adit and the second in the stopes at the south end of the drift on the 100 level.

Because of the probability of blind ore bodies being present, as shown by the ore body in the North adit where the vein was barren along most of the adit and yet commercial ore was found only a few feet above the back of the adit, a patterned coring program along the strike of mineralization should encounter additional ore zones of any size that may be present.

Certainly the possibility of opening up another mine like the Schwartzwalder justifies additional exploratory activities at the Mena property.

By no stretch of the imagination can it be said that the Mena vein has been adequately tested along its strike length or down dip, and this reasoning applies to the other known veins on the property. The ore veins pinch and swell, and in a matter of inches they can go from tight barren fractures to ore bodies tens of feet wide.

4. Accessibility of Property

(a) Mr. K. W. Nickerson
12431 West Alameda Drive
Denver, Colorado 80228
Phone 985-8491

will be available upon short notice to meet and conduct any OME representative to the Mena Mine property.

The Mena Mine is about a mile up Ralston Creek from the Schwartzwalder Mine. A graded road leads to the Schwartzwalder and a good auto track continues on for about a half mile up the creek. From this point it is a short easy walk to the Mena property. The north and south adits at the mine are open and can easily be examined. All workings below the adit level are water-filled.

(b) Shipping points for any ore produced have not yet been established. This will depend on what market will be obtained.

As Denver, Colorado is only about an hour's drive from the property, all supplies are easily and quickly available.

5. Exploration Work

(a) The proposed exploration work consists of (1) a coring program, (2) surface geologic examination and mapping which will include aerial photo interpretations, (3) trenching operations where necessary to "see through" surface cover, and (4) a short underground exploration crosscut to observe the south trending branch reef. This crosscut might also be used to set up an underground station for a series of core holes and/or "long holes".

(1) Coring Program:

Proposed Diamond Drill Holes

D D H No.	Depth	Angle	Direction
1, 2, 4, 6, 8, 10, 11, 13, 15, 20, 22, 24, 25, 27, 28, 30, 32, 36	400	Vertical	---
3, 5, 7, 9, 12, 14, 16, 19, 21, 23, 26, 29, 31, 33, 35, 37, 38	400	45	Westerly
17, 18, 34	1,000	Vertical	---
39	3,000	Vertical	---

"Exhibit A" and "Exhibit C" show the proposed core holes. There is a series of 35 400-foot deep holes, a series of 3 1,000-foot deep holes, and 1 3,000-foot hole. Location of this last core hole will be dependent on all the preceding exploration work. Total footage to be cored is:

35 x 400 = 14,000
3 x 1000 = 3,000
1 x 3000 = 3,000
20,000 feet of core

Core size will be determined by drilling conditions.

The coring program must be flexible so that the maximum benefit will be derived from each hole as it is drilled. The westerly holes will be drilled perpendicular to the strike of the veins.

5. Exploration Work

(1) Coring Program:

The hole depths given are the maximum depths expected to be reached and each hole may be completed at a shallower depth depending on what is found in the cores. We should have leeway to alter core-hole sites so that the most beneficial information is obtained and to provide for terrain irregularities. When the holes are actually located on the ground they will be directed so as not to encounter any of the underground workings.

The main purpose of these core holes is to explore the Mena vein and vicinity for new ore bodies. As the Mena vein approaches the southerly trending branch of the breccia reef it is likely that stronger fracturing and shattering have provided a larger and better reservoir for the mineralizing solutions to have deposited their valuable ores.

The core holes are also designed to prospect for other associated veins that may be "horse-tailing" out from the breccia reef as happens at the Schwartzwalder mine. The deeper holes in particular will attain this objective.

(2) More detailed surface geologic mapping will be accomplished by utilizing air photos, topographic maps, Brunton compass and tape measure. The surface geology will be tied in to the mine geology as well as to the geologic information obtained from the core holes. Scintillometer readings will be regularly taken on surface outcrops.

(3) A bulldozer will be used to clear locations for the drill sites, move equipment, build roads to same, repair and recondition existing roads, and for trenching operations where necessary to see the bedrock geology and to check any radioactive anomalies.

(4) The mine will be pumped out and a short exploration crosscut will be extended out for 75 feet east of the present 200-foot level (see Exhibit A).

5. Exploration Work

(4) This crosscut will enable us to examine the branch breccia reef and the adjoining rocks on each side at a greater depth than has been done before. According to Mr. J. W. Walsh an assay of this reef showed some silver content, and it may be that this reef will prove to have mineable silver values at depth.

The exploration crosscut may also be used to establish an underground site for coring or long holing.

(b) The present road to the Mena property from the Schwartzwalder mine needs bulldozer work to level it and make it serviceable. Some "washed-out" culverts have to be reset and replaced. An old bridge at the mine site needs to be rebuilt across Ralston Creek.

(c) Work will be commenced as soon as an exploration loan is granted, depending on availability of the necessary equipment and personnel. The exploration work will continue to conclusion, not to extend beyond July 1970.

It is difficult to estimate the coring rate as this will be controlled by the number of coring rigs at work and the number of shifts worked per machine, as well as the rate of coring achieved in the various rock types. Probably 400 feet per week for a 6-day week would be a good estimate, using two core machines.

We propose to conduct the exploration program in three stages as follows:

Stage I

(a) Drill core holes #1, 2, 10, 13, 18, 24, 27, 28, 32, 36, 37.

Holes #2, 13, 28, 32, 36, 37 are set up to explore the Mena vein at a greater depth than here-to-fore and in closer proximity to the branch reef.

5. Exploration Work

Stage I

They will also determine if other veins are developing. Hole #18 will do the same, plus giving us much greater depth control and extending the search for more mineralized veins coming off the branch reef.

Holes #10, 24, 27 are situated to get information about the east side of the branch breccia reef and to cut the reef at depth. There is no subsurface information available on this side of the branch reef.

Hole #1 is to give us control on the far side of the main breccia reef and to explore for any mineralized veins that may be coming off of the reef. No work has previously been done to the north and east of this reef, and a hole there will add greatly to our knowledge of the area.

It is our intention to keep two core machines in operation, if available. We estimate that it will not take more than eight months to complete Stage I of the exploration program.

Core holes will not necessarily be drilled in the order in which they are numbered.

(b) Conduct surface geologic studies and radiometric surveys.

(c) Dig trenches as required for conducting phase (b) above.

When Stage I has been completed an evaluation will be made of the results that have been obtained. Then, if justified, Stage II will be instituted after making any modifications in the suggested program that may be necessary such as relocating drill sites and amending the projected depths of the diamond drill holes.

Stage II

(a) Drill core holes #3, 4, 5, 6, 7, 8, 9, 11, 12, 14, 15, 16, 17, 19, 20, 21, 22, 23, 25, 26, 29, 30, 31, 33, 34, 35, 38. The present

5. Exploration Work

Stage II

location of these holes is tentative.

(b) Extend a 5 x 7 exploration crosscut east for 75 feet from the 200 level to intersect the branch breccia reef.

When Stage II is finished, Stage III will be put into operation if previous results warrant it.

Stage III

Drill D.D.H. #39.

6. Experience

The Kemmerer Coal Company was incorporated on August 11, 1897 and has been in operation for 71 years. This company has the necessary experience to conduct any type of mining exploration program.

K. W. Nickerson who will probably supervise the program has been active in mineral exploration for over twenty years. He recently spent eight months in Australia running an exploration program similar to this one whereby he had three diamond coring machines in operation, conducted an IP geophysical survey, kept a surveying crew busy, had a bulldozer digging trenches for geological information, supervised a percussion drilling program to obtain samples for assay, and conducted an examination of an operating lead-silver-zinc mine and mill. In addition to and in conjunction with the above, Mr. Nickerson conducted surface and underground geologic studies of the property.

Mr. Nickerson graduated from the Colorado School of Mines in 1948 with a degree of geological engineer in mining geology. He is a Registered Professional Engineer in Colorado.

7. Estimate of Costs - Stage I

(a) Independent contracts

(1) Bulldozer (T.D. 15 w/Ripper) for constructing drill sites and roads to sites, pulling core rigs to drill sites and digging trenches.

120 hours at $18.50/hr.- - - - - - - - - - - - $2,220

(2) Coring (11 holes) (Prices per attached bids)
Overburden = $8.50 per ft.

Depth in feet	NX	BX	AX
Bedrock to 250'	$7.10	$6.85	$6.40/ft.
250' to 500'	7.90	7.50	6.85
500' to 750'	8.60	8.10	7.70
750' to 1000'	---	9.00	8.70

Overburden:	110'	@ $8.50	- $ 935
NX Hole:	240'	@ 7.10	- 1,704
	250'	@ 7.90	- 1,975
BX Hole:	2400'	@ 6.85	- 16,440
	250'	@ 8.10	- 2,025
AX Hole:	1500'	@ 6.85	- 10,275
	250'	@ 8.70	- 2,175
	5000		$35,529

Reaming:	200'	@ $3.95	- $ 790
	200'	@ 4.95	- 990
			$1,780

Casing lost in hole:	400' BX	@ $2.00	- $ 800
	200' NX	@ 3.00	- 600
			$1,400

Cementing: 300 hours @ $14.50/hr. - $4,350
Additives (mud, cement, etc.) 500
$4,850

Standby time: 100 hours @ $12.65 - $1,265

Core boxes: 500 @ $1.00 - $500

Water haul:

Truck:	8 mo. @ $220/mo.	- $1,760
Mileage:	400 mi. @ 12¢/mi.	48
Driver:	8 mo. @ $600/mo.	4,800
		$6,608

(Note: If practicable, water will be pumped from Ralston Creek to drill sites at a substantial savings.)

In-hole probe = 5000' @ 15¢/ft. - $750
In-hole survey instrument 10 days @ $75/day - $750

Total Coring Cost- - - - - - - - - - - - - - - - $53,792

7. Estimate of Costs - Stage I

(a) Independent contracts

(3) Assays:

200 uranium	@ $7.50 each -	$1,500	
100 bismuth	@ 7.50 each -	750	
100 silver & gold	@ 2.50 each -	250	
100 copper	@ 1.50 each -	150	
		$2,650 - - - - - -	-$2,650

(b) Personal services

(1) Supervision, geologist, engineer
8 mo. @ $1,500/mo. $12,000
Auto mileage 1200 mi/mo for 8 mo @ 12¢/mi. - 1,152
$13,152

(2) Field Assistant 100 days @ $20/day - - - - - - - - - $2,000

(3) Outside consultants
Geologist (for consultation, polished section work, etc.)
10 days @ $75/day - $750
500 miles @ 12¢/mi. - 60
$810 - - - - - - - - - - - - $810

(4) Surveyor
5 days @ $75/day - $375
250 mi. @ 12¢/mi. - 30
$405 - - - - - - - - - - - - - $405

(c) Operating Materials and supplies- - - - - - - - - - - - - None

(d) Operating equipment - None

(e) Initial rehabilitation and repairs

T.D. 15 Bulldozer w/Ripper to put approximately 1 mile of access road in condition for use, reset 3 washed out culverts and maintain road.

40 hours @ $18.50 - $740

(f) New buildings, fixtures, installations- - - - - - - - - - None

(g) Miscellaneous

It is purposed to have the independent contractors furnish all insurance coverage, workmen's compensation, and keep the applicant free of all damage claims.

Accounting 8 mo. @ $50/mo. - - - - - - - - - - - - - - - - $400

Total for Stage I - $76,169

7. Estimate of Costs - Stage II

(a) Independent contracts

(1) Bulldozer for drill sites and roads

240 hours @ $18.50/hr. - - - - - - - - - - - - - - - $4,440

(2) Coring (27 holes)

Overburden:	270'	@ $8.50 -	$ 2,295
NX Hole:	480'	@ 7.10 -	3,408
	500'	@ 7.90 -	3,950
BX Hole:	6,000'	@ 6.85 -	41,100
	500'	@ 8.10 -	4,050
AX Hole:	3,750'	@ 6.85 -	25,687
	500'	@ 8.70 -	4,350
	12,000		$84,840

Reaming: 1000' @ $3.95 - $3,950
400' @ 4.95 - 1,980
$5,930

Casing lost in hole: 1000'BX @ $2/ft. - $2,000
400' NX @$3/ft. - 1,200
$3,200

Cementing: 800 hours @ $14.50/hr - $11,600
Additives 1,500
$13,100

Standby time: 260 hours @ $12.65/hr. - $3,289

Core boxes: 1200 @ $1.00 each - $1,200

Water haul:

Truck:	12 mo. @ $220/mo.	- $2,640
Mileage:	1000 mi. @ 12¢/mi.	120
Driver:	12 mo. @ $600/mo.	7,200
		$9,960

Hole probe: 12,000' @ 15¢/ft. - $1,800
Hole survey: 25 days @ $75/day - $1,875

Total Coring Cost - - - - - - - - - - - - - - - - $125,194

(3) Assays:

300 uranium	@ $7.50 each -	$2,250
100 bismuth	@ 7.50 each -	750
100 silver & gold	@ 2.50 each -	250
100 copper	@ 1.50 each -	150
		$3,400 - - - - $3,400

7. Estimate of Costs - Stage II

(a) Independent contracts

(4) Underground workings

Contract to dewater mine and excavate a 5 x 7 75-ft. long crosscut on the 200 level. Contractor to supply all equipment, supplies and labor for job except electricity. Job will require pumps, two hoists with engines, compressor, vent lines, air and water lines, rails, timber, mucking machine, cars, and whatever else is necessary to complete the crosscut.- -$9,500

(b) Personal services

(1) Supervision, geologist, engineer
12 mo. @ $1,500/mo. - $18,000
Auto mi. 15,000 mi. @ 12¢/mi. - 1,800
$19,800 - - - - -$19,800

(2) Field Assistant 100 days @ $20/day - - - - - - - - - $2,000

(3) Outside consultants
Geologist
30 days @ $75/day - $2,250
1500 mi. @ 12¢/mi. - 180
$2,430 - - - - - - - - - - - $2,430

(4) Surveyor
5 days @ $75/day - $375
250 mi. @ 12¢/mi. - 30
$405 - - - - - - - - - - - - - $405

(c) Operating materials and supplies

REA membership fee $5
6 mo. electricity @ $300/mo. - $1,800
$1,805 - - - - - $1,805

(d) Operating equipment - None

(e) Initial rehabilitation and repairs

Dozer or grader to maintain road
120 hours @ $18.50/hr. - - - - - - - - - - - - - - - - - - $2,220

(f) New buildings, fixtures, installations - - - - - - - - - None

(g) Miscellaneous

It is purposed to have the independent contractors furnish all insurance coverage, workmen's compensation, and keep the applicant free of all damage claims.

Accounting 12 mo. @ $50/mo.- - - - - - - - - - - - - - $600

Total for Stage II - $171,794

7. Estimate of Costs - Stage III

(a) Independent contracts

(1) Bulldozer for drill site and road

8 hours @ $18.50/hr.- - - - - - - - - - - - - - - - - - $148

(2) Coring (1 hole)

Overburden:	10'	@ $8.50 -	$ 85
NX Hole:	240'	@ 7.10 -	1,704
	250'	@ 7.90 -	1,975
	250'	@ 8.60 -	2,150
BX Hole:	250'	@ 9.00 -	2,250
	250'	@ 9.95 -	2,488
	250'	@ 10.50 -	2,625
	250'	@ 11.10 -	2,775
	250'	@ 12.60 -	3,150
	250'	@ 13.50 -	3,375
	250'	@ 14.50 -	3,625
	250'	@ 15.70 -	3,925
	250'	@ 17.10 -	4,275
	3000'		$34,402

Reaming:	200' @ 5.95 -	$1,190
	200' @ 4.95 -	990
	200' @ 3.95 -	790
		$2,970

Casing lost in hole:	200' NX @ $3/ft. -	$600
	400' BX @ $2/ft. -	$800
		$1,400

Cementing:	100 hours @ $14.50/hr. -	$1,450
	Additives	450
		$1,900

Standby time: 100 hours @ $12.65/hr. - $1,265

Core boxes: 300 @ $1.00 each - $300

Water haul:

Truck:	5 mo. @ $220/mo. -	$1,100
Mileage:	200 mi. @ 12¢/mi. -	24
Driver:	5 mo. @ $600/mo.	3,000
		$4,124

Hole probe: 3,000' @ 15¢/ft. - $450
Hole survey: 10 days @ $75/day - $750

Total Coring Cost - - - - - - - - - - - - - - - - - - $47,561

7. <u>Estimate of Costs - Stage III</u>

(b) Personal services

(1) Supervision, geologist, engineer
5 mo. @ $1,500/mo. - $7,500
Auto mi. 6,000 mi. @ 12¢/mi. - 720
$8,220 - - - - - - - $8,220

(2) Field Assistant 60 days @ $20/day - - - - - - - - - $1,200

(3) Outside consultants
Geologist
15 days @ $75/day - $1,125
750 mi. @ 12¢/mi. 90
$1,215 - - - - - - - - - - - - - $1,215

(4) Surveyor
1 day @ $75/day - $75
50 mi. @ 12¢/mi. 6
$81 - - - - - - - - - - - - - $81

(c) Operating materials and supplies - - - - - - - - - - - None

(d) Operating equipment - - - - - - - - - - - - - - - - - - - None

(e) Initial rehabilitation and repairs

Dozer or grader to maintain road
50 hours @ $18.50/hr. - - - - - - - - - - - - - - - - - $925

(f) New buildings, fixtures, installations - - - - - - - - None

(g) Miscellaneous

It is purposed to have the independent contractors furnish all insurance coverage, workmen's compensation, and keep the applicant free of all damage claims.

Accounting 5 mo. @ $50/mo. - - - - - - - - - - - - - - $250

Total for Stage III - <u>$59,600</u>

Grand Total for all Work - $307,563

K. W. Nickerson
K. W. NICKERSON
Geological Engineer

ballast. Similar rock is abundant in the Ralston Buttes district.

Sand and gravel have been extracted from the Quaternary pediments east of the Ralston Buttes district. The material covering the pediments in the district is silty and contains many cobbles and boulders that would require crushing. It is generally inferior to material that can be obtained from the terraces and flood plain of Clear Creek east of the Ralston Buttes district.

URANIUM MINES AND PROSPECTS

During the present investigation, the underground workings and surface areas of three mines — the Schwartzwalder, Ascension, and Aubrey Ladwig—were studied and mapped in detail. A fourth, the Mena, was mapped in less detail, and various prospects were examined but not mapped. Some of the mines and prospects described by Adams and others (1953) and by Adams and Stugard (1956) were not reexamined except to fit the earlier descriptions into the areal geology. The Ohman mine was developed subsequent to our field studies in the district, so we have no detailed geologic data on it. However, it is near the Buckman adit, which has been described by Adams and Stugard (1956, p. 205–206).

RALSTON CREEK AREA

The Schwartzwalder, Mena, and North Star mines and several uranium prospects lie in an area of about 4 square miles along Ralston Creek in the northeastern and north-central parts of the district (pl. 1). The mines and prospects are in rocks of the hornblende gneiss unit and the unit of microcline gneiss complexly interlayered with other rocks (pl. 1), and most of them are on faults and fractures of the Rogers fault system. One prospect near the western part of the area is on a fault of the Hurricane Hill fault system.

MENA MINE

The Mena mine, formerly known as the Hoffmeister prospect and the Nigger shaft, is on Ralston Creek near the boundary between secs. 23 and 26, T. 2 S., R. 71 W., as these sections are plotted on the 1948 edition of the Ralston Buttes topographic map (pl. 1). However, because the original section corners between 23 and 26 were missing, a resurvey of the area was made by a registered land surveyor in June 1954, and this showed that the mine workings actually lie in the north-central part of sec. 26, several hundred feet from the section line. Although the workings of the Mena mine are shown correctly on plate 1 with regard to topography and drainage, the position of the section line has not been corrected.

At the time of our fieldwork, mineral rights to the property were owned by L. W. Bolis, Golden, Colo., and were leased to J. W. Walsh, Denver, Colo. Mineral rights to the adjacent property in sec. 23 were owned by the Union Pacific Railroad Co.

The mine may be reached by either of two access roads. Parts of these were built after the base map was prepared and are not shown on plate 1. A steep dirt road about 2 miles long passes northwest through A. G. Brumm's ranch and connects with State Highway 72 in Coal Creek Canyon. Another dirt road follows Ralston Creek southeastward past the Schwartzwalder mine and connects about 9 miles to the southeast with the junction of State Highways 58 and 93 northwest of Golden, near the mouth of Golden Gate Canyon.

The geology of the mine, then known as the Nigger shaft, was mapped in 1952 by Adams, Gude, and Beroni (1953, fig. 9). During the present investigation, it was visited intermittently by Sheridan, Maxwell, and R. U. King, and additional mapping was done (figs. 27, 28). The following description is based partly on the data obtained by Adams, Gude, and Beroni (1953) and partly on field and laboratory work made during the present investigation.

HISTORY AND PRODUCTION

The first discovery of pitchblende in the Ralston Buttes district was made by Fred Schwartzwalder in 1949 at the property now known as the Mena mine. At the time of this discovery, the property contained a small shaft and a short adit that had been prospected for copper in 1912–14 by a man named Hoffmeister (Adams and others, 1953, p. 13).

In 1954–55 two core holes were drilled and a small amount of trenching by bulldozer was done by the U.S. Atomic Energy Commission during an exploration program in the Ralston Creek area. More recently, J. W. Walsh drove two more adits and a new shaft with drifts and raises. Walsh has conducted exploration on the property intermittently since 1955, partly under an exploration contract with the Defense Minerals Exploration Administration.

The total production from the mine through 1960 was 999.01 tons (table 23). The average grade of shipments was 0.27 percent U_3O_8.

MINE WORKINGS

Workings at the Mena mine include an old shaft and adit, two new adits, and a new shaft with drifts and raises. The old shaft, now called the Black Judge shaft (formerly the Nigger shaft and Hoffmeister prospect), was shown in plan and in section by Adams, Gude, and Beroni (1953, fig. 9). The shaft is inclined

steeply to the northeast to a depth of about 22 feet and connects to a drift and stope which extend 13 feet north from the bottom of the shaft. A short abandoned adit (the Hoffmeister adit) extends northwest from a point 130 feet southeast of the Black Judge shaft (fig. 27). The two newer adits (fig. 28), totaling 344 feet of workings, are on the north and south sides of Ralston Creek (fig. 27). Since the termination of field investigations in 1956, a new vertical shaft has been excavated to a depth of at least 90 feet from a collar 70 feet east of the portal of the North adit, and drifts were driven from it. In addition to these new workings, a winze has been excavated to a depth of about 20 feet near the portal of the South adit, and the vein has been partly stoped in the North adit.

WALLROCKS

The Mena mine (pl. 1) is near the northern margin of the undivided hornblende gneiss unit, which forms an east-trending belt. Rocks in the vicinity of the mine are interlayered hornblende gneiss, amphibolite, and biotite gneiss with lesser amounts of calc-silicate gneiss. Locally some of the hornblendic rocks are garnetiferous. Thin bodies of pegmatite and aplite cut the gneisses. Foliation strikes N. 60°–90° W. and dips southwest at moderate angles.

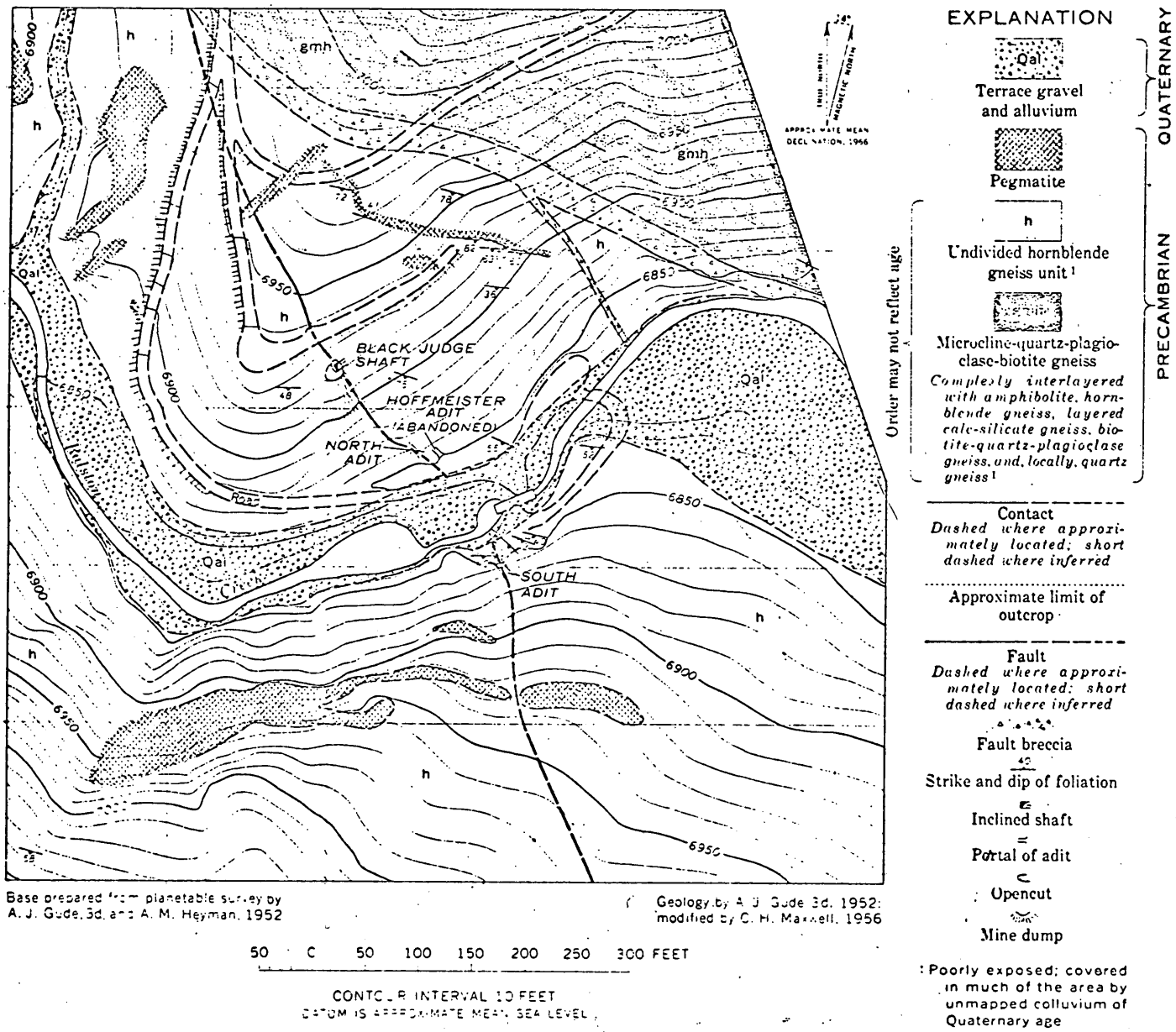

FIGURE 27.—Geology of the Mena mine area.

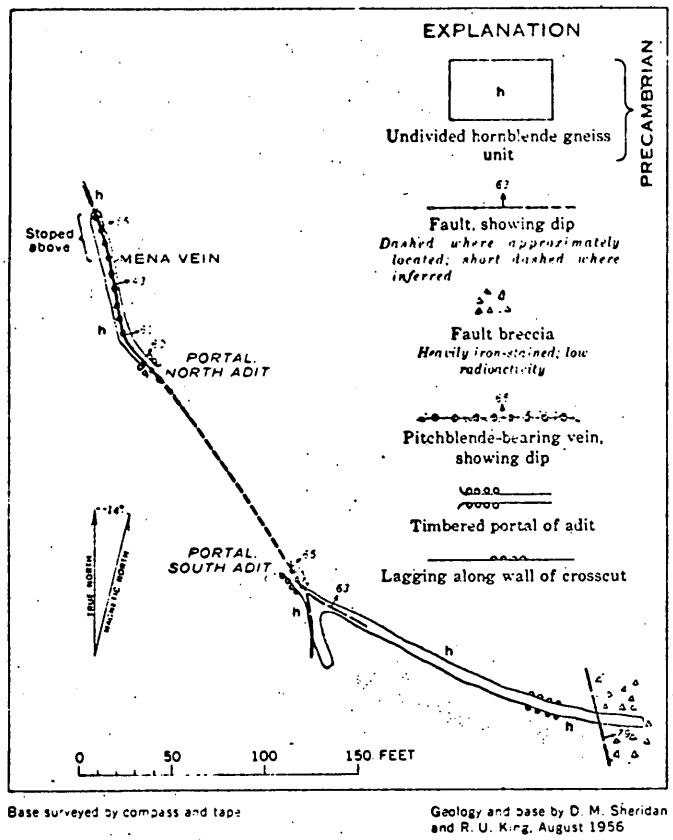

FIGURE 28.—North and South adits, Mena mine.

BRECCIA-REEF FAULTS

The Precambrian rocks in the vicinity of the Mena mine are cut by a group of northwest-trending breccia-reef faults of the Rogers fault system (pl. 1). The Mena vein is a mineralized breccia in a fault of this system. The fault containing the Mena vein has been traced by outcrops and breccia float for a distance of 2,000 feet (pl. 1). At its northwestern and southeastern extremities it merges with other breccia-reef faults. In the vicinity of the mine (figs. 27, 28), the fault strikes N. 10°–35° W. and dips 43°–70° NE. The thickness of the breccia ranges from ½ to 3½ feet. Despite the presence of breccia along this fault, the displacemen must have been small because no noticeable offset was observed in pegmatites cut by the fault. In this report the shear zone described by Adams, Gude, and Beroni (1953, p. 16) in the Nigger shaft (now called the Black Judge shaft) is considered to be a part of the fault containing the Mena vein. Adams and colleagues noted that the shear zone is as much as 8 feet thick in the workings at the shaft, but that the carbonate-rich part containing the ore averages 2 feet in thickness.

In the northwestern part of the mapped area (fig. 27), the fault containing the Mena vein merges with a zone of fault breccia that trends N. 60° W. This zone of breccia is as much as 35 feet in outcrop width and is well exposed at Ralston Creek at the eastern margin of the area (fig. 27). About 250 feet northeast of the Black Judge shaft, a branch fault containing about 5 feet of breccia extends S. 30° E. away from the wide zone of breccia. The breccia in the heading of the South adit (fig. 28) probably represents the same branch fault, but surface exposures were too poor to locate it south of Ralston Creek (fig. 27).

A major breccia-reef fault forming the southwestern margin of the Rogers fault system crosses Ralston Creek about 800 feet west of the mine (pl. 1). It trends N. 45° W. and is apparently almost vertical over most of its extent in secs. 23 and 26.

URANIUM DEPOSITS

The known uranium deposits on the Mena property are along the Mena vein and are largely north of Ralston Creek. The main ore shoot in the North adit strikes N. 10° W. and dips 43°–60° NE. (fig. 28). The thickness of the pitchblende-bearing breccia in the adit ranged from 1 to 3½ feet, and the horizontal length of the shoot exposed in August 1956 was about 65 feet. The shoot appears to rake steeply. Production data and presence of pitchblende in the Black Judge shaft suggest that the length of the ore shoot along the rake is at least 65 feet.

Uraniferous breccia was also cut in the first 6 feet from the portal of the North adit and in the first 12 feet from the portal of the South adit. These deposits are also on the Mena vein and may represent parts of two other ore shoots, parts of which may be concealed by the alluvium along Ralston Creek. Data available during fieldwork were insufficient to allow determination of the size or extent of the deposits.

The mineralized breccia comprising the Mena vein is a dense tan material that weathers reddish at the surface. It consists mostly of brecciated and highly altered fragments of Precambrian wallrock cemented largely by ankerite. The breccia contains a network of thin dark stringers and veinlets of pitchblende, sulfide and other metallic minerals, and gangue, including potassic feldspar, ankerite, quartz, and calcite. Although individual veinlets commonly range from 12 to 25 mm in thickness, petrographic studies of thin and polished sections indicate that the colloform coatings of pitchblende in these veinlets are rarely over 1.0 mm thick and are generally less than 0.5 mm. thick. However, such coatings are so abundant in much of the breccia as to constitute very rich ore. The colloform coatings of pitchblende occur on breccia fragments (fig. 22, 24) and along the walls of thin veinlets

and on irregular fracture surfaces. Where the pitchblende occurs with other metallic minerals and gangue in the thicker veinlets, the textural relations indicate that it was deposited relatively early along the margins of veinlets and on breccia fragments, and that other minerals filled the remaining open spaces (figs. 22–24). The rounded botryoidal appearance of colloform pitchblende coating a fracture surface has been illustrated by Walker and Adams (1963, fig. 27).

Metallic minerals identified in samples of ore from the Mena mine include pitchblende, chalcopyrite, pyrite, galena, tetrahedrite-tennantite, chalcocite, bornite, native bismuth, native copper, niccolite, pararammelsbergite(?), maucherite(?), covellite, and secondary copper minerals. In addition, native silver was found by J. W. Walsh (oral commun., 1957) in underground workings connected to his new shaft. Sphalerite was not identified in the various ore samples, but one ore sample contained 0.17 percent zinc (table 24), which suggests that sphalerite probably occurs in small amounts in the ore. The analyzed sample also contained 0.1 percent molybdenum, but no molybdenite was recognized.

The textural relations of pitchblende, other metallic minerals, and gangue minerals are illustrated in figures 22–25. The general paragenetic relations of minerals in the ore are described on pages 78–79.

Native bismuth is abundant in parts of the Mena vein. It occurs with other metallic minerals in gangue that cements open spaces in the ore and is therefore apparently younger than the colloform coatings of pitchblende. As shown in figure 29, the native bismuth is veined and embayed by chalcopyrite. Thin vermiform veinlets composed of a very fine grained intergrowth of two or more unidentified metallic minerals occur along the contacts between chalcopyrite and native bismuth, and cut native bismuth, chalcopyrite, and gangue (fig. 29). These same unidentified minerals form a thin rim on native bismuth (upper right fig. 30), and locally on native bismuth (lower left fig. 30), in niccolite-bearing ore.

Niccolite was observed in some Mena ore: in one specimen as a minute grain along the rotund outer surface of pitchblende (fig. 22), and in another specimen as subhedral to rounded grains associated with native bismuth in gangue cementing brecciated fragments of colloform pitchblende (fig. 30). As observed under high magnification, the niccolite in these specimens has a thin continuous double rim of other nickel minerals. The optical characteristics of these nickel minerals, including a comparison of the reflectivity of each of these minerals and of niccolite and native bismuth in red, green, and orange light, suggest that the very thin

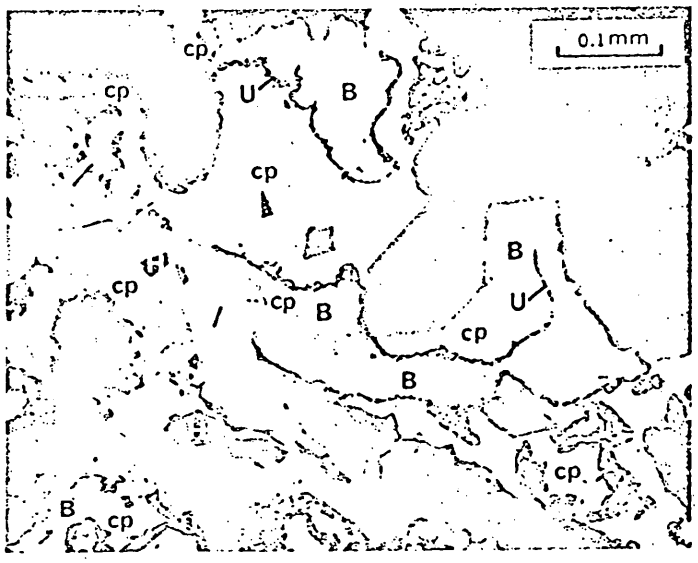

FIGURE 29.—Polished section of uranium ore, Mena mine. Native bismuth (B) and chalcopyrite (cp) occur in gangue (dark gray), consisting principally of a carbonate mineral which cemented open spaces in ore containing colloform pitchblende (P). Chalcopyrite veins and embays native bismuth (center), and fills shrinkage cracks in pitchblende. Late vermiform veinlets consisting of a very fine grained intergrowth of two or more unidentified metallic minerals (U) occur along the contacts of native bismuth and chalcopyrite, and cut native bismuth, chalcopyrite, and gangue. H, holes in section.

white innermost rim on the niccolite is pararammelsbergite and that the relatively grayish outer rim is maucherite. The same thin double rim of pararammelsbergite(?) and maucherite(?) occurs discontinuously on native bismuth (fig. 30), and minute grains of maucherite(?) with cores of pararammelsbergite(?) occur locally along the rotund outer surfaces of colloform pitchblende (fig. 23).

J. W. Adams observed bands of orange-brown material 0.02 mm thick in ankerite adjacent to pitchblende (Adams and others, 1953, p. 16; Walker and Adams, 1963, p. 63, fig. 9). He believed that the bands were caused by radiation damage of ankerite, whereby iron was oxidized from the ferrous to the ferric state. Adams also tentatively identified a light- to dark-brown mineral, which occurs sparsely in oxidized breccia, as a hydrated uranium oxide (Adams and others, 1953, p. 16), similar to that found at the North Star mine; Walker and Adams (1963, p. 58) noted that this brown mineral is a slightly translucent form of pitchblende presumably comparable with an "ill-defined material called hydropitchblende."

Compared with some of the ore from the Schwartzwalder mine, most samples of Mena ore show relatively little evidence of postmineral fracturing and breccia-

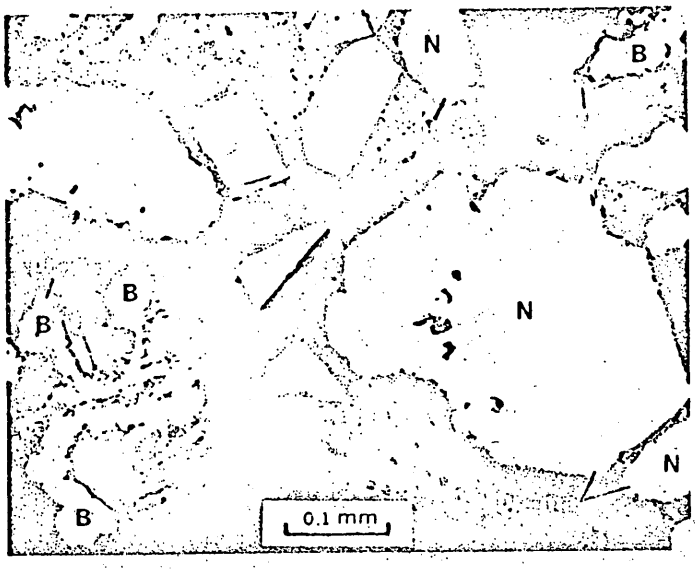

FIGURE 30.—Polished section of uranium ore, Mena mine. Breccia fragments of colloform pitchblende (P) are cemented by a carbonate gangue (dark gray) that contains subhedral to rounded grains of niccolite (N) and irregular grains of native bismuth (B). Although not discernible in the photomicrograph, a thin double rim (pr–ma) surrounds each of the niccolite grains and consists of a very thin layer of pararammelsbergite(?) overlain by a layer of maucherite(?). The same sequence of pararammelsbergite(?) and maucherite(?) occurs as a discontinuous double rim on native bismuth (left center). A very fine grained intergrowth of two or more unidentified metallic minerals (U) occurs as a rim on native bismuth (upper right, and locally at lower left).

tion. The late movements may have been taken up largely by other faults of the Rogers fault system in the vicinity of the Mena mine.

A grab sample of ore from the Mena vein at about the site of the present portal of the North adit was analyzed by chemical methods, fire assays, and semiquantitative spectrographic methods (tables 24, 25). The sample came from a part of the vein in which native bismuth is visible, and its bismuth content, 5.8 percent, is unusually high for ores of the district.

Adams, Gude, and Beroni (1953, table 1) reported analyses for three samples from the Black Judge (Nigger) shaft. These ranged in uranium content from 0.004 to 0.310 percent; two of the samples contained over 20 percent $CaCO_3$.

NORTH STAR MINE

The North Star mine is in the SE¼ sec. 23, T. 2 S., R. 71 W., about half a mile north of Ralston Creek (pl. 1). The mine, now inactive, is on property belonging to A. G. Brumm. At the time fieldwork was done in this area, the mineral rights were held by the Union Pacific Railroad Co. Adams, Gude, and Beroni (1953, p. 11) stated that according to Brumm, 4 tons of copper ore was shipped in 1894, and 12 tons in 1916.

Pitchblende was discovered at the mine in April 1952 by J. W. Adams and his associates in the U.S. Geological Survey, who mapped and described the mine (Adams and others, 1953, p. 11–13, fig. 7). Geologic studies were not made at this mine during the present investigation; the following description is summarized from the report of Adams and his associates and is supplemented with data on areal geology from the present investigation.

The mine workings, now only partly accessible, consist of a short upper level and a lower adit connecting with a stope that formerly opened to the surface (Adams and others, 1953, fig. 7). The portal of the lower adit is partly caved, and part of the stope is backfilled.

The North Star mine is in the unit of microcline gneiss complexly interlayered with other rocks (pl. 1). Rocks in the immediate vicinity of the mine are predominantly amphibolite, hornblende gneiss, biotite gneiss, and pegmatite; but microcline gneiss, calc-silicate gneiss, and quartz gneiss were also found in the general area. Layering and foliation near the mine strike northeast and dip 75°–85° SE.

The mine is located on a northwest-trending breccia-reef fault that forms part of the Rogers fault system (pl. 1). This fault, together with three other discontinuous faults, lies a short distance northeast of the main group of faults of the Rogers system. At the mine, the mineralized breccia forms a vein dipping 25°–45° NE.

The ore in the North Star mine is composed principally of altered rock fragments cemented by copper and uranium minerals. The breccia was not uniformly filled by vein matter; the best ore was in a zone 6 inches to 1 foot thick near the face of the lower adit. The ore consists of bornite, chalcocite, covellite, malachite, azurite, pitchblende, uranophane, and several unidentified uranium minerals. A brown mineral locally abundant in the ore is thought to be a hydrated uranium oxide (Adams and others, 1953, p. 12). Walker and Adams (1963, p. 58, figs. 3, 4) described this mineral as "an olive-green or light-brown slightly translucent colloform pitchblende," and noted that it is presumably comparable with an "ill-defined material called hydropitchblende."

A grab sample of pitchblende-bearing breccia from the dump contained 0.85 percent uranium; the uranium content of eight channel samples from the underground workings ranged from 0.002 to 0.510 percent (Adams and others, 1953, table 1). The grab sample

JOHN J. WANNER
CONSULTING PETROLEUM ENGINEER
828 17TH STREET
DENVER, COLORADO 80202

April 11, 1968

Denver U. S. National Bank
Denver U. S. Center
Denver, Colorado 80217

Gentlemen:

I am enclosing herewith a geologic report, copies of lease agreements and copies of exploration bids for a proposed uranium exploration program on the mining lease in Township 2 South, Range 71 West, 6th P.M., Jefferson County, Colorado. This lease covering the old Mena Mine property is a new lease taken in the name of The Kemmerer Coal Company of Frontier, Wyoming.

Previous work at the Mena mine has proven the existence of commercial uranium ore. The property, however, needs additional exploration work. The enclosed report details the proposed program.

I am acting on behalf of The Kemmerer Coal Company of Frontier, Wyoming. The Kemmerer Coal Company estimates the cost of the exploration program needed to prove this property will be a total of $307,563.00. It is planned to proceed in three phases--Phase No. 1 - $76,169; Phase No. 2 - $171,794, and Phase No. 3 - $59,600.

The Kemmerer Coal Company will use the mining lease they now own on the property and any other lease they might acquire on the prospect as collateral for the loan.

I would appreciate your review and consideration of this loan. If I can be of any assistance in reviewing the report etc. please let me know.

Very truly yours,

John J. Wanner

JJW/mr

DENVER UNITED STATES NATIONAL BANK

DENVER U. S. CENTER • DENVER, COLORADO 80217 • 244-8811

April 12, 1968

JOHN H. FERRY
VICE PRESIDENT

The Kemmerer Coal Company
c/o Mr. John J. Wanner
828 Seventeenth Street
Denver, Colorado 80202

Dear Mr. Wanner:

Thank you very much for your letter of April 11, 1968, requesting a loan in the amount of $307,563 for an exploration program on the old Mena Mine properties in Jefferson County, Colorado

We appreciate very much your giving us the opportunity to consider this application. We do make loans predicated on mine ore production. These loans usually are term loans based on an economic feasibility study (1) demonstrating that a fully explored deposit can be developed and placed in production; or (2) a current record of profitable mining operations. In both instances the feasibility study should be supported by details of thorough exploration showing beyond any reasonable doubt that there are blocked out reserves sufficient to amortize a production loan over its contemplated term. In addition, we require conclusive evidence of ability to market all mineral products under contracts which minimize or effectively eliminate price-fluctuation risks. We also expect any operation to be carried on by a management team which has a demonstrated history of competence in running an integrated exploration, mine development, mining, milling, transportation, and sales organization.

In instances where we provide funds for carrying on new exploratory or development work, or for expansion of plant or milling facilities, we are concerned with a going operation which has at least a year to 18 months of current operating history providing a cash flow which can be used for loan amortization. If the mine is not a going operation and exploratory funds are needed, then the program does not qualify on its own merits for commercial bank debt; instead, this type of financing requirement is better met in other ways.

From your application it appears that other methods of financing would be more appropriate. If you wish a commercial bank to provide funds, then the basis would have to be either other sources of income and/or the offering of collateral to secure the bank. Such collateral must be securities of easily determined value and quality and should be readily marketable. This can normally be accomplished through pledging of high-quality, listed stocks and bonds (of a noncontrol person or noninvestment status), or through the guaranty of an individual or corporate entity acceptable to us. Subsequently if, in fact, your

mine operation does demonstrate a profitable history, then it would be possible for us to consider the transfer of the collateral base from the security position of marketable securities or guaranty, as indicated, to a straight mine production term loan.

We would suggest that at this time you pursue either equity or subordinated debt type of financing, or perhaps contact one of several Federal Government agencies which provide semi-risk type financing. For your convenience, I am enclosing an application form for financing mineral exploration through the Office of Minerals Exploration, Geological Survey, Department of the Interior. Also, I am enclosing a check-list type form containing suggested information to be covered in evaluation reports submitted to the Denver United States National Bank by applicants for mine production loans.

We trust these suggestions will be of some help to you, and we look forward to following your activities and the progress of your mining program with much interest.

Very truly yours,

John H. Ferry

John H. Ferry
Vice President

JHF/mlj

Enclosures

THE FIRST NATIONAL BANK OF DENVER

P. O. BOX 5808 TELEPHONE · 303 · 266-2211

DENVER, COLORADO 80217

DONALD R. RICHARDS
VICE PRESIDENT

April 12, 1968

Mr. John J. Wanner
828 Seventeenth Street
Denver, Colorado 80202

Re: Kemmerer Coal Company

Dear John:

I wish to acknowledge receipt of your letter of April 11, enclosing a geologic report, copies of lease agreements and copies of exploration bids for a proposed uranium exploration program on the Mena Mine property, together with your application for a loan in the amount of $307,563.00 for the purposes of an exploration program needed to prove this property.

Although the proposal seems to have merit, I believe that you can understand that this loan cannot be made by a commercial bank, inasmuch as no income is being derived from the property for the necessary amortization of the debt. Inasmuch as the Company is only willing to pledge the lease as collateral, I believe that you would be wise in looking for an organization that is more able to make risk loans than a commercial bank.

I am sorry that we cannot accommodate you in this matter, but, of course, will look forward to working with you in the future.

Very truly yours,

D. R. Richards

Vice President

DRR/sh

JOHN J. WANNER
CONSULTING PETROLEUM ENGINEER
828 17TH STREET
DENVER, COLORADO 80202

April 11, 1968

The First National Bank of Denver
Denver, Colorado 80202

Gentlemen:

I am enclosing herewith a geologic report, copies of lease agreements and copies of exploration bids for a proposed uranium exploration program on the mining lease in Township 2 South, Range 71 West, 6th P.M., Jefferson County, Colorado. This lease covering the old Mena Mine property is a new lease taken in the name of The Kemmerer Coal Company of Frontier, Wyoming.

Previous work at the Mena mine has proven the existence of commercial uranium ore. The property, however, needs additional exploration work. The enclosed report details the proposed program.

I am acting on behalf of The Kemmerer Coal Company of Frontier, Wyoming. The Kemmerer Coal Company estimates the cost of the exploration program needed to prove this property will be a total of $307,563.00. It is planned to proceed in three phases--Phase No. 1 - $76,169; Phase No. 2 - $171,794, and Phase No. 3 - $59,600.

The Kemmerer Coal Company will use the mining lease they now own on the property and any other lease they might acquire on the prospect as collateral for the loan.

I would appreciate your review and consideration of this loan. If I can be of any assistance in reviewing the report etc. please let me know.

Very truly yours,

John J. Wanner

JJW/mr

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RECORDED IN BOOK 1534 PAGE 327
JAMES P. McNALLY
COUNTY CLERK & RECORDER

STATE OF COLORADO
FILED IN MY OFFICE ON
JUL 1 3 45 AM '66

OFFICIAL COPY
O. M. E.
RECEIVED
APR 24 1968
INITIALS | CODE

AGREEMENT

Agreement, made and entered into this 26th day of July, 1966, by and between OSCAR DAHLBERG of Golden, Colorado, hereinafter called "Lessor," and MADALENE W. WALSH of Denver, Colorado, hereinafter called "Lessee".

WHEREAS, the Lessor is the owner of all mines and minerals in and under the hereinafter described lands; and

WHEREAS, said Oscar Dahlberg is the owner of the surface rights in said land; and

WHEREAS, the Lessee desires to prospect for mineral deposits in said lands, to open and operate mines thereon, and to have the right to purchase all mineral rights in said land including oil, gas and kindred substances subject to reservation of a perpetual royalty to the Lessor, his heirs and assigns; now this agreement.

WITNESSETH, That:

The Lessor, for and in consideration of Ten Dollars ($10.00), each in hand paid, receipt whereof is hereby acknowledged, and of the rents, covenants and agreements hereinafter expressed to be paid, kept and performed by the Lessee, does lease, let and demise, and by these presents does lease, let and demise unto the Lessee all mineral rights including oil, gas and kindred substances, in the following described premises, situate in Jefferson County, Colorado;

> Northwest Quarter (NW¼); North Half of Northeast Quarter (N½NE¼); Southwest Quarter of Northeast Quarter (SW¼NE¼); Northwest Quarter of Southeast Quarter (NW¼SE¼); Section Twenty-six (26), Township Two (2) South, Range Seventy-one (71) West.

and the said Oscar Dahlberg does hereby waive all claims which he may or might hereafter have for damage to the surface of said land by reason of prospecting, development, drilling, or mining operations conducted under this agreement, or subsequent to conveyance of title to said mineral rights as hereinafter provided.

(CERTIFIED COPY)

STATE OF COLORADO, } ss.
COUNTY OF JEFFERSON }

I, James P. McNally County Clerk and Recorder in and for said County and State, do hereby certify that the attached is a full, true and correct copy of Agreement

No. [illegible] as it appears [illegible] on file or record in my office in Book [illegible] at page [illegible]

Witness my hand and official seal at Golden, Colo., this 12 day of [illegible] 19[illegible]

Issued to [illegible]

No. 15792 Fee [illegible] By [illegible] Deputy

County Clerk and Recorder, Jefferson County, Colorado

TO HAVE AND TO HOLD said premises for the purpose of mining or producing minerals including oil, gas and kindred substances until July 26, 1976; or until the Lessor shall have been paid the full consideration for the conveyance of said mineral rights as hereinafter provided, whichever occurs first in time.

The parties covenant, contract and agree as follows:

1. Rights of Lessee.

Lessee shall have the right to work and operate on any and all of the demised property, to mine, extract, take and market ores and minerals therefrom, sell or otherwise dispose of the same; to treat said ores and minerals in a mill or plant on said property, and to ship or take same to any other plant for treatment, reduction or sale; to erect and operate on said property a plant or plants and other facilities for mining, treating, or processing of ores and minerals from said property, and for processing of the content thereof into any obtainable products; to construct and maintain power lines, power stations, plants and structures thereon to produce, save and take care of said products; and generally, to do any and all things which Lessee may deem desirable in connection with the operation of the property.

2. Method of Working.

Prospecting and development work and mining shall be done by such methods, at such places, and to such extent as Lessee deems advisable; and Lessee shall have the right to abandon any workings whenever in his opinion ore is exhausted or further mining would be unprofitable.

3. Information.

The Lessee shall at all times have sufficient surveys and maps made and kept to disclose the location of test holes and the nature and location of underground workings. All information obtained by drilling shall be the exclusive property of the Lessee, but the same and a copy of the aforesaid maps shall be furnished to the Lessor upon the happening of any of the following:

(a) Upon termination of this agreement by surrender or cancellation.

(b) If minimum royalty be not paid in full at the time herein specified for such payment.

(c) By agreement of the parties.

4. Royalty.

The Lessee shall instruct each mill, sampler, reduction works, or other ore purchaser to deduct royalty upon settlement for each lot of ore or minerals sold, and to pay said royalty directly to the Lessor, as follows:

5% of the value of the products mined and sold.

By "value of the products" is meant:

(A) As to uranium and other fissionable ores, the gross sales price plus all bonuses and allowances except transportation allowances.

(B) As to ores other than uranium and the fissionable ores, the gross value of metals and minerals paid for by the ore purchaser, less charges for transportation and smelting only, and smelting charges shall include incidental charges, such as but not limited to, charges for frozen ore, sacked ore, ore watchers and railroad switching.

The aforesaid royalty shall be applied by the Lessor as follows:

(a) One-half shall be retained by the Lessor free of any claims by the Lessee.

(b) One-half shall be applied to the purchase price under the option to purchase hereinafter set forth.

5. Option to Purchase.

Lessee is granted the exclusive right to purchase the mineral interest in the above land, subject to a reserved royalty of 2½%, for $35,000.00, to be paid by application of one-half of the royalty.

1894 329

Upon payment of the full purchase price the Lessor shall convey the mineral interest including oil, gas and kindred substances to the Lessee, or her nominee, by warranty deed, free and clear, which deed shall contain the following reservation:

"Reserving and excepting to the grantor, his heirs and assigns, the metals and minerals and ores mined and sold from said premises at the rate of 2½% of the value of the products mined therefrom and sold. By "value of the products mined and sold" is meant:

(a) As to uranium and other fissionable ores, the gross sales price plus all bonuses and allowances except transportation allowances.

(b) As to ores other than uranium and fissionable material, the gross value of metals and minerals paid for by the ore purchaser, less charges for transportation and smelting only, and smelting charges shall include incidental charges, such as but not limited to, charges for frozen ore, sacked ore, umpires, ore-watchers and railroad switching.

The said reserved royalty shall be deemed and treated as rents reserved from the mineral estate in said premises; the same shall be paid promptly upon receipt of the proceeds of each sale of ore; and the grantor, his heirs and assigns shall have a lien on the interest hereby conveyed to secure the payment of said royalty. The said lien shall not be considered an entirety; and nothing herein contained shall prevent the division, separation and alienation of the premises by separate parcels, subject to said reserved royalty. In case of division into separate parcels, the extinguishment or conveyance of said royalty as to one parcel shall not affect the reserved royalty as to any other or different parcel."

6. Examination of Records.

Lessee agrees to make a full disclosure of all ores shipped and monies received for ores, and for such purpose permission is hereby given to Lessor to examine the books and records of the Lessee as to ore produced and sold and Lessor is also given the right and permission to call upon any or all mills or purchasers of ores to disclose payments by the said mill or purchasers to Lessee, and the Lessee hereby consents to the disclosure by such mills or purchasers of said information to the Lessor or his agents and releases the said mills and purchasers from liability for such disclosure.

7. Taxes.

So long as the property is assessed for real estate taxes on the basis of acreage or as a non-producing mine, the Lessor shall pay such taxes. If the lands, or any portion thereof, shall be assessed as a producing mine, the Lessor and the Lessee shall pay such taxes in the proportion of their ownership of proceeds of ores, metals and minerals sold.

The Lessee shall pay all taxes upon his own personal property and on any plant or plants erected on the demised premises by him.

8. Liens.

Lessee shall keep the demised premises free and clear of labor and material liens and encumbrances, and shall keep posted in a conspicuous place at the main entrance to said premises, and elsewhere at places where the Lessee is conducting work, a written or printed notice that the premises are leased to and operated by Lessee, and that the interest of Lessor shall not be subject to liens by reason of Lessee's operations. The provisions of this paragraph relate only to real estate and not to movable machinery or equipment used on the property.

9. Insurance.

Before commencing work on the demised premises, the Lessee shall obtain and pay the premiums for and on insurance policies sufficient to save and protect harmless the Lessor and said Lessee for and on account of the death of, disability of, or injuries to, the Lessee or any of his employees, contractors, and subcontractors. Lessee agrees to furnish to Lessor, before commencing work and thereafter from time to time, satisfactory evidence that such insurance is in full force and effect. Such policies shall provide coverage to fully protect the Lessor from liability under the Colorado Workmen's Compensation Act and the Colorado Occupational Disease Disability Act.

10. Accidents.

Lessee assumes all responsibility for and agrees to save the Lessor harmless from any and all accidents to the Lessee, and to any of his employees, sublessees, licensees, agents associates, or visitors upon the property of the Lessor, or in being conveyed to or from the demised premises.

11. Forfeiture by Lessors.

Failure to maintain insurance policies in force as required by paragraph 9 shall terminate this agreement without notice to the Lessee.

Failure of the Lessee to keep or perform any other agreement or condition on his part to be kept or performed according to the terms and provisions of this lease shall, at the election of the Lessor, upon giving notice thereof to the Lessee, constitute a forfeiture of this lease and the option herein when declared; provided, however, that in the event of a default on the part of the Lessee and the election of the Lessor to terminate this Agreement on account thereof, the Lessor shall give to the Lessee a written notice of his intention to declare a forfeiture of this lease and to terminate the same on account thereof, specifying the particular default or defaults relied upon by the Lessor. Lessee shall have 30 days after the receipt of such notice in which to cure such de-

fault or defaults, and if such default or defaults [illegible] cured within said period, there will be no forfeiture of this lease with respect to such default or defaults. No waiver of a default and no failure or neglect on the part of the Lessor to give notice of a default or defaults nor other failure to act shall affect any subsequent default or impair the Lessor's rights resulting therefrom.

11. Termination by the Lessee.

Lessee shall have the right to terminate this agreement and be relieved from further obligation hereunder by surrendering possession to the Lessor and delivering to the Lessor a quit-claim deed to said premises, and paying all sums, including taxes apportioned to the date of surrender, and furnishing to the Lessor satisfactory evidence that all debts, claims and other obligations incurred by the Lessee in the operation, working and development of said premises have been paid.

12. Removal of Equipment.

Upon surrender, or upon forfeiture as herein provided, Lessee may within 30 days from the date of termination or surrender, remove all machinery, tools and equipment placed in or upon the demised property by Lessee. All buildings, structures, and installed mine track, and installed air and water lines shall become the property of Lessor.

13. The Lessor agrees that if during the life of this Agreement the Lessee, or anyone claiming by, through or under him, shall make application or applications to any federal or governmental agency for assistance in prospecting, development or mining operations on the leased premises, or some part thereof, then in such case Lessor will, promptly upon request, by written instrument subordinate his interest in the property covered by said application or applications to such extent as the federal government or agency shall require, shall consent that the federal government or agency shall have a first lien upon ores produced from the property affected by the contract or contracts resulting from such application or applications; and further that he will,

promptly upon request, execute and deliver to Lessee and the federal or governmental agency their agreement in writing that this agreement shall remain in full force and effect as to premises affected by any such contract, anything in this agreement notwithstanding, so long as may be required for sufficient performance of any contract made by the Lessee, or by any person claiming by, through or under him with or through said federal or governmental agency.

14. Lawful Operation.

All operations of the Lessee shall be so conducted as to comply with the federal and state laws applicable thereto.

15. Assignment.

The rights of the Lessor and Lessee hereunder may be assigned in whole or in part at any time without the consent of the respective parties. If all or any part of this lease is assigned, no leasehold owner shall be liable for any act or omission of any other leasehold owner, and failure by one shall not affect the rights of others.

16. Time is of the Essence.

Time is of the essence of this Agreement.

17. Successors.

The terms of this Agreement shall be binding upon and enforceable by the respective heirs, executors, administrators and assigns of the respective parties.

IN WITNESS WHEREOF, the parties have subscribed their names the day and year first above written.

Oscar Dahlberg
Lessor

Lessee

STATE OF COLORADO)
CITY AND) ss.
COUNTY OF DENVER)

The foregoing instrument was acknowledged before me this 26th day of July, 1966, by Radiette W. Walsh, and Oscar Dahlberg.

My Commission expires: My Commission expires March 26, 1968

Witness my hand and official seal.

Notary Public

OFFICIAL COPY
O. M. E.
RECEIVED
APR 24 1968
INITIALS CODE

AGREEMENT

THIS AGREEMENT, Made and entered into this 13th day of March, 1968, between MADALENE W. WALSH, hereinafter referred to as "Sublessor", and THE KEMMERER COAL COMPANY, a Wyoming corporation, hereinafter referred to as "Sublessee";

WHEREAS, the Sublessor has an agreement to lease, with option to purchase, certain mineral rights and land located in Jefferson County, State of Colorado, such agreement being dated the 26th day of July, 1966, between OSCAR DAHLBERG, the Lessor, and MADALENE W. WALSH, the Lessee, recorded in Book 1894 at pages 327 to 334, inclusive, of the records of the Clerk and Recorder, Jefferson County, State of Colorado, hereinafter referred to as "Lease and Option to Purchase"; and

WHEREAS, the Sublessee is desirous in subleasing only the mineral rights leased by the Sublessor;

WITNESSETH:

1. Description of Property, Grant of Sublease. The Sublessor, in consideration of the royalties herein reserved and the covenants to be performed by the Sublessee and the further consideration of TEN DOLLARS and other valuable consideration paid by Sublessee to Sublessor, receipt of which is hereby acknowledged, does hereby sublease, let and demise unto the Sublessee all mineral rights, including oil, gas and kindred substances in the following described premises situate in Jefferson County, State of Colorado:

The NW¼; N½ of NE¼; SW¼ of NE¼; NW¼ of SE¼;
Section 26, T2S, R71W.

2. Term of Sublease. The term of this sublease shall be from the date hereof to September 1, 1969, and thereafter as long as mining operations, as hereinafter defined, are conducted upon the premises, provided, however, that if the Sublessee has conducted drilling operations on the premises to the extent of 6,000 linear feet of drill holes or equivalent work thereto by September 1, 1969, this sublease shall be extended to September 1, 1970, or in the alternative if 3,000 linear feet of drill holes has been completed by September 1, 1969, the Sublessee shall have the right to drill another 3,000 linear feet of drill holes or equivalent work thereto which will carry this lease to September 1, 1970, and thereafter as long as mining operations are conducted upon the premises.

3. Possession and Control of Property. It is understood and agreed that the surface rights to the demised premises were reserved unto the Lessor in the Lease and Option to Purchase. However, the Lessor in that agreement waived all claim which he might or may have for damages to the surface of said land by reason of prospecting, development, drilling or mining operations conducted under that agreement and the Sublessee herein shall not be liable to the Sublessor or to the owner of the demised premises, his heirs and assigns, for any damage to the surface of said land by reason of prospecting, development, drilling or mining operations conducted under this agreement. The Sublessee shall have and is hereby given and granted the right to enter into and take over immediately the sole and exclusive possession of the premises demised and the control of said property in the whole and every part thereof and during the term

of this agreement to remain in the sole and exclusive possession and control thereof and to investigate, measure, sample, examine, test, develop, work, mine, operate, use, manage and control the same and the water and water rights appurtenant thereto and to mine, extract and remove from said property the ores and minerals therein and appurtenant and belonging thereto and to treat, mill, ship, sell or otherwise dispose of the same and receive the full proceeds therefrom and to erect, construct, maintain, use and operate thereon and therein buildings, structures, machinery and equipment.

4. Manner of Work. The Sublessee agrees to cause all work, development and mining to be done in a careful and minerlike manner and to conform in all respects with the mining laws and regulations of the State of Colorado. Wherever herein the term "MINING OPERATIONS" is used it is understood and agreed that mining operations shall mean that the Sublessee shall perform a minimum of 200 man hours per month in operation, development or exploration on the demised premises.

5. Royalties. The Sublessee shall pay to the Sublessor on all ores extracted and sold from the demised premises the following royalties:

12½% of the value of the products mined and sold. By value of products it is meant:

(a) As to uranium and other fissionable ores the gross sale price plus all bonuses and allowances except transportation allowances less transportation costs from the mine to the mill or the point of sale or delivery of the ore extracted.

(b) As to ores other than uranium and fissionable ores, the gross value of metals and minerals paid for by the ore purchaser less charges for transportation, milling and smelting only and smelting charges shall include incidental charges such as but not limited to charges for frozen ore, sacked ore, ore watchers and railroad switching.

(c) All ore shall be sold in the name of the Sublessee with duplicate settlement sheets furnished to Sublessor and royalty settlements shall be made by the Sublessee on or before the 10th day of each and every calendar month during the term of this lease for all ores milled by the Sublessee and for all mill and smelting returns received during the preceding calendar month. Each settlement shall be accompanied by a duplicate liquidating or settlement sheet for each lot of ore milled and by duplicates of the smelter returns for each lot of ore sold to a smelter or ore processing depot. The above royalties shall be the total consideration to be paid by the Sublessee to the Sublessor. The Sublessor shall be fully responsible for the payment of any and all royalties or payments under the Lease and Option to Purchase, and the Sublessor does hereby warrant that the Sublessor shall make all such payments promptly and hold the Sublessee harmless from any default that may be incurred by

failure of the Sublessor to make the proper payments under the terms of his lease with the owner of the demised premises.

6. Records and Inspection by Sublessor. Sublessee's maps and records of all mining operations on the demised premises pertinent to the computation of royalties shall be available for Sublessor's inspection upon request but not more often than once each month and the Sublessor may enter said property at all reasonable times for the purpose of inspecting same and Sublessee shall facilitate such inspection in every reasonable way but Sublessor shall enter upon said demised property at Sublessor's own risk and so not to hinder unreasonably the operations of Sublessee. The Sublessor shall indemnify and hold harmless the Sublessee from any damage, claim or demand by reason of injury to or the presence of the Sublessor or the Sublessor's agents, representatives or guests, or any of them, on the demised premises or the approaches thereto.

7. Taxes. As long as the demised premises are assessed for real estate taxes on the basis of acreage or as a non-producing mine, the Sublessor or the owner of the premises shall pay such taxes. If the lands or any portion thereof shall be assessed as a producing mine the Sublessor and Sublessee shall pay such taxes in proportion to their ownership of proceeds of ores, metals and minerals sold.

The Sublessee shall pay taxes on his own personal property on any plant or plants erected on the demised premises by it.

8. State and Federal Laws. Sublessee shall comply with the Workman's Compensation Laws of the State of Colorado and the Occupation, Disability, Disease Laws of the State of Colorado and with Social Security, Unemployment Insurance and all other state and federal laws relating to Sublessee's operation and shall save Sublessor harmless from any claim for damages or liability by reason thereof.

9. Protection from Liens and Damages. Sublessee shall keep the demised premises and the whole and every part thereof free and clear of liens for labor done or work performed upon the demised premises or materials furnished to it for the development or operation thereof under this agreement and while the same is in force and effect, and will save and keep harmless the Sublessor from all costs, loss or damage which may arise by reason of injury to any persons employed by the Sublessee in or upon the demised premises or any part thereof, or, except as provided in paragraph 6 hereof, which may arise by reason of injury to any person or damage to any property as the result of any work or operations of the Sublessee or of its possession and occupancy of the demised premises.

10. Forfeiture Clause. The failure of the Sublessee to make or cause to be made any of the payments herein provided for or to keep or perform any agreement on its part to be kept or performed according to the terms and provisions of this agreement, shall, at the election of the Sublessor, work a forfeiture hereof; provided, however, that in the event of a default on the part of the Sublessee, and the election of the Sublessor to terminate this agreement on

account thereof, the Sublessor shall give to the Sublessee a written notice of his intention to declare a forfeiture of this agreement and to terminate the same on account thereof, specifying the particular default or defaults relied upon by him, and the Sublessee shall have 60 days after the receipt of such notice in which to make good such default or defaults, in which event, there shall be no forfeiture therefor. Waiver or failure to give notice of a particular default or defaults shall not be construed as condoning any subsequent default.

11. Cancellation. Notwithstanding any provisions herein to the contrary, the Sublessee may at any time upon 30 days written notice to the Sublessor, cancel and terminate this agreement. Upon such cancellation and termination of this agreement the Sublessee shall be under no further obligation of whatsoever kind or nature to the Sublessor, except for the making of payments which have already accrued at the date of such cancellation and termination.

12. Surrender of Property. In the event of a valid forfeiture, cancellation or other termination of this agreement, the Sublessee will surrender to the Sublessor peaceable possession of the demised premises. The Sublessee shall have and is hereby granted and given 90 days after a valid forfeiture, cancellation or other termination of this agreement, to remove from said property any and all property and fixtures owned and brought onto the premises by the Sublessee; provided that such right of removal shall not extend to foundations and mine timbers in place.

13. Use of Property on Premises. The Sublessee shall have and is hereby given and granted the right to use any and all personalty located upon the demised premises, to include but not limited to steel, mine cars, timber, air compressors, hoist, hoist motor, air lines, water lines, trackage, timber and any and all other personalty located on the demised premises. The Sublessee shall maintain all of the equipment belonging to Sublessor at Sublessee's own expense, and repair or replace any and all of said equipment that is damaged due to the negligence of the Sublessee or his agents. This equipment and all personalty located on the demised premises may be used by Sublessee for the purposes of carrying out this agreement but for no other purposes.

14. Title. Sublessor covenants that the Sublessor now holds title and possession of the demised premises pursuant to the Lease and Option to Purchase and the Sublessor further covenants that the demised premises are free and clear from all other grants, sales, liens or encumbrances of any kind and that there are no delinquent taxes and agrees to furnish Sublessee with such abstracts, deeds or other evidence of title as may be in the Sublessor's or OSCAR DAHLBERG's possession and control and to allow and cooperate with the Sublessee, at Sublessee's option and initial expense, to have abstracts brought up to date and to take such steps and proceedings to perfect title as Sublessee shall deem advisable. All reasonable expenses thus incurred by Sublessee shall apply as a credit against royalties, except the initial cost of bringing the abstract up to date shall be at the expense of the Sublessee. The Sublessor further agrees to WARRANT and FOREVER DEFEND the Sublessee against all and every person or persons lawfully claiming or to claim the whole or any part thereof of the demised premises, by, through or under the Sublessor.

15. Notices. Any notices required or permitted to be given hereunder shall be considered as delivered after the same shall have been deposited in the United States mail, duly registered, with postage thereon prepaid, addressed to the respective addresses given below:

Madalene W. Walsh
4925 Montview Boulevard
Denver, Colorado 80207

The Kemmerer Coal Company
c/o John J. Wanner
410 Boston Building
828 17th Street
Denver, Colorado 80202

16. Consent to Sublease. It is understood and agreed that this agreement is contingent upon the consent thereto by the owner of the demised premises, OSCAR DAHLBERG, and it is further agreed between the Sublessor herein, OSCAR DAHLBERG, and the Sublessee that in the event the Sublessor is in default in the Lease and Option to Purchase with OSCAR DAHLBERG that OSCAR DAHLBERG shall give notice to the Sublessee herein of such default and the Sublessee herein shall have 90 days from the date of such notice in which to correct such default and put the Lease and Option to Purchase in full force and effect and in the event of any such default and the election by the Sublessee to reinstate said agreement, the cost of such shall be credited against any and all future royalties due the Sublessor herein.

17. Option to Purchase. It is understood and agreed that the Sublessor herein has an option to purchase the demised premises under the terms of the Lease and Option to Purchase. HOWEVER, the Sublessor does not, nor does the Sublessee desire that such option

to purchase be assigned to Sublessee, this agreement being only a sublease of the demised premises until the Sublessor should purchase the premises at which time this agreement would then be a lease from the Sublessor of the demised premises under the terms and conditions herein contained.

18. Inurement. These presents shall inure to the benefit and be binding upon the respective heirs, successors and assigns of the parties hereto, it being expressly understood and agreed that this agreement may be assigned by the Sublessee to parties of the Sublessee's choosing. In the event sublessee assigns all or part of this agreement, Sublessee will advise Sublessor in writing within 30 days after the dates of assignment.

IN WITNESS WHEREOF, this agreement was executed as of the day and year first above written.

SUBLESSOR:

MADALENE W. WALSH

SUBLESSEE:

THE KEMMERER COAL COMPANY

By D. E. Dressen

ATTEST:

Secretary

CONSENT OF OSCAR DAHLBERG

I, OSCAR DAHLBERG, Lessor of the above stated premises, held by MADALENE W. WALSH under that certain Agreement dated the 26th day of July, 1966, do hereby consent to the above sublease of the above stated portion of the said premises for the purposes herein designated.

IN WITNESS WHEREOF, I set my hand and seal this 15 day of March, 1968.

OSCAR DAHLBERG

STATE OF COLORADO)
) ss.
COUNTY OF Jefferson)

The foregoing instrument was acknowledged before me this 15 day of March, 1968, by OSCAR DAHLBERG.

WITNESS my official hand and seal.

My commission expires: My Commission expires May 8, 1971

Notary Public

STATE OF COLORADO)
) ss.
CITY AND COUNTY OF DENVER)

The foregoing instrument was acknowledged before me this 15th day of March, 1968, by MADALENE W. WALSH.

WITNESS my official hand and seal.

My commission expires: March 28, 1970

Notary Public

STATE OF WYOMING)
) ss.
COUNTY OF LINCOLN)

The foregoing instrument was acknowledged before me this 13th day of March, 1968, by G. E. Sorensen as President of THE KEMMERER COAL COMPANY.

WITNESS my official hand and seal.

My commission expires: February 14, 1972.

Notary Public

DIAMOND CORE DRILLING
DIAMOND DRILLING EQUIPMENT
GROUTING
FOUNDATION TESTING
MINING
QUARRYING
SHAFT SINKING
TUNNEL DRIVING
MINE PLANT DESIGN
AND FABRICATION

Boyles Bros. DRILLING COMPANY
CONTRACTORS-ENGINEERS-GEOLOGISTS
15865 West 5th Avenue
GOLDEN, COLORADO 80401
Phone (303) 279-7913

General Offices and Plant
1624 Pioneer Road P. O. Box 58
SALT LAKE CITY, UTAH 84110
Phone 487-7595

BRANCH OFFICES
ARIZONA (PHOENIX)
CALIFORNIA (AUBURN)
COLORADO (GOLDEN)
NEVADA (SPARKS)
WASHINGTON (SPOKANE)
CHILE (SANTIAGO)
CABLE: BOYLESBROS
MEXICO, D.F.
PERU (LIMA)
CABLE: BOYLESCOP

January 29, 1968

Mr. Ken Nickerson
12431 West Alameda Drive
Denver, Colorado 80228

Dear Sir:

We submit the following schedule of charges, to apply to your proposed drilling program near Golden, Colorado.

1. Overburden, per linear foot. $ 8.50

	NX	BX	AX
2. Bedrock to 250 feet, per foot.	$7.10	$ 6.85	$ 6.40
250 to 500 feet, per foot.	7.90	7.50	6.85
500 to 750 feet, per foot.	8.60	8.10	7.70
750 to 1000 feet, per foot.		9.00	8.70
1000 to 1250 feet, per foot.		9.95	9.50
1250 to 1500 feet, per foot.		10.50	10.00
1500 to 1750 feet, per foot.		11.10	10.50
1750 to 2000 feet, per foot.		12.60	12.10
2000 to 2250 feet, per foot.		13.50	13.00
2250 to 2500 feet, per foot.		14.50	
2500 to 2750 feet, per foot.		15.70	
2750 to 3000 feet, per foot.		17.10	

3. Reaming, if required.

0 to 500 feet, per foot.	$ 3.95
500 to 1000 feet, per foot.	4.95
1000 to 1500 feet, per foot.	5.95

4. Cementing, plus cost of cement or drill mud and additives, per hour. $14.50

5. Stand-by time, as requested, per hour. $12.65

DIAMOND CORE DRILLING
DIAMOND DRILLING EQUIPMENT
GROUTING
FOUNDATION TESTING
MINING
QUARRYING
SHAFT SINKING
TUNNEL DRIVING
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CHILE (SANTIAGO)
CABLE: BOYLESBROS
MEXICO, D.F.
PERU (LIMA)
CABLE: BOYLESCOP

6. Lost casing. Cost at job site.

7. Drill sites and roads to be prepared and maintained at no cost to Boyles Bros.

8. Water haul, if required, would be charged at our cost of truck rental of $220.00 per month and 12¢ per mile, plus driver's wages and payroll taxes, if driver is required.

9. Cardboard core boxes, to hold 10 foot, each. $ 1.00

Thank you for your consideration. Should you have any questions, feel free to call us.

Very truly yours,

BOYLES BROS. DRILLING COMPANY

George E. Lensch

George E. Lensch, District Manager

(219) 872-7221

JOY MANUFACTURING COMPANY
900 WOODLAND AVENUE • MICHIGAN CITY, INDIANA 46360

February 16, 1968

Mr. Ken Nickerson
416 C. A. Johnson Building
Denver, Colorado 80202

Dear Mr. Nickerson:

Thank you for asking us to bid on your proposed drilling near Golden, Colorado. We have based our prices on a minimum of 5,000 feet of drilling.

We submit the following prices:

	NX Wire Line	BX Wire Line
0. to 500. feet	$6.60/ft.	$6.30/ft.
500. to 1000. feet	$7.10/ft.	$6.80/ft.
1000. to 1500. feet	$7.60/ft.	$7.30/ft.
1500. to 2000. feet	$8.30/ft.	$8.00/ft.
2000. to 2250. feet	$9.00/ft.	$8.75/ft.
2250. to 2500. feet	$9.75/ft.	$9.50/ft.
2500. to 2750. feet	$10.50/ft.	$10.25/ft.
2750. to 3000. feet	$11.25/ft.	$11.00/ft.

For angle hole drilling add 70¢ per foot to the above prices.

Mobilization - Lump Sum	$800.00.
Water Haul - Truck Rental	$300.00/mo. plus 15¢/mi.
Cementing, if necessary	$15.00 per hour.
Reaming, if necessary	$ 5.00 per foot.
Drilling Mud used	$1.80 per 50-lb. bag.
Drilling Mud Additives used	At job site cost.

Casing lost or ordered left in place	NX	$3.00 per foot.
	BX	$2.00 per foot.
Delays for your convenience		$12.00 per hour.

The above prices are estimated prices, based on our experience in the general area. We would like to have the opportunity to look over the specific area where the drilling will be performed before submitting firm prices.

Yours truly,

JOY MANUFACTURING COMPANY

J. M. Murray, Manager
Contract Drill Division

JMM:rh

John Murray
Joy will use automatic water cut off so we don't grind core.

KENNETH R. FENWICK . . . REGISTERED ENGINEER AND LAND SURVEYOR

CIVIL
STRUCTURAL
LAND PLANNING
MINING

17000 SOUTH GOLDEN ROAD -:- 279-7522 -:- GOLDEN, COLORADO 80401
13470 BRAUN ROAD -:- 279-4479 -:- GOLDEN, COLORADO 80401

March 28, 1968

Mr. Ken Nickerson
416 C.A. Johnson Building
Denver, Colorado 80202

Dear Mr. Nickerson

In answer to your request, I submit my quotation for Engineering services as follows:

1. For field work using a three man crewy including materials and transportation:

$100.00 per day

2. For necessary office work

$ 5.00 per hour

respectfully submitted,
Kenneth R. Fenwick
Kenneth R. Fenwick

Phone 266-2488

Robinson Surveying and Engineering Company

Registered Engineers & Surveyors

CONSTRUCTION, LOT & IMPROVEMENT SURVEYS; SUBDIVISION, SEWER AND WATER DESIGN

Suite 116 — 70 West 6th Avenue
Denver, Colorado 80204

~~Miracle Fifer~~
~~416 C.A. Johnson Bldg.~~
~~Denver, Colorado 80202~~

March 20, 1968

ATT: Mr. Ken Nickerson

Dear Sir:

In accordance with our telephone conversation of March 20, 1968, I would like to submit our prices for engineering work as follows:

1.	Three man surveying crew	$16.50 per hour
2.	Two man surveying crew	12.50 per hour
3.	Office Engineer	8.00 per hour
4.	Mileage at the rate of	0.08 per mile

It is understood that the project is located approximately 20 miles from Denver and therefore travel time would be charged.

Sincerely Yours,

Ardys G. Entsminger

Ardys G. Entsminger

AGE:jh

C. S. Meurer
E. M. Serafini
M. R. Meurer

MEURER, SERAFINI AND MEURER, INC.
— Consulting Engineers —
2901 West 19th Avenue
Denver, Colorado 80204
Phone: 433-7321

Civil Engineers
Structural Engineers
Land Surveyors

March 20, 1968

Mr. Ken Nickerson
416 C. A. Johnson Building
Denver, Colorado 80202

Subject: Charges for Surveying and Engineering Services

Dear Mr. Nickerson:

In response to your recent telephone request, we would like to submit the following hourly rates, which represent our charges for various types of surveying and engineering services. Some of the following categories may not be of use to you; however, we have attempted to list all those rates which might in any way affect work that you may have done.

Surveying Services

1.	2-man survey party	$15.00 per hour
2.	3-man survey party	21.00 per hour
3.	4-man survey party	25.00 per hour

The above hourly rates include a vehicle and all survey equipment necessary for normal survey operations. Electronic measuring equipment (Geodimeter) is to be charged above the foregoing rates as follows:

per hour	$ 5.00
per day	20.00
per week	75.00
per month	275.00

Engineering Services and Design Services

1.	Engineer (Design)	$12.00 per hour
2.	Draftsman	8.00 per hour
3.	Electronic Digital Computer (not including operator)	20.00 per hour

The last three items listed are listed in case it becomes necessary to provide any office drawings or computations on the subject work.

If you have any questions regarding the foregoing or need additional information, please do not hesitate to call at your convenience.

Sincerely,

MEURER, SERAFINI AND MEURER, INC.

E. Max Serafini

E. Max Serafini

EMS:hat

EXCAVATING • TRUCKING • GRAVEL • TOP SOIL • ROAD BUILDING

RENAUD, inc.

6598 MORRISON ROAD PHONE: 922-1171
DENVER, COLORADO 80226

March 19, 1968

Ken Nickerson
416 C. A. Johnson Building
Denver, Colorado 80202

Dear Sir:

We submit the following quotation for hourly rate of our equipment for mountain work.

TD20 Dozer w/ Ripper	$ 25.00
TD15 Dozer w/ Ripper	$ 18.50
Ford Backhoe (Rubber Tired) small	$ 13.00
Hopto-Backhoe (Track) Large	$ 18.50

Hoping that we may be of service to you.

Very truly yours,
RENAUD, INCORPORATED

George S. Renaud
rh

George S. Renaud
Vice President

GSR:rh

WINSLOW CONSTRUCTION COMPANY

EXCAVATING AND HAULING CONTRACTORS

781-5535 3002 South Huron Street

ENGLEWOOD, COLORADO 80110

April 1, 1968

Mr. Kenneth Nickerson
416 C.A. Johnson Building
Denver, Colorado 80202

Dear Sir:

We are pleased to quote the following hourly rental rates for the equipment shown below for your mountain work:

Hydralic D-6 Dozer	15.00 per hour
Cable D-8 Dozer	18.00 per hour
Hydralic TD-25 Dozer with hydralic rippers	27.50 per hour

When hydralic rippers are needed, you are to furnish teeth for the ripper shanks.

Moves for the above equipment will be charged for at the rate of 17.50 per hour for our truck. Time starts at the time the truck leaves our yard and continues until it returns to our yard.

Very truly yours,

WINSLOW CONSTRUCTION COMPANY

Thomas J. Elsam

Thomas J. Elsam

TJE/cw

Box 621
Georgetown, Colo. 80444
March 30,1968

Mr. Kenneth H. Nickerson
12431 W. Alameda Drive
Denver, Colorado 80228

Dear Mr. Nickerson,

In response to your request for a bid, for the underground work at the Mena Mine.

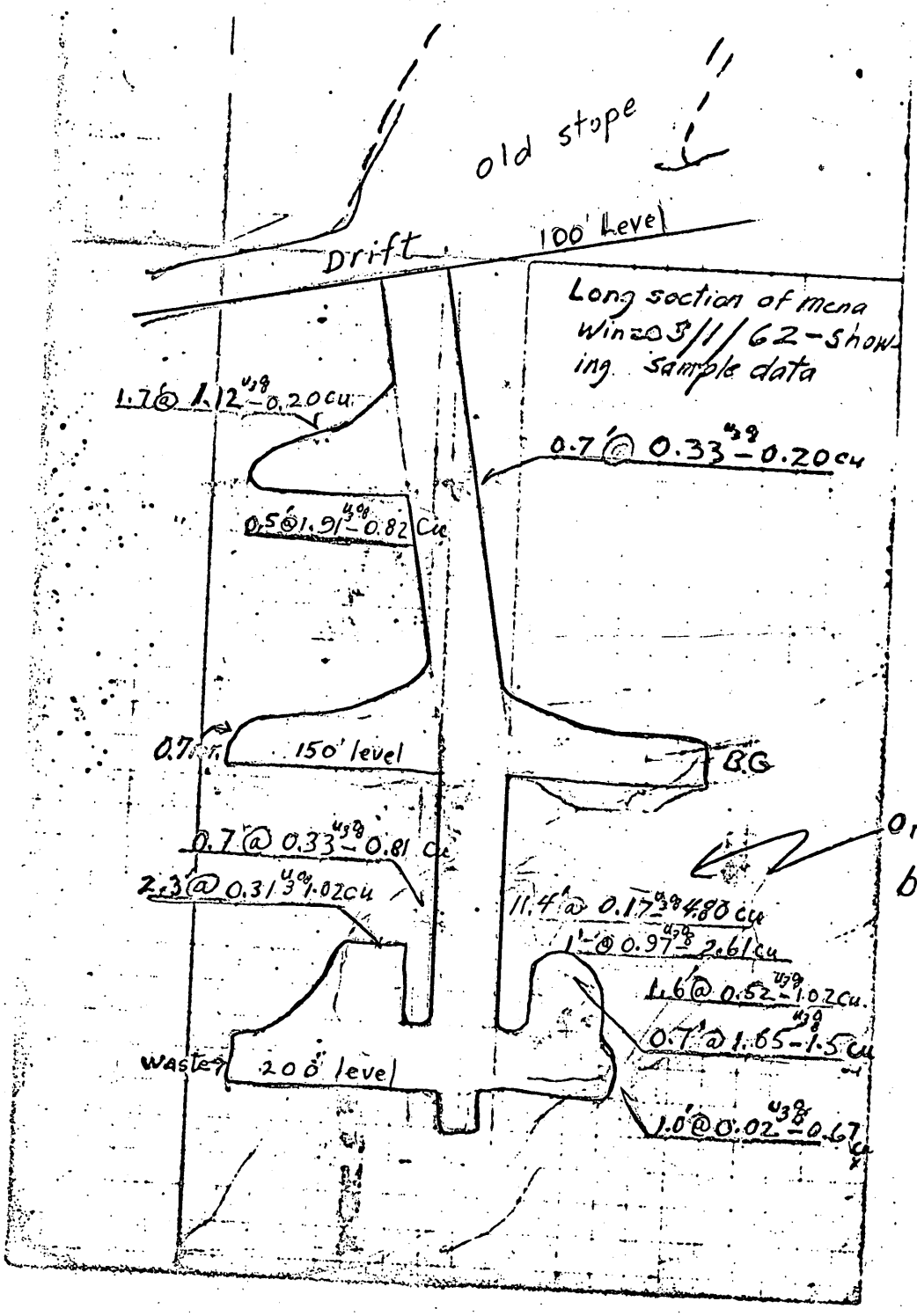
I will contract the job to pump out the mine and dig a 75 foot 5 X 7 crosscut, and supply all labor and equipment, except for electrical power, for the price of $9500.00

Very truly yours

Walt Enyeart

Walt Enyeart

Ross Nicholson



Mena Mine

Mr. Kenneth Nickerson
12431 W. Alameda Dr.
Denver, Colo. 80 228

Dear Mr. Nickerson

I am submitting a bid of $9750.00 for dewatering the shaft at the Mena Mine, and to drive 75 foot 5X7 prospect drift.

I further agree to furnish all equipment, material, and labor. with the exception of the electrical power.

Alvin C. Maf

DENVER

May 2[illegible]

Mary Oil & Uranium Co.
822 First National Bank Bldg.
Denver, Colo.

All Samples Taken from Nigger Shaft

		Uranium Oxide U_3O_8 %	Silver oz.
20" below Collar - Floor 2' Wide	Blast - - - - - - - - - - -	2.01	3.6
Grab Sample - 15" Below Collar - 21" wide	Dump - - - - - - - - - - -	.202	.8
29' below Collar - Floor 29" Wide	East Wall - - - - - - - - -	.101	1.7

H. W. Walsh

ROOT & SIMPSON, Inc.

TEL. CHERRY 4-3223 METALLURGICAL CHEMISTS AND ASSAYERS P. O. BOX 2069
DENVER 1, COLORADO

SPECIMEN ASSAY

ASSAYED FOR: J. W. Walsh

MARKS: 14' Below track level. L5 So. Drift - Winze. Vein 16" wide. Channel Sample.

GOLD OZS. PER TON	SILVER OZS. PER TON	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	U_3O_8 PER CENT	V_2O_5 PER CENT	Bi PER CENT	PER CENT
	1.92		1.35		4.95		0.1	

DATE 10/10/56 CHARGES $ 12.50

Root & Simpson, Inc.

ROOT & SIMPSON, Inc.

TEL. CHERRY 4-3223 METALLURGICAL CHEMISTS AND ASSAYERS P. O. BOX 2069
DENVER 1, COLORADO

SPECIMEN ASSAY

ASSAYED FOR: J. W. Walsh

MARKS: 112-3 21" above track level No. Stope - No. Drift 14" Wide.

GOLD OZS. PER TON	SILVER OZS. PER TON	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	U_3O_8 PER CENT	V_2O_5 PER CENT	PER CENT	PER CENT
					0.263			

DATE 12/10/56 CHARGES $ 7.50
Paid

Root & Simpson, Inc.

P. O. Box 63

Idaho Springs, Colorado

To Bobcock & Walsh Date [illegible] 1957.

Address Mine

DESCRIPTION	GOLD Ozs. per ton	SILVER Ozs. per ton	LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	
#2	0.02	16.00	0.20			Sample taken about 46' from top of Incline on Raise in Vein, about 2' Channel Sample.

I hereby certify that the ore assayed as listed above gave results as shown per ton of 2,000 pounds.

Stanley Hill Assayer

CHARGES $3.50

Phone 495

Stanley Hill, Assayer

P. O. Box 636

Idaho Springs, Colorado

To Bobcock & Walsh Date Oct 11th 1957

Address Mena Mine Mine

DESCRIPTION	GOLD Ozs. per ton	SILVER Ozs. per ton	LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	
		97.20				Taken from Mena Vein. 36" below incline point of origin. Ore body 4 feet wide where sample taken. Only Silver assayed.
		$82.72	net Smelter			

I hereby certify that the ore assayed as listed above gave results as shown per ton of 2,000 pounds.

Stanley Hill Assayer

CHARGES $

ROOT & SIMPSON, Inc.

TEL. CHERRY 4-3223 METALLURGICAL CHEMISTS AND ASSAYERS P. O. BOX 2069

DENVER 1, COLORADO

SPECIMEN ASSAY

ASSAYED FOR: J. W. Walsh

MARKS: No. So. Raise 100' level 30' up Raise - North Side

GOLD OZS. PER TON	SILVER OZS. PER TON	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	U_3O_8 PER CENT	V_2O_5 PER CENT	PER CENT	PER CENT
None	2.2	Not over .05	2.9					

DATE 1/21/58 CHARGES $ 6.50

Root & Simpson, Inc.

Certificate of Assay

THE HENRY E. WOOD ASSAYING COMPANY

TELEPHONE KEYSTONE 4-4816 DENVER 4, COLORADO 733 W. COLFAX AVE.

Feb. 7, 1961

We hereby certify that the samples assayed for Joe Walsh 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
Mena Mine										
South Channel Dyke # 2	0.025	0.94		0.92						

Long-hole drill cuttings. Footwall of Mena Vein. 14' North of South end of No 1 Stope. (Not AVE) Estimate 17" wide. Hole collared 3' above drift level. Slightly "up" hole - 10°.

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

Charges
Sampling Chg 0.50
$ 4.50
$ 5.00

The Henry E. Wood Assaying Co.

By Howard H.

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.

Feb. 21, 1961

We hereby certify that the samples assayed for Mena Mines 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
# 300		4.26		5.13		16.30				

Channel Sample - 23" wide from point 60' below track level in south inclined shaft.

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

Charges
$ 5.50

The Henry E. Wood Assaying Co.

By Howard H.

TELEPHONE MAin 3-1852

CHARLES O. PARKER & CO.

CHEMISTS ○ ASSAYERS ○ ENGINEERS
DENVER 5, COLORADO

Folio 7222

Date Sept. 12, 1958.

J. W. Walsh,
4925 Mt. View Blvd.,
Denver, Colorado.

Channel Sample - No. 1 Stope
17' above track level.
Vein - 32" wide.

We hereby Certify, that the samples assayed for you gave the following results:

DESCRIPTION	GOLD OUNCES PER TON	SILVER OUNCES PER TON	COPPER PER CENT (WET)	LEAD PER CENT (WET)	ZINC PER CENT	IRON PER CENT	INSOLUBLE PER CENT	VALUE PER TON
Mena Mine Chalcocite:	0.26	22.64	19.65	No platinum.				

Gold at _____ per ounce Copper at _____ per unit

Silver at _____ per ounce Zinc at _____ per unit Charge $ ____ paid.

Lead at _____ per unit _____

CHARLES O. PARKER & CO.
CHEMISTS, ASSAYERS and ENGINEERS

ROOT & SIMPSON, Inc.

TEL. CHERRY 4-3223 METALLURGICAL CHEMISTS AND ASSAYERS P. O. BOX 2069
DENVER 1, COLORADO

SPECIMEN ASSAY

ASSAYED FOR: J. W. Walsh

MARKS: So. Winze Upper level 17' below track level. Channel Sample - 13" wide.

GOLD OZS. PER TON	SILVER OZS. PER TON	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	U_3O_8 PER CENT	V_2O_5 PER CENT	PER CENT	PER CENT
0.002	1.1		1.3					

DATE 10/9/58 CHARGES $ 4.50

Root & Simpson, Inc.

ROOT & SIMPSON, Inc.

TEL. CHERRY 4-3223 METALLURGICAL CHEMISTS AND ASSAYERS P. O. BOX 2069
DENVER 1, COLORADO

SPECIMEN ASSAY

ASSAYED FOR: Joseph W. Walsh

MARKS: Channel Sample - 18" - No. 2 Stope Mena No. Stope #4 at 100' level. 11' above track level. 17' from beginning of Stope (South)

GOLD OZS. PER TON	SILVER OZS. PER TON	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	U_3O_8 PER CENT	V_2O_5 PER CENT	PER CENT	PER CENT
			1.53		0.735			

DATE 1/19/59 CHARGES $ 7.00

Root & Simpson, Inc.

X RAY
SPEC TROGRAPHIC
Analytical Laboratory

Denver 3, Colorado
Phone Alpine 5-9396
Merlyn L. Salmon, Manager

~~QUALITATIVE~~
SEMI-QUANTITATIVE
QUANTITATIVE

NOTE: The values below are estimated percentages for the oxide equivalent of the indicated elements. No check was made for elements with atomic numbers less than 22 (below titanium).

ANALYTICAL REPORT

Job Number 2157
Page 1 of 1 Pages
Date ~~20 Mar 1959~~

TO: Joe Walsh

Surface
St. Patrick Prospect

SAMPLE: Composite Southeast of Mena Shaft 1320'. West of Creek Vein 32" wide.

Copper	3	Iron	15	Lanthanum	
Silver		Cobalt	0.02	Cerium	
Gold		Nickel	0.03	Praseodymium	
Zinc	0.1	Cesium		Neodymium	
Cadmium		Rubidium	0.02	Samarium	
Mercury		Barium	0.4	Europium	
Gallium		Strontium	0.04	Gadolinium	
Indium		Titanium	0.6	Terbium	
Thallium		Zirconium	0.02	Dysprosium	
Germanium		Hafnium		Holmium	
Tin		Thorium		Erbium	
Lead	0.02	Vanadium		Thulium	
Arsenic		Columbium		Ytterbium	
Antimony		Tantalum		Lutetium	
Bismuth		Chromium		Yttrium	0.01
Selenium		Molybdenum	0.01		
Tellurium		Tungsten			
Bromine		Uranium			
Iodine		Manganese	0.2		

By Merlyn L. Salmon

NOTE: A PORTION OF THE REPORTED SAMPLES WILL BE RETAINED ON FILE FOR A PERIOD OF FIVE YEARS FROM THE ABOVE DATE. THE REMAINDER OF THE SAMPLE WILL BE RETAINED FOR THIRTY DAYS PENDING RECEIPT OF WRITTEN INSTRUCTIONS FOR DISPOSAL FROM THE ADDRESSEE ABOVE.

ROOT & SIMPSON, Inc.

TEL. CHERRY 4-3223 METALLURGICAL CHEMISTS AND ASSAYERS P. O. BOX 2069
DENVER 1, COLORADO

SPECIMEN ASSAY

ASSAYED FOR	MARKS
Hoseph W. Walsh	Mena West Crosscut XC-1 Channel Sample 11" wide 30' West of South end of drift.

GOLD OZS. PER TON	SILVER OZS. PER TON	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	U_3O_8 PER CENT	V_2O_5 PER CENT	S PER CENT	PER CENT
0.001	2.3		13.1					

DATE 1/19/59 CHARGES $1.50

Root & Simpson Co.

S[illegible]

ASSAYED FOR

J. W. Walsh

[illegible] Sample [illegible]
[illegible] Feet [illegible] wide

GOLD OZS. PER TON	SILVER OZS. PER TON	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	U_3O_8 PER CENT	V_2O_5 PER CENT	PER CENT	PER CENT
None	0.84		0.77		0.555			

DATE 6/4/59 CHARGES $ 9.50

Root & Simpson, Inc.

ROOT & SIMPSON, Inc.

TEL. CHERRY 4-3223 METALLURGICAL CHEMISTS AND ASSAYERS P. O. BOX 2069

DENVER 1, COLORADO

UMPIRE ASSAY

ASSAYED FOR	MARKS
J. W. Walsh	Grab # 1 Mine Run

GOLD OZS. PER TON	SILVER OZS. PER TON	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	INSOL. PER CENT	IRON PER CENT	U_3O_8 PER CENT	PER CENT
	0.9		0.65				0.915	

Taken from Muck Pile in Stope of Incline Shaft from lower level. Vein 21" wide in this round.

DATE 7/23/59 CHARGES $ 11.50

Root & Simpson, Inc.

ROOT & SIMPSON, Inc.

TEL. CHERRY 4-3223 METALLURGICAL CHEMISTS AND ASSAYERS P. O. BOX 2069

DENVER 1, COLORADO

UMPIRE ASSAY

ASSAYED FOR	MARKS
J. W. Walsh	Grab #2 Mine Run

GOLD OZS. PER TON	SILVER OZS. PER TON	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	INSOL. PER CENT	IRON PER CENT	U_3O_8 PER CENT	PER CENT
	0.3		0.20				0.240	

Taken from Muck Pile in far westernend of 150' drift of Incline Shaft from lower level. Mens vein averaged 34" here.

DATE 7/23/59 CHARGES $ 11.50

Root & Simpson, Inc.

THE HENRY E. WOOD ASSAYING COMPANY

TELEPHONE KEYSTONE 4-4816 — DENVER 4, COLORADO — 733 W. COLFAX AVE.

Sept 4, 1959

Grab Sample — No. 2 Stope on 100' Level — 9' above track level, 5' from beginning of Stope.

We hereby certify that the samples assayed for J.W. Walsh 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 U_3O_8	
Test # 1 Sweeney Conct	0.42	8.60		4.95					0.836	

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

Charges $ 8.50 Paid

The Henry E. Wood Assaying Co.

By [illegible]

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.

Oct. 20, 1959

Grab Sample — No. 2 Stope on 100' Level — 16' above track level, 14' from beginning of Stope.

We hereby certify that the samples assayed for Mena Mines 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
						Lime $CaCO_3$			Uranium U_3O_8	
Sweeney Conc. # 2	0.22	15.58		8.13		6.01			3.56	

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

Charges $10.50 Paid.

The Henry E. Wood Assaying Co.

By [illegible]

Phone [illegible]
Merlyn L. Salmon, Manager

XXXX QUALITATIVE
_____ SEMI-QUANTITATIVE
_____ QUANTITATIVE

ANALYTICAL REPORT

NOTE: The values below are estimated percentages of the oxide equivalent of the indicated elements. No check was made for elements with atomic numbers less than 22 (below titanium).

Job Number 1934
Page 1 of 1 Pages
Date 11 Sep 1958

TO: J. Walsh

So. Winze in So. Drift 27' below track level on vein. 30" wide

SAMPLE: Vein Rock

Copper	14	Iron	14	Lanthanum	
Silver	0.9	Cobalt		Cerium	
Gold		Nickel	0.02	Praseodymium	
Zinc	0.2	Cesium		Neodymium	
Cadmium		Rubidium		Samarium	
Mercury		Barium	2.6	Europium	
Gallium		Strontium	0.2	Gadolinium	
Indium		Titanium	0.7	Terbium	
Thallium		Zirconium		Dysprosium	
Germanium		Hafnium		Holmium	
Tin		Thorium		Erbium	
Lead	0.02	Vanadium		Thulium	
Arsenic	0.08	Columbium		Ytterbium	
Antimony	0.02	Tantalum		Lutetium	
Bismuth	0.8	Chromium		Yttrium	
Selenium		Molybdenum	0.02		
Tellurium		Tungsten			
Bromine		Uranium			
Iodine		Manganese	0.2		

By Merlyn L. Salmon

NOTE: A PORTION OF THE REPORTED SAMPLES WILL BE RETAINED ON FILE FOR A PERIOD OF FIVE YEARS FROM THE ABOVE DATE. THE REMAINDER OF THE SAMPLE WILL BE RETAINED FOR THIRTY DAYS PENDING RECEIPT OF WRITTEN INSTRUCTIONS FOR DISPOSAL FROM THE ADDRESSEE ABOVE.

ROOT & SIMPSON, Inc.

TEL. CHERRY 4-3223 METALLURGICAL CHEMISTS AND ASSAYERS P. O. BOX 2069
DENVER 1, COLORADO

SPECIMEN ASSAY

ASSAYED FOR: Joseph W. Walsh

MARKS: Channel Sample – 9" wide – 30' west Mena West Crosscut of drift North end.

GOLD OZS. PER TON	SILVER OZS. PER TON	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	U_3O_8 PER CENT	V_2O_5 PER CENT	PER CENT	PER CENT
			2.20		0.925			

DATE 1/19/59 CHARGES $ 7.00

Root & Simpson, Inc.

THE HENRY E. WOOD ASSAYING COMPANY

TELEPHONE KEYSTONE 4-4916 — DENVER 4, COLORADO — 733 W. COLFAX AVE.

Aug. 17, 1960

We hereby certify that the samples assayed for Mena Mines 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 U_3O_8	
South Channel Dike # 1									14.952	
Drill hole cutting # 18			Qualitative		Beryllium			None		
Long-hole drill cuttings. Estimated about 28" wide. Into Footwall at South end of Stope No. 2. — 12' from drift. Flat hole.										

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

Charges $ 8.50

The Henry E. Wood Assaying Co.
By mwW Jr.

ROOT & SIMPSON, Inc.

TEL. CHERRY 4-3223 — METALLURGICAL CHEMISTS AND ASSAYERS — P. O. BOX 2069
DENVER 1, COLORADO

SPECIMEN ASSAY

ASSAYED FOR: Joseph W. Walsh

MARKS: 100' Level Channel Cut Vein - 29" Wide
Mena Mine 202
From: 41' Vertical Down 1st Level Incline.

GOLD OZS. PER TON	SILVER OZS. PER TON	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	U_3O_8 PER CENT	V_2O_5 PER CENT	PER CENT	PER CENT
					1.865			

DATE 12/8/60 CHARGES $ 7.50

Root & Simpson, Inc.

ROOT & SIMPSON, Inc.

TEL. CHERRY 4-3223 — METALLURGICAL CHEMISTS AND ASSAYERS — P. O. BOX 2069
DENVER 1, COLORADO

SPECIMEN ASSAY

ASSAYED FOR: Joseph W. Walsh

MARKS: Channel sample 29" wide
Mena Mine 202
Lower Level - 41' down Incline Shaft.

GOLD OZS. PER TON	SILVER OZS. PER TON	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	U_3O_8 PER CENT	V_2O_5 PER CENT	PER CENT	PER CENT
0.001	5.4		2.5					

DATE 12/8/60 CHARGES $ 4.50

Root & Simpson, Inc.

THE HENRY E. WOOD ASSAYING COMPANY

TELEPHONE KEYSTONE 4-4816 | DENVER 4, COLORADO | 733 W. COLFAX AVE.

April 4, 1958

Grab Sample from Muck pile table - ore from Raise 22' East of No. 1 Stope - 100' level.

We hereby certify that the samples assayed for J. W. Walsh 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
Table Concentrates	0.56	3.94								

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

Charges $2.00

The Henry E. Wood Assaying Co.

By [signature]

ROOT & SIMPSON, Inc.

TEL. CHERRY 4-3223 METALLURGICAL CHEMISTS AND ASSAYERS P. O. BOX 2069
DENVER 1, COLORADO

SPECIMEN ASSAY

ASSAYED FOR: J. W. Walsh

MARKS: Mena Mine So. Winze #2 Sample - 27' Below Tunnel Level In Main Mena Vein.

GOLD OZS. PER TON	SILVER OZS. PER TON	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	U_3O_8 PER CENT	V_2O_5 PER CENT	PER CENT	PER CENT
Gold not deducted	7.7		10.5					

DATE 7/14/58 CHARGES $ 3.50

Root & Simpson, Inc.

ROOT & SIMPSON, Inc.

TEL. CHERRY 4-3223 METALLURGICAL CHEMISTS AND ASSAYERS P. O. BOX 2069
DENVER 1, COLORADO

SPECIMEN ASSAY

ASSAYED FOR: J. W. Walsh

MARKS: Southwest Mean Vein 15' in Crosscut So. Mena on Tunnel Level.

GOLD OZS. PER TON	SILVER OZS. PER TON	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	U_3O_8 PER CENT	V_2O_5 PER CENT	PER CENT	PER CENT
None	0.44		0.22					

DATE 7/24/58 CHARGES $ 4.50

Root & Simpson, Inc.

Certificate of Assay

THE HENRY E. WOOD ASSAYING COMPANY

TELEPHONE KEYSTONE 4-4816 DENVER 4, COLORADO 733 W. COLFAX AVE.

Feb. 25, 1958

Contact - Two Veins - No 1 Stope - 100' Level - 9' above Track level - 24" wide

We hereby certify that the samples assayed for J.W. Walsh 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	
Conct # 1	0.26	1.40	0.65	0.34	0.05				0.323	

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

Charges $ 11.50

The Henry E. Wood Assaying Co.

By W. W. F.

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.

March 18, 1958

We hereby certify that the samples assayed for Joesph W. Walsh 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
Mena Jig #1	12.76	19.34		0.97		So. end Stope No 1 - track Level - channel Sample - 19" wide				
" " #2	0.24	0.46		0.09		Tunnel level (100') - 9' Before 1st Jct of Veins at No 1 Stope 9" wide				

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

Charges $ 7.00

The Henry E. Wood Assaying Co.

By L. F. F.

THE HENRY E. WOOD ASSAYING COMPANY

TELEPHONE KEYSTONE 4-4816 — DENVER 4, COLORADO — 733 W. COLFAX AVE.

Jan. 26, 1958 — 14' above track level on Raise above 100' level, Vein 18" wide - Channel Sample

We hereby certify that the samples assayed for J.W. Walsh 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
	Trace	0.90		1.62						

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

Charges $ 3.50

The Henry E. Wood Assaying Co.

By [illegible]

ROOT & SIMPSON, Inc.

TEL. CHERRY 4-3223 — METALLURGICAL CHEMISTS AND ASSAYERS — P. O. BOX 2069
DENVER 1, COLORADO

CONTROL ASSAY

ASSAYED FOR: J. W. Walsh

MARKS: Grab sample, Fault gouge. 200' from portal — So. tunnel. 9-2010

GOLD OZS. PER TON	SILVER OZS. PER TON	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	U_3O_8 PER CENT	V_2O_5 PER CENT	PER CENT	PER CENT
					0.068			

DATE 2/4/58 — CHARGES $ 10.00

Root & Simpson, Inc.

ROOT & SIMPSON, Inc.

TEL. CHERRY 4-3223 — METALLURGICAL CHEMISTS AND ASSAYERS — P. O. BOX 2069
DENVER 1, COLORADO

SPECIMEN ASSAY

ASSAYED FOR: J. W. Walsh

MARKS: Grab sample — 100' Level - Track Cons. Tidney level. Jct of Vein at No. 1 Stope, No. end.

GOLD OZS. PER TON	SILVER OZS. PER TON	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	U_3O_8 PER CENT	V_2O_5 PER CENT	PER CENT	PER CENT
1.51	19.17	13.55	3.63					
52.85	16.29	29.51	15.97	=	114.52			

DATE 3/6/58 — CHARGES $ 6.50

Root & Simpson, Inc.

Miner's Assay Office

GEORGE TREDER

Idaho Springs, Colorado

June 14th, 1957 195.

ASSAY REPORT MADE FOR: Walsh

SAMPLE	Metals	OUNCES Gold	Silver	~~LEAD~~	%	Value Per Ton
Sample			13.80	21.00		$84.12

Grab spls from ore piles on ground at Mena Mine. - Taken from raise above 100' level.

Gold @ ..... per oz. Silver @ ..... per oz.
Lead @ ..... per lb. Copper @ ..... per lb.
Zinc @ ..... per lb. ..... @ .....

MINER'S ASSAY OFFICE
By George M. Treder

ROOT & SIMPSON, Inc.

TEL. CHERRY 4-3223 METALLURGICAL CHEMISTS AND ASSAYERS P. O. BOX 2069
DENVER 1, COLORADO

SPECIMEN ASSAY

ASSAYED FOR	MARKS
J. W. Walsh	Mena #1 South Raise Vein @ 40' above Lower Level.

GOLD OZS. PER TON	SILVER OZS. PER TON	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	U_3O_8 PER CENT	V_2O_5 PER CENT	PER CENT	PER CENT
	2.0				0.01			
Gold Not Deducted								

DATE 9/4/57 CHARGES $ 6.00

Root & Simpson, Inc.

ROOT & SIMPSON, Inc.

TEL. CHERRY 4 3 METALLURGICAL CHEMISTS AND ASSAYERS P. O. BOX 2069
DENVER 1, COLORADO

SPECIMEN ASSAY

ASSAYED FOR	MARKS
J. W. Walsh	#2 Columbian Chieftain E. Wall - South End - 2.7 ft. 100' level - Mena Vein - 16" wide

GOLD OZS. PER TON	SILVER OZS. PER TON	WET LEAD PER CENT	COPPER PER CENT	ZINC PER CENT	U_3O_8 PER CENT	V_2O_5 PER CENT	PER CENT	PER CENT
0.19 $6.65	13.3 $11.97	7.57 $21.12	1.2 $5.76	= $55.52				

DATE 1/8/58 CHARGES $ 6.50

Root & Simpson, Inc.

MME Form 52
Jan. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

FOR GOVERNMENT USE ONLY
Operator
Docket No. OME –
Contract No. 14-23-090 –
Contract Date

LIEN AND SUBORDINATION AGREEMENTS[1]

To the United States of America:

That certain land in the County of Jefferson, State of Colorado,

described as follows:[2] Township 2 South, Range 71 West, 6 P.M.

Sec. 26: NW¼, N½NE¼, SW¼NE¼, NW¼SE¼

containing 320 acres more or less

hereinafter called the "land", is the subject of a proposed exploration contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government" and

THE KEMMERER COAL COMPANY[3]

hereinafter called the "Operator". In consideration for and as an inducement to the Government executing the Contract, the undersigned:

1. (a) Being the owner of an interest in the land, hereby grants to the Government a lien upon all of his right, title, and interest in the land and upon any production of minerals therefrom to secure the payment to the Government of the royalty on production provided for by the Contract, and agrees if the Operator's interest should be surrendered or terminated at any time prior to the expiration of the rights of the United States under said Contract to pay royalty to the Government according to the terms of said Contract; or

(b) Being the holder of a claim, lien, or encumbrance against the land, hereby subordinates his claim, lien, or encumbrance in or against the land and in any production therefrom to the rights of the Government under the Contract with respect to royalty on production and liens to secure same.[4]

2. Undertakes and agrees that property in which the Government may acquire an interest or equity under the Contract may be dismantled, severed from the land, and removed as may be provided in the Contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned.

3. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none". Do not leave blank.)

NONE

1/ Production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease /or contract, deed, or other document/ dated _____, and recorded in Book _____, Page ____, official records of said county". If (b) is used, the book and page of recordation must be inserted above. If the space provided is insufficient, use an Annex and refer to the Annex in the space.

3/ Insert name exactly as it appears in the Application MME Form 40.

4/ Subparagraph 1(a) does not apply to the holder of a claim, lien, or encumbrance.

4. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land or any production therefrom, furnishing the Government with two true copies of such notice; and

5. Consents to all amendments (including an agreement of termination) and assignments of the Contract without notice thereof, and undertakes and agrees that this agreement shall extend and apply thereto.

6. Added provisions NONE (State "None" or "See Annex No.____".)

Dated this 11th day of June, 19 68.

Madalene W. Walsh (Seal) — 4925 Montview Boulevard (Street); Denver, Colorado 80207 (City & State)

Madalene W. Walsh

_____ (Seal) — _____ (Street); _____ (City & State)

_____ (Seal) — _____ (Street); _____ (City & State)

_____ (Seal) — _____ (Street); _____ (City & State)

_____ (Seal) — _____ (Street); _____ (City & State)

_____ (Seal) — _____ (Street); _____ (City & State)

I, _____ (Name), certify that I am the _____ (Title—Secretary, etc.) of the corporation named herein; that _____ (Name), who signed this agreement was then _____ (Title—Pres., Vice-Pres., etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____ (Corporate Seal)

MME Form 52
Jan. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

FOR GOVERNMENT USE ONLY
Operator
Docket No. OME –
Contract No. 14-23-090 –
Contract Date

LIEN AND SUBORDINATION AGREEMENTS[1]

To the United States of America:

That certain land in the County of **Jefferson**, State of **Colorado**,

described as follows:[2] **Township 2 South, Range 71 West, 6 P.M.**

Sec. 26: NW¼, N½NE¼, SW¼NE¼, NW¼SE¼

containing 320 acres more or less

hereinafter called the "land", is the subject of a proposed exploration contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government" and

THE KEMMERER COAL COMPANY[3]

hereinafter called the "Operator". In consideration for and as an inducement to the Government executing the Contract, the undersigned:

1. (a) Being the owner of an interest in the land, hereby grants to the Government a lien upon all of his right, title, and interest in the land and upon any production of minerals therefrom to secure the payment to the Government of the royalty on production provided for by the Contract, and agrees if the Operator's interest should be surrendered or terminated at any time prior to the expiration of the rights of the United States under said Contract to pay royalty to the Government according to the terms of said Contract; or

(b) Being the holder of a claim, lien, or encumbrance against the land, hereby subordinates his claim, lien, or encumbrance in or against the land and in any production therefrom to the rights of the Government under the Contract with respect to royalty on production and liens to secure same.[4]

2. Undertakes and agrees that property in which the Government may acquire an interest or equity under the Contract may be dismantled, severed from the land, and removed as may be provided in the Contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned.

3. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none". Do not leave blank.)

NONE

1/ Production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease /or contract, deed, or other document/ dated_____, and recorded in Book_____, Page____, official records of said county". If (b) is used, the book and page of recordation must be inserted above. If the space provided is insufficient, use an Annex and refer to the Annex in the space.

3/ Insert name exactly as it appears in the Application MME Form 40.

4/ Subparagraph 1(a) does not apply to the holder of a claim, lien, or encumbrance.

4. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land or any production therefrom, furnishing the Government with two true copies of such notice; and

5. Consents to all amendments (including an agreement of termination) and assignments of the Contract without notice thereof, and undertakes and agrees that this agreement shall extend and apply thereto.

6. Added provisions NONE (State "None" or "See Annex No.____".)

Dated this 11th day of June, 19 68.

Madalene W. Walsh (Seal) — 4925 Montview Boulevard (Street), Denver, Colorado 80207 (City & State)

Madalene W. Walsh

_____ (Seal) — _____ (Street), _____ (City & State)

_____ (Seal) — _____ (Street), _____ (City & State)

_____ (Seal) — _____ (Street), _____ (City & State)

_____ (Seal) — _____ (Street), _____ (City & State)

_____ (Seal) — _____ (Street), _____ (City & State)

I, _____ (Name), certify that I am the _____ (Title—Secretary, etc.) of the corporation named herein; that _____ (Name), who signed this agreement was then _____ (Title—Pres., Vice-Pres., etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____ (Corporate Seal)

INT.-DUP. SEC., WASH., D.C. 21103

MME Form 52
Jan. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

FOR GOVERNMENT USE ONLY
Operator
Docket No. OME –
Contract No. 14-23-090 –
Contract Date

LIEN AND SUBORDINATION AGREEMENTS[1]

To the United States of America:

That certain land in the County of **Jefferson**, State of **Colorado**,

described as follows:[2] **Township 2 South, Range 71 West, 6 P.M.**

Sec. 26: NW¼, N½NE¼, SW¼NE¼, NW¼SE¼

containing 320 acres more or less

hereinafter called the "land", is the subject of a proposed exploration contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government" and

THE KEMMERER COAL COMPANY[3]

hereinafter called the "Operator". In consideration for and as an inducement to the Government executing the Contract, the undersigned:

1. (a) Being the owner of an interest in the land, hereby grants to the Government a lien upon all of his right, title, and interest in the land and upon any production of minerals therefrom to secure the payment to the Government of the royalty on production provided for by the Contract, and agrees if the Operator's interest should be surrendered or terminated at any time prior to the expiration of the rights of the United States under said Contract to pay royalty to the Government according to the terms of said Contract; or

(b) Being the holder of a claim, lien, or encumbrance against the land, hereby subordinates his claim, lien, or encumbrance in or against the land and in any production therefrom to the rights of the Government under the Contract with respect to royalty on production and liens to secure same.[4]

2. Undertakes and agrees that property in which the Government may acquire an interest or equity under the Contract may be dismantled, severed from the land, and removed as may be provided in the Contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned.

3. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none". Do not leave blank.)

NONE

1/ Production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease /or contract, deed, or other document/ dated_____, and recorded in Book_____, Page____, official records of said county". If (b) is used, the book and page of recordation must be inserted above. If the space provided is insufficient, use an Annex and refer to the Annex in the space.

3/ Insert name exactly as it appears in the Application MME Form 40.

4/ Subparagraph 1(a) does not apply to the holder of a claim, lien, or encumbrance.

4. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land or any production therefrom, furnishing the Government with two true copies of such notice; and

5. Consents to all amendments (including an agreement of termination) and assignments of the Contract without notice thereof, and undertakes and agrees that this agreement shall extend and apply thereto.

6. Added provisions NONE (State "None" or "See Annex No.____".)

Dated this 11th day of June, 19 68.

Madalene W. Walsh (Seal)	4925 Montview Boulevard	(Street)
	Denver, Colorado 80207	(City & State)
Madalene W. Walsh		
(Seal)		(Street)
		(City & State)
(Seal)		(Street)
		(City & State)
(Seal)		(Street)
		(City & State)
(Seal)		(Street)
		(City & State)
(Seal)		(Street)
		(City & State)

I, _____ (Name), certify that I am the _____ (Title—Secretary, etc.) of the corporation named herein; that _____ (Name), who signed this agreement was then _____ (Title—Pres., Vice-Pres., etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____
(Corporate Seal)

MME Form 52
Jan. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

FOR GOVERNMENT USE ONLY
Operator
Docket No. OME –
Contract No. 14-23-090–
Contract Date

LIEN AND SUBORDINATION AGREEMENTS[1]

To the United States of America:

That certain land in the County of Jefferson, State of Colorado,

described as follows:[2] Township 2 South, Range 71 West, 6 P.M.

Sec. 26: NW¼, N½NE¼, SW¼NE¼, NW¼SE¼

containing 320 acres more or less

hereinafter called the "land", is the subject of a proposed exploration contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government" and

THE KEMMERER COAL COMPANY[3]

hereinafter called the "Operator". In consideration for and as an inducement to the Government executing the Contract, the undersigned:

1. (a) Being the owner of an interest in the land, hereby grants to the Government a lien upon all of his right, title, and interest in the land and upon any production of minerals therefrom to secure the payment to the Government of the royalty on production provided for by the Contract, and agrees if the Operator's interest should be surrendered or terminated at any time prior to the expiration of the rights of the United States under said Contract to pay royalty to the Government according to the terms of said Contract; or

(b) Being the holder of a claim, lien, or encumbrance against the land, hereby subordinates his claim, lien, or encumbrance in or against the land and in any production therefrom to the rights of the Government under the Contract with respect to royalty on production and liens to secure same.[4]

2. Undertakes and agrees that property in which the Government may acquire an interest or equity under the Contract may be dismantled, severed from the land, and removed as may be provided in the Contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned.

3. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none". Do not leave blank.)

NONE

1/ Production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease /or contract, deed, or other document/ dated_____, and recorded in Book_____, Page____, official records of said county". If (b) is used, the book and page of recordation must be inserted above. If the space provided is insufficient, use an Annex and refer to the Annex in the space.

3/ Insert name exactly as it appears in the Application MME Form 40.

4/ Subparagraph 1(a) does not apply to the holder of a claim, lien, or encumbrance.

4. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land or any production therefrom, furnishing the Government with two true copies of such notice; and

5. Consents to all amendments (including an agreement of termination) and assignments of the Contract without notice thereof, and undertakes and agrees that this agreement shall extend and apply thereto.

6. Added provisions NONE (State "None" or "See Annex No.____".)

Dated this 11th day of June, 19 68.

Madalene W. Walsh (Seal)	4925 Montview Boulevard	(Street)
	Denver, Colorado 80207	(City & State)
Madalene W. Walsh		
(Seal)		(Street)
		(City & State)
(Seal)		(Street)
		(City & State)
(Seal)		(Street)
		(City & State)
(Seal)		(Street)
		(City & State)
(Seal)		(Street)
		(City & State)

I, _____ (Name), certify that I am the _____ (Title—Secretary, etc.) of the corporation named herein; that _____ (Name), who signed this agreement was then _____ (Title—Pres., Vice-Pres., etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____
(Corporate Seal)

INT.-DUP. SEC., WASH., D.C. 21103

MME Form 52
Jan. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

FOR GOVERNMENT USE ONLY
Operator
Docket No. OME –
Contract No. 14-23-090 –
Contract Date

LIEN AND SUBORDINATION AGREEMENTS[1]

To the United States of America:

That certain land in the County of Jefferson, State of Colorado,

described as follows:[2] Township 2 South, Range 71 West, 6 P.M.

Sec. 26: NW¼, N½NE¼, S½NE¼, N½SE¼

containing 320 acres more or less

hereinafter called the "land", is the subject of a proposed exploration contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government" and

THE KEMMERER COAL COMPANY[3]

hereinafter called the "Operator". In consideration for and as an inducement to the Government executing the Contract, the undersigned:

1. (a) Being the owner of an interest in the land, hereby grants to the Government a lien upon all of his right, title, and interest in the land and upon any production of minerals therefrom to secure the payment to the Government of the royalty on production provided for by the Contract, and agrees if the Operator's interest should be surrendered or terminated at any time prior to the expiration of the rights of the United States under said Contract to pay royalty to the Government according to the terms of said Contract; or

(b) Being the holder of a claim, lien, or encumbrance against the land, hereby subordinates his claim, lien, or encumbrance in or against the land and in any production therefrom to the rights of the Government under the Contract with respect to royalty on production and liens to secure same.[4]

2. Undertakes and agrees that property in which the Government may acquire an interest or equity under the Contract may be dismantled, severed from the land, and removed as may be provided in the Contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned.

3. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none". Do not leave blank.)

NONE

1/ Production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated_____, and recorded in Book_____, Page____, official records of said county". If (b) is used, the book and page of recordation must be inserted above. If the space provided is insufficient, use an Annex and refer to the Annex in the space.

3/ Insert name exactly as it appears in the Application MME Form 40.

4/ Subparagraph 1(a) does not apply to the holder of a claim, lien, or encumbrance.

4. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land or any production therefrom, furnishing the Government with two true copies of such notice; and

5. Consents to all amendments (including an agreement of termination) and assignments of the Contract without notice thereof, and undertakes and agrees that this agreement shall extend and apply thereto.

6. Added provisions NONE (State "None" or "See Annex No.____".)

Dated this 11th day of June, 19 68.

Madalene W. Walsh (Seal) 4925 Montview Boulevard (Street)
Denver, Colorado 80207 (City & State)

Madalene W. Walsh

_____ (Seal) _____ (Street) (City & State)

_____ (Seal) _____ (Street) (City & State)

_____ (Seal) _____ (Street) (City & State)

_____ (Seal) _____ (Street) (City & State)

_____ (Seal) _____ (Street) (City & State)

I, _____ (Name), certify that I am the _____ (Title—Secretary, etc.) of the corporation named herein; that _____ (Name), who signed this agreement was then _____ (Title—Pres., Vice-Pres., etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____ (Corporate Seal)

MME Form 52
Jan. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

FOR GOVERNMENT USE ONLY
Operator
Docket No. OME –
Contract No. 14-23-090 –
Contract Date

LIEN AND SUBORDINATION AGREEMENTS[1]

To the United States of America:

That certain land in the County of Jefferson, State of Colorado,

described as follows:[2] Township 2 South, Range 71 West, 6 P.M.

Sec. 26: N½, N½N½, S½N½, N½S½

containing 320 acres more or less

hereinafter called the "land", is the subject of a proposed exploration contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government" and

THE KEYSTONE COAL COMPANY

[3]

hereinafter called the "Operator". In consideration for and as an inducement to the Government executing the Contract, the undersigned:

1. (a) Being the owner of an interest in the land, hereby grants to the Government a lien upon all of his right, title, and interest in the land and upon any production of minerals therefrom to secure the payment to the Government of the royalty on production provided for by the Contract, and agrees if the Operator's interest should be surrendered or terminated at any time prior to the expiration of the rights of the United States under said Contract to pay royalty to the Government according to the terms of said Contract; or

(b) Being the holder of a claim, lien, or encumbrance against the land, hereby subordinates his claim, lien, or encumbrance in or against the land and in any production therefrom to the rights of the Government under the Contract with respect to royalty on production and liens to secure same.[4]

2. Undertakes and agrees that property in which the Government may acquire an interest or equity under the Contract may be dismantled, severed from the land, and removed as may be provided in the Contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned.

3. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none". Do not leave blank.) NONE

1/ Production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease /or contract, deed, or other document/ dated _____, and recorded in Book_____, Page____, official records of said county". If (b) is used, the book and page of recordation must be inserted above. If the space provided is insufficient, use an Annex and refer to the Annex in the space.

3/ Insert name exactly as it appears in the Application MME Form 40.

4/ Subparagraph 1(a) does not apply to the holder of a claim, lien, or encumbrance.

4. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land or any production therefrom, furnishing the Government with two true copies of such notice; and

5. Consents to all amendments (including an agreement of termination) and assignments of the Contract without notice thereof, and undertakes and agrees that this agreement shall extend and apply thereto.

6. Added provisions NONE (State "None" or "See Annex No.____".)

Dated this 12th day of June, 19 68.

Madalene W. Walsh (Seal)	4925 Montview Boulevard	(Street)
	Denver, Colorado 80207	(City & State)
Madalene W. Walsh		
(Seal)		(Street)
		(City & State)
(Seal)		(Street)
		(City & State)
(Seal)		(Street)
		(City & State)
(Seal)		(Street)
		(City & State)
(Seal)		(Street)
		(City & State)

I, _____ (Name), certify that I am the _____ (Title—Secretary, etc.) of the corporation named herein; that _____ (Name), who signed this agreement was then _____ (Title—Pres., Vice-Pres., etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____
(Corporate Seal)

INT.-DUP. SEC., WASH., D.C. 21103

MME Form 52
Jan. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

FOR GOVERNMENT USE ONLY
Operator
Docket No. OME –
Contract No. 14-23-090–
Contract Date

LIEN AND SUBORDINATION AGREEMENTS[1]

To the United States of America:

That certain land in the County of Jefferson, State of Colorado,

described as follows:[2] Township 2 South, Range 71 West, 6 P.M.

Sec. 26: NW¼, N½NE¼, SW¼NE¼, NW¼SE¼

containing 320 acres more or less

hereinafter called the "land", is the subject of a proposed exploration contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government" and

THE KEMMERER COAL COMPANY[3]

hereinafter called the "Operator". In consideration for and as an inducement to the Government executing the Contract, the undersigned:

1. (a) Being the owner of an interest in the land, hereby grants to the Government a lien upon all of his right, title, and interest in the land and upon any production of minerals therefrom to secure the payment to the Government of the royalty on production provided for by the Contract, and agrees if the Operator's interest should be surrendered or terminated at any time prior to the expiration of the rights of the United States under said Contract to pay royalty to the Government according to the terms of said Contract; or

(b) Being the holder of a claim, lien, or encumbrance against the land, hereby subordinates his claim, lien, or encumbrance in or against the land and in any production therefrom to the rights of the Government under the Contract with respect to royalty on production and liens to secure same.[4]

2. Undertakes and agrees that property in which the Government may acquire an interest or equity under the Contract may be dismantled, severed from the land, and removed as may be provided in the Contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned.

3. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none". Do not leave blank.)

NONE

1/ Production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease /or contract, deed, or other document/ dated_____, and recorded in Book_____, Page____, official records of said county". If (b) is used, the book and page of recordation must be inserted above. If the space provided is insufficient, use an Annex and refer to the Annex in the space.

3/ Insert name exactly as it appears in the Application MME Form 40.

4/ Subparagraph 1(a) does not apply to the holder of a claim, lien, or encumbrance.

4. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land or any production therefrom, furnishing the Government with two true copies of such notice; and

5. Consents to all amendments (including an agreement of termination) and assignments of the Contract without notice thereof, and undertakes and agrees that this agreement shall extend and apply thereto.

6. Added provisions NONE (State "None" or "See Annex No. ____".)

Dated this 11th day of June, 19 68.

Oscar Dahlberg (Seal) _____ (Street) Golden, Colorado (City & State)

Oscar Dahlberg

_____ (Seal) _____ (Street) _____ (City & State)

_____ (Seal) _____ (Street) _____ (City & State)

_____ (Seal) _____ (Street) _____ (City & State)

_____ (Seal) _____ (Street) _____ (City & State)

_____ (Seal) _____ (Street) _____ (City & State)

I, _____ (Name), certify that I am the _____ (Title—Secretary, etc.) of the corporation named herein; that _____ (Name), who signed this agreement was then _____ (Title—Pres., Vice-Pres., etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____ (Corporate Seal)

MME Form 52
Jan. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

FOR GOVERNMENT USE ONLY
Operator
Docket No. OME –
Contract No. 14-23-090 –
Contract Date

LIEN AND SUBORDINATION AGREEMENTS[1]

To the United States of America:

That certain land in the County of **Jefferson**, State of **Colorado**,

described as follows:[2] **Township 2 South, Range 71 West, 6 P.M.**

Sec. 26: NW¼, N½NE¼, SW¼NE¼, NW¼SE¼

containing 320 acres more or less

hereinafter called the "land", is the subject of a proposed exploration contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government" and

THE KEMMERER COAL COMPANY[3]

hereinafter called the "Operator". In consideration for and as an inducement to the Government executing the Contract, the undersigned:

1. (a) Being the owner of an interest in the land, hereby grants to the Government a lien upon all of his right, title, and interest in the land and upon any production of minerals therefrom to secure the payment to the Government of the royalty on production provided for by the Contract, and agrees if the Operator's interest should be surrendered or terminated at any time prior to the expiration of the rights of the United States under said Contract to pay royalty to the Government according to the terms of said Contract; or

(b) Being the holder of a claim, lien, or encumbrance against the land, hereby subordinates his claim, lien, or encumbrance in or against the land and in any production therefrom to the rights of the Government under the Contract with respect to royalty on production and liens to secure same.[4]

2. Undertakes and agrees that property in which the Government may acquire an interest or equity under the Contract may be dismantled, severed from the land, and removed as may be provided in the Contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned.

3. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none". Do not leave blank.) **NONE**

1/ Production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease /or contract, deed, or other document/ dated_____, and recorded in Book_____, Page____, official records of said county". If (b) is used, the book and page of recordation must be inserted above. If the space provided is insufficient, use an Annex and refer to the Annex in the space.

3/ Insert name exactly as it appears in the Application MME Form 40.

4/ Subparagraph 1(a) does not apply to the holder of a claim, lien, or encumbrance.

4. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land or any production therefrom, furnishing the Government with two true copies of such notice; and

5. Consents to all amendments (including an agreement of termination) and assignments of the Contract without notice thereof, and undertakes and agrees that this agreement shall extend and apply thereto.

6. Added provisions NONE (State "None" or "See Annex No.____".)

Dated this 11th day of June, 19 68.

Oscar Dahlberg (Seal) _____ (Street) Golden, Colorado (City & State)

Oscar Dahlberg

_____ (Seal) _____ (Street) _____ (City & State)

_____ (Seal) _____ (Street) _____ (City & State)

_____ (Seal) _____ (Street) _____ (City & State)

_____ (Seal) _____ (Street) _____ (City & State)

_____ (Seal) _____ (Street) _____ (City & State)

I, _____ (Name), certify that I am the _____ (Title—Secretary, etc.) of the corporation named herein; that _____ (Name), who signed this agreement was then _____ (Title—Pres., Vice-Pres., etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____ (Corporate Seal)

INT.-GOVP. SEC., WASH., D.C. 21103

MME Form 52
Jan. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

FOR GOVERNMENT USE ONLY
Operator
Docket No. OME –
Contract No. 14-23-090 –
Contract Date

LIEN AND SUBORDINATION AGREEMENTS[1]

To the United States of America:

That certain land in the County of Jefferson, State of Colorado, described as follows:[2] Township 2 South, Range 71 West, 6 P.M.

Sec. 26: NW¼, N½NE¼, SW¼NE¼, NW¼SE¼

containing 320 acres more or less

hereinafter called the "land", is the subject of a proposed exploration contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government" and THE KEMMERER COAL COMPANY[3] hereinafter called the "Operator". In consideration for and as an inducement to the Government executing the Contract, the undersigned:

1. (a) Being the owner of an interest in the land, hereby grants to the Government a lien upon all of his right, title, and interest in the land and upon any production of minerals therefrom to secure the payment to the Government of the royalty on production provided for by the Contract, and agrees if the Operator's interest should be surrendered or terminated at any time prior to the expiration of the rights of the United States under said Contract to pay royalty to the Government according to the terms of said Contract; or

(b) Being the holder of a claim, lien, or encumbrance against the land, hereby subordinates his claim, lien, or encumbrance in or against the land and in any production therefrom to the rights of the Government under the Contract with respect to royalty on production and liens to secure same.[4]

2. Undertakes and agrees that property in which the Government may acquire an interest or equity under the Contract may be dismantled, severed from the land, and removed as may be provided in the Contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned.

3. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none". Do not leave blank.) NONE

1/ Production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease /or contract, deed, or other document/ dated_____, and recorded in Book_____, Page____, official records of said county". If (b) is used, the book and page of recordation must be inserted above. If the space provided is insufficient, use an Annex and refer to the Annex in the space.

3/ Insert name exactly as it appears in the Application MME Form 40.

4/ Subparagraph 1(a) does not apply to the holder of a claim, lien, or encumbrance.

4. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land or any production therefrom, furnishing the Government with two true copies of such notice; and

5. Consents to all amendments (including an agreement of termination) and assignments of the Contract without notice thereof, and undertakes and agrees that this agreement shall extend and apply thereto.

6. Added provisions NONE (State "None" or "See Annex No.____".)

Dated this 11th day of June, 19 68.

Oscar Dahlberg (Seal) _____ (Street)
Golden, Colorado (City & State)

Oscar Dahlberg

_____ (Seal) _____ (Street)
(City & State)

_____ (Seal) _____ (Street)
(City & State)

_____ (Seal) _____ (Street)
(City & State)

_____ (Seal) _____ (Street)
(City & State)

_____ (Seal) _____ (Street)
(City & State)

I, _____ (Name), certify that I am the _____ (Title—Secretary, etc.) of the corporation named herein; that _____ (Name), who signed this agreement was then _____ (Title—Pres., Vice-Pres., etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____
(Corporate Seal)

INT.-DOP. SEC., WASH., D.C. 21103

MME Form 52
Jan. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

FOR GOVERNMENT USE ONLY
Operator
Docket No. OME –
Contract No. 14-23-090 –
Contract Date

LIEN AND SUBORDINATION AGREEMENTS[1]

To the United States of America:

That certain land in the County of Jefferson, State of Colorado,

described as follows:[2] Township 2 South, Range 71 West, 6 P.M.

Sec. 26: N½, N½SE¼, SW¼SE¼, N½SE¼

containing 320 acres more or less

hereinafter called the "land", is the subject of a proposed exploration contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government" and

THE KEMMERER COAL COMPANY[3]

hereinafter called the "Operator". In consideration for and as an inducement to the Government executing the Contract, the undersigned:

1. (a) Being the owner of an interest in the land, hereby grants to the Government a lien upon all of his right, title, and interest in the land and upon any production of minerals therefrom to secure the payment to the Government of the royalty on production provided for by the Contract, and agrees if the Operator's interest should be surrendered or terminated at any time prior to the expiration of the rights of the United States under said Contract to pay royalty to the Government according to the terms of said Contract; or

(b) Being the holder of a claim, lien, or encumbrance against the land, hereby subordinates his claim, lien, or encumbrance in or against the land and in any production therefrom to the rights of the Government under the Contract with respect to royalty on production and liens to secure same.[4]

2. Undertakes and agrees that property in which the Government may acquire an interest or equity under the Contract may be dismantled, severed from the land, and removed as may be provided in the Contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned.

3. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none". Do not leave blank.) NONE

1/ Production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease /or contract, deed, or other document/ dated_____, and recorded in Book_____, Page____, official records of said county". If (b) is used, the book and page of recordation must be inserted above. If the space provided is insufficient, use an Annex and refer to the Annex in the space.

3/ Insert name exactly as it appears in the Application MME Form 40.

4/ Subparagraph 1(a) does not apply to the holder of a claim, lien, or encumbrance.

4. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land or any production therefrom, furnishing the Government with two true copies of such notice; and

5. Consents to all amendments (including an agreement of termination) and assignments of the Contract without notice thereof, and undertakes and agrees that this agreement shall extend and apply thereto.

6. Added provisions NONE (State "None" or "See Annex No.____".)

Dated this 11th day of June, 19 68.

Oscar Dahlberg (Seal) Golden, Colorado (Street) (City & State)

Oscar Dahlberg

_____ (Seal) _____ (Street) (City & State)

_____ (Seal) _____ (Street) (City & State)

_____ (Seal) _____ (Street) (City & State)

_____ (Seal) _____ (Street) (City & State)

_____ (Seal) _____ (Street) (City & State)

I, _____ (Name), certify that I am the _____ (Title—Secretary, etc.) of the corporation named herein; that _____ (Name), who signed this agreement was then _____ (Title—Pres., Vice-Pres., etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____ (Corporate Seal)

INT.-DUP. SEC., WASH., D.C. 21103

MME Form 52
Jan. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

FOR GOVERNMENT USE ONLY
Operator
Docket No. OME –
Contract No. 14-23-090 –
Contract Date

LIEN AND SUBORDINATION AGREEMENTS[1]

To the United States of America:

That certain land in the County of Jefferson, State of Colorado,

described as follows:[2] Township 2 South, Range 71 West, 6 P.M.

Sec. 26: N½, N½NE¼, SW¼NE¼, NW¼SE¼

containing 320 acres more or less

hereinafter called the "land", is the subject of a proposed exploration contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government" and

THE KEMMERER COAL COMPANY[3]

hereinafter called the "Operator". In consideration for and as an inducement to the Government executing the Contract, the undersigned:

1. (a) Being the owner of an interest in the land, hereby grants to the Government a lien upon all of his right, title, and interest in the land and upon any production of minerals therefrom to secure the payment to the Government of the royalty on production provided for by the Contract, and agrees if the Operator's interest should be surrendered or terminated at any time prior to the expiration of the rights of the United States under said Contract to pay royalty to the Government according to the terms of said Contract; or

(b) Being the holder of a claim, lien, or encumbrance against the land, hereby subordinates his claim, lien, or encumbrance in or against the land and in any production therefrom to the rights of the Government under the Contract with respect to royalty on production and liens to secure same.[4]

2. Undertakes and agrees that property in which the Government may acquire an interest or equity under the Contract may be dismantled, severed from the land, and removed as may be provided in the Contract; and the Government's interest and equity in such property shall be prior and superior to any adverse right or claim of the undersigned.

3. Represents and undertakes that there is no claim, lien, or encumbrance upon the undersigned's right, title, claim, or interest in or against the land other than the following: (If "none" insert the word "none". Do not leave blank.) NONE

1/ Production from the land is not required, and in the absence of production there is no obligation to pay royalty to the Government.

2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in Book _____, Page ____, official records of said county". If (b) is used, the book and page of recordation must be inserted above. If the space provided is insufficient, use an Annex and refer to the Annex in the space.

3/ Insert name exactly as it appears in the Application MME Form 40.

4/ Subparagraph 1(a) does not apply to the holder of a claim, lien, or encumbrance.

4. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land or any production therefrom, furnishing the Government with two true copies of such notice; and

5. Consents to all amendments (including an agreement of termination) and assignments of the Contract without notice thereof, and undertakes and agrees that this agreement shall extend and apply thereto.

6. Added provisions NONE (State "None" or "See Annex No. ____".)

Dated this 11th day of June, 19 60.

Oscar Dahlberg (Seal) _____ (Street) Golden, Colorado (City & State)

Oscar Dahlberg

_____ (Seal) _____ (Street) (City & State)

_____ (Seal) _____ (Street) (City & State)

_____ (Seal) _____ (Street) (City & State)

_____ (Seal) _____ (Street) (City & State)

_____ (Seal) _____ (Street) (City & State)

I, _____ (Name), certify that I am the _____ (Title—Secretary, etc.) of the corporation named herein; that _____ (Name), who signed this agreement was then _____ (Title—Pres., Vice-Pres., etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____ (Corporate Seal)

MME Form 52
Jan. 1959

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

FOR GOVERNMENT USE ONLY
Operator
Docket No. OME –
Contract No. 14-23-090 –
Contract Date

LIEN AND SUBORDINATION AGREEMENTS[1]

To the United States of America:

That certain land in the County of Jefferson, State of Colorado, described as follows:[2] Township 2 South, Range 71 West, 6 P.M.

Sec. 24: [illegible]

containing 320 acres more or less

hereinafter called the "land", is the subject of a proposed exploration contract, hereinafter called the "Contract", between the United States of America, hereinafter called the "Government" and THE [illegible] COAL COMPANY[3], hereinafter called the "Operator". In consideration for and as an inducement to the Government executing the Contract, the undersigned:

1. (a) Being the owner of an interest in the land, hereby grants to the Government a lien upon all of his right, title, and interest in the land and upon any production of minerals therefrom to secure the payment to the Government of the royalty on production provided for by the Contract, and agrees if the Operator's interest should be surrendered or terminated at any time prior to the expiration of the rights of the United States under said Contract to pay royalty to the Government according to the terms of said Contract; or

(b) Being the holder of a claim, lien, or encumbrance against the land, hereby subordinates his claim, lien, or encumbrance in or against the land and in any production therefrom to the rights of the Government under the Contract with respect to royalty on production and liens to secure same.[4]

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2/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease /or contract, deed, or other document/ dated _____, and recorded in Book_____, Page____, official records of said county". If (b) is used, the book and page of recordation must be inserted above. If the space provided is insufficient, use an Annex and refer to the Annex in the space.

3/ Insert name exactly as it appears in the Application MME Form 40.

4/ Subparagraph 1(a) does not apply to the holder of a claim, lien, or encumbrance.

4. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land or any production therefrom, furnishing the Government with two true copies of such notice; and

5. Consents to all amendments (including an agreement of termination) and assignments of the Contract without notice thereof, and undertakes and agrees that this agreement shall extend and apply thereto.

6. Added provisions None (State "None" or "See Annex No.____".)

Dated this 11th day of June, 19 00.

Oscar Dahlberg (Seal) _____ (Street)
Golden, Colorado (City & State)
Oscar Dahlberg

_____ (Seal) _____ (Street) (City & State)

_____ (Seal) _____ (Street) (City & State)

_____ (Seal) _____ (Street) (City & State)

_____ (Seal) _____ (Street) (City & State)

_____ (Seal) _____ (Street) (City & State)

I, _____ (Name), certify that I am the _____ (Title—Secretary, etc.) of the corporation named herein; that _____ (Name), who signed this agreement was then _____ (Title—Pres., Vice-Pres., etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____ (Corporate Seal)

U. S. Government Messenger Envelope

Standard Form No. 65
November 1961
General Services Administration
General Regulation No. 27

65-105

NAME (OR TITLE) OF ADDRESSEE, AGENCY, ORGANIZATIONAL UNIT, ADDRESS, AND ROOM		NAME (OR TITLE) OF ADDRESSEE, AGENCY, ORGANIZATIONAL UNIT, ADDRESS, AND ROOM	
Mr. Beaman Rm 3613	STOP	Mr. Jones, Personnel Office	STOP A1
	STOP	Rudy Goldberg SPG Admin Rm 2080	STOP
Mr. Hitt 3727 Nath	STOP	Mr. H. Duncan Admin 5 - Rm. 558	STOP
	STOP		STOP
Mr. Andrews Rm 3620	STOP		STOP
Barbara Kemp 804 Longfellow	STOP 49	Phyllis Bup Room 555 Interior Bldg	STOP
Earl Hurley OS Rm 5140 Sath Bldg HEW	STOP	Mr. Ada Rm 2217, 63A	STOP
Mr. Lynn	STOP	Maggie Rock 1505 Interior Bldg.	STOP
Mr. Houston Rm	STOP	Mr. Kleppei Rm. 4234, 63A	STOP
	STOP	Helen Lucas Room 1324 Interior Building	STOP

Use other side

Use STOP only when messenger service between Government buildings in Washington, D. C., is required or wherever a STOP system is used. Your mail room has STOP information.

INSTRUCTIONS FOR USE

1. Identify Agency of Addressee
2. Void Previously Used Block
3. Write Clearly
4. Send Surplus Envelopes to Supply Room for Reissue

NAME (OR TITLE) OF ADDRESSEE, AGENCY, ORGANIZATIONAL UNIT, ADDRESS, AND ROOM		NAME (OR TITLE) OF ADDRESSEE, AGENCY, ORGANIZATIONAL UNIT, ADDRESS, AND ROOM	
Payroll Unit Rm 5445 Bldg	STOP		STOP
	STOP		STOP
	STOP	Mr. Liebman	STOP
~~Ruth Malone Rm. 2243 SS Bldg~~	STOP		STOP
~~[illegible] 5225~~	STOP		STOP
[redacted] GIG	STOP		STOP
1135 - Interior	STOP		STOP
	STOP		STOP
	STOP		STOP

Use other side first

SURNAME COPY
Sir Rome 8/6/68

AIRMAIL

The Kemmerer Coal Company
c/o Mr. John J. Wanner
410 Boston Building
Denver, Colorado 80202

AUG 6 1968

Re: OME-6717 (Silver, Uranium, and other minerals)
The Kemmerer Coal Company
Mena Mine
Jefferson County, Colorado

Gentlemen:

Thank you for your letter of August 1, 1968, advising it is the decision of The Kemmerer Coal Company to withdraw the subject application. Accordingly, we are considering the application as having been withdrawn and are placing it in our inactive files.

Sincerely yours,

FRANK E. JOHNSON

Frank E. Johnson
Chief, Office of
Minerals Exploration

cc: Director's Reading File
Economic Geology File
OME docket
OME Reading File
OME Region III w/cy incoming letter
Mr. Peterson

GLAult/a 8-6-68

JOHN J. WANNER
[redacted]

August 1, 1968

OFFICIAL COPY
O. M. E.
RECEIVED
AUG 5 1968
INITIALS | CODE
130
JEA 120
JES 110
Ch ch 120
HK 130

Mr. Frank E. Johnson, Chief
Office of Minerals Exploration, U.S.G.S.
Room 4460 Interior Building
Washington, D. C. 20242

Re: OME-6717

Dear Mr. Johnson:

After reviewing all aspects of our application, it is the decision of The Kemmerer Coal Company to withdraw its application for assistance.

Your cooperation in working on this application is appreciated, and we regret the law is written to preclude eligibility of small mining companies similar to The Kemmerer Coal Company.

Very truly yours,

For THE KEMMERER COAL COMPANY

John J. Wanner

John J. Wanner

JJW/mr

CC: Mr. John L. Kemmerer, Jr.
Mr. G. E. Sorensen

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
6/25/68	Petrusm	120
6/25/68	Kirkemo	120
		110
		220
		120M

JUN 25 1968

AIRMAIL

The Kemmerer Coal Company
c/o John J. Wanner
410 Boston Building
Denver, Colorado 80202

Re: OME-6717 (Silver, Uranium and other minerals)
The Kemmerer Coal Company
Mena Mine
Jefferson County, Colorado

Gentlemen:

This will acknowledge your letter of June 18 enclosing additional information in support of the subject application for assistance.

Our review of the information relating to the financial status of the Kemmerer Coal Company indicates that the Company could finance the proposed project on its own account, or that a loan could be obtained from commercial sources if acceptable collateral were offered.

To further aid us in determining your financial eligibility for OME assistance, we suggest that you submit new letters to the banks requesting an exploration loan in the estimated amount of Government participation (about $31,000.00), and perhaps furnishing your financial statement showing acceptable collateral for consideration by the banks.

Sincerely yours,

Harold Kirkemo
for: Frank E. Johnson
Chief, Office of
Minerals Exploration

cc: Director's Reading File
Economic Geology File
OME Docket
OME Reading File
Region III
Mr. Peterson

ECPeterson/bsl 6/25/68

THE KEMMERER COAL COMPANY

MINERS AND SHIPPERS OF ALL SIZES OF THE BEST STEAM AND DOMESTIC COALS

Frontier, Wyoming
83121

G. E. SORENSEN
PRESIDENT

OFFICIAL COPY
O. M. E.
RECEIVED
JUN 21 1968

INITIALS	CODE
	130
	120
	110
	120

June 18, 1968

Mr. Frank Johnson, Chief
Office of Minerals Exploration, U.S.G.S.
Room 4460
Interior Building
Washington, D. C. 20242

Dear Mr. Johnson:

Enclosed please find our Amended Application, OME-6717; six copies of MME Form 52, Lien and Subordination Agreements, signed by Madalene W. Walsh and Oscar Dahlberg; and the most recent financial statement of The Kemmerer Coal Company.

The Kemmerer Coal Company is currently involved in expanding the operation at the Sorensen Mine to furnish coal for a 750 MW steam electric plant of Utah Power & Light Company located at the mine. The first unit of this power plant is currently in operation and the second unit will be completed and ready to operate in September or October of this year. The third unit is to be completed and ready for operation in 1971.

We are also conducting a rather broad exploration and core drilling program in the Little Snake River field in Carbon County, Wyoming and we are obligated to do some core drilling at a property in southern Utah this summer.

These three projects may require all of our surplus cash and what earnings we have in the next several years to further our principal business of coal mining.

Without the assistance from the Office of Minerals Exploration, The Kemmerer Coal Company, with the current demands on these earnings, could not undertake the exploration program at the Mena project.

We are sending a copy of this amended application to Mr. J. William Hasler.

I want to thank you for your consideration of our application and your courteous treatment of our representatives on their recent visit at your office.

Yours very truly,

THE KEMMERER COAL COMPANY

G. E. Sorensen, President

GES/ls
cc: JWHasler
JLKemmerer, Jr.
JJWanner

THE KEMMERER COAL COMPANY
INCOME STATEMENT
Year Ended December 31, 1967

COAL SALES		
Elkol Mine	$ 636 368.18	
Sorensen Mine	2 032 909.94	$ 2 669 278.12
SALARIES & WAGES		
Mine Labor	121 908.11	
Salaries - General	190 214.72	312 122.83
SUPPLIES & OTHER EXPENSE		
Material & Supplies	33 004.43	
Power	9 976.31	
UMWA Welfare Fund	151 395.95	
Payroll Taxes	15 233.64	
Auto Expense	7 645.14	
Administration Expense	19 694.30	
Office Expense	3 505.59	
Sales Salaries & Expense	48 184.07	
Taxes - Tonnage	57 091.89	
Taxes - General	10 619.15	
Insurance - General	6 160.11	
Royalties	94 942.78	
Legal Expense	1 100.00	
Association Dues	8 583.99	
Engineering Expense	20 514.99	
General	20 321.54	
Depreciation	81 898.57	
Group Insurance	2 841.54	
Stripping - Overburden	881 471.12	
Stripping Cost - Coal	558 322.60	2 032 507.71
Total Labor, Supplies & Expense		2 344 630.54
Profit from Operations		324 647.58
Other Income		315 116.50
Other Expense		(174 990.80)
Net Income before Income Tax		464 773.28
Less Income Tax		24 061.00
NET PROFIT		$ 440 712.28

THE KEMMERER COAL COMPANY
BALANCE SHEET - DECEMBER 31, 1967

ASSETS

CURRENT ASSETS			
Cash			
On Hand	$ 1 000.00		
The First National Bank of Kemmerer	284 234.13		
New York Bank	84 535.74		
		$ 369 769.87	
Certificates of Deposit		1 300 000.00	
Marketable Securities			
Stocks	738 194.39		
Bonds	190 300.21		
		928 494.60	
Accounts Receivable			
Trade	204 178.32		
Associated Companies	130 891.13		
Advances - Officers & Employees	23 820.82		
Miscellaneous	17 232.58		
		376 122.85	
Inventories			
Coal on Track	5 934.00		
Materials & Supplies	8 315.85		
		14 249.85	
Total Current Assets			$ 2 988 637.17
INVESTMENT IN WHOLLY OWNED SUBSIDIARY			256 619.75
PROPERTY, PLANT & EQUIPMENT			
Land		307 229.40	
Buildings, Plant & Equipment		784 955.06	
Automobile Equipment		14 594.32	
			1 106 778.78
OTHER ASSETS			
Notes Receivable			650 000.00
Deferred Charges:			
Deferred Stripping Costs - Overburden		921 513.52	
U.S. Government Coal Leases		85 171.09	
Prepaid Expenses		13 613.67	
			1 020 298.28
TOTAL ASSETS			$ 6 022 333.98

LIABILITIES

CURRENT LIABILITIES			
Accounts Payable		$ 155 951.97	
Accrued Payroll & Payroll Taxes		15 335.74	
Accrued Property Taxes		36 189.27	
Federal Income Tax Payable		24 061.00	
Total Current Liabilities			$ 231 537.98
STOCKHOLDERS' EQUITY			
Capital Stock - $50.00 Par Value			
Authorized	- 60 000 Shares		
Unissued	- 23 666 Shares		
Issued & Outstanding	- 36 334 Shares	1 816 700.00	
Paid in Surplus		158 350.00	
Retained Earnings		3 815 746.00	
Total Stockholders' Equity			5 790 796.00
			$ 6 022 333.98

MME Form 40
Jan. 65

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Budget Bureau No. 42-R1508
Approval expires Dec. 31, 1968

AMENDED APPLICATION

APPLICATION FOR FINANCIAL ASSISTANCE IN MINERALS EXPLORATION

Pursuant to Public Law 85–701 (72 Stat. 700; 30 U.S.C. 641)

NAME OF APPLICANT *(Full legal name and mailing address as they should appear on contract if one is executed.)*

THE KEMMERER COAL COMPANY
FRONTIER, WYOMING 83121

Address all correspondence to:
The Kemmerer Coal Company
c/o John J. Wanner
410 Boston Building
Denver, Colorado 80202

APPLICANT DO NOT USE THIS BLOCK

DOCKET NUMBER 6717

DATE RECEIVED 6/21/68

REGION III

DIVISION CODE

BUSINESS ORGANIZATION *(Check one)*

INDIVIDUAL	
CORPORATION	X
PARTNERSHIP	
OTHER *(Specify)*	

STATE IN WHICH FIRM IS ORGANIZED Wyoming

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

NAME	ADDRESS	TITLE
John L. Kemmerer, Jr.;	120 Broadway, N.Y.C.;	Chairman - Board
G. E. Sorensen;	Frontier, Wyoming;	President
C. D. Cavanaugh, Jr.;	120 Broadway, N.Y.C.;	Vice-Pres. & Treas.
Lila M. Schooley;	Kemmerer, Wyoming;	Secretary
O. F. Lorenzi;	Frontier, Wyoming;	Assistant Treas.
James F. Smith;	120 Broadway, N.Y.C.;	Assistant Sec.

MINERAL(S) FOR WHICH YOU WISH TO EXPLORE
Uranium (& Silver, Bismuth, Copper, Gold)

ESTIMATED COST OF PROJECT
$ 60,767.00

PROPERTY NAME	LOCATION COUNTY	STATE
MENA MINE	JEFFERSON	COLORADO

Amended Application

GENERAL INSTRUCTIONS

Before filling out this application, please read the *OME Regulations for Obtaining Federal Assistance in Financing Explorations for Mineral Reserves* (30 CFR Chap. III). To assure prompt action, your application must provide all applicable material and information specified on the back of this application form. Avoid unnecessary correspondence and delays by submitting complete and accurate information. *Please submit two copies of this application and all accompanying papers* except as otherwise noted. Place your name and address on each sheet. Each item of information, maps, and reports required as a part of this application is described on the back of this form. Identify each attached statement by the item number to which it applies. If an item does not apply to your application, show the item number on your statement and after it write "not applicable." Maps or sketches should be used to supplement narrative descriptions of the property location and boundaries in item 2, existing mine workings and geology in item 3, and the proposed exploration work in item 5. When this information is not too complex, all of it may be shown on one map or sketch. All documents and other attachments submitted as a part of this application, except those in item 3(g) which you mark to be returned, become the property of the Government and will not be returned to the applicant. Send true copies, *not originals*, of leases, contracts, and other documents which are an essential part of your business records. *File this application with the Office of Minerals Exploration, Department of the Interior,* ~~Washington 25, D.C. or with the nearest OME Field Office.~~ Washington, D. C., 20242, or with the nearest OME Field Office.

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, and that he would not ordinarily undertake the proposed exploration under current conditions and circumstances at his sole expense.

May 18, 1968
DATED

G. E. Sorensen
BY (Signature)

President
TITLE

A wilfully false statement or certification to any Department or Agency of the United States Government is a criminal offense. U. S. Code, Title 18, Sec. 1001.

INFORMATION REQUIRED WITH THIS APPLICATION

1. Financial Eligibility:

(a) Submit evidence of efforts made within 90 days preceding the filing of this application to obtain credit from your bank of account and at least one other banking institution or other private source of credit. Such evidence shall include true copies of correspondence which show: (1) date of loan request, (2) amount and terms requested, (3) proposed use of loan funds, and (4) the replies from credit sources. If the loan was offered under terms which you consider unreasonable, state why you consider them so.

(b) List names and addresses of affiliated, parent, or controlling companies or organizations and state extent and nature of their interest.

(c) State how you propose to furnish your share of the cost of the exploration work.

2. Applicant's Rights in Land:

(a) State your interest in the land and mineral rights, whether owner, lessee, purchaser under contract, or other. If you are not the owner, submit one true copy of the lease, contract, or other document (with address of owner) under which you control the property. Describe all liens, mortgages, or other encumbrances on the land and state book and page number and official place where recorded.

(b) State the legal description (section, township, and range; metes and bounds; patent number of claims) of the land upon which you wish to explore and all adjacent land which you own or control. Describe any part of the land or workings which should not be subject to Government royalty and liens. If the land consists of unpatented claims, state book and page number for each recorded location notice, including amended locations, and official place where recorded. State all the names by which you know the property.

(c) For all land or mineral rights encumbered or not owned, submit five copies of Lien and Subordination Agreements on MME Form 52. If the agreements cannot be obtained, state reasons and provide copies of letters of refusal.

3. Physical Description:

(a) Describe in detail and illustrate with maps or sketches all mining or exploration operations which you know have been or are being conducted upon the land. Include existing mine workings and all production facilities.

(b) State your interest, if any, in operations described in (a).

(c) State, if you know, the past and current production, supporting your statement with copies of settlement sheets, mine records, or published data if available.

(d) Describe known ore reserves, giving quantities and grades and sampling methods used. Support your statement with copies of assay certificates and assay maps if available.

(e) Describe by narrative and maps or sketches the geologic features of the property, including ore minerals, geologic formations if known, and type of deposit (vein, bedded, etc.).

(f) State your reasons for expecting to find ore, and if you have sampled the area you propose to explore, show where the samples were taken, describe sampling methods used, and provide copies of assay certificates.

(g) Send with your application at least *two* copies of all geologic or engineering reports, assay maps, or technologic information which you have, indicating whether you require their return.

4. Accessibility of Property:

(a) To aid the OME representative who may examine the property, state name and address of person who will meet him; give directions for reaching the property; and describe accessibility of property and of any mine workings.

(b) Name the shipping and supply points and state the distances to the property.

5. Exploration Work:

(a) Describe fully the proposed exploration work giving individual footages and sizes of openings *for each item of work.* Use narrative, maps, plans, and sections as necessary. Show location of the proposed work as related to geologic features such as veins, ore-bearing beds, contacts of rock formations, etc. Show also the relation of the proposed work to any existing mine workings and to *land boundaries* or to the closest identifiable corner.

(b) If an access road must be built, show the proposed location on the property map and state the length, type and construction methods proposed.

(c) If an OME contract is executed, state how soon thereafter work would be started and finished. State your anticipated average daily or monthly rate of progress for each type of work.

6. Experience:

State your operating experience and background to conduct this exploration work and also that of the person who will supervise the work.

7. Estimate of Costs:

Furnish detailed estimates of the necessary costs *for each item of the work proposed in 5(a)* under the headings listed below with a total for each heading and the estimated total cost of the work. Costs for any work to be performed by an independent contractor should be listed separately under category (a) below. Costs for any work that is not to be performed by an independent contractor should be listed under categories (b) through (g).

(a) Independent contracts. State the total cost of any proposed independent contract for all or any part of the work and the number of units and the unit cost for each type of work, such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, or per cubic yard of material moved. Cost estimates should be supported by bids from three contractors if possible. (*Note*—If none of the work is to be contracted, write "none" after this item.)

(b) Personal services. The cost of supervision, engineering and geological services, outside consultants, and labor should be itemized by numbers and classes of employees; rates of wages, salaries or fees; and periods of employment. State whether these services are available.

(c) Operating materials and supplies. List items of material and supplies giving quantity and cost of each. Include under this heading power, water, and fuel, and units of equipment and tools costing less than $50 each.

(d) Operating equipment. List items of equipment and tools costing $50 or more per unit. Give specifications and indicate how each item is to be acquired—i.e., rented, purchased or provided by the applicant. If rented or purchased, state the estimated rental or purchase price. If furnished by the applicant, state condition and present fair market value.

(e) Initial rehabilitation and repairs. Describe the type and the cost of *initial* rehabilitation or repair of existing buildings, fixtures, installations (exclusive of mine workings), and movable operating equipment now owned by the applicant which will be used in the exploration work.

(f) New buildings, fixtures, installations. Describe each building, fixed improvement, and installation to be purchased, constructed, or installed for the exploration work, stating specifications and cost including labor, materials, and supervision.

(g) Miscellaneous. Describe the type and estimate the cost of repairs and maintenance of the operating equipment listed in 7(d). Do not repeat initial repairs listed in 7(e). Show also the costs of analytical work, accounting, workmen's compensation and employees' liability insurance, payroll taxes, and other required costs that do not fall within the previous categories. [*Note*—The Government will not contribute to costs incurred before the date of the contract, or to costs of or incident to: (1) acquiring, using, or possessing land and any existing improvements, facilities, buildings, installations, and appurtenances, or the depreciation and depletion thereof; (2) general overhead, corporate management, interest and taxes (other than payroll and sales taxes); (3) insurance (other than employees' liability insurance); and (4) damages to persons or property (other than authorized repair to or replacement of equipment or other property used in the work).]

The Kemmerer Coal Company
Frontier, Wyoming 83121

3. Physical Description (Revision and Addition)

The application is essentially an exploration for uranium ore deposits similar to those occurring in the Schwartzwalder mine located approximately one mile southwest. Although other minerals are present in the area, they are of secondary importance.

5. Exploration Work (Revised)

(a) All trenching and underground crosscutting has been omitted. The amended program is designed to test the Mena Mine area for specific ore bodies similar to those occurring at the Schwartzwalder mine. None of the previous exploration work has been directed toward the most promising geologic target.

(1) Coring Program: (Revised)

Proposed Diamond Drill Holes

D D H No.	Length	Bearing	Dip
1	450'	West	60
2	400'	Vertical	90
3, 4, 5, 6, 10	400'	East	80 *
8, 9	300'	East	80 *
7	1000'	East	80 *

* The exact dip will be determined from D D H No. 1.

All holes 450' or less will be drilled AX, longer holes will be NX and BX.

Cross sections A - A' through J - J' show the proposed core holes and objective targets.

D D H No. 1 (Cross-section A - A') is spotted to determine exact dip of the south trending branch breccia reef. The only dip of any value available is at the end of the south adit. Surface exposures of this branch reef are poor. D D H No. 1 will penetrate the Mena vein near its juncture with the branch breccia reef. These areas are the prolific ore bodies in the Schwartzwalder mine. D D H No. 1 will also encounter the Cross vein at depth and reveal the character of this vein at an untested depth. Any other vein developing such as the Lagrima vein (reported in DMEA holes No. 1 and 5) will be cut by this hole.

5. Exploration Work (Revised)

(1) Coring Program (Revised)

D D H No. 2 (cross section B - B') is a vertical hole designed to explore the Mena, Cross and any splits near the branch of the south-trending reef and the main reef. This is a target zone of fracturing and subsequent accumulation. D D H No. 2 will be vertical to parallel the main breccia reef which all available dips indicate is vertical.

D D H No's. 3, 4, 5, 6, 8, 9, 10 (Cross sections C - C' through J - J', excepting G - G') are designed to explore the Mena, Cross and any splits near the south-trending branch breccia reef. They closely parallel the breccia and are spaced to encounter any sizeable uranium deposits and will also explore down the rake of ore bodies previously productive at the Mena Mine.

D D H No. 7 (Cross section G - G') is a 1000' hole parallel to the branch breccia reef. This hole will explore the Mena, Cross and other splits at depth. An analogous situation occurs at the Schwartzwalder mine, at depth, mineralized splits occur at roughly 100 foot intervals off the Illinois vein.

The Kemmerer Coal Company
Frontier, Wyoming 83121

7. Estimate of Costs (Revised)

(a) Independent Contracts

(1) Coring 10 holes

Overburden:	100'	@ $8.50	-	$ 850
NX Hole :	240"	@ 7.10	-	1,704
	250'	@ 7.90	-	1,975
	250'	@ 8.60	-	2,150
BX Hole :	250'	@ 9.00	-	2,250
AX Hole :	2160'	@ 6.40	-	13,824
	1200'	@ 6.85	-	8,220
	4450'			$30,973

Reaming :	200'	@ $3.95	-	$ 790
	200'	@ 4.95	-	990

Casing lost in hole :	200' AX	@ $2.00	400
	200' NX	@ 3.00	600

Cementing hole: 200 hrs @ $14.50 -	2900
Additives (mud,cement etc)	500
Standby time: 50 hrs @ $12.65	632
Core boxes: 500 @ $1.00	500
Hole Probing 5000' @ 15¢	750
Water @ $200 per hole	2000
In-hole survey 10 days @ $75.00/week	150
	$10,212

Total Coring Cost - - - - - - - - - - $41,185

(2) Bulldozer (T. D. 15 with ripper) for making roads to drill sites and grading locations for coring machines:

50 hours @ $18.50/hr. - - - - - - - - - - - - - - - - - - - $ 925

(3) Assays:

100 uranium	@ $7.50	-	$ 750	
100 bismuth	@ 7.50	-	750	
100 silver - gold	@ 2.50	-	250	
100 copper	@ 1.50	-	150	$1,900

The Kemmerer Coal Company
Frontier, Wyoming 83121

7. Estimate of Costs (Revised)

(b) Personal services:

(1) Supervision, geologist, engineer		
8 mo. @ $1,500/mo	- $12,000	
Auto mi. 1200/mi/mo for 8 mo @ 12¢	1,152	$13,152
(2) Field Assistant 50 days @ $25 per day		1,250
(3) Outside consultants		
Geologist for consultation, polished section work, etc.		
10 days @ $75/day	750	
500 mi @ 12¢/mi	60	810
(4) Surveyor		
5 days @ $75/day	375	
250 mi @ 12¢/mi	30	405

(c) Operating materials and supplies — None

(d) Operating equipment — None

(e) Initial rehabilitation and repairs

T. D. 15 bulldozer with ripper to put approximately 1 mile of access roads in condition, reset culverts

40 hrs. @ $18.50 — 740

(f) New buildings, fixtures, installations — None

(g) Miscellaneous

It is proposed to have the independent contractors furnish all insurance coverage, Workmen's Compensation, and keep the applicant free from all damage claims.

Accounting - 8 Mo. @ $50 - - - - 400

Total Cost of Revised Exploration Program - - $60,767

May 27, 1968

Mr. J. J. Wanner
410 Boston Building
Denver, Colorado 80202

Re: Mena Mine Exploration

Dear Mr. Wanner:

Shortly before the Mena mine was sub-leased by The Kemmerer Coal Company, Mr. K. W. Nickerson discussed the exploration potential of the property with Mr. Doug Sheridan, Geologist with the USGS, at Denver, Colo. Other discussions were held with Mr. Allan Bird, Mine Geologist at the Schwartzwalder mine. Both of these gentlemen are of the opinion that the Mena mine merits additional exploratory efforts. Sheridan and Bird are probably the most knowledgeable geologists regarding the Mena area.

The core holes put down by the AEC, other holes cored by Mr. Joe Walsh with DMEA assistance, regional field studies by the USGS, and underground mining by Walsh and others have uncovered commercial uranium ore at the Mena property. However, none of these activities tested the most promising sites in light of what we now know about uranium occurrences in this area. This is particularly true when recent developments at the Schwartzwalder mine are considered (see accompanying letter and map by Allan Bird).

Core holes to adequately test the Mena mine need to be located so as to test both sides of the branch breccia reef but most especially the west side parallel to and within 20 to 30 feet of the north-south trending branch breccia reef of the Rogers reef system. In view of the fact that uranium ore bodies in this area tend to be long in rake length and relatively limited in strike length, exploratory diamond drill holes need to be positioned to explore down the rake of ore shoots that have already been mined, such as

the one in the north adit. These holes must be deep enough to cut the veins near where they branch out from the breccia reef and at least a hundred feet deeper to core other veins that may be branching out below. For example, the cross vein may open up and prove to be ore-bearing further down dip.

There is great similarity in structural conditions suitable for ore deposition at the Mena and Schwartzwalder mines. Experience at the Schwartzwalder has shown that a limited exploration program can very easily miss a rich ore body.

Certainly the Mena mine warrants additional exploratory core holes.

K. W. Nickerson

K. W. NICKERSON

Denver, Colorado
May 14, 1968

Mr. Ken W. Nickerson
12431 West Alameda Drive
Denver, Colorado 80228

Dear Ken,

At your request, I have carefully reviewed the proposed exploration program which you submitted for O.M.E. approval. As you know, in past years I have had the priviledge of doing much of the early geologic mapping and drilling on the Mena prospect, both for the A.E.C. and Joe Walsh. Because of certain structural similarities between the Mena and the Schwartzwalder, I have always felt that the Mena deserves a more adequate exploration effort. I will attempt to illustrate the type of program I have in mind by first giving you a rather detailed description of the major structural controls in the Schwartzwalder mine.

The Schwartzwalder mine has produced approximately fifteen million dollars in uranium since 1953. All of this ore has come from a geographical area no larger than a single 600' X 1,500' mining claim. The Schwartzwalder mine is the worlds highest grade vein type uranium mine in operation today.

The main structure at the Schwartzwalder mine is the Illinois vein. This structure is, in my opinion, a split or tension fracture which breaks from the large regional fault known as the Rogers "reef". The Illinois vein strikes approximately North-South and dips steeply to the West. Almost without exception, the rich ore bodies of the Schwartzwalder mine form near the junction of the Illinois vein and a series of flatter dipping tension fractures which split from the Illinois into the hanging wall or the ground to the West of the vein. These tension fractures usually do not persist to the surface but tend to feather out as the distance from the Illinois vein increases. It is interesting to note that the main Illinois vein probably cropped out at the surface during periods of mineralization and as a result, much of the mineralizing fluids probably passed through the structure and were dissipated at the surface. This has resulted, for the most part, in a much lower grade of ore in the mineralized portions of the Illinois structure. The bulk of the commercial ore formed below the zone of surface oxidation in an enriched zone. The low grade ore was leached from the surface and redeposited as black sooty pitchblende in the enriched portion of the vein. Below the enriched zone, the values are again very low, usually between 0.005-0.2% U_3O_8. The rich

ore in the Schwartzwalder mine is found in the tension fractures which split from the Illinois vein. All of these veins are either capped by a tight impervious schist or they feather out in the hornblende gneiss unit which extends from the Schwartzwalder to the Mena mine. The reason for the extreme richness of these ore bodies is probably due to the fact that uranium bearing fluids were trapped in these structures and ample time existed for complete deposition of the uranium. A prime example of this type of deposition occurs between the 4th and 5th levels of the mine. The Illinois vein was drifted on along the 4th and 5th levels with no evidence of a commercial ore body. A raise was driven between the two levels. With the exception of one highly radioactive split about one foot thick, the raise showed no commercial ore. Subsequent diamond drilling from the 4th level uncovered an ore body between the split and the Illinois vein which is in places fifty (50) feet wide and three hundred feet long. This large "V" shaped ore body occurs, for the most part, in hornblende gneiss and the split vein responsible for its formation revealed only a few small non-persistant ore shoots above the 4th level. When completely mined out, this ore body should produce about 35,000 tons of between 2.0-3.0% U_3O_8.

Having given you this description of the Schwartzwalder ore controls, let me now give you some of the obvious similarities between the Schwartzwalder and Mena structures.

At the Mena mine, the branch North-South breccia zone breaking to the South of the main northwesterly trending Rogers "reef" is similar in appearance and trend to the Illinois vein. To my knowledge, no uranium has been found on the structure at the Mena. Perhaps this is explained by the presence of a more open breccia zone in which uranium bearing fluids passed through rapidly and were completely dissapated at the surface with no time for deposition. It has been felt by many that the Rogers reef has acted as the conduit for most of the Ralston Creek uranium occurances and that because it was probably open to the surface, no uranium has been found in this major structure.

The Mena vein is similar in both strike and dip to the tension fractures of the Schwartzwalder mine. The Mena vein may or may not have outcroped at the time of mineralization, however, we do know that several small ore shoots have been found and mined. The shoots found in the southern portion of the lower workings do not, to my knowledge, persists to the adit levels or the surface.

The junction zone between the mena vein and the North-South breccia zone has never been explored. It occurs below the 200' level. It is significant that the veins on the 100' level near the south end of the mine, appear to be branching. This is the type of zone that formed ore at the Schwartzwalder near the junctions.

In my opinion, the possibility of veins parallel to the Mena may exist at depth below the Mena vein. Deep drilling at the Schwartzwalder has shown the existence of at least three major splits below the bottom level of the mine. These splits are occuring at about 100' intervals.

I am suggesting a series of drill holes for the Mena mine. The first hole should be drilled from the East side of the breccia split (North-South breccia fault) to intersect and determing the accurate dip of the breccia.(Hole A). The 400' holes should be drilled near the North-South breccia and parallel to the dip of the breccia to intersect the Junction zones of the Mena and any veins which may lie below the Mena. One 1000' hole is proposed on both the West and East side of the breccia zone to explore for any blind splits which may be breaking from the North-South breccia fault.

Proposed Exploration

Hole No.	Dip	Bearing	Depth
A	-64°	S 75 W	250'
B	-80°	N 80 E	1000'
1.	-80°***	N 80 E*	400'
2.	-80°	N 80 E	400'
3.	-80°	N 80 E	400'
4.	-80°	N 80 E	400'
5.	-80°	N 80 E	1000'
6.	-80°	N 80 E	400'
7.	-80°	N 80 E	400'
8.	-80°	N 80 E	400'
		Total	5,050'

*The exact dip should be determined from hole A.

All the 400' holes should be drilled AX size and the 1000' holes NX.

Cost Estimates

110' overburden @ $8.50/ft	$ 935
2000' AX @ $6.40/ft	12,800
500' NX @ $7.10/ft	3,550
1050' AX @ $6.85/ft	7,192
500' NX @ $7.90/ft	3,950
1000' NX @ $8.60/ft	8,600
	$37,027 Total.
Reaming 200' @ 3.95'	$ 790
Reaming 200' @ 4.95'	990
Casing lost in hole: 200' AX @ $2.00	400
100' NX @ $3.00	300

Costs Cont'd.

Cementing hole...200 hours @ $14.50/hr.....	$ 2,900
Standby time..... 50 hours @ $12.65/hr.....	632
Core boxes.....500 @ $1.00/box.....	500
Hole probing.....5000' @ 15¢/ft.....	750
In hole survey...10 days @ $75.00/week.....	150
Total drilling costs	$44,420

Independent Contracts

1. Assays

100 uranium @ $7.50.....	$ 750
100 Bismuth @ $7.50.....	750
100 Silver-Gold @ $2.50.....	250
100 Copper @ 1.50.....	150
	$1,900

Personal Services

1. Supervision, geologist, Engineer...8 mos @ $1,500/mo.....$12,000
   Auto Mileage 12,000 mi/8mos. @ 12¢/mi...1,152
   $13,152

2. Field Assistant...50 days @ $25/day.....$ 1,250

3. Outside Consultants

   a. Geologist (for consultation, polished sedtion work, etc....10 days at $75.00 per day..... 750
      Mileage, 500 miles @ 12¢/mi..... 60
      $810

4. Surveyor...5days @ $75.00/day..... 375
   250 Miles @ 12¢/mi..... 30
   $405

Operating Materials and Suppies.....None

Operating Equipment.....None

Initial Rehabilitation and Repairs:
T.D. 15 Bulldozer w/ripper to put approximately 1 miles of access roads in condition, reset 3 culverts...40 hours @ $18.50 $ 740

Miscellaneous contingencies..... $1000

Total Cost of Entire Exploration program....$63,675

Yours very truly,

Allan G. Bird

Allan G. Bird
Resident mine geologist.
Schwartzwalder mine

Standard Form No. 65
November 1961
General Services Administration
FPMR (41 CFR) 101-11.6

U.S. Government Messenger Envelope

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Federal Water Pollution Control Adm. Room 936 Indiana Bldg	STOP	[illegible] G.S. Bldg.	STOP
[redacted]	STOP	Jack Reed ~~Bldg 420~~ ~~Beltsville~~	STOP
Madeline Lutz Sec'y E. Bldg. 6-103	STOP	Agnes	STOP
	STOP	~~Lois P. Williams~~ ~~U.S. Geol. Survey~~ Rm 4235 ~~29A~~ ~~G.S.A. Bldg. Rm~~	STOP
~~Mr. Charles Mooney~~ ~~Rm 6-100, Interior Bldg~~	STOP	Frank Johnson 4460 Interior	STOP
~~Room 4225~~ USGS ~~INTERIOR~~	STOP 43		STOP
Dave Larabee Building 18	STOP		STOP
	STOP		STOP
~~Dave Larabee~~	STOP		STOP

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MME Form 7
(2/63)

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Date	Surname	Code
4/30/68	Peters	120
4/30/68	Nicholson	120
		110
4/30	cal	220
		120M

AIRMAIL

The Kemmerer Coal Company
c/o John J. Wanner
410 Boston Building
Denver, Colorado 80202

APR 30 1968

Re: OME-6717 (Silver, Uranium and other minerals)
The Kemmerer Coal Company
Mena Mine
Jefferson County, Colorado

Gentlemen:

A review of your application for exploration assistance and of other information available to us indicates that the probability of making an ore discovery in a size to commensurate the estimated cost of the proposed project is not sufficiently promising to justify Government participation in the work. Consequently, unless new or additional favorable geologic information can be furnished to show that the targets you wish to test are more favorable for silver or other eligible mineral occurrences than the areas already explored under a previous Government contract, we would have no choice but to deny the application. Perhaps a program limited to the more promising targets could be developed.

Our review also indicates that the proposed work relating to geologic mapping and surface examination, trenching without a specific target, and underground crosscutting is designed to gather additional geologic data rather than to find ore, and therefore, would not be eligible for assistance under OME regulations.

In addition to furnishing additional geologic support, the following information is also required to complete your application.

Since the Kemmerer Coal Company does not own the property where work is contemplated, it will be necessary for you to furnish five copies of Lien and Subordination Agreements signed by Oscar Dahlberg, the owner. Also, Agreements signed by Madalene Walsh, who retains an interest in the property are required. Lien and Subordination Agreements (twelve copies MME Form 52) are enclosed for your possible use.

To aid us in determining your eligibility for OME assistance, a recent financial statement of the Kemmerer Coal Company should be furnished.

We shall continue to hold your application pending receipt of the requested information. Nothing in this letter should be construed as a commitment by the Government to grant an exploration contract.

Sincerely yours,

FRANK E. JOHNSON

Frank E. Johnson
Chief, Office of
Minerals Exploration

Enclosures

cc: Director's Reading File
Division File
Economic Geology File
OME File
OME Reading File
Mr. Peterson
Region III

ECPeterson/bsl 4/30/68

April 24, 1968

The Kemmerer Coal Company
c/o John J. Wanner
410 Boston Building
Denver, Colorado 80202

Subject: OME-6717

Gentlemen:

Your application for exploration assistance, dated April 16, 1968, submitted to our Washington Office, has been assigned Docket No. OME-6717.

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

Sincerely yours,

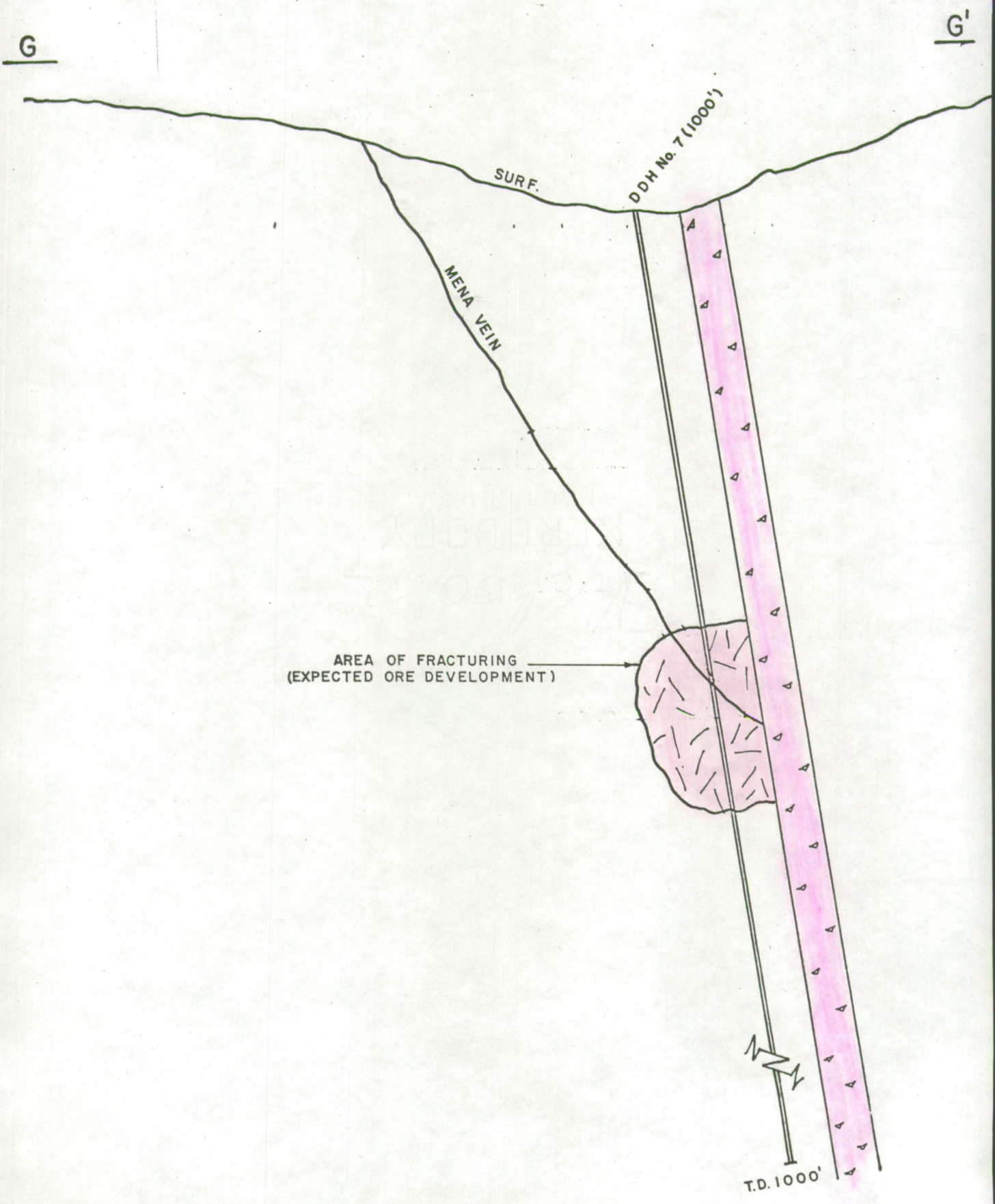
Frank E. Johnson
Chief, Office of
Minerals Exploration

Copy to Region III

MENA MINE AREA
Jefferson County Colorado

EXHIBIT "B"

K.W.N.



MENA MINE
CROSS-SECTION G-G'

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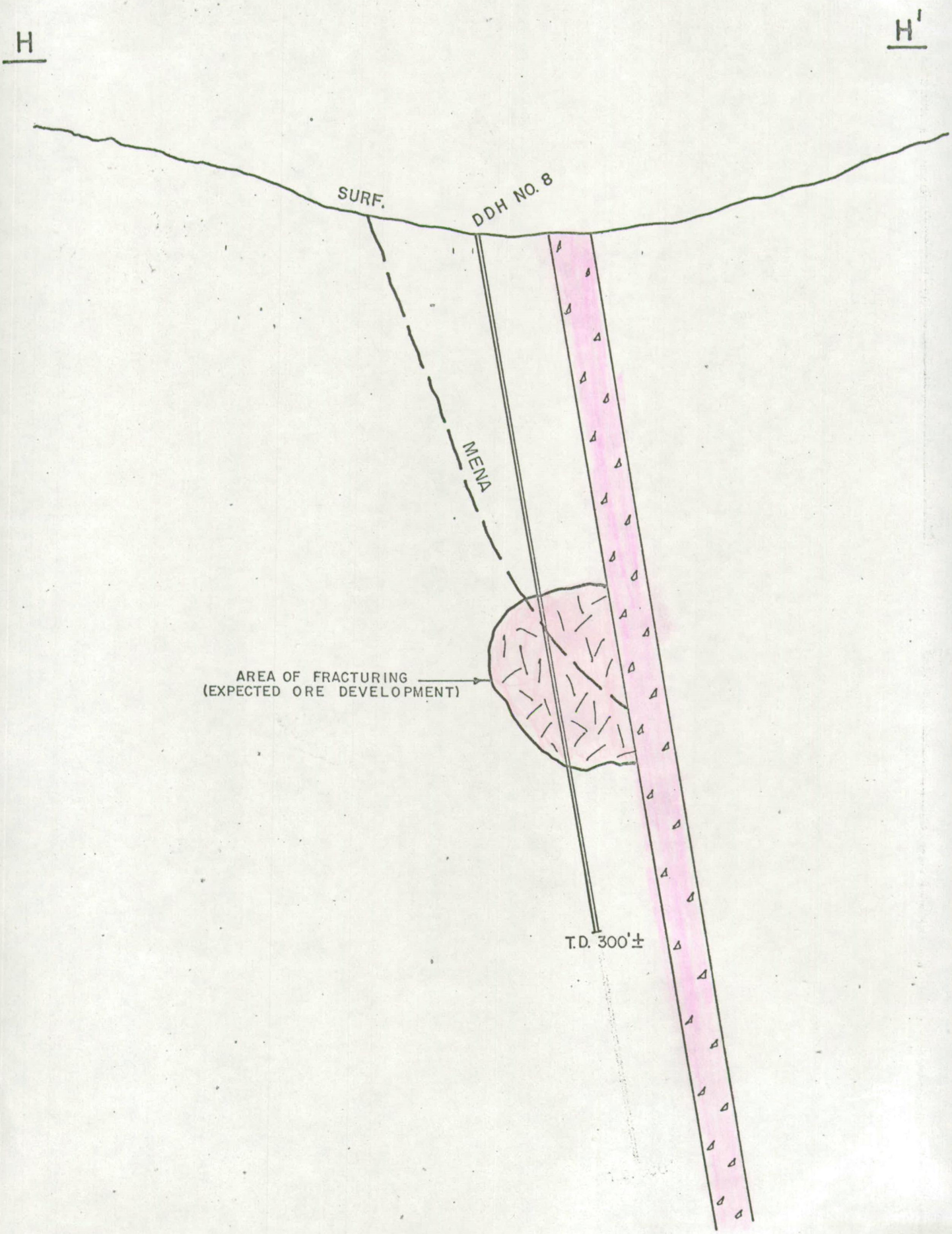
VERT. 1" = 50'



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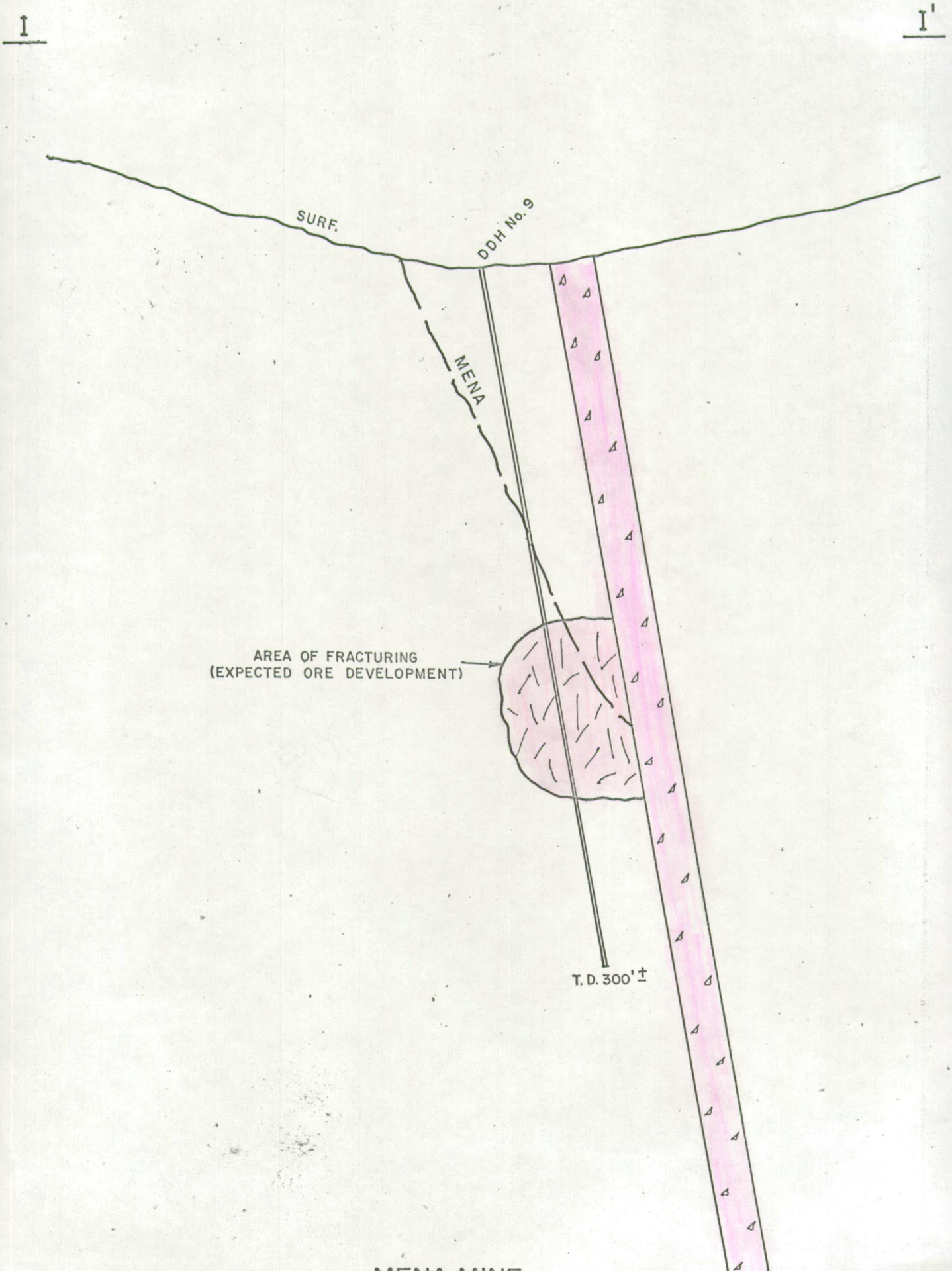

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CROSS-SECTION I - I'

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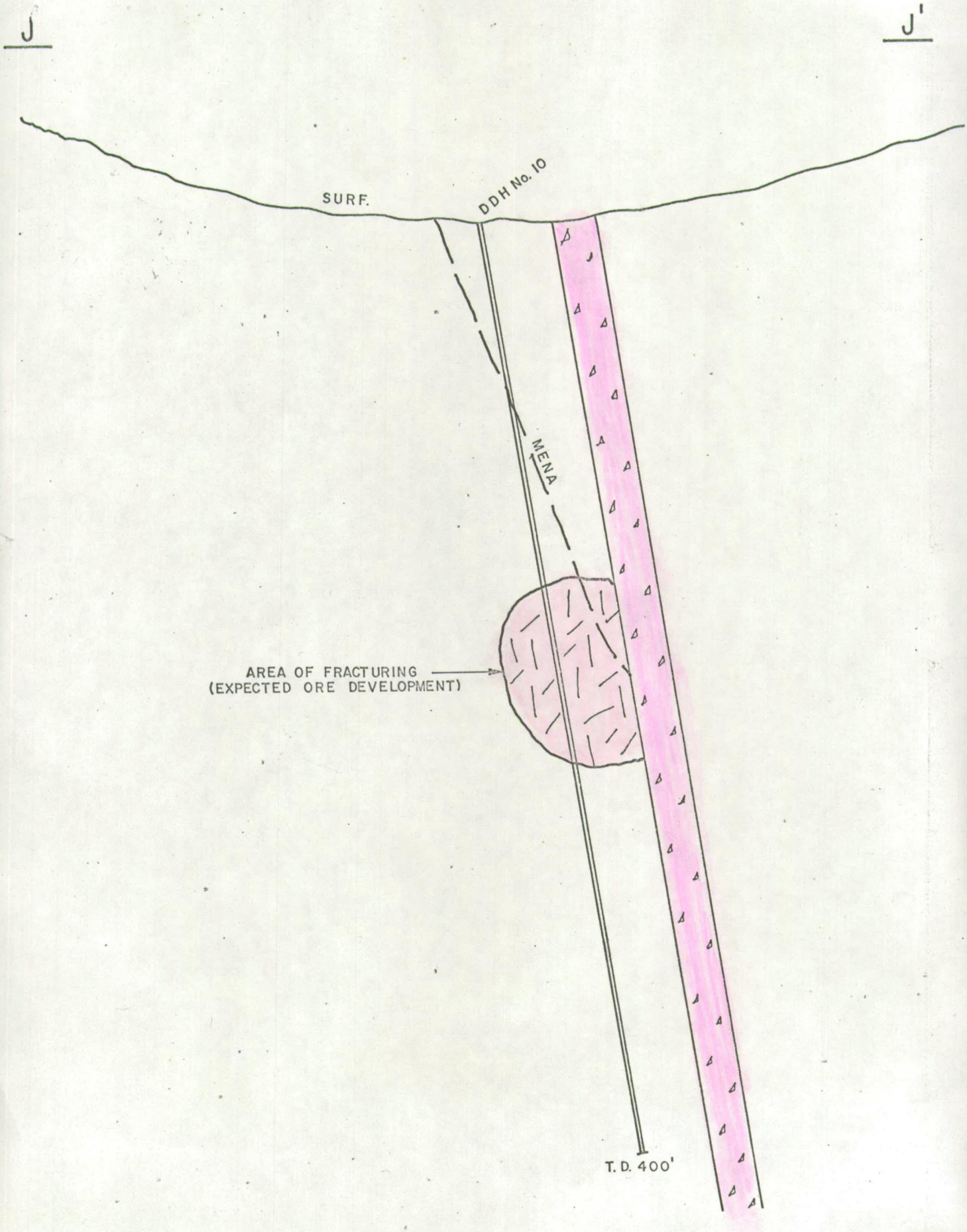

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CROSS-SECTION J – J'

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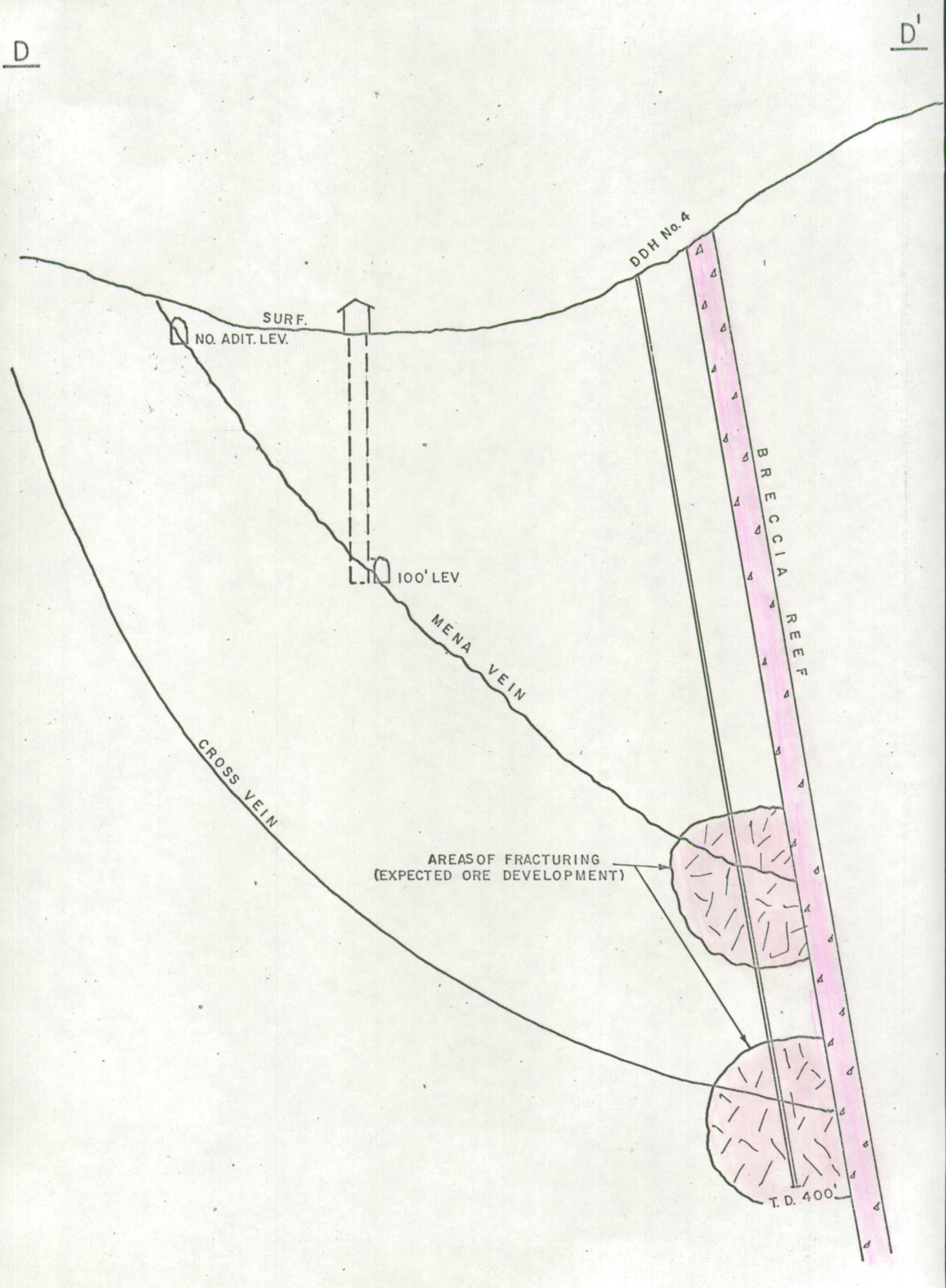

MENA MINE

CROSS-SECTION D - D'

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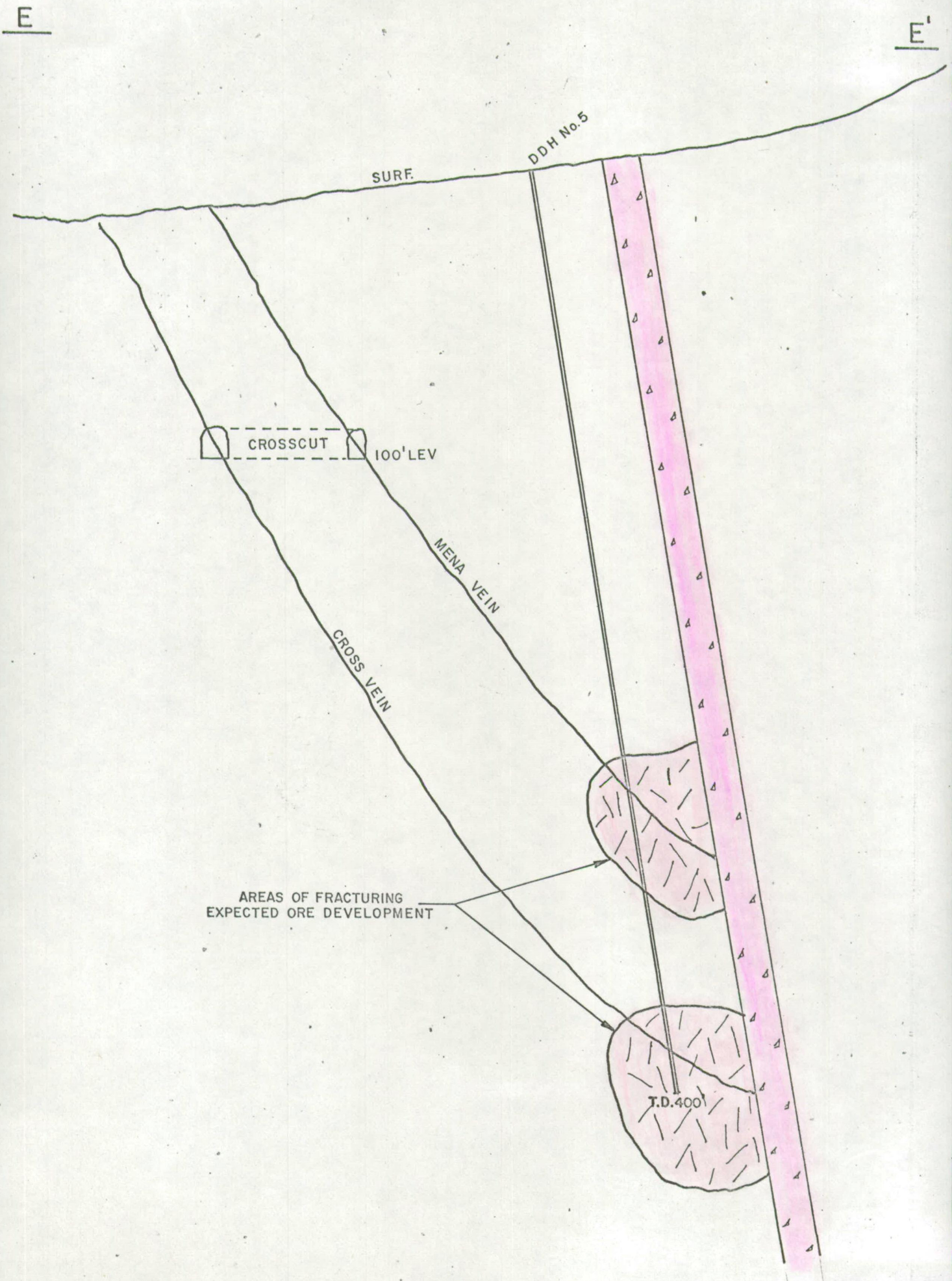
VERT. 1" = 50'



MENA MINE
CROSS-SECTION E-E'

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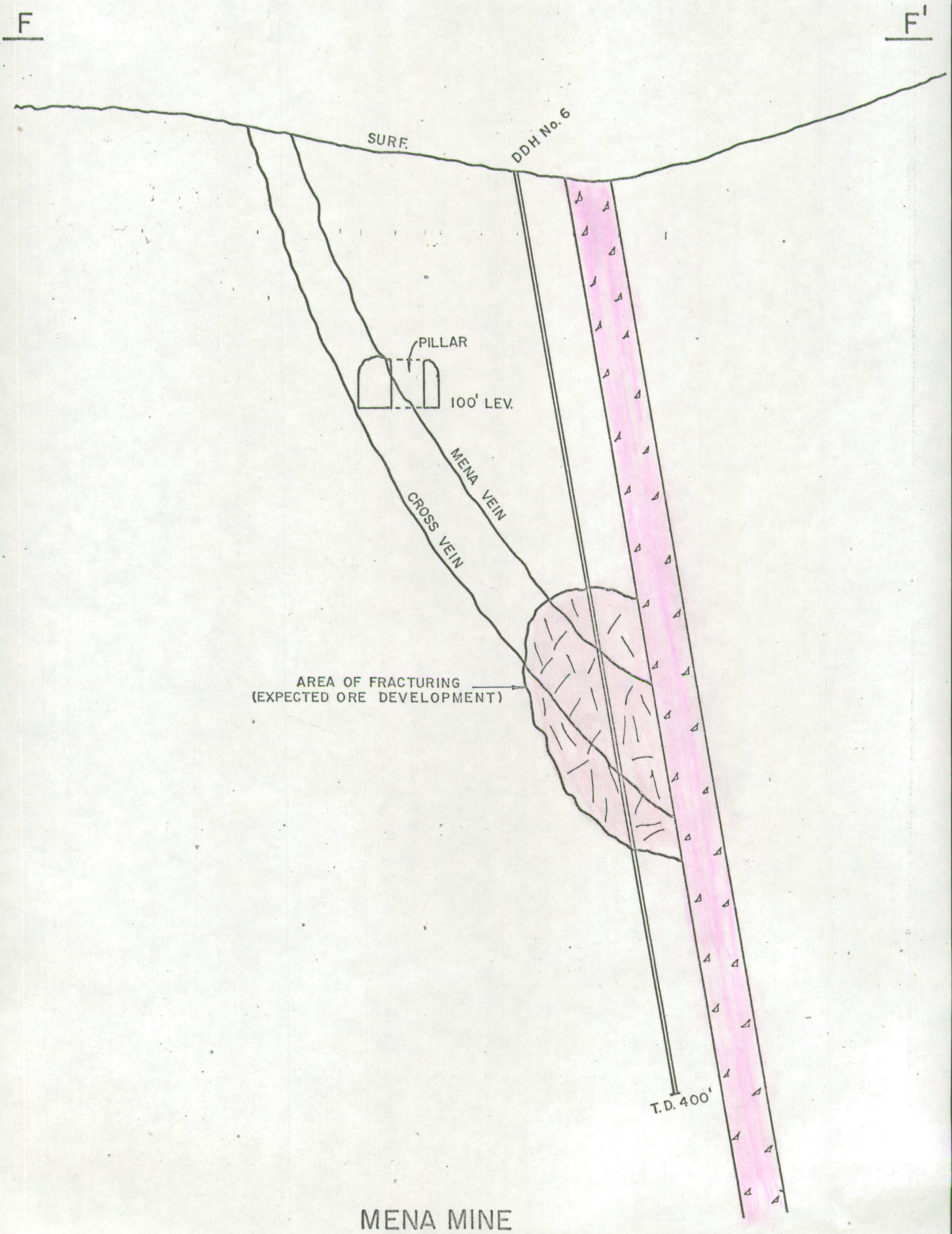
VERT. 1" = 50'



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CROSS-SECTION F-F'

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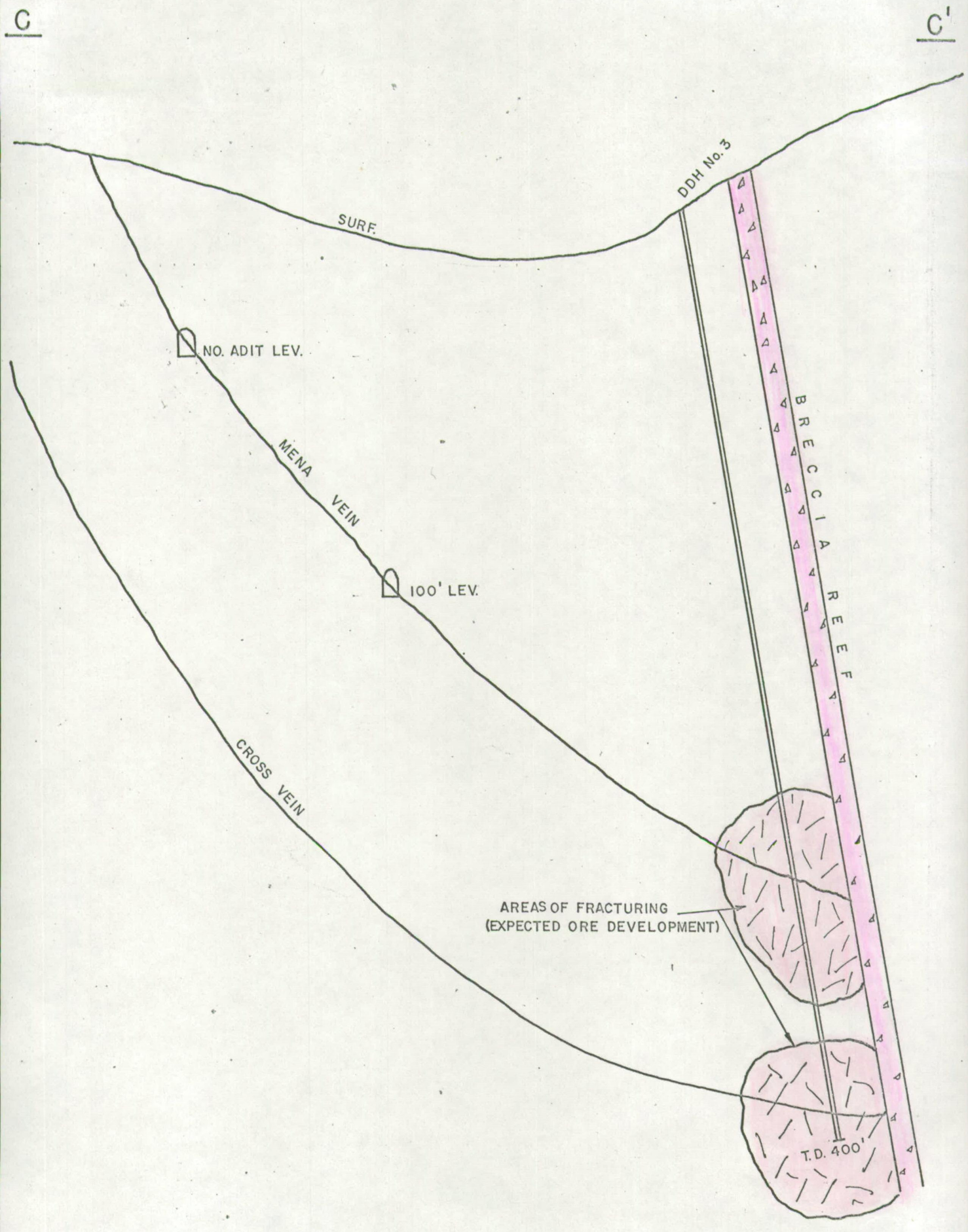

MENA MINE

CROSS-SECTION C-C'

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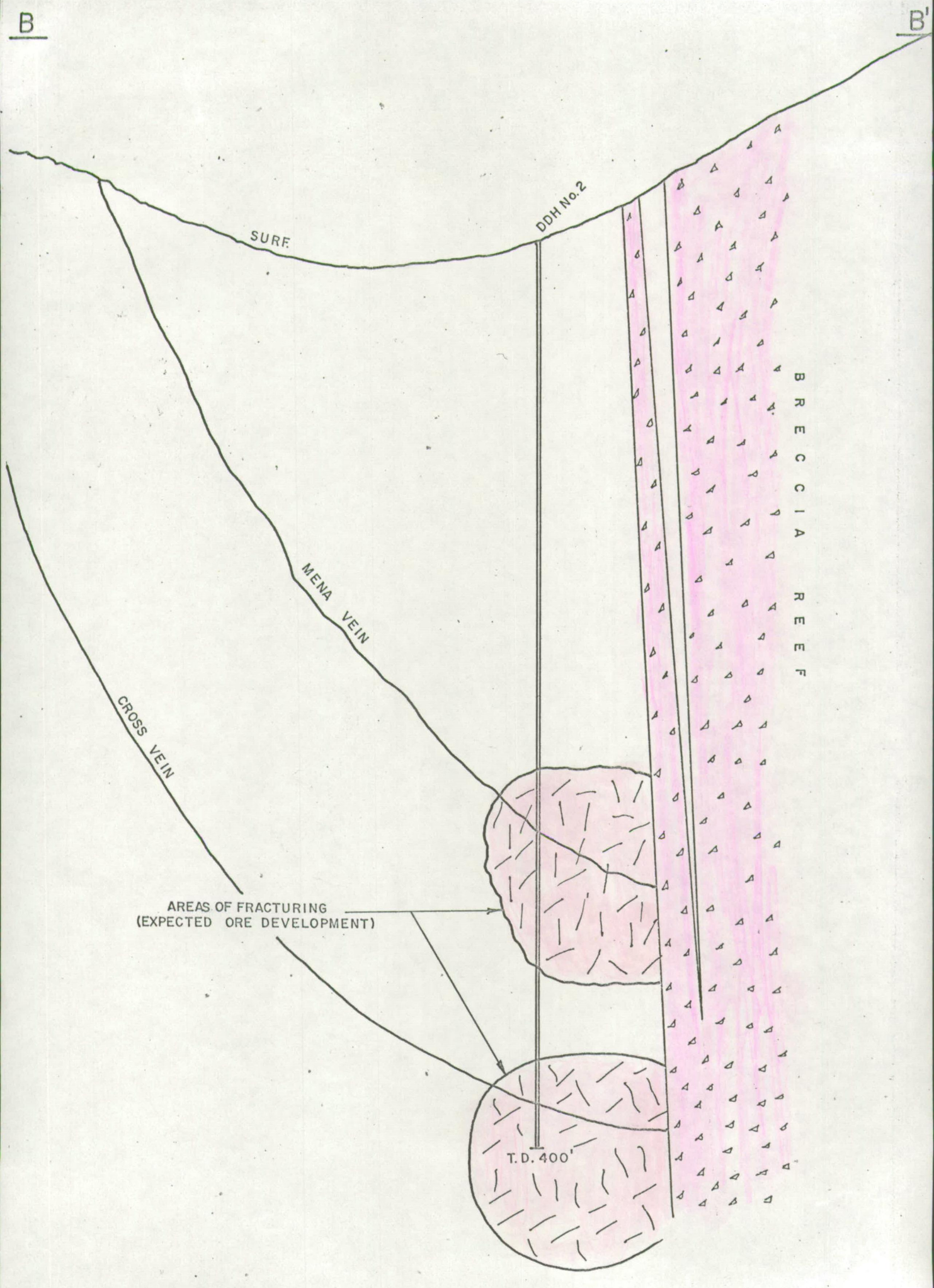

MENA MINE

CROSS-SECTION B-B'

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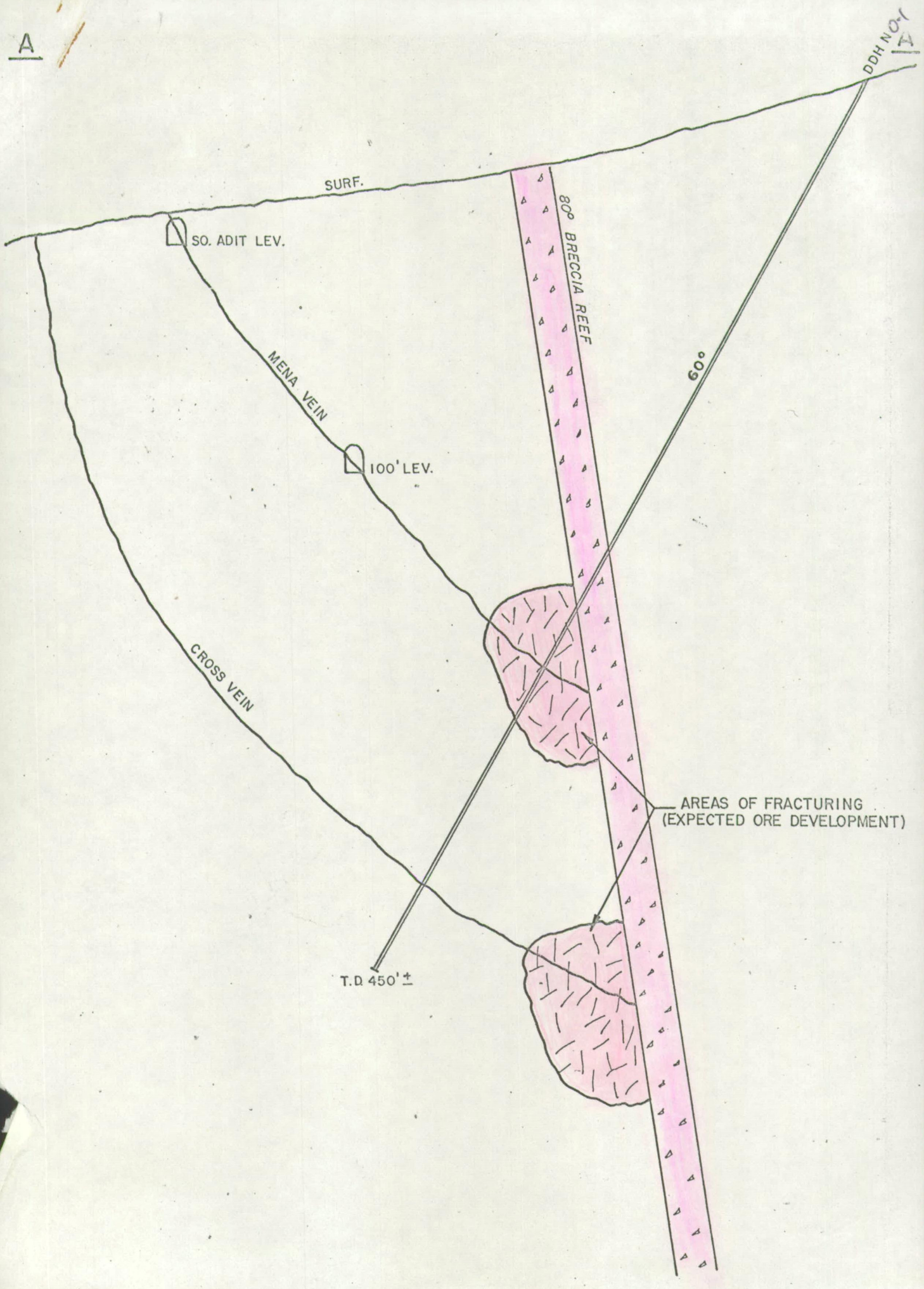

MENA MINE
CROSS-SECTION A-A'

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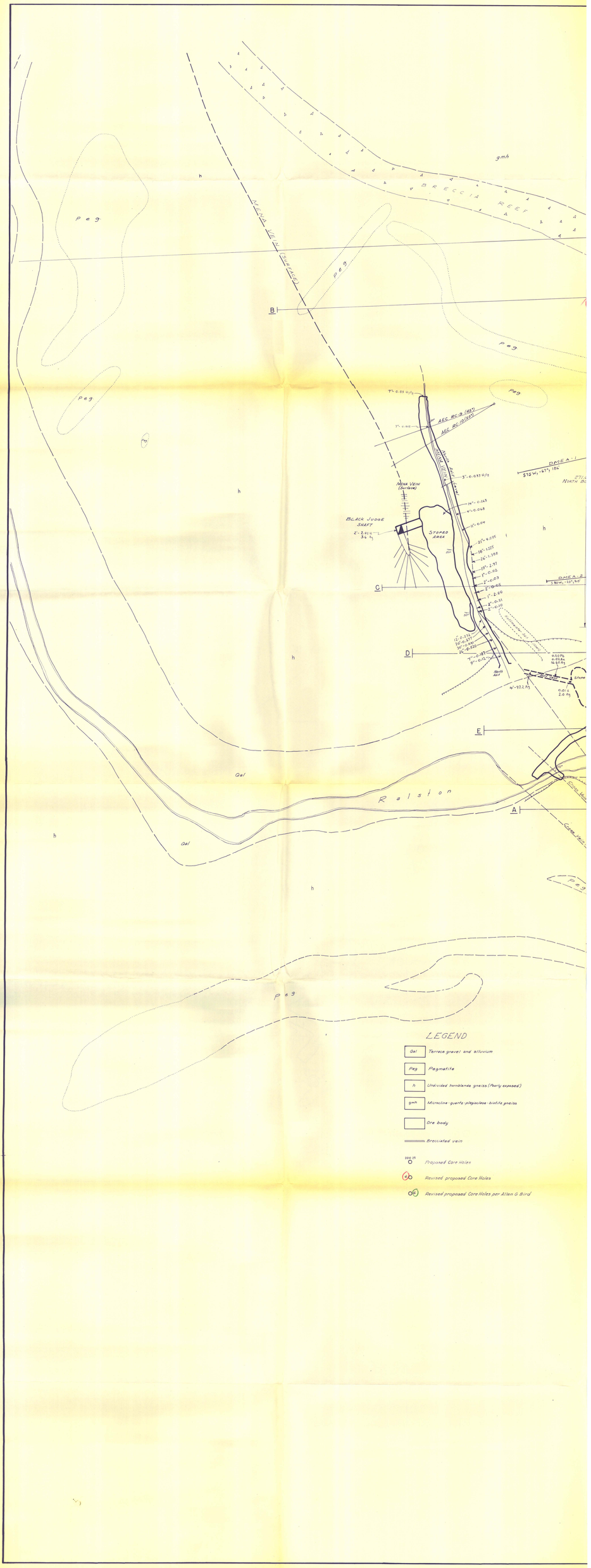
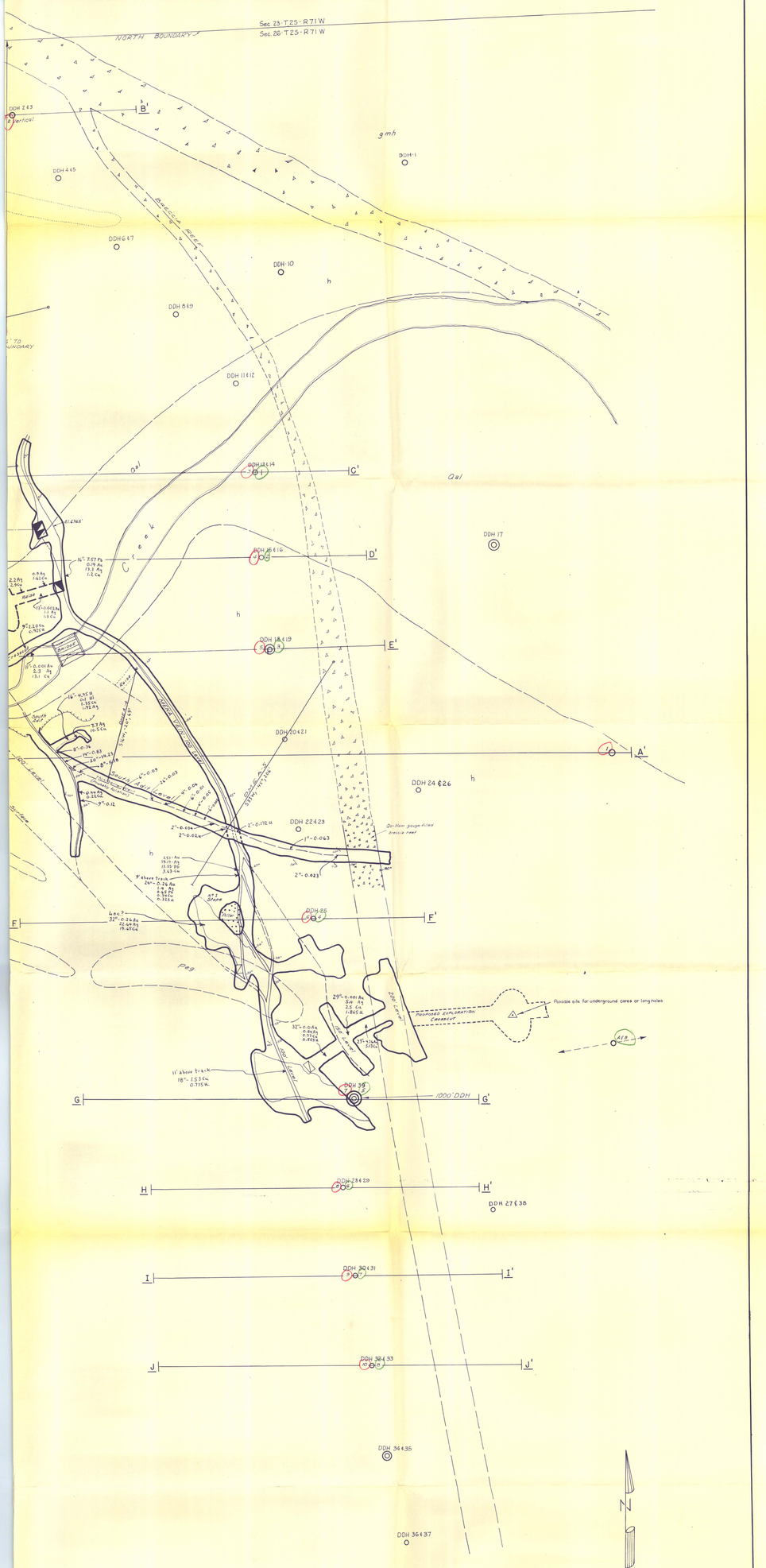
VERT. 1" = 50'


BRECCIA REEF
MENA VEIN (BRECCIA)
gmh
Peg
h
Qal
Ralston
Creek
A
B
C
D
E
BLACK JUDGE SHAFT
MENA VEIN (Surface)
STOPED AREA
North Adit
AEC RC-2 (187)
AEC RC-3 (150)
DMEA-1
DMEA-2
LEGEND
Qal Terrace gravel and alluvium
Peg Pegmatite
h Undivided hornblende gneiss (Poorly exposed)
gmh Microcline-quartz-plagioclase-biotite gneiss
Ore body
Brecciated vein
Proposed Core Holes
Revised proposed Core Holes
Revised proposed Core Holes per Allen G. Bird



MENA MINE AREA

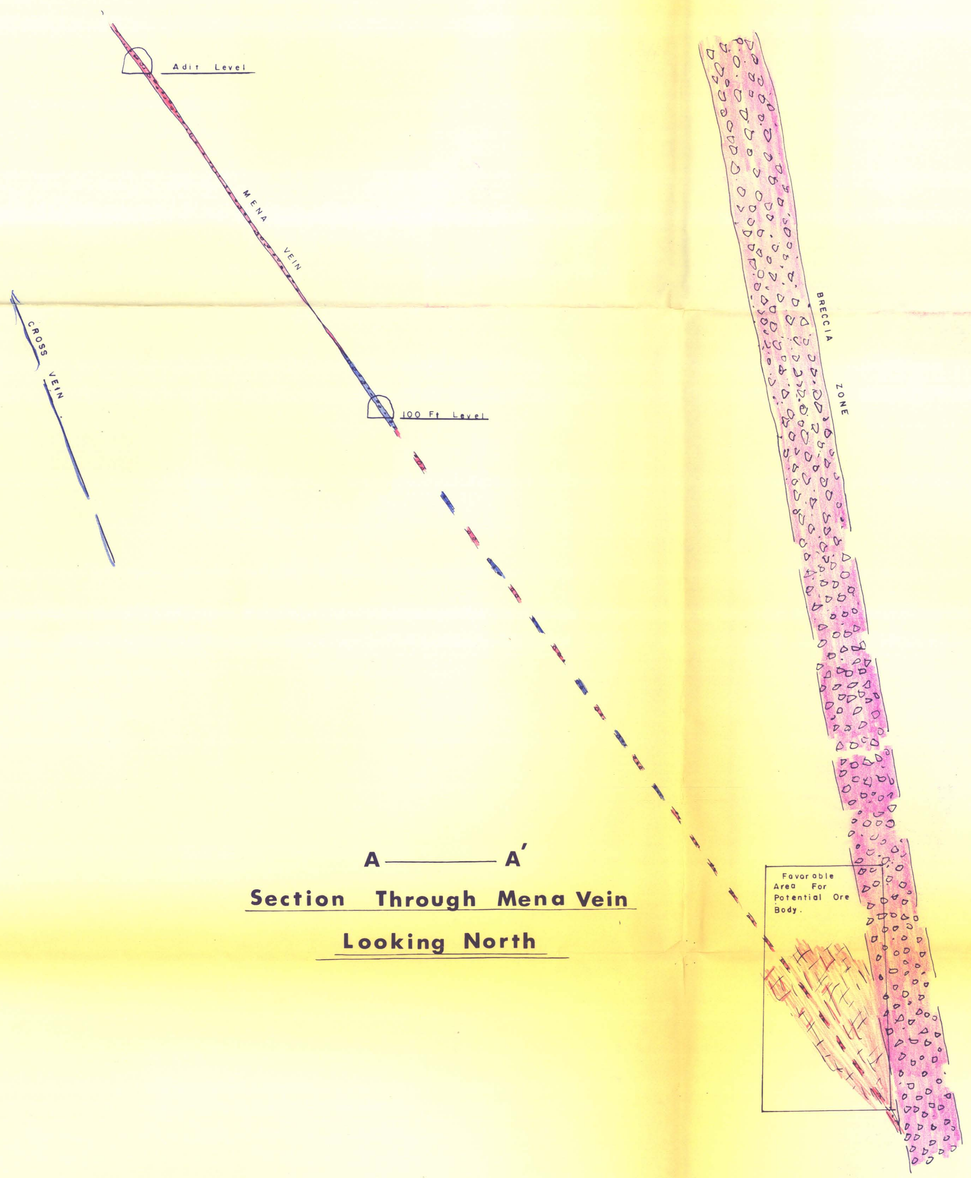
JEFFERSON CO., COLORADO

SCALE: 1" = 20 FEET

Compilation by: K. W. Nickerson

6-10-68

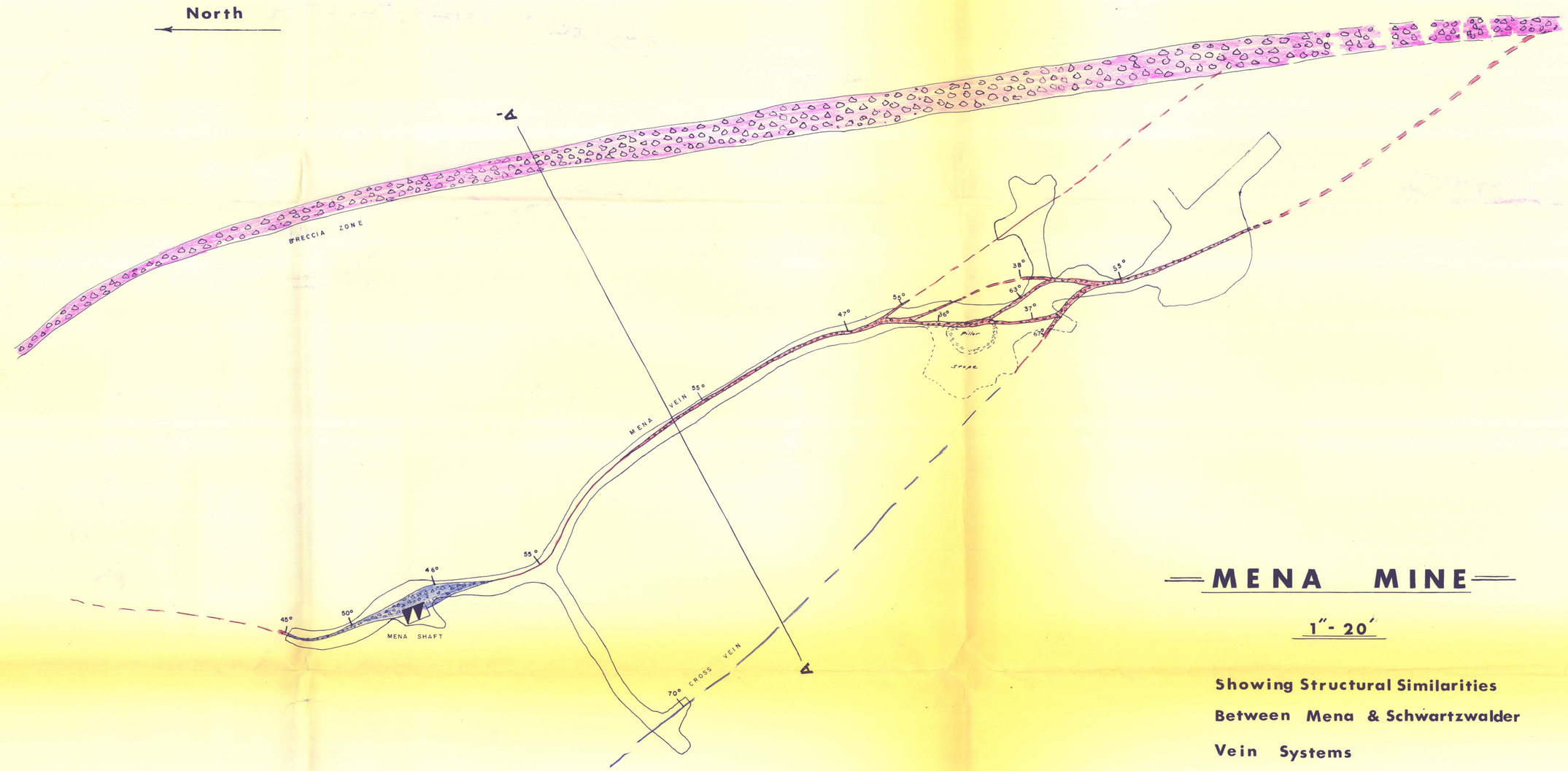
EXHIBIT A



A ——— A′

Section Through Mena Vein

Looking North

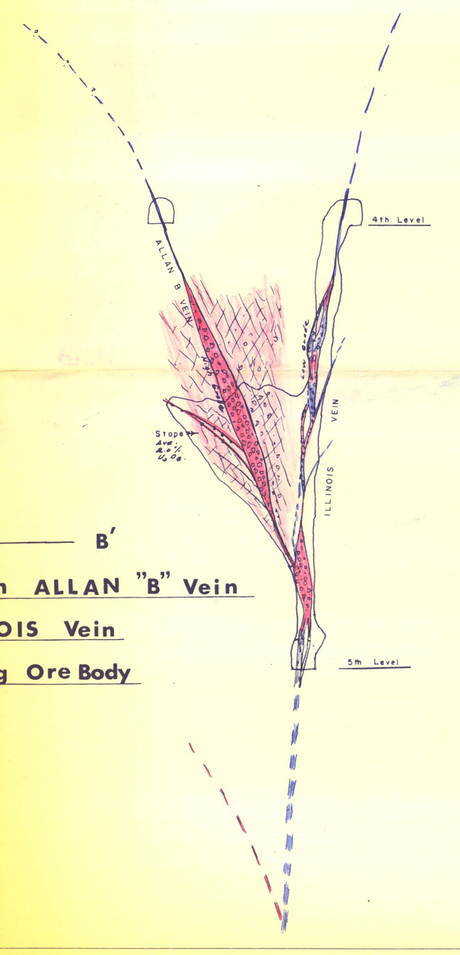


Plan Of 100 Ft Level

MENA MINE

1″ - 20′

Showing Structural Similarities Between Mena & Schwartzwalder Vein Systems

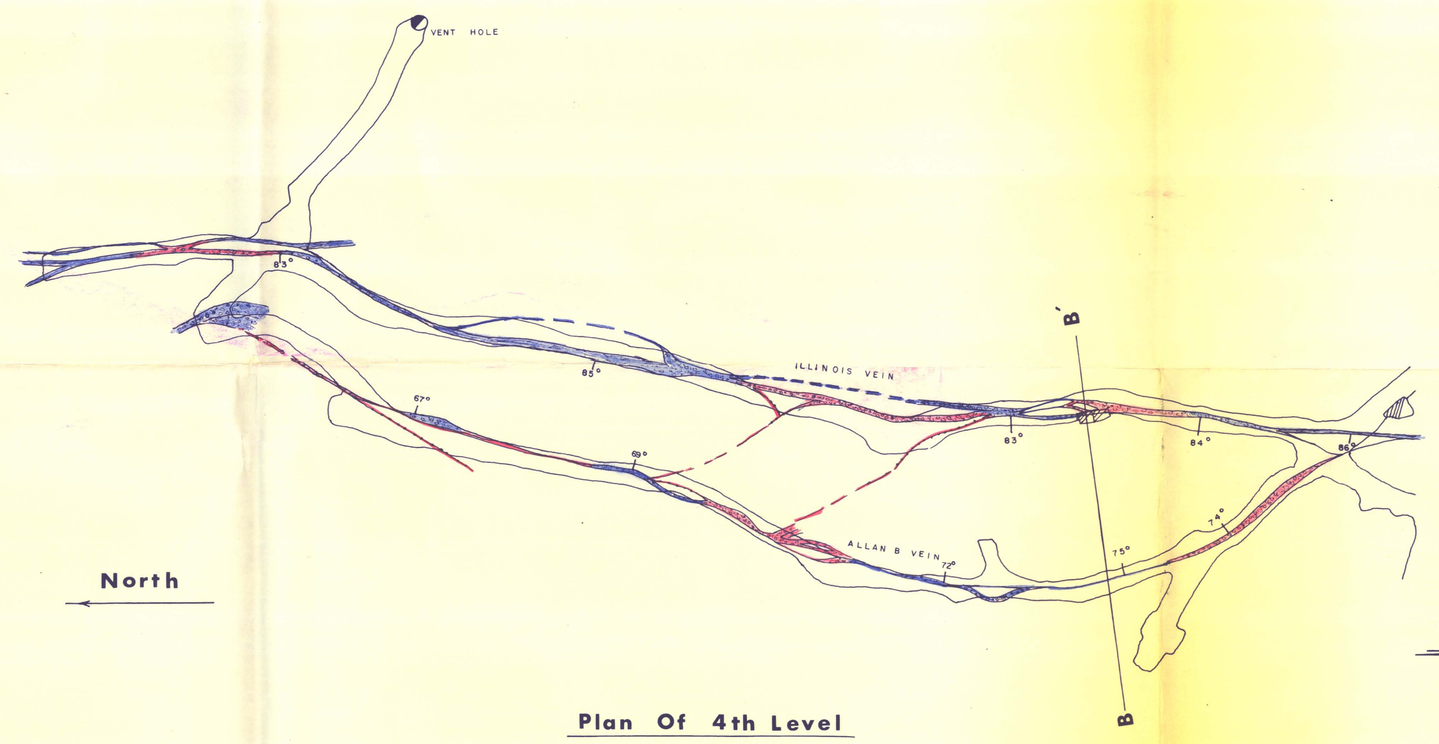


B ——— B′

Section Through ALLAN "B" Vein

& ILLINOIS Vein

Showing Ore Body



North

Plan Of 4th Level

SCHWARTZWALDER MINE

1″: 20′

5/23/60

By Allan G. Bird
Mine Geologist

LEGEND

- Qal — Terrace gravel and alluvium
- Peg — Pegmatite
- h — Undivided hornblende gneiss (Poorly exposed)
- gmh — Microcline-quartz-plagioclase-biotite gneiss
- Ore body
- Brecciated vein

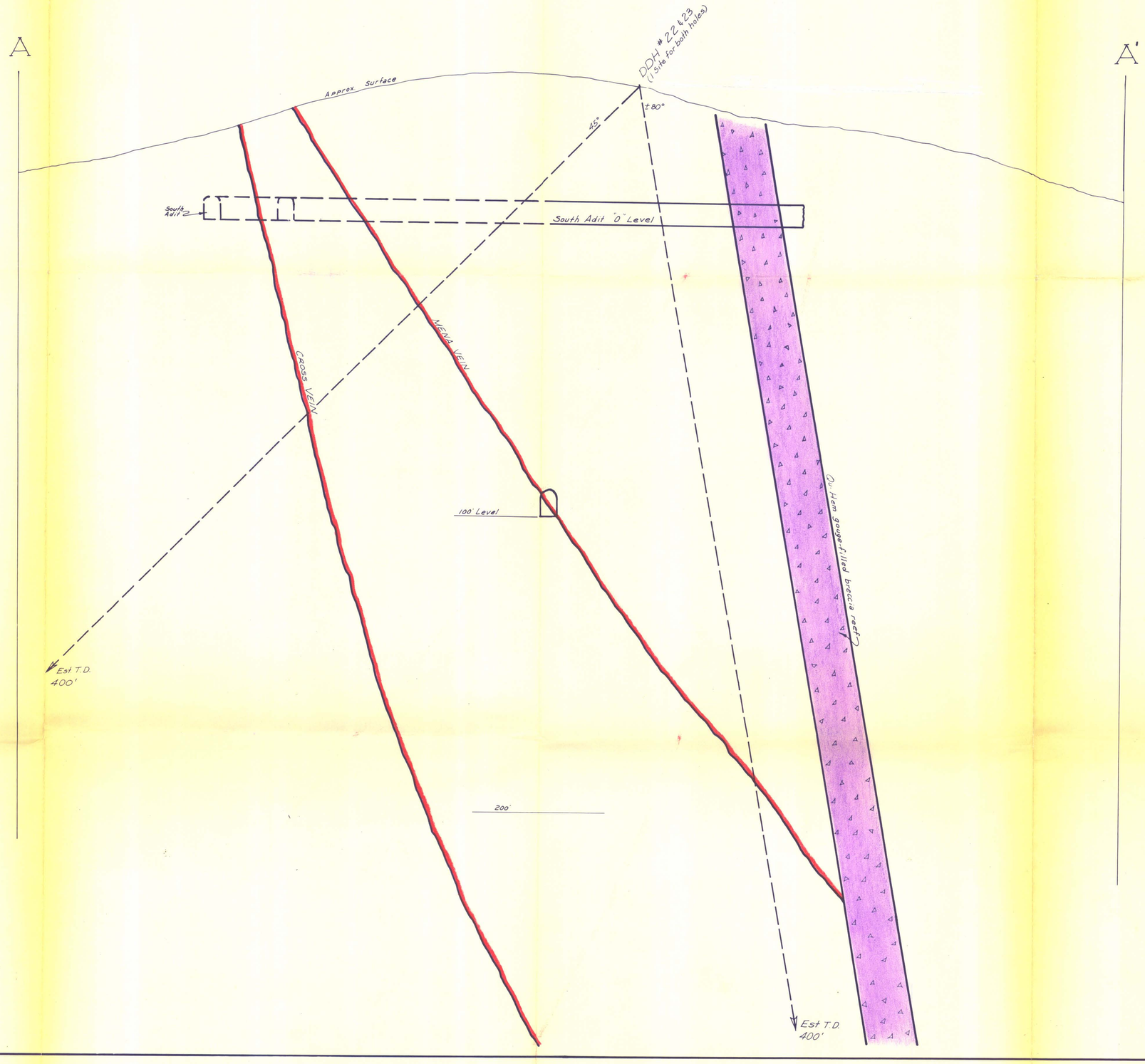
MENA MINE AREA

JEFFERSON Co, COLORADO

SCALE: 1" = 20 FEET

Compilation by: K. W. Nickerson

EXHIBIT A



CROSS-SECTION
MENA MINE AREA
JEFFERSON CO., COLORADO

SCALE: 1" = 20 FEET

K.W. Nickerson

EXHIBIT "C"