IMEA Form 9

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE

DMEA NO. 4526

Application (Denied ✓
(Withdrawn
(After disposition, delete items not applicable)

Contract (Terminated - not Certified
(Cancelled
(Terminated - Certified
(Royalty Agreement

This is the official contract file containing all official records of the project. The records contained in the files are checked and are arranged in this order:

Left Side

Interim Royalty Audits
Reports of Royalty Review
Certification of Discovery
Certificate of Audit (Final)
Interim Audit(s)
Report of Review
Termination Notice or Agreement
Recision Notice
Assignment of Contract
Contract Amendments (latest on top)
Contract with all exhibits and annexes
Owner's Consent to Lien
Subordination Agreement
✓ Leases and assignments of leases
✓ Application and attachments
(3) Envelope for maps

Right Side

✓ Project summary
Work completed analysis
All other material is filed in chronological order with correspondence including the following reports as checked:

Final Field Team Report (Tab)
Operator's Final Report
(2R) Interim Reports
(2R) Operator's monthly reports and all attachments (latest on top)
✓ On-site Exam Report(s) (Tab)
(4) Settlement Sheets

When the volume of records is expected to warrant additional folders, or when convenience of reference warrants separate folders for certain records, they should be set up in this order:

Left Side

Folder No. 2: (In chron. order) Interim Summary Reports by W. O. Engineers

Right Side

Operator's Semi-Annual Report for Certified Project, Field Team Interim Reports, Operator's Monthly Report with transmittal, narrative, maps, and Field Team review.

Folder No. 3: Maps (Use pocket folder or envelope. Fold maps with title block out and show reference to related document or correspondence.)

Folder No. 4: Settlement Sheets

Folder No. 5: Drill Logs

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

224 New Customhouse
Denver 2, Colorado

October 30, 1956

RECEIVED NOV 1 1956 D.M.E.A.

Memorandum

To: Secretary to the Operating Committee

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA Aid (Uranium) Colorado Exploratory Development Company (Sec.28, T.14N., R.11W.) McKinley County, New Mexico

Enclosed are two copies of the subject application in the amount of $87,941.57. One copy of the application is being forwarded the Grand Junction Office, DMEA, and one copy is being retained in our files.

The Applicant's estimate of costs is excessive; in fact, it is out of reason. The Lease and Farmout Agreement submitted with the application is unusual, and it appears to require legal advice as to its sufficiency.

W.M. Traver

W.M. Traver

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED NOV 1 1956 D.M.E.A.

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

Not to be filled in by applicant

Docket No. 4526
Metal or Mineral Uranium
Date Received 11-1-56
Estimated Cost $87,941.57
Participation (Government %)

DMEA
DEPARTMENT OF THE INTERIOR
OCT 29 1956
SECTION III
DENVER, COLORADO

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address:

COLORADO EXPLORATORY DEVELOPMENT COMPANY
105½ EAST PIKES PEAK AVENUE, COLORADO SPRINGS, COLORADO
SEE ATTACHED SUPPLEMENTARY FORM

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract

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

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

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

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

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

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

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

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

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

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

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

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc.

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

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations.

6. *Estimate of costs.*—Furnish a detailed estimate of the costs of the proposed work (you will have to use a separate sheet), under the following headings. Add the totals under all headings to give the estimated total cost of the project:

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.).

(*b*) *Labor, supervision, consultants.*—Include an itemized schedule of numbers, classes and rates of wages, salaries or fees for necessary labor, supervision and engineering and geological consultants.

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel.

(*d*) *Operating equipment.*—Furnish an itemized list of any operating equipment to be rented, purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or suggested use-allowance based on present value, as the case may be.

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project.

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project.

(*g*) *Miscellaneous.*—Furnish a detailed list showing the cost of repairs to and maintenance of operating equipment (not including initial rehabilitation or repairs of the Operator's equipment), analytical work, accounting, workmen's compensation and employers' liability insurance, and payroll taxes.

(*h*) *Contingencies.*—Give an estimate of any necessary allowances for contingencies not included in the costs stated above.

NOTE.—No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs.

7. (*a*) Are you prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation (Sec. 7, DMEA No. 1)?

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

☐ Money ☐ Use of equipment owned by you ☐ Other

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated Oct. 29, 1956

Colorado Exploration Development Company
(Applicant)

By Henry S. Madsen

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

RECEIVED
NOV 1 1956
D.M.E.A.

SUPPLEMENT TO APPLICATION (MF-103)
OF
COLORADO EXPLORATORY DEVELOPMENT COMPANY

---

1. Name of applicant
   (a) Colorado Exploratory Development Company
   105½ East Pikes Peak Avenue
   Colorado Springs, Colorado

   (b) Incorporated under laws of State of Colorado. Will qualify to do business in State of New Mexico.

   (c) President: Harry S. Marks
   309 South Tejon Street
   Colorado Springs, Colorado

   Vice-President: William C. Powers
   Independence Building
   Colorado Springs, Colorado

   Secretary-& Treasurer: Albert B. Logan
   3141 Poinsetta Drive
   Colorado Springs, Colorado

   (d) Not a Partnership.

2. General

3. Applicant's property rights. -
   (a) Applicant is Lessee under a certain farmout agreement with Karl F. Meyers, Locator of U. S. Mining Claims known as Anne No. 1 to 38 both inclusive. Certificate of McKinley County Abstract Company as to mineral documents of record indicates that Locator has first valid locations on portion of said claims sought to be explored.

   (b) Said claims cover all of Section 28, Township 14 North, Range 11 West of the N.M.P.M., McKinley County, New Mexico.

   (c) Farmout Agreement licenses applicant to explore and provides for a subsequent mining lease subject to 10% overriding royalty to Locator.

   (d) Copy of Lease and Farmout Agreement is attached.

   (e) Land is Federal acreage. Minerals rights are not incumbered. Area, formerly withdrawn by Atomic Energy Commission, was opened for locations same day Locator filed his original Location Certificates.

   (f) Following are the names of the claims and the book and page in which each is recorded in the office of the Clerk of McKinley County, New Mexico, at the Court House in Gallup, New Mexico:

Claim	Book	Page	Claim	Book	Page
Anne #33			Anne #12 (relocated)		
Anne #20			Anne #13 "		
Anne #19 (relocated)			Anne #14 "		
Anne #11 "			Anne #20		
Anne # 1 "			Anne # 9		
Anne # 2 "			Anne #10		
Anne # 3			Anne #15		
Anne # 4			Anne #16		
Anne # 5			Anne #17		
Anne # 6			Anne #18		
Anne # 7			Anne #21		
Anne #8			Anne #22		
Anne #25			Anne #23		
Anne #26			Anne #24		
Anne #27			Anne #30		
Anne #28			Anne #31		
Anne #29			Anne #32		
Anne #36			Anne #34		
Anne #37			Anne #35		
Anne #38					

4. Physical description:

(a) Property was prospected with scintillators and samples of ore in place were taken.

Four tests of the Westwater member of the Morrison formation were drilled. Logs of those holes taken by Century Geophysical Corporation are attached to this application.

Assays were made by Grants Assay office as follows:

Number	U_3O_8	Location of Sample	Formation
#1	0.27	Anne #33	Todilto
#2	0.025	Anne #20	Westwater
#3	0.058	Anne #19 (relocated)	Brushy Basin
#4	0.024	Anne #11 (relocated)	Dakota (Lignite)
#5	0.030	Anne #12(relocated)	Brushy Basin
#6	0.050	Anne #13 (relocated)	" "
#7	0.037	Anne #14 (relocated)	" "
#8	0.066	Anne #20	Westwater

Geologic report was made by E. A. Enyart after study of the physical property, the Century logs, driller's logs and assays.(Copy of report attached).

Cuttings from drill holes into the Morrison formation show favorable color, being pale shades of gray, gray-green, brown and pink with traces of pyrite. Two samples taken on the rim show a trace of hydrocarbon and no identifiable carbon trash. Mineralization is most favorable.

It appears that mining could be conducted from the rim with stripping.

and tunnelling. It also appears economically feasible to mine with a shaft as depth is not prohibitive.

All exploration costs to date have been borne by applicant and Locator.

Representative of applicant will assist in inspection upon request made to applicant's office in Colorado Springs.

Property is easily accessible by road from Ambrosia Lake, Smith's Lake or Haystack Mountain area. It lies north of Prewitt, which town is on U. S. Highway 66 between Grants and Gallup.

(b) No production to date.

(c) Geologic features. See report of E. A. Enyart, Geologist, attached hereto.

Widespread uranium mineralization on the exposed Morrison slope, supported by mineralization found in drill hole #3 (See survey plot attached), justified further intensive drilling and exploration. Presence of commercial ore on the western portion of this section, location of the property along the southwest edge of uranium-rich Ambrosia Lake, proximity to known faults, and other favorable structural aspects make this an extremely good prospect for production warranting full exploration.

WE DESIRE THAT ALL REPORTS AND EXHIBITS ATTACHED TO OR FURNISHED WITH THIS APPLICATION, EXCEPT ANY NECESSARY DOCUMENTS ACCOMPANYING ORIGINAL COPY HEREOF, BE RETURNED TO APPLICANT.

(d) Property is approximately 27 miles distant from Grants, New Mexico.

AEC Buying Station is located near Grants and is approximately 25 miles distant via U. S. Highway 66.

Closest operating mill (Anaconda) is at Bluewater, 23 miles distant on U.S. Highway 66.

Other proposed mills, tentatively approved by AEC, will be located near Grants.

Employee housing available at Grants.

Supply houses at Grants, Albuquerque (100 miles) and Gallup (43 miles).

(e) Manpower available at Grants, Gallup and Albuquerque.

Materials, supplies and equipment available at Grants, Gallup and Albuquerque.

Water for drilling available from well one mile north, but it appears necessary to case well and provide pump. Water can be purchased at Chavez, a distance of 12 miles.

No power available, but REA lines are in the vicinity.

5. The exploration project.

(a) Applicant will explore for commercial uranium ore body.

(b) Initial drilling exploration program of 36,180 feet. Proposed drilling grid is sketched on survey map attached. Applicant proposes to

test the Westwater member of the Morrison formation and drill one test on the eastern portion of the section to the Todilto or Entrada.

Consideration will be given to geo-thermal survey by Robert Dennison for purpose of reducing drilling expense.

All holes will be logged and assays made where justified.
Drilling and road excavations along the rim may indicate desirability of stripping or tunnelling. One exploratory tunnel is proposed.

(c) The work will start within 10 days and be completed within three (3) months from the date of an exploration project contract.

(d) Operating experience and background:
See Robert Dennison article in December, 1955 issue of Uranium magazine.
Eugene A. Enyart, Geologist. Graduated with honors from the Michigan College of Mining and Technology, B.S. in Geological Engineering, 1951; Field Geology for Ventures, Lmtd., in Ontario, 1949; Field Geology for Cleveland Cliffs Iron Co., in Michigan, 1948; Petroleum geology, mainly seismic interpretation, for Keystone Exploration Co., in Louisiana and Texas; Independent geologic work in the Republic of Cuba and on the Colorado Plateau, mainly in uranium and in the Grants area since 1954; Member of the Society of Exploration Geophysicists.

Albert B. Logan, Attorney and Secretary of applicant Corporation, has twenty-five (25) years' experience in mining and as receiver of various Companies. Was General Manager of Colorado Exploration and Drilling Company, and supervised exploration and drilling operations in Gunnison, Colorado, Riverton, Wyoming and Cisco, Utah areas. Is experienced as oil operator. Trained in law of mining oil and gas.

Chapman and Wood, Albuquerque, New Mexico, will be employed as consulting geologists and engineers on project by Marshall & Wiskirchen.

Karl Meyers, foreman, is graduate of Texas A & M in biochemistry. Has worked for a year in Grants, New Mexico as Superintendent for Carl Anderson in charge of drilling, exploration and equipment maintenance.

Marshall & Wiskirchen (drillers) and some of the personnel of applicant worked together on somewhat similar exploration projects in Gunnison County, Colorado, Grand County, Utah and in El Paso County, Colorado.

Harry Marks, President of applicant, is an experienced business man. Is partner and General Manager of J. R. Marks Produce and Trucking Company in Colorado Springs, Colorado.

6. Estimate of Costs:
(a) Independent Contracts.
Marshall & Wiskirchen Drilling Company of Colorado Springs, Colorado, 108 holes to an average depth of 340 ft.each @ $1.00 per ft., to 200 ft., $ .35 per ft. on each additional 100 feet.
(See copy of contract attached) $
$1.00 per ft. for air drilling and $1.25 per ft. for water drilling to depth of 200 ft.
$1.35 per ft. for air and $1.60 per ft. for water from 200 ft. to 300 ft.

$1.70 per ft. for air and $1.95 per ft. for water from 300 to 400 ft; same graduated scale below 400 ft.

$ 43,524.00 air

Marshall & Wiskirchen, Coring 300 feet of Westwater formation @ $ 4.75 per foot, in 10 holes $ 1,425.00

Marshall & Wiskirchen, bull-dozer work with Caterpillar D-8 on roads, drill sites etc., 300 hours @ $14.00 per hr. $ 4,200.00

Marshall & Wiskirchen, probing and logging 36,180 feet @ $.10 per ft., plus standby time @ $16.00 per hr. for 60 hrs.standby 4,578.00

Marshall & Wiskirchen, engineering and ~~surveying~~ services (~~[illegible]~~ $ 2,000.00

Marshall & Wiskirchen, special water supply and hauling thereof, $ 1,500.00

E. A. Enyart, field geologist, 30 days @ $50.00 per day $ 1,500.00

Marshall & Wiskirchen for purchase and installation of pump, pump jack casing and other well equipment $ 1,076.00

Robert Dennison, geo-thermal work 5 das.@$200.per da. $ 1,000.00

(b) Labor, supervision, consultants;
Karl Meyers, field supervisor, 14 weeks @ $150.00 per week.)
plus $50.00 per wk. auto & expense allowance) $ 2,800.00

Douglas Doyle, bookkeeper & accountant, 20 days @ $25.00 per day $ 500.00

C. O. Mengold, [illegible], General Superintendent, 14 weeks @ $200.00 per wk. $ 2,800.00

Sample catcher and handyman 12 weeks @ $80.00 per week $ 960.00

Special consultations, Chapman and Wood, geologists and engineers $ 1,800.00

(c) Operating materials and supplies:
Office supplies, bookkeeper supplies, record books etc. $ 49.00
Purchase of binoculars, pick, shovel and miscellaneous tools $ 49.00
Sampling sacks, 4,000 @ $45.00 per 1,000 $ 180.00

(d)	Operating equipment;	
	Western Truck Rentals, lease of jeep and business car (copy of contract attached) 5 mos. @ $212.50 per mo.	$ 1,262.50
	Deits Bros., Colorado Springs, rental of scintillator 5 mos. @ $50.00 per mo.	$ 250.00
(e)	Rehabilitation and repairs.	
	None	$ ------
(f)	New buildings, improvements, installations.	
	None	$ ------
(g)	Miscellaneous:	
	Maintenance and repair of automotive equipment - 5 mos.	$ 175.00
	Stenographic services	150.00
	Office rental for 5 mos. @ $50.00 per mo.	250.00
	Telephone and telegraph (estimated)	$ 350.00
	Bank charges (estimated)	15.00
	Gas and oil for jeep, foreman's car and business car for 5 mos.	$ 1,477.50
	Travel expense (air, bus and rail fares; hotels and meals etc.)	$ 1,200.00
	Workmen's Compensation Insurance	$ 183.77
	O[illegible]	$
	Social Security contributions	$ 131.20
	Core analysis, 40 reports @ $7.50 each	$ 300.00
	Assaying	$ 300.00
	First aid and medical supplies	$ 35.00
(h)	Contingencies:	
	Legal fees	$ 500.00
	Additional accounting costs	$ 300.00
	Additional operating and office supplies	$ 300.00
	Damage to jeep and business car not covered by collision insurance	$ 400.00
	Additional car mileage @ 3¢ per mile	$ 150.00
	Additional jeep mileage @ 5¢ per mile	$ 75.00
	Tire replacement	$ 150.00
	Additional surveying	$ 1,250.00
	Additional geologist and engineering services	$ 1,500.00
	Additional water and water hauling charges	$ 5,000.00
	Additional bulldozer 100 hrs. @ $11.00 per hr.	1,100.00
	Additional logging & probing costs	915.60
	GRAND TOTAL----$	17,941.54

7. (a) Are you prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation (Sec. 7, DMEA No. 1.)?

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

- Money - (Company account, Exchange National Bank Colorado Springs, Colorado)

- Issuance of Capital Stock of applicant Corporation.

CERTIFICATION

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

Dated Oct. 29, 1956

COLORADO EXPLORATORY DEVELOPMENT COMPANY
(Applicant)

By [illegible]
President

HATFIELD & ENYART

Kenneth G. Hatfield
Eugene A. Enyart

GEOLOGISTS

Phone 6-5644
Or Phone 6-6721

837 Adams Street, NE
Albuquerque, New Mexico

October 9, 1956

GEOLOGIC REPORT ON THE EASTERN PORTION OF SECTION 28, TOWNSHIP 14 NORTH, RANGE 11 WEST, MCKINLEY COUNTY, NEW MEXICO

INTRODUCTION:

Pursuant to a commission by Mr. A. B. Logan, of Colorado Exploratory Development Company, this geologic report was prepared October 9, 1956, based on information gathered in the field in September, 1955 and from September 2, 1956, at intervals, through October 9.

Regional geology is given only briefly because it is of little diagnostic value in the consideration of the merits of a particular area as small as a Section. The geology of the Section and mineralization noted there are described in detail, conclusions are drawn and recommendations made accordingly.

Education and experience qualifying the author to make this sort of report may be summarized briefly as follows: Graduated with honors from The Michigan College of Mining and Technology, B. S.in Geological Engineering, 1951; Field geology for Ventures,Lmtd., in Ontario, 1949; Field geology for Cleveland Cliffs Iron Co., in Michigan, 1948; Petroleum geology, mainly seismic interpretation, for Keystone Exploration Co., in Louisiana and Texas; Independent geologic work in the Republic of Cuba and on the Colorado Plateau, mainly in uranium and in the Grants area since 1954; Member of the Society of Exploration Geophysicists.

GROSS GEOLOGIC FEATURES AND GEOLOGIC SETTING:

The most important structural feature in the region is the Zuni Uplift, along the crest of which pre-Cambrian crystalline rocks are exposed, and off the northeast flank of which the sedimentary rocks in the area concerned dip gently to the northeast, with local variations due to structural features such as folding and faulting. Stocks, flows and a volcano are important geologic features of the region.

Section 28 lies along the southwest edge of the uranium-rich Ambrosia Lake Area. It falls on the southeast edge of a bight that cuts several miles north into the Dakota and Morrison cliff. The Bluewater Fault, which is one of the major faults in the region, is seen in the west half of the Section, and is paralleled to the east by a second fault of less throw and extent. Between is a narrow graben.

This faulting is an expression of structural forces which also threw up a large northeasterly-trending anticline to the west - which probably accounts for the deep bight there. The paralleling syncline to the east of this anticline includes the area of the Section, but shows an anticlinal development within the trough to the southwest, so that much of Section 28 covers an anticline within the larger syncline. This structure is very much confused in the west half of the Section by the faulting.

Kenneth G. Hatfield
Eugene A. Enyart

HATFIELD & ENYART
GEOLOGISTS

837 Adams Street, N.E.
Albuquerque, New Mexico

Phone 6-5644
Or Phone 6-6721

NOV 1 1956 D.M.E.A.

GEOLOGY OF THE SECTION:

The dip of the sediments, where accurately measured on the Dakota in the northeast quarter of the Section and on the Todilto in the southwest quarter, is down to the east 3 to 4 degrees. Fracturing exposed in the Dakota in the northeast quarter shows two strong sets, one N 70° E and one N 20° W, and one weak, N 40° E.

The rock units exposed on the Section are: Dakota Formation, the top of which is eroded off here, a hard white sandstone, 40 to 50 feet remaining and one to ten feet of carbonaceous shale at the base, a possible ore horizon; Brushy Basin Member, bentonitic mudstone and shale with a 40-foot thick channel-type sandstone toward the bottom, the whole 120 feet thick, a good ore horizon; Westwater Canyon Member, a channel-type sandstone, 175 feet thick, a good ore horizon; Recapture CreekMember, a 135-foot thick, thin channel-type sandstones, siltstones and mudstones unit, a possible ore horizon in the upper portion; Todilto Formation, a 20-foot thick limestone, an ore horizon in the upper portion; Entrada Formation, an aeolian sandstone, 140 feet thick.

The sands of the upper Morrison are generally of favorable color where observed on the rim. The cuttings from several holes drilled show favorable color, being pale shades of gray, gray-green, brown and pink. Samples Nos. 2 and 8, taken on the rim, show a trace of hydrocarbon and no identifiable carbon trash.

On the west side of the Section, bordering the area considered, the Todilto is exposed on the rim and through the wind-blown sand cover. Near the middle of the west quarter, an area of about 300 by 300 feet is generally mineralized. About 200 tons of .10% ore has been mined and piled. The thickness of the mineralization is about 2 to three feet. Two other ore-grade occurrences were noted, one to the west and one to the north. Both are probably small, in the vicinity of 50 tons each.

The locations where various samples were taken on the Section are shown on the accompanying sketch by a dot and number. These are tabulated as follows:

Sample	%of U_3O_8	Formation or Unit
1	0.27	Todilto
2	0.025	Westwater
3	0.058	Brushy Basin
4	0.024	Basal Dakota
5	0.030	Brushy Basin
6	0.050	" "
7	0.037	" "
8	0.066	Westwater

Kenneth G. Hatfield
Eugene A. Enyart

HATFIELD & ENYART

GEOLOGISTS

837 Adams Street, NE
Albuquerque, New Mexico

Phone 6-5644
Or Phone 6-6721

The widespread uranium mineralization to be seen on the exposed Morrison slope is backed up by mineralization found in hole No.28-3. A sample of the cuttings from 200 to 205 feet, in the Westwater, assayed .023% U308. The sample, which includes any barren portions in addition to the uranium-bearing portions of the layer, is contaminated and diluted by cuttings from overlying strata.

NEARBY ORE OCCURRENCES:
Several Todilto prospects are located close by. None is large or rich.

The Evalyn Alta and Francis Mines are about three miles to the north. These are Morrison deposits, carbon-type deposition. The Silver Spur mine to the eastsoutheast 3½ miles, is in the Dakota, at least partially fracture control. A large hydrocarbon-type ore body is located 4½ miles east.

ACCESSIBILITY, WATER AND BUYING STATION:
From the buying station on N M 53, near U S 66, it is 14 miles to Baca, where a road runs north. Eleven miles north on this road and then to the east and south 8 miles brings one to the northeast corner of the Section. It is about 27 miles to the Anaconda mill at Bluewater.

A road could be built easily down the Morrison slope south of the Section to improve access.

Water is available 2½ miles north.

The Dakota cap is easily traversed.

SUMMARY:
A geologic examination was made on Section 28, Township 14 North, Range 11 West, McKinley County, New Mexico.

The Section lies on the southwest edge of the Ambrosia Lake Area. It covers an anticlinal structure within a syncline which parallels a large anticline to the west. Two large faults cut northerly across the west half of the Section.

Most of the Morrison is of favorable color. Uranium mineralization has been found in the north central portion of the Section in the Brushy Basin sandstone and Westwater sandstone.

Todilto is exposed in the western quarter of the Section. An area of about 300 by 300 feet is mineralized and has been mined.

HATFIELD & ENYART

GEOLOGISTS

Kenneth G. Hatfield
Eugene A. Enyart

837 Adams Street, NE
Albuquerque, New Mexico

Phone 6-5644
Or Phone 6-6721

The Section is about 33 miles from a buying station and 27 miles from the Anaconda mill at Bluewater. Water is available 2½ miles north. The Dakota cap is easily traversed.

Several good mines are found within a few miles of the Section.

CONCLUSIONS AND RECOMMENDATIONS:

The north central portion in particular, and in general, the east half of the Section, is considered a good Morrison uranium prospect, as is suggested by favorable structure, favorable color usually, by mineralization noted on outcrops and in a drilled hole, indications of asphalt-type deposition and by proximity to known ore bodies.

Six proposed drill sites are shown on the accompanying geologic sketch. Further drilling procedure should be based on the results of this and the drilling already completed, incorporated with information gained from careful and detailed examination of the abundant Morrison exposure on and near the Section. It is recommended that an accurate survey be kept up on drill sites and other points of pertinent geologic interest.

A bull-dozer should be employed to expose more of the rock from which samples Nos. 2 and 8 came.

The geology is complicated for this region. Thorough interpretation of data available is necessary to an efficient exploration program.

E. A. Enyart, Geologist

Grants, N.M. 10-9-56

MEEKER DRILLING COMPANY

Box 251 Albuquerque, N.M.

October 13, 1956

Colorado Exploratory & Development Co.

Colorado Springs, Colorado

Re: Bid on 60,000 ft. of Drilling in Sections 28 T. 14 R11.

McKinley County, New Mexico.

Footage	Air Drlg.	Water Drlg.
0- 200ft.	$1.25	$1.50
200-300ft.	1.55	1.80
300-400ft.	1.85	2.10

MEEKER DRILLING COMPANY

T. B. Meeker

TBM:1

POLLARD BROTHERS COMPANY

RANGELY, COLORADO

Box 221 Ph. 672

October 12, 1956

Colorado Exploratory and Development Co.
Colorado Springs, Colorado

Dear Sirs,

We wish to submit a bid on the drilling you will have in T. 14 R. 11 Sec. 28, McKinley County, N. M. (60,000 ft.). We will drill on a graduated basis as follows.

0-200ft.	$1.20 per ft., (air)	$1.35 per.ft. (water)
200-300ft.	1.55 " " "	1.65 " " "
300-400ft.	1.90 " " "	1.95 " " "

Sincerly,

POLLARD BROS. CO.

Troy R. Pollard

Troy R. Pollard, partner

• TEST HOLES • WELL DRILLING • CORING

JAMES E. MARSHALL LARRY R. WISKIRCHEN

Marshall & Wiskirchen Drilling Co.

2327 North Tejon Street
COLORADO SPRINGS, COLORADO

RECEIVED NOV 1 1956 D.M.E.A.

October 10, 1956.

Colorado Exploratory & Development Corporation
105½ E. Pikes Peak Avenue
Colorado Springs, Colorado

Gentlemen:

Pursuant to your request for bids for drilling in T14N, R11 W, Section 28, McKinley County, New Mexico we are pleased to quote the following prices for the various depths:

	Dry Plugging	Wet Plugging
0 to 200 feet	$1.00	$1.25 per foot
200 to 300 "	1.35	1.60 " "
300 to 400 "	1.70	1.95 " "

It is our understanding that the contract will be for about 60,000 feet of drilling. Here is hoping that we will be the successful bidders as we would welcome the opportunity of working for your company.

Sincerely yours

Larry Wiskirchen

MARSHALL & WISKIRCHEN DRILLING COMPANY
Larry Wiskirchen-Partner.

RECEIVED
NOV 1 1956
D.M.E.A

DRILLING CONTRACT

THIS INDENTURE made and entered into this 10th day of October, 1956 by and between COLORADO EXPLORATORY DEVELOPMENT COMPANY, a Colorado corporation, hereinafter referred to as "Operator" and MARSHALL & WISKERCHEN, hereinafter referred to as "Driller", WITNESSETH:

WHEREAS, Operator has now and may hereafter obtain certain leases, claims, farm-out agreements and other arrangements entitling it to explore for uranium and other valuable metals in the State of New Mexico and elsewhere,

WHEREAS, Driller is engaged in the business of operating one or more drilling rigs for hire, and is also qualified to conduct other operations relating to exploration for uranium and other valuable ores, including bull-dozer work, road building, logging and similar services, and is desirous of being employed by Operator,

THEREFORE, in consideration of the sum of One Dollar and other good and sufficient considerations, to Driller paid by Operator, receipt whereof is hereby acknowledged, it is AGREED as follows:

1. Operator hereby employs Driller, and Driller hereby accepts such employment, to render services in performance of conditions and commitments contained in lease and farm-out agreements now or hereafter to be entered into by Operator, or upon claims or properties to be explored by Operator, on the following terms and conditions:

(a) Initial drilling and coring to establish mineralization at actual cost of operating Driller's Mayhew 1000 rig, not including wages of partners. In the event that another rig is used in lieu of or in addition to Driller's said rig, Driller shall bill Operator for use of same at lowest rate available to Driller less 30%.

(b) Subsequent drilling and coring at rates prevailing and customary in the area.

(c) Bull-dozer, logging and other services at rates prevailing and customary in the area.

2. Cost to Driller of obtaining water necessary for drilling, for hauling water more than three miles to the drill-site, for rights of ingress and egress, excavation of drill-sites and access roads shall be provided by Driller, but at the expense of Operator to be paid in addition to contract drilling price.

3. It is understood that Driller does not desire to undertake drilling to depths in excess of 1200 feet, but will provide the services of a competent driller with adequate equipment for deeper drilling at any time requested by Operator,

4. Except as herein provided, Driller shall furnish all material, equipment and labor necessary for such drilling and coring including corebarrels, fuel and water and any and all other equipment necessary for proper drilling.

5. It is further understood that the Operator assumes no responsibility for the Driller's tools and equipment, and should the Driller encounter a fishing job while doing said day work or while coring as heretofore provided, said fishing job or jobs, arising from whatever cause, shall be at the expense of the Driller.

6. Driller agrees to furnish to the Operator, as requested, daily drilling reports covering drilling operations, and to collect and furnish to Operator , as directed, samples of formations drilled.

7. In the performance of work provided for herein, Driller agrees that same shall be conducted in full compliance with any and all applicable laws, rules and regulations adopted by any Governmental Agency, either State or Federal. Driller expressly agrees that in the performance of work hereunder, compliance will be made with the applicable provisions of the Fair Labor Standards Act of 1938 (Wage and Hour Law) and with all valid regulations having application thereto. Driller assumes full responsibility for the payment of all contributions and payroll taxes (State and Federal) as to all employees engaged in the performance of work hereunder

and further agrees to meet all requirements that may be specified under regulations of the administrative officials or boards charged with the enforcements of any State or Federal Act upon the subject referred to. Driller further agrees to furnish Operator with a certificate or other evidence of compliance with State and Federal Laws covering contributions and taxes on payrolls.

8. In connection with the work to be performed hereunder, Driller shall carry Workmen's Compensation Insurance to fully comply with the laws of the state in which such work is to be performed.

(a) In the event that the Compensation laws of the state in which the work is to be performed do not cover accidental injuries resulting in death, Driller shall carry, in addition to Workmen's Compensation Insurance, Employer's Liability Insurance in the minimum limits of Ten Thousand Dollars ($10,000.00) for accidental injuries resulting in the death of one person, and Twenty Thousand Dollars ($20,000.00) for accidental injuries resulting in death of more than one person, as a result of each accident.

(b) Driller shall also carry Public Liability and Automobile Liability Insurance in the minimum limits of Ten Thousand Dollars ($10,000.00) as result of injury to or death of one person, and Twenty Thousand Dollars ($20,000.00) as result of injuries or deaths sustained by reason of one accident. The aforesaid insurance shall be carried in companies acceptable to Operator.

(c) Prior to the performance of any work pursuant hereto, Driller shall furnish to Operator, originals, photostats or certified copies of aforesaid insurance policies, together with either certificates of insurance or riders to be attached to aforesaid policies, issued by the insurance company or companies, wherein the latter unequivocally agrees to give to Operator five days' notice prior to cancellation or material change of

the aforesaid policies.

9. Driller and agents and employees of the Driller shall, upon notice from the Operator to the Driller, keep all information pertaining to said holes and the drilling thereof secret from all but the Operator.

10. Driller shall not sublet or assign this contract without the written consent of the Operator, but if sublet or assigned without such consent, the contract shall become void.

11. No change, modification or alteration of this agreement shall be valid unless the same be made or specified in writing, signed by the parties hereto, and no course of dealing between the parties shall be construed to alter the terms hereof.

In witness whereof, the parties hereto have caused these presents to be executed in duplicate the day and year first above written.

COLORADO EXPLORATORY DEVELOPMENT COMPANY

HARRY S. MARKS

By _____
President

ATTEST:

ALBERT B. LOGANZ
Secretary

By MARSHALL & WISKIRCHEN

NOV 2 1956 DMEA

LEASE AND FARMOUT AGREEMENT

THIS AGREEMENT made and entered into this 10th day of October, A. D. 1956, by and between KARL F. MEYERS, of Grants, New Mexico, hereinafter called Lessor, and COLORADO EXPLORATORY DEVELOPMENT COMPANY, a Colorado Corporation, hereinafter called Lessee,

W I T N E S S E T H:

WHEREAS, Lessor is the owner of certain lode mining claims (except the portion and interest therein heretofore conveyed to Lessee) located in Section 28, Township 14 North, Range 11 West of the N.M.P.M., McKinley County, New Mexico.

AND WHEREAS, Lessor is willing to lease said premises to Lessee upon the latter's performance of the covenants and conditions hereinafter set forth,

NOW, THEREFORE, the parties, in consideration of the mutual promises and undertakings herein contained, do agree as follows:

1. Lessor hereby licenses Lessee to enter upon and to drill, explore, prospect, and otherwise develop the mineral potential upon any and all mining claims owned or claimed by Lessor in Section 28, Township 14 North, Range 11 South of the N.M.P.M. in the Bluewater Mining District of McKinley County, New Mexico including the following designated lode mining claims, to-wit:

Anne # 1, 2, 11, 12, 13, 14 and 19 as per recorded Amended Location Notices, and Anne #3,4,5,6,7,8,9,10,15 16, 17, 18 and 20 to 38 inclusive.

2. Lessee covenants and agrees to enter upon said property and complete a drilling program consisting of drilling exploratory holes to the Recapture formation or deeper, the total feet of such drilling to be 7,500 feet, on or before April 1, 1957.

3. During the course of drilling operations described in Paragraph 2 above, Lessee shall afford Lessor, his agents and representatives, free access to said property at all times, and Lessee shall furnish copies of maps, drill logs, core samples, ore analysis and each item of geological or engineering information obtained by Lessee and requested by Lessor during such operations.

4. Lessee shall do and perform any and all assessment work becoming due on all of said claims under provisions of State and Federal laws during the term of this agreement or any extensions thereof.

5. Lessee shall hold Lessor harmless from any and all liability arising from Lessee's conduct of operations hereunder.

6. In the event that Lessee performs the exploratory work described in Paragraph 2 above within the time therein stipulated, or within any extensions of said time, Lessor shall, within thirty (30) days, upon receipt of satisfactory evidence of the same, execute and deliver to Lessee by proper instrument a mining lease upon all of said premises subject to a ten per cent (10%) overriding royalty reserved to the owner or owners of said claims. Said lease agreement, to be thereupon executed, shall authorize and permit mining operations and shall be ? determinable by Lessor in the event Lessee ceases to produce and market commercial ore for any period of time exceeding eight (8) months from date of original mining lease, or for any additional period of six (6) months after mining and production of ore is actually commenced upon said property. Provided; that a market for such ore is available to Lessee during such periods. Lessee shall perform all assessment work required by State and Federal laws during the term of said mining lease. Upon termination of said lease by reason of these provisions, or at any time Lessee so elects, Lessee shall reconvey his leasehold interests obtained hereunder to Lessor.

7. For such time as this agreement or said mining lease are in effect, Lessor agrees to sell to Lessee one half of the original overriding royalty on said claims for the sum of $25,000.00.

8. The overriding royalty referred to in Paragraph 6 above shall be defined in the mining lease as follows:

> Assignee agrees to pay to Assignor, as an over-riding royalty, free and clear of all costs and expenses of exploration development and mining, a sum equal to ten percent of the value at the portal of the mine of all crude ores mined from said leased premises, such value at the portal of the mine to be calculated as follows:

(a) In the case of ores as to which a price schedule is established and in effect, at the time of the sale thereof, by the Atomic Energy Commission or other government authorized agencies, such value shall be determined in accordance with such price schedule plus any allowance for transportation to the purchase depot received by Assignee less the actual costs of transportation, and shall include any development allowances or production bonuses. In the event that Assignee engages in or contracts with others for treatment or beneficiation of crude ore after its removal from the mine and prior to delivery to the purchases, there shall be deducted from the value determined as above the actual cost of such treatment and beneficiation.

(b) In all cases other than those provided for under the preceding subparagraph (a), such value at the portal of the mine shall equal the net proceeds received from the sale of the ore less all costs of transportation, treatment and beneficiation after removal from the mine and prior to sale.

(c) In all cases, the overriding royalty payments shall bear their proportionate part of all taxes now or hereafter levied upon the production or severance of ore hereunder.

All overriding royalty payments to be made by Assignee to Assignor shall be made on or before the 30th day of the month next following receipt by Assignee of payments for the ore sold or disposed of.

Assignee shall keep accurate count of all mining operations including all data necessary to the correct computation of the overriding royalty due hereunder, and shall make such records available to Assignor at reasonable times upon Assignor's request.

At Assignor's option, to be exercised by written notice to

Assignee, Assignor may at all times and from time to time, receive its overriding royalty in kind by taking 10% of the ore at the portal of the mine.

9. Lessor warrants legal title to said claims and right of possession to same, and guarantees to Lessee full rights of ingress and egress and peaceable enjoyment of said premises, except that Lessee shall be liable for any damage done by it to the surface should claim for same be made by persons entitled to collect same and such claim be legally established.

10. In the event that drilling and other exploratory operations disclose that because of the depth of the ore body, or impracticability of having the ore processed because of mineral contamination, mining would not be commercially productive or feasible upon said premises, this agreement may be forthwith terminated by Lessee, upon giving to Lessor full and complete information substantiating such contention.

11. Upon termination of the lease, Lessee shall have the right to remove all machinery, equipment, buildings, structures, tools and supplies placed on said premises by Lessor only in a manner that will not jeopardize or prohibit installation of substitute equipment etc., by Lessor for continued mining operations.

12. Lessee shall have the right to designate an operator to conduct mining operations under said mining lease pursuant to a contract and accounting procedure generally in use in this mining district.

13. All rights, interests and obligations hereunder shall inure to the benefit of and be binding upon the heirs, administrators, successors and assigns of the parties hereto.

WITNESS our hands and seals the day and year first above written.

_____

Lessor

COLORADO EXPLORATORY DEVELOPMENT COMPANY

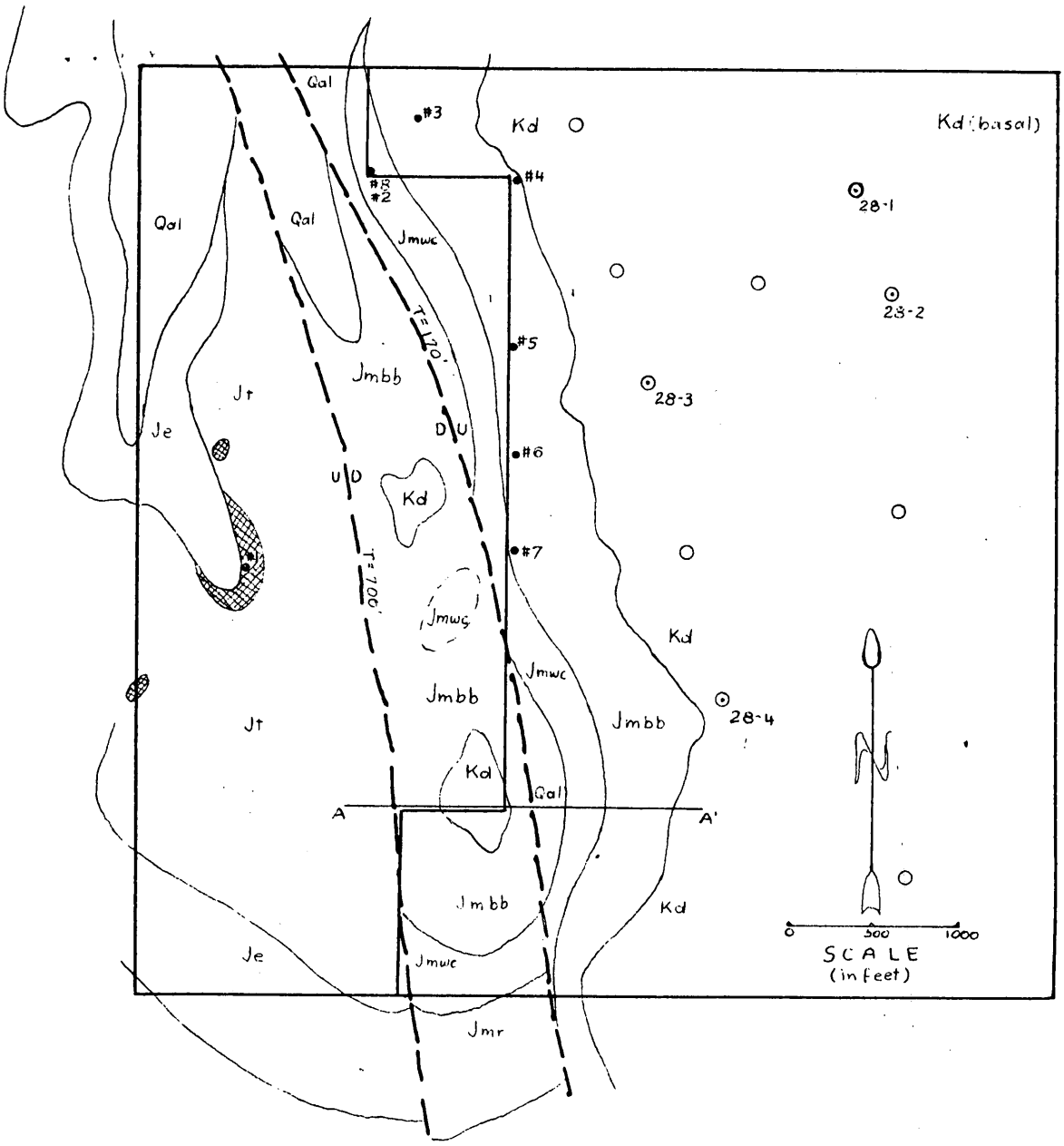
Attest:

By: _____

President Lessee

_____

Secretary



EXPLANATION

U|D ← Up side, down side

Fault trace

T=100' ← Vertical displacement

Qal Quaternary alluvium

Kd Dakota Fmtn.

Jm Morrison Fmtn.

" bb Brushy Basin Member

" wc Westwater Canyon "

" r Recapture Creek "

Jt Todilto Fmtn.

Je Entrada Fmtn

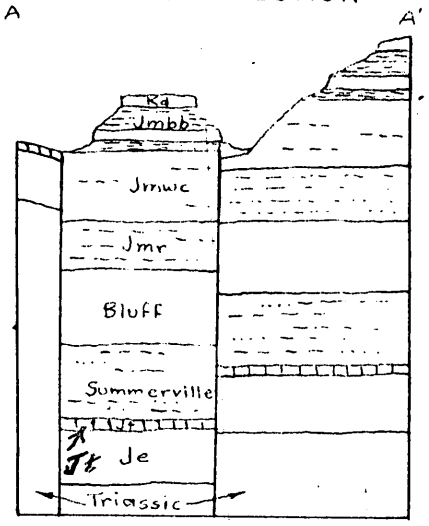
Known ore-grade (U_3O_8) mineralization

Drilled hole

Proposed drill site

Location and number of sample

CROSS - SECTION



GEOLOGIC SKETCH AND CROSS*SECTION OF SECTION 28, TOWNSHIP 14 NORTH, RANGE 11 WEST, MCKINLEY COUNTY, NEW MEXICO

Prepared by E. A. Enyart, Geologist
Grants, N. M. October 9, 1956

EAE

DMEA Form 7
(12-56)

700

OFFICIAL FILE COPY

Date	Surname	Code
3-6	Ching	700
3-6	Ching	700
3/8	Selfridge	130
"	Johnson	110
"	Mitterdorf	100
3/12	C	220

Bishop

MAR 11 1957

Mr. E. N. Harshman, Acting
Executive Officer
DMEA Field Team, Region III
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA-4526 (Uranium)
Colorado Exploratory Development Co.
Sec. 28 T. 14 N., R. 11 W.
McKinley County, New Mexico

Dear Mr. Harshman:

This is with reference to your memorandum of February 26, 1957, regarding the return of reports and exhibits to the Applicant. Upon investigation we find that the third copy of the application is in Mr. Kiilsgaard's office.

We have recently received a letter, dated February 26 from the Applicant, protesting our denial of its application and requesting some further explanations. It also requested that the application be held open for the time being. We are enclosing two copies of this letter and two copies of our reply of today.

Pending further word from us, please do not return the reports and exhibits attached to the two copies of the application in your possession.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (GCS)

Enclosures

APPROVED:

O. M. Bishop (OMB)
Member, Bureau of Mines

Thor H. Kiilsgaard (THK)
Member, Geological Survey

MChing/izm 3-6-57
cc to: Mr. Ching
Admr.'s Reading File
Operating Committee
THKiilsgaard, 5224
JKratchman, AEC

8623

DMEA Form 7
(12-56)

700

OFFICIAL FILE COPY

Date	Surname	Code
3-8	Ching	700
3-8	Ellis	700
3/9	Selfridge	130
"	Johnson	110
"	Hattendorf	100
		220

Bishop
Kilgoland

MAR 11 1957

Mr. Harry S. Marks, President
Colorado Exploratory Development Co.
105½ East Pikes Peak Avenue
Colorado Springs, Colorado

Re: Docket No. DMEA-4526 (Uranium)
Sec. 28, T. 14 N., R. 11 W.
McKinley County, New Mexico

Dear Mr. Marks:

Your letter of February 26, 1957, has been carefully considered in conjunction with the information available to us concerning the subject property and surrounding areas.

Our letter of February 20, denying your application without prejudice to the property, was based upon the following facts:

1. The Todilto limestone exposed in the western area of the property has been extensively prospected but the results were unfavorable because of the low grade of the material found;

2. Results of sampling, assaying, and radiometric testing of outcrops on the property were not impressive; and

3. Cuttings from the four holes drilled through the Westwater Canyon member show favorable coloring through parts of the sandstone, but greater unfavorability is indicated by the fact that the mudstone associated with the sandstone was predominantly red. Furthermore, no significant ore deposits are known in the Westwater in the vicinity of your property; in fact, none are known in that horizon west of a north-south line running approximately through the middle of Range 10 West. The principal Ambrosia Lake deposits are seven or eight miles east of your property and there is no apparent mineralized trend toward the west.

The field people who examined your property are quite familiar with the geology of the Ambrosia Lake area since we have a number of exploration projects in that area.

Under the circumstances it is our conclusion that no worthwhile target has been outlined by work done to date;

X

8623

consequently, the probability of finding significant ore reserves by the proposed exploration is not sufficiently promising to justify Government participation. However, since there are some favorable factors present, and the full potential of the property is still unknown, our denial was made without prejudice. If you believe that the property has good possibilities you may wish to do some further preliminary work to establish an exploration target that would have good prospects for ore discovery. We do not participate in such preliminary work as we consider it prospecting.

We trust that this letter will be of some help to you in understanding the Government's position.

Sincerely yours,

E. D. Mittendorf

Administrator

MChing/izm (3-5-57) 3-8-57
cc to: Mr. Ching
Admr.'s Reading File
THKiilsgaard, 5224
JKratchman, AEC
DMEA FT Reg. 3 (2) (cc's attached to letter to Harshman this date.

DMEA Form 7
(12-56)

700

OFFICIAL FILE COPY

Date	Surname	Code
3-5	Chaney	700
3-5	Ellis	700
		130
		180
		100
		220

Mr. Harry S. Marks, President
Colorado Exploratory Development Co.
105½ East Pikes Peak Avenue
Colorado Springs, Colorado

Re: Docket No. DMEA-4526 (Uranium)
Sec. 28, T. 14 N., R. 11 W.
McKinley County, New Mexico

Dear Mr. Marks:

Your letter of February 26, 1957, has been carefully considered in conjunction with the information available to us concerning the subject property and surrounding areas.

Our letter of February 20, denying your application without prejudice to the property, was based upon the following facts:

1. The Todilto limestone exposed in the western area of the property has been extensively prospected with poor results. The ore found has been very low grade;

2. Results of sampling, assaying, and radiometric testing of outcrops on the property were not impressive; and

3. The four holes drilled by you through the Westwater Canyon member indicated that a part of the cuttings through the sandstone were favorable in color, but the mudstone above, below, and within the sandstone produced unfavorable red-brown cuttings. Furthermore, no significant ore deposits are known in the Westwater in the vicinity of your property; in fact, none are known in that horizon west of a north-south line running approximately through the middle of Range 10 West. The principal Ambrosia Lake deposits are seven or eight miles east of your property and there is no apparent mineralized trend toward the west.

As far as knowledge of the Ambrosia Lake geology is concerned, we have a number of exploration projects in that area and the field people who appraised your property are quite familiar with it.

Under the circumstances it is our conclusion that no worthwhile target has been outlined by work done to date; consequently, the probability of finding significant ore reserves by

8623

the proposed exploration is not sufficiently promising to justify Government participation. However, since there are some favorable factors present, and the full potential of the property is still unknown, our denial was made without prejudice. If you believe that the property has good possibilities you may wish to do some further preliminary work to establish an exploration target that would ~~appear to~~ have good prospects for ore discovery. We do not participate in such preliminary work as we consider it prospecting. We trust that this letter will be of some help to you in understanding the Government's position.

Sincerely yours,

Administrator

MChing/izm 3-5-57
cc to: Mr. Ching
Admr.'s Reading File
THKiilsgaard, 5224
JKratchman, AEC
DMEA FT Reg 3(2) ~~w/2cc of incoming letter~~
cc attached to letter to Harshman this date.

Colorado Exploratory Development Company
105½ East Pikes Peak Avenue
Colorado Springs, Colorado
MElrose 5-1528

February 26, 1957

OFFICIAL FILE COPY
DMEA
RECEIVED MAR 1 1957

DATE	INITIALS	CODE
3/1	C	220
3-4	Chu	~~700~~
		~~225~~

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

Re: Docket No. ~~DMEA-4526 (Uranium)~~
Sec. 28, T 14 N, R 11W,
McKinley County, New Mexico

Dear Sir:

We desire further information supplementing your letter of February 20, 1957, advising our application for assistance is denied "without prejudice to the property", and suggesting consideration of "a new Application" upon furnishing of "more favorable evidence of ore deposition".

We request that the file be held open on our present application until certain questions can be determined.

We feel that unless the field examination entirely repudiaited the assays, drilling results and geologic report, this project is one contemplated under the provisions of 32A CFR Ch. XII as eligible for government assistance. We believe we established "The geologic probability of making a significant discovery" (Sec. 6. (b)).

Since your letter stated "the probability of disclosing significant ore reserves is not sufficiently promising to justify Government participation", we confine our comments to that phase of the matter only.

Our application set forth:

1. Electric (Century) logs of four drill test holes through the Westwater member of the Morrison formation (usual source of production in the area), a sand 175 feet thick on our lease and showing some radio-activity.

2. Assays of cuttings from drill holes and from outcroppings showing counts of from 0.024 to 0.27.

3. Cuttings (still available, but not requested)

showing the Westwater sand to be bleached light tan, light gray etc, with traces of pyrite.

4. Total depth to the Recapture Formation of 346 feet indicates mining would be economically feasible if ore body favorable. Also, property could be mined by tunnelling or stripping, as well as by a shaft.

5. Commercial ore has already been produced from the Todilto on this lease and the ore supply is not exhausted.

6. Geologist, whom applicant regards as competent and who has excellent reputation in the Ambrosia Lake area, reported "is considered a good Morrison uranium prospect, as is suggested by favorable structure, favorable color usually, by mineralization noted on outcrops and in a drilled hole, indications of asphalt-type deposition and by proximity to known ore bodies".

7. Property is in Ambrosia Lake area (largest known source of uranium ore in U. S.) and similarity of geologic conditions makes this a likely prospect.

Naturally, we feel that there is error somewhere in the DMEA appraisal of this project. Altho we have no knowledge of such facts, we have the feeling that the field examination might have been made by people not entirely familiar with the Ambrosia Lake geologic picture. If it were appraised on the basis of geologic experiences elsewhere on the Colorado Plateau, we know from our own experience that this property does not fit into such a picture. This is not a Morrison lens prospect, such as we have explored and mined in Utah.

If this application cannot be reconsidered and approved on the basis of the present field report, we request that another field examination be made by a new team utterly independent of the first.

If the present field report actually contains information we do not have, or contradicts the opinions we have received, it seems only proper that we should have the benefit of that information before we expend additional funds on further exploration of this property.

Your letter left us in a quandary. We can't imagine what "new and more favorable evidence of ore deposition" we could provide, unless we proceeded with actual exploration ---- the very thing for which DMEA assistance is sought'

We feel that our company has thoroughly qualified this project under Sec. 6 and that Congress intended to grant assistance when there is sufficient eveidence of mineralization or other favorable factors to justify a reasonably prudent man to invest his time and money in the prospect of discovering commercial ore.

We eagerly await your reaction and suggestions.

Very truly yours,

Harry D. Marks

President

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.
224 New Customhouse
Denver 2, Colorado

February 26, 1957

OFFICIAL FILE COPY
DMEA
RECEIVED FEB 28 1957

DATE	INITIALS	CODE
3/1	C	220
~~3/4~~	~~Chg~~	~~700~~
	8	225

Memorandum

To: Chairman, Operating Committee, DMEA

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

Subject: Docket No. DMEA-4526 (Uranium), Colorado Exploratory Development Company (Sec. 28, T 14 N, R 11 W) McKinley County, New Mexico

In Paragraph 4 of a letter dated February 20, 1957, to the Applicant, Mr. Frank E. Johnson, Acting Administrator, DMEA, mentions that the Field Team is directed to return the reports and exhibits originally attached to three copies of the application.

We have but two copies of the application in our files from which the aforementioned material may be detached. The third copy was returned by the Geological Survey on February 1, 1957 to Thor Kiilsgaard's office.

Acting by current instructions, the Survey's copy of the application, upon receipt of the final geologic or joint geologic and engineering report, is immediately forwarded to Mr. Kiilsgaard. Hence, all copies so forwarded are unavailable to this office for deletions.

Please advise us as to how best we may proceed to comply with the Acting Administrator's request under the existing circumstances.

E. N. Harshman

E. N. Harshman

2532

DMEA Form 7
(12-56)

700

OFFICIAL FILE COPY

Date	Surname	Code
2/19	Ching	700
"	Ellis	700
2/20	Selfridge	130
"	[illegible]	110
		100
2/21	[illegible]	220
	Lamb	225
	Kiilsgaard	

FEB 20 1957

Mr. Harry S. Marks, President
Colorado Exploratory Development Co.
105½ East Pikes Peak Avenue
Colorado Springs, Colorado

Re: Docket No. DMEA-4526 (Uranium)
Sec. 28 T. 14 N., R. 11 W.
McKinley County, New Mexico

Dear Mr. Marks:

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

Projects approved by the Defense Minerals Exploration Administration must, in its judgment, show definite promise of yielding materials of acceptable grade in quantities that will significantly improve the mineral supply position for the National Defense Program.

Careful study of all our information, although noting some uranium mineralization on your property, indicates that the probability of disclosing significant ore reserves is not sufficiently promising to justify Government participation. Such denial, however, is made without prejudice to the property. In the event further work on your part discloses new and more favorable evidence of ore deposition, we shall be pleased to consider a new application.

In accordance with the request contained in your application, we are directing our Field Team, by a copy of this letter, to return all reports and exhibits attached to three copies of the application, retaining only the application form and supplementary sheets in each case. One complete set of the application, including attached reports and exhibits, is being retained by this office for our records.

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

Sincerely yours,

Frank E. Johnson (for)

ACTING Administrator

MChing/gla
2-19-57
cc to: Admr.'s Reading File
Operating Committee
Code 700
Mr. Ching
THKiilsgaard, 5224
Jack Kratchman - AEC
DMEA Field Team, Region III (2)

Field Team: Please note fourth paragraph above.

8623

DOCKET COPY

Ching
Ellis

February 19, 1957

Summary of Proposed Project

Object: Denial of application for an exploration project.

Docket No.: DMEA-4526

Commodity: Uranium

Applicant: Colorado Exploratory Development Company
105½ East Pikes Peak Avenue
Colorado Springs, Colorado

Property: 38 lode mining claims, Anne Nos. 1-38, covering all of sec. 28, T. 14 N., R. 11 W., N.M.P.M. & B., McKinley County, New Mexico. Applicant has possessory rights to April 1, 1957, under a Lease and Farmout Agreement with Karl F. Meyers.

Date of application: October 29, 1956.

Amount of application: $87,941.57

Work proposed: 36,180 feet of non-core drilling in 108 holes, spaced on 300 and 500-foot centers, to average depth of 340 feet, to test the Westwater Canyon member of the Morrison formation. Also, 300 feet of coring in 10 holes through the Westwater segment. One hole proposed to test the Todilto limestone in the western part of the property. A geo-thermal survey also proposed. Estimated costs follow:

Independent Contracts:

Non-core drilling (air)	$43,524.00
Core drilling 300 ft. @ $4.75/ft.	1,425.00
Bulldozer work 300 hrs. @ $14.00/hr.	4,200.00
Probing and logging plus standby	4,578.00
Water supply	1,500.00
Labor, supervision, consultants	13,360.00
Operating materials and supplies	278.00
Operating equipment	2,588.50
Miscellaneous	4,547.47
Contingencies	11,940.60
Total	$87,941.57
Government participation @ 75%	$65,956.18

Field Team report: Consists of geologic report only,
by H. F. Albee - January, 1957.

Significant deposits have been found in the district only in Jurassic rocks, which are present on the subject property in the following ascending order: the Todilto limestone, the Summerville formation, the Bluff sandstone, and the Morrison formation. A few small deposits have been found in the Cretaceous Dakota sandstone.

Two normal faults trend northerly through the property with the area between thrown down, thus forming a graben. The Todilto limestone is exposed at the surface over a large part of the area west of the westernmost fault. It has been extensively prospected with negative results by the Anaconda Company. Ore found has been very low grade.

The Westwater Canyon sandstone of the Morrison formation has been found to be generally unfavorable where drilled in the western part of R. 10 W., and in R. 11 W. Four holes were drilled through the Westwater Canyon in the eastern half of the subject property. Parts of the cuttings through the Westwater were a favorable yellowish-gray color, but the mudstone, above, below, and within the sandstone, produced unfavorable red-brown cuttings. No ore deposits are known in the Westwater in the vicinity of the property nor are any significant deposits known in the Westwater west of a line that lies about in the middle of R. 10 W.

The Alta, Evelyn, and Francis mines are located in the Brushy Basin member about $3\frac{1}{2}$ miles north of the subject property. They have produced a total of 3,625 tons of ore averaging about 0.36 percent U_3O_8. These mines are in a favorable area that is localized and does not extend any distance outward. If the Brushy Basin on the subject property were favorable, it could contain an ore body up to 2,000 tons in size. Since it is not strongly favorable, such an ore body could not be expected.

It is concluded that the Todilto limestone, Westwater Canyon member and Brushy Basin member are generally unfavorable for uranium deposits on the subject property and that chances of finding significant quantities of ore-grade material are not good. It is recommended that the application be denied without prejudice to the property.

Commodity Group Comments:

U. S. Bureau of Mines - John E. Crawford, February 7, 1957.

Agrees with the Field Team that the application should be denied without prejudice to the property.

U. S. Geological Survey - W. P. Williams - February 14, 1957.

In view of the findings of the examining geologists, recommends that the application be denied.

Rare and Miscellaneous Metals Division - Michael Ching, February 15, 1957.

Favorable factors connected with this application are: 1. A small low-grade marginal ore body has been found near the surface in the Todilto limestone in the western part of the section; 2. Seven rim samples taken in the Westwater Canyon, Brushy Basin and Dakota were mineralized; 3. Four drill holes showed partially favorable coloring through the Westwater Canyon in the eastern half of the section. However, the record of reconnaissance and exploration in this area has been unfavorable and the above-mentioned favorable factors are not outstanding enough to justify an exploration project.

Conclusions and Recommendations:

The history of this area does not encourage the belief that significant ore deposits may be found. Since very little drilling has been done on the property, it is recommended that the application be denied without prejudice to the property.

Ernest Wm. Ellis

Ernest Wm. Ellis

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

OFFICIAL FILE COPY
DMEA
RECEIVED FEB 15 1957
IN REPLY REFER TO:

DATE	INITIALS	CODE
2-15	C	220
"	Chiang	700

Memorandum

February 14, 1957

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

From: W. P. Williams, U. S. Geological Survey

Subject: Review of field examination report, DMEA 4526, Colorado Exploratory Development Company, sec. 28, T. 14 N., R. 11 W., McKinley County, New Mexico, (uranium).

The examining geologists report that the subject land section lies west of the west boundary of ground known to be favorable for large ore deposits. The nearest mines, 3½ miles distant, are located in a local favorable area that appears to have no direct relationship to the applicant's property.

The largest ore body that is expected in the area would be in the 2,000 ton size category. Such an ore body might have a gross value of $60,000, which would not warrant the expenditure of nearly $90,000 to find it.

Four holes have been drilled on the section by the applicant. The field examiners state that geologic characteristics of these holes, as noted in the bit cuttings, were largely unfavorable. Examination of outcrops on the property did not afford promising results.

In view of the findings of the examining geologists, I recommend that the application be denied.

W. P. Williams

W. P. Williams

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D M E A
RECEIVED FEB 8 1957

DATE	INITIALS	CODE
2-8	C.	220
"	Chuy	700

February 7, 1957

4526

Uranium

Colorado Exploratory Devel. Co.
Sec. 28, T14N, R11W, NMPM
McKinley County, N. Mex.
$87,941.57

Ernest William Ellis, DMEA Member
Uranium Commodity Committee
John E. Crawford, Bureau of Mines Member
Uranium Commodity Committee

Field Team Report

1/18/57 2/5/57

x without prejudice
x

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

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DMEA
RECEIVED FEB 1 1957

DATE	INITIALS	CODE
2/1	C	220
		130
2.5	C.	220
2.5	Chuy	700

224 New Customhouse
Denver 2, Colorado

January 30, 1957

Memorandum

To: Secretary, Operating Committee, DMEA

From: DMEA field Team, Region III

Subject: Geologic Report of Examination, Docket DMEA 4526 (Uranium) Colorado Exploratory Development Company (Sec. 28, T14N, R11W, NMPM), McKinley County, New Mexico

Enclosed are the original and three copies of a geologic report of examination on the subject property.

The field examiner recommends that the application be denied without prejudice. The Field Team concurs with the examiner's recommendation.

The Bureau of Mines did not participate in this field examination.

DMEA Field Team

W. M. Traver

By W. M. Traver
Executive Officer

Enclosure

Reviewed by
DMEA OPERATING COMMITTEE
2-4-57
(date)

ON-SITE EXAM. REPORT

DMEA
DEPARTMENT OF THE INTERIOR
JAN 28 1957
REGION III
DENVER, COLORADO

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

P. O. Box 360
Grand Junction, Colorado

IN REPLY REFER TO:
MINERAL DEPOSITS
DMEA
RECEIVED
JAN 21 1957
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

January 18, 1957

Memorandum

To: Executive Officer, DMEA Field Team, Region III
Through: W. N. Harshman
J. F. Shaw

From: J. William Hasler

Subject: Transmittal of a denial Geologic report on the Colorado Exploratory Development Company, Docket 4526 Section 28, T. 14 N., R. 11 W., McKinley County, New Mexico

OFFICIAL FILE COPY
DMEA
RECEIVED FEB 1 1957

DATE	INITIALS	CODE
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Enclosed is a denial geologic report on the subject property.

The Colorado Exploratory Development Company applied for assistance to explore for uranium on sec. 28, T. 14 N., R. 11 W., McKinley County, New Mexico. The property was examined in the field prior to a Washington request for a field examination as R. F. Albee was in the area on other DMEA business.

The applicant wishes to explore the Westwater Canyon member of the Morrison formation of Jurassic age by diamond drilling. Four widely spaced non-core holes have been drilled on the property and cuttings assaying as much as 0.023 percent U_3O_8 were reported. The cutting from the four holes were examined by the examining geologists and the cuttings showed a favorable color through parts of the Westwater Canyon sandstone, however, most of the mudstone associated with the sandstone was red.

Personnel of the Atomic Energy Commission were consulted and the Commission's reconnaissance work in the area is in preparation, however, occurences of mineralization in the Morrison formation both north and southeast of the property are noted in the report but mention is made primarily of the Todilto formation in so far as the subject property is concerned.

TRANSMITTED
JAN 30 1957

Reviewed by
DMEA OPERATING COMMITTEE
2-4-57
(date)

SEC.
CHAIR

Inasmuch as the outcrops on the property do not appear favorable, cuttings from the drill holes show the mudstone to be dominantly red, and that occurrences of mineralized material are sparse and low-grade to non-existant, denial of the application is recommended.

A United States Bureau of Mines engineer was not in the area at the time of the field examination, and it was decided that due to the imminent denial of the application, that it was not necessary to require a field examination by the Bureau of Mines.

I concur with the conclusion that the property does not warrant Government assistance, and unless further private drilling proves encouraging results, that the application be denied without prejudice.

J. William Hasler
J. William Hasler
Geologist

JWH/bh
Enclosures

Reviewed by
DMEA OPERATING COMMITTEE

(date)

FOR UNITED STATES GOVERNMENT USE ONLY

OFFICIAL FILE COPY
D M E A
RECEIVED FEB 1 1957

DATE	INITIALS	CODE
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		220

TRANSMITTED
JAN 30 1957

UNITED STATES
DEPARTMENT OF THE INTERIOR
FRED A. SEATON, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMEA 4526

Colorado Exploratory Development Company

Section 28, t. 14 N., R. 11 W.

McKinley County, New Mexico

Uranium

Geologic Report

by

H. F. Albee, Geologist
Geological Survey

January 1957

Reviewed by
DMEA OPERATING COMMITTEE
2-4-57
(date)

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Proposed Exploration	7
Conclusions and Recommendations	8

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DMEA 4526

Colorado Exploratory Development Company
Section 28, T. 14 N., R. 11 W.
McKinley County, New Mexico

INTRODUCTION AND SUMMARY

The Colorado Exploratory Development Company, 105½ East Pikes Peak Avenue, Colorado Springs, Colorado, applied to Defense Minerals Exploration Administration for assistance to explore for uranium on the Anne group of claims which lies in Section 28, T. 14 N., R. 11 W., McKinley County, New Mexico. The applicant proposes to explore the Jurassic Morrison formation by 36,180 feet of core and non-core drilling in 108 holes at an estimated cost of $87,941.57.

The property was examined on December 12, 1956 by J. William Hasler and Howard F. Albee, U. S. Geological Survey, accompanied by Carl F. Myers, representative for the applicant, and Larry Wiskirchen of Marshall and Wiskirchen Drilling Company.

Four widely spaced, non-core holes have been drilled on the property. Cuttings of the Westwater from one hole is reported to have assayed 0.023 percent U_3O_8. Copies of gamma ray logs by Century Geophysical Corporation are available for the four drill holes. The gamma ray logs are not interpreted but they do not appear to show any positive anomalies.

Cuttings from the four drill holes showed a favorable color through parts of the Westwater sandstone, however most of the mudstone associated with the sandstone was red.

A sample taken from an outcrop indicated by the representative of the applicant showed no count on a scintillation counter although the rock in place was about 10 times above background.

Personnel of the Atomic Energy Commission were consulted regarding the applicant property. The AEC has done reconnaissance work in the area and a report is in preparation. Occurrences of mineralization in the Morrison formation both to the north and to the southeast of the property are noted in the AEC report but mention is made of mineralization on the property only in the Todilto formation.

Inasmuch as the outcrops on the property do not appear favorable, cuttings from the drill holes show the mudstone to be dominantly red, and occurrences of mineralized material are sparce and low-grade to non-existant both on the property and on adjoining sections, denial of the application is recommended.

LOCATION AND ACCESSIBILITY

The Anne group of claims comprises all of section 28, T. 14 N., R. 11 W., in the Grants area, McKinley County, New Mexico (fig. 1). Section 28 lies about 3½ miles northeast of Prewitt, New Mexico, which is about 20 miles northwest of Grants, New Mexico on U. S. Highway 66. The property may be reached by going north from Prewitt for about 5½ miles on a graveled road then easterly and southeasterly for 7.3 miles on an unimproved dirt road.

GEOLOGY AND ORE DEPOSITS

The property is located in the Grants district, New Mexico, which lies on part of the northeast flank of the Zuni uplift. The uplift is a broad asymmetrical dome which comprises an area of about 2,000 square miles and extends for a distance of about 60 miles from Grants, New Mexico, on the east, to Gallup, New Mexico, on the west. The beds in the area generally dip northeastward at a low angle into the San Juan Basin. The rocks are folded broadly and high angle faults are common. Two normal faults trend northerly through the section (fig. 2), the opposing sides of which are down thrown, thus forming a graben.

Rocks exposed in the vicinity of the property range in age from Triassic through Upper Cretaceous, but significant deposits have been found in the district only in Jurassic rocks. The Jurassic rocks are, in ascending order, the Todilto limestone, the Summerville formation, the Bluff sandstone, and the Morrison formation. A few small deposits have been found in the Cretaceous Dakota sandstone, but because of the scattered distribution and small size of the ore bodies, exploration for them is not economical.

The Morrison formation in the district comprises three members which are, in ascending order, the Recapture shale, the Westwater Canyon sandstone, and the Brushy Basin shale.

The Recapture member is composed of interbedded fluvial sandstone and mudstone units. The sandstone strata are fine-to medium-grained and locally contain granules and pebbles disseminated in the sandstone or concentrated along laminations. The sandstone is friable, and sedimentary structures are poorly displayed. The Recapture is about 100 feet thick and contains alternating red, brown, and light gray units.

The Westwater Canyon member consists predominantly of medium- to coarse-grained fluvial sandstone units, locally arkosic, with interbedded gray, gray-green, and red-brown mudstone strata. The sandstone may be yellowish gray, grayish green, red or reddish brown.

The thickness of the Westwater, penetrated in four holes on the property, ranges from 137 feet to 190 feet. The member intertongues with the overlying Brushy Basin member and the top contact is often questionable.

The Brushy Basin member is composed of claystone containing varying amounts of silt and sand and much bentonitic clay. Lesser amounts of medium-grained sandstone occur as lenses and as tongues of the underlying Westwater. Crossbedding and scour-and-fill features indicate a fluvial origin. Carbonaceous debris, claystone lenses, and pebbles are present locally. The Brushy Basin averages about 110 feet thick on the applicant property.

The Todilto, Morrison, and Dakota formations are all exposed on the property. The applicant proposes to drill one hole to test the Todilto limestone.

The Todilto limestone is exposed at the surface over a large part of the area west of the westernmost fault (fig. 2),and has been extensively prospected with negative results by the Anaconda Company (I. J. Rappaport, personal communication), and where mining has been attempted, the rock, rather than having been shipped, is stockpiled because of its low grade.

The Westwater has been found to be generally unfavorable where it has been drilled in the westernmost part of R. 10 W. and in R. 11 W. Where the change from a generally favorable to a generally unfavorable aspect occurs is indefinite because of lack of intervening drill hole information. Parts of the cuttings of the Westwater sandstone from the four drill holes were yellowish gray which is usually considered a favorable color. The color may or may not have been affected by long exposure to the weather, however the cuttings of mudstone above, below, and within the sandstone were red-brown, which usually is an unfavorable color. No ore deposits are known in the Westwater in the vicinity of the property nor are any significant deposits known in the Westwater west of a line that lies about in the middle of R. 10 W.

A sandstone unit that crops out in the Brushy Basin member was sampled because, when in place, it showed a count of about 10 times above background. The sample, however, shows no count when away from the outcrop. Both red and green mudstone is associated with the Brushy Basin sandstone.

The Alta, Evelyn, and Francis mines are located in the Brushy Basin member about 3½ miles north of the applicant property. According to AEC production data, the mines have produced the following tonnages and average grades of ore:

Mine	Tons	$\%U_3O_8$	$\%V_2O_5$
Alta	1,471	0.48	0.34
Evelyn	1,793	0.28	0.46
Francis	361	0.31	0.65

These mines are in a local favorable area that has not been found to extend any distance from the vicinity of the mines. If the Brushy Basin were assumed to be favorable on the applicant claims, the size of an expected ore deposit would be in the 2,000 ton class. Inasmuch as the Brushy Basin on the property is not strongly favorable, ore deposits of the above size would not be expected.

PROPOSED EXPLORATION

The applicant proposes a drilling program to explore for uranium mainly in the Westwater Canyon member of the Morrison formation. One hole is proposed on the eastern part of the section to test the Todilto limestone. The applicant also proposes one exploratory tunnel, but no specifications are given nor are any costs included in the estimate of costs.

The drilling proposal consists of 108 drill holes, to average 340 feet deep, spaced from about 200 feet to 700 feet in offset fences. The cost of the program is estimated at $87,941.57.

The applicant states that the initial drilling program is to consist of 36,180 feet, however 108 drill holes drilled to an average depth of 340 feet totals 36,720 feet. Inspection of the applicants drilling grid shows 108 holes, 4 of which have been drilled. The total footage shown on the map then, less these 4 holes, is 35,360 feet.

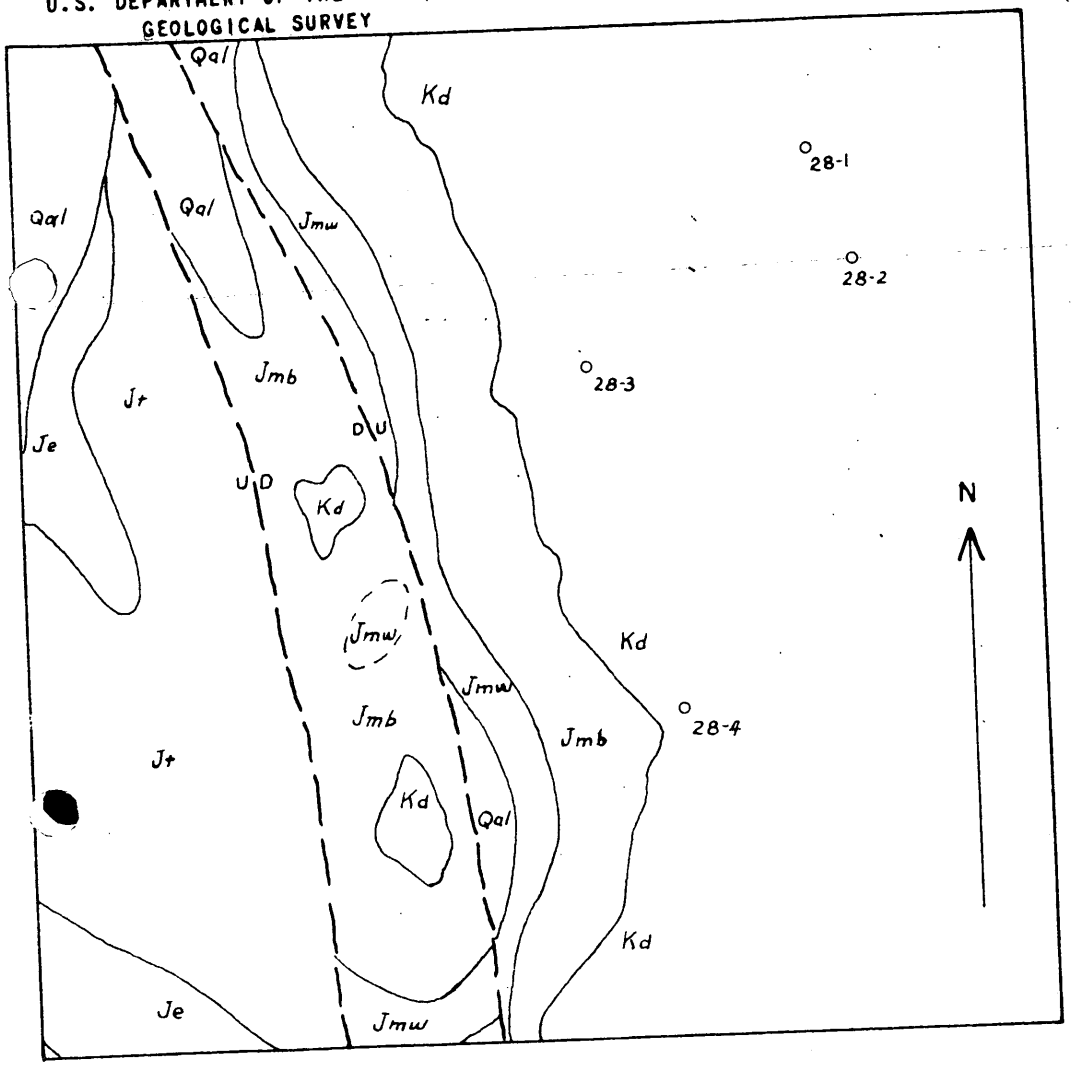
A multi-stage program is not proposed by the applicant, but is implied. The applicant also proposes to give consideration to a geo-thermal survey which is included in the estimate of costs.

CONCLUSIONS AND RECOMMENDATIONS

The applicant property lies in an area that is considered generally unfavorable for the occurence of uranium deposits. The Westwater member of the Morrison formation is considered generally unfavorable and the Brushy Basin is only locally favorable for ore deposits up to the 2,000 ton class. It is therefore concluded that the chance of finding significant quantities of ore grade material is not good and it is therefore recommended that the application be denied and that the applicant should substantiate any request for further work by added drilling.

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
JANUARY 1957 DOCKET 4526



EXPLANATION

Qal	QUATERNARY ALLUVIUM
Kd	CRETACEOUS DAKOTA SANDSTONE
Jmb	BRUSHY BASIN MEMBER OF JURASSIC MORRISON FORMATION
Jmw	WESTWATER CANYON MEMBER OF JURASSIC MORRISON FORMATION
Jt	JURASSIC TODILTO LIMESTONE
Je	JURASSIC ENTRADA SANDSTONE
	GEOLOGIC CONTACT, DASHED WHERE INFERRED
U/D	TRACE OF FAULT SHOWING RELATIVE MOVEMENT
○	DRILL HOLE

Note: BASE FROM APPLICANTS MAP.

1000 0 2000 FEET

FIGURE 2.--GEOLOGIC SKETCH MAP OF SEC.28, T.14 N., R.11 W., N.M.P.M., COLORADO EXPLORATORY DEVELOPMENT COMPANY, McKINLEY COUNTY, NEW MEXICO.

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

224 New Customhouse
Denver 2, Colorado

December 12, 1956

RECEIVED DEC 17 1956 D.M.E.A.

Memorandum

To: W. H. King (2) (w/brochure)
J. W. Hasler

From: DMEA Field Team, Region III

Subject: Docket DMEA 4526 (Uranium) Colorado Exploratory Development Company (Sec. 28, T.14, N., R. 11W) McKinley County, New Mexico.

Enclosed is the subject application in the amount of $87,941.57. A field examination and suitable report are requested.

Enclosed for your further information is a copy of a letter from the Chairman of the Operating Committee, dated December 5, 1956, together with memoranda of review of the application by W. P. Williams and John E. Crawford.

Please note the Applicant has possessory rights to the property until April 1, 1957. In the event a contract appears likely, the Applicant should be advised to secure a sufficient extension to permit completion of the required drilling footage. Will you please return the brochure with your Report of Examination.

DMEA Field Team, Region III

Original signed by
W. M. TRAVER

By W. M. Traver
Executive Officer

Enclosures

HMC:ytl
cc
Sec. Op. Comm. (2)
Harshman
Docket 4526
Chron.

Region III

Building 20
Denver Federal Center
Denver 2, Colorado

DMEA
DEPARTMENT OF THE INTERIOR

December 13, 1956

DEC 14 1956
REGION III
DENVER, COLORADO

Memorandum

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

From: Superintendent, Denver Experiment Station, Reg. III

Subject: Docket DMEA 4526 (Uranium) Colorado Exploratory Development Company (Sec. 28, T. 14 N., R. 11 W.) McKinley County, N.M.

The application for Colorado Exploratory Development Company, Docket DMEA 4526, in the amount of $87,941.57 was received in this office on December 13, 1956.

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

W. H. KING

W. H. King

cc: W. M. Traver (2)
E. H. Harshman
J. F. Shaw
Sec. Op. Com. (2)

700

FILE COPY

Surname:
Ching
Selfridge
Williams

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

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

DEC - 5 1956

Re: Docket No. DMEA-4526 (Uranium)
Colorado Exploratory Development Co.
Sec. 28, T. 14 N., R. 11 W.
McKinley County, New Mexico

Dear Mr. Traver:

The subject application is being referred to you for a field examination and recommendations.

Copies of memoranda, dated November 20 and 29, 1956, by John E. Crawford, USBM, and W. P. Williams, USGS, respectively, relating to the application, are enclosed for your information. Also enclosed is a copy of the application, complete with Geologic Report, Lease and Farmout Agreement, Drilling Contract, three drilling bids, map, and radioactivity logs.

Under the Lease and Farmout Agreement the Applicant has possessory rights to the property until April 1, 1957. The right to further possessory rights in the form of a lease is contingent upon the performance of 7,500 feet of drilling by that date. Extension of the April 1 date appears to be quite possible. In the event a contract appears likely, the Applicant should be advised to secure a sufficient extension to permit completion of the required drilling footage. A Consent to Lien and Subordination Agreement would also be required of Karl F. Meyers.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (GCS)

Enclosures
APPROVED:

Frank D. Lamb (GCS)
Member, Bureau of Mines

Thor H. Kiilsgaard (GCS)
Member, Geological Survey

MChing/izm 12-4-56
cc to: Docket
Code 700
Mr. Ching
Admr.'s Reading File
Operating Committee
Messrs. JECrawford, Rm. 3643
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA

R.C.L.

700

FILE COPY
Surname:
Ching
Ellis
Kingsford
Garbutt
Belledge
Fleming

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

Mr. Harry S. Marks, President
Colorado Exploratory Development Co.
105½ East Pikes Peak Avenue
Colorado Springs, Colorado

Re: Docket No. DMEA-4526 (Uranium)
Sec. 28 T. 14 N., R. 11 W.
McKinley County, New Mexico

Dear Mr. Marks:

The application for assistance in exploring your property, under the captioned docket number, has been reviewed by the Rare and Miscellaneous Metals Division of the Defense Minerals Exploration Administration. It has been referred for a field examination to:

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

The Regional Office will contact you at the earliest opportunity in regard to your project.

Sincerely yours,

C. O. Mittendorf

Administrator

MChing/izm 12-4-56
cc to: Docket
Code 700
Admr.'s Reading File
Mr. Ching
DMEA Field Team, Region III (2)

11/30/56

IN REPLY REFER TO:

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

RECEIVED
NOV 30 1956
D.M.E.A.

November 29, 1956

Memorandum

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

From: W. P. Williams, U. S. Geological Survey

Subject: Review of application, DMEA 4526, Colorado Exploratory Development Company, sec. 28, T. 14 N., R. 11 W., McKinley County, New Mexico (uranium).

The applicant proposes to explore for uranium ore deposits on a section of land located about 8 miles southwest of Ambrosia Lake in the Grants district.

The proposed work would consist of a total of 36,180 feet of drilling in about 108 holes. Total estimated cost of the project is $87,942. As pointed out by the Executive Officer, the applicant's cost estimates are excessive.

This applicant proposes to include geothermal surveying in the project. To my knowledge this is the first application to propose geothermal work in uranium exploration. Geothermal surveying, appears, however, to be on the ascendency and may appear in future applications. The Geophysics Branch of the U. S. Geological Survey is conducting tests on the applicability of the method. Geothermal measurements have been made by the Survey in the Grants district as well as in other parts of the Colorado Plateau. Inquiry of Survey personnel who have done geothermal work indicates that the procedure is, at this time, entirely experimental with regard to location and extent of uranium ore deposits. To begin with, even large ore bodies afford anomalies that are only of the magnitude of 0.1 degree centigrade. Drilling mediums, especially water and mud, disturb the thermal environment around a drill hole to such an extent that months of elapsed time are required to allow the hole to return to thermal equilibrium. Surface or shallow anomalies are of doubtful value as diurnal and seasonal temperature variations penetrate rocks to depths of about 6 and 90 feet, respectively. At present geothermal anomalies are more easily related to features such as heat conductivity of rocks than to uranium minerals. More work will undoubtedly increase the usefulness of the method. At this time, however, I do not recommend that DMEA participate in expenditures for geothermal surveys.

Because of erosion all of the potential ore zones crop out on the property. As a result, the favorability of the rocks for ore deposition can very likely be determined by field examination. I recommend that the application be referred to the Field Team for field examination and report.

W. P. Williams

W. P. Williams

11/23/56

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

RECEIVED NOV 23 1956 D.M.E.A.

Date November 20, 1956

DMEA Docket No. 4526
DMEA Contract No.
Commodity Uranium
Name of applicant Colorado Exploratory Development Co.
Name of property
Location of property McKinley County, New Mexico
Estimated cost of project $87,941.57

Memorandum ✓

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

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

Subject: Review of Application
(Application, Field Team Report, etc.)

1. Date of subject document: _____. 2. Date received by reviewer: 11/13/56.

3. Prior reports on this property known to reviewer: Yes ☐ No ☒

4. Prior reports on nearby properties known to reviewer: Yes ☐ No ☒

5. Information available on past production: Yes ☐ No ☒

6. Other pertinent factors known to reviewer: Yes ☐ No ☒

7. Explain items marked yes above:

8. Factors needing special consideration:
   a. Location ☐
   b. Ownership ☐
   c. Evidence of mineralization ☐
   d. Geology ☐
   e. Proposed exploration method ☐
   f. Alternate exploration method ☐
   g. Costs ☐
   h. _____ ☐

9. Action advised:
   a. Obtain information from applicant ☐
   b. Refer to Field Team ☒
   c. Denial ☐
   d. Agree with Field Team ☒
      i. Consult with Mr. _____ at _____ AEC office.
   e. Disagree with Field Team ☐
   f. Suggest alternate plan ☐
   g. Request another examination ☐
   h. Approval ☐

10. Remarks: (Use back of page if necessary) Mr. J. O. Hosted, Washington representative of the Atomic Energy Commission, assisted in the review.

11-13-56

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

RECEIVED NOV 13 1956 D.M.E.A.

224 New Customhouse

Denver 2, Colorado

November 8, 1956

DMEA 4526

Memorandum

To: Secretary to the Operating Committee

From: DMEA Field Team, Region III

Subject: Application for DMEA Aid (Uranium) Colorado Exploratory Development Company (Sec. 28, T.14 N, R.11 W) McKinley County, New Mexico

Enclosed are the original and three copies of a joint memorandum of review of the subject application, by members of the Grand Junction Office, DMEA.

Since there are no operating mines in the immediate vicinity of the Applicant's property, and the fact that some ore has been found on the property, they recommend that a field examination is probably warranted. We concur in the recommendation that a field examination be made on the subject property.

DMEA Field Team, Region III

By W. M. Traver
Executive Officer

U. S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
JANUARY 1957
DOCKET 4526

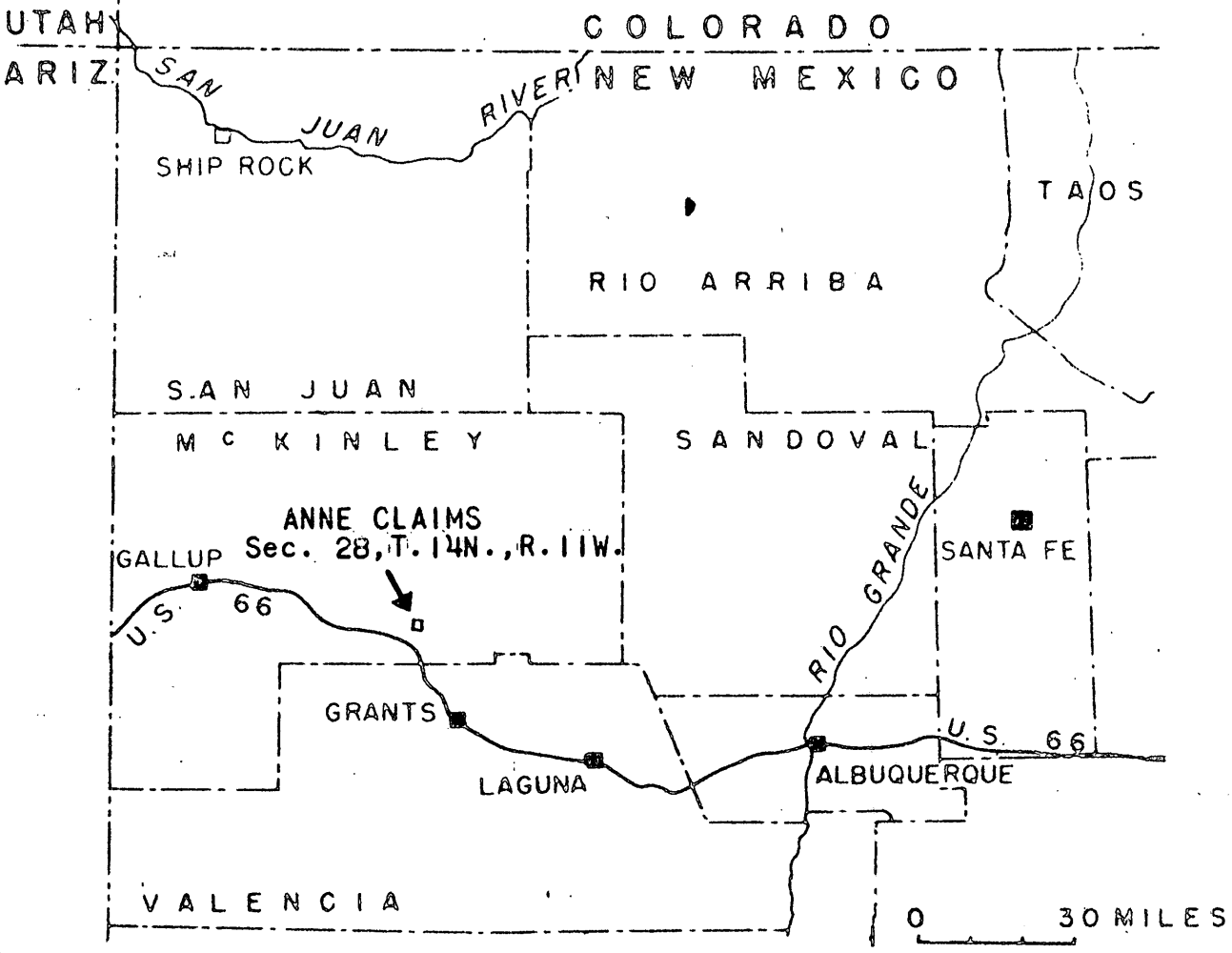


FIGURE 1. INDEX MAP OF PART OF NEW MEXICO SHOWING LOCATION OF COLORADO EXPLORATORY DEVELOPMENT COMPANY PROPERTY, McKINLEY COUNTY, NEW MEXICO.

MINERAL DEPOSITS
IN REPLY REFER TO:
DMEA
RECEIVED
NOV 7 1956
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
DMEA
DEPARTMENT OF THE INTERIOR
P. O. Box 360
Grand Junction, Colorado
NOV 8 1956
REGION III
DENVER, COLORADO

November 6, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

Through: E. N. Harshman
J. William Hasler

RECEIVED
NOV 13 1956
D.M.E.A.

From: W. B. Gazdik
M. H. Salsbury

Subject: Recommendation for field examination, DMEA ____ (Uranium) Colorado Exploratory Development Company (Sec. 28, T. 14 N., R. 11 W.), McKinley County, New Mexico.

The Colorado Exploratory Development Company applied to the Defense Minerals Exploration Administration for aid in exploring for uranium in Sec. 28, T. 14 N., R. 11 W., McKinley County, New Mexico.

The applicant's property is located in the Grants Mining District where significant uranium deposits are found in the Todilto limestone and Morrison formations of upper Jurassic age. A few small scattered ore bodies occur in the Dakota sandstone of lower Cretaceous age. The three ore-bearing formations crop out on the subject land section.

According to the applicant, about 200 tons of ore averaging 0.10 percent U_3O_8 were mined from the Todilto limestone and stockpiled on the property. One of four holes drilled through the Westwater Canyon member of the Morrison formation reportedly penetrated weakly mineralized material which assayed 0.023 percent U_3O_8.

There are no operating mines in the immediate vicinity of the applicant's property. Ore is being shipped from the Alta, Evelyn and Francis mines about $3\frac{1}{2}$ miles north of section 28 and from the Silver Spur mine about $3\frac{1}{2}$ miles to the southeast. The Silver Spur deposit is one of the few that occur in the Dakota sandstone. According to AEC production data, the following shipments of ore were made from the above mentioned mines.

Mine	Producing formation	Tons	$\%U_3O_8$	$\%V_2O_5$
Alta	Morrison	1,471	0.48	0.34
Evelyn	Morrison	1,793	0.28	0.46
Francis	Morrison	361	0.31	0.65
Silver Spur	Dakota	214	0.31	0.30

Although known deposits in the vicinity of the subject property are relatively small, a field examination is probably warranted because some ore has been found on the property.

W. B. Gazdik,
Geological Survey

M. H. Salsbury,
Bureau of Mines

WBG/mlr

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration
Washington 25, D. C.

November 2, 1956

Colorado Exploratory Development Company
105½ E. Pikes Peak Ave.
Colorado Sppings, Colorado

Subject: DMEA-4526
Re: Exploration Assistance

Gentlemen

Your application for exploration assistance, dated October 29, 1956 submitted to our office at Denver, has been assigned Docket Number DMEA-4526 and referred to the Rare and Miscellaneous Metals Division in the Washington office. Kindly identify all future correspondence relating to your application by this Docket Number.

Sincerely yours,

Allen S. Dakan, Chief
Operations Control and
Statistics Division

Copy to:

Region III. Denver 2, Colorado

Code 700

3571

LOGGING DATA

PROBE SIZE: 1 3/4	CALIBRATION: 320
DATE: 9-11-56	FIELD HOURS: Grants

HOLE DIAM.	2 3/8-4				
HOLE DIAM.	4 3/4				
BOTTOM DEPTH	370				
SURFACE DEPTH	346				
SURFACE DIAM.	25				
TIME CONSTANT	8				
LOGGING SPEED	10 FTM	FTM	FTM	FTM	FTM
SENSITIVITY	D				
SENSITIVITY	D2				
SURFACE TIME	1240				
BOTTOM TIME	1310				
CASED TO					
CORR. FACTOR					
MEASURED BY	10/04				
RECORDED BY					

HOURLY CHECK

LOCATION		TIME	
SEC. 28	TWP. 14	RGE. 11	DRIVE 2.5
COUNTY: McKinley			FIELD .5
STATE: N. Mex			STANDBY —
AREA:			BREAKDOWN
CLIENT: Myers			TOTAL 3
LOG REC'D BY:			OPERATOR State
			PARTY NO. 14-6

Century

GEOPHYSICAL CORP.
TULSA, OKLA., U.S.A.

RADIOACTIVITY-ELECTRIC LOG

COMPANY: Myers Bros.
BORE HOLE NO. 28-4
FIELD
COUNTY McKinley
LOCATION: SEC. 28 TWP. 14 RGE. 11

LOG MEAS. FROM: FILE NO.
DRLG. MEAS. FROM:

DATE:	9-11-56
FOOTAGE	346
TOTAL DEPTH (DR)	370
HOLE DIAM.	4 3/4
LOGGING SPEED	10/04
TIME CONSTANT	8
MUD TYPE	Dry
CASED TO	

LOCATION OF HOLE

ELEVATION KB / DL

BKGRD COUNT
SLUSH PIT CT.

REMARKS:

INTERPRETATION

RADIO METRIC % VALUES COMPUTED WITHOUT BENEFIT OF LOCAL ORE EQUILIBRIUM FACTOR

MINERALIZATION

GEOLOGIC SEC.	GEOLOGIC THICKNESS	%	%	%	%

INTERPRETATION BY:

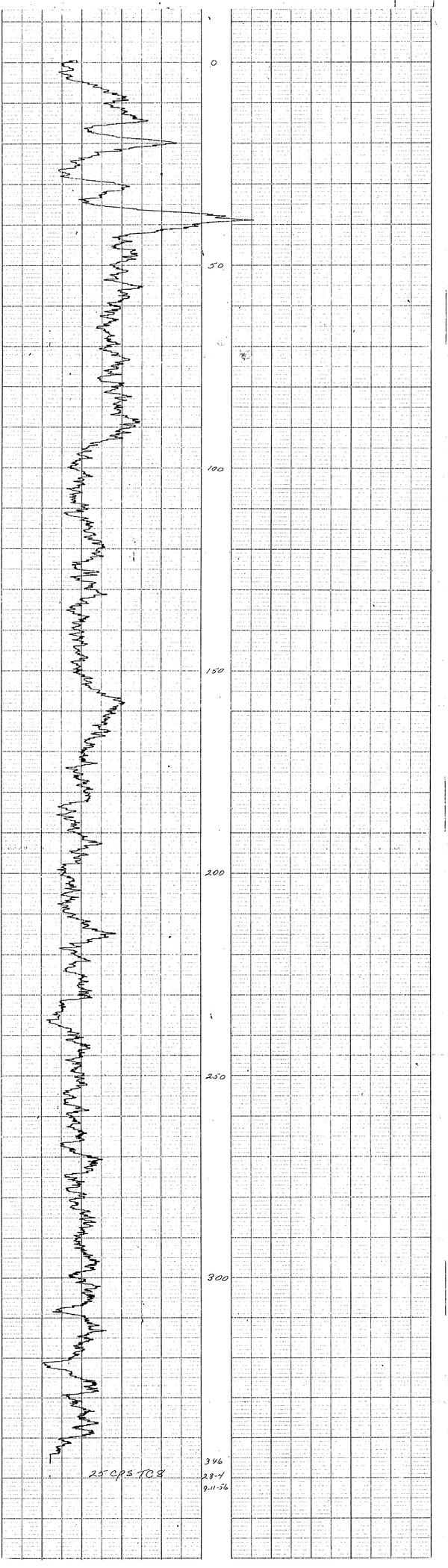
GEOLOGIC TOPS

FORMATION	DEPTHS	THICKNESS

CCG 19

NATURAL GAMMA RAY
COUNTS PER SECOND

RESISTANCE
OHMS



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LOGGING DATA

PROBE SIZE: 2" CALIBRATION: 300
DATE 9-8-56 FIELD OPERATORS: Grants

	INITIAL RUN	RE-RUN	RE-RUN	RE-RUN	RE-RUN	RE-RUN
HOLE TD	28-3					
HOLE SIZE	4¾					
CASING SIZE	390					
LOGGER TD	363-150					213
GAMMA SCALE	25					
TIME CONSTANT	8					
LOGGING SPEED	10 FT/M	FT/M	FT/M	FT/M	FT/M	FT/M
RESISTIVITY SCALE						
MUD TYPE	Dry					
TIME IN	1230					
TIME OUT	1300					
CASED TO						
CORE DIA						
PAPER SPEED	10"/IN	DAILY CALIBRATE			HOURLY CHECK	
HOLE CORR.		SECTIONAL CALIBRATE				

LOCATION		TIME	
SEC 28	TWP. 14 RGE 11	DRIVE	3.
COUNTY: McKinley		FIELD	.5
STATE: N. Mex		STANDBY	
AREA		BREAKDOWN	
CLIENT		TOTAL	3.5
Myers Bros			
LOG REC'D BY:		OPERATOR	Stage
		PARTY NO:	21-6

Century

GEOPHYSICAL CORP.
TULSA, OKLA., U.S.A.

RADIOACTIVITY-ELECTRIC LOG

COMPANY: Myers Bros
BORE HOLE NO. 28-3
FIELD
COUNTY McKinley
LOCATION: SEC. 28 TWP. 14 RGE. 11

LOG MEAS. FROM _____ FILE _____
DRLG. MEAS. FROM _____ NO _____

DATE	9-8-56
FOOTAGE	213
TOTAL DEPTH (DR)	390
HOLE DIAM.	4¾
LOGGING SPEED	10"/IN
TIME CONSTANT	8
MUD TYPE	Dry
CASED TO	

LOCATION OF HOLE

ELEVATION
KB
GL

BKGRD COUNT
SLUSH PIT CT.

REMARKS:

INTERPRETATION

RADIO METRIC % VALUES COMPUTED WITHOUT BENEFIT OF LOCAL ORE EQUILIBRIUM FACTOR

MINERALIZATION

COUNTS PER SEC	DEPTH FROM-TO	% eU	COUNTS PER SEC	% eU

INTERPRETATION BY

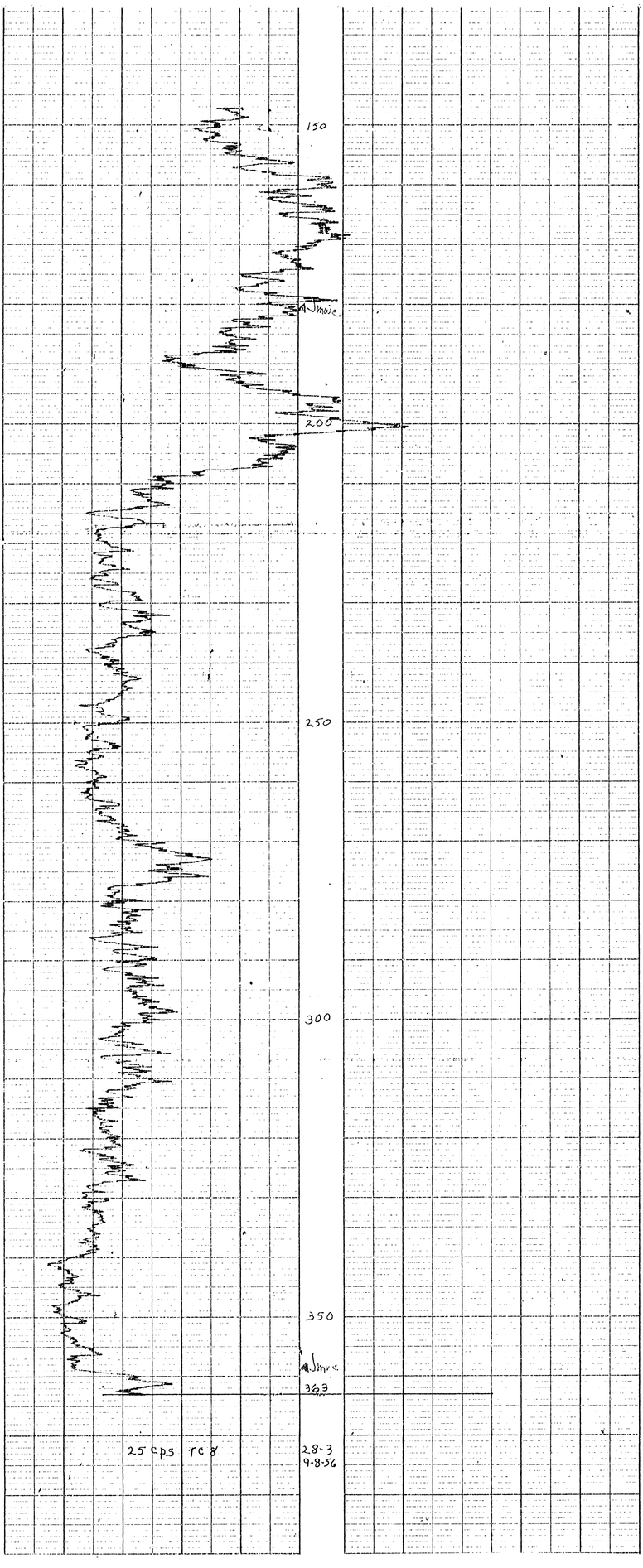
GEOLOGIC TOPS

FORMATION	DEPTHS	THICKNESS

CGC 19

NATURAL GAMMA RAY
COUNTS PER SECOND

RESISTANCE
OHMS



LOGGING DATA

PROBE SIZE: 1 3/8
CALIBRATION: 200
DATE: 9-7-56
FIELD HDQ'RS: Grants

	INITIAL RUN	RE-RUN	RE-RUN	RE-RUN	RE-RUN	RE-RUN	RE-RUN
HOLE NO	28-3						
HOLE DIA	4 1/2						
DRILLED DEPTH	180						
LOGGED DEPTH	174						
GAMMA SCALE	25						
TIME CONSTANT	8						
LOGGING SPEED	10 FT/M	FT/M	FT/M	FT/M	FT/M	FT/M	FT/M
RESIS SCALE							
MUD TYPE	Dry						
TIME IN	1200						
TIME OUT	1220						
CASED TO							
CORE DIA							
PAPER SPEED	10"/M	DAILY CHGE				HOURLY CHGE	
HOLE CHGE		FOOTAGE CHGE					

LOCATION			TIME	
SEC 28	TWP. 14	RGE. 11	DRIVE:	3.
COUNTY: McKinley			FIELD:	.4
STATE: N Mex			STANDBY:	.5
AREA:			BREAKDOWN:	
CLIENT: Myers Bros			TOTAL:	3.9
LOG REC'D BY:			OPERATOR: Stage	
			PARTY NO: 21-6	

Century

GEOPHYSICAL CORP.
TULSA, OKLA., U.S.A.

RADIOACTIVITY-ELECTRIC LOG

COMPANY: Myers Bros
BORE HOLE NO. 28-3
FIELD
COUNTY McKinley
LOCATION: SEC 28 TWP. 14 RGE. 11

LOG MEAS. FROM Surface
DRLG. MEAS. FROM Surface
FILE
NO

		LOCATION OF HOLE
DATE:	9-7-56	
FOOTAGE		
TOTAL DEPTH (DR)	180	
HOLE DIAM.	4 1/2	
LOGGING SPEED	10'/M	ELEVATION KB
TIME CONSTANT	8	GL
MUD TYPE	Dry	BKGRD. COUNT
CASED TO		SLUSH PIT CT.

REMARKS:

INTERPRETATION

RADIO METRIC % VALUES COMPUTED WITHOUT BENEFIT OF LOCAL ORE EQUILIBRIUM FACTOR

MINERALIZATION

COUNTS SEC	DEPTH THICKNESS	% eU	CORR. CPS	% eU3O8

INTERPRETATION BY:

RECEIVED
AUG 1 1956
D.M.E.A.

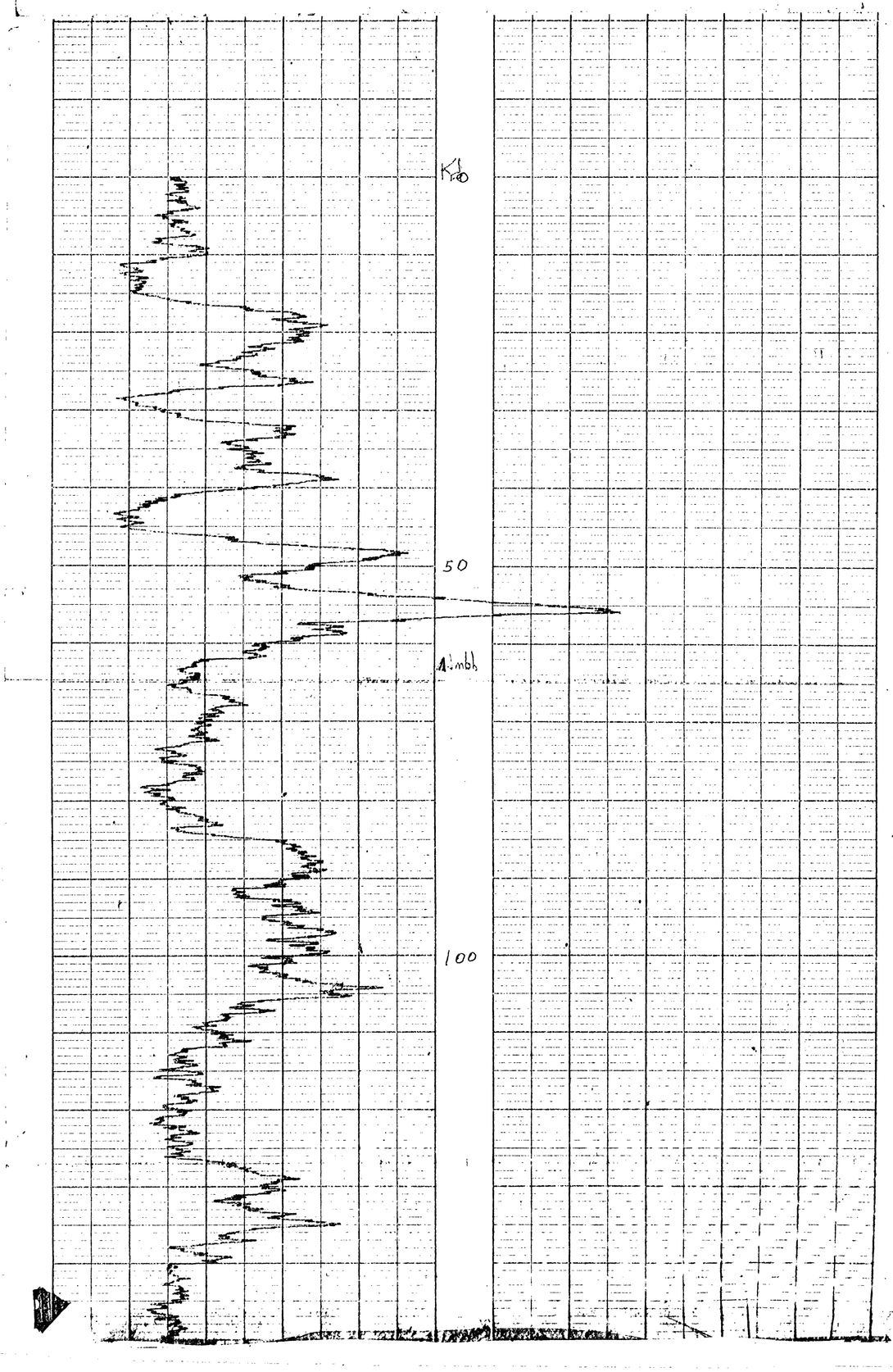
GEOLOGIC TOPS

FORMATION	DEPTHS	THICKNESS

CGC 19

NATURAL GAMMA RAY
COUNTS PER SECOND

RESISTANCE
OHMS



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LOGGING DATA

PROBE SIZE: 1 3/8
CALIBRATION: 300
DATE: 9-6-56
FIELD HOURS: Grants

	DETAIL					
		FROM	TO	FROM	TO	FROM	TO	FROM	TO
HOLE DEPTH	28.2								
HOLE DIAM.	4 1/2								
LOGGING SPEED	310								
LOGGING TIME	302								
TIME CONSTANT	25								
MUD TYPE	8								
LOGGING SPEED	10 F/M	F/M	F/M	F/M	F/M	F/M	F/M	F/M	F/M
RESISTANCE	Dry								
SP TYPE	Dry								
SP BIAS	1810								
SP BIAS	1845								
CASED TO									
CASING SIZE									
PRE-AMPLIFIER	10/IN	GAIN							
MISC. DATA									

LOCATION
SEC. 28 TWP. 14 RGE. 11
COUNTY: McKinley
STATE: N Mex
AREA:

TIME
DRIVE: 1.5
FIELD: 6
STANDBY: --
BREAKDOWN:
TOTAL: 2.1

CLIENT: Myers Bros
LOG REC'D BY:
OPERATOR: Stage
PARTY NO: 21-6

Century
GEOPHYSICAL CORP.
TULSA, OKLA., U.S.A.
RADIOACTIVITY-ELECTRIC LOG

COMPANY: Myers Bros
BORE HOLE NO. 28-2
FIELD
COUNTY McKinley
LOCATION: SEC. 28 TWP. 14 RGE. 11

LOG MEAS. FROM Surface
DRLG. MEAS. FROM Surface
FILE NO

DATE	9-6-56
FOOTAGE	
TOTAL DEPTH (DR)	310
HOLE DIAM.	4 1/2
LOGGING SPEED	10/M
TIME CONSTANT	8
MUD TYPE	Dry
CASED TO	

LOCATION OF HOLE
ELEVATION KB / DL
BKGRD. COUNT
SLUSH PIT CT.

REMARKS:

INTERPRETATION

RADIO METRIC % VALUES COMPUTED WITHOUT BENEFIT OF LOCAL ORE EQUILIBRIUM FACTOR

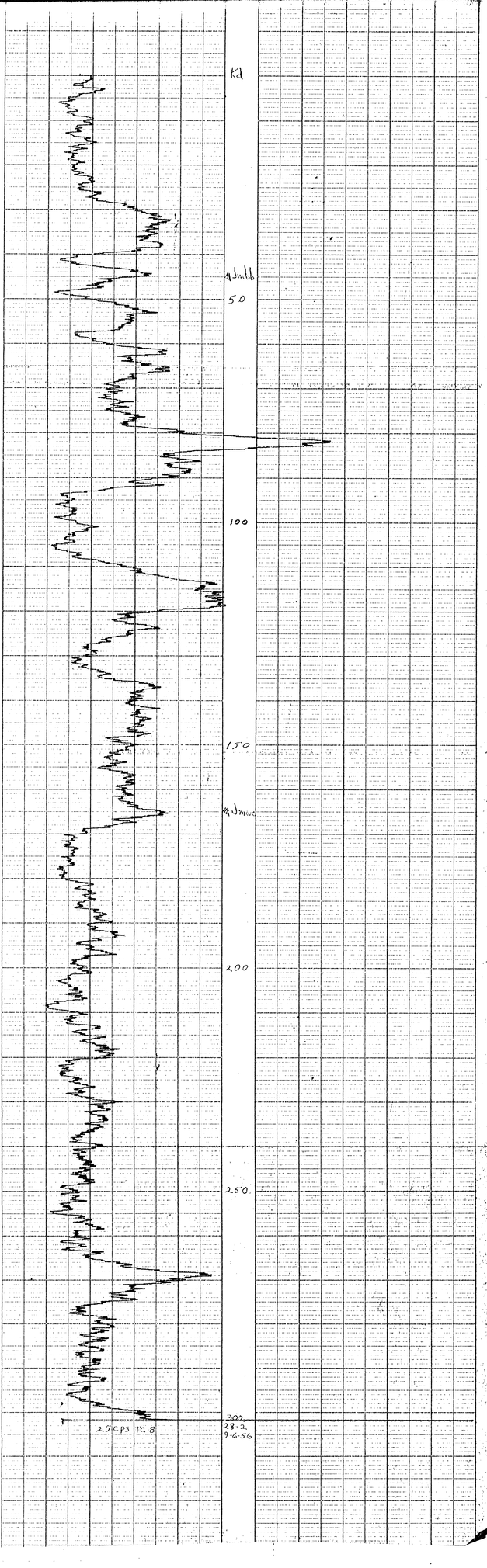
MINERALIZATION

COUNTS SEC	DETECTOR SCALE-FOOTAGE	% eU	% eU	% eU	% eU

INTERPRETATION BY:

GEOLOGIC TOPS

FORMATION	DEPTHS	THICKNESS



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LOGGING DATA

PROBE SIZE: 1 7/8 CALIBRATION: 300
DATE: 9-6-56 FIELD HOBBS: Grants

HOLE NO.	28-1					
TOP	42-240	42-370				
BOTTOM	370					
CASING SIZE	241					
CASING FILL	25					
TOP CENTRALIZER	8					
LOGGING SPEED	10 FPM	FPM	FPM	FPM	FPM	FPM
HOLE FLUID	—					
MUD TYPE	Dry					
TIME IN	1100					
TIME OUT	1135					
CORED						
CORE SIZE						
PRESENT SPEED	10/44					
HOLE CONDITION						

LOCATION: SEC. 28 TWP. N RGE. 11
COUNTY: McKinley
STATE: N Mex
AREA:

TIME: DRIVE: 3.
FIELD: .6
STANDBY: —
BREAKDOWN: —
TOTAL: 3.6

CLIENT: Myers
LOG REC'D BY:
OPERATOR: Stage
PARTY NO: 2-6

Century
GEOPHYSICAL CORP.
TULSA, OKLA., U.S.A.

RADIOACTIVITY-ELECTRIC LOG

COMPANY: Myers Bros
BORE HOLE NO. 28-1
FIELD
COUNTY: McKinley
LOCATION: SEC. 28 TWP. 14 RGE. 11

LOG MEAS. FROM: Surface
DRLG. MEAS. FROM: Surface
FILE NO
DATE: 9-6-56
FOOTAGE
TOTAL DEPTH (DR.): 370
HOLE DIAM.
LOGGING SPEED
TIME CONSTANT: 3
MUD TYPE: Dry
CASED TO
LOCATION OF HOLE
ELEVATION: KB / DL
BKGRD. COUNT
SLUSH PIT GT.

REMARKS:

INTERPRETATION

RADIO METRIC % VALUES COMPUTED WITHOUT BENEFIT OF LOCAL ORE EQUILIBRIUM FACTOR

MINERALIZATION

COUNTS SEC	DEPTH INTERVAL	% eU	% eTh	% K

INTERPRETATION BY:

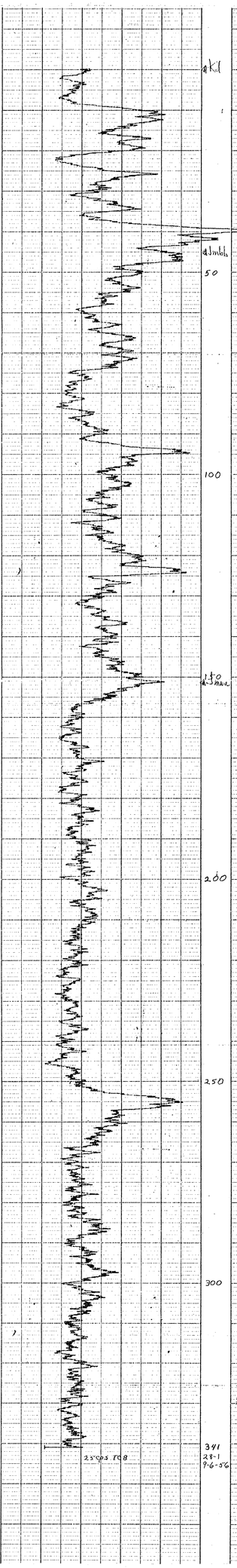
GEOLOGIC TOPS

FORMATION	DEPTHS	THICKNESS

CGG 19

NATURAL GAMMA RAY
COUNTS PER SECOND

RESISTANCE
OHMS



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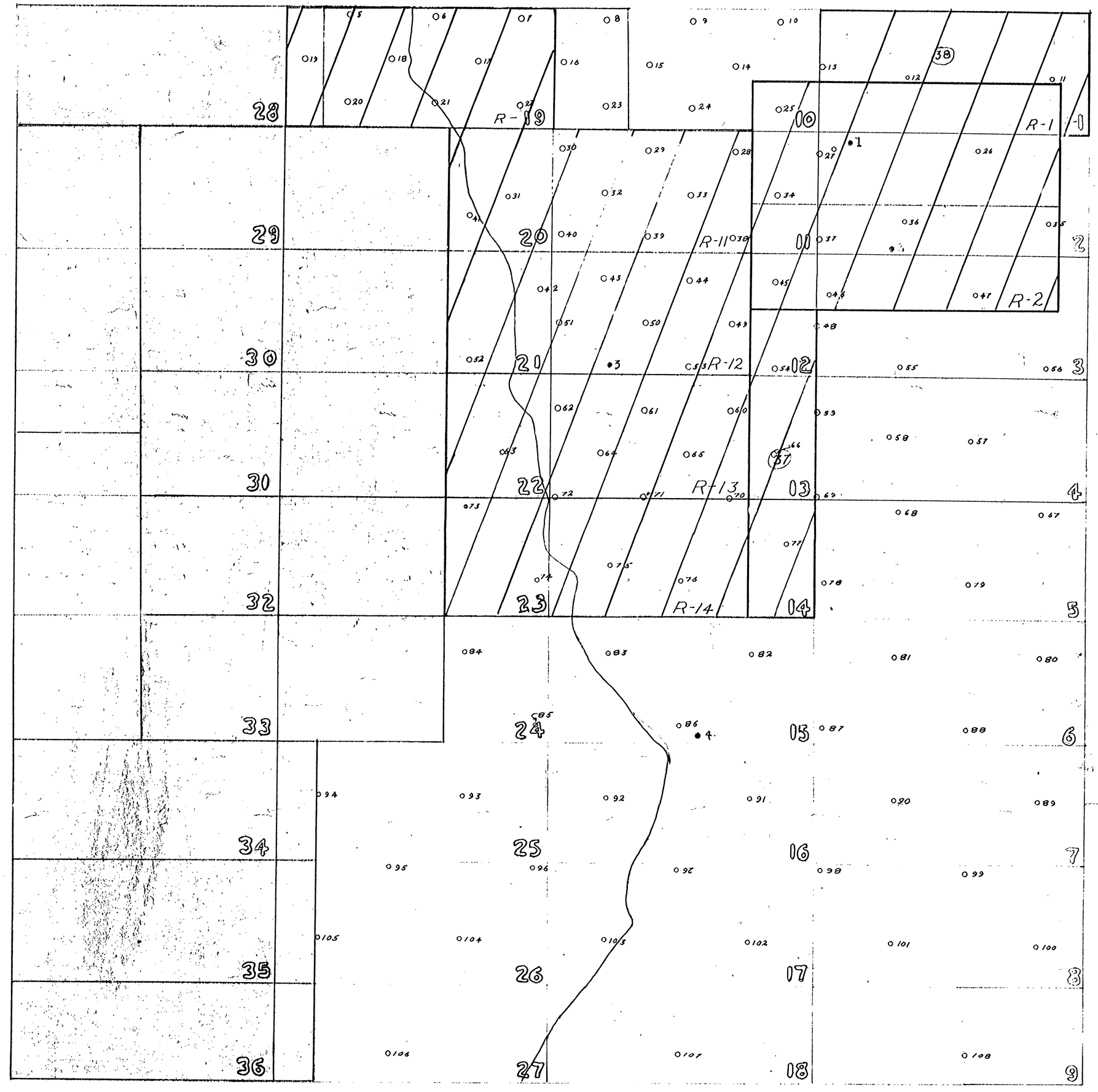

⊙ = DRILL HOLES SPACED 500' ON CENTER
⊙ = " " 300' " "

COLORADO EXPLORATORY
DEVELOPMENT COMPANY
COLORADO SPRINGS, COLORADO

CLAIM MAP SHOWING
— ANNE CLAIMS: 1-38
T CLAIMS & PEGGY GROUP
AMENDED ANNE CLAIMS
• DRILL HOLE
~ DAKOTA RIM
15 OCT '56 K MEYERS
SCALE: 1" = 300'

SEC 28, T14N, R11W, N.M.P.M.,
McKINLEY COUNTY, NEW MEXICO