DMEA Form 9
Rev. 6/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE — Idm-E NO. 671 — DMEA NO. 3151

Application
- [ ] Denied
- [ ] Withdrawn

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

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

Folder No. 1:

Left Side

- [x] Royalty Audits
- [x] Certification of Discovery
- [ ] Closing Letter
- [x] Cost Audits
- [ ] Termination Notice or Agreement
- [ ] Recision Notice
- [ ] Assignment of Contract
- [x] Contract Amendments
- [x] Contract with all exhibits and annexes
- [x] Owner's Consent to Lien and Subordination Agreement
- [x] Application and attachments

Right Side

- [x] Project summary (final)
- [x] Work Completed analysis (final)
- All other material filed in chronological order including the following reports if checked:
- [ ] Field Team Semi-Annual Report for Certified Project
- [x] Final Field Team Report (Tab)
- [x] Operator's Final Report (Tab)
- [ ] Interim Field Team Reports
- [x] Operator's monthly reports and all attachments — See Folder 2
- [x] On-site Exam Report (Tab)
- [x] Settlement Sheets
- [ ] Drill Logs

Additional Folders:

Left Side

Folders No. 2 : Reports
- [x] Analysis of Semi-Annual Inspection Reports
- [ ] Project Summary (Interim) by DMEA Engineers

Right Side

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

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

Folders No. _____ : Settlement Sheets

Folders No. _____ : Drill Logs

Folders No. _____ : Royalty material

17963

ATOMIC ENERGY MINERALS EXPLORATION ADMINISTRATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

RECEIVED
JUN 14 1956

REPORT OF ROYALTY REVIEW

I have reviewed the files of the Executive Officer, DMEA Field Team, Region III, Denver, Colorado, pertaining to Contract Ion-2671, Docket No. DMEA-3151, including Amendment No. 1, (Uranium), dated May 10, 1954, with

Four Corners Exploration Company
Succeeded by
Nolly Uranium Corporation
140 Third Street, N. Y.
Albuquerque, New Mexico

for the purpose of determining the amount of royalties due the U. S. Government on sales of Uranium and Vanadium from property referred to as Flat Top - Vilatie - Ryde Claims Nos. 4 and 5, McKinley County, New Mexico, during the period May 10, 1954 to May 2, 1956.

My review included a tabulation and recomputation of all ore sales settlement sheets, and a confirmation of royalty receipts recorded by the Regional Finance Officer.

A certification of discovery or development was issued May 9, 1955, and the contract provides for percentage royalty on all minerals mined for a period of ten years from the date of the contract, or until the total net amount contributed by the Government, without interest, is fully repaid whichever occurs first. A Report of Review in lieu of a final cost audit dated February 28, 1955, indicated accepted costs under the exploration contract amounting to $10,698.30, with the Government's contribution on a 90 percent basis being $9,628.47.

This review was made in lieu of an on-site audit of the Operator's accounts and records for the following reason:

> The records of the Regional Finance Officer indicate the Government's contribution, without interest, has been repaid in full.

The review established the total net sales of Uranium ores to be $211,892.19, as summarized in Exhibit A attached. Royalty due the U. S. Government at the contract rate of 5% is $9,628.47. The total royalty due and paid are as follows:

Total Royalty Due Under Contract	$9,628.47
Total Royalty Paid	9,628.47
Balance Due	$ 0.00

Donald T. Finch

June 11, 1956

Donald T. Finch, Auditor

EXHIBIT A

FOUR CORNERS EXPLORATION COMPANY
SUCCESSOR TO
HOLLY MINING CORPORATION

RECEIVED
JUN 14 1956

Contract Ida-3671

Contract No. IMMA-3151

SCHEDULE OF PRODUCTION AND ROYALTIES PERIOD MAY 10, 1954 THROUGH MAY 2, 1956

A.E.C. PURCHASING AGENTS	Anaconda	A. S. & R.	Lucius Pitkin	Totals
DATES	7/2/55 to 11/2/55	12/30/55 to 2/21/56	5/2/56	7/1/55 to 5/2/56
Gross Weight, Pounds	10,994,890	4,192,480	2,412,680	17,200,050
Dry Weight, Pounds	10,444,929	4,122,994	2,383,453	16,951,376
Dry Weight, Tons	5,222.1645	2,061.497	1,191.7265	8,475.688
Assays - Average				
Uranium - U_3O_8	.2583	.2424	.2129	.2443
Vanadium - V_2O_5	.1718	.1925	.1600	.1748
Pounds: U_3O_8	26,352.03	9,993.72	5,075.93	41,419.68
Base Payment U_3O_8	$92,489.94	$34,978.02	$17,758.71	$144,236.67
Development Allowance	$13,176.04	$ 4,996.86	$ 2,536.96	$ 20,709.86
Premium				
Excess of 4 lbs. U_3O_8 per Ton				
Excess lbs. U_3O_8	5,650.74	1,747.73	307.08	2,054.73
Premium @ 75¢ per excess lb.	$4,238.07	$1,310.80	$230.27	$5,779.14
Excess of 10 lbs. U_3O_8 per Ton		N O N E		
Haulage Allowance				
Per Wet Ton	$0.72	$0.72	$0.72	$0.72
Number of Wet Tons	5,297.445	2,096.245	1,206.34	8,600.03
Amount of Haulage Allowance	$3,814.16	$1,509.30	$868.56	$6,192.02
Pounds V_2O_5	17,942.73	7,935.38	3,751.71	29,629.82
Amount of V_2O_5 Payment:	Not reported to IMMA (Settlement made periodically and not on individual liquidation settlement sheets. Not required since all royalty paid in full.)			
Total Receiving Station Payments	$113,788.21	$42,794.96	$21,394.50	$176,917.69
A.E.C. Bonus	$ 34,974.93	—	—	$ 34,974.93
Total Value	$147,763.14	$42,794.96	$21,394.50	$211,892.19
Average Reported Value Per Ton	$ 35.45	$ 20.76	$ 17.95	$ 25.00
Royalty Percentage	%	%	%	%
IMMA Royalty Due	$ 7,385.15	$ 2,139.75	$ 103.57	$ 9,628.47
IMMA Royalty Paid	$ 7,385.15	2,139.75	103.57	9,628.47
Balance of IMMA Royalty Due	N O N E, A C C O U N T P A I D I N F U L L			

* - Royalty due on portion only sufficient to repay Government contribution.

Check Sheet of Examining Engineer

RECEIVED
JUN 14 1956
DMEA
Date Rec'd.
MAR 12 1956
BUREAU OF MINES
Denver, Colorado

Operator's Name Holly Uranium Corporation
(Formerly Four Corners Exploration Co.)
Address 340 Third Street, N. W.
Albuquerque, New Mexico

Exploration Contract No. Idm-E671 Docket No. DMEA-3151

	Check One Yes	No
1. (a) Does the Operator stockpile ore subject to royalty repayment?		X
(b) If so, is segregation and identification procedure adequate?		
2. (a) Does Operator commingle production subject to DMEA royalties with exempt production?		X
(b) If so, do you consider the allocation of the commingled production equitable?		
3. (a) Does the Operator stockpile mine or mill rejects (low grade ore, tailing, middlings, etc.) that may have potential value within the royalty payment period?		X
(b) If so, are adequate records maintained on such material to protect the Government's interest?		
4. Do you consider the assay controls in effect are adequate?	X	
5. Do you consider that the manner of disposing of production gives the Government its fair royalty returns?	X	
6. Do your periodic examinations of operations indicate the Operator is properly reporting his production of ores subject to DMEA royalties?	X	
7. Does the Operator buy from or sell to other Operators?		X

8. Comment on any item 2 (b) to 6 if answer is No.

3 (a) There is no mill on the property. Mine rejects consist of waste and non-commercial uranium-bearing material.

W. D. McMillan
Mining Engineer

Date 3/9/56

82448

Docket

CERTIFICATION BY THE UNITED STATES OF AMERICA
OF A DISCOVERY OR DEVELOPMENT UNDER
AN EXPLORATION PROJECT CONTRACT

To: Four Corners Exploration Company,
a copartnership consisting of Frank O. Manol
and Irving Rapaport
P. O. Box 101
Grants, New Mexico

Pursuant to the provisions of Exploration Project Contract No. Idm-E671, dated May 10, 1954, (Docket No. DMEA-3151), hereinafter called the "contract" between you and the United States of America, hereinafter called the "Government"; to establish and fix the Government's percentage royalty on production and its lien thereon and on the land described in the contract, the Government considers and therefore certifies that discovery or development from which production may be made has resulted from the exploration work.

The nature of said discovery or development is described broadly or indicated as follows:

Rotary drilling on the property described in Article 2 of the contract has exposed two or more uranium ore bodies of commercial grade in the Todilto limestone of Jurassic age.

Dated: MAY 9 - 1955

THE UNITED STATES OF AMERICA

By Frank E. Johnson
ACTING Administrator, Defense Minerals
Exploration Administration

MChing/gla 5-4-55
cc to: Operator (original)
Vilatie W. Ryde (MF-203 4/26/54)
Clarence A. Fredell, Acting Director
Materials Division, EPS
Contract Adm. & Audit Division
Field Team, Region III (2)
Finance Office
Rare & Misc. Metals Division
Docket ✓
Admr.'s Reading File
Operating Committee
Mr. Hedges, Rm. 4604
Mr. Kiilsgaard, Rm. 5224
Mr. F. E. Johnson
Mr. Ching

Ching
Ellis
Hoflund
Chrasnik
Martin

DEFENSE MINERALS EXPLORATION ADMINISTRATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF REVIEW

I have reviewed the Monthly Reports of:

Four Corners Exploration Company
P. O. Box 101
Grants, New Mexico

A co-partnership consisting of
Frank D. Manol and Irving Rapaport

pertaining to Exploration Project Contract No. Idm-8671, Docket No. DMEA 351, including Amendment No. 1, for the months of August to October 1954, inclusive, and December, 1954 and January, 1955, covering a project for the exploration of uranium on property, known as Vilatie Hyde Mining Claim, located in McKinley County, New Mexico.

My review included an examination of the Monthly Reports (Form MF-104) and supporting documents attached thereto, comparison of the costs claimed with the contract and pertinent schedules, consultation with the Executive Officer, DMEA Field Team, and a determination of the reasonableness and propriety of the costs.

This review was made in lieu of a final audit of the Operator's accounts and records for the following reasons:

All of the costs incurred were under a contract provision for payment by the Government on the basis of agreed estimated costs of units of work actually performed.

The review disclosed the following facts in regard to the amount paid or to be paid the contractor: -

Total cost as billed by Contractor		$11,390.10
Exceptions (schedule attached):		
By DMEA Finance Officer	$691.80	691.80
Total Accepted Cost		$10,698.30

The contract calls for a 90% participation of exploration expenses by the United States Government. Therefore, payment to the contractor by the Government in the amount of Nine Thousand, Six Hundred Twenty-Eight and 47/100ths Dollars

$9,628.47

is considered valid and proper, provided that the Regional Executive Officer, the Administrator, or other competent official has accepted or will accept the project as having otherwise met the terms of the contract.

Date: February 28, 1955

T. H. Brading

T. H. Brading, Auditor

SCHEDULE OF EXCEPTIONS

FOUR CORNERS EXPLORATION COMPANY

Docket No. DMEA 3151 - Contract No. Idm-E671

January, 1955 MF-104 Report

Drilling footage advance claimed by Operator 4,520 feet at 90 cents per foot - - - -	$4,068.00	
Sealing overburden footage claimed by Operator 3,446 feet at 30 cents per foot - - - -	1,033.80	
TOTAL CLAIMED BY OPERATOR: - - - - - - -		$5,101.80
Drilling footage advance approved by Examining Engineer 3,900 feet at 90 cents per foot - - - -	$3,510.00	
Sealing overburden footage approved by Examining Engineer 3,000 feet at 30 cents per foot - - - -	900.00	
TOTAL CLAIMED BY EXAMINING ENGINEER: - - - - -		4,410.00
AMOUNT DISALLOWED: - - - - - - - -		$691.80

No. 2

AMENDMENT OF CONTRACT: No. Idm-E671

Contract Docket No. DMEA 3151, dated May 10, 1954, between the United States of America and Four Corners Exploration Company, a copartnership consisting of Frank O. Manol and Irving Rapaport, is hereby amended as follows, effective as of the date of the contract:

> Referring to "Article 3. Exploration project" of Exploration Project Contract Form MF-200(A) (February 1952), following the words "The Operator, within", delete "sixty (60)" and in lieu thereof substitute "one hundred-twenty (120)"; further referring to said "Article 3", following the words "and shall bring the project to completion within a period of", delete "eight months" and in lieu thereof substitute "ten months".

This amendment shall not be construed to increase the estimated total cost of the project, the amount of the Government's contribution, or any item of allowable cost which is expressly designated "allowable maximum".

Dated July 2, 1954

FOUR CORNERS EXPLORATION COMPANY

By Frank O Manol
Frank O. Manol

By Irving Rapaport
Irving Rapaport

UNITED STATES OF AMERICA

By W H King
W.H. King, Executive Officer
DMEA Field Team, Region IV

UTAH | COLORADO
ARIZONA | NEW MEXICO

Four Corners Exploration Company

P. O. BOX 101 GRANTS, NEW MEXICO

IRVING RAPAPORT
F. O. MANOL

June 17, 1954

Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado

Attention: Mr. W. H. King
Re: DMEA Docket No. 3151

Gentlemen:

In view of the fact that an amendment is being prepared by your office to the subject contract authorizing use of aquagel and mud for the casing of drill holes we herewith request an extension of time on the effective starting date.

We suggest 60 days beyond the effective date of the amendment because availability of drilling equipment in this area is very critical at this time.

Very truly yours,

F. O. Manol

F. O. Manol

No. 1

AMENDMENT OF CONTRACT: No. Idm-E671

Contract Docket No. DMEA 3151, dated May 10, 1954, between the United States of America and Four Corners Exploration Company, a copartnership consisting of Frank O. Manol and Irving Rapaport, is hereby amended as follows, effective as of the date of the contract:

> Referring to EXHIBIT "A" attached to Exploration Project Contract Form MF-200(A) (February 1952), first page, last paragraph, after the first sentence, insert the following:
>
> "As an alternate to casing the holes to the top of the Todilto limestone, if satisfactory consolidation of material above the limestone can be accomplished by wet drilling with the use of aquagel in the drilling solution, such consolidation will be charged to the project work at the rate of $0.30 per foot in lieu of the $0.50 per foot stipulated for casing holes under all stages of the work. If consolidation cannot be effected by the foregoing alternate method and undiluted samples obtained to the satisfaction of the Government, then the holes must be cased as first specified.

This amendment shall not be construed to increase the estimated total cost of the project, the amount of the Government's contribution, or any item of allowable cost which is expressly designated "allowable maximum".

Dated JUN 25 1954

FOUR CORNERS EXPLORATION COMPANY

By Frank O Manol
Frank O. Manol, Partner

By Irving Rapaport
Irving Rapaport, Partner

UNITED STATES OF AMERICA

By W H King
W.H. King, Executive Officer
DMEA Field Team, Region IV

AFFIDAVIT

STATE OF NEW MEXICO)
) ss.
County of McKinley)

FRANK O. MANOL, being first duly sworn, upon his oath states:

That he is a resident of Grants, Valencia County, New Mexico, and is a copartner in the Four Corners Exploration Company having its principal office at Grants, New Mexico; that the other partner is Irving Rapaport and that the two persons named are the sole partners in said partnership; that affiant ordinarily and customarily signs his name "F. O. Manol"; that the signatures of F. O. Manol and Frank O. Manol as they appear in DMEA docket No. 3151 refer to the same and identical person to wit this affiant, Frank O. Manol, also known as F. O. Manol.

Frank O Manol
Affiant

Subscribed and sworn to before me this 19th day of June, 1954.

H. L. Flaxroth.
Notary Public

My commission expires: July 28, 1954

MF-200 (A)
(February 1952)

DOCKET NO. DMEA 3151

COMMODITY Uranium

Idm-E671

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

EXPLORATION PROJECT CONTRACT[1]
(Short Form)

IT IS AGREED this 10th day of May, 1954, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and[2] Four Corners Exploration Company, P.O. Box 101, Grants, New Mexico; a copartnership consisting of Frank O. Manol and Irving Rapaport

hereinafter called the "Operator," as follows: and as set forth in Annex I attached hereto and made a part hereof.

ARTICLE 1. *Authority for contract.*—This agreement is entered into under the authority of the Defense Production Act of 1950, as amended, pursuant to DMEA Order 1 entitled "Government Aid in Defense Exploration Projects."

ARTICLE 2. *Operator's property rights.*—With respect to that certain land situated in the State of New Mexico, County of McKinley, described as follows:[3] Flat Top - Vilatie Hyde #4 Mining Claim recorded in Book 3, Page 193, official records of said County and Flat Top - Vilatie Hyde #5 Mining Claim, recorded in Book 3, Page 194, official records of said County.

the Operator represents and undertakes:[4]

(*a*) ~~That the Operator is the owner in possession and entitled to possession~~ and that the property is subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder is attached:

None

(*b*) That the Operator is a lessee, in possession and entitled to possession, and the Owner's Consent to Lien is attached.

The Operator shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of the exploration project without any allowance for the use, rental value, depreciation, depletion, or other cost of acquiring, owning, or holding possession thereof.

ARTICLE 3. *Exploration project.*—The Operator, within sixty (60) days from the date of this contract shall commence work on a project of exploration for[5] Uranium

in or upon the described land; and shall bring the project to completion within a period of eight months from the date of this contract. The work to be performed is more fully described in Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, are made a part of this contract. The Government will contribute to the cost of this work as hereafter provided. The work shall be performed by the Operator or by independent contractor or contractors efficiently, expertly, in a workmanlike manner, in accordance with good mining standards and State regulations for health and safety and for workmen's compensation and employers' liability insurance, with suitable and adequate equipment, materials, and labor, to bring the project to completion within the time fixed. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

ARTICLE 4. *Costs of the project.*—The agreed, estimated costs of performing the work, expressed in terms of units of work to be performed (per foot of drifting, per foot of drilling, per cubic yard of material to be moved, etc.) are set forth in Exhibit "A," attached hereto. The Government will pay ninety (90) percent of these agreed, estimated costs, as they accrue, for units of work actually performed that conform with the description or specifications for the work set forth in this contract, in an aggregate total amount not in excess of $ 10,970.10, which is 90 percent of $ 12,189.00, the agreed, estimated total cost of the project in which the Government will participate: *Provided,* That until the Operator's final report and final accounting have been rendered to the Government and any final check or auditing required by the Government has been made, and a final settlement of the contract has been made, the Government may withhold from the last voucher or vouchers such sums as it sees fit not in excess of ten (10) percent of the maximum total which the Government might have been called upon to pay under the terms of the contract. The Government may, as it sees fit, make payments direct to the Operator's independent contractors, if any, for the account of the Operator, rather than to the Operator.

ARTICLE 5. *Reports, accounts, audits.*—(*a*) *Progress reports.* The Operator shall provide the Government with monthly reports of units of work performed under the contract, in quintuplicate (five copies), upon forms provided by the Government. These progress reports shall be certified by the Operator, and shall constitute both the Operator's invoice of units of work performed on the project during the period covered by the report and his voucher for repayment by the Government, unless the Government requires the use of a standard voucher form with invoice attached. Progress reports shall include surface and/or underground engineering-geological maps or sketches showing the progress of the exploration, with assay-reports on samples taken concurrently with the advance in mineralized ground.

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] State name, address, and nature of organization if any.
[3] Give legal description or enough to identify the property, particularly excluding any land or interest therein to which the Government's lien is not to attach or the production from which is not to be subject to the Government's percentage royalty.
[4] Strike out the provision not applicable.
[5] Name of mineral or minerals.

(*b*) *Final report.*—Upon completion of the exploration work or termination of the contract the Operator shall provide the Government with an adequate geological and engineering report, in quintuplicate (five copies), including an estimate of ore reserves resulting from the exploration work.

(*c*) *Compliance with requirements.*—If, in the opinion of the Government, any of the Operator's reports are insufficient or incomplete, the Government may procure the making or completion of such reports and attachments as an expense of the exploration work; and the Government may withhold approval and payment of any vouchers depending upon insufficient or incomplete reports.

(*d*) *Accounts and audits.*—The Operator shall keep suitable records and accounts of the units of work performed, which the Government may inspect and audit at any time. The Government may at any time require a check of the work performed and an audit of the Operator's records and accounts, by a certified public accountant or otherwise, the cost thereof to be treated as a cost of the project. The Operator shall keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract. Upon the completion of the project or termination of the contract the Operator shall render a final account and statement of work performed to accompany his final report.

ARTICLE 6. *Repayment by Operator.*—(*a*) If, at any time, the Government considers that a discovery or a development from which production may be made has resulted from the exploration work, the Government, at any time not later than 6 months after the Operator has rendered the required final report and final account, may so certify in writing to the Operator. The certification shall describe broadly or indicate the nature of the discovery or development. In the event of such certification, any minerals mined or produced from the land described in Article 2 within 10 years from the date of this contract, including any mined or produced before the certification, shall be subject to a percentage royalty which the Operator or his successor in interest shall pay to the Government, upon the net smelter returns, the net concentrator returns, or other net amounts realized from the sale or other disposition of any such production, in whatever form disposed of, including ore, concentrates, or metal, until the total amount contributed by the Government, without interest, is fully repaid, or said 10 years have elapsed, whichever occurs first, as follows: See Annex I, substituted for that part of 6(a) preceding the colon.

(1) One and one-half (1½) percent of any such net amounts not in excess of eight dollars ($8.00) per ton.

(2) One and one-half (1½) percent of any such net amounts, plus one-half (½) percent of such net amounts for each additional full fifty cents ($0.50) by which such net amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) percent of such net amounts.

(For instance: The percentage royalty on a net amount of five dollars ($5.00) per ton, would be one and one-half (1½) percent; on a net amount of ten dollars ($10.00) per ton, three and one-half (3½) percent.)

(*b*) As here used, "net smelter returns," "net concentrator returns," and "other net amounts realized from the sale or other disposition," mean gross revenue from sales, or if not sold, the market value of the material after it is mined in the form in which and the place where it is held. In the case of integrated operations in which the material is not disposed of as such, these terms mean what is or would be the gross income from mining operations for percentage depletion purposes in income-tax determination.

(*c*) To secure the payment of its percentage royalty, the Government shall have and is hereby granted a lien upon the land described in Article 2 and upon any production of minerals therefrom, until the royalty claim is extinguished by lapse of time or is fully paid.

(*d*) This article is not to be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any mining or production operations.

ARTICLE 7. *Assignment, transfer, or loss of Operator's interest.*—Without the written consent of the Government, the Operator shall not assign or otherwise transfer or hypothecate this contract or any rights thereunder. The Operator shall not make any voluntary nor permit any involuntary transfer or conveyance of the Operator's rights in the land described in Article 2, without making suitable provision for the preservation of the Government's right to a percentage royalty on production and lien for the payment thereof; *Provided*, that mere failure by the Operator to maintain the Operator's rights in the land, without any consideration running to the Operator other than relief from the cost of maintaining such rights (as by surrender of a leasehold, failure to perform assessment work, or failure to exercise an option), coupled with complete abandonment by the Operator of all interest in or operations on the land for a period of 10 years from the date of this contract, shall not constitute such a transfer or conveyance. Should the Operator make or permit any transfer or conveyance in violation of this provision, the Operator shall be and remain liable for payment to the Government of the same amounts, at the same times, as would have been paid under the terms of the percentage royalty on production. If for any reason the net smelter returns, net concentrator returns, or other net amounts realized from the sale or other disposition of such production are not available as a means of measuring the amount of the Operator's liability, the amount thereof shall be estimated as well as may be, and in the event of dispute as to such estimates, the determination thereof by the Administrator of Defense Minerals Exploration Administration or by his successor shall be final and binding upon the Operator.

ARTICLE 8. *Termination and completion.*—The Government may, at any time, by written notice to the Operator, terminate this contract: (*a*) If the Operator fails to provide his share of the money necessary to prosecute operations pursuant to the terms of the contract; (*b*) if the Operator, in the opinion of the Government, fails to prosecute operations pursuant to the terms of the contract; or (*c*) if, in the opinion of the Government, operations up to the time of the notice have not indicated the probability of making any worth while discovery and in the opinion of the Government further operations are not justified.

ARTICLE 9. *Changes and added provisions* _____

Executed in sextuplicate the day and year first above written.

Four Corners Exploration Co.
(Operator)

By J O Manol
Chris Lazaropoulos

THE UNITED STATES OF AMERICA

By W S King
Executive Officer, DMEA
Field Team, Region IV

I, _____, certify that I am the _____ secretary of the corporation named as Operator herein; that _____, who signed this contract on behalf of the Operator, was then _____ of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

_____ [CORPORATE SEAL]

U. S. GOVERNMENT PRINTING OFFICE 16—66329-1

DMEA-3151

EXHIBIT "A"

Description of the Work

The work will be divided into three stages.

Stage 1 will consist of rotary drilling 30 holes at intervals of 200 feet on a rectangular grid as shown on Figure 2 which is attached and made a part of Exhibit "A".

Stage 2 will consist of rotary drilling not to exceed 24 holes offset from those drilled under Stage 1. The performance of any or all of Stage 2 drilling is dependent on the results of drilling under Stage 1 and is subject to the prior written approval of the DMEA Field Team, Region IV. No hole drilled under Stage 2 shall be closer than 50 feet to any other hole drilled under Stage 1 or Stage 2.

Stage 3 will consist of rotary drilling not to exceed 39 additional offset holes and the performance of any or all of this drilling is dependent on the results of Stage 1 and Stage 2 drilling and is subject to the prior written approval of the DMEA Field Team, Region IV. No hole drilled under Stage 3 shall be drilled closer than 50 feet to any other hole drilled under Stages 1, 2 or 3.

All holes in each Stage will be drilled five feet below the base of the Todilto limestone which is the ore bearing horizon and it is estimated that all holes will average approximately 102 feet in depth to this point. It is expected that the Todilto limestone will be absent in some of the exploration area due to erosion and holes that do not encounter the Todilto limestone should be bottomed at depths not to exceed 140 feet in the north half of the area or at depths not in excess of 115 feet in the south half of the area.

Near the end of drilling under any Stage, if there is insufficient unexpended footage to complete the last hole to its objective, the hole will not be started.

A permanent geologic record including the radiometric logging of every hole will be made by the operator and submitted to the DMEA Field Team, Region IV, at the end of each Stage of drilling. This geologic record will contain an accurate stratigraphic log, radiometric log, and results of such chemical analyses as are hereinafter specified for each hole drilled.

Casing will be set in all holes from the surface to the top of the Todilto limestone before the limestone is penetrated to insure the recovery of undiluted samples. All cuttings including the fine fractions throughout the entire thickness of the Todilto limestone will be collected separately in two foot runs, checked with Geiger counter,

split, sacked, and labeled, one-half to be retained and properly stored for use of the Government. A total of at least 20 samples will be checked by chemical analyses by the operator and recorded in the geologic record.

In the event the work under any or all stages is not completed in its entirety, and unexpended funds remain, additional drilling under a fourth stage may be initiated subject to the prior written approval of the DMEA Field Team, Region IV.

Estimated Costs of the Project

Stage 1

30 holes, averaging 105 feet, 3150 feet at $0.90 per foot....$2,835.00 1/
Casing holes as heretofore specified 2/ 2520 feet (estimated)
at $0.50 per foot..... 1,260.00

Total estimated cost, Stage 1.....$4,095.00
Government participation, Stage 1,
at 90%..... 3,685.50

Stage 2

24 holes, averaging 100 feet, 2400 feet at $0.90 per foot.... $2,160.00 1/
Casing holes as heretofore specified 2/ 1848 feet (estimated)
at $0.50 per foot..... 924.00

Total estimated cost, Stage 2.....$3,084.00
Government participation, Stage 2,
at 90%..... 2,775.60

Stage 3

39 holes, averaging 100 feet, 3900 feet at $0.90 per foot.... $3,510.00 1/
Casing holes as heretofore specified 2/ 3000 feet (estimated)
at $0.50 per foot..... 1,500.00
Total estimated cost, Stage 3..... $5,010.00
Government participation, Stage 3,
at 90%..... 4,509.00

Total estimated cost, Stages 1, 2 and 3..... $12,189.00
Government participation, Stages 1, 2 and 3,
at 90%..... 10,970.10

1/ The above costs include permanent geologic records, radiometric logging, sampling, assaying, and any and all other costs incurred in the completion of the work.

2/ The exact aggregate footage of holes under any stage that will require casing cannot be determined in advance, therefore, the footage cited is an estimate and may not be required in entirety.

ANNEX I

The following provisions are in lieu of all of paragraph (a) of Article 6 which precedes the colon:

If the Government considers that a discovery or development from which production may be made has resulted from the exploration work, the Government, at any time not later than six months after a sufficient, complete, final report and final account referred to in the contract has been rendered, may so certify in writing to the Operator. Such certification shall describe broadly or indicate the nature of the discovery or development. The Operator, or his successor in interest, shall pay to the Government a royalty on all minerals mined or produced from the land described in Article 2, as follows: (1) Regardless of any certification of discovery or development, from the date of the contract until the lapse of the time within which the Government may make such certification of discovery or development, or until the total net amount contributed by the Government, without interest, is fully repaid, whichever occurs first, unless the Government waives its right to a royalty; or (2) if the Government makes a certification of discovery or development, for a period of ten years from the date of the contract, or until the total net amount contributed by the Government, without interest, is fully repaid, whichever occurs first. Said royalty shall be a percentage of the net smelter returns, the net concentrator returns, or other net amounts realized from the sale or other disposition of any such production (including any bonuses), in whatever form disposed of, including ore, concentrates, or metal, as follows:

[illegible]ly 1, 1953)

OWNER'S CONSENT TO LIEN

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 17 1954

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of New Mexico, County of McKinley, described ~~xx~~ in ~~[illegible]~~/a lease dated August 4, 1953.

Flat Top-Vilatie Hyde #4 Mining Claim recorded in Book 3, Page 193 official records of said county and Flat Top-Vilatie Hyde #5 Mining Claim recorded in Book 3, Page 194 official records of said county.

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

2/ Four Corners Exploration Company, a copartnership composed of Frank O. Manol and Irving Rapaport of Grants, New Mexico.

hereinafter called the "Operator"; and

WHEREAS, under the provisions of said contract the Government is entitled to a percentage royalty on production (as set forth on the reverse side hereof) and to other rights and equities which do or may conflict with or be adverse to the rights of the undersigned:

NOW THEREFORE, the undersigned, in consideration of said contract and as an inducement to the Government to enter into same, undertakes and agrees as follows:

1. The Government's equity in and right to dismantle, sever, take possession of, and remove and dispose of facilities, buildings, fixtures, equipment, or other items as provided in the contract, or any amendment thereof, shall prevail over and be prior and superior to any conflicting or adverse rights of the undersigned, and the Government is authorized to enter upon the land for such purposes.

2. To secure the payment to the Government of the percentage royalty on production3/ provided for under the terms of said exploration project contract, or any amendment thereof, there is hereby granted to the Government a lien upon the land above referred to and upon any production of minerals therefrom, until said royalty is fully paid or ten years have elapsed from the date of the contract, whichever occurs first.

3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights of the Government under the provisions of said contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

4. Changes and added provisions The undersigned agrees that the right to possession now held by Four Corners Exploration Company, a copartnership, shall not be terminated prior to the completion of the proposed exploration project, anything in the existing mining lease dated August 4, 1953 to the contrary notwithstanding.

Dated this 26 day of April, 1954.

Vilatie N. Hyde [Seal]

_____ [Seal]

_____ [Seal]

1/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in book _____ page _____ official records of said county." If (b) is used, the book and page of recordation cannot be dispensed with. If the space provided is insufficient, use an Annex, and refer to the Annex in the space.

2/ Insert the name of the Operator as it will appear in the exploration project contract.

3/ Mining or production from the land is not required, and in the absence of production there is no obligation to repay the Government.

Repayment by Operator.--a. Certification.--If at any time the Government considers that a discovery or development from which production may be made has resulted from the exploration work, the Government, at any time not later than six months after the Operator has rendered the final report and final account, may so certify in writing to the Operator. Such certification shall describe broadly or indicate the nature of the discovery or development.

b. Percentage royalty.--The Operator, or his successor in interest, shall pay to the Government a royalty on all minerals mined or produced from the land described in Article 2,--(1) regardless of any certification of discovery or development, from the date of the contract until the lapse of the time within which the Government may make such certification of discovery or development, or until the total net amount contributed by the Government, without interest, is fully repaid, whichever occurs first, unless the Government waives its right to a royalty; or (2) if the Government makes a certification of discovery or development, for a period of ten years (or other period fixed by the contract) from the date of the contract, or until the total net amount contributed by the Government, without interest, is fully repaid, whichever occurs first. Said royalty shall be a percentage of the net smelter returns, the net concentrator returns, or other net amounts realized from the sale or other disposition of any such production, in whatever form disposed of, including ore, concentrates, or metal, as follows:

(a) One and one-half (1½) percent of any such net amounts not in excess of eight dollars ($8.00) per ton.

(b) One and one-half (1½) percent of any such net amounts, plus one-half (½) percent of such net amounts for each additional full fifty cents ($0.50) by which such net amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) percent of such net amounts.

(For instance: the percentage royalty on a net amount of five dollars ($5.00) per ton, would be one and one-half (1½) percent; on a net amount of ten dollars ($10.00) per ton, three and one-half (3½) percent.)

c. Definitions.--As here used, "net smelter returns", "net concentrator returns", and "other net amounts realized from the sale or other disposition", mean gross revenue from sales; or if not sold, the market value of the material after it is mined in the form in which and the place where it is held. In the case of integrated operations in which the material is not disposed of as such, these terms mean what is or would be gross income from mining operations for percentage depletion purposes in income tax determination.

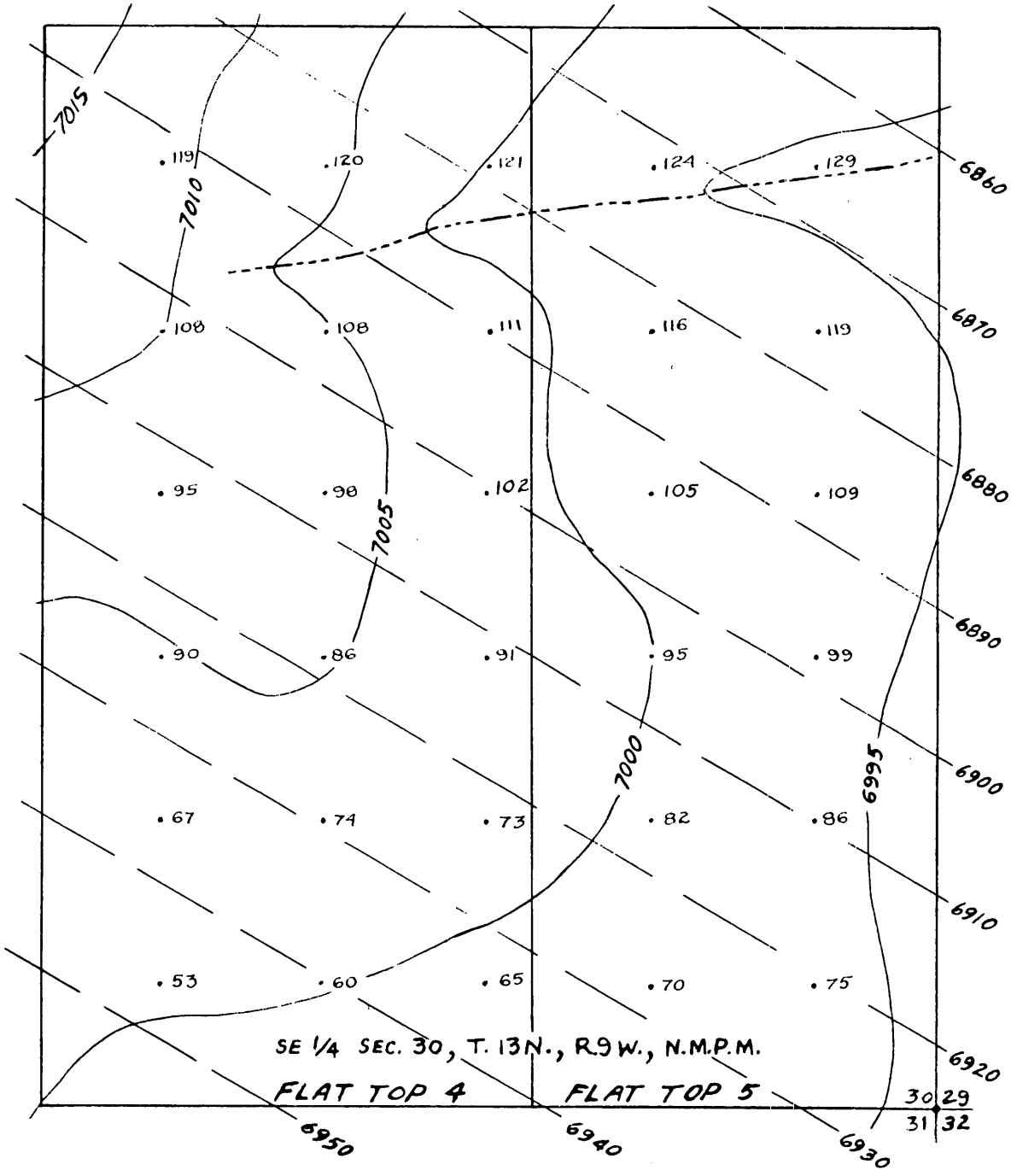
d. Lien for Payment.--To secure the payment of its percentage royalty, the Government shall have and is hereby granted a lien upon the land described in Article 2 and upon any production of minerals therefrom, until the royalty claim is extinguished by lapse of time or is fully paid.

e. Notice to Purchasers.--The Operator shall notify any purchaser of the production of the Government's royalty interest, and shall authorize and direct the purchaser to pay the royalty directly to the Government and to furnish the Government with copies of the settlement sheets; but failure or refusal by the purchaser to comply shall not relieve the Operator of liability to pay any royalty falling due.

f. No Obligation to Produce.--This article is not to be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any mining or production operations.

Interior--Duplicating Section, Washington, D. C. 47318

Basic data from maps submitted by applicant and U.S.G.S.



.120 Stage 1 holes on 200-foot centers, showing depth to base of limestone.(est.)

7000 Surface contours, 5-foot interval

—— ——Structure contours on base of Todilto limestone, 10-foot interval

200 0 200 400 Feet

Mineral Resources Branch
Mining Div.- Region IV
BUREAU OF MINES

Fig. 2 - Sketch map showing location of Stage 1 drill holes recommended for Flat Top Claims Nos. 4 and 5, McKinley County, New Mexico, D M E A 3151

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

DEPARTMENT OF THE INTERIOR
Denver Lands Administration
RECEIVED
AUG 31 1953

224 New Customhouse
Denver 2, Colorado

August 27, 1953.

Memorandum

To: Secretary to the Operating Committee, Defense Minerals Exploration Administration.

From: Field Team, Region IV

Subject: (Uranium) Application of Four Corners Exploration Company, Flat Top Claims, McKinley County, New Mexico.

Enclosed are three copies of the subject application in the amount of $29,464.45, a signed copy of the applicant's lease and one copy of Figure 1. Only one copy of the lease and Figure 1 accompanied the application.

One copy of the application is being retained in this office.

W. H. King
W. H. King
Field Team, Region IV

A. H. Koschmann
A. H. Koschmann
Field Team, Region IV

Enclosures

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

Department of the Interior
Defense Minerals Administration
RECEIVED
AUG 31 1953

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

Not to be filled in by applicant

Docket No. DMEA-3151
Metal or Mineral
Date Received 8/31/53
Estimated Cost
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Four Corners Exploration Company, Box 101, Grants, New Mexico. A partnership formed in New Mexico.

(*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 Flat Top Claims numbers 4 and 5, S.E.¼, Section 30, Township 13 North, Range 9 West, McKinley County, New Mexico.

(*b*) State any mine name by which the property is known. none

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Theco claims were staked on public domain and leased to the Four Corners Exploration Co.

(*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 none

(*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 Uranium

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

(*c*) The work will start within 30 days and be completed within 12 months from the date of an exploration project contract.

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

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

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

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

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

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

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

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

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

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

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

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

(*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 August 22, 1953

Four Corners Exploration Co.
(Applicant)

By

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

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

1) d) Frank Oscar Manol, Aztec, New Mexico.
Irving Rappaport, Box 447, Grants, New Mexico

3) f) Recorder's Office, McKinley County Courthouse, Gallup, N.M.
Flat Top Claims #4 and #5-- Book 3, pages 193-194.

4) a) No exploration, beyond geologic mapping and the projection of trends and structure from adjacent properties has been completed on these claims. The Flat Top #4 and #5 claims may be reached in the following manner: a) Travel three miles west on U.S. # 66 from the town of Grants. b) Turn north onto U.S. #53, and go eleven miles along the valley floor. This road then ascends a gently sloping portion of the Entrada sandstone scarp for approximately a mile and descends upon the broad Todilto limestone bench. c) Turn west and cross a well constructed cattle guard and travel along a graded road for approximately one-half mile. Several open pit uranium mines are situated within a quarter of a mile south and southwest of these claims.

b) No production as yet.

c) Geologic Reasons for Wishing to Explore the Flat Top Claims

1) Favorability of Location

Figure 1 graphically illustrates the extremely favorable position of the Flat Top #4 and #5 claims. The property lies securely within the apparent belt of uranium deposits which extends across the northeastern corner of the Zuni Uplift. Immediately west lie the operations of F.C. Manol and associates, the largest independent producer of this district. Further west the Santa Fe Railroad Co. has blocked out 80,000 tons of ore. Adjoining these claims on the south, Santa Fe has developed a considerable tonnage of uranium ore. The principle holdings of the Anaconda Copper Mining Company and E. Williams are situated across the valley to the southeast. The above mentioned ore bodies are all flat-bedded, carnotite-type deposits in Todilto limestone. The largest ore deposits in the Morrison formation sandstone lenses in the vicinity of Grants are located on Santa Fe and Shattuck Denn holdings immediately north of the Flat Top claims.

2) Ease of Exploration

The Todilto limestone in this area dips rather uniformly at approximately 3° 40' to the northeast. The surface of the ground is remarkably flat; the maximum variation in elevation is but twenty feet per thousand. (fig 2). A truck-mounted drilling rig can move anywhere in this area without the additional expense of access roads and drilling sites. The uniformity of structure and topography and the fact that the ore horizon is well defined permit the precise calculation of drilling depths.

Four Corners Exploration Co.
Box 101
Grants, New Mexico

The deepest hole proposed, N-O, must go 144 feet to the base of the limestone. The shallowest hole on this property, A-11, must penetrate only 40 feet of overburden and limestone. (fig. 2)

3) Higher Grade of Ore

The value per ton of ore shipped from this vicinity has been higher in grade than that of the Grants District as a whole. The average grade of the district has been computed at about .20% U_3O_8. Mr. F.C. Manol and associates, lessee of the nearest producing property, have averaged better than .20% U_3O_8. An unfavorable feature of mining property close to the rim in this area is the presence of erosions channels in the limestone. Ore undoubtedly has been removed from the Todilto benches during the recent canyon-cutting cycle. Despite the large tonnage of uranium ore discovered and produced by Mr. Manol, it is believed that 85% of limestone on this property which lies close to the rim has been eroded. To the north channels occur to pinch out and thicker sections of limestone are encountered.

d) This property is located fourteen miles from Grants and eighteen miles from the Anaconda Mill at Bluewater. The distance to the mill consists of one-half mile of ditched and graded road, eleven miles of U.S. highway now being graveled, and seven miles of what will soon be four lane highway. The main line of the Santa Fe Railway is eleven miles distant, and the city of Albuquerque, which has dealers in all types of mining machinery, is eighty miles west of Grants.

e) A surplus of both skilled and unskilled labor is available in this area. The Navajo Indians make excellent hand-ers, excel in hand-sorting, and can be trained for more skilled tasks. The prevailing wage for this type of labor is $1.25 per hour. The shut-down of fluorspar mines in this vicinity has provided an excess of skilled miners. The prevailing wage for skilled labor is $1.50 to $1.85 per hour. Automotive equipment, hardware, and timber can be obtained at Grants. Inexpensive fuel is available at the nearby Prewitt Refinery. Heavy machinery and replacements can be obtained in Albuquerque. Water from a deep well can be gotten from a rancher on Section 8, T12N, R9W, three miles to the south.

5. b) All proposed exploration consists of drilling with a Failing 1,500 feet capacity rotary rig. An initial staggered, 200 foot grid should permit the plotting of a structure contour map of the base of the limestone, should disclose areas of erosion, and with luck, may develop areas of favorability. (fig 2). It is estimated that twenty percent of the total area will be eliminated from future drilling on closer centers by this widely spaced grid. The second phase of the proposed program consists of drilling on one hundred feet centers. This portion of the program should reveal at least trace uranium mineralization; an estimated twenty percent, are then to be offset with holes on 50 feet centers. An estimated ten percent of the holes on 50 feet centers should penetrate

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Grants, New Mexico

appreciable amounts of uranium mineralization and it is proposed that they be offset by holes on 25 foot centers to block out ore. Because of the greater average depth of hole on this property (104.28 feet) and because this is an exploration program, no further detailing of ore is asked. (See Table 1 for tabulation of bid).

To reduce the cost of exploration it is proposed that cuttings of limestone only be collected from holes on 25 foot centers. It has been determined that the procural of an accurate sample doubles the cost of drilling. On wider grids, superior results at a much lower cost can be obtained by the use of a radiometric logging unit. (See attached sheet on the value of radiometric logging). Radiometric and twenty check chemical assays are proposed soley for the cuttings from holes on the 25 foot grid as checks on the radiometric values obtained on probing these holes and to determine the equilibrium of the ore.

d) The Four Corners Exploration Company is a newly organized venture owned by Irving Lapsport and F.C. Hanol. Mr. Hanol is the largest independent producer in this district and has been operating a highly profitable mine on this section for the past two years. Mr. Lapsport is proposed as project supervisor and has had the following experience. Chronologically:

Miner - Evergreen Mining Company, Coleraine, Minnesota	-3 months
" - Climax Molybdenum Company, Climax, Colorado	-9 "
" - Golden Cycle Corp., Cripple Creek, Colo.	-1 "
" - Sunshine Mining Company, Wallace, Idaho	-3 "
Bachelors in Geologic Engineering, University of Minn.	- 1949
Geologist A.E.C. Exploration Projects	
Calamity Mesa, Colo.	-9 months
Project Supervisor A.E.C. Exploration Projects	
Marysvale, Utah	-9 months
Grants, New Mexico	-15 "
Manager, Hanosh Mines, Inc.	-15 "
Consultant Geologist	Total of
Chilean Nitrate Corporation	110 days at
J.H. Whitney Enterprises	$100.00 per
Spencer Chemical Co.	day.

6. For the purpose of simplicity and to provide the maximum incentive toward efficiency, all services are being bid on a per unit cost basis. As the Four Corners Exploration Company is both leasing this ground and proposing to drill it, this exploration program has been bid in at our estimate of cost. The following figures are presented to substantiate this statement.

Drilling

This bid -------- $.500 per foot total cost using a rotary rig.

Other drilling in this area:

Type	Company	Cost per foot
Lagon drilling	Hanosh Mines Anaconda Santa Fe F.C. Hanol	Average slightly over $.95 per foot. Four Corners Exploration Co. Box 151, Grants, N.M.

Diamond Drilling Anaconda $2.15 per foot

Rotary Drilling

The best comparison for rotary drilling is the A.E.C. contract that has been let recently in this area. The ground, depths, and specifications are almost identical with this proposed program.

Bidder	Average Cost Per Foot
Northwestern Exploration Drilling Co.	$0.573
Cannon Diamond Drilling Company	$0.603
Scott Drilling Company	$0.614
Minerals Engineering Company	$0.715
L.T. Meyers Drilling Company	$0.777
Adams and Cain	$0.833
Jones Core Drilling Company	$0.903
Four Corners Exploration Company	$1.136
Failing Exploration and Drilling Company	$2.144

At $.500 per foot for this proposed contract, we are under eight of the nine bids. The curtailment of oil exploration has left many rotary rigs idle and the low bid of $0.573 may or may not yield a profit.

Radiometric Logging at $0.15 per foot

There is no independent service of this type in the Grants District or any other district to our knowledge. The price, $0.25 per foot logged was quoted to us by Mr. Sherman Comstock who is now in charge of the geophysical section of the A.E.C..

Supervision at $0.10 per foot

The A.E.C. program now in operation employs in an almost identical operation: one sampler, one project supervisor, two geologists, and two surveyors. At its current rate of drilling, 300 feet per day, the cost of professional services exclusive of assaying and materials, is many times that proposed in this bid.

b)c)d) e) f) g)

As all services are being bid on a unit cost basis, the cost of individual items are not included.

The approximate cost of the major items of equipment is:

Item	Approx. Cost New
1 Failing rotary drilling rig (1,500 feet)	27,000.00
1 Ingersol Rand Cyroflow Compressor (315c.f.m.)	8,800.00
1 S.D. Duclone sampler	500.00
1 Chevrolet truck for compressor (1½ ton)	3,200.00
2 Pickup trucks (½ ton)	3,300.00
1 Truck-mounted radiometric logging unit	3,500.00
Total	45,700.00

Four Corners Exploration Co.
Box 101
Grants, New Mexico

h) Should a large flow of water, badly unconsolidated ground, or extremely fractured ground be encountered, an additional $1.00 per foot may be required. The maximum is arbitrarily set at 3,000 feet or an additional $3,000.00. The contractor of this contingency is highly improbable.

7. a) The Four Corners Exploration Company is fully prepared to furnish the share of the cost of the proposed project in accordance with the requirements as shown in the particulars.

b) It is assumed that the Four Corners Exploration Company's share of the cost or lease of these claims be deducted from all bills presented the D.F.I.A..

[illegible]

[illegible] 203

[illegible]

[illegible]

1) An exact, constant, and permanent record of the intensity of gamma radiation of every inch of the hole is procured.

2) The extreme sensitivity of this machine provides two major advantages.

a) Thin seams can be differentiated by their relative intensity. [illegible] [illegible] per year. [illegible]

b) [illegible]

3) An exact thickness of ore is defined.

4) The [illegible] engineer is able to decide where to drill [illegible].

5) The overall cost of exploration is reduced.

a) The volume of [illegible] by the Laboratory is reduced.

b) [illegible]

TABLE 1

SUMMARY OF PROPOSED DRILLING

FLAT TOP #4 AND FLAT TOP #5

S.E. ¼, SECTION 30, T13N, R9W.

PHASE	NO. HOLES	AVG. DEPTH	DEPTH RANGE	TOTAL FEET	COST/FT.	TOTAL COST
1) 200' grid	42*	112.95**	0-100	3,990.00	$ .50	$ 1,995.00
			100-200	747.00	1.00	747.00
2) 100' grid	92***	102.95**	0-100	7,899.54	.50	3,994.77
			100-200	1,004.05	1.00	1,004.05
3) 50' grid	126.96****	102.93	0-100	10,777.17	.50	5,388.58
			100-200	1,495.99	1.00	1,495.99
4) 25' grid	94.76*****	102.93	0-100	6,791.29	.50	3,395.65
			0-100§	1,252.39	1.00	1,252.39
			100-200	473.80	1.00	473.80
			100-200§	642.81	1.50	964.21
Totals	355.71	104.28		35,000.04	.590	20,699.44
5) Radiometric logging and the preparation of a permanent geologic record of every hole				35,000.04	.15	5,250.01
6) Supervision, accounting, correspondence, surveying, radiometric assays of cuttings, 20 chemical assays, geologic mapping, and ore reserve calculations				35,000.04	.10	3,500.00
Totals					.84	29,464.45

* Refer to figure 2

** 15 feet of underlying sandstone (Entrada formation) added to guard against underdrilling on initial (200') grid. 5 feet of underlying sandstone added on all subsequent grids.

*** Estimated saving of 20% by the use of an initial 200 foot grid.

**** The factor, 1.33, derived from figure 3, was applied in arriving at the number of holes required on a 50 foot grid.

***** The factor, .7464, derived from figure 3, was applied in arriving at the number of holes required on a 25 foot grid.

§ Sample to be taken; hole to be blown clean and cuttings collected for the 20 feet of ore horizon.

S.E. 1/4, Section 30, T 13N, R9W.
FLAT TOPS 4 and 5

Figure 2

SCALE

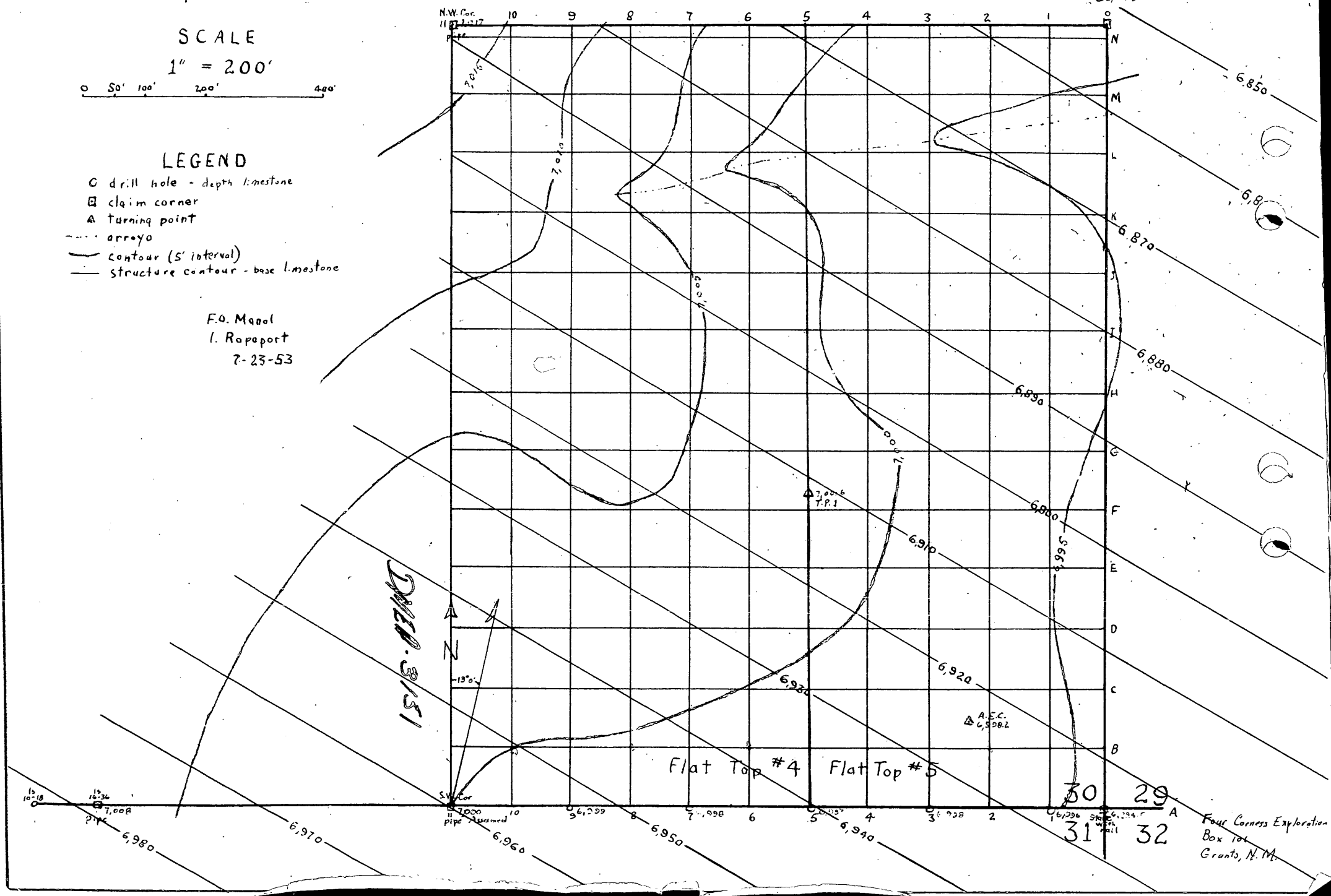
1" = 200'

0 50' 100' 200' 400'

LEGEND

- drill hole - depth limestone
- claim corner
- turning point
- arroyo
- contour (5' interval)
- structure contour - base limestone

F.O. Magol
I. Rapaport
7-23-53



Four Corners Exploration
Box 101
Grants, N.M.

No. 2 - Extends starting date from 60 days to 120 days from date of contract and extends completion period from eight months to ten months.

Work Completed -

The work was begun in August, 1954 and completed in December, 1954. 93 non-core rotary holes totaling 9,362 feet were drilled in three stages as authorized by the contract. Bentonite mud (aquagel) was used in all holes, in lieu of casing, in drilling to the top of the Todilto limestone. The Operator drilled 483 feet in Stage II and 620 feet in Stage III, in excess of the allowable maximum footages for those stages, for which payment was not made. Details of work completed follow:

9,362 ft. non-core drilling @ $.90/ft.	$8,425.80
7,575 ft. hole sealed with aquagel @ $.30/ft.	2,272.50
Total Cost of Project	$10,698.30
Government Participation @ 90%	$ 9,628.47

3. Auditor's Report of Review - dated February 28, 1955.

Total cost as billed by contractor	$11,390.10
Exceptions	$ 691.80
Total accepted cost	$10,698.30
Government participation @ 90%	$ 9,628.47

4. Certification of Discovery - dated May 9, 1955;

5. Results and Comments:

The project was carried out in an efficient and workmanlike manner.

The ore-bearing Todilto limestone on the property is overlain by 40 to 135 feet of unconsolidated dune sand and an average of 23 feet of Summerville formation. The Todilto limestone generally ranges from 15 to 48 feet and averages 22 feet in thickness.

Of the 93 holes drilled, 25 penetrated one foot or more of material containing 0.10% or more U_3O_8, 46 penetrated material containing between a trace and 0.10% U_3O_8, and 22 holes were barren.

The drilling resulted in the finding of two ore bodies on the property. The larger deposit has maximum dimensions of about 200 X 450 feet and averages over 6 feet thick. The smaller deposit is about 50 X 130 feet in areal extent and averages about 3 feet thick. Orereserves were estimated as follows:

	Operator		USBM Examiner	
	Tons	$\%U_3O_8$	Tons	$\%U_3O_8$
Large Ore Body	31,405	0.415	34,950	0.40
Small Ore Body	1,616	0.215	1,530	0.20
Value	$1,325,000		$1,382,000	

Subsequent to the DMEA project the Operator did considerable development drilling and sank an inclined shaft to the north deposit. Royalty payments were made on production regularly and final repayment of the Government's contribution was made through a shipment made in January, 1956.

Michael Ching

Michael Ching

[X] Audited

[X] Certified

WORK ANALYSIS SHEET - DMEA PROJECT

Analysis as of Oct. 8, 1956
Incl. Voucher for Dec, 1954

[ ] Actual Cost

[X] Agreed Unit Costs

Name Four Corners Exploration Company

Docket No. 3151

State New Mexico

Commodity Uranium

Idm-E No. 671

OPERATION	AUTHORIZED Units	AUTHORIZED Cost	COMPLETED Units	COMPLETED Cost	NET COST
Drifting & Crosscutting					
Raising					
Shafts					
Winzes					
Drilling (Specify) Rotary Non-Core	9450	$ 12,189.00	9362	$ 10,698.30	$ 10,698.30
Surface Excavation					
Underground Excavation					
Roads and Trails					
Operating Equipment Purchased					
Surface Rehabilitation & Repairs					
Underground Rehabilitation					
New Building, Improvements, etc.					
Other (Specify)					
Totals		$ 12,189.00		$ 10,698.30	10,698.30

Prepared by Michael Ching

71626

☒ Audited

W[redacted] ANALYSIS SHEET - DMEA PROJECT [redacted]

☐ Actual Cost

☒ Certified

Analysis as of 2/17/56
Incl. Voucher for Dec. 1954

☒ Agreed Unit Costs

Name Four Corners Exploration Co.

Docket No. 3151

State New Mexico

Commodity Uranium

Idm-E No. 671

OPERATION	AUTHORIZED Units	AUTHORIZED Cost	COMPLETED Units	COMPLETED Cost	NET COST
Drifting & Crosscutting					
Raising					
Shafts					
Winzes					
Drilling (Specify) Rotary	9450'	12,189.00	9362	10,698.30	
Surface Excavation					
Underground Excavation					
Roads and Trails					
Operating Equipment Purchased					
Surface Rehabilitation & Repairs					
Underground Rehabilitation					
New Building, Improvements, etc.					
Other (Specify)					
Totals		$12,189.00		$10,698.30	

O.K. Final audit

Prepared by Fay Murphy

71626

Code 700

Docket

Ellis

Project Summary Report

By: Michael Ching Date: October 9, 1956

1. Docket No. DMEA-3151 (Uranium)
   Contract No. Idm-E671

   Operator - Four Corners Exploration Company, a copartnership consisting of Frank O. Manol and Irving Rapaport.
   P. O. Box 101
   Grants, New Mexico

   Property - Flat Top - Vilatie Hyde Nos. 4 and 5 unpatented mining claims in sec. 30, T. 13 N., R. 9 W., N.M.P.M.&B., McKinley County, New Mexico.

   Operator's Property Rights - Operator is the Lessee. Owner's Consent to Lien, dated April 26, 1954, signed by Vilatie W. Hyde.

2. Contract - dated May 10, 1954 (Short Form)

   Work Authorized (As Amended) - Explore the Todilto limestone of Jurassic age by non-core rotary drilling in three stages. Casing or aquagel shall be used in each hole, above the Todilto limestone, to prevent contamination of samples.

Stage I -		
30 holes, 3,150 ft. @ $.90/ft.	$2,835.00	
2,520 ft. casing @ $.50/ft.*	1,260.00	
		$4,095.00
Stage II -		
24 holes, 2,400 ft. @ $.90/ft.	$2,160.00	
1,848 ft. casing @ $.50/ft.*	924.00	
		$3,084.00
Stage III -		
39 holes, 3,900 ft. @ $.90/ft.	$3,510.00	
3,000 ft. casing @ $.50/ft.*	1,500.00	
		$5,010.00

Total Estimated Cost of Project $12,189.00
Government Participation @ 90% $10,970.00

*Aquagel may be used as an alternative to casing and charged at rate of $0.30 per foot of hole.

Amendments:

No. 1 - Permits use of aquagel as an alternative to casing the holes, at a cost of $.30 per foot of hole treated.

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

RECEIVED
OCT 10 1956

Date October 10, 1956

DMEA Docket No. 3151
DMEA Contract No. Idm-E 671
Commodity U_3O_8
Name of applicant Four Corners Expl. Co.
Name of property Flattop - Vilitae Claims
Location of property McKinley Co., New Mexico
Estimated cost of project $10,698.30

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

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

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

1. Date of subject document: 10/k9/56. 2. Date received by reviewer: 10/1/56.

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 [X]
      i. Consult with Mr. _____ at _____ AEC office.
   e. Disagree with Field Team ☐
   f. Suggest alternate plan ☐
   g. Request another examination ☐
   h. Approval [X] Certification

10. Remarks: (Use back of page if necessary) Project resulted in the discovery of ore valued at over $1,000,000.00
Mr. J. O. Hosted, Washington representative of the Atomic Energy Commission assisted in the review.

3151

ACTION ON I RIM
OR FINAL FIELD TEAM REPORT
Date 9-28

Referred to:

1. ~~Mr. Mittendorf~~
2. ~~Mr. Johnson~~
3. Mr. Chambers
4. ~~Docket Control Mails and Files~~
5. Robert Mass. Division
6. ~~Docket Control Mails and Files~~

Note comments in report regarding:

1. Good Strike -
2. One reserve data
3. on pgs 7 + 8
4.

and take appropriate action.

- - - - - - - -

Action taken by Division:

Robert E. Adams

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

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SEP 24 1956

224 New Customhouse
Denver 2, Colorado

September 19, 1956

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA 3151 (Uranium), Contract Idm-E671, Four Corners Exploration Company (Flattop - Vilitae Claims Nos. 4 and 5), McKinley County, New Mexico - FINAL REPORT

Enclosed are the original and three copies of a geological report by D. P. Elston, USGS, Dated September, 1956, transmitted by J. W. Hasler under date of September 14, 1956, through E. N. Harshman, Member, Region III Field Team; and of an engineering report by Glen Walker, USBM, dated March 21, 1955, and transmittal thereof dated March 22, 1955, through John F. Shaw, Supervising Mining Engineer.

The original and one copy of the Operator's final report were forwarded to you February 10, 1956.

Final payment to the Operator was processed by this office June 8, 1955, in conformance with the Report of Review by the Contract Administration and Audit Division under date of March 29, 1955.

Exploratory work consisted of 10,477 feet of dry rotary drilling in 93 holes under three separate stages, at an aggregate cost of $10,698.30, in which the Government participated for 90%, or $9,628.47.

The project work resulted in the delineation of a significant reserve of uranium ore, probably on the order of about 36,000 tons, with a value of more than $1,000,000.00. Certification of Discovery or Development has been recommended.

Certified

W. M. Traver

W. M. Traver

FINAL F.T. REPORT

Reviewed by
DMEA OPERATING COMMITTEE
9-28-56
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

P. O. Box 360
Grand Junction, Colorado

IN REPLY REFER TO:
MINERAL DEPOSITS
DMEA
RECEIVED
SEP 17 1956
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

DMEA
DEPARTMENT OF THE INTERIOR
SEP 18 1956
REGION III
DENVER, COLORADO

September 14, 1956

RECEIVED
SEP 24 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

Through: E. N. Harshman

From: J. William Hasler

Subject: Transmittal of final report on DMEA docket 3151, Idm-E 671 (Uranium), Four Corners Exploration Company, Flat Top No. 3 and 4 claims, Sec. 30, T. 13 N., R. 29 W., NMPM, McKinley County, New Mexico

Enclosed are eleven copies of a final geologic report by D. P. Elston, U. S. Geological Survey and the accompanying maps on the above mentioned docket.

J. William Hasler

J. William Hasler,
Geologist

JWH/mlr
Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
9-28-56
(date)

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

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REPORT OF EXAMINATION BY EXAMINING TEAM
REGION III

DMEA 3151

Four Corners Exploration Company

Flat Top No. 3 and 4 claims, Sec. 30, T. 13 N., R. 9 W., NMPM

McKinley County, New Mexico

Uranium

Final Geologic Report

by

D. P. Elston
U. S. Geological Survey

September 1956

Reviewed by
DMEA OPERATING COMMITTEE
9-28-56
(date)

DMEA 3151

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INTRODUCTION AND SUMMARY

The Four Corners Exploration Company, P. O. Box 101, Grants, New Mexico, made application for Government assistance to explore for uranium on the Flat Top No. 3 and 4 claims in sec. 30, T. 13 N., R. 9 W., NMPM, McKinley County, New Mexico. The property was examined on November 17, 1953 by E. N. Harshman, R. P. Fischer, and J. D. Strobell, U. S. Geological Survey, accompanied by Irving Rapaport, representing the applicant, and P. E. Melancon, U. S. Atomic Energy Commission. DMEA contract Idm-E 671 was signed May 10, 1954, with Government participation at 90 percent. Drilling was begun in August 1954, and three stages of drilling were completed. The third stage was completed in December 1954. During this period 93 non-core holes totalling 10,477 feet were drilled.

The object of the drilling was to explore for uranium ore in the Todilto limestone of Jurassic age, which, on the subject claims, is overlain by 40 to 135 feet of unconsolidated dune sand and the Summerville formation of Jurassic age.

During drilling, samples were collected every two feet through the Todilto limestone. Samples were scanned radiometrically and the holes were probed. Samples which contained significant mineralization by radiometric methods were assayed chemically. Of the 93 approved holes drilled, a total of 25 holes penetrated one foot or more of rock containing 0.10 percent or more U_3O_8 or eU_3O_8; 46 holes penetrated rock containing between a trace and 0.10 percent U_3O_8 or eU_3O_8 and 22 holes were barren. Some additional footage

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SEP 24 1956

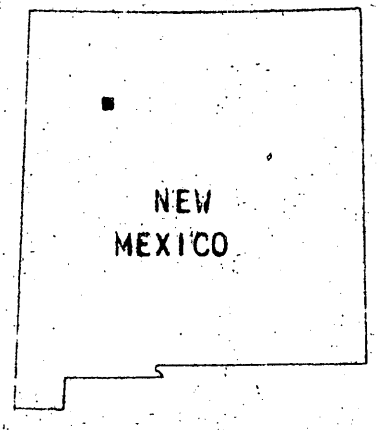
beyond contract specifications resulted in the drilling of a total of 119 holes. The drilling resulted in the finding of two ore bodies on the property. The larger of the two has been estimated to contain 31,405 tons having a grade of 0.415 percent U_3O_8. The smaller ore body has been estimated to contain 1,616 tons averaging 0.215 percent U_3O_8. The ore bodies are estimated to have a total value of $1,324,840. These are estimates by the company geologist and are close to estimates made by the U. S. Bureau of Mines.

The larger ore body is localized on and near a structural terrace formed along and near the crest of a small northward plunging anticlinal fold. The structural relationship is similar to that shown by other ore bodies in the area. It is recommended that ore bodies discovered as a result of DMEA exploration contract Idm-E 671 on the subject claims be certified.

LOCATION AND OWNERSHIP

The land described in Article II of the contract includes the Flat Top (Vilatie Hyde) No. 4 and Flat Top (Vilatie Hyde) No. 5 unpatented mining claims located in SE$\frac{1}{4}$ sec. 30, T. 13 N., R. 9 W., New Mexico Principal Meridian in McKinley County, New Mexico (fig. 1). The claims are reached from Grants, New Mexico, by traveling west on U. S. Highway No. 66 about 3 miles to the San Mateo road, state route No. 53, then north along it for about 11 miles, then west on a mine road 1/2 mile.

The property is owned by Vilatie Hyde who on August 4, 1953, granted a lease to Four Corners Exploration Company.



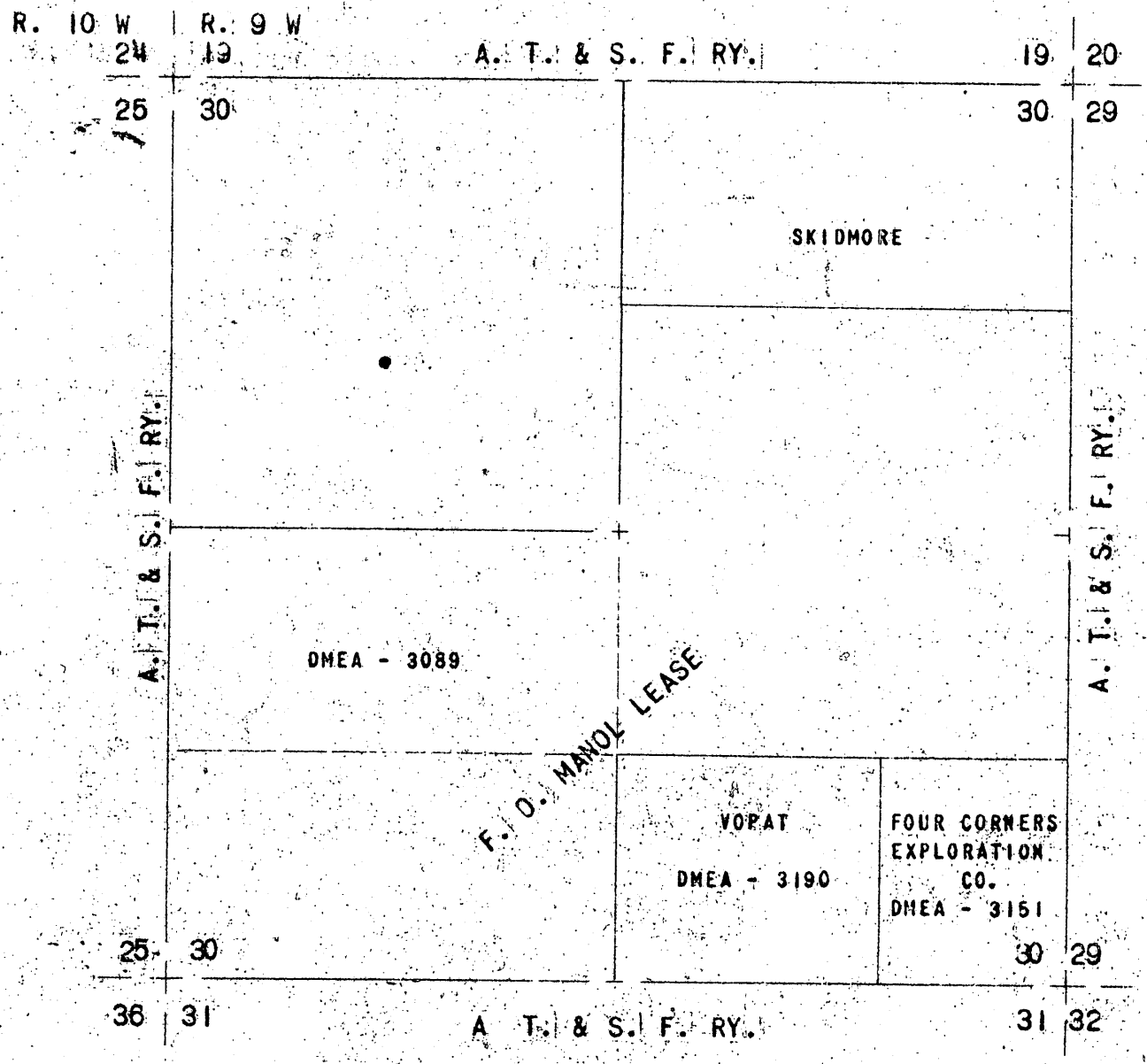


Figure 1. SKETCH MAP SHOWING OWNERSHIP OF MINERAL RIGHTS IN SECTION 30, T. 13 N, R. 9 W. N.M.P.M.

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HISTORY AND PRODUCTION

Prior to the initiation of the Government assisted exploration there had been no work, other than discovery pits on the claims.

GENERAL GEOLOGY

The Grants uranium mining district is on the north flank of the Zuni uplift, possibly of early Tertiary age. The uplift is a broad, elongate, assymetrical dome about 65 miles long and 40 miles wide, and trends in a northwesterly direction. It is thought that this uplift may have been instrumental in the structural deformation of the Grants area and produced conditions which led to the localization of uranium ore bodies.[1/]

1/ Rapaport, Irving, Hadfield, J. P., and Olson, Richard M., Jurassic Rocks of the Zuni Uplift, New Mexico: U. S. Atomic Energy Commission, R.M.)-642, March 1952

The strata in the Grants area dip gently to the northeast from the Zuni uplift. Outcrops west of the subject claims show the dip to be about 9 degrees northeast. Erosion has carved the strata into a series of step-like cliffs and intervening benches. The Todilto limestone of late Jurassic age is resistant and forms a broad bench where the less resistant overlying sandstones have been stripped from it. This bench is covered by a veneer of dune sand and alluvium which conceals bed rock except along the brink of the cliffs.

STRATIGRAPHY

The generalized stratigraphic section[2/] for the Grants area is given below:

AGE	GROUP	FORMATION	GENERAL LITHOLOGY	THICKNESS
Upper and Middle Jurassic	San Rafael	Bluff sandstone	Sandstone	220 - 250
		Summerville formation	Sandstone, siltstone, shale, limestone	0 - 190
		Todilto limestone	Limestone	0 - 30
		Entrada sandstone	Sandstone	130 - 280
		Carmel formation	Siltstone, sandstone	55 - 260

2/ Rapaport, Irving, op. cit.

There is no exposure of the Todilto limestone on the claims. In places erosion has removed all the younger strata but thicknesses of unconsolidated sand up to 122 feet thick cover the limestone. In other places the Summerville formation is present beneath the sand. The maximum thickness of the Summerville penetrated by the drill was 68 feet. Thicknesses of the Todilto limestone penetrated by the drill generally ranged from about 15 to 48 feet; in one hole it was absent and alluvium rested directly on the Entrada sandstone, and in another hole the Todilto was about one foot thick. Its local absence is possibly due to an erosional surface which preceded deposition of the alluvium. The average thicknesses of strata penetrated by the drill are: 1) alluvium -72 feet, 2) Summerville formation -23 feet, and 3) Todilto limestone 22 feet. The Entrada sandstone generally was penetrated only 5 to 10 feet.

The Entrada sandstone that underlies the Todilto limestone is predominantly a pale reddish-brown to grayish orange-pink fine- to very fine-grained, crossbedded and cross-laminated sandstone.

The ore-bearing Todilto limestone may be divided into two and locally three units: 1) a lower dark gray to black, very fine-textured, dense, medium-to thick-bedded limestone containing lenses of calcareous silty sandstone; 2) an intermediate light-to dark-gray, finely to coarsely crystalline, thin-bedded limestone; and 3) locally, an upper gray, dense contorted limestone that interfingers with the Summerville formation.[3/]

3/ Rapaport, Irving, Interim report on the ore deposits of the Grants District, New Mexico, U. S. Atomic Energy Commission, RM)- 1031, November 1952. Rapaport, Irving, unpublished report, Four Corners Exploration Co., July 1954.

The Summerville formation is composed of reddish-brown siltstone and white, very fine- to fine-grained sandstone. It commonly interfingers with the Todilto limestone. Where this occurs the contact is difficult to determine.

STRUCTURE

There are no known faults on the subject property, but minor jointing may be present.

A structure contour map drawn at the base of the Todilto limestone shows two minor northerly plunging anticlinal folds in the western and eastern parts of the property (fig. 2). The large ore body in the western part of the property is localized in and near a relatively flat area near the

crest of the fold. The smaller ore-body to the southeast is on the limb of the fold. No apparent subsidiary structure is apparent from the drill hole data in and near the latter ore body. The wider spaced drill holes in the eastern part of the property show a possible terrace on the eastern fold which may contain some potential reserves.

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ORE DEPOSITS

Ore deposits in the Todilto limestone in the vicinity of the Flat Top Nos. 4 and 5 claims range in size from a few hundred tons to about 40 or 50,000 tons. Thus the ore deposit on the subject property, which contains between 33 to 36,000 tons, approaches the size of the largest deposits found in the vicinity. The Todilto deposits are usually elongate mineralized masses which are as much as 4,000 feet long and range from 25 to 100 feet in width and have a trend slightly west of north.

The deposits occur as long sinuous deposits or as blanket deposits. The former may be as much as 4,000 feet long and 25 to 100 feet wide and the latter may be 500 feet long and 300 feet wide. The deposit in the Flat Top No. 4 claim appears to be, in part, a composite of the two types formed by the coalescence of two elongate trends.

The uranium minerals have been deposited as blebs and crystals in the limestone and along joint surfaces, bedding planes and small veinlets. The oxidized ore minerals in the Todilto limestone are commonly tyuyamunite and locally carnotite. The oxidized ore minerals are most abundant in the southern parts of the ore deposit. Where unoxidized the ore minerals are

uraninite (pitchblende). Dark purple fluorite appears to be associated with the ore deposits. In addition limestone associated with the ore deposits appears to be more coarsely crystalline than limestone away from deposits.

At present there are no generally accepted guides to ore for deposits in the Todilto limestone. In many places the structure containing the ore deposits is no larger than the deposit itself and therefore does not offer a larger target for drilling. Because of this and because of the elongation of many of the deposits it is necessary to explore the Todilto limestone on a relatively close spaced pattern. As a result depths to the ore bearing horizon, given an expected size range of deposits, determine the feasibility of exploration.

ORE RESERVES

Ore reserves calculated by the Four Corners Exploration Company used a thickness cutoff of about 2 feet and a grade cutoff of 0.20 percent U_3O_8. Because of sampling at two-foot intervals with accompanying dilution of the sample, several holes which are ore by Geological Survey gamma-ray hole probe, were not ore by chemical assay and were not included in the ore reserve computations by Rapaport. His figures are considered to be within the plus or minus 20 percent usually allowed for ore reserves, but may be somewhat conservative.

The final engineering report by Bureau of Mines, gives a slightly higher figure for tonnage for the north ore body and a slightly lower figure for the

south ore body than that of the applicant. Cutoffs used by the Government are somewhat lower than those of industry, and are a minimum thickness of one foot and a minimum grade of 0.10 percent U_3O_8.

Comparison of the reserve figures are given below; they are close to one another and are considered reasonable estimates:

	North ore body indicated		South ore body indicated		Approximate gross value
	Tons	U_3O_8	Tons	U_3O_8	
Four Corners Exploration Company	31,405	0.415	1,616	0.215	$1,324,840
U.S. Bureau of Mines	34,950	0.40	1,530	0.20	1,382,000

The north ore body has dimensions of about 200 x 450 feet and averages about 6 feet thick. The south ore body is about 50 x 130 feet and averages about 3 feet thick. Both are elongate northward.

Table I of the final engineering report by Glenn Walker, U. S. Bureau of Mines, dated March 21, 1955, contains the available stratigraphic and assay data of the holes drilled on this project.

CONCLUSIONS AND RECOMMENDATIONS

DMEA drilling on the Flat Top (Vilatie Hyde) No. 3 and 4 claims resulted in the finding of two ore bodies that have an approximate gross value of $1,382,000. The two ore bodies contain an estimated 36,500 short tons of ore having an estimated grade of 0.39 percent U_3O_8.

No additional Government assistance for the development of ore on these claims is recommended. It is, however, recommended that a certification of discovery be made on this property.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region III

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SEP 24 1956

Building 20, Room 137
Denver Federal Center
Denver 2, Colorado
March 22, 1955

Memorandum

To: Executive Officer, Field Team, Region III

From: John F. Shaw, Project Supervisor

Subject: DMEA 3151, Contract Idm-E671 (Uranium), Four Corners Exploration Company (Flat Top Nos. 4 and 5 claims), McKinley County, New Mexico

Enclosed are the original and ten copies of a final engineering report prepared by Glen Walker.

The operator drilled 93 holes totalling 10,477 feet. The drilling resulted in the discovery of two uranium ore deposits that are estimated to contain approximately 36,000 tons valued at $1,380,000. The cost of the project was $10,698.30. The amount of Government participation at 90 percent was $9,628.47.

It is recommended that a Certification of Discovery be issued.

John F. Shaw

John F. Shaw

Enclosures

cc 10
DMEA 3151
Chron

JFS/cm

Reviewed by
DMEA OPERATING COMMITTEE
9-28-56
(Date)

DMEA
Date Rec'd.
MAR 23 1955
BUREAU OF MINES
Denver, Colorado

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

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SEP 24 1956

FINAL ENGINEERING REPORT

DMEA 3151, Exploration Project Contract Idm-E671

Flat Top No. 4 and 5 claims

Four Corners Exploration Co.

McKinley County, New Mexico

Uranium

Glen Walker, Mining Engineer

March 21, 1955

Reviewed by
DMEA OPERATING COMMITTEE
9-28-56
(date)

DMEA 3151
Contract Idm-E671

FLAT TOP NO. 4 AND 5 CLAIMS
FOUR CORNERS EXPLORATION CO.
McKINLEY COUNTY, NEW MEXICO

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DMEA 3151
Contract Idm-E671

FLAT TOP NO. 4 AND 5 CLAIMS
FOUR CORNERS EXPLORATION CO.
McKINLEY COUNTY, NEW MEXICO

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FINAL ENGINEERING REPORT

By

Glen Walker

SUMMARY AND INTRODUCTION

Exploratory drilling on the Flat Top No. 4 and 5 claims began in August 1954, and continued into January 1955. During this period 93 dry holes were drilled totalling 10,477 feet.

The drilling resulted in the discovery of two adjacent but disconnected uranium ore deposits that contain approximately 36,000 tons valued at $1,380,000.00.

The approved expenditure incurred, which is contingent upon an audit by the Contract Administration and Audit Division of DMEA, was $10,698.30. This sum represents the total cost of the work authorized by the DMEA contract and approved by periodic field inspections. Government participation was 90 percent of the amount, or $9,628.47, which is $1,341.63 or 12.5 percent less than that estimated in the contract. Operations under the contract were prosecuted efficiently and in accordance with good practice.

Subsequent to completion of work authorized by the DMEA contract, the drilling was continued on a much closer spacing of holes to obtain information beneficial to a mining operation. Currently an inclined shaft is being sunk to the north deposit.

LOCATION AND OWNERSHIP

The land stipulated in Article II of the contract includes the Flat Top (Vilatie Hyde) No. 4 and Flat Top (Vilatie Hyde) No. 5 unpatented mining claims located in SE1/4 sec. 30, T. 13 N., R. 9 W., New Mexico principal meridian in McKinley County, New Mexico (fig. 1). It is easily reached from Grants, New Mexico, a rail point and nearest town, by traveling west on U.S. Highway No. 66 about 3 miles to the San Mateo road, State route No. 53, then north (right) along it for about 11 miles, then west (left) on a newly built mine road 1/2 mile.

The property is owned by Vilatie Hyde who on August 4, 1953, granted a lease to Four Corners Exploration Company.

HISTORY AND PRODUCTION

Prior to the initiation of the Government assisted exploration there had been no work, other than discovery pits on the claims.

DESCRIPTION OF THE DEPOSIT

As may be seen in the above paragraph there were no known ore deposits before the exploratory work conducted under the DMEA contract. The recommendations for a contract were based on rather strong geological premises that the ore bearing formation existed on the property. The Jurassic Todilto limestone is the productive stratum encountered.

The following rock sequence with average thicknesses was indicated by the drilling: alluvium (including dune sand) 72 feet; Summerville, 23 feet; Todilto, 22 feet; Entrada (penetrated only 5-10 feet). The ore deposits discovered appear to be near the crest on the east flank of a small north plunging anticline (fig. 2). Several holes encountered

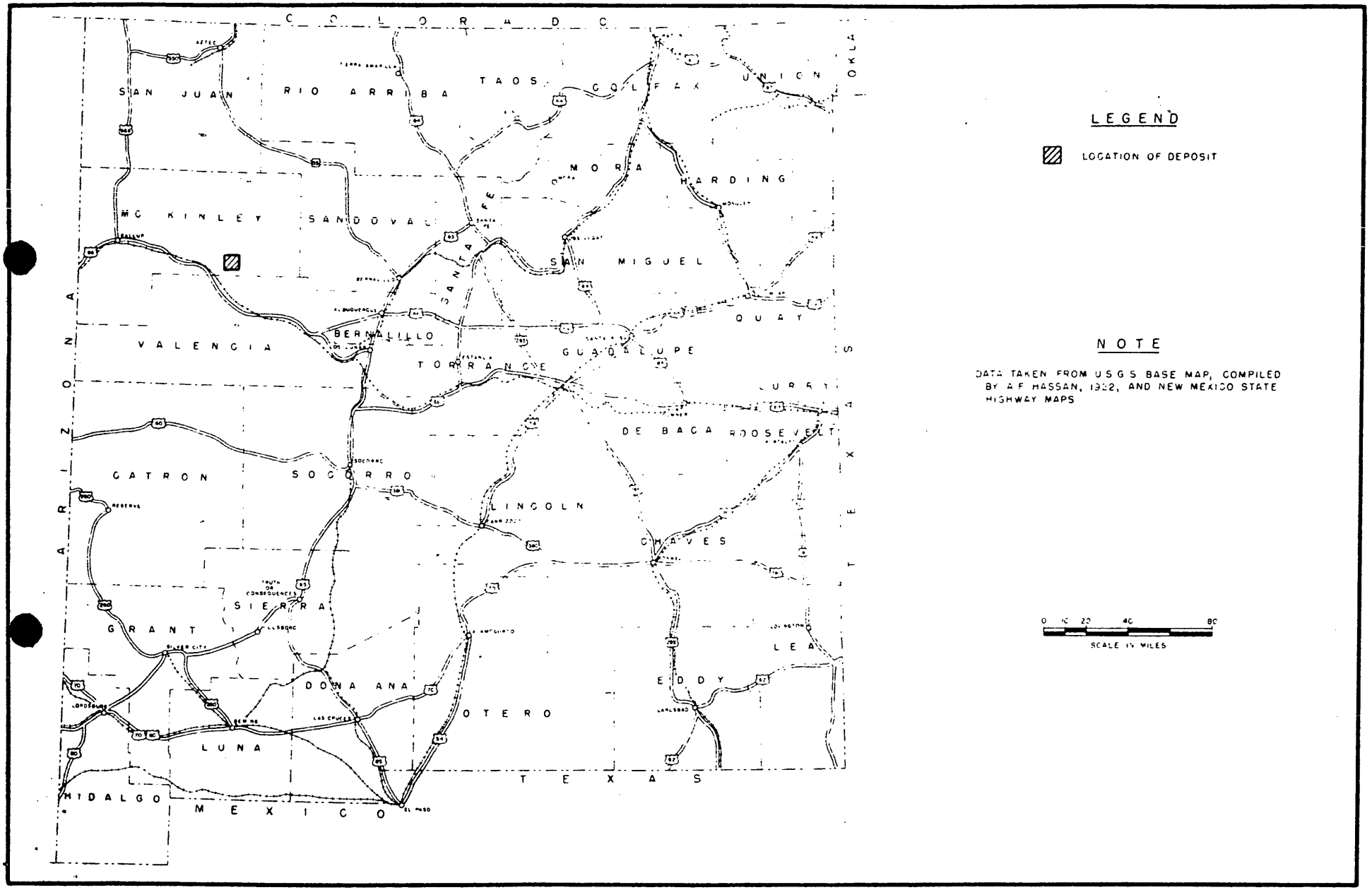

FIGURE 1 - LOCATION MAP, FLAT TOP NO. 4 AND 5 CLAIMS, FOUR CORNERS EXPLORATION COMPANY, MC KINLEY COUNTY, NEW MEXICO. (DMEA 3151, Contract Idm - E671)

no Summerville, but overlying the ore deposits there apparently is a greater than average thickness of this formation. Only one hole failed to cut the Todilto lime, but it is deep in the adjoining syncline east of the ore deposits; however, in some places where ore was found the lime seems to be less than average thickness. The relatively greater thickness of Summerville found overlying the ore may tend to alleviate some of the anxiety previously felt for an anticipated underground operation. At least this formation should afford more substantial support than the alluvium.

Because little or no water was found in drilling it should be a secondary problem relative to mining.

It is very difficult to ascertain the detailed structure of the ore deposits from dry hole cuttings; that is, it is presently unknown if the ore is concentrated along joints and fractures in the limestone as is the condition on the outcrop. Likewise the mineralogy of the deposits is not completely revealed by the work; however, minerals thought to be uraninite and tyuyamunite have been observed in the cuttings.

WORK COMPLETED UNDER THE CONTRACT

The DMEA contract set forth the work in three stages; Stage I consisted of 30 rotary holes arranged on a 200x200-foot grid; Stage II consisted of 24 holes offsetting favorable holes drilled under Stage I; and Stage III consisted of 39 holes offsetting favorable holes drilled under the previous stages. All holes were to be drilled through the Todilto and 5 feet into the underlying Entrada.

No hole was to be closer than 50 feet to another. Casing was to be set in all holes on top of the Todilto to obviate contamination of the samples from that formation, however, an amendment was granted for the substitution of bentonite mud for drilling the material above the limestone. Stratigraphic and radiometric logs were to be made of each hole and 20 chemical analyses of ore samples were stipulated by the contract.

The completed project was estimated to cost $12,189.00, but the actual approved total cost was $10,698.30. All the 93 holes authorized by the contract were drilled with a combined footage of 10,477 feet. Bentonite mud was used in lieu of casing in drilling all holes to the top of the Todilto limestone. The usual procedure was to move to another hole location when the limestone was hit, thereby allowing the hole to dry before drilling the ore horizon for samples. After a hole through the upper waste material had dried for 2 or 3 days, the drilling equipment was returned and dry sampling of the limestone began at 2-foot intervals. It was found, in most holes in the ore horizon, that radon gas interfered with radiometric logging which often necessitated a further delay and the ventilation of the hole by compressed air. The limestone cuttings were blown from the holes continuously while drilling progressed, screened through a common window screen (about 16 meshes per inch), split with a Jones splitter and tested with a Geiger counter. When the hole had completely penetrated the ore formation and after ventilation it was probed radiometrically and the results compared to the cuttings. If both radiometric tests showed sufficiently encouraging results, composite

samples were made from the cuttings and sent to Grand Junction, Colorado, for chemical analysis. Many of the samples analysed chemically were also checked on a nuclear scale. Stratigraphic data were also obtained from the drilling and a structure contour map on the base of the Todilto limestone was made.

In August 1954 work authorized by the DMEA contract was started and 10 holes were completed before September. Four of the initial holes were blank, 4 others had "shows" of uranium and 2 were definitely mineralized (table 1). For this period the operator was paid $716.04, which is 90 percent of his claim of $795.60. This amount represents the total cost of drilling and sampling 717 feet of hole.

During September 1954, 20 holes totaling 2,357 feet were drilled which completed the first stage of the project as authorized by the DMEA contract. Ten of these holes were barren, 3 had traces of uranium, 4 indicated low grade material and 3 had substantial amounts of relatively high grade ore (table 1). DMEA inspection reduced the total footage by 12 feet because one hole was drilled an excessive depth into the Entrada formation which underlies the ore horizon. Payment to the contractor was approved in the amount of $2,417.31, which is 90 percent of the allowable cost of the project during the period.

In October 1954, 24 holes having a total footage of 2,883 feet were drilled which completed Stage II of the work authorized by the contract. Because footage exceeded that allowed for Stage II, the approved payment to the operator for this period was $2,526.12, or 90 percent of the allowable cost. Ore was encountered in 6 holes, 12 contained low grade material and 6 were barren (table 1).

During December 1954, all 39 holes totaling 4,520 feet designated as the final stage or Stage III of the DMEA contract were completed. The footage actually drilled was 620 feet more than allotted to Stage III, therefore, payment to the operator amounted to $3,969.00, which is 90 percent of the approved cost. Combined samples from 16 of the 39 holes indicated ore with a grade in excess of 0.10 percent U_3O_8, 21 contained from a trace to 0.10 percent U_3O_8 and 2 holes were barren (table 1).

The location and method of drilling was approved by Government field inspections of all 93 holes while the work was in progress. Receipt of all pertinent data to the project specified in the contract has been acknowledged. The work appears to have been carried on in a satisfactorily, efficient manner and all specifications of the DMEA contract have been fulfilled.

DESCRIPTION OF THE DISCOVERY

On the Flat Top No. 4 claim, two ore deposits were roughly outlined by the holes authorized in the DMEA contract. Approximately 26 percent of the holes drilled encountered ore grade material in the Jurassic Todilto limestone. The larger deposit, near the northwest corner of the claim, has maximum dimensions of about 200x450 feet and strikes approximately N. 25 W. The small deposit is about centrally located in the claim and is about 50x130 feet in areal extent; it strikes N. 5 (fig. 2). The north ore body averages over 6 feet thick, while the other is just over 3 feet. The deposits are separated by about 150 feet of barren or only slightly mineralized ground.

From available information the north deposit is estimated to contain 34,950 tons of .40 percent U_3O_8 indicated ore, the south one is estimated to have 1,530 tons of indicated ore that average 0.20 percent U_3O_8. The gross value of the discoveries is approximately $1,382,000.00, which at a royalty rate of 5 percent will very adequately reimburse DMEA for participation in the exploration.

EXPENDITURES

The total incurred cost of the project as approved by field inspections was $10,698.30, Government participation 90 percent, or $9,628.47. These amounts are subject to audit by the Contract Administration and Audit Division of DMEA.

At the end of each calendar month during the progress of the work, the operator submitted an accounting of the costs for the period on the regular MF-104 form; the following is a summary of this information as approved for payment by the Government:

Month	Feet drilled	Feet mud sealed	Cost
August 1954	717	501	$ 795.60
September 1954	2,345	1,918	2,685.90
October 1954	2,400	2,156	2,806.80
December 1954	3,900	3,000	4,410.00
Totals	9,362	7,575	$10,698.30

All the operating equipment used on the project was owned or provided by the contractor, therefore, the Government has no equity in it or other facilities remaining at the conclusion of the work.

CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the exploration project was carried out in an efficient and workmanlike manner which resulted in the discovery of uranium ore on the Flat Top No. 4 claim worth in excess of $1,000,000.00.

Only two holes on the Flat Top No. 5 claim had "shows" of ore but the drilling here added considerable to the geologic knowledge of the immediate area.

From an examination of figure 2 it is apparent that a portion of the north ore body found on Flat Top No. 4 claim very probably extends on to the property to the west on which there is a DMEA loan.

A discovery should certainly be certified on the subject ground as production is economically feasible and should return considerably more than the Government's participation.

Additional Government assisted exploration is not considered necessary, nor is it recommended. The contract should be terminated by the Administration in the usual manner.

/cm

TABLE I (continued)

Co-ordinate hole	Feet Alluvium	Feet Summerville	Feet Todilto	Feet Entrada	Hole radiometric est. % U_3O_8	Cuttings Chemical % U_3O_8
H.5-7.5	0-76	76-79	79-107	107-112	.61, 94.5-99'	no analysis
H.5-7.5					.09, 99-102'	.285, 95-107'
H.5-7.5					.88, 102-104'	
H.5-8.5	0-65	65-91	91-113	113-118	.01, 92-110'	no analysis
H.5-9.5	0-68	68-92	92-120	120-125	.05, 99-118'	no analysis
H.5-10.5	0-69	69-110	110-134	134-139	.07, radon gas?	no analysis
H.5-11.5	0-70	70-118	118-146	146-151	tr. 109-137'	no analysis
I-12	0-71	71-114	114-142	142-147	.04, 105-138'	no analysis
I.5-10.5	0-63	63-96	96-112	112-117	.85, 108-110'	.28, 108-110'
I.5-8.5	0-68	68-82	82-108	108-113	.15, 81-82'	.04, 82-84'
I.5-8.5					.14, 101-103'	.04, 100-104'
I.5-12	0-67	67-105	105-135	135-140	.03, 118-123'	no analysis
J-9	0-69	69-89	89-99	99-104	.40, 91-95'	.155, 91-95'
J-10	0-70	70-98	98-108	108-113	1.07, 98.5-104.5'	.55, 98-108'
J-11	0-67	67-110	110-116	116-121	.61, 110-116'	.88, 110-116'
J-11.5	0-67	67-89	89-127	127-132	.17, 105-107'	.08, 105-107'
J-11.5					.50, 116.5-122.5'	.30, 115-123'
J-12	0-70	70-104	104-132	132-137	.02, 111-114'	no analysis
J-12					.01, 119-121'	no analysis

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SEP 24 1956

Talbert

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

June 14, 1956

Mr. Donald T. Finch
DMEA Auditor
224 New Customhouse Building
Denver 2, Colorado

Re: Report of Royalty Review
Four Corners Exploration Company
I-Dm-E671, DMEA-3151

Dear Mr. Finch:

Receipt is acknowledged of the Washington copies of your Report of Royalty Review covering the referenced project.

This report is acceptable and normal distribution is authorized, although its issuance appears unnecessary. Ordinarily neither a royalty audit nor review is required in any case where the Operator has made full repayment of the Government's contribution to the exploration costs.

The purposes of the royalty audit program, as set forth in Section I of the procedure, are to determine the royalty due, paid and unpaid. If the account has been settled in full such determinations are not necessary. Furthermore, it is noted that, although there are several contracts in Region III which have been paid in full, this is the only one on which a Report of Royalty Review has been issued. In connection with this matter please refer to my letter of July 26, 1955, to Mr. Reading in regard to Rammer Mining Company, I-DMA-32, DMA-269K.

Sincerely yours,

(Signed) J. L. Chambers

Jay L. Chambers, Chief
Contract Administration
and Audit Division

EDTalbert/wb
June 14, 1956

Copy to: Docket
Admr. Reading File
Mr. Chambers

U. S. DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

224 New Customhouse
Denver 2, Colorado

Date: June 7, 1956

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Royalty payments, Docket DMEA 3151 (Uranium), Contract Idm-E671, Holly Uranium Corp. (formerly Four Corners Exploration Co.) (Flat-top Vilatie Hyde claims Nos. 4 & 5), Mc Kinley County, New Mexico

Period: May, 1956

During the above month the following royalty payments were received for ore or concentrates shipped from the subject property:

Date	Lot No.	Dry Tons	Royalty Due	Royalty Paid	Bonus Roy. Due	Bonus Roy. Pd.
3/2/56	543	1191.727	$103.57	$103.57	No bonus due	

Government Participation Paid in Full

Totals:

Past Due Royalties Collected	None
Total Dry Tons (Ore or Cons.) Shipped to Date	7032.537
Expiration Date of Royalty Repayment	Paid in full
Amount of Government Participation	$9,628.47
Total Royalty Payments to Date	9,628.47
Percent of Loan Repayment	100%

W. M. Traver

W. M. Traver

vj

cc Royalty File E 671 w/Settlement Sheets
Monthly Royalty Payment File
J. F. Shaw (2) w/settlement sheet
Chron.

Form No. O-4 (Rev) 10M-4-56 W&Y

WESTERN URANIUM PROJECT

LUCIUS PITKIN, INC.

Ore Purchasing Agent for United States Atomic Energy Commission

Receiving Station [illegible] Grand Junction, Colorado [illegible] 19 [illegible]

Liquidation No. [illegible] Lot No. [illegible] Shippers Lot No. [illegible]

Bought of [illegible] A.E.C. License No. [illegible]

Address [illegible]

Type of Ore [illegible] Contract No. [illegible] Date Received [illegible]

Mining Claim [illegible] Mining District [illegible] Pile No. [illegible]

Lot No.	Wet Weight Pounds	H_2O	Dry Weight Pounds	SETTLEMENT ASSAYS U_3O_8	V_2O_5	$CaCO_3$	Cu	CONTENTS POUNDS U_3O_8	V_2O_5	$CaCO_3$	Cu
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
52	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	

0.212[illegible] [illegible] = 4.2370[illegible] [illegible] at	[illegible]	14.20[illegible]	1191.7265	17,759.71
Development allowance 4.2370[illegible] at	.[illegible]	2.12[illegible]		2,5[illegible].96
Premium in excess of 4. per ton (4.2370[illegible] [illegible] - [illegible]) = .2370[illegible] [illegible] at	.75	.1[illegible]322		[illegible].27
TOTAL [illegible] PAYMENT		17.22[illegible]70	1191.7265	20,525.94
Haulage allowance 12 miles [illegible] of per wet ton [illegible]			1204.3800	[illegible]
TOTAL				21,[illegible].50
[illegible]				[illegible]
TOTAL [illegible]				21,[illegible].50
Deductions: Per att. detail [illegible] Advance			12,950.00	(-)12,950.00
NET PAYMENT				[illegible],644.50

Correct [illegible] Paid May 7, 19[illegible]
Checked [illegible] Voucher No. [illegible]
Approved [illegible] Check No. 1233

I certify that I am the lawful owner or authorized Representative of the Lawful Owner, of the Ore described in this Settlement Sheet and have legal right to deliver the same to the Commission.
I certify that I hold A. E. C. Source Material License numbered above.
I hereby transfer to the Commission, effective as of the date of delivery of the ore, all my right, title and interest in and to said ore.
I will accept the amount as shown above as "Total Gross Price" in full settlement for sums due to me on account of the ore deliveries described herein.

[illegible] Seller or Agent

By [illegible]

Title Asst Secretary

Buyers assays govern if Seller fails to submit his assays prior to acceptance of payment.

All rates paid are based on U. S. Atomic Energy Commission Published Schedules unless otherwise provided in contract applicable to ore delivery described herein.

E-671

For Certificate of Deposit No. 129, dated May 17, 1956, giving royalty repayment of $103.57, see E-381.

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

RECEIVED
MAY 17 1956

224 New Customhouse
Denver 2, Colorado

May 14, 1956

D. B. Dollahon
Holly Uranium Corporation
340 Third Street, N. W.
Albuquerque, New Mexico

Re: Royalty payments, Docket DMEA 3151 (Uranium), Contract Idm-E671, Holly Uranium Corporation (formerly Four Corners Exploration Company) (Flat-top-Vilatie Hyde claims Nos. 4 and 5) Mc Kinley County, New Mexico

Dear Mr. Dollahon:

We acknowledge receipt of settlement sheets for January 1956 shipments from the subject property and Holly Uranium Company's check in the amount of $103.57. This is the final payment due; the Government's loan (DMEA Contract Idm-E671) has now been repaid in full.

Your assistance in bringing this matter to a satisfactory completion is greatly appreciated and this agency wishes your corporation the best of luck in their continued exploitation of the Flat-top-Vilatie Hyde claims.

We are furnishing Mr. F. O. Manol with a copy of this letter.

Yours very truly,

E. M. Harshman

E. M. Harshman
Acting Executive Officer
DMEA Field Team,
Region III

cc: Mr. F. O. Manol
RDB/vj
cc: Royalty File E671
Correspondence File E671
Sec. Opr. Comm. (2)
J. F. Shaw (2)
D. T. Finch
Chron.

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

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MAY 17 1956

224 New Customhouse
Denver 2, Colorado

May 11, 1956

Memorandum

To: Chairman of the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA-3151 (Uranium) Contract Idm-E671, Holly Uranium Corporation (formerly Four Corners Exploration Company) (Flattop-Vilatie Hyde claims Nos. 4 and 5), McKinley County, New Mexico

Enclosed are two copies of the sale agreement transferring all rights of Four Corners Exploration Company in the land subordinated to the Government under DMEA Contract Idm-E671 to the Holly Uranium Corporation.

This deed makes no provision for the DMEA royalty provisions to be assumed by Holly Uranium; however, royalty payments due the Government have been faithfully paid by Holly Uranium Corporation. The DMEA loan has been approximately 99 percent repaid and we have been assured that the final payment of $103.57 will be received soon.

W. M. Traver

W. M. Traver

Enclosures

TABLE I

Co-ordinate hole	Feet Alluvium	Feet Summerville	Feet Todilto	Feet Entrada	Hole radiometric est. % U_3O_8	Cuttings chemical % U_3O_8
A.5-1.5	0-41	None recorded	41-57	57-62	Nil	No analysis
C.5-1.5	0-31	none recorded	31-47	47-52	nil	no analysis
E.5-1.5	0-40	none recorded	40-49	49-54	tr. 40-46'	.005 at 40.5'
G.5-1.5	0-44	none recorded	44-72	72-77	nil	no analysis
I.5-1.5	0-42	none recorded	42-60	60-65	.005, 43-53'	.01 at 44.5'
A.5-3.5	0-55	none recorded	55-75	75-80	nil	no analysis
E.5-3.5	0-46	none recorded	46-58	58-63	tr. 52-55'	tr. 52-55'
E.5-3.5	0-77	none recorded	77-90	90-95	tr. 78-80'	tr. 78-80'
G.5-3.5	0-69	none recorded	69-83	83-88	tr. 75-78.5'	.005 at 78'
G.5-3.5	0-69	none recorded			.03, 68-70'	.05, 68.5-69.5'
I.5-3.5	0-56	none recorded	56-76	76-81	.02, 54.5-63.5'	.05, 55-56.5'
I.5-3.5						.07, at 55.5'
A.5-5.5	0-65	none	65-80	80-85	nil	no analysis
C.5-5.5	0-86	none	86-87	87-104	nil	no analysis
E.5-5.5	0-90	none	none	90-100	nil	no analysis
G.5-5.5	0-84	none	84-100	100-105	.42, 84-88'	.20, 84-88'
I.5-5.5	0-73	none	73-81	81-86	tr. 96-97'	no analysis
A.5-7.5	0-81	none	81-99	99-104	.01 at 82.5'	no analysis
C.5-7.5	0-66	none	66-88	88-93	.06, 67-68'	no analysis
E.5-7.5	0-65	65-103	103-113	113-118	nil	no analysis
G.5-7.5	0-77	77-83	83-113	113-118	.20, 95-97'	.1, 95-97'
I.5-7.5	0-86	none	86-104	104-109	tr. 96-97'	no analysis
A.5-9.5	0-70	70-98	98-118	118-123	.06, 105-107'	no analysis
C.5-9.5	0-84	none	84-104	104-109	nil	no analysis
E.5-9.5	0-122	none	122-138	138-143	nil	no analysis
G.5-9.5	0-73	73-121	121-139	139-144	nil	no analysis
I.5-9.5	0-64	64-99	99-107	107-112	.58, 99-105'	.20, 99-105'
A.5-11.5	0-74	74-110	110-136	136-141	nil	no analysis
C.5-11.5	0-60	60-90	90-124	124-129	nil	no analysis
E.5-11.5	0-60	60-128	128-138	138-143	nil	no analysis
G.5-11.5	0-69	69-135	135-157	157-162	tr. at 140'	no analysis
I.5-11.5	0-67	67-114	114-124	124-129	1.50, 116-123'	1.14, 116-123'
F.5-4.5	0-70	70-79	79-113	113-118	nil	no analysis
F.5-5.5	0-80	80-95	95-111	111-116	.02, 89-92'	no analysis
F.5-6.5	0-81	81-89	89-119	119-124	tr. 101-106'	no analysis
F.5-7.5	0-67	67-99	99-123	123-128	tr. 110-113'	no analysis
G.5-4.5	0-60	60-71	71-91	91-96	.12, 71-73.5'	.03, 71-75'
					.08, 79-80.5'	no analysis
G.5-6.5	0-77	77-96	96-112	112-117	.18, 97.5-99.5'	.03, 96-100'
G.5-8.5	0-68	68-108	108-124	124-129	tr. 98-101'	no analysis
H.5-4.5	0-61	61-65	65-83	83-88	.01 at 78'	no analysis
H.5-5.5	0-71	71-77	77-91	91-96	.02 at 77'	no analysis
H.5-6.5	0-84	none	84-97	97-102	tr. at 84'	no analysis

RECEIVED
MAY 17 1956

A G R E E M E N T

AGREEMENT, Executed this 2nd day of January, 1955, between FOUR CORNERS EXPLORATION COMPANY, a partnership composed of Irving Rapaport and F. O. Manol, hereinafter called "Vendor", and HOLLY URANIUM CORPORATION, a Delaware Corporation, authorized to do business in the State of New Mexico, hereinafter called "Purchaser",

WITNESSETH:

WHEREAS, Vendor is Lessee under that certain Mining Lease dated August 4, 1953, by and between Vilatie W. Hyde, a married woman, as Lessor, and Vendor herein as Lessee, wherein the said Lessor leased to Vendor herein the following described unpatented mining claims situated in MT. TAYLOR MINING DISTRICT (unorganized), McKinley County, New Mexico, and more particularly described as follows, to-wit:

FLAT TOP - VILATIE HYDE #4 Mining Claim described in and covered by NOTICE OF LODE MINING LOCATION which was on April 27, 1951, filed for record in the office of the County Clerk of McKinley County, New Mexico, and recorded in Book 3 of Mining Claim Records, page 193, of the Records of McKinley County, New Mexico, and which mining claim is in said location notice described as follows:

"This claim starts 4200 feet east of the southwest corner of Section 30, Township 13 North, Range 9 West; then 1320 feet North then 600 feet East then 1320 South then 600 feet along South line of Sec 30 back to starting point."

AND

FLAT TOP - VILATIE HYDE #5 Mining Claim described in and covered by NOTICE OF LODE MINING LOCATION which was on April 27, 1951, file d for record in the office of the County Clerk of McKinley County, New Mexico, and recorded in Book 3 of Mining Claim Records, page 194, of the Records of McKinley County, New Mexico, and which mining claim is in said location notice described as follows:

"This claim starts 4800 feet east of the southwest corner of Section 30, Township 13 North, Range 9 West, then 1320 feet north, Then 480 feet East then 1320 feet South, then 480 feet along South line of Sec. 30 back to starting point."

said lease having been recorded in the office of the County Clerk of McKinley County, New Mexico, in Book 7, at Page 154; and,

WHEREAS, the Purchaser is desirous of purchasing all the right, title, and interest of the Vendor in and to said mining lease and the appurtenances and improvements in connection therewith.

NOW, THEREFORE, IT IS AGREED AS FOLLOWS:

(1) Vendor hereby sets over, sells, assigns, and transfers to Purchaser all of its right, title, and interest in and to that certain mining lease hereinabove described, subject to all the covenants and conditions thereof, which Purchaser specifically assumes and agrees to perform.

(2) Purchaser agrees to pay, in consideration of the foregoing assignment, the sum of $800,000.00, as follows:

(a) $25,000.00 cash in hand paid, said sum being deposited in escrow with Vendor's attorney, pending examination and approval of title to said properties by Purchaser's attorney, it being understood that Vendor must furnish evidence of marketable title to said unpatented mining claims in Vendor's Lessor, subject only to the lease being assigned to Purchaser by this contract.

(b) $475,000.00, payable in cash on or before July 1, 1955.

(c) $300,000.00, payable in common capital stock of the Holly Uranium Corporation, the number of shares thereof to be determined by the offering price thereof, as shown in the Prospectus published, pursuant to the first public offering thereof, on or before July 1, 1955.

(3) Purchaser shall be entitled to immediate possession of the premises. In the event mining operations are carried on by Purchaser during the executory period of this contract, all proceeds derived from the sale of ore mined on said premises shall be placed in a Special Account by Purchaser and no withdrawals shall

be made therefrom, except for direct expenses incurred in the actual mining of said property and payment of royalties thereon, It is specifically understood and agreed that in the event Purchaser shall conduct exploratory work on said premises, the same shall not be charged against the Special Fund herein created. During the executory period of this contract, said Special Fund shall constitute a Trust Fund for the benefit of the Vendor as hereinafter set forth, and shall not be subject to claims of creditors of Purchaserr Said fund shall be so maintained as a Trust Fund during the executory period of this contract, but in the event that Purchaser shall perform all of the obligations of this contract, its ownership in said fund shall become absolute and all claims of Vendor therein shall terminate.

Purchaser agrees to perform all of the covenants and conditions of the Mining Lease herein assigned during the executory period of this contract, and failure of Purchaser so to perform said covenants and conditions shall constitute a default of this contract and Vendor shall be entitled to all the remedies herein provided, in the event of default.

(4) It is specifically understood and agreed that Vendor warrants and represents that on said FLAT TOP claims numbered 4 and 5 there has been blocked out uranium bearing ore of a gross value of $1,250,000.000; that any claim arising on the basis of such representation and warranty shall be made in writing to Vendor on or before June 1, 1955, and in the event no such claim has been so made, Vendor shall be relieved of all liability on account of said warranty and representation. In the event a claim shall have been made as herein provided and the parties have not settled the matter amicably, it is specifically agreed that no suit or legal action shall be instituted in connection therewith later than

September 15, 1955.

Vendor further represents and warrants that the subject lease is in full force and effect; that all covenants and conditions required therein to be performed by Vendor as Lessee have been performed; that Vendor has full and complete authority and power to assign said lease to Purchaser.

(5) In the event of default by Purchaser in the performance of any of the covenants or conditions of the said lease assigned to Purchaser herein concurrently herewith, or in the event of default by Purchaser in the payment of any of the purchase price as hereinabove set forth, and in the event the Purchaser shall remain in default after notice of such default shall have been given to Purchaser by registered mail, Vendor may, at its option, declare the whole sum remaining unpaid, due and payable, and proceed to enforce payment of the same, or may retain all sums paid hereunder as liquidated damages, including the Special Fund described in Paragraph (3), and procure a re-assignment of said sublease as hereinbelow provided.

(6) It is understoood and agreed, coincidentally herewith, Purchaser has executed a good and sufficient re-assignment of sublease on the above described premises to Vendor, which said re-assignment, together with a copy of said lease, shall be placed in escrow with the First National Bank in Albuquerque, Albuquer que, New Mexico, hereby designated and appointed escrow agent, said re-assignment to be delivered by Escrow Agent to the Purchaser upon full compliance on the part of Purchaser with all the conditions of this contract, or in the event of default by Purchaser, said re-assignment shall be delivered by the Escrow Agent to the Seller, as provided in the escrow letter herein.

ESCROW LETTER

To: First National Bank in Albuquerque
Albuquerque, New Mexico

Re: Assignment under Contract by Four Corners Exploration Company, Partnership, of Grants, New Mexico, to Holly Uranium Corporation, 122 East 42nd Street, New York 17, New York, of the Lease hereinabove described.

We hand you herewith the following papers, to be placed in escrow, to-wit:

1. Copy of Lease, Vilatie W. Hyde to Four Corners Exploration Company, dated August 4, 1953.

2. Re-assignment of said sublease.

We also hereby appoint you escrow agent hereunder and direct you as such escrow agent to collect the payments required to be paid by Purchaser, as provided in this contract, and to place the money so collected to the credit of Vendor at Box 116, Grants, New Mexico.

We also authorize you to take delivery of shares of common capital stock of Holly Uranium Corporation, as hereinabove provided, to be delivered to Vendor, and to hold said shares for delivery to the Vendor.

In the event Purchaser shall default in making the payments set forth in the within contract, or in the event Purchaser shall default in performing the covenants and conditions of said lease, and, further, in the event that Purchaser shall remain in default for a period of thirty days after notice of such default has been given by Vendor, as hereinabove provided, you are directed on demand of Vendor to deliver back to Vendor all of the above mentioned papers. An Affidavit of Vendor as to such default on the

part of Purchaser and proof by Vendor that notice by registered mail has been given to Purchaser at its address hereinabove set forth, shall constitute the sole authority required for you to deliver back to Vendor all of the above mentioned papers.

Upon payment by Purchaser of the balance of the purchase price in cash and in stock, you are directed to deliver all of the above mentioned papers to the Purchaser.

WITNESS the hands and seals of the parties this 2nd day of January, 1955.

FOUR CORNERS EXPLORATION COMPANY

By /S/ Irving Rapaport
Irving Rapaport Partner

/S/ F. A. Manol
F. A. Manol Partner

VENDOR

HOLLY URANIUM CORPORATION

By /S/ S. B. Harris, Jr.
President

PURCHASER

ATTEST:

/S/ L. A. Chambers
Secretary

STATE OF NEW MEXICO)
)) ss:
COUNTY OF BERNALILLO)

On this 12 day of January, 1955, before me personally appeared IRVING RAPAPORT to me known to be the person described in and who executed the foregoing instrument and acknowledged that he executed the same as his free act and deed.

WITNESS my hand and seal the day and year last above written.

/S/ Robert J. Needham
Notary Public

My commission expires:

Dec. 11, 1957

STATE OF NEW MEXICO)
) ss:
COUNTY OF BERNALILLO)

On this 12 day of January, 1955, before me personally appeared F. A. MANGL, to me known to be the person described in and who executed the foregoing instrument and acknowledged that he executed the same as his free act and deed.

WITNESS my hand and seal the day and year last above written.

/S/Robert J. Needham
Notary Public

My commission expires:

Dec. 11, 1957

STATE OF New York)
) ss:
COUNTY OF New York)

On this 10th day of January, 1955, before me personally appeared S. B. Harris, Jr., to me personally know, who being by me duly sworn, did say that he is President of Holly Uranium Corporation, a corporation organized under the laws of the State of Delaware, and that the seal affixed to said instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation, by authority of its board of directors, and said S. B. Harris, acknowledged said instrument to be the free act and deed of said corporation.

WITNESS my hand and seal on this the day and year last above written.

/S/ Joseph S. Libasch
Notary Public

My commission expires:

March 30, 1956

We hereby accept the appointment and designation of Escrow Agent herein and acknowledge receipt of the above mentioned papers.

FIRST NATIONAL BANK IN ALBUQUERQUE
Albuquerque, New Mexico

By/S/John W. Stean

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

RECEIVED
MAY 11 1956

224 New Customhouse
Denver 2, Colorado

May 9, 1956

Mr. D. D. Dollahon
Holly Uranium Corporation
340 Third Street, N. W.
Albuquerque, New Mexico

Re: Royalty payments, Docket DMEA 3151 (Uranium) Contract Idm-E671, Holly Uranium Corporation (formerly Four Corners Exploration Company) (Flat-top - Vilatie Hyde claims Nos. 4 and 5) McKinley County, New Mexico

Dear Mr. Dollahon:

Your letter of March 19, 1956 indicated that your corporation was to receive settlement sheets for January 1956 shipments from the subject property in April of 1956, at which time you would forward the Government's final royalty payment of $103.57. Please advise if you have received these settlement sheets.

This letter will constitute the Defense Minerals Exploration Administration's agreement that $103.57 is the full amount of the Government loan (DMEA Contract Idm-E671) outstanding as of this date.

Yours very truly,

W. M. TRAVER

W. M. Traver
Executive Officer, DMEA
Field Team, Region III

RDB:jy
cc: Royalty File E671
Sec. Op. Comm. (2)
J. F. Shaw (2)
Chron.

4-11-56

RECEIVED
APR 11 1956

U. S. DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

224 New Customhouse
Denver 2, Colorado

Date: April 6, 1956

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Royalty payments, DMEA Docket 3151 (Uranium), Contract Idm-E671, Holly Uranium Corporation (formerly Four Corners Exploration Company) - New Mexico

Period: March, 1956

During the above month the following royalty payments were received for ore or concentrates shipped from the subject property:

Lot No.	Dry Tons	Royalty Due	Royalty Pd.
9839 2/21/56	1189.855	$1,049.15	$1,049.15
Totals:	1189.855	$1,049.15	$1,049.15

Past Due Royalties Collected	None
Total Dry Tons (Ore or Cons.) Shipped to Date	5840.810
Expiration Date of Royalty Repayment	May 10, 1964
Amount of Government Participation	$9,628.47
Total Royalty Payments to Date	$9,524.90
Percent of Loan Repayment	98.92%

W. M. Traver

vj
cc Royalty File E 671 w/Settlement Sheets
Monthly Royalty Payment File
~~T. A. Christensen~~
J. F. Shaw (2) w/settlement sheet
Chron.

Form No. O-4 8 54 25M

COLORADO PLATEAU URANIUM ORE PROJECT

American Smelting and Refining Company, Ore Purchasing Agent For
United States Atomic Energy Commission

Receiving Station: Elmendorf - Off Plateau — Grand Junction, Colorado: February 21 19 56

Liquidation No.: 9836 — Lot No.: Various 41 — Shippers Lot No.:

Bought of: Kelly Uranium Corporation — A.E.C. License No.: R-2267

Address: 300 - 2nd Street, N.W., Albuquerque, New Mexico

Type of Ore: Limestone — Contract No.: AT(05-1)-580 — Date Received: Con. Deliveries

Mining Claim: Flat Top #4 — Mining District: Grants — Pile No.: 22

Lot No.	Wet Weight Pounds	H_2O	Dry Weight Pounds	SETTLEMENT ASSAYS U_3O_8	V_2O_5	$CaCO_3$	CONTENTS POUNDS U_3O_8	V_2O_5	$CaCO_3$
22	276320	2.20	270018	0.25	0.16	78.1	675.05	432.03	213584.24
25	293140	1.6	288429	0.19	0.18	85.5	548.00	519.15	246598.25
27	401100	1.4	395317	0.27	0.20	83.9	1067.35	790.63	331670.96
33	254270	1.5	250459	0.21	0.19	78.9	525.96	475.87	200116.74
31	301020	2.03	294895	0.23	0.23	80.6	649.77	678.26	237685.37
36	308120	1.84	301964	0.15	0.18	77.3	572.95	725.73	233258.17
41	235140	1.44	4985.18	0.18	0.19	67.8	947.41	947.41	338076.56
	2429910	1.70	2379710	.209500	0.19	78.3	4985.50	4369.08	1862990.28

LAND	Per Lb.	Per Ton	Short Tons	Total Value
0.209500 = 4.19000# at	3.50	14.66500	1188.8350	$17,449.22
Development allowance 4.19000# at	.50	2.09500	-	2,492.75
Premium in excess of 4# per ton (4.19000# - 4#) = .19000# at	.75	.14250	-	169.55
TOTAL BASE PAYMENT		16.90250	1188.8350	$20,111.52
Haulage allowance 12 miles = 6¢ per wet ton mile			1210.4550	871.53
TOTAL GROSS PRICE				$20,983.05
Deductions:				
Cash Advances per attached detail				(-) 9,400.00
NET PAYABLE				$11,583.05

Correct [illegible]
Checked [illegible]
Approved [illegible]

Paid February 23, 1956
Voucher No. 1-[illegible]
Check No. [illegible]

CR [illegible] 3-10-56

hs

I certify that I am the lawful owner or authorized Representative of the Lawful Owner, of the Ore described in this Settlement Sheet and have legal right to deliver the same to the Commission.

I certify that I hold the A. E. C. Source Material License numbered above.

I hereby transfer to the Commission, effective as of the date of delivery of the ore, all my right, title and interest in and to said ore.

I will accept the amount as shown above as "Total Gross Price" in full settlement, except for final quarterly adjustment for average $V_2O_5 - U_3O_8$ ratio, for sums due to me on account of the ore deliveries described herein.

Kelly Uranium Corp.

By: [illegible]
Seller or Agent

Title: President

Buyers assays govern if Seller fails to submit his assays prior to acceptance of payment.
All rates paid are based on U. S. Atomic Energy Commission Published Schedules.

TRIPLICATE

STANDARD FORM 201 (Formerly Cert. of Deposit, Form 1)
Promulgated Oct. 1949 by Treasury Dept., Fiscal Service

Denver, Colorado

DEPOSIT NO. 14-23-040-106

THIS DEPOSIT IS NOT SUBJECT TO CHECK

For credit of 413 Treasury Regional Office, Denver, Colo. 3/22/56
(Name, title, and disbursing or other identification symbol of accountable officer) (Date sent)

deposited with Federal Reserve Bank of Kansas City, Mo. Denver, Colo. $ 1,049.15
(Name and location of depositary)

for accounts listed below. SCHEDULE NOS.

ACCOUNT SYMBOL	TITLE OF ACCOUNT TO BE CREDITED	AMOUNT
14X4401	E. 671	1,049.15

(Depositor will insert below his name, title, Department or Agency concerned, and his address)

Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado

SPACE BELOW TO BE USED BY DEPOSITARY ONLY

I certify that the above amount has been received for credit in the account of the Treasurer of the United States on the date shown, subject to adjustment for uncollectible items included therein.

M Shifer
(Authorized signature)

MAR 22 1956
(Date of credit in Treasurer's account)

DEPOSITARY WILL DATE, SIGN, AND RETURN THIS TO DEPOSITOR FOR HIS RETAINED COPY

16—59686b-1 GPO

E-671 Holly Uranium 1,049.15

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

RECEIVED
FEB 13 1956

224 New Customhouse
Denver 2, Colorado

February 10, 1956

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA 3151 (Uranium), Contract Idm-E671, Four Corners Exploration Company, McKinley County, New Mexico

In compliance with the "Special Notice" instructions contained in the "Minutes, Operating Committee," No. 622, dated January 27, 1956, we are enclosing the original and one copy of the Operator's Final Report.

The Field Team's Final Report will be forwarded as soon as the engineering and geologic sections are available.

W. M. Traver

W. M. Traver

Enclosures

UTAH | COLORADO
ARIZONA | NEW MEXICO

Four Corners Exploration Company

P. O. BOX 101 GRANTS, NEW MEXICO

IRVING RAPAPORT
F. O. MANOL

RECEIVED
FEB 1 8 1955
Date Rec'd
FEB 21 1955
BUREAU OF MINES
Denver, Colorado

February 18, 1955

Mr. Glen Walker
Building 20
U.S. Bureau of Mines
Denver Federal Center
Denver, Colorado

Dear Mr. Walker:

The following are the salient features concerning the D.M.E.A. program on the Flat Top #4 and #5 Claims, Section 30, T13N, R9W, McKinley County, N.M.. Contract #Idm E-671, Docket #3151.

Exploration

Ninety three holes, a total of 10,477 feet, were drilled under this program from September 1954 through January of 1955; Total payment approved by D.M.E.A. to date has been $5,939.47. Settlement of an additional $4,000 is pending. The total cost of the program to D.M.E.A. is therefore about $10,000, an average cost per foot of slightly under $1.00.

All holes drilled employed mud to limestone and then were dried and sampled through the limestone. Samples were screened to eliminate blow sand. Cuttings were divided with Jones Samplers. More than one hundred samples were sent to the Brown Laboratories at Grand Junctio for chemical assay and approximately the same amount of samples of lower grade material were assayed radiometrically at the the Santa Fe Laboratories in Prewitt at a charge of $1.00 per sample. Gamma ray logs of all holes were prepared and all assay information has been tabulated and plotted. A structure contour map on the base of the limestone has also been prepared.

Ore Discovered

Method of estimation

1) The outline of the ore body was deliniated by drawing a line midway between a hole in highgrade (more than two feet of .20% U_3O_8) and a hole considered economically submarginal. Where chemical assay and U.S.G.S. radiometric logs implied the close proximity of ore despite an assay below .20% U_3O_8 the line was drawn somewhat closer.

2) The ore bodies were divided into blocks with lines midway between holes in ore. The area for each block was determined and the thickness of each block was multiplied by its area to determine volume. Volume was divided by 12.5 cubic feet per ton to determine tonnage. The tonnage of each block was multiplied by the grade on the controlling hole to determine average grade.

Factors influencing the accuracy of this estimate ~~of this estimate~~.

ORIS FINAL REPORT

UTAH | COLORADO
ARIZONA | NEW MEXICO

Four Corners Exploration Company

P. O. BOX 101 GRANTS, NEW MEXICO

IRVING RAPAPORT
F. O. MANOL

RECEIVED
FEB 13 1953

1) The southern portion of the ore bodies are composed chiefly of carnotite-type ore. Uranium minerals of this type are extremely pulverent and a good portion of the values were undoubtedly lost in screening.

2) Samples were arbitrarily taken at two foot intervals. Thin ore zones may well have been diluted by the inclusion of underlying and overlying rock. U.S.G.S. data strongly suggests that several holes considered as barren in this estimate actually contain ore.

3) Even on 25 foot centers thick, high-grade, but narrow stringers which extend from the main ore body and greatly augment the total value of the deposit are usually missed. Drilling has not been conducted on centers closer than 50 feet.

4) Eleven random chemical assays for lime yielded an average of .82% $CaCO_3$. The usual lime assay in this area is about 90% $CaCO_3$. This discrepancy is believed to be the result of dilution by overburden. Visual examination implies a higher dilution factor. As this factor can be roughly evaluated by lime assays, a 10% dilution factor has been included in the ore estimate.

NORTH ORE BODY

Average thickness	6.30 feet
Total area	62,345 square feet
Total volume	392,560 cubic feet
Tons	31,405 tons
Average grade	.415 %U_3O_8
Value per ton	$36.42
Value	$1,143,770
Bonus	35,000
Total value	$1,178,770

SOUTH ORE BODY

Average thickness	3.79 feet
Total area	5,350 square feet
Total volume	22,200 cubic feet
Tons	1,616 tons
Average grade	.215 % U_3O_8
Total value	$28,150

Flat Top #4 Totals

North Ore Body, Value	$1,178,770
South Ore Body, Value	28,150
	$1,206,920
Dilution factor 10%	117,920
Total value of blocked out ore	$1,324,840

The southwest and east central portions of the North Ore Body are still open. The south part of the Flat Top #4 Claim and all of the Flat Top #5 Claim have only been drilled on 200 foot centers. No estimate of the potential of the above areas is included in this report

I. Rapaport

IRVING RAPAPORT
P. O. MANDL

June 4, 1955

Mr. W.M. Travor
Executive Officer, D.M.E.A.
224 New Customhouse
Denver 2, Colorado

Re: Docket DMEA 3151
Contract Idm-E671

Dear Sir:

Enclosed is our copy of a letter sent Mr. Glen Walker of the U.S.Bureau of Mines February 18, 1955. It was intended as a final geological and engineering report but was inadvertantly not labeled as such. It contains a detailed analysis of the ore deposits discovered under contract Idm-E671 and I hope it satisfies your requirements for final payment.

The shaft to ore has been completed, the shaft pocket of about 40 tons capacity has been finished, and we are now drifting to the holes drilled under D.M.E.A.. We hope to repay the advance made us this year in full.

Yours truly,

I. Rapaport

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

RECEIVED
FEB - 1 1956

224 New Customhouse
Denver 2, Colorado

January 30, 1956

RECEIVED
FEB - 1 1956

Memorandum

To: T. A. Christensen

From: Executive Officer, DMEA Field Team, Region III

Subject: Change of Address - Four Corners Exploration Company. (Uranium)
Docket DMEA-3151, Contract Idm-E671
Docket DMEA-3555, Contract Idm-E791
Docket DMEA-3854 (Application)
Docket DMEA-4101 (Application)

Enclosed is a photo copy of an undated letter received in this office January 26, 1956 from Four Corners Exploration Company in which they request that effective February 1, 1956 all correspondence, invoices, etc., be mailed to their new address as follows:

Four Corners Exploration Company
205 Petroleum Building
Grand Junction, Colorado

In the case of Docket DMEA-3555, Contract Idm-E791 (W. A. Greer) payment for MF-104 vouchers shall continue to be made to W. A. Greer, 502 Aliso Drive, Albuquerque, New Mexico. All correspondence relative to the work is to be mailed to Four Corners Exploration Company.

W. M. TRAVER

W. M. Traver

Enclosure
JDC:jy
cc: Sec. Op. Comm. (2)
Harshman
Shaw (2)
Hasler
Corresp. E671
Corresp. E791
Docket 3854
Docket 4101
Chron.

FOUR CORNERS EXPLORATION COMPANY

DMEA
Date Rec'd.

Grand Junction

JAN 26 1956

BUREAU OF MINES
Denver, Colorado

Colorado

RECEIVED
FEB - 1 1956

Gentlemen:

The Four Corners Exploration Company, as of February 1, 1956, is moving into its new and permanent headquarters. Therefore, all correspondence, invoices, and tax notices, et cetera in the future should be addressed as follows:

Four Corners Exploration Company
205 Petroleum Building
Grand Junction, Colorado

Business correspondence addressed to either F. O. Manol and/or Irving Rapaport, as individuals, should, also, be mailed to the aforementioned new address.

We request that you change your mailing list immediately so that our business matters will continue to be handled expeditiously.

We particularly urge all and various governmental agencies to make the changes requested in this notice.

Very truly yours,

FOUR CORNERS EXPLORATION COMPANY

F. O. Manol

F. O. Manol

Sec. O.P. Comm.

For Certificate of Deposit No. 82, dated January 13, 1956, giving royalty repayment of $1,090.60, see E-34.

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

RECEIVED
JAN 16 1956

224 New Customhouse
Denver 2, Colorado

January 12, 1956

Memorandum

To: T. A. Christensen

From: Executive Officer, DMEA Field Team, Region III

Subject: Royalty Payment - DMEA Docket 3151 (Uranium), Contract Idm-E671, Holly Uranium Corporation - New Mexico

Enclosed is settlement sheet covering shipment of ore to the Colorado Plateau Uranium Ore Project under Liquidation No. 9501.

Also enclosed is Holly Uranium Corporation check No. 199 in the amount of $1,090.60 in full payment of royalty due on this shipment.

W. M. TRAVER

W. M. Traver

Enclosures

vj

cc: Royalty File E671
Sec. Opr. Comm. (2) w/settlement sheet
J. F. Shaw (2) w/settlement sheet
Royalty Report File
Chron.

No. O-4 8-54 25M

COLORADO PLATEAU URANIUM ORE PROJECT

American Smelting and Refining Company, Ore Purchasing Agent For
United States Atomic Energy Commission

Receiving Station Monument - Anaconda Stockpile Grand Junction, Colorado December 30 1955

Liquidation No. 9301 Lot No. Various 20 Shippers Lot No.

Bought of Holly Uranium Corporation A.E.C. License No. P-7

Address 340 - 3rd Street, N. W.; Albuquerque, New Mexico

Type of Ore Hi Lime Contract No. AT-(05-1)-580 Date Received November Deliveries

Mining Claim Flat Top #4 Mining District Grants File No.

County: McKinley State: New Mexico

Lot No.	Wet Weight Pounds	H_2O	Dry Weight Pounds	SETTLEMENT ASSAYS U_3O_8	V_2O_5	$CaCO_3$	CONTENTS POUNDS U_3O_8	V_2O_5	$CaCO_3$
7	201970	1.2	198546	0.28	0.19	79.4	556.73	379.14	158439.52
8	338830	1.4	334163	0.28	0.22	76.4	935.66	735.16	253900.53
12	251630	1.8	247182	0.34	0.20	74.5	840.42	494.36	184150.59
16	340760	1.8	334275	0.33	0.15	85.0	1103.11	501.41	284133.75
17	340530	1.9	333747	0.25	0.25	83.3	834.37	667.49	280013.73
20	295540	1.4	291371	0.25	0.20	86.4	735.93	582.74	251605.47
	1771570	1.6	1743884	.287287	.18[illegible]01	80.74	5008.22	3366.30	1407543.53

USE	Per Lb.	Per Ton	Short Tons	Total Value
.287287% - 5.74574# at	3.50	20.11009	871.6420	$17,528.80
Development allowance 5.74574# at	.50	2.87287	-	2,504.11
Premium in excess of 4# per ton (5.74574# - 4#) = 1.74574# at	.75	1.30931	-	1,141.25
TOTAL U3O8 PAYMENT		24.29227	871.6420	$21,174.16
Haulage allowance 12 miles @ 6¢ per wet ton allo			583.7850	637.77
TOTAL GROSS PRICE				$21,811.93
Deductions:				- - - - - -
NET PROCEEDS				$21,811.93

Correct CFK
Checked DFR
Approved [K]

Paid 12/30/55
Vo. No. 12/437
Check No. 2073

Royalty
Paid Mill Site
2-40-41 OK 1/87
1-17-56

Jm

I certify that I am the lawful owner or authorized Representative of the Lawful Owner, of the Ore described in this Settlement Sheet and have legal right to deliver the same to the Commission.

I certify that I hold the A. E. C. Source Material License numbered above.

I hereby transfer to the Commission, effective as of the date of delivery of the ore, all my right, title and interest in and to said ore.

I will accept the amount as shown above as "Total Gross Price" in full settlement, except for final quarterly adjustment for average V_2O_5—U_3O_8 ratio, for sums due to me on account of the ore deliveries described herein.

Holly Uranium Corporation
By
Title
Seller or Agent

Buyers assays govern if Seller fails to submit his assays prior to acceptance of payment.
All rates paid are based on U. S. Atomic Energy Commission Published Schedules.

For Certificate of Deposit No. 70, dated December 12, 1955, giving royalty repayment of $1,269.52, see E-54.

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

RECEIVED
DEC 13 1955

224 New Customhouse
Denver 2, Colorado

December 9, 1955

Memorandum

To: T. A. Christensen

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

Subject: Royalty Payment - DMEA Docket 3151 (Uranium), Contract Idm-E671, Holly Uranium Corporation - New Mexico

Enclosed is settlement sheet from Anaconda Copper Mining Company for shipment of ore under Liquidation No. 619.

Also enclosed is Holly Uranium Corporation check No. 00461 in the amount of $1,269.58 in full payment of royalty due on this shipment.

A. E. C. Production Bonus has been paid in full.

E. N. Hawkinson

E. N. Marshman

Enclosures

vj

cc: Royalty File E671
Sec. Opr. Comm. (2) w/settlement sheet
J. F. Shaw (2) w/settlement sheet
Royalty Report File
Chron.

ANACONDA COPPER MINING COMPANY

BLUEWATER RECEIVING STATION

NEW MEXICO OPERATIONS

Ore Purchasing Agent For
United States Atomic Energy Commission

RECEIVED DEC 13 1955

Bluewater Receiving Station ..... P. O. Box 638 — Grants, N. M., November 2, 1955

Liquidation No. 619 — A. C. M. Lot No. 4606 — Shippers Lot No. 26-36, Inclusive

Shipper Holly Uranium Corporation — A. E. C. License No. P-2267

Address Box 66, Grants, New Mexico — Contract No. AT(49-1)-901

Type of Ore Limestone — Date Received September 30, 1955

Mining Claim Vitalis Hyde No. 4 — Mining District Grants - Bluewater — Pile No. 53

County McKinley — State New Mexico

A.C.M. Lot No.	Wet Weight Pounds	% H_2O	Dry Weight Pounds	SETTLEMENT ASSAYS U_3O_8	V_2O_5	$CaCO_3$	CONTENTS POUNDS U_3O_8	V_2O_5	$CaCO_3$
4465	186,450	1.53	183,598	.20	.12	79.2	367.20	220.32	145,409.[illegible]
4477	216,540	1.04	214,288	.20	.13	80.2	428.58	278.57	171,858.9[illegible]
4485	296,430	.94	293,641	.25	.15	80.7	734.10	440.46	236,968.2[illegible]
4504	328,080	1.04	324,673	.17	.12	84.4	551.94	389.61	274,0[illegible].0[illegible]
4520	336,520	1.60	331,135	.16	.14	74.3	529.82	463.59	246,0[illegible].3[illegible]
4523	348,980	1.15	344,959	.18	.19	73.8	620.93	655.42	254,579.74
4546	255,080	1.34	251,595	.19	.21	82.3	478.03	528.35	207,062.69
4568	310,070	1.68	304,859	.21	.16	74.2	640.20	487.77	226,2[illegible]
4577	317,190	1.77	311,583	.17	.16	78.8	529.69	498.53	245,5[illegible]
4590	344,180	1.36	339,483	.19	.20	72.4	645.02	678.97	245,785.6[illegible]
4606	310,240	1.08	307,110	.23	.22	75.3	706.42	675.70	231,274.9[illegible]
	3,[illegible]	1.32	3,[illegible],952	.19[illegible]326	.16[illegible]805	77.5	6,231.93	5,317.29	2,[illegible]

	Per Lb.	Per Ton	Short Tons	Total Value
.19[illegible]326 = 3.88652 # at	$ 3.88652	$ 15.1678	1,603.1760	$ 21,[illegible]
Development allowance 3.88652 # at	.50	1.94326	1,603.1760	3,115.87
Total UMC payment		$ 15.10504	1,603.1760	$ 24,[illegible]
Haulage allowance 12 miles at 6¢ per wet ton mile			1,624.8600	1,[illegible]
TOTAL				$ 25,[illegible]

Deductions:

Cash Advance included in our check No. 18752 - $5,079.21

	5,[illegible]
NET PROCEEDS	$ 20,[illegible]

Correct ATT — Paid November 2, 1955
Checked REH — Vo. No. GP-545
Approved FGH — Check No. 19716 - Holly Uranium Corporation

A.E.C. Contract No. AT(05-1)-436

I certify that I am the lawful owner or authorized Representative of the Lawful Owner, of the Ore described in this Settlement Sheet and have legal right to deliver the same to the Commission.

I certify that I hold the A. E. C. Source Material License numbered above.

I hereby transfer to the Commission, effective as of the date of delivery of the ore, all my right, title and interest in and to said ore.

I will accept the amount as shown above as "Total Gross Price" in full settlement, except for final quarterly adjustments for average V_2O_5—U_3O_8 ratio, for sums due to me on account of the ore deliveries described herein.

Seller or Agent.

Buyers assays govern if Seller fails to submit his assays prior to acceptance of payment.
All rates paid are based on U. S. Atomic Energy Commission Published Schedules.

E671

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

RECEIVED NOV 22 1955

224 New Customhouse
Denver 2, Colorado

CERTIFIED MAIL

November 18, 1955

Mr. Frank O. Manol
P. O. Box 101
Grants, New Mexico

Re: DMEA Docket 3151 (Uranium), Contract Idm-E671, Four Corners Exploration Company, Flattop-Vilatie Hyde Claims Nos. 4 and 5, McKinley County, New Mexico

Dear Mr. Manol:

We have not received an answer to our October 7, 1955 letter to you. A photo copy of this letter is enclosed for your convenience.

Your attention is called to the provisions of Article 7 of Contract Idm-E671 which requires you to make suitable provision for the preservation of the Government's right to a percentage royalty on production and lien for the payment thereof.

Please give this matter your immediate attention.

Yours very truly,

W. M. Traver
Executive Officer, DMEA
Field Team, Region III

By J. W. Townsend
J. W. Townsend

Enclosure

RDB/vj

cc: Royalty File E671
Correspondence File E671
Sec. Opr. Comm. (2)
J. F.Shaw (2)
Berkenkotter
Chron.

For Certificate of Deposit No. 62, dated November 15, 1955, giving royalty repayment of $1,746.04, see E-15.

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

RECEIVED
NOV 17 1955

224 New Customhouse
Denver 2, Colorado

November 14, 1955

Memorandum

To: T. A. Christensen

From: Executive Officer, DMEA Field Team, Region III

Subject: Royalty Payment: DMEA Docket 3151 (Uranium), Contract Idm-E671, Holly Uranium Corporation - New Mexico

Enclosed are settlement sheets from Anaconda Copper Mining Company for shipment of ore under Lot No. 607.

Also enclosed is Holly Uranium Corporation check No. 00421 in the amount of $1,746.04 in full payment of royalty due on this shipment.

W. M. Traver

By J. W. Townsend

Enclosures

vj

cc: Royalty File E671
Sec. Ope. Comm. (2) w/settlement sheet
J. F. Shaw (2) w/settlement sheet
Royalty Report File
Chron.

October 31, 1955

RECEIVED
NOV 17 1955

ROYALTIES DUE

DEFENSE MINERALS EXPLORATION ADMINISTRATION

from

ORES PRODUCED

From The

FLAT TOP-VILATIE HYDE CLAIMS Nos. 3 & 4

Liquidation No. 607 Dated: August 31, 1955

Total remuneration received from 1738.1475 tons	$ 34,920.79
Royalty due DMEA 5% of $34,920.79	1,746.04
Total amount of loan	9,628.47
Amount paid to date	6,115.63
Balance to be paid from future production	$3,512.34

5-52—Standard.

ANACONDA COPPER MINING COMPANY

BLUEWATER RECEIVING STATION

NEW MEXICO OPERATIONS

The Anaconda Company
Formerly
The Anaconda Copper Mining Company

Ore Purchasing Agent For
United States Atomic Energy Commission

Bluewater Receiving Station ..... P. O. Box 638 ..... Grants, N. M., October 6, 1955

Liquidation No. 607 ..... A. C. M. Lot No. 4447 ..... Shippers Lot No. 14-25 Inclusive

Shipper Molly Uranium Corporation ..... A. E. C. License No. R-2267

Address Box 86, Grants, New Mexico ..... Contract No. AT(49-1)-901

Type of Ore Limestone ..... Date Received August 31, 1955

Mining Claim Flat Top Vilatia Hyde No. 4 ..... Mining District Grants - Bluewater ..... Pile No. 53

County McKinley ..... State New Mexico

A.C.M. Lot No.	Wet Weight Pounds	% H_2O	Dry Weight Pounds	SETTLEMENT ASSAYS U_3O_8	V_2O_5	$CaCO_3$	CONTENTS POUNDS U_3O_8	V_2O_5	$CaCO_3$
4266	314,780	.99	311,648	.27	.16	87.7	841.45	498.64	273,315.30
4285	219,390	1.19	216,788	.30	.15	84.8	650.36	325.18	183,836.22
4294	345,740	1.31	341,207	.25	.15	83.1	853.02	511.81	283,543.02
4305	297,690	1.38	293,582	.26	.20	85.9	763.31	587.16	252,186.94
4329	276,830	1.03	273,991	.21	.17	82.2	575.38	465.78	225,220.60
4342	313,900	1.48	309,260	.24	.15	77.6	742.22	463.89	239,985.76
4352	221,300	1.64	217,663	.24	.15	83.9	522.39	326.49	182,619.26
4366	236,040	1.74	231,939	.23	.19	87.5	533.46	440.68	202,946.63
4383	363,210	2.02	355,878	.27	.21	87.3	960.87	747.34	310,681.49
4402	369,700	1.05	365,812	.24	.19	86.8	877.95	695.04	317,524.82
4425	325,160	1.90	318,989	.15	.17	83.7	478.48	542.28	266,993.79
4447	244,050	1.85	239,538	.16	.16	80.2	383.26	383.26	192,109.48
	3,527,790	1.46	3,476,295	.235370	.172239	84.3	8,182.15	5,987.55	2,930,963.31

U3O8	Per lb.	Per Ton	Short Tons	Total Value
.235370% - 4.70740# at	$3.50	$16.47590	1738.1475	$28,637.54
Development allowance 4.70740# at	.50	2.35370	1738.1475	4,091.08
Premium in excess of 4# per ton				
0.70740# (4.70740# - 4# = 0.70740#) at	.75	.53055	1738.1475	922.17
Total U3O8 payment		$19.36015	1738.1475	$33,650.79
Haulage allowance 12 miles at 6¢ per wet ton mile			1763.8950	1,270.00
Total Gross Price				$34,920.79
Deductions:				
Cash Advance included in our Check No. 18752 - $34,920.79				34,920.79
Net Proceeds				$ -

Correct GLH
Checked RLH
Approved FGN

Vo. No. OP-534

To N.Y.
10/10/55
Cert this liquidation also mailed to N.Y.

A.E.C. Contract No. AT(05-1)-436

I certify that I am the lawful owner or authorized Representative of the Lawful Owner, of the Ore described in this Settlement Sheet and have legal right to deliver the same to the Commission.

I certify that I hold the A. E. C. Source Material License numbered above.

I hereby transfer to the Commission, effective as of the date of delivery of the ore, all my right, title and interest in and to said ore.

I will accept the amount as shown above as "Total Gross Price" in full settlement, except for final quarterly adjustments for average V_2O_5—U_3O_8 ratio, for sums due to me on account of the ore deliveries described herein.

..... Seller or Agent.

Buyers assays govern if Seller fails to submit his assays prior to acceptance of payment.
All rates paid are based on U. S. Atomic Energy Commission Published Schedules.

TRIPLICATE

STANDARD FORM 201 (Formerly Cert. of Deposit, Form 1)
Promulgated Oct. 1949 by Treasury Dept., Fiscal Service

TH[redacted] DEPOSIT IS NOT SUBJECT TO C[redacted]CK

For credit of 413 Trea[redacted]y Regional Office, Denver, Col[redacted] 10/12/55
(Name, title, and disbursing or other identification symbol of accountable officer) (Date sent)

DEPOSIT NO. 14-09-040-45

deposited with Federal Reserve Bank of Kansas City, Mo., Denver, Colo.
(Name and location of depositary)

$ 4,369.59

for accounts listed below. SCHEDULE NOS.

ACCOUNT SYMBOL	TITLE OF ACCOUNT TO BE CREDITED	AMOUNT
14X4401	E-679	4,369.59

(Depositor will insert below his name, title, Department or Agency concerned, and his address)

Defense Minerals Exploration
Administration
224 New Customhouse
Denver 2, Colorado

SPACE BELOW TO BE USED BY DEPOSITARY ONLY

I certify that the above amount has been received for credit in the account of the Treasurer of the United States on the date shown, subject to adjustment for uncollectible items included therein.

M. Schlaeger
(Authorized signature)

OCT 12 1955
(Date of credit in Treasurer's account)

DEPOSITARY WILL DATE, SIGN, AND RETURN THIS TO DEPOSITOR FOR HIS RETAINED COPY

16—59686b-1 GPO

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

RECEIVED
OCT 14 1955

224 New Customhouse
Denver 2, Colorado

October 12, 1955

Memorandum

To: T. A. Christensen

From: Executive Officer, DMEA Field Team, Region III

Subject: Royalty Payment - DMEA Docket 3151 (Uranium), Contract Idm-E671, Holly Uranium Corporation - New Mexico

Enclosed are settlement sheets from Anaconda Copper Mining Company for ore shipped under Liquidation Nos. 569, 577 and 589.

Also enclosed is Holly Uranium Corporation check No. 00357 in the amount of $4,369.59 in full payment of royalty due on these shipments, including full payment of bonus royalty due on the first 10,00 pounds of contained uranium.

This is full payment of AEC Production Bonus.

W. M. Traver

By J. W. Townsend
J. W. Townsend

Enclosures

vj

cc: Royalty File E671
Sec. Opr. Comm. (2) w/settlement sheets
J. F. Shaw (2) w/settlement sheets
Royalty Report File
Chron.

RECEIVED
OCT 14 1955

C O P Y

September 27, 1955

ROYALTIES DUE

DEFENSE MINERALS EXPLORATION ADMINISTRATION

From

ORES PRODUCED

From the

Flat Top-Vilatie Hyde Claims Nos. 3 & 4

Date	Liquidation No.	U_3O_8 Payment	Development Allowance	Premium Payment	Haulage Allowance	Initial Production Bonus
7/1/55	569	$ 413.74	$ 62.69	---	$ 24.11	$ 413.74
8/4/55	577	3,262.96	466.14	199.77	121.63	3,262.96
9/6/55	589	38,081.10	5,440.16	3,116.13	1,228.52	31,298.23
Total		$41,757.80	$5,968.99	$3,315.90	$1,374.26	$34,974.93

Total renumeration received thru September 30, 1955	$87,391.88
Royalty due DMEA 5% of $87,391.88	4,369.59
Total amount of loan	~~9,268.47~~ 9,628.47
Amount paid	4,369.59
Balance to be paid from future production	$4,898.88

5-52 Standard.

The Anaconda Company

Formerly

ANACONDA COPPER MINING COMPANY

BLUEWATER RECEIVING STATION

NEW MEXICO OPERATIONS

Ore Purchasing Agent For
United States Atomic Energy Commission

RECEIVED
OCT 14 1955

Bluewater Receiving Station ..... P. O. Box 638 ..... Grants, N. M., July 1, 19 55

Liquidation No. 569 ..... A. C. M. Lot No. 3908 ..... Shippers Lot No. 1

Shipper Holly Uranium Corporation ..... A. E. C. License No. P-2267

Address P. O. Box 86, Grants, New Mexico ..... Contract No. AT(49-1)-901

Type of Ore Limestone ..... Date Received June 8, 1955

Mining Claim Flat Top Vilatie Hyde #4 ..... Mining District Grants - Bluewater ..... Pile No. 53

County McKinley ..... State New Mexico

A.C.M. Lot No.	Wet Weight Pounds	% H_2O	Dry Weight Pounds	SETTLEMENT ASSAYS U_3O_8	V_2O_5	$CaCO_3$	CONTENTS POUNDS U_3O_8	V_2O_5	$CaCO_3$
908	66,960	1.45	65,987	.19	.03	83.0	125.38	19.80	54,769.21

U308	Per Lb.	Per Ton	Short Tons	Total Value
.19% = 3.80# at	$ 3.30	$ 12.54	32.9935	$ 413.74
Development allowance 3.80# at	.50	1.90	32.9935	62.69
Total U308 Payment		$ 14.44	32.9935	$ 476.43
Haulage allowance 12 miles at 6¢ per wet ton mile			33.480	24.11
TOTAL				$ 500.54

Correct ARL
Checked GLH
Approved FGH

Paid July 1, 1955
Vo. No. OP-500
Check No. 16276

I certify that I am the lawful owner or authorized Representative of the Lawful Owner, of the Ore described in this Settlement Sheet and have legal right to deliver the same to the Commission.

I certify that I hold the A. E. C. Source Material License numbered above.

I hereby transfer to the Commission, effective as of the date of delivery of the ore, all my right, title and interest in and to said ore.

I will accept the amount as shown above as "Total Gross Price" in full settlement, except for final quarterly adjustments for average V_2O_5—U_3O_8 ratio, for sums due to me on account of the ore deliveries described herein.

E. B. Brewitt
Seller or Agent.

Buyers assays govern if Seller fails to submit his assays prior to acceptance of payment.
All rates paid are based on U. S. Atomic Energy Commission Published Schedules.

E671

We hereby certify that this photographic reproduction is a true copy of a document examined by us this date.

10/7/55

By Henry R. Lawley

ALBUQUERQUE BLUEPRINT CO.
518 Fourth St., N.W.
Albuquerque, New Mexico

10M—5-52—Standard.

ANACONDA COPPER MINING COMPANY

BLUEWATER RECEIVING STATION

NEW MEXICO OPERATIONS

The Anaconda Company
Formerly
The Anaconda Copper Mining Company

Ore Purchasing Agent For
United States Atomic Energy Commission

Bluewater Receiving Station ..... P. O. Box ..... Grants, N. M., August 4, 1955

Liquidation No. 577 A. C. M. Lot No. 3939 Shippers Lot No. 2

Shipper Holly Uranium Corporation A. E. C. License No. R-2067

Address P. O. Box 86, Grants, New Mexico Contract AT(49-1)-901

Type of Ore Limestone Date Received June 21, 1955

Mining Claim Flat Top, Platinum #6 Mining District Grants - Bluewater Pile No. 53

County McKinley State New Mexico

A.C.M. Lot No.	Wet Weight Pounds	% H_2O	Dry Weight Pounds	SETTLEMENT ASSAYS U_3O_8	V_2O_5	$CaCO_3$	CONTENTS POUNDS U_3O_8	V_2O_5	$CaCO_3$
3939	337,870	1.65	332,955	.28	.14	78.9	932.27	466.14	262,701.50

U_3O_8	Per lb.	Per Ton	Short Tons	Total Value
.28% - 5.60% at	$3.50	$19.60	166.4775	$3,262.96
Development allowance 5.60% at	.50	2.80	166.4775	466.14
Premium in excess of 4% per ton				
1.60% (5.60% - 4% = 1.60%) at	.75	1.20	166.4775	199.77
Total U_3O_8 payment		23.80	166.4775	3,928.87
Haulage allowance 12 miles at 6¢ per wet ton mile			168.9350	121.63
Net Proceeds				4,050.50

Correct OLH
Checked RLM
Approved FGH

Paid August 3, 1955
Vo. No. OP-507
Check No. 16989

I certify that I am the lawful owner or authorized Representative of the Lawful Owner, of the Ore described in this Settlement Sheet and have legal right to deliver the same to the Commission.

I certify that I hold the A. E. C. Source Material License numbered above.

I hereby transfer to the Commission, effective as of the date of delivery of the ore, all my right, title and interest in and to said ore.

I will accept the amount as shown above as "Total Gross Price" in full settlement, except for final quarterly adjustments for average V_2O_5—U_3O_8 ratio, for sums due to me on account of the ore deliveries described herein.

..... Seller or Agent.

Buyers assays govern if Seller fails to submit his assays prior to acceptance of payment.
All rates paid are based on U. S. Atomic Energy Commission Published Schedules.

We hereby certify that this photographic reproduction is a true copy of a document examined by us this date.

10/7/55

By Henry H. Sawley

ALBUQUERQUE BLUEPRINT CO.
518 Fourth St., NW
Albuquerque, New Mexico

10M—5-52—Standard.

AN ACONDA COPPER MINING COMPANY

BLUEWATER RECEIVING STATION

NEW MEXICO OPERATIONS

The Anaconda Company
Formerly
The Anaconda Copper Mining Company

Ore Purchasing Agent For
United States Atomic Energy Commission

Bluewater Receiving Station ..... P. O. Box 638 Grants, N. M., Sept. 6, 1955

Liquidation No. 589 A. C. M. Lot No. 4256 Shippers Lot No. 3 - 13 Incl.

Shipper Molly Uranium Corporation A. E. C. License No. R-2267

Address Box 86 Grants, New Mexico Contract No. AT(49-1)901

Type of Ore Flat Top Limestone Date Received August 1, 1955

Mining Claim Villatie Hyde #4 Mining District Grants - Bluewater Pile No. 53

County McKinley State New Mexico

A.C.M. Lot No.	Wet Weight Pounds	% H_2O	Dry Weight Pounds	SETTLEMENT ASSAYS U_3O_8	V_2O_5	$CaCO_3$	CONTENTS POUNDS U_3O_8	V_2O_5	$CaCO_3$
4017	338,630	1.43	333,787	.27	.14	85.9	901.22	467.30	286,723.08
4059	184,600	1.20	182,387	.29	.15	80.1	528.92	273.58	146,091.99
4082	385,590	1.04	381,587	.38	.24	85.8	1,450.03	915.81	327,401.65
4124	306,660	1.27	302,771	.30	.14	83.4	908.31	423.88	252,511.01
4143	332,390	2.37	324,464	.32	.18	83.5	1,038.28	584.04	270,987.44
4158	290,510	1.73	285,487	.34	.18	83.6	970.66	513.88	236,667.13
4180	263,500	1.38	259,865	.37	.21	82.5	961.50	545.72	214,388.60
4198	386,610	1.81	379,626	.36	.18	73.5	1,366.65	683.33	279,025.11
4218	326,070	1.04	322,690	.42	.21	86.2	1,355.30	677.65	278,158.78
4239	310,770	1.33	306,635	.29	.20	85.6	889.24	613.27	262,479.56
4256	287,260	1.33	283,441	.18	.16	88.6	510.19	453.51	251,128.78
	3,412,550	1.46	3,362,740	.323555	.182945	83.5	10,880.30	6,151.97	2,807,903.06

U3O8	Per Lb.	Per Ton	Short Tons	Total Value
.3235555% - 6.47110# at	3.50	22.64885	1,681.3700	$ 38,081.10
Development allowance 6.47110# at	.50	3.23555	1,681.3700	5,440.16
Premium in excess of 4# per ton 2.47110# (6.47110# - 4# = 2.47110#) at	.75	1.85333	1,681.3700	3,116.13
Total U3O8 payment		27.73773	1,681.3700	46,637.39
Haulage allowance 12 miles at 6¢ per wet ton mile			1,706.2750	1,024.57
Total Gross Price				$ 47,663.91
Deductions:				
Cash advance Check No. 17375		$ 29,120.43		29,120.43
Net Proceeds				$ 18,543.48

Correct WH
Checked CLH
Approved TCH

Paid Sept. 3, 1955
Vo. No. UR-517
Check No. 17896 - Molly Uranium Corporation

A.E.C. Contract No. AT(05-1)-436

I certify that I am the lawful owner or authorized Representative of the Lawful Owner, of the Ore described in this Settlement Sheet and have legal right to deliver the same to the Commission.

I certify that I hold the A. E. C. Source Material License numbered above.

I hereby transfer to the Commission, effective as of the date of delivery of the ore, all my right, title and interest in and to said ore.

I will accept the amount as shown above as "Total Gross Price" in full settlement, except for final quarterly adjustments for average V_2O_5—U_3O_8 ratio, for sums due to me on account of the ore deliveries described herein.

Seller or Agent.

Buyers assays govern if Seller fails to submit his assays prior to acceptance of payment.
All rates paid are based on U. S. Atomic Energy Commission Published Schedules.

We hereby certify that this photographic reproduction is a true copy of a document examined by us this date.

10/7/55

By Henry K. Sawles

ALBUQUERQUE BLUEPRINT CO.
518 Fourth St., NW
Albuquerque, New Mexico

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

RECEIVED
OCT 12 1955

224 New Customhouse
Denver 2, Colorado

October 7, 1955

Mr. Frank O. Manol
P. O. Box 101
Grants, New Mexico

Re: DMEA Docket 3151 (Uranium) Contract Idm-E671, Four Corners Exploration Company, Flat Top--Vilatie Hyde Claims Nos. 4 & 5, Mc Kinley County, New Mexico

Dear Mr. Manol:

Enclosed are photo copies of our letters dated September 14 and 23, 1955 addressed to the Holly Uranium Corporation. Under date of September 26, 1955, Mr. Paul E, Melancon furnished us two copies of the Agreement of January 2, 1955, but these copies were not signed and consequently are of no value for our purposes. We note that there is no provisions in this agreement to protect the Governments' interest in the DMEA royalty payments. It will therefore be necessary for you to submit a legal document whereby the Holly Uranium Corporation agrees to assume the payment of royalties due the Government under Contract Idm-E671. Please furnish us with two signed copies of this royalty agreement and also with two signed copies of the Agreement of January 2, 1955 in order that our records may be complete.

Holly Uranium Corporatinn has indicated their willingness to pay royalties to us so a formal document regarding royalties due the U. S. Government should be easily obtainable. Please give this matter your early attention.

Yours very truly,

W. M. TRAVER

W. M. Traver
Executive Officer, DMEA
Field Team, Region III

Enclosures

RDB/vj
cc: Royalty File E671
Correspondence File E671
Sec. Opr. Comm. (2)
John F. Shaw (2)
Berkenkotter
Chron.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

RECEIVED
SEP 28 1955

224 New Customhouse
Denver 2, Colorado

September 26, 1955

Mr. E. D. Talbert, Acting Chief
Contract Administration and Audit Division
Defense Minerals Exploration Administration
Washington 25, D. C.

Re: Four Corners Exploration Company
Contract Idm-E671, Docket No. DMEA-3151

Dear Mr. Talbert:

Reference is made to your letter of September 21, 1955, regarding subject contract.

Attached is a copy of a letter from Mr. W. M. Traver, Executive Officer, DMEA Field Team, Region III, to Mr. Paul E. Melancon, Holly Uranium Company, which is felt to be self-explanatory.

Sincerely yours,

T. H. Brading, Auditor

Enc.

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

224 NewCustomhouse
Denver 2, Colorado

September 23, 1955

Mr. Paul E. Melancon
Holly Uranium Corporation
P. O. Box 86, Grants, New Mexico

Re: Royalty payments, DMEA Docket 3151 (Uranium), Contract Idm-E671, Four Corners Exploration Company, Flat Top-Vilatie Hyde Claims Nos. 4 and 5, McKinley County, New Mexico

Dear Mr. Melancon:

Reference is made to the second paragraph of our September 14, 1955 letter to you (copy enclosed). This is to advise that figure quoted from your September 10, 1955 letter ($9,269.97) should correctly be $9,628.47. This amount is verified by the final Report of Review dated February 28, 1955 by the Contract Administration and Audit Division. Mr. Manol was furnished a copy of this report; therefore, it should be possible for you to substantiate the amount.

To date we have not received copies of the purchase agreement requested from you, nor have we received the royalty payment mentioned in your letter of September 10, 1955

Yours very truly,

W. M. TRAVER

W. M. Traver
Executive Officer, DMEA
Field Team, Region III

Enclosures

RDB/vj

cc: Royalty File E671
Correspondence File E671
J. F. Shaw (2)
Sec. Opr. Comm.(2)
T. H. Brading (2)
Berkenkotter
Chron.

Talbert

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

SEP 21 1955

Mr. Thomas H. Broding
DMEA Auditor
224 New Customhouse
Denver 2, Colorado

Re: Idm-E671, DMEA-3151
Four Corners Exploration Company

Dear Tom:

A copy of a letter dated September 14, 1955, in reference to the subject contract addressed by the Executive Officer, DMEA Field Team, Region III, to Mr. Paul E. Melanson, Holly Uranium Company, has come to my attention.

This letter states in part:

"At the present time we are unable to verify the amount of indebtedness incurred under Contract Idm-E671 as the final acceptance of this figure is still pending decision by our Washington office. It will however be approximately the amount stated in your September 10, 1955 letter ($9,269.97)."

Our records indicate the indebtedness as being $9,628.47, the amount certified by your Report of Review, in lieu of final audit, dated February 28, 1955, and received in this Division April 1, 1955. A copy of a memorandum dated June 8, 1955, addressed to T. A. Christensen by the Executive Officer indicates that the Report of Review was released to the regional office on March 29, 1955, and, by endorsement thereon Randall R. Cooper has indicated final payment on voucher DMA-55-97 dated June 14, 1955.

Please check into this matter and advise us to the reasons for the apparent discrepancies.

Sincerely yours,

(Signed) E. D. Talbert

E. D. Talbert, Acting Chief
Contract Administration
and Audit Division

EDTalbert/wb
September 20, 1955

Copy to: Docket
Admr. Reading File
Mr. Ellis
Mr. Chambers

R.C.J.

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

RECEIVED
SEP 1 9 1955

224 New Customhouse
Denver 2, Colorado

September 14, 1955

Mr. Paul E. Melancon
Holly Uranium Corporation
P. O. Box 86, Grants, New Mexico

Re: Royalty payments, DMEA Docket 3151 (Uranium), Contract Idm-E671, Four Corners Exploration Company, Flat Top-Vilatie Hyde Claims Nos. 4 and 5, McKinley County, New Mexico.

Dear Mr. Melancon:

We acknowledge receipt of your letter of September 10, 1955 concerning the purchase of mineral rights to the subject property. Please send us two copies (photostats acceptable) of the purchase agreement, mining lease, or other legal document by which the Holly Uranium Corporation obtained mining rights. This instrument is required in order that our records may be complete.

At the present time we are unable to verify the amount of indebtedness incurred under Contract Idm-E671 as the final acceptance of this figure is still pending decision by our Washington office. It will however be approximately the amount stated in your September 10, 1955 letter ($9,269.97). The correct amount will be furnished to you as soon as this decision is made.

Royalty payments are to be made in conformance with Section 10 of DMEA Order 1. Several copies of this form are being furnished for your information and for possible use by the Anaconda Company mill. Uranium royalty payments are to be computed on all amounts received by the shipper for the mineral value of the ore; haulage and development allownaces; payment for better than average grade; and AEC Bonus payments.

Royalty payment checks are to be made payable to the Defense Minerals Exploration Administration and sent to the Executive Officer, DMEA Region III, Room 224 New Customhouse, Denver 2, Colorado along with 4 copies of all applicable settlement sheets.

Yours very truly,

W. M. TRAVER

W. M. Traver
Executive Officer, DMEA
Field Team, Region III

Enclosures
RDB/vj
cc: Royalty File E671
Correspondence File E671

J. F. Shaw (2)
Sec. Opr. Comm. (2)
Berkenkotter
Chron.

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

224 New Customhouse
Denver 2, Colorado

August 24, 1955

RECEIVED
AUG 29 1955

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Gamma-ray log interpretations
Docket 2771, Contract Idm-E577, Cramlich Exploration Company, Utah
Docket 3094, Contract Idm-E649, Canoose Uranium Mines of America, Inc., Colorado
Docket 3151, Contract Idm-E671, Four Corners Exploration Company, New Mexico
Docket 3190, Contract Idm-E672, Flattop Mining Company, New Mexico
Docket 3266, Contract Idm-E733, Big Indian Uranium Corporation, Utah
Docket 3297, Contract Idm-E800, Centenential Uranium, Inc., Utah
Docket 3360, Contract Idm-E723, Mid-Continent Uranium Corporation, Utah
Docket 3449, Contract Idm-E745, United States Uranium Company, Colorado
Docket 3475, Contract Idm-E760, Amurandum Corporation, Utah
Docket 3550, Contract Idm-E782, Radium Hill Uranium, Inc., Colorado
Docket 3565, Contract Idm-E778, The Golden Cycle Corporation, Colorado
Docket 3579, Contract Idm-794, Eula Belle Uranium, Inc., Colorado
Docket 3582, Contract Idm-796, Walter Duncan Mining Company, Utah
Docket 3620, Contract Idm-808, Uranium Prospectors Company, Ltd., Colorado

3 sets remain
1 set to USGS

Enclosed are four copies of gamma-ray log interpretations for holes drilled on the subject properties, and transmittal by E. N. Harshman, Region III DMEA Field Team member.

Enclosures
JDC:jy

W. M. Traver

cc:
Correspondence File E-577; 649; 671; 672; 733; 800; 723; 745; 760; 782; 778; 794; 796; 808

Shaw (2)
Hasler
Harshman
Townsend
Chron.

IN REPLY REFER TO:
DMEA
Date Rec'd.
AUG 19 1955
BUREAU OF MINES
Denver, Colorado

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

August 19, 1955

RECEIVED
AUG 20 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: E. N. Harshman

Subject: Gamma-ray log interpretations

Enclosed are 9 copies of gamma-ray log interpretations on the following DMEA exploration projects:

Docket	Company
2771	Gramlich Exploration Company
3094	Camocoe Uranium Company, Peanut Group
3151	Four Corners Exploration Company, Flat Top claims Nos. 4 and 5
3190	Richard Vogat, et al, Flat Top Nos. 1, 2, and 3
3266	Big Indian Uranium Corporation
3475	Amuranium Corporation
3579	Jerome Craig
3565	Golden Cycle Corporation
3550	Radium Hill Uranium Company
3582	Walter Duncan Mining Company
3360	Mid-Continent Uranium Company
3449	U. S. Uranium Company
3620	Uranium Prospectors
3297	Continental Uranium Company

I have discussed with Hasler the need for more frequent transmittal of these data, and in the future log interpretations will be transmitted about once each month.

Four copies each of the enclosures should be transmitted to the Chairman of the Operating Committee for information purposes.

E. N. Harshman

E. N. Harshman
Member, Field Team

Enclosures

E. N. Harshman:arh

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From*	Depth Logged To	Anomaly Detected From*	Anomaly Detected To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
A.5-1.5			5.5-	59.5	Barren							
A.5-3.5			4.9-	72.7	Barren							
A.5-5.5			4.7-	86.6	Barren							
A.5-7.5			5.9-	101.7	80.6-	81.7	1.1	340			<0.010	
A.5-9.5			4.6-	124.5	96.9-	98.5	1.6	240			<0.005	
					105.0-	106.0	1.0	2200			0.060	
					106.0-	106.8	0.8	1400			0.037	
					106.8-	107.9	1.1	500			<0.010	
A.5-11.5			6.2-	138.1	16.1-	17.4	0.7	240			<0.010	
					19.4-	20.1	0.7	270			<0.010	
B-8	104.0	0.0	53.4-	103.2	Barren							
B-9	117.0	0.0	53.5-	113.6	90.9-	92.0	1.1	230			<0.005	
C-8	102.0	0.0	32.4-	100.3	Barren							
C-9	109.0	0.0	33.3-	107.2	83.8-	85.7	1.9	320			<0.010	
					85.7-	88.4	2.7	260			<0.005	
					88.4-	89.3	0.9	1000			0.036	
C.5-3.5			4.3-	62.2	5.4-	6.2	0.8	270			<0.010	
C.5-5.5			5.2-	103.1	73.1-	74.3	1.2	240			<0.005	

* From top to bottom depths

RECEIVED
AUG 2 9 195

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From*	Depth Logged To	Anomaly Detected From*	Anomaly Detected To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
C.5- 7.5			5.1-	90.9	58.7-	60.1	1.4	300			∠0.010	
					60.1-	66.5	6.4	420			∠0.010	
					66.5-	67.5	1.0	1700			0.045	
					67.5-	70.0	2.5	440			∠0.010	
					80.6-	81.3	0.7	450			0.014	
C.5- 9.5			4.2-	110.0	67.0-	68.1	1.1	270			∠0.010	
					92.7-	93.5	0.8	270			∠0.010	
					104.8-	105.5	0.7	280			∠0.010	
C.5-11.5			5.9-	123.6	28.0-	28.7	0.7	250			∠0.010	
					30.7-	31.5	0.8	230			∠0.005	
					87.6-	88.0	0.4	220			∠0.010	
E.5- 1.5			4.8-	50.8	Barren							
E.5- 5.5			6.0-	97.7	Barren							
E.5- 7.5			5.9-	117.6	Barren							
E.5- 9.5			5.4-	145.3	Barren							
F.5- 4.5			4.9-	106.7	74.2-	75.3	1.1	280			∠0.010	
					76.3-	76.9	0.6	260			∠0.010	
					77.8-	78.8	1.0	240			∠0.005	
					79.2-	79.8	0.6	240			∠0.010	
					88.7-	90.5	1.8	260			∠0.005	
					94.8-	95.6	0.8	280			∠0.010	
F.5- 5.5			4.5-	114.2	83.4-	90.1	6.7	260			∠0.005	
					94.6-	96.2	1.6	260			∠0.005	
					105.7-	107.1	1.4	220			∠0.005	
F.5- 6.5			6.1-	121.8	Barren							

* From top to bottom depths

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From* To	Anomaly Detected From* To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
F.5-7.5			5.0-124.7	116.0-116.6	0.6	300			<0.010	
G -5			6.1-103.9	83.6- 84.6	1.0	1200			0.028	Contaminated
G -5.5			5.0-108.7	Barren						
G -6			5.1-120.7	Barren						Contaminated
G.5-1.5			4.7- 74.6	Barren						
G.5-3.5			5.9- 85.6	68.0- 69.2	1.2	1300			0.029	
G.5-4.5			4.2- 94.0	68.6- 71.0	2.4	1400			0.028	Contaminated
				71.0- 72.6	1.6	3200			0.089	
				78.0- 79.9	1.9	2000			0.044	
G.5-5			6.5-100.2	78.0- 79.6	1.6	20000			0.60	Contaminated
				79.6- 84.9	5.3	2000			0.044	
G.5-5.5			4.6-102.5	84.0- 85.8	1.8	5000			0.15	Contaminated
				85.8- 87.2	1.4	18000			0.57	
				88.0- 89.7	1.7	4400			0.13	
G.5-6			6.6-114.2	91.7- 94.6	2.9	3200			0.081	
				94.6- 95.8	1.2	6800			0.25	
G.5-6.25	117.0	0.0	3.8-114.0	93.6- 95.4	1.8	400			<0.010	
				95.4 97.3	1.9	10000			0.27	
				97.3- 98.3	1.0	17000			0.59	
				98.3-100.3	2.0	1000			0.018	
				101.0-102.5	1.5	420			<0.010	
				104.0-105.3	1.3	500			0.012	
				105.9-106.9	1.0	380			<0.010	

* From top to bottom depths

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From* To	Anomaly Detected From* To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
G.5-6.5			6.3-114.0	96.6- 98.0	1.4	4800			0.15	Contaminated
				98.0- 99.1	1.1	2800			0.084	
				104.1-105.0	0.9	960			0.035	
G.5-7			5.9-117.6	101.2-102.7	1.5	2900			0.080	
				106.3-107.6	1.3	600			0.015	
G.5-7.5			5.8-117.6	91.7- 93.4	1.7	500			0.010	
				93.4- 95.4	2.0	960			0.023	
				95.4- 96.3	0.9	5000			0.21	
				96.3- 96.9	0.6	1400			0.053	
				96.9- 97.8	0.9	3200			0.11	
				102.9-105.1	2.2	700			0.015	
G.5-8.5			6.1-127.8	Barren						
G.5-9.5			0.6-141.2	Barren						
G.5-11.5			5.4-159.0	Barren						
G.25-5	103.0		3.2-101.6	92.4- 93.4	1.0	1000			0.022	
				93.4- 94.3	0.9	500			0.014	
G.25-5.25	105.0		3.9-104.4	95.2- 95.8	0.6	420			0.014	
G.25-5.50	111.0		4.3-111.0	Barren						
G.25-5.75	114.0		21.4-112.0	96.7- 98.5	1.8	800			0.018	
				98.5- 99.3	0.8	4200			0.18	
				99.3-100.0	0.7	1800			0.064	
				100.0-100.7	0.7	3700			0.18	
				100.7-102.7	2.0	400			<0.01	
				104.0-104.8	0.8	400			0.011	

* From top to bottom depths

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From* To	Anomaly Detected From* To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
G.25-6	120.0		3.1-117.7	71.7- 72.5	0.8	340			<0.010	
				80.1- 81.2	1.1	360			<0.010	
				90.4- 91.8	1.4	240			<0.005	
				101.7-102.9	1.2	15000			0.50	
				105.0-105.8	0.8	540			0.017	
				106.4-107.8	1.4	240			<0.005	
G.50-4.75	98.0		5.6- 98.1	81.7- 82.3	0.6	660			0.027	
				82.3- 83.7	1.4	360			<0.010	
G.50-5.25	103.0		4.4-102.5	77.0- 77.8	0.8	460			0.013	
				82.1- 83.0	0.9	17000			0.60	
				83.0- 86.3	3.3	400			<0.010	
				88.5- 89.1	0.6	600			0.024	
G.50-5.75	111.0	0.0	2.0-110.8	85.6- 87.6	2.0	320			<0.010	
				87.6- 88.4	0.8	5600			0.27	
				88.4- 90.6	2.2	1000			0.024	
				90.6- 91.6	1.0	5400			0.24	
				91.6- 92.6	1.0	3400			0.12	
				92.6- 93.6	1.0	1800			0.050	
				93.6- 95.8	2.2	700			0.015	
				95.8- 96.5	0.7	960			0.041	
				96.5- 97.0	0.5	240			<0.010	
				97.0- 98.1	1.1	860			0.027	
				98.1- 98.4	0.3	240			<0.010	
				98.4- 99.4	1.0	1000			0.035	
				99.4-100.7	1.3	600			0.014	
G.75-5	101.0	0.0	3.0-100.2	76.1- 77.9	1.8	480			<0.010	
				77.9- 79.4	1.5	280			<0.005	
				89.0- 90.8	0.8	260			<0.005	

* From top to bottom depths

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From* To	Anomaly Detected From* To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
G.75-5.25	102.0		1.9-100.8	75.6- 77.5	1.9	500			0.010	
				77.5- 78.5	1.0	300			<0.010	
G.75-5.50	107.0		3.8-104.6	88.4- 89.3	0.9	5000			0.21	
				89.3- 90.2	0.9	3000			0.11	
				96.6- 97.4	0.8	500			0.015	
				98.9-100.0	1.1	300			<0.010	
G.75-5.75	112.0		4.7-109.3	91.2- 93.0	1.8	4200			0.12	
G.75-6	114.0		4.0-112.3	93.8- 95.8	2.0	2800			0.068	
				102.1-102.9	0.8	240			<0.010	
				103.3-104.1	0.8	9300			0.54	
				105.0-105.7	0.7	380			0.011	
G.75-7	118.0		49.7-115.5	92.0- 93.9	1.9	600			0.012	
				93.9- 94.8	0.9	1200			0.029	
				97.9- 99.3	1.4	1400			0.032	
				99.3-100.5	1.2	400			0.012	
				106.1-107.1	1.0	560			0.016	
G.75-7.25	118.0		48.7-116.5	90.9- 93.5	2.6	600			0.013	
				93.5- 95.5	2.0	1400			0.029	
				95.5- 97.5	2.0	1900			0.041	
				97.5- 98.9	1.4	1200			0.023	
				98.9- 99.7	0.8	1800			0.053	
				99.7-100.8	1.1	700			0.020	
				100.8-102.5	1.7	1400			0.029	
				102.5-104.9	2.4	700			0.015	
				104.9-106.4	1.5	900			0.023	

* From top to bottom depths

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From* To	Anomaly Detected From* To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
H -5			7.1- 96.9	73.8- 74.4	0.6	300			<0.010	
H -5.5			6.4-100.1	68.6- 70.8	2.2	260			<0.005	
				93.5- 94.4	0.9	300			<0.010	
H -6			4.5-106.2	78.2- 80.0	1.8	220			<0.005	
				80.6- 82.5	1.9	300			0.005	
				83.3- 85.2	1.9	320			<0.010	
				85.7- 86.1	0.4	340			0.012	
				87.1- 89.4	2.3	360			<0.010	
				96.5- 97.5	1.0	240			<0.005	
H -6.5			5.2-110.9	85.5- 87.0	1.5	320			<0.010	
				87.3- 90.7	3.4	400			<0.010	
				91.2- 93.4	2.2	440			<0.010	
				93.4- 95.0	1.6	300			<0.010	
				95.7- 96.3	0.6	260			<0.010	
				101.0-104.1	3.1	260			<0.005	
H -7			4.7-112.4	89.9- 91.5	1.6	300			<0.010	
				91.8- 93.2	1.4	280			<0.010	
				94.0- 95.4	1.4	360			<0.010	
				96.4- 97.7	1.3	500			0.011	
				97.7- 98.8	1.1	400			<0.010	
				100.8-102.2	1.4	260			<0.005	
H -7.5	120.0	0.0	3.1-109.3	92.8- 94.2	1.4	580			0.013	
				94.2- 95.6	1.4	300			<0.010	
				95.6- 96.7	1.1	1000			0.022	
				96.7- 98.9	2.2	400			<0.010	
				98.9-100.6	1.7	1200			0.024	
				100.6-102.4	1.8	400			<0.010	
				102.4-104.2	1.8	1600			0.035	
				104.2-106.6	2.4	1000			0.019	
				106.6-107.5	0.9	9400			0.51	
				107.5-109.3	1.8	460			<0.010	

* From top to bottom depths

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From* To	Anomaly Detected From* To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
H -7.5	120.0	0	3.1-109.3	92.8- 94.2	1.4	580			0.013	
				94.2- 95.6	1.4	300			∠0.010	
				95.6- 96.7	1.1	1000			0.022	
				96.7- 98.9	2.2	400			∠0.010	
				98.9-100.6	1.7	1200			0.024	
				100.6-102.4	1.8	400			∠0.010	
				102.4-104.2	1.8	1600			0.035	
				104.2-106.6	2.4	1000			0.019	
				106.6-107.5	0.9	9400			0.51	
				107.5-109.3	1.8	460			∠0.010	
H -8		0	6.1-121.6	110.7-111.9	1.2	280			∠0.010	
				112.2-116.7	4.5	240			∠0.005	
H.5-4.5		0	4.6- 86.4	76.7- 77.8	1.1	440			0.010	
H.5-5.5		0	5.8- 93.5	75.4- 76.4	1.0	420			0.010	
				76.7- 77.5	0.8	340			∠0.010	
H.5-6.5		0	5.7- 99.5	Barren						
H.5-7		0	4.0-103.7	79.8- 82.8	3.0	260			∠0.005	
H.5-7.5	112.0	0	3.8-109.3	85.8- 87.0	1.2	540			0.013	
				87.3- 89.1	1.8	540			0.012	
				89.6- 90.6	1.0	1800			0.050	
				90.6- 91.2	0.6	1400			0.053	
				91.2- 92.8	1.6	300			∠0.010	
				92.8- 94.2	1.4	1000			0.023	
				95.1- 96.0	0.9	4600			0.19	
				96.2- 97.0	0.8	9000			0.32	
				97.9- 99.1	1.2	37000			1.1	
				99.1- 99.8	0.7	16000			0.66	
				103.1-104.4	1.3	40000			0.32	
				104.4-105.0	0.6	16000			0.76	
				105.0-106.4	1.4	5800			0.19	
				108.2-109.0	0.8	440			0.012	

* From top to bottom depths

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From*	Depth Logged To	Anomaly Detected From*	Anomaly Detected To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
H.5-8		0	5.2	112.8	70.6	73.9	3.3	260			<0.005	
					75.7	80.6	4.9	240			<0.005	
					81.8	82.4	0.6	300			<0.010	
					87.5	95.0	7.5	500			0.010	
					96.6	98.1	1.5	420			<0.010	
					98.5	100.1	1.6	540			0.011	
					102.8	103.8	1.0	240			<0.005	
					104.5	105.4	1.0	500			0.013	
					105.4	106.4	1.0	380			<0.010	
					108.3	109.6	1.3	260			<0.005	
					111.2	112.4	1.2	220			<0.005	
H.5-8.5		0	5.2	116.8	87.5	88.6	1.1	300			<0.010	
					89.6	91.0	1.4	540			0.012	
					91.0	94.8	3.8	380			<0.010	
					95.7	96.8	1.1	540			0.015	
					96.8	98.7	1.9	380			<0.010	
					108.7	109.3	0.6	280			<0.010	
H.5-9.5		0	4.8	122.5	91.0	93.1	2.1	380			<0.010	
					95.0	96.0	1.0	400			0.010	
					99.2	99.7	0.5	240			<0.010	
					101.6	102.6	1.0	240			<0.005	
					102.9	103.7	0.8	240			<0.010	
					104.3	105.5	1.2	400			<0.010	
					107.6	108.3	0.7	700			0.027	
					116.0	116.7	0.7	480			0.016	
					117.0	117.8	0.8	240			<0.010	

* From top to bottom depths

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From*	Depth Logged To	Anomaly Detected From*	Anomaly Detected To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade % U_3O_8	Remarks
H.5-9.75	127.0	0	76.6	125.0	93.6	94.3	0.7	400			0.012	
					94.3	95.5	1.2	300			∠0.010	
					96.1	97.2	1.1	560			0.015	
					97.2	98.0	0.8	460			0.013	
					98.7	99.9	1.2	300			∠0.010	
					100.8	101.6	0.8	480			0.014	
					101.6	103.0	1.4	380			∠0.010	
					104.9	105.4	0.5	240			∠0.010	
					108.0	108.7	0.7	400			0.012	
					110.0	110.5	0.5	340			0.012	
					118.7	119.5	0.8	400			0.011	
H.5-10	132.0	0	56.3	130.1	101.2	104.8	3.6	260			∠0.005	
					108.7	109.8	1.1	300			∠0.010	
H.5-10.25	135.0	0	2.0	133.1	106.2	107.0	0.8	320			∠0.010	
					126.7	127.8	1.1	580			0.015	
H.5-10.5		0	6.4	138.0	109.6	110.2	0.6	340			0.011	
					110.2	111.3	1.1	280			∠0.010	
					114.1	114.9	0.8	260			∠0.010	
H.5-11.5		0	4.7	148.3	114.3	114.9	0.6	220			∠0.005	
					115.2	116.6	1.4	220			∠0.005	
I-7	?	0	6.1	99.7	Barren							
I-7.5	108.0	0	2.9	106.1	80.1	80.9	0.8	260			∠0.010	
					82.6	84.7	2.1	600			0.012	
					84.7	86.0	1.3	1200			0.026	
					86.0	87.9	1.9	820			0.018	
					88.3	89.8	1.5	260			∠0.005	
					89.8	91.0	1.2	500			0.012	
					91.0	92.4	1.4	260			∠0.010	
					93.1	94.0	0.9	1400			0.037	
					98.4	99.5	1.1	1000			0.032	

* From top to bottom depths

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From* To	Anomaly Detected From* To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
I-8	112.0	0	4.4-109.3	80.7- 81.8	1.1	3400			0.11	
				81.8- 82.3	0.5	1000			0.04	
				82.3- 83.4	1.1	3800			0.12	
				83.4- 85.6	2.2	500			0.010	
				87.3- 88.5	1.2	280			∠0.010	
				88.9- 90.8	1.9	480			∠0.010	
				95.1- 96.0	0.9	280			∠0.010	
				97.0- 98.1	1.1	660			0.019	
				98.1- 99.1	1.0	340			∠0.010	
				100.6-101.8	1.2	3200			0.096	
				101.8-103.1	1.3	4400			0.14	
				104.6-105.6	1.0	51000			2.4	
				107.4-108.3	0.9	460			0.012	
				108.8-109.3	0.5	400			0.016	
I-8.5	114.0	0	2.2-111.4	67.6- 68.9	1.3	340			∠0.010	
				69.4- 70.9	1.5	520			0.011	
				72.8- 74.3	1.5	380			∠0.010	
				76.9- 78.1	1.2	440			0.010	
				79.9- 80.6	0.7	6600			0.36	
				82.0- 82.7	0.7	800			0.032	
				82.7- 83.4	0.7	2300			0.086	
				83.4- 84.2	0.8	800			0.029	
				84.9- 85.7	0.8	3900			0.16	
				85.7- 86.7	1.0	2000			0.057	
				86.7- 88.5	1.8	680			0.014	
				88.5- 92.4	3.9	400			∠0.010	
				92.4- 95.8	3.4	520			0.010	
				96.1- 99.4	3.3	480			∠0.010	
				99.4-102.3	2.9	560			0.011	
				102.3-103.8	1.5	800			0.020	
				103.8-104.7	0.9	2200			0.070	
				104.7-105.8	1.1	4000			0.13	
				105.8-106.8	1.0	18000			0.61	
				108.2-111.4	3.2	460			∠0.010	

* From top to bottom depths

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From* To	Anomaly Detected From* To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
I-9	114.0	0	4.3-111.6	69.2- 72.1	2.9	660			0.014	
				74.8- 75.5	0.7	300			0.010	
				76.0- 76.8	0.8	360			0.010	
				78.6- 79.7	1.1	280			0.010	
				80.2- 83.1	2.9	700			0.015	
				83.1- 86.3	3.2	500			0.010	
				87.0- 87.9	0.9	540			0.016	
				88.3- 91.0	2.7	600			0.012	
				91.0- 92.3	1.3	800			0.021	
				92.3- 93.3	1.0	1400			0.035	
				94.2- 96.4	2.2	4600			0.12	
				96.4- 97.4	1.0	2200			0.063	
				97.4- 98.9	1.5	600			0.014	
				98.9- 99.7	0.8	1600			0.046	
				101.5-102.8	1.3	25000			0.79	
I-9.5	?	0	4.4-115.6	71.0- 72.2	1.2	800			0.022	
				72.2- 74.6	2.4	420			<0.010	
				81.5- 83.3	1.8	840			0.020	
				83.9- 84.5	0.6	400			0.013	
				85.7- 86.9	1.2	280			<0.010	
				86.9- 88.6	1.7	600			0.013	
				88.6- 89.7	1.1	300			<0.010	
				89.7- 90.6	0.9	960			0.034	
				90.6- 92.5	1.9	320			<0.010	
				92.5- 93.5	1.0	1400			0.035	
				94.3- 96.2	1.9	11000			0.30	
				96.2- 97.0	0.8	2400			0.081	
				97.0- 98.3	1.3	6400			0.22	
				98.3- 99.1	0.8	3400			0.13	
				99.1-100.4	1.3	9600			0.37	
				100.4-101.8	1.4	2600			0.070	
				101.8-104.2	2.4	14000			0.37	
				104.2-105.1	0.9	8000			0.40	
				107.2-109.5	2.3	260			<0.005	
				110.1-111.0	0.9	300			<0.010	

* From top to bottom depths

GAMMA-RAY LOG INTERPRETATION

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

Hole No.	Depth Drilled	Depth Cased	Depth Logged From*	Depth Logged To	Anomaly Detected From*	Anomaly Detected To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
I-10	122.0	0	6.8	119.5	75.5	77.0	1.5	740			0.018	
					77.0	78.3	1.3	700			0.018	
					78.5	79.5	1.0	800			0.026	
					79.5	81.6	2.1	1000			0.019	
					81.6	82.5	0.9	620			0.020	
					85.9	86.5	0.6	600			0.024	
					86.5	88.2	1.7	340			<0.010	
					90.1	91.1	1.0	4400			0.17	
					91.1	94.1	3.0	900			0.021	
					94.1	95.3	1.2	10000			0.32	
					95.3	97.1	1.8	24000			0.66	
					97.1	98.1	1.0	20000			0.68	
					98.1	99.4	1.3	10000			0.32	
					99.8	103.2	3.4	13000			0.34	
					103.9	104.6	0.7	4000			0.19	
					104.6	105.9	1.3	7200			0.28	
					106.5	107.6	1.1	2200			0.060	
					108.3	109.4	1.1	6000			0.23	
					110.0	111.1	1.1	3200			0.099	
					111.1	112.2	1.1	1800			0.047	
					112.8	113.5	0.7	860			0.035	
					113.5	115.2	1.7	300			<0.010	
					115.2	116.6	1.4	460			0.010	
					117.1	118.2	1.1	520			0.013	
					118.7	119.5	0.8	800			0.029	

* From top to bottom depths

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From* To	Anomaly Detected From* To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
I-10.5	124.0	0	3.2-121.8	80.9- 82.2	1.3	560			0.013	
				82.5- 83.4	0.9	420			0.011	
				84.1- 85.1	1.0	620			0.018	
				85.9- 86.9	1.0	360			<0.010	
				87.6- 88.5	0.9	420			0.011	
				88.5- 89.5	1.0	260			<0.010	
				90.0- 91.1	1.1	220			<0.005	
				91.1- 94.2	3.1	420			<0.010	
				94.2- 96.2	2.0	760			0.017	
				96.2- 96.9	0.7	440			0.013	
				98.3-100.5	2.2	840			0.019	
				100.8-103.3	2.5	860			0.020	
				103.3-104.1	0.8	440			0.012	
				104.9-107.4	2.5	240			<0.005	
				109.4-111.7	2.3	320			<0.010	
				112.4-114.2	1.8	220			<0.005	
				116.1-117.2	1.1	320			<0.010	
I-10.5	117.0	0	3.1-113.7	79.2- 81.2	2.0	700			0.015	
				101.3-105.9	4.6	2300			0.053	
				105.9-108.1	2.2	7000			0.21	
				108.1-109.3	1.2	21000			0.68	
				111.8-113.7	1.9	2000			0.042	
	One of these holes may be misnumbered.									

* From top to bottom depths

Four Corners Exploration Co.
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GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From* To	Anomaly Detected From* To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
I-11	129.0	0.0	4.5-127.1	85.3- 86.0	0.7	300			<0.010	
				87.4- 88.0	0.6	280			<0.010	
				92.9- 94.0	1.1	360			<0.010	
				94.8- 95.8	1.0	280			<0.010	
				97.2- 98.0	0.8	380			0.010	
				98.3- 99.2	0.9	320			<0.010	
				99.9-101.3	1.4	500			0.011	
				101.3-102.7	1.4	920			0.024	
				112.7-113.6	0.9	580			0.017	
				113.6-114.4	0.8	900			0.034	
				114.4-115.3	0.9	1000			0.023	
				115.3-116.7	1.4	1600			0.038	
				117.3-118.4	1.1	1600			0.040	
				118.4-119.4	1.0	3100			0.10	
				119.4-120.1	0.7	1400			0.041	
I-11.5	138.0	0.0	4.7-135.4	103.9-104.7	0.8	380			0.010	
				106.5-108.1	1.6	560			0.012	
				111.8-112.5	0.7	360			0.010	
				113.8-116.1	2.3	500			0.010	
				116.9-118.5	1.6	680			0.015	
				118.5-119.3	0.8	440			0.012	
				119.3-120.5	1.2	720			0.020	
				120.5-121.6	1.1	1200			0.028	
				122.3-123.5	1.2	2900			0.084	
				123.5-128.2	4.7	900			0.021	
				128.2-128.7	0.5	600			0.026	
				128.9-130.2	1.3	2400			0.064	
				130.2-130.9	0.7	1000			0.029	
				130.9-132.1	1.2	720			0.020	
				132.1-135.4	2.1	700			0.014	

* From top to bottom depths

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From* To	Anomaly Detected From* To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
I-12	?	0.0	5.1-145.0	109.7-122.3	12.6	500			<0.010	
				122.3-125.2	2.9	300			0.005	
				126.2-130.0	3.8	300			0.005	
				134.7-137.8	3.1	280			<0.005	
I.5-1.5	?	0.0	5.7- 61.5	43.3- 44.3	1.0	300			<0.010	
				51.0- 52.2	1.2	300			<0.010	
I.5-3.5	?	0.0	2.8- 78.0	55.4- 55.9	0.5	1000			0.054	
				55.9- 57.1	1.2	580			0.015	
				59.7- 60.8	1.1	220			<0.005	
				61.3- 62.3	1.0	260			<0.010	
I.5-5.5	?	0.0	6.5- 88.4	Barren						
I.5-7.5	109.0	0.0	2.3-106.9	89.1- 90.3	1.2	200			<0.005	
				90.9- 91.7	0.8	200			<0.005	
				92.5- 94.5	2.0	260			<0.005	
				95.8- 96.5	0.7	260			<0.010	
				97.0- 97.5	0.5	260			<0.010	
				98.3-100.8	2.5	200			<0.010	
I.5-8	114.0	0.0	23.1-111.2	71.9- 76.3	4.4	250			<0.005	
				76.3- 83.4	7.1	360			<0.010	
				84.7- 85.5	0.8	540			0.017	
				86.2- 89.8	3.6	200			<0.005	
				92.5- 93.8	1.3	480			0.011	
				97.0- 98.3	1.3	200			<0.005	
				102.9-103.9	1.0	200			<0.005	
				103.9-105.8	1.9	460			<0.010	

* From top to bottom depths

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From* To	Anomaly Detected From* To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
I.5-8.5	113.0	0.0	3.9-110.2	80.8- 81.8	1.0	4500			0.17	
				99.2-101.4	2.2	5000			0.14	
				101.4-102.2	0.8	7600			0.41	
				102.2-103.6	1.4	2600			0.070	
I.5-9	111.0	0.0	3.9-108.6	99.3-101.2	1.9	33000			0.90	
I.5-9.5	112.0	0.0	2.8-109.5	98.8-100.6	1.8	23000			0.64	
				100.6-101.1	0.5	6000			0.46	
				101.1-102.4	1.3	20000			0.64	
I.5-10	115.0	0.0	3.2-113.7	100.1-101.3	1.2	1100			0.024	
				101.3-103.0	1.7	5000			0.15	
				103.0-103.9	0.9	25000			1.2	
				103.9-104.4	0.5	11000			0.54	
				104.4-106.1	1.7	30000			0.86	
I.5-11	125.0	0.0	4.2-122.4	104.4-108.2	3.8	1200			0.036	
				108.2-110.8	2.6	2900			0.070	
				110.8-111.7	0.9	16000			0.56	
				111.7-114.4	2.7	3000			0.074	
				114.4-116.0	1.6	4000			0.12	
				116.0-117.4	1.4	1400			0.31	
				117.4-119.1	1.7	2300			0.056	
				119.1-122.4	3.3	1400			0.028	
I.5-11.5	129.0	0.0	2.9-127.5	2.9-110.1		Salted				
				110.1-111.1	1.0	440			0.011	
				113.2-114.6	1.4	1800			0.079	
				115.1-116.0	0.9	8000			0.40	
				117.0-120.8	3.8	68000			2.4	
				121.4-122.1	0.7	20000			0.84	
				122.1-127.5		Salted				

* From top to bottom depths

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From* To	Anomaly Detected From* To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
I.5-12	140.0	0.0	2.7-137.3	111.8-113.2	1.4	380			<0.010	
				113.5-114.7	1.2	340			<0.010	
				115.7-117.1	1.4	400			<0.010	
				117.5-119.3	1.8	780			0.017	
				119.3-121.4	2.1	600			0.012	
				121.4-122.6	1.2	900			0.026	
				123.1-125.8	2.7	900			0.021	
				125.8-127.4	1.6	540			0.011	
				128.2-129.4	1.2	500			0.012	
				130.9-132.3	1.4	500			0.011	
I.75-9	106.0	0.0		93.7- 94.7	1.0	3000			0.10	
				94.7- 97.4	2.7	2200			0.050	
J-8	109.0	0.0	49.1-108.8	66.8- 69.1	2.3	350			<0.010	
				69.1- 70.5	1.4	980			0.027	
				70.5- 72.5	2.0	300			<0.005	
				78.8- 80.0	1.2	530			0.013	
				80.0- 84.4	4.4	360			<0.010	
				84.4- 85.5	1.1	680			0.019	
				85.5- 87.8	2.3	400			<0.010	
				87.8- 89.0	1.2	860			0.025	
				89.0- 89.8	0.8	240			<0.01	
				89.8- 92.5	2.7	740			0.016	
				92.5- 94.0	1.5	1200			0.026	
				94.0- 95.3	1.3	17000			0.54	
				95.3- 95.9	0.6	8000			0.31	
				100.4-101.6	1.2	480			0.011	
				101.6-102.6	1.0	1300			0.032	

* From top to bottom depths

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From* To	Anomaly Detected From* To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
J-8.5	105.0	0.0	2.1-103.8	79.9- 82.6	2.7	300			0.005	
				84.2- 90.6	6.4	580			0.012	
				92.6- 94.2	1.6	14000			0.42	
				94.2- 95.7	1.5	30000			0.90	
				95.7- 97.0	1.3	12000			0.37	
				98.8-102.5	3.7	580			0.012	
				102.5-103.8	1.3	320			<0.010	
J-9	104.0	0.0	3.0-101.9	86.6- 89.3	2.7	340			<0.010	
				89.3- 90.6	1.3	2000			0.052	
				90.6- 92.5	1.9	13000			0.36	
				92.5- 93.5	1.0	22000			0.76	
				93.5- 94.7	1.2	800			0.023	
				95.2- 95.9	0.7	1400			0.044	
				96.7-101.9	5.2	340			<0.010	
J-9.5	109.0	0.0	5.0-107.3	93.4- 94.6	1.2	1600			0.039	
				94.6- 95.8	1.2	800			0.017	
				95.8- 96.6	0.8	2200			0.070	
				96.6- 97.2	0.6	990			0.033	
				97.2- 99.0	1.8	250			<0.005	

* From top to bottom depths

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. --DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From* To	Anomaly Detected From* To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
J-10	115.0		6.3-110.1	96.2- 97.8	1.6	6000			0.21	
				97.8- 99.3	1.5	18000			0.56	
				99.3-100.3	1.0	10000			0.35	
				100.3-102.0	1.7	32000			0.92	
				102.0-102.6	0.6	15000			0.74	
				102.6-103.6	1.0	61000			3.8	
J-10.5	115.0		2.6-114.8	93.3- 94.2	1.4	2300			0.061	
				94.7-100.4	5.7	1500			0.031	
				100.4-101.1	0.7	4500			0.23	
				101.7-103.3	1.6	3000			0.084	
				103.3-104.3	1.0	26000			0.88	
				104.3-105.4	1.1	38000			0.96	
J-11	121.0		4.2-118.9	108.2-110.1	1.9	4000			0.11	
				110.1-111.2	1.1	88000			<10.0	
				111.2-113.3	2.1	4000			0.10	
				113.3-114.4	1.1	8200			0.35	
J-11.5	132.0		3.9-129.7	104.3-105.6	1.3	1500			0.35	
				105.6-106.6	1.0	5400			0.22	
				106.6-107.6	1.0	500			<0.010	
				107.6-108.8	1.2	2000			0.052	
				108.8-116.8	8.0	1300			0.025	
				116.8-117.6	0.8	40000			1.7	
				117.6-118.2	0.6	3000			0.12	
				118.2-119.0	0.8	30000			1.1	
				119.0-119.6	0.6	4500			0.27	
				119.6-121.3	1.7	17000			0.48	
				121.3-122.1	0.8	6000			0.23	
J-12	137.0		5.6-135.6	102.4-111.8	9.4	250			<0.005	
				111.8-113.5	1.7	940			0.023	
				113.5-116.8	4.3	250			<0.005	
				116.8-118.0	1.2	320			<0.010	
				118.7-120.9	2.2	760			0.017	
				120.9-123.9	3.0	340			<0.010	
				125.1-126.8	1.7	220			<0.005	

* From top to bottom depths

Four Corners Exploration Co.
Flat Top Claims No. 4 and 5,
McKinley Co., N. Mex. -- DMEA 3151

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From* To	Anomaly Detected From* To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_eU_3O_8$	Remarks
J.5-8	100.0		49.7-101.4	76.5- 77.8	1.3	220			<0.005	
				87.1- 88.3	1.2	8200			0.32	
				88.3- 89.1	0.8	1500			0.041	
				89.1- 90.4	1.3	5000			0.16	
				90.4- 92.2	1.8	1400			0.029	
				92.2- 94.0	1.8	2200			0.052	
				94.0- 94.8	0.8	5800			0.28	
J.5-8.5	102.0		50.1-102.0	87.8- 89.8	2.0	780			0.017	
				89.8- 90.7	0.9	5000			0.21	
				90.7- 92.2	1.5	14000			0.43	
				92.2- 94.3	2.1	3300			0.082	
				94.3- 96.2	1.9	7200			0.23	
J.5-9	107.0		6.5-106.5	91.1- 92.0	0.9	6000			0.27	
				92.0- 93.0	1.0	13000			0.45	
				93.0- 94.3	1.3	7000			0.25	
				94.3- 97.0	2.7	10000			0.27	
				97.0- 98.2	1.2	35000			1.30	
				98.2- 99.4	1.2	4000			0.12	
J.5-9.5	110.0		67.1-107.1	94.3- 96.0	1.7	800			0.018	
				96.0- 97.0	1.0	14000			0.48	
				97.0- 98.5	1.5	24000			0.74	
				98.5- 99.6	1.1	39000			1.40	
				99.6-102.1	2.5	23000			0.60	
				102.1-103.0	0.9	3000			0.10	
J.5-10	116.0		74.2-114.2	99.4-101.1	1.7	1000			0.02	
				101.1-102.1	1.0	60000			3.40	
				102.1-102.8	0.7	21000			0.88	
				102.8-103.8	1.0	57000			3.00	
				103.8-107.0	3.2	16000			0.43	
				107.0-107.7	0.7	4000			0.21	

* From top to bottom depths

Four Corners Explor[illegible]
Flat Top Claims No. 4 [illegible]
McKinley Co., N. Mex.

GAMMA-RAY LOG INTERPRETATION

Hole No.	Depth Drilled	Depth Cased	Depth Logged From* To	Anomaly Detected From* To	Anomaly Thickness	Counts per minute	CPM Corrected for Casing	CPM Corrected for G-M Tube	Grade $\%_e U_3O_8$	Remarks
J.5-10.5	117.0		74.6-114.6	103.0-104.4	1.4	19000			[illegible]	
				104.4-105.5	1.1	60000			3.10	
				105.5-107.5	2.0	6500			0.19	
				107.5-108.9	1.4	9600			0.36	
J.5-11	125.0		73.8-121.7	84.1- 85.2	1.1	1400			0.035	
				108.1-110.2	2.1	14000			0.37	
				110.2-111.4	1.2	47000			1.30	
				111.4-116.1	4.7	1500			0.031	
J.5-11.5			5.6-129.6	Too much contamination to interpret						
J.5-12	136.0		3.9-135.9	113.4-114.4	1.0	240			<0.005	
				118.7-119.4	0.7	420			0.012	
J.5-12.5	135.0		3.9-143.9	41.5- 42.4	0.9	220			<0.005	
				113.0-115.4	2.4	220			<0.005	
				118.9-220.2	1.1	200			<0.005	

* From top to bottom depths

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

RECEIVED
AUG - 5 1955

224 New Customhouse
Denver 2, Colorado.

August 2, 1955

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA-3151 (Uranium) Contract Idm-E671
Four Corners Exploration Company
(Flat Top - Vilatie Claims Nos. 4 and 5)
McKinley County, New Mexico
and
Docket DMEA-3555 (Uranium) Contract Idm-E791
W. A. Greer (Bachelor Claims Nos. 2 - 61 incl.)
San Miguel County, Colorado

For your information there are enclosed two copies of a letter relative to the two subject dockets.

Evidently Mr. Rapaport is managing Contract Idm-E791 for W. A. Greer. He was the contractor on Idm-E671.

W. M. Traver

Encls.

UTAH | COLORADO
ARIZONA | NEW MEXICO

Four Corners Exploration Company

P. O. BOX 101 GRANTS, NEW MEXICO

IRVING RAPAPORT
F. O. MANOL

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

July 28, 1955

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

Re: Docket DMEA 3151
Docket DMEA 3555

RECEIVED
AUG - 5 1955

Dear Mr. Traver:

This is to inform you that the Flat Top #4 and #5 Claims have been purchased from the Four Corners Exploration Company by the Holly Uranium Corporation. The address of the Holly Uranium Company is 122 East 42nd Street, New York City.

Arrangements to deduct the 5% royalty due DMEA have been made with the mill at Bluewater, N.M. and your checks will be sent to you directly by the Anaconda Copper Mining Company.

We intend to initiate work on the Bachelor Claims under Docket 3555 on the fourth of August, 1955.

Yours truly,

I. Rapaport

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

U.S. Dept. of the Interior
Minerals Administration
RECEIVED
MAY 31 1955

224 New Customhouse
Denver 2, Colorado

May 26, 1955

Mr. Frank O. Manol
Four Corners Exploration Co.
Post Office Box 101
Grants, New Mexico

Re: Docket DMEA 3151 (Uranium)
Contract Idm-E671
Flatttop-Vilatie claims Nos. 4 & 5
McKinley County, New Mexico

Dear Mr. Manol:

Your letter of May 16, 1955 to the Defense Minerals Exploration Administration, Washington, D.C., attention Frank E. Johnson, regarding the suspension of $250.00 from reimbursement to you, was referred to this office for reply.

The amount of $250.00 withheld from the October 1954 report was reinstated in processing the report for December 1954 and $250.00 was withheld from the December report. The reason for the withholding was inadvertently omitted from the Administrative Audit Difference Statement pertaining to the December report.

The amount of $250.00 was withheld pending receipt of your final engineering and geologic report in conformance with Article 5(b) of Exploration Project Contract Form MF-200A on which Contract Idm-E671 is prepared and until release to this office of a Report of Review of contract expenditures by the Contract Administration and Audit Division.

The Report of Review has been released and we will be in a position to make final payment to you of the amount withheld upon receipt of your final engineering and geologic report.

Very truly yours,

W. M. TRAVER

W. M. Traver
Executive Officer, DMEA
Field Team, Region III

JWT:jp
cc Subject
Chron
Chairman, Op. Comm. (2)
Harshman
Shaw
kTownsend

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 27 1955

224 New Customhouse
Denver 2, Colorado

May 23, 1955

Mrs. Vilatie W. Hyde
Bluewater, New Mexico

Re: Docket DMEA-3151 (Uranium)
Contract Idm-E671

Dear Mrs. Hyde:

Enclosed for your records are a copy of a letter from the Four Corners Exploration Company from the Acting Administrator, DMEA dated May 10, 1955 and attached Certification by the Government under the provisions of the contract, pertaining to land involved in the referenced contract on which you signed Owner's Consent to Lien.

Very truly yours,

W. M. TRAVER,

W. M. Traver
Executive Officer, DMEA
Field Team, Region III

Enclosures

JWT:sr

cc Subject
Chron
Chairman Op. Comm. (2)
Townsend

File copy
Surname:

Ching
Ellis
Chambers
Selfridge
Johnson

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

MAY 23 1955

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

Re: Docket No. DMEA-3151 (Uranium)
Contract No. Idm-E671
Four Corners Exploration Company
Flattop-Vilatie claims Nos. 4 and 5
McKinley County, New Mexico

Dear Mr. Traver:

I am sending you a copy of a letter received from F. O. Manol of the Four Corners Exploration Company, in regard to the withholding of $250.00 from his account, and a copy of my reply.

I am quite certain that you can give him the information which he desires. Of course, if he has completed the work and made his final report, he should receive the $250.00 as approved by the auditor's Report of Review under date of February 28, 1955.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee

APPROVED:

J. H. Hedges (SHB)
Member, Bureau of Mines

Thor H. Kiilsgaard (SHB)
Member, Geological Survey

Enclosure

JLChambers/wb
May 18, 1955

cc to: Admr. Reading File (SHB)
Operating Committee
Docket
Mr. Crawford
Mr. Kiilsgaard
Mr. Johnson
Mr. Ellis
Mr. Chambers

R.C.B.

File copy
Surname:

Ching
Ellis
Chambers
Kuilsgaard
Hedges
Schridge
Kjelman

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

MAY 23 1955

Mr. Frank O. Manol
Four Corners Exploration Co.
P. O. Box 101
Grants, New Mexico

Re: Docket No. DMEA-3151 (Uranium)
Contract No. Idm-E671
Flattop-Vilatie claims Nos. 4 and 5
McKinley County, New Mexico

Dear Mr. Manol:

Reference is made to your letter of May 16, 1955, in regard to the withholding of $250.00 from your account by Region III, under the above-cited contract.

This matter is being referred to the DMEA Executive Officer of Region III, with a request that he give you further information on your project settlement. If you do not get a satisfactory explanation, please communicate with me further.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

JIChambers/wb
May 18, 1955

Copy to: Docket
Admr. Reading File
Operating Committee
Region III Field Team (2)
Mr. Ellis
Administrator
Mr. Chambers

R.C.b.

5/19/55 gla

LORADO
W MEXICO

Four Corners Exploration Company

P. O. BOX 101 GRANTS, NEW MEXICO

IRVING RAPAPORT
F. O. MANOL

May 16, 1955

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

Attention: Mr. Frank E. Johnson

Docket No. DMEA-3151 (Uranium)
Contract No. Idm-E671
Flattop-Vilatie Claims 4 & 5
McKinley County, New Mexico

Gentlemen:

We have received your letter dated May 10 on the subject of Certification of Discovery under the Docket shown above.

The amount certified for recovery by percentage royalty on production is set forth as $9,628.47.

We want to call to your attention that we have received only $9,378.47, the difference being $250.00. This difference was withheld from our billing last October. The reason for this amount being withheld according to the "Administrative Audit Difference Statement" dated November 22, 1954 was given as follows,"$250.00 is being withheld from payment due, pending resolution of matters pertaining to Stage III work."

We suppose it now would be in order for this amount to be paid inasmuch as it is included in the amount to be recovered by DMEA. Please advise if there are any steps we must take to obtain this amount yet due us.

Very truly yours,

F. O. Manol

F. O. Manol

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 16 1955

224 New Customhouse
Denver 2, Colorado

May 13, 1955

Messrs. Frank O. Manol
and Irving Rapaport
Four Corners Exploration Co.
P.O. Box 101
Grants, New Mexico

Re: Docket DMEA 3151 (Uranium)
Contract Idm-E671

Gentlemen:

In conjunction with the certification of the referenced project by letter of May 10, 1955 from the Acting Administrator, DMEA, please supply this office with the mailing address of Mrs. Vilatie W. Hyde so that we may mail her a copy of the certification data for her records.

Very truly yours,

W. M. TRAVER

W. M. Traver
Executive Officer, DMEA
Field Team, Region III

JWT:jp
cc Subject
Chron
Chairman, Oper. Comm.
Townsend

Surname copy

Ching
Ellis
Chandler
Martin
Johnson

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

MAY 1 0 1955

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

Re: Docket No. DMEA-3151 (Uranium)
Contract No. Idm-E671
Four Corners Exploration Company
Flattop-Vilatie claims Nos. 4 and 5
McKinley County, New Mexico

Dear Mr. Traver:

Enclosed for your files are two copies each of a certification of discovery or development issued on the subject property and the covering letter to the Operator.

We do not find the address of Mr. Vilatie M. Hyde, owner of the property, in our file. Accordingly, there are attached one copy each of the certification of discovery or development and the covering letter to the Operator for transmittal to Mr. Hyde by your office.

Sincerely yours,

W. S. Martin

ACTING Chairman, Operating Committee (S/B)

Enclosures

APPROVED:

/s/ C. W. Johnson (S/B)
Member, Bureau of Mines

/s/ R. D. Nace (S/B)
Member, Geological Survey

MChing/gla
5-4-55
cc to: Admr.'s Reading File
Operating Committee
Docket
Messrs. Hedges, Rm. 4604
Kiilsgaard, Rm. 5224
F. E. Johnson
Code 700
Mr. Ching

R.C.L.

Surname copy 700

Ching
Ellis
Chamberlin
Trace
Johnson
Martin

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

MAY 10 1955

Four Corners Exploration Company,
a copartnership consisting of Frank W. Monol
and Irving Rapaport
P. O. Box 101
Grants, New Mexico

Re: Docket No. DMA-3151 (Uranium)
Contract No. Tum-4671
Platten-Vilatis claims Nos. 4 and 5
McKinley County, New Mexico

Dear Sirs:

Enclosed is a "Certification by the United States of America of a Discovery or Development Under an Exploration Project Contract." This certification covers all the land described in Article 2 of the above-described contract.

By the terms of the Exploration Project Contract, as amended, and of the certification, all uranium and other valuable minerals produced from the claims described in Article 2 of the contract, from May 10, 1954, the date of the contract, are subject to the Government's percentage royalty as set forth in the contract until the sum of $9,628.47 is paid, or until May 10, 1964, whichever comes first.

Payments should be made to Mr. W. M. Traver, Executive Officer, DMEA Field Team, Region III, 224 New Customhouse Building, Denver 2, Colorado. Checks should be payable to the Defense Minerals Exploration Administration. The purchaser should be advised to deduct the royalties from the amount due on each shipment and forward the check directly to the Executive Officer. Any bonus payments or allowances received by you from the sale of ore are considered to be a part of the purchase price to which the Government's royalty applies. Royalty payments to the Government should be accompanied by suitable evidence, such as copies of settlement sheets, showing quantity and grade of the products sold, the name of the purchaser, and the price and charges, certified to be correct by the purchaser.

You are requested to notify Mr. Traver of any changes in ownership or production rights that might have any effect on the Government's right to its percentage royalty. Also, if production ceases at any time for an extended period, please notify Mr. Traver at six-month intervals that no production has been made, when that is the case.

Sincerely yours,

Frank E. Johnson

ACTING Administrator

MChing/gla 5-23-55

cc to: Vilatis (Hyde Owner)
Operating Committee
Admr.'s Reading File
Docket
Messrs. Hedges, Rm. 4604
Kiilsgaard, Rm. 5224
F. E. Johnson
Code 700
Mr. Ching
DMEA Field Team, Region III (2)

Enclosure

R.C.L.

700

Docket copy

Ching
Ellis
Chandler
Trow
Johnson
Martin
F E Johnson

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

MAY 1 0 1955

Mr. Clarence A. Fredell
Acting Director
Materials Division
Emergency Procurement Service
General Services Administration
7th and D Streets, S. W.
Washington 25, D. C.

Re: Docket No. DMEA-3151 (Uranium)
Contract No. Idm-E671
Four Corners Exploration Company
Flattop-Vilatie claims Nos. 4 and 5
McKinley County, New Mexico

Dear Mr. Fredell:

I am enclosing one copy of a certification of discovery or development relating to the subject exploration contract.

The contract, dated May 10, 1954, covers a project estimated to cost $12,189.00, with Government participation to the extent of 90 percent, or $10,970.10. Work under the project was started in August and completed in December, 1954. The auditor's Report of Review shows actual expenditures during the life of the contract were $10,698.30, with Government participation amounting to $9,628.47.

The contract, as amended, provides for 9,450 feet of rotary drilling in three stages to explore the Todilto limestone of Jurassic age for uranium mineralization.

The work completed consists of 9,362 feet of rotary drilling. A preliminary report indicates that it resulted in the discovery of two ore deposits. The north deposit is approximately six feet thick and is estimated to contain 34,950 tons of 0.40 percent U_3O_8 ore. The south deposit is approximately three feet thick and is estimated to contain 1530 tons of 0.20 percent U_3O_8 ore.

The project was successful in exposing substantial tonnages of commercial grade uranium ore; therefore, we have certified that a discovery or development resulted from the work.

Sincerely yours,

Frank E. Johnson

ACTING Administrator

MChing/gla 5-4-55
cc to: Admr.'s Reading File
Operating Committee
Docket
Messrs. Hedges, Rm. 4604
Kiilsgaard, Rm. 5224
F. E. Johnson
Code 700 Mr. Ching
Enclosure
DMEA Field Team, Region III (2)

R.C.L.

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

April 21, 1955

APR 22 1955

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

From: Bureau of Mines Member
Uranium Commodity Committee

Subject: Field Team report of examination, DMEA Docket 3151, Contract Idm-E671, Four Corners Exploration Company, McKinley County, New Mexico

I have reviewed the Field Team report of examination, DMEA Docket 3151, Contract Idm-E671, Four Corners Exploration Company, McKinley County, New Mexico; and I have discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

We concur with the Field Team that a discovery be certified on the land described in Article 2 of the DMEA contract.

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

John E. Crawford

John E. Crawford

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

224 New Customhouse
Denver 2, Colorado

April 11, 1955

Memorandum

To: Chairman of the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA-3151 (Uranium), Contract Idm-E671, Four Corners Exploration Company, McKinley County, New Mexico

Enclosed are the original and three copies of memorandum report dated March 23, 1955 from Glen Walker, Mining Engineer, U. S. Bureau of Mines, recommending the issuance of the certification of discovery or development as a result of the exploration work performed under the contract.

The basis for the certification is as follows:

Exploration by diamond drilling of the property described in Article 2 of the contract has resulted in the development of a substantial reserve of uranium ore of commercial grade.

W. M. Traver

W. M. Traver

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

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

Region III

Building 20, Room 137
Denver Federal Center
Denver 2, Colorado
March 23, 1955

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
APR 14 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

Through: John F. Shaw

From: Glen Walker

Subject: DMEA 3151, Contract Idm-E671 (Uranium) Four Corners Exploration Company, McKinley County, New Mexico - Certification of Discovery

On the Flat Top No. 4 claim, two ore deposits were roughly outlined by the holes authorized in the DMEA contract. Approximately 26 percent of the holes drilled encountered ore grade material in the Jurassic Todilto limestone. The larger deposit, near the northwest corner of the claim, is about 200 by 450 feet and strikes N. 25°.W. The small deposit in the central portion of the claim is about 50 by 130 feet in areal extent and strikes N. The north ore body averages slightly over 6 feet thick, while the other is about 3 feet thick. The deposits are separated by about 150 feet of barren or only slightly mineralized ground.

From available information the north deposit is estimated to contain 34,950 tons of 0.40 percent U_3O_8 indicated ore, the south deposit is estimated to contain 1,530 tons of indicated ore that averages 0.20 percent U_3O_8. The gross value of the discovery is approximately $1,382,000.

It is recommended that a discovery be certified on the land described in Article 2 of the DMEA contract.

Glen Walker
Glen Walker

cc 9
E671
DMEA Chron.

GW/pah

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

224 New Customhouse
Denver 2, Colorado

December 7, 1954

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 3151 (Uranium), Contract Idm-E671, Frank O. Manol and Irving Rapapport, dba Four Corners Exploration Company, McKinley County, New Mexico

Enclosed are three copies of work authorization, dated December 1, 1954, for the performance of certain work under contract Idm-E671. Also enclosed are four sets of data relative thereto.

W. H. King

Enclosures

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 10 1954

224 New Customhouse
Denver 2, Colorado

December 1, 1954

Messrs. Frank O. Manol
and Irving Rapapport
Four Corners Exploration Company
P. O. Box 101
Grants, New Mexico

Re: Docket DMEA 3151 (Uranium)
Contract Idm-E671

Gentlemen:

Confirming approval for the performance of Stage III drilling by telegram to Frank O. Manol, dated December 1, 1954, and consistent with the stipulations contained in EXHIBIT "A", caption "Description of the Work", subheading "Stage III" of Contract Idm-E671, this constitutes the Government's approval for the performance of drilling under Stage III of the contract.

The locations of the drill holes are shown on Figure 1, entitled "Sketch Map of Flat Top Nos. 4 and 5 Claims, Four Corners Exploration Co., Showing Location of Stage 1 and 2 Drill Holes and Proposed Stage 3 Drill Holes, McKinley County, New Mexico" which is attached hereto and made a part of this work authorization.

The drilling under Stage III will be performed in conformance with all specifications in Contract Idm-E671 pertaining thereto.

Nothing in this work authority shall be construed to increase the total estimated cost of the project, the amount of the Government's contribution, or any item of allowable cost which is expressly designated "allowable maximum".

Very truly yours,

W. H. King
W. H. King

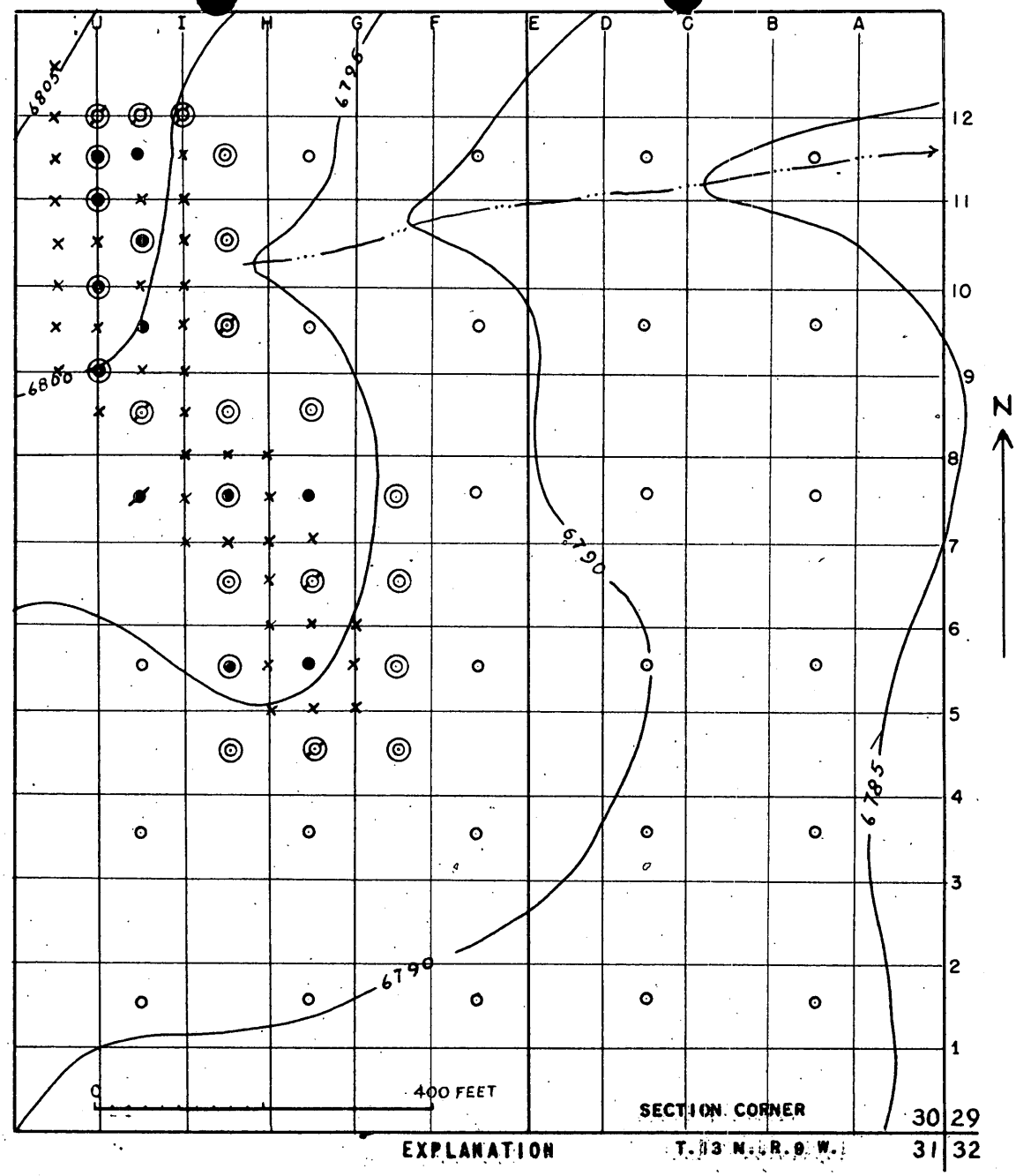
E. M. Hauskman
for A. H. Koschmann

DMEA Field Team, Region IV

JWT:jp
cc Subject w/enc
Amendment
Chron
Christensen
Chairman, Op. Comm. (3) w/enc
Koschmann w/enc
Brokaw "
Traver "
Townsend "

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS EXPLORATION ADMINISTRATIO
DOCKET 3151



EXPLANATION

- ● STAGE 1 DRILL HOLE, ORE-BEARING
- ⊘ STAGE 1 DRILL HOLE COMPLETED SHOWING A SIGNIFICANT IN HOLE GAMMA-RAY ANOMALY
- ⊙ STAGE 1 DRILL HOLE COMPLETED
- ◉ STAGE 2 DRILL HOLE, ORE-BEARING
- ⊘ STAGE 2 DRILL HOLE COMPLETED SHOWING A SIGNIFICANT IN HOLE GAMMA-RAY ANOMALY
- ⊙ STAGE 2 DRILL HOLE COMPLETED
- X STAGE 3 DRILL HOLE, PROPOSED LOCATION

Figure 1. SKETCH MAP OF FLAT TOP NOS. 4 AND 5 CLAIMS FOUR CORNERS EXPLORATION CO., SHOWING LOCATION OF STAGE 1 AND 2 DRILL HOLES AND PROPOSED STAGE 3 DRILL HOLES, McKINLEY COUNTY, NEW MEXICO

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 2, Colorado
November 29, 1954

Memorandum

To: Chief, Mineral Resources Branch, Mining Division, Region IV

From: H. M. Connors

Subject: DMEA 3151, Contract Idm-E671 (Uranium), Four Corners Exploration Co. (Flat Top-Vilatie Hyde claims, Nos. 4 and 5) McKinley County, New Mexico--Recommendation for Stage III of the contract

Stage II of the subject contract was completed during October 1954. During the drilling of the 24 holes, totalling 2,883 feet, some encouraging sample results were obtained.

Further exploration is justified and the plan for Stage III drilling as submitted by the operator is recommended. The location of the proposed Stage III holes is shown on Figure 1 of the map in Hilpert's report dated November 12, 1954. The hole coordinates are shown on the map submitted by the operator.

It is recommended that Stage III of the contract, consisting of 39 holes and an aggregate footage of not more than 3,900 feet be approved and the operator notified to proceed with the work.

F. W. Everett, for
H. M. Connors
Mining Engineer

HMC/dj

cc: w/orig 8
E671
Chron

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. BOX 360
COLORADO PLATEAU DISTRICT
GRAND JUNCTION, COLORADO

November 22, 1954

Memorandum

To: A. H. Koschmann, Supervising Geologist, DMEA Field Team, Region IV EWH for AHK

From: Arnold L. Brokaw, District Supervisor

Subject: DMEA 3151, Contract Idm-E 671, Four Corners Exploration Company, results of stage 2 drilling and proposed stage 3 drilling.

Transmitted herewith are 10 copies of an interim memorandum report by Lowell S. Hilpert, covering the above-referenced DMEA project.

The subject project has been successful in the first two stages in discovering new uranium ore bodies. Hilpert recommends that 39 more holes be drilled in stage 3 to delineate further and to determine the general size and shape of the ore bodies. The locations of the proposed holes in stage 3 are shown on an attached map.

W P Williams
For Arnold L. Brokaw

WPW/mlr
Enclosures

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COLORADO PLATEAU DISTRICT

Grants, New Mexico
November 12, 1954

Memorandum

To: A. L. Brokaw, District Supervisor

From: L. S. Hilpert

Subject: DMEA Docket 3151, contract Idm-E 671, Four Corners Exploration Company, results of stage 2 drilling and proposed stage 3 drilling.

Stage 2 drilling has been completed on the Flat Top Nos. 4 and 5 claims, DMEA docket 3151, contract Idm E-671, Four Corners Exploration Company. Of the 24 holes completed under stage 2, all but one registered gamma-ray in-hole values of "trace" amounts or more of eU_3O_8. What are considered to represent significant anomalies, occur in 13 of these holes, of which 6 show values of ore grade and thickness (0.10% eU_3O_8 or more and 1 foot or more thick). Chemical assays of the cuttings were obtained for 9 drill holes. These values, although likely somewhat low because of dilution, generally range from about one-third to one-half the grade of the in-hole gamma-ray values. It appears, therefore, that the gamma-ray values are much too high, so the chemical values are the basis for determining the "ore holes" noted above and shown on the attached map. The sample data for the 6 ore holes are listed below.

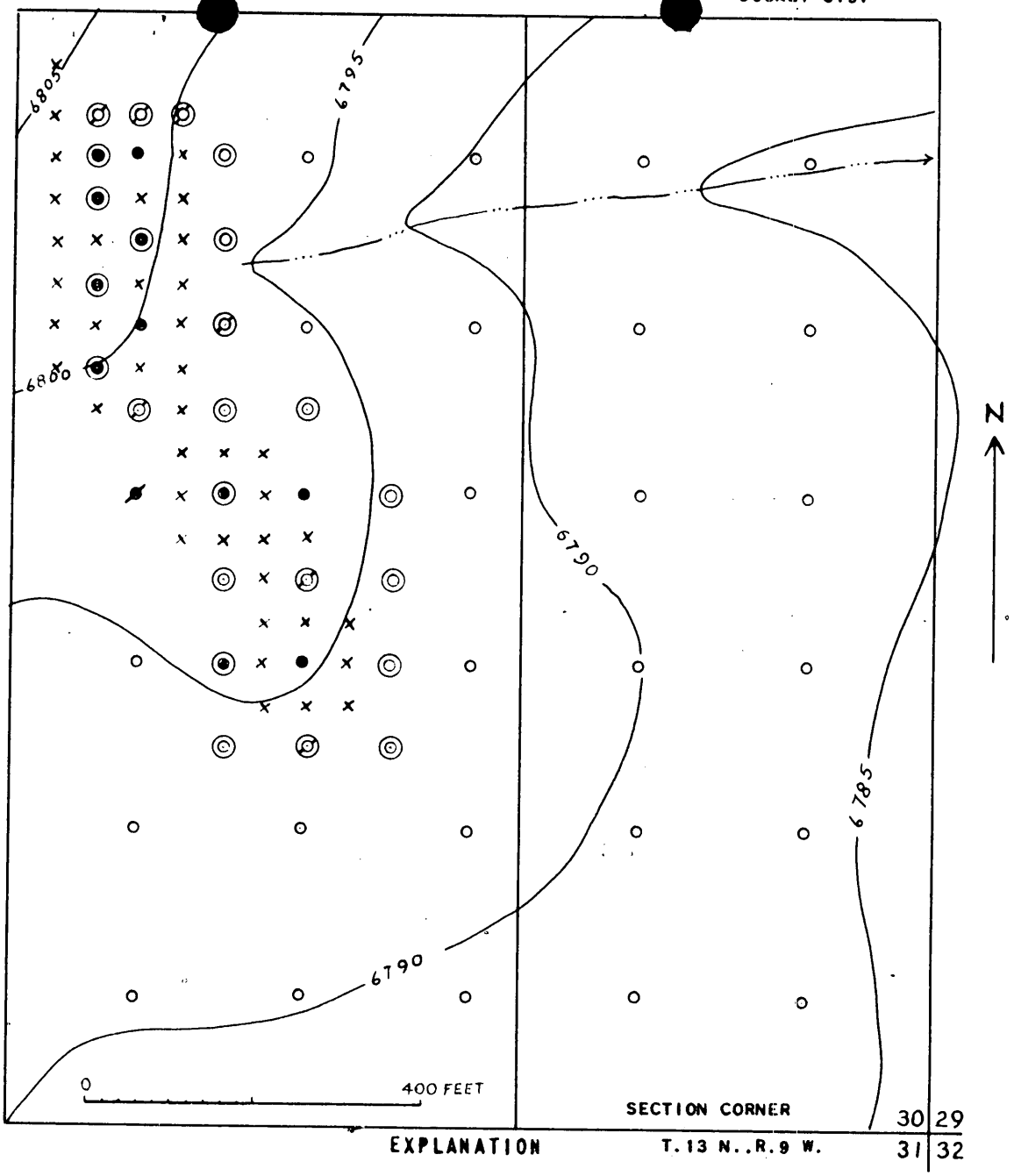
Assay data from six selected drill holes
Flat Top Nos. 4 and 5 claims, Valencia County, N. Mex.

Drill hole No. a/	Depth below collar (feet) Top Todilto	Base Todilto	Sample interval (feet) From	To	In-hole gamma-ray $\%eU_3O_8$	Cuttings gamma-ray $\%eU_3O_8$	chemical U_3O_8
H5-7.5	79	107	94.5	99	0.61	-	-
			95	107	-	-	0.285
			99	102	0.09	-	-
			102	104	0.88	-	-
I5-10.5	96	112	108	110	0.85	-	0.28
J-9	89	99	91	95	0.40	-	0.155
J-10	98	108	98.5	104.5	1.07	-	-
			98	108	-	-	0.55
J-11	110	116	110	116	0.61	-	0.88
J-11.5	89	127	105	107	0.17	-	0.08
			116.5	112.5	0.78	-	-
			115	123	-	0.32	0.30

a/ See coordinate system on attached map.

Stage 1 and stage 2 drilling have roughly outlined a mineralized area more than 800 feet long and ranging from 100 to 200-feet wide. Only part of this area is underlain by ore, but it is likely that a fairly large part of it is ore, as more than 30 percent of the holes drilled in this area are in ore. On the basis of assays of the cuttings, it is now reasonable to estimate about 10,000 indicated and inferred tons of ore for the mineralized area. This is on the assumption that the area is underlain by several individual ore bodies. If the ore is in a more or less continuous mass, the tonnage might ultimately prove to be two or three times this figure. More drilling is necessary to determine the general size and shape of the ore bodies and to calculate their tonnage and grade. Considerably more drilling will be necessary before mining can be undertaken. For these reasons, Manol and Rapaport propose drilling the 39 holes under the third stage at the locations shown on the attached map. These holes are offsets on 50-foot spacings from the previous holes that show the highest and most significant values and are offsets to determine the continuity and extent of the ore bodies between and beyond the ore found in previous holes.

From what is now known of the habits and general size and shape of the ore bodies, I believe Manol's and Rapaport's plan is reasonable and I recommend it.



EXPLANATION

- ● STAGE 1 DRILL HOLE, ORE-BEARING
- ⊘ STAGE 1 DRILL HOLE COMPLETED SHOWING A SIGNIFICANT IN HOLE GAMMA-RAY ANOMALY
- ○ STAGE 1 DRILL HOLE COMPLETED
- ⊙ STAGE 2 DRILL HOLE, ORE-BEARING
- ⊘ STAGE 2 DRILL HOLE COMPLETED SHOWING A SIGNIFICANT IN HOLE GAMMA-RAY ANOMALY
- ◎ STAGE 2 DRILL HOLE COMPLETED
- X STAGE 3 DRILL HOLE, PROPOSED LOCATION

Figure 1. SKETCH MAP OF FLAT TOP NOS. 4 AND 5 CLAIMS FOUR CORNERS EXPLORATION CO., SHOWING LOCATION OF STAGE 1 AND 2 DRILL HOLES AND PROPOSED STAGE 3 DRILL HOLES, McKINLEY COUNTY, NEW MEXICO

PROPOSAL FOR STAGE # 3 - DMEA 3151, Contract Idm-E671

The proposed locations of the 39 holes allowed under the 3rd stage of this D.M.E.A. program are plotted on the accompanying map. The intentions of these holes are:

1) To further investigate the structural and stratigraphic environment which resulted in the localliza tion of this ore body; this information may be of value in the exploration for other ore bodies on this and other properties.

2) To determine the continuity and approximate size of the ore body. In our oppinion holes close to the boundry of the Flat Top #3 Claim are justified by 1) the exploration of that property is also being carried out under D.M.E.A. and 2) it appears that sufficient ore has been discovered to repay the D.M.E.A. loan several times over.

After the completion of this D.M.E.A. contract it is out intention to core drill a number of holes on 25' centers to delimit the ore body and to determine the character of the ground for mining purposes.

I. Rapaport 10-21-54

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

Department of the Interior
Defense Minerals Administration
RECEIVED
OCT 21 1954

224 New Customhouse
Denver 2, Colorado

October 20, 1954

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 3151 (Uranium), Contract Idm-E671, Four Corners Exploration Company, McKinley County, New Mexico

Enclosed are three copies of work authorization, dated October 18, 1954, for the performance of certain work under Contract Idm-E671. Also enclosed are three sets of data relevant thereto.

W. H. King

W. H. King

Enclosures

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
OCT 21 1954

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COLORADO PLATEAU DISTRICT
P. O. BOX 360
GRAND JUNCTION, COLORADO

October 8, 1954

Memorandum

To: A. H. Koschmann, DMEA Field Team, Region IV *E MK for AHK*

From: Arnold L. Brokaw, District Supervisor

Subject: DMEA 3151, Four Corners Exploration Co., Flat Top claims 4 and 6, McKinley County, New Mexico

Transmitted herewith are eleven copies of an interim memorandum report by L. S. Hilpert, covering results of stage one drilling and proposals for stage two drilling in the subject contract.

Hilpert points out that four drill holes in stage one succeeded in penetrating material of ore grade. An attached map shows the proposed locations for 24 additional drill holes in stage two of the contract.

W P Williams
For Arnold L. Brokaw

WPW/mlr

Enclosures

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
COLORADO PLATEAU DISTRICT
P. O. BOX 360
GRAND JUNCTION, COLORADO

October 8, 1954

Memorandum

To: A. L. Brokaw, District Supervisor

From: L. S. Hilpert

Subject: DMEA Docket 3151, Contract Idm-E671, Four Corners Exploration Co., results of stage 1 drilling and proposed stage 2 drilling

Stage 1 drilling has been completed on the Flat Top Nos. 4 and 5 claims, DMEA Docket 3151, contract Idm-E671, Four Corners Exploration Co. Of the 30 holes completed under stage 1, ten registered in-hole gamma-ray values of 0.005 percent eU_3O_8 or greater. Of these ten, four registered values greater than the ore-grade cutoffs of 0.10 percent U_3O_8 and 1-foot thick. Gamma-ray values of the cuttings from these four ore-grade holes were also obtained, and a chemical assay of part of the sample cuttings from one of these holes was obtained. The sample data for these four holes are listed on the following page, and all the hole locations and the gamma ray in-hole data are shown on the attached map, except where gamma-ray data from cuttings were obtained. When available, that data only are shown on the map and identified by the symbol "C".

LSH/mlr

Assay data from four selected drill holes
Flat Top Nos. 4 and 5 claims, Valencia County, New Mexico

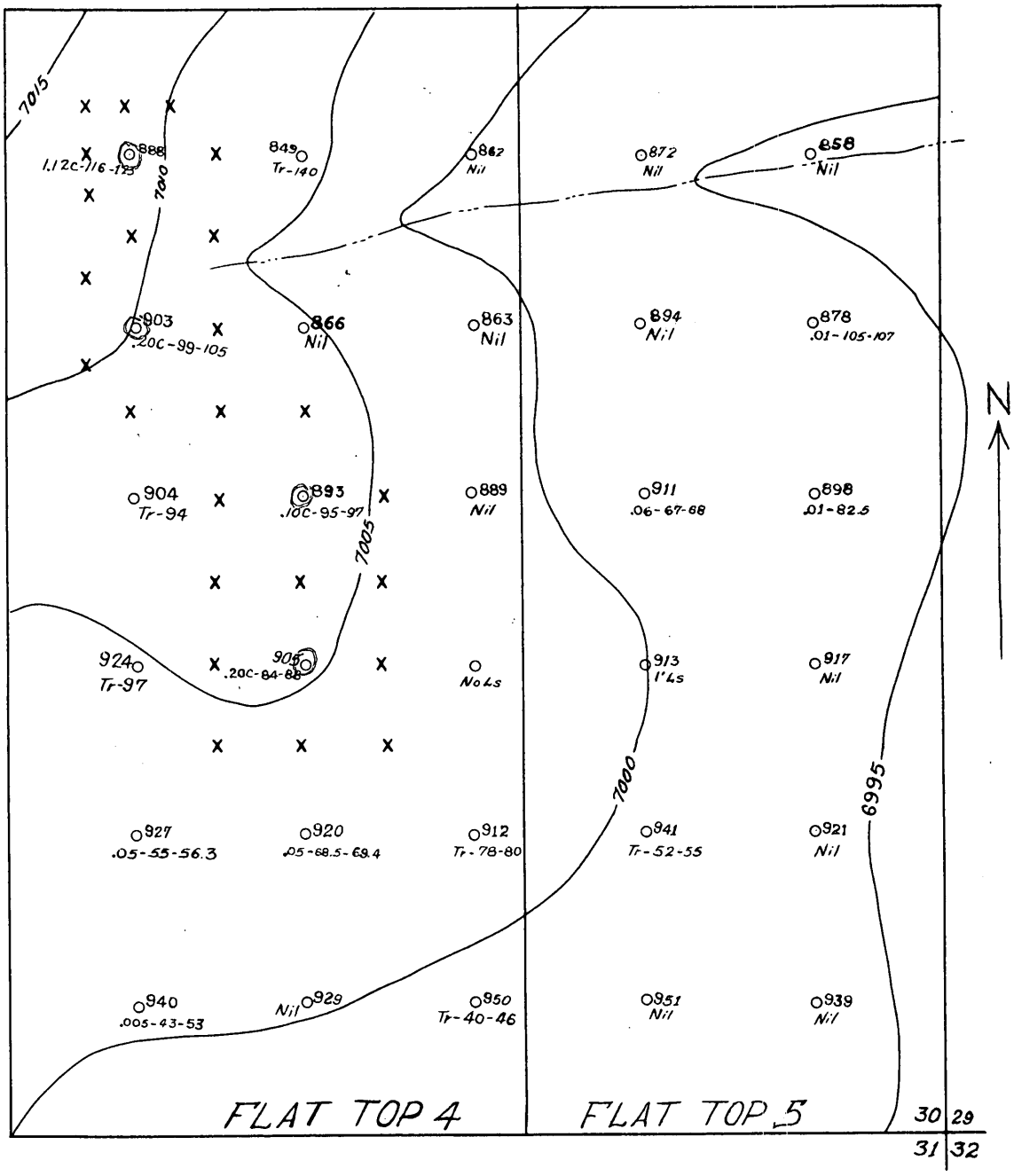
Drill-hole number a/	Depth below collar (feet) Top Todilto	Base Todilto	Sample Interval (feet) From	To	In-hole gamma-ray % eU_3O_8	Cuttings gamma-ray % eU_3O_8
G5-5.5	84	100	84	88	0.42	0.20
G5-7.5	83	113	95	97	0.20	0.10
I5-9.5	99	107	99	105	0.58	0.20
I5-11.5	114	124	116	123	1.50	1.12 b/

a/ See coordinate system on attached map.
b/ A chemical assay by the Anaconda Copper Mining Co. on the cuttings from 120 to 122 feet yielded 0.76 percent U_3O_8 and a laboratory radiometric assay from these same cuttings registered 0.73 percent eU_3O_8.

Although the radiometric values obtained from the cuttings and the single chemical assay run about half the value of the in-hole gamma-ray values, they still indicate material has been penetrated by these four drill holes that either attains or exceeds the cutoffs used for estimating ore reserves. These four holes, then, represent discoveries of one or more ore deposits. Spacing of the holes on 200-foot centers is too great to do more than infer the number, size, and grade of the ore bodies. For this reason, Manol and Rapaport, co-partners in the Four Corners Exploration Co., propose that the 24 holes permitted under stage 2 be drilled around the four "ore holes" on 50- and 100-foot spacings, as shown on the attached map. The holes shown on 50-foot spacings offset the hole showing the highest values and greatest ore-grade thickness, and are planned to be no closer than 100 feet to adjoining property. The proposed plan of drilling should roughly define the deposit (or deposits) discovered, and should provide valuable information on the general size and habits of deposits to be expected in other parts of these two claims. It should also provide information on the relation of the deposits to the fault and fold structures that are characteristic of the area.

The geologic data to be obtained from Manol's and Rapaport's proposed plan of stage 2 drilling, therefore, will likely make it possible to plan stage 3 drilling much more effectively as well as roughly outline the deposits already discovered. I think the plan is a good one and I recommend it.

LSH/mlr



EXPLANATION

940 / .005-43-53 — 1st STAGE DRILL HOLE, SHOWING THE ELEVATION PLUS 6000' AT BASE OF TODILTO LIMESTONE, MINERALIZATION AND LOCATION OF SUCH BELOW SURFACE. (GAMMA RAY VALUES WHEN FOLLOWED BY "C" MEAN CUTTINGS)

X — LOCATION OF PROPOSED DRILL HOLE (STAGE 2)

Figure 2. SKETCH MAP OF FLAT TOP 4 AND 5 CLAIMS, 4 CORNER EXPLORATION CO. SHOWING LOCATION OF DRILL HOLES AND PROPOSED DRILL HOLES, MCKINLEY COUNTY, NEW MEXICO

200 0 600 FEET

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 2, Colorado
October 1, 1954

Memorandum

To: W. M. Traver, Chief, Mineral Resources Branch, Mining Division, Region IV

From: J. H. Soulé

Subject: DMEA 3151, Contract Idm-E671 (Uranium), Four Corners Exploration Co. (Flat Top-Vilatie Hyde claims, Nos. 4 and 5), McKinley County, New Mexico--Recommendation for Stage II of the contract

Stage I of the subject contract was completed during September 1954. During the drilling of the 30 holes, totalling 3,074 feet, some encouraging sample results were obtained from the hole logs. From the radiometric readings, one hole contained 1.5 percent U_3O_8, another 0.58 percent U_3O_8, and 2 others contained 0.42 and 0.2 percent U_3O_8. This is material of ore grade. The remaining holes contained from 0.06 percent U_3O_8 down to nil.

Because of the results obtained in the above drilling, it is imperative that more drilling be done and that Stage II of the contract be undertaken. The holes containing material of ore grade will be bracketed by offset holes. The proposed hole locations in terms of the operator's coordinate system are: F.5 - 4.5, G.5 - 4.5, H.5 - 4.5, F.5 - 5.5, H.5 - 5.5, F.5 - 6.5, G.5 - 6.5, H.5 - 6.5, F.5 - 7.5, H.5 - 7.5, G.5 - 8.5, H.5 - 8.5, I.5 - 8.5, J - 9, H.5 - 9.5, J - 10, H.5 - 10.5, I.5 - 10.5, J - 11, H.5 - 11.5, J - 11.5, I - 12, I.5 - 12, and J - 12. These hole locations are shown on the accompanying map. This proposed Stage II is the same as submitted by the operator and is approved.

It is recommended that Stage II of the contract, consisting of 24 holes and an aggregate footage of not more than 2,400 feet, be approved and the operator notified to proceed with the work.

F. W. Everett, for
J. H. Soulé
Mining Engineer

attachment

JHS/kp

cc: 8, E671, Chron

UTAH | COLORADO
ARIZONA | NEW MEXICO

Four Corners Exploration Company

P. O. BOX 101 GRANTS, NEW MEXICO

IRVING RAPAPORT
F. O. MANOL

Resources Branch
Date Rec'd
SEP 28 1954
BUREAU OF MINES
Denver, Colorado

Mining Division
Date Rec'd
SEP 29 1954
BUREAU OF MINES
Denver, Colorado

September 27, 1954

Narrative Report for September - D.M.E.A. 3151

Flat Top #4 & #5 Claims, Section 30, T13N, R9W, Grants, N.M.

During the month of September, Stage 1 of this D.M.E.A. Project was completed.

Of the twenty holes drilled this month, ten were completely devoid of uranium, (two showed almost no limestone); three penetrated traces of uranium; four revealed low grade uranium mineralization; and three encountered good thicknesses of high-grade uranium ore to a maximum of seven feet of 1.12% U_3O_8. (see accompanying map and table)

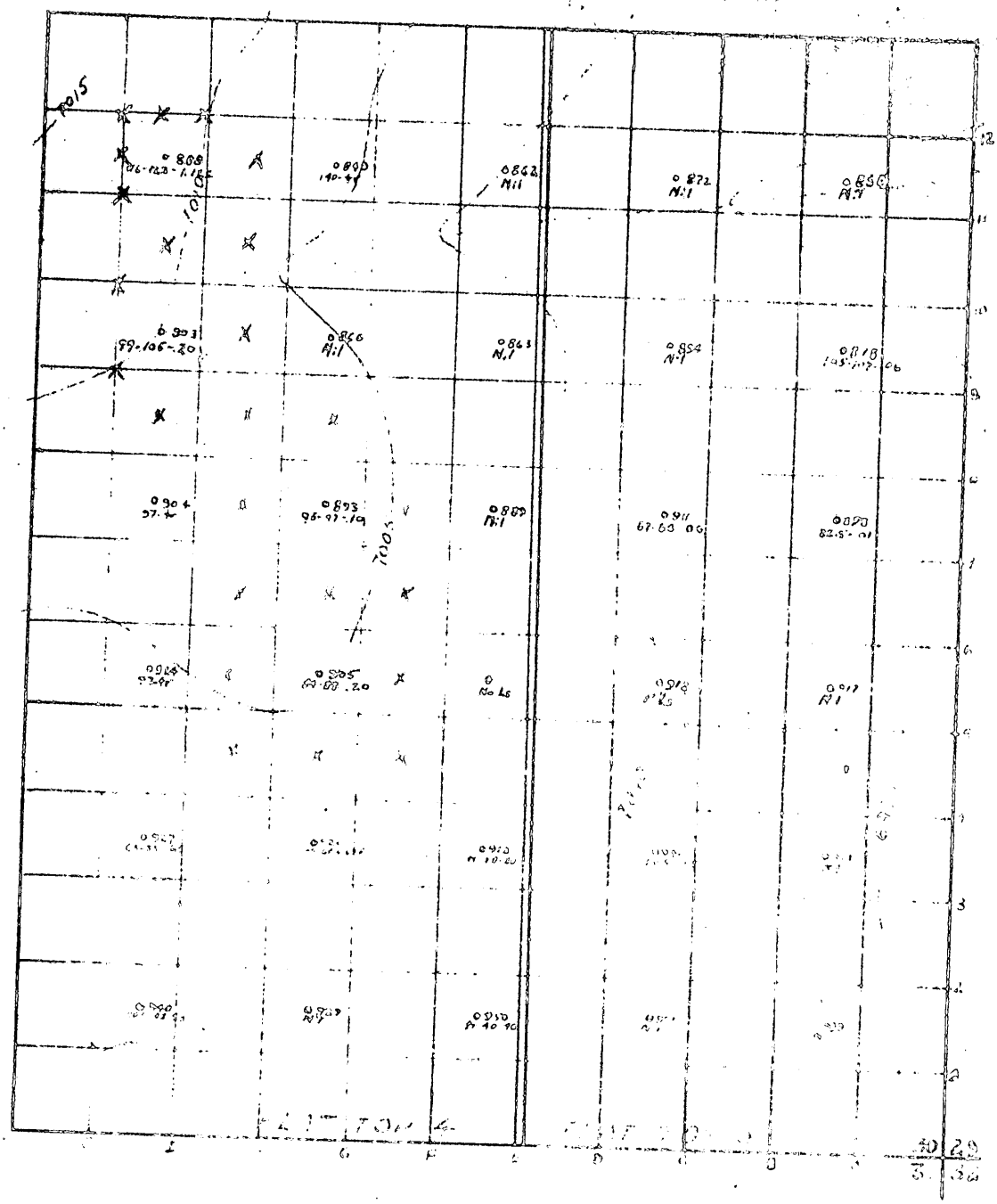
The Grants District probably is producing and has more blocked-out ore than any other uranium district within the United States. Mineralization is sometimes encountered on 200 foot centers, but ore is very seldom found on this wide grid. The fact that three holes penetrated good ore on this spacing on these claims may merely be blind luck. It is more probable that this D.M.E.A. program has resulted in the discovery of a significant tonnage of relatively easily mined uranium ore.

The proposed holes for Stage 2 are X'd in red on the accompanying map. Their purpose is to ascertain the meaning of the holes in ore encountered on Stage 1. It is our desire to determine the size of the targets, the character of the ore, and the structural and mineralogical guides to ore before proceeding (on Stage 3) with closer drilling about other favorable holes drilled on Stages 1 and 2.

Within six weeks, freezing weather will preclude wet drilling, deferring exploration on this property till spring. We therefore hope that the proposed Stage 2 will meet your rapid approval and that this program will be successfully completed before the end of the year.

Irving Rapaport
Four Corners Exploration Company

FLAT TOP #4 + 5 Claims, T13N, R9W



LEGEND

0 929 – 6,929' = Elev. [illegible]

.05 55.56 – .05% [illegible]

7,000' – surface contour

x – proposed [illegible]

SCALE 1" = [illegible]

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

/w Customhouse
r 2, Colorado

October 18, 1954

ssrs. Frank O. Manol
nd Irving Rappaport
Four Corners Exploration Company
P. O. Box 101
Grants, New Mexico

Re: Docket DMEA 3151 (Uranium
Contract Idm-E671

Gentlemen:

Consistent with the stipulations contained in Exhibit "A", caption "Description of the Work", subheading "Stage 2" of Contract Idm-E671, and confirming verbal approval of October 4, 1954, the drilling under "Stage 2" will be performed at the locations indicated by the symbol "x" on the map "Figure 2. Sketch Map of Flat Top 4 and 5 Claims....." which is attached hereto and made a part of this work approval. The drilling under "Stage 2" will be performed in conformance with all specifications in Contract Idm-E671 pertaining thereto.

Nothing in this work authority shall be construed to increase the estimated total cost of the project, the amount of the Government's contribution, or any item of allowable cost which is expressly designated "allowable maximum".

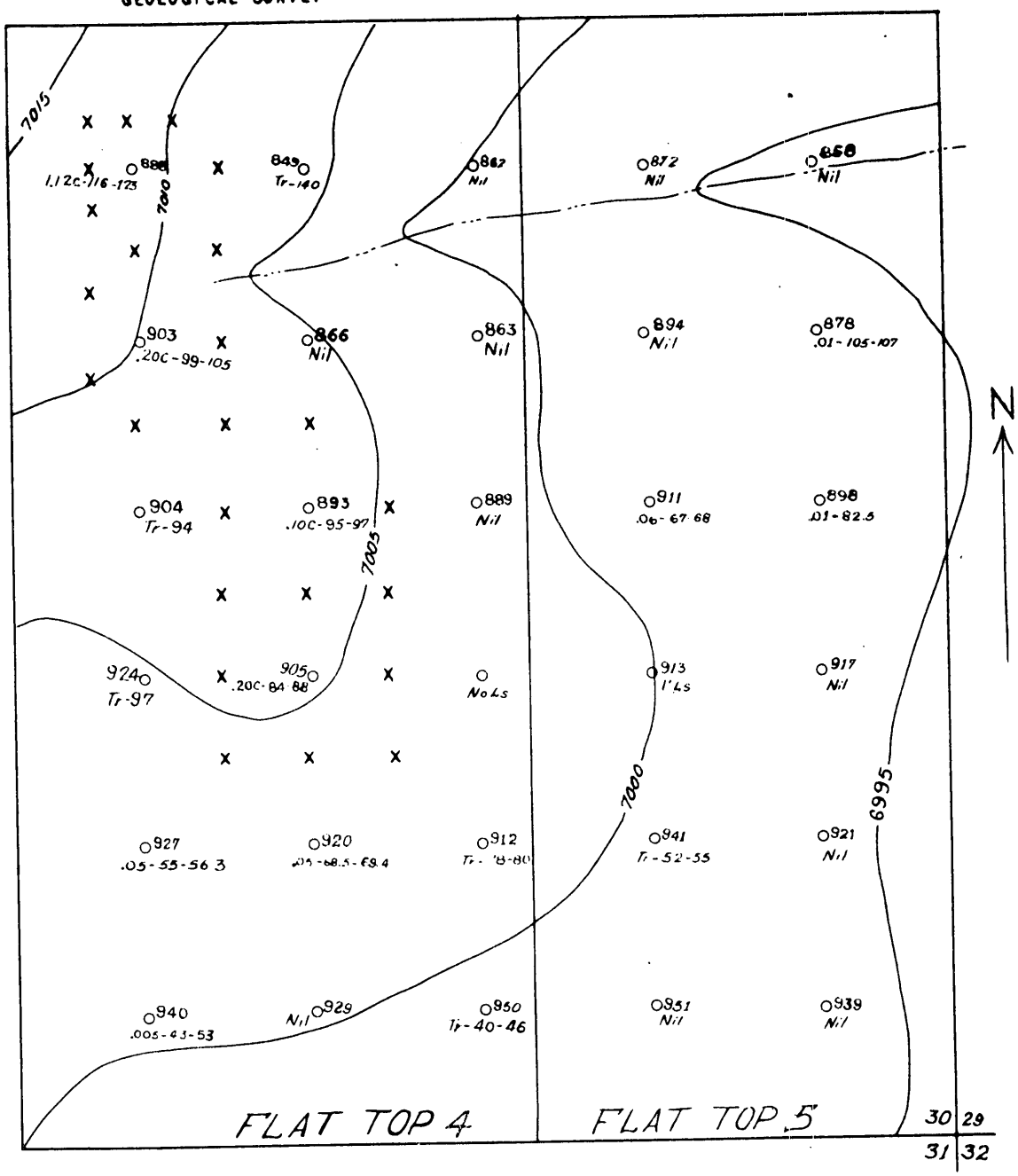
Very truly yours,

W H King
W. H. King

E. N. Hauskman
for A. H. Koschmann

DMEA Field Team, Region IV

JWT:jp
cc Subject w/enc.
Amendment
Chron
TAChristensen
✓Chairman, Op. Comm. (3) w/enc.
Koschmann "
Brokaw "
Traver "
Townsend "



EXPLANATION

940 .004-43-53 — 1st STAGE DRILL HOLE, SHOWING THE ELEVATION PLUS 6000' AT BASE OF TODILTO LIMESTONE, MINERALIZATION AND LOCATION OF SUCH BELOW SURFACE. (GAMMA RAY VALUES WHEN FOLLOWED BY "C" MEAN CUTTINGS)

X — LOCATION OF PROPOSED DRILL HOLE (STAGE 2)

Figure 2. SKETCH MAP OF FLAT TOP 4 AND 5 CLAIMS, 4 CORNER EXPLORATION CO. SHOWING LOCATION OF DRILL HOLES AND PROPOSED DRILL HOLES, MCKINLEY COUNTY, NEW MEXICO

200 0 600 FEET

July 7, 1954

Memorandum

To: Hazel Berry, Operating Committee

From: Grace L. Ault, Rare & Miscellaneous Metals Division

Subject: Amendment to contract

Mr. Ching has reviewed and approved Amendment No. 2, dated July 2, 1954, to Contract No. Idm-E671, Docket No. DMEA-3151, Four Corners Exploration Company (Uranium).

/s/ Grace L. Ault

Grace L. Ault

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

224 New Customhouse
Denver 2, Colorado

July 2, 1954.

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA-3151 (Uranium), Contract No. Idm-E671, Frank O. Manol and Irving Rapaport d/b/a Four Corners Exploration Company, Flat Top and Vilatie Hyde claims, McKinley County, New Mexico.

Enclosed are the original and two copies of Amendment No. 2 to Contract No. Idm-E671 which has been executed to extend the period for the start of project work from 60 days to 120 days, and extend the period for completion of the project work from eight months to ten months.

Also enclosed are three copies of the Operator's letter, dated June 17, 1954, requesting the extension of the period for the start of work.

Copies of the amendment have been given to the Operator, Finance Office, Region IV, and a copy retained for our files.

W. H. King

Enclosures

COPY

FOUR CORNERS EXPLORATION COMPANY

P.O. Box 101
Grants, New Mexico

June 17, 1954

Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado

Attention: Mr. W. H. King
Re: DMEA Docket No. 3151

Gentlemen:

In view of the fact that an amendment is being prepared by your office to the subject contract authorizing use of aquagel and mud for the casing of drill holes we herewith request an extension of time on the effective starting date.

We suggest 60 days beyond the effective date of the amendment because availability of drilling equipment in this area is very critical at this time.

Very truly yours,

/s/ F.O Manol

F.O. Manol

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

Defense Minerals Administration
RECEIVED
JUL 7 - 1954

224 New Customhouse
Denver 2, Colorado

July 1, 1954.

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA-3151 (Uranium), Contract Idm-E671, Frank O. Manol and Irving Rapaport d/b/a Four Corners Exploration Company, Flat Top and Vilatie Hyde claims, McKinley County, New Mexico.

Enclosed for your information is the following material relative to provisions in the subject contract:

1. Three copies of a letter from F. O. Manol, dated June 26, 1954, wherein he requests an interpretation and clarification of the matter relative to the volume of the sample to be retained for the use of the Government.

2. Three copies of a letter from this office, dated July 1, 1954, in reply to the Operator's letter of June 26, 1954.

W. H. King

Enclosures

UTAH | COLORADO
ARIZONA | NEW MEXICO

Four Corners Exploration Company

P. O. BOX 101 GRANTS, NEW MEXICO

IRVING RAPAPORT
F. O. MANOL

June 26, 1954

Rec'd
JUN 30 1954
BUREAU OF MINES
Denver, Colorado

Bureau of Mines
Defense Minerals Exploration Administration
424 New Customhouse
Denver 2, Colorado

Attention: Mr. W. H. King Re: Docket No. DMEA 3151

Gentlemen:

After reading over Contract No. Idm-E671 we would like to have an interpretation and clarification of the following paragraph take from Exhibit "A" of the subject contract.

"Casing will be set in all holes from the surface to the Todilto limestone before the limestone is penetrated to insure the recovery of undiluted samples. All cuttings including the fine fractions throughout the entire thickness of the Todilto limestone will be collected separately in two foot runs, checked with Geiger counter, split, sacked, and labeled, one-half to be retained and properly stored for use of the Government."

With reference to the above requirement we would like to point out that drilling 4½" holes with a rotary rig makes the volume of cuttings to store a considerable problem. The problem is many times greater than if a two inch wagon drill were used. Each two foot run produces approximately 34 pounds of cuttings. Each hole will average about ten runs, therefore, the average hole produces about 340 pounds of cuttings. Weather-proof and tamper-proof storage for this mass can become very expensive.

We have our own Jones Ore Splitter and we would like to have your authorization to interpret the paragraph in question in a manner which would allow the use of a Jones Ore Splitter to reduce the samples to a more practical size. May we have your comments on this matter?

Very truly yours,

F. O. Manol

F. O. Manol

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 7 - 1954

224 New Customhouse
Denver 2, Colorado

July 1, 1954.

Mr. Frank O. Manol
Four Corners Exploration Company
P. O. Box 101
Grants, New Mexico

Re: Docket DMEA-3151 (Uranium),
Contract Idm-E671

Dear Mr. Manol:

This will acknowledge receipt of your letter of June 26, 1954, wherein you refer to a stipulation in Exhibit "A" of the referenced contract as follows:

> "All cuttings, including the fine fractions throughout the entire thickness of the Todilto limestone, will be collected separately in two foot runs, checked with the Geiger counter, split, sacked, and labeled, one-half to be retained and properly stored for the use of the Government."

In reference to the foregoing you request an interpretation and clarification of the volume of the sample required for use of the Government inasmuch as each two foot run produces approximately 34 pounds of cuttings, the storage of which in a weatherproof and tamper-proof storage would become very expensive as each hole would produce a total of approximately 340 pounds of cuttings.

For your information and guidance in the matter, the volume of cuttings from each two foot run may be reduced by the use of a Jones sample splitter, retaining for Government use a representative sample of the cuttings of from three to five pounds for each two foot run in the Todilto limestone.

Very truly yours,

W. H. King
Executive Officer
DMEA Field Team, Region IV

JWT:cwm

cc: Contract
WMTraver
AHKoschmann
WPWilliams
Chron.
Administrator, DMEA (3)
JWTownsend

June 28, 1954

Memorandum

To: Hazel Berry, Operating Committee

From: Grace L. Ault, Rare & Misc. Metals Division

Subject: Amendment to contract

Mr. Ching has reviewed and approved Amendment No. 1, dated June 25, 1954, to Contract No. Idm-E671, Docket No. DMEA-3151, Four Corners Exploration Company.

/s/ Grace L. Ault

Grace L. Ault

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

224 New Customhouse
Denver 2, Colorado

June 25, 1954

INTERIOR DEPT.
JUL 1 - 1954
SOLICITOR

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 3151 (Uranium), Contract Idm-E671, Four Corners Exploration Company, McKinley County, New Mexico

Enclosed are the original and two copies of Amendment No. 1 to Contract Idm-E671 which has been executed to authorize an alternate to the casing of the holes by authorizing wet drilling and the use of aquagel to consolidate the material above the Todilto limestone. Also enclosed are three sets of data relevant to the amendment.

In addition we are enclosing the original and two copies of an affidavit from F. O. Manol indicating that F. O. Manol, who signed the subject contract, and Frank O. Manol, recited as a co-partnership in the heading of the contract, are one and the same.

Copies of the amendment have been given to the operator, the Fiscal Officer, Region IV, and a copy has been retained for our files.

W. H. King

W. H. King

Enclosures

C
O
P
Y

UNITED STATES
DEPARTMENT OF THE INTERIOR
Geological Survey
P. O. Box 360
Grand Junction, Colo.

May 25, 1954

Memorandum

To: W. H. King, Executive Officer, Field Team, Region IV

From: W. P. Williams, Colorado Plateau District

Subject: Docket DMEA 3151 (Uranium), Contract Idm-E671, Four Corners Exploration Company, McKinley County, N.M. (wet versus dry drilling)

This is in answer to your memo of May 18, 1954, in which you request recommendations concerning the use of wet drilling and drilling muds in lieu of casing in proposed drill holes in the subject contract.

The Atomic Energy Commission has used wet drilling methods to hold unconsolidated material in place in the upper parts of drill holes in order to obtain uncontaminated rotary drill bit cuttings from the Todilto limestone in the Grants district, New Mexico. Mr. Chester E. Farrow, Assistant Exploration Engineer, Engineering Department, Exploration Division, AEC, Grand Junction, in a personal interview May 21, 1954, stated that the AEC had obtained good results holding upper-hole sands in place by putting just enough water in the hole to wet the sand, Farrow stated the sand did not appreciably contaminate the lower limestone cuttings; and the hole remained open long enough to be probed without difficulty with in-hole gamma-ray equipment. Mr. Farrow volunteered further that the AEC had some difficulty with cased holes because dry sand worked into the holes around the bottom of the casing.

All information I have been able to gather on the subject from AEC and U. S. Geological Survey exploration engineers leads me, as a geologist and not as a drilling engineer, to make the recommendation that it should be permissible to amend the subject contract to use wet drilling methods in lieu of casing to avoid sample contamination. My recommendation is a general one and final decision should be on an engineering basis.

Low cost casing of metal or plastic is available so that the difference in cost between the aquagel method, with the extra rig-moving and setting up involved, and the casing method would probably not be great. Costs would be appreciably less if merely a small amount of water were used in the hole.

Best qualified opinions I have been able to get indicate that Mr. Rapaport's proposal to use wet drilling methods and drilling muds is practicable.

/s/ W. P. Williams
Geologist

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
May 25, 1954

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

From: Chief, Mineral Resources Branch, Mining Division, Region IV

Subject: DMEA 3151, contract Idm-E671 (Uranium), Four Corners Exploration Company, (Flat Top and Vilatie claims) McKinley County, New Mexico

Enclosed are the original and seven copies of R. R. McLellan's memorandum concerning the request of operator of subject docket for a revision of the drilling method.

McLellan approves the request and I agree. However, I believe it should be stipulated that if the method proves unsatisfactory the original method as stated in the contract shall be used.

W. M. Traver

W. M. Traver

Enclosure

cc: 5

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
May 20, 1954

Memorandum

To: Chief, Mineral Resources Branch, Mining Division, Region IV

From: Russell R. McLellan

Subject: DMEA 3151, contract Idm-E671 (Uranium), Four Corners Exploration Company, (Flat Top and Vilatie claims), McKinley County, New Mexico--Request for revision of drilling method

With reference to Irving Rapaport's letter of May 13, 1954, it is believe by the writer that the use of aquagel and clay to seal off sand and loose overburden while rotary drilling the Todilto limestone will be nearly as satisfactory as the use of casing in reducing the dilution of the limestone cuttings. When considering the cost factor, the use of aquagel has a decided advantage. Also, Bureau of Mines project engineers occasionally have utilized the material for similar purposes on various diamond drilling projects.

The writer consulted with the Atomic Energy Commission representatives in Grants, New Mexico recently concerning the problem of sample dilution and no mention was made of the use of aquagel in the area at that time, however, it is quite possible that since then aquagel has replaced casing to a large extent as pointed out by Rapaport. We have no way of verifying this however.

The mud will undoubtedly penetrate the dune sand sufficiently to form a fairly tough seal that will resist considerable rod vibration. If the company uses flush joint drill rods, there will be very little possibility of excessive dilution of the samples.

It is recommended that the contract be amended to allow the use of aquagel and clay in lieu of casing to seal the overburden to the top of the limestone.

for W. W. Weaver
Russell R. McLellan
Mining Engineer

cc: 7

COPY

FOUR CORNERS EXPLORATION COMPANY
P.O. Box 101
Grants, New Mexico

May 13, 1954

Mr. W.H. King
D.M.E.A.
224 New Customhouse
Denver 2, Colorado

Dear Sir:

In reference to Docket No. 3151, on the Flat Top No. 4 and 5 claims in Section 30, T13N, R9W, I have the following request.

The contract as presented required the casing of all holes to limestone and the extraction of cuttings through that casing. We have performed approximately 25,000 feet of drilling upon adjacent ground under contract and have solved the problem of dilution in a somewhat different manner. 1) The unconsolidated material above the limestone is drilled with water; enough clay and aquagel are added to create a tightly sealed hole. 2) The rig is then moved off the hole and several days are allowed for the hole to dry out completely. 3) The rig is then moved over the hole and the limestone is drilled with air. Resultant dilution has been negligible.

Anaconda, Santa Fe, and the Atomic Energy Commission, who pay for the drilling of about 70,000 feet of hole monthly in this area, have all tried casing and then converted to the above system in unconsolidated ground.

The cost item "Casing" allowed $.50/foot for sealing overburden. We are prepared to perform that operation employing drilling mud for $.30/foot.

The contract has already been signed by us and we will tool up to your specifications if you deem the above revision inadvisable.

Yours truly,

/s/ Irving Rapaport

Irving Rapaport

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

INTERIOR DEPT.
JUL 1 - 1954
SOLICITOR

June 14, 1954

Memorandum

To: Hazel Berry, Operating Committee

From: Grace L. Ault, Rare & Miscellaneous Metals Division

Subject: Region IV contract

Mr. Ching reviewed and approved Contract No. Idm-E671, dated May 10, 1954, Docket No. DMEA-3151, Four Corners Exploration Company, which was finalized under Region IV delegation of authority.

Grace L. Ault

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : E. Wm. Ellis, DMEA Member, Uranium Commodity Committee

DATE: June 8, 1954

RECEIVED
JUN 10 1954

FROM : W. S. Twenhofel, USGS Acting Member, Uranium Commodity Committee

SUBJECT: Report of examination, DMEA Docket 3151 (Uranium), Four Corners Exploration Co., Grants, New Mexico, applicant; Flat Top claims Nos. 4 and 5, S.E. 1/4 Section 30, T. 13 N., R. 9 W., McKinley County, New Mexico

The Field Team report, including a revised "Summary, Conclusions, and Recommendations," by Russell R. McLellan, Bureau of Mines, and J. D. Strobell, Jr., Geological Survey, concerning exploration on the property identified above has been reviewed.

A contract (Idm-E671), covering the exploration as recommended by the Field Team and with which I concur, apparently has been signed and is in force.

W. S. Twenhofel

CC: E. Wm. Ellis (2)

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

224 New Customhouse
Denver 2, Colorado

May 28, 1954

Mr. Irving Rapaport
P. O. Box 101
Grants, New Mexico

Re: Request for amendment,
DMEA Docket 3151 (Uranium),
Contract Idm-E671, Four
Corners Exploration Company,
McKinley County, New Mexico

Dear Mr. Rapaport:

Reference is made to your letter dated May 13, 1954, requesting that DMEA Contract Idm-E671 be amended to allow the use of aquagel and clay to seal off sand and unconsolidated overburden in lieu of casing drill holes to the top of the Todilto limestone.

An amendment will be prepared by this office to permit this change and the sealing of drill holes by the aquagel method will be allowed at a rate of 30 cents per foot for drill-hole footage from the surface to the top of the Todilto limestone.

In the event that the aquagel method of sealing the drill holes should prove unsatisfactory in the opinion of the U.S. Bureau of Mines representative the original method of casing to full depth of overburden will be required.

Very truly yours,

W. H. KING

W. H. King
Executive Officer, DMEA
Field Team, Region IV

RDB:jp
cc Contract
Chron
WMTraver
AHKoschmann
Sec. to Oper. Comm. (2)
JWTownsend

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

224 New Customhouse
Denver 2, Colorado

May 12, 1954

REGISTERED

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 3151 (Uranium), Contract Idm-E671, Frank O. Manol and Irving Rapaport, a copartnership dba Four Corners Exploration Company

Enclosed are the original and two copies of Contract Idm-E671.

A copy of the contract has been given to the operator, the Fiscal Officer, Region IV, and a copy retained for our files.

John F. Shaw
For W. H. King

Enclosures

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

224 New Customhouse
Denver 2, Colorado

May 12, 1954

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: Code 210

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 3151 (Uranium), Contract Idm-E671, Four Corners Exploration Company, Flat Top 4 and 5 claims, McKinley County, New Mexico

Enclosed are four copies of the report of examination on the subject property.

A contract has been signed and is in force.

John F. Shaw
For W. H. King

Enclosures

ON-SITE EXAM. REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

224 New Customhouse
Denver 2, Colorado

April 30, 1954.

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Report of Examination - DMEA Docket 3151 (Uranium), Four Corners Exploration Company, Flat Top 4 and 5 claims, McKinley County, New Mexico.

Enclosed are eleven copies of the engineering report of examination on the subject docket.

The applicant requested $29,464.45 to drill 35,060 feet of rotary drill holes.

The subject property is adjacent to the claims held by Vopat, which contract has been forwarded to the Operator for signature. The engineer examiner points out that the overburden on these claims is thicker and the area smaller than the Vopat claims. Because of the greater amount of loosely compacted overburden he recommends all holes be cased from surface to the top of the Todilto limestone before the limestone is penetrated to insure the recovery of undiluted samples in the ore zone.

The amount of drilling and costs involved are comparable to the Vopat contract except for the cost of casing which was not deemed necessary in the Vopat contract where the amount of overburden was considerably less.

We concur in the examining engineer's recommendation to drill approximately 93 holes or a total of 9,450 feet of rotary drilling at a cost not to exceed $12,189.00 -- Government participation 90 per cent, or $10,970.10.

W H King
W. H. King

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
April 27, 1954

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

From: Chief, Mineral Resources Branch, Mining Division, Region IV

Subject: DMEA 3151, Four Corners Exploration Company (Uranium) (Flat Top 4 and 5 claims), McKinley County, New Mexico

Enclosed are the original and ten copies of a revised "Summary, Conclusions, and Recommendations," by Russell R. McLellan, Bureau of Mines, and J. D. Strobell, Jr., Geological Survey, and of Russell R. McLellan's engineering report on the subject docket.

McLellan concludes that the Flat Top 4 and 5 claims are in a geologically favorable area where the occurrence of uranium deposits may well be expected. Due to depth of overburden, however, either the grade of ore found or the size of deposits will have to be above average for a mining operation to prove profitable. Costs of exploration by rotary drill will by the same analogy be correspondingly high. A revised project is recommended in three stages comprising 30 holes on a 200-foot rectangular grid pattern covering the claims under Stage I, 24 holes on centers no closer than 50 feet under Stage II, and a maximum of 39 offset holes on a 50-foot grid under Stage III, to further explore Stage I and Stage II holes. Stage II and Stage III drill hole locations require approval by the Region IV Field Team prior to drilling. Total cost is estimated as $13,259.00--Government participation $11,933.00--for 9,450 feet of drilling.

I concur with the conclusions and recommendations.

It is stressed in the engineer's report that the determination of the grade of any ore discovered is of more than usual importance because of subsequent development costs and in drawing up a contract the suggestions made by the engineer should be carefully followed.

Atomic Energy Commission representatives accompanied both the geologist and the engineer on their separate examinations and the project has their approval.

The brochure loaned to us by your office for preparing the engineering report and one copy of the Geological Survey report furnished by Dick Fischer are also enclosed. The copy of the Geological Survey report which you sent by General Services Administration messenger service was lost in transit between the Region IV office and the Denver Federal Center and is consequently not available for return.

W. M. Traver

W. M. Traver

enclosure

cc 10
DMEA 3151
DMEA Chron.

WMT/pam

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Defense Minerals Exploration Administration
Denver Federal Center
Denver 2, Colorado

March 17, 1954

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3151, Four Corners Exploration Company, McKinley County, New Mexico

Enclosed are 11 copies of a geologic report by J. D. Strobell, Jr., of the U. S. Geological Survey covering the above docket.

It has been recommended that DMEA assistance in exploration be approved, but the suggested exploration totals only 20,250 feet, somewhat smaller than that requested. This modified program, however, appears to be acceptable to the applicant and was approved by Mr. Melancon of AEC.

A. H. Koschmann

A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (11)

P. O. Box 360
Grand Junction, Colo.

March 15, 1954

Memorandum

To: A. H. Koschmann, DMEA Field Team, Region IV

From: Acting Supervisor, Colorado Plateau District

Subject: DMEA 3151, Four Corners Exploration Company, McKinley County, N. Mex.

Transmitted herewith are eleven copies of a geologic report on the Flat Top 4 and 5 claims, Four Corners Exploration Company, McKinley County, N. Mex. The company applied for assistance to explore for uranium. The proposed work consists of 35,060 feet of non-core drilling, estimated to cost $29,464.45.

The attached report was prepared by J. D. Strobell, Jr., and is based on a field examination on November 17, 1953, with E. N. Harshman and R. P. Fischer, USGS, Irving Rapaport, representing the applicant, and P.E. Melancon, USAEC.

On the basis of geologic knowledge of the habits and distribution of deposits in the Grants area, and the results of exploration and mine development in some of the ground adjoining the applicant's claims, these claims appear favorable for ore-finding. For this reason, it is recommended that DMEA assistance in exploration be approved, but the suggested exploration totals only 20,250 feet, somewhat smaller than that requested. The suggested project, however, appears to be acceptable to the applicant and to be approved by Mr. Melancon of AEC. I concur in the recommendation and suggested plan of work.

R. P. Fischer

R. P. Fischer

Enclosures 11

RPF/mlr

DMEA 3151

FOUR CORNERS EXPLORATION COMPANY
FLAT TOP 4 and 5 CLAIMS
McKINLEY COUNTY, NEW MEXICO

Summary, Conclusions, and Recommendations

By Russell R. McLellan
Mining Engineer
Bureau of Mines

J. D. Strobell, Jr.
Geologist
Geological Survey

Reviewed by
DMEA OPERATING COMMITTEE

5-21-54
(date)

DMEA 3151

FOUR CORNERS EXPLORATION COMPANY
FLAT TOP 4 AND 5 CLAIMS
McKINLEY COUNTY, NEW MEXICO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By Russell R. McLellan and J. D. Strobell, Jr.

The Four Corners Exploration Company of Grants, New Mexico, applied to the Defense Minerals Exploration Administration August 22, 1953, for assistance to explore for uranium on the Flat Top 4 and 5 claims, McKinley County, New Mexico. The company, owned by F. O. Manol and Irving Rapaport of Grants, proposes to drill a maximum of 35,060.04 feet of rotary drill holes at an estimated cost of $29,464.45--Government participation 90 percent, or $26,518.04. Approximately 80 percent of the area covered by the claims is believed to be underlain by the ore-bearing Todilto limestone and is considered to afford favorable chances of finding uranium ore. Exploration of these claims, however, will be somewhat more costly than DMEA projects heretofore recommended in the district because of the thicker overburden and consequent greater depth of drilling and higher sampling costs. A revised exploration program is proposed which recommends 9,450 feet of rotary drilling at an estimated cost of $13,259.00--Government participation 90 percent, or $11,933.10.

The Grants district uranium deposits occur in the Todilto limestone of late Jurassic age and younger rocks that dip gently northeastward from the Zuni uplift. The Todilto limestone, more resistant to erosion, forms a broad bench where the less resistant overlying sandstones have been eroded away. The bench is covered by a veneer of dune sand and

alluvium, concealing bedrock along the brink of the cliffs. There are no exposures of the ore-bearing limestone on the Flat Top 4 and 5 claims and drilling to the north and west in section 30 indicates the limestone may be entirely missing at places in the ground covered by the two claims.

Uranium-bearing minerals have been deposited locally in blebs and crystal in the limestone. The concentrations form deposits of irregular size and poorly defined limits. Controls of their localization are not well understood. The localization along the axial portion of minor folds and the influence of dominant joint directions apparent in places tend to produce elongate deposits. These range in size from small tabular masses a few square feet in area to large irregular masses. The definite elongation with the length sometimes 20 times the width makes the deposits difficult to explore by drilling. Exploration in adjacent areas has resulted in the discovery of 25 deposits estimated to contain an average of 3,000 tons each. The tenor of the ore ranges from 0.1 to more than 0.5 percent U_3O_8 and ore mined to date has averaged 0.23 percent U_3O_8 mainly because low-grade ore can be mined profitably from shallow depths and also because the mills accept ore averaging as low as 0.2 percent U_3O_8.

Although the claims are geologically favorable for exploration, a serious mining problem is expected to result upon the discovery of ore under a considerable thickness of overburden, particularly so if the overburden rests directly on the Todilto limestone. Since the dune sand and alluvium on these claims is estimated to average at least 75 feet in thickness, mining, at best, will be considerably more costly than normal for the area. Consequently, to mine the deposits profitably, they will have to be larger or of a higher grade than average.

A revised program of rotary air drilling and radiometric logging of holes, together with the necessary sampling and assaying, is recommended in three stages. Stage I, consisting of 30 holes averaging 105 feet in depth and spaced 200 feet apart on a rectangular grid system, would determine the presence or absence of the Todilto limestone underneath the area covered by the claims. Stage II, consisting of 24 holes averaging 100 feet in depth and located on centers of no less than 50 feet, would test for uranium minerals in areas proved by Stage I drilling to be underlain by the Todilto limestone. Stage III, consisting of a maximum of 39 offset holes averaging 100 feet in depth and located on centers of no less than 50 feet, would seek ore-grade material in the vicinity of mineralization encountered in Stage I and Stage II drilling. The recommended drilling totals a maximum of 9,450 feet in 93 holes. Locations of drill holes for Stage II and Stage III must be approved by the Region IV Field Team before the holes are drilled.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 3151, Four Corners Exploration Company
Flat Top Claims 4 and 5, Grants District
McKinley County, New Mexico

Uranium

Geologic Report

J. D. Strobell, Jr., Geologist
U. S. Geological Survey

March 15, 1954

Reviewed by
DMEA OPERATING COMMITTEE
5-21-54
(date)

DMEA 3151

FOUR CORNERS EXPLORATION COMPANY
FLAT TOP CLAIMS 4 AND 5, GRANTS DISTRICT
McKINLEY COUNTY, NEW MEXICO

INTRODUCTION

Application (DMEA 3151) has been made by the Four Corners Exploration Company for government assistance in exploring for uranium in the Todilto limestone of the Grants district, McKinley County, N. Mex. The applicant proposes to expend a maximum of $29,464.45 for a maximum of 35,060.04 feet of rotary drilling to explore the Flat Top 4 and 5 claims in the SE 1/4 sec. 30, T. 13 N., R. 9 W. As the application was received prior to November 3, 1953, the government's share of the proposed expenditures would be 90 percent.

The Flat Top 4 and 5 claims are bordered on the west by the Flat Top-Vilatie Hyde claims (DMEA 2897 and 3190, Richard Vopat, applicant), on the north by ground leased to F. O. Manol (DMEA 3089, F. O. Manol, applicant), and on the east and south by Santa Fe Railway holdings. The Flat Top 4 and 5 claims are leased to the Four Corners Exploration Company, which is owned by F. O. Manol and Irving Rapaport. The ownership of these parcels of land in sec. 30 is indicated on the map, figure 1.

Exploration for uranium deposits on the Flat Top 4 and 5 claims presents problems entirely analogous to those considered in connection with DMEA dockets 2897-3190, and 3089. The property was examined November 17, 1953, by R. P. Fischer, E. N. Harshman, and J. D. Strobell, Jr., of the Geological Survey. The examiners were accompanied by Mr. Irving Rapaport, representing the applicant, and conferred also with Mr. P. E. Melancon of the U. S. Atomic Energy Commission.

Because of the geologically favorable setting of the property near many known uranium deposits, the area appears favorable for exploration, but the project recommended for government assistance is smaller than that proposed by the applicant. The recommended program totals a maximum of 20,250 feet of rotary air drilling in a maximum of 201 holes. The recommended project is acceptable to the applicant, and it is approved by Melancon.

GEOLOGY

Uranium deposits in the Grants district occur in the Todilto limestone of late Jurassic age as well as younger rocks. These strata dip gently northeastward from the Zuni uplift. Erosion has carved these gently-dipping strata into a series of step-like cliffs and intervening benches. The Todilto limestone, being resistant in the semi-arid climate of northwestern New Mexico, forms a broad bench where the less resistant overlying sandstones have been stripped off of it. This bench is covered by a veneer of dune sand and alluvium which conceals bed rock except along the brimk of the cliffs.

There are no exposures of the ore-bearing limestone on the Flat Top 4 and 5 claims. The overburden which will have to be penetrated to test the limestone averages 75 feet thick on these claims and ranges in thickness from about 20 feet to about 120 feet. It thickens eastward and northward across the claims, being thinnest in the southwest corner. The overburden consists chiefly of slightly indurated sand, which may be difficult to drill, and may also include some remnants of calcareous silty sandstone of the Summerville formation, especially where the Todilto is more deeply buried.

Prior to deposition of this covering blanket of sand, streams flowing on the limestone bench locally removed some of the limestone. Although it is impossible at present to predict exactly where the limestone may have been removed, drilling to the north and west in sec. 30 indicates that it may be missing in parts of these claims. Initial drilling, therefore, should test for the presence of the ore-bearing limestone.

ORE DEPOSITS

Uranium-bearing minerals have locally been deposited in blebs and crystal in the limestone, and along joint surfaces, bedding planes, and small veinlets. These concentrations form deposits with irregular vaguely definied limits. Controls of their localization are not well understood. There is evidence of localization along the axial portion of minor folds in the limestone, and the influence of dominant joint directions is in places apparent. Such structural relations produce elongate deposits.

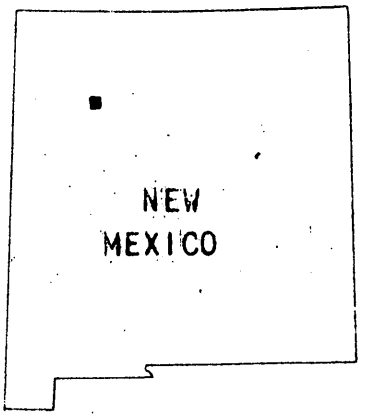
These deposits range in size from small tabular masses a few square feet in area to large irregularly shaped masses on the order of 100,000 square feet in area. Most of the known deposits exhibit a marked elongation, the length being up to 20 times the width, which makes them elusive targets for exploratory drilling. Although small in areal extent, the ore bodies are commonly thick, ranging up to 5 feet and (rarely) 14 feet in thickness, so that sizeable tonnages may be contained in deposits of small areal extent.

Exploration in secs. 25, 30, and 31 (fig. 1), has located about 25 deposits in the Todilto limestone in the vicinity of the Flat Top claims. These known deposits are estimated to range in size up to about 800 x 100 feet. The median size is about 10,000 square feet. Drilling one hole per 10,000 square feet (on a 100-foot grid, for example) would, therefore, expectably find the 50 percent of the deposits that are larger than the median (and some of the smaller ones quite by chance), but the elongation of the ore bodies reduces this theoretical yield considerably.

These 25 known deposits are estimated to contain about 3,000 tons of ore on the average; the range is 25 to 10,000 tons.

The applicant's claims are judged to be favorably situated in this area where the Todilto limestone is known to be rather intensively mineralized. Based on the average areal distribution of the known deposits, exploration of the Flat Top 4 and 5 claims, totalling about 33 acres, is expected to yield one or two ore bodies. It thus appears that the proposed exploration would on the average expectably find 3,000 to 6,000 tons of ore.

The grade of the deposits in the Todilto limestone ranges from 0.1 to more than 0.5 percent U_3O_8. The ore mined to date has averaged 0.23 percent U_3O_8, because much low-grade material can profitably be taken from the shallow deposits exploited so far, and also because ore shipments averaging 0.2 percent over a monthly period are ~~per month is~~ accepted at the mill. The base price of ore averaging 0.2 percent U_3O_8 is $14.00 per ton; allowances and bonuses may raise this to as much as $30.00 per ton. Rough calculations suggest that exploitation of deeper deposits by underground mining methods might require ore averaging better than 0.3 percent U_3O_8, which would have a gross value between $30.00 and $40.00 per ton.



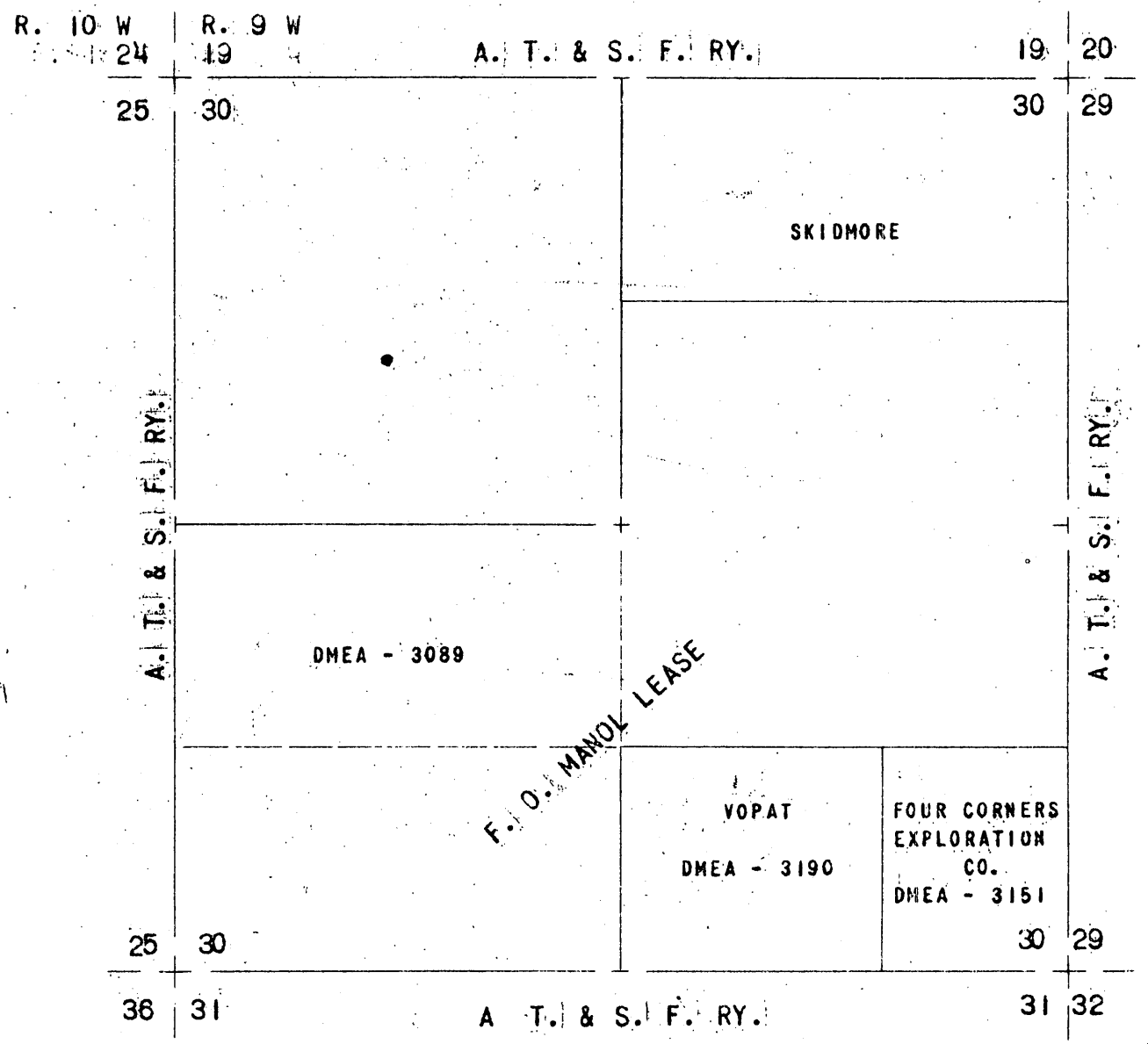


Figure 1. SKETCH MAP SHOWING OWNERSHIP OF MINERAL RIGHTS IN SECTION 30, T. 15 N, R. 9 W. N.M.P.M.

There appears to be a good chance that ore of sufficient value to repay 20 to 50 percent of a DMEA exploration loan will be found. The probability of complete repayment at the stipulated 5 percent rate is slight.

PROPOSED EXPLORATION

The applicant proposes to test the entire area with holes on a staggered 200-foot grid. This initial drilling is designed chiefly to delineate areas where the limestone may have been removed by erosion prior to deposition of the sand that now covers the Todilto bench. Although accurate inferences as to the extent of such removal are presently impossible, it is estimated that the limestone may have been removed from about 20 percent of the area. The initial drilling would, therefore, expectably eliminate 20 percent of the area from further consideration, and the remaining 80 percent would then be drilled in stage 2 on 100-foot centers. Trace amounts of uranium mineralization encountered in either of these stages would be followed up by offset holes on a 50-foot grid. Finally, it is proposed to offset appreciable amounts of uranium mineralization on 25-foot centers to "block out ore". The estimated cost of this proposed program is $29,464.45 for 35,060.04 feet of drilling, averaging (according to the application) 84 cents per foot.

RECOMMENDED EXPLORATION

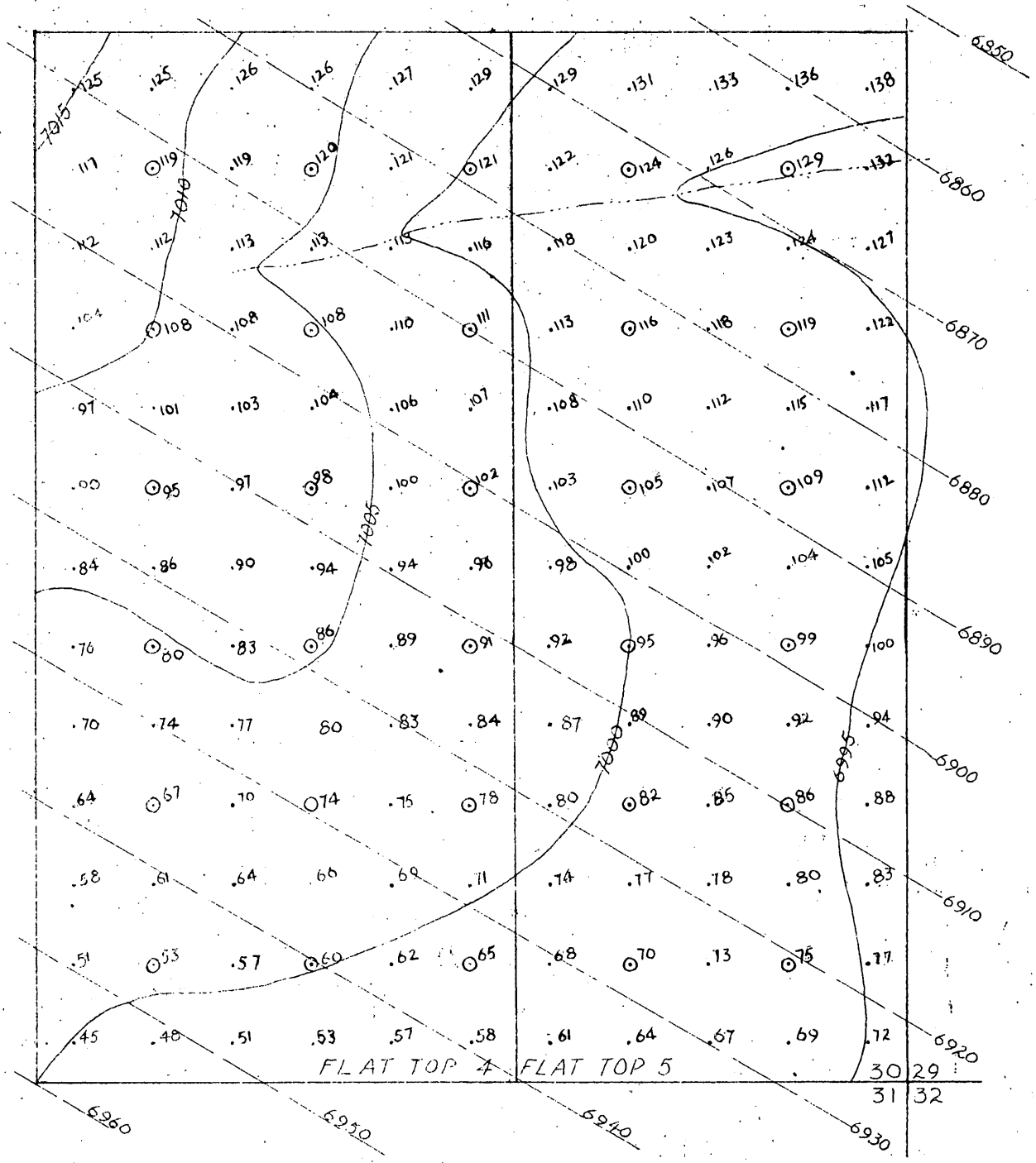
The examiners recommend beginning the exploration with the wide-spaced drilling as proposed, to be followed by the 100-foot drilling in areas where the presence of the limestone is confirmed by that initial drilling. They also recommend the offset drilling on a 50-foot grid as proposed in the applicant's third phase. The drilling on 25-foot spacing "to block out ore", however, should be eliminated from the DMEA project. Spacing of 25 feet is considered to be too close because the average depth of overburden is 75 feet, and hence larger ore-bodies will be required to repay the costs of underground mining. Moreover, blocking out ore is not properly a function of an exploration program such as this. It is felt that the applicant should assume the necessary development work after the greater risks of exploration are assumed in the DMEA project.

The following slightly modified program was, therefore, discussed with the applicant, to whom it is believed to be acceptable.

Stage I. Thirty holes spaced 200 feet apart on a rectangular grid are recommended. In keeping with the policy established by the Field Team, these holes should be drilled no closer than 150 feet from the east and west side lines of the claims, and no closer than 150 feet from the south end line. This spacing would put the north tier of holes 165 feet from the north end lines. (See fig. 2.) These 30 holes should be drilled to depths 10 feet below the base of the Todilto limestone in order to insure testing its full thickness; they would average 105 feet deep. All of them should be drilled, in order to test for the presence of the limestone throughout the area of the two claims. Although this drilling may not intersect ore or mineralization, any such indications encountered would be tested in the succeeding stages.

Stage II. In areas where the limestone is known to be present as a result of Stage I drilling, holes spaced 100-feet apart on the same grid pattern should be drilled in search of uranium mineralization. Inasmuch as the Stage I drilling is estimated to eliminate 20 percent of the area from further consideration, not all of the 113 holes spaced at 100-foot intervals shown in figure 2 would be drilled; about 22 of them would be eliminated. Stage II, therefore, should consist of 91 holes, to be drilled as close as 50 feet to the east, south, and west property lines and as close as 65 feet to the north property line. These holes should be drilled to depths 5 feet below the base of the limestone and would average 100 feet in depth.

Stage III. The final stage of the exploration would then consist of drilling offset holes on a 50-foot grid around the most promising holes. As indicated above, as many as 20 Stage I and II holes might require offset holes to pick up ore-grade material. Because the depth of cover averages 75 feet, it is thought that larger deposits would be required for mining, and only 4 offset holes are, therefore, recommended around each of these 20 primary and secondary holes. If fewer than 20 holes are to be offset, the footage remaining under the Stage III allotment might profitably be used for additional offsets in the most favorable places. These offset holes should penetrate 5 feet below the base of the limestone and would average 100 feet in depth.



Basic data from map submitted by applicant.

⊙120 Stage 1 holes on 200-foot centers, showing depth in feet to base of limestone.

.45 Stage 2 holes on 100-foot centers, showing depth in feet to base of limestone.

7000 Surface contours, 5-foot interval

---- Structure contours on base of Todilto limestone, 10-foot interval

200 0 400 FEET

Figure 2. SKETCH MAP SHOWING LOCATION OF RECOMMENDED DRILL HOLES ON FLAT TOP CLAIMS NOS. 4 AND 5, SE¼, SEC. 30, T. 13 N., R. 9 W., N.M.P.M., MCKINLEY COUNTY, NEW MEXICO

The recommended program is summarized as follows:

Stage I	200-foot grid:	30 holes, 105 feet deep	3,150 feet
Stage II	100-foot grid:	91 holes, 100 feet deep	9,100 feet
Stage III	50-foot offsets	80 holes, 100 feet deep	8,000 feet
		Total footage	20,250 feet

SAMPLING

The applicant proposed to collect no samples except in his holes spaced 25-feet apart, and to rely solely on in-hole radiometric logging in the earlier stages of drilling. In view of the uncertainties as to the performance of the logging device until experience in its use has been gained, it seems desirable to require cuttings to be taken through the complete thickness of the limestone in all holes drilled. If cuttings are to be required, casing of the holes to the top of the limestone might be necessary because of the great depth of unindurated overburden. As further experience with the radiometric logging device demonstrates its reliability, collecting of samples might perhaps be minimized in the future. Until such time, the only safe course is to require careful collecting of cuttings.

Radiometric analysis of the cuttings is reliable in the case of the limestone deposits, and careful use of a portable Geiger counter has been widely successful for purposes of exploration in the district, but provision should be made for some chemical assays to check the grade of any ore encountered.

The sampling procedure recommended is outlined as follows: (1) cuttings should be collected in 2-foot runs through the thickness of the limestone. All the cuttings from each run should be collected; partial recovery might be misleading, and particular attention should be directed to collecting the fine fraction. (2) The sample may be split at the collar and sacked, but should be stored under suitable protection from weather and preserved for further use. (3) Each sample should be checked immediately by means of a portable Geiger counter, and those apparently mineralized should then be assayed radiometrically to check the field counter. Radiometric assaying under laboratory

conditions is cheap and fast (it is understood that such samples are tested at the Anaconda assay lab, Blue Water, N. Mex., for $1.00 per sample). Provision for 300 radiometric assays is recommended. (4) Chemical assays should be obtained to verify the results of the radiometric analysis. Provision should be made for at least 20 chemical assays. (5) The hole should be logged radiometrically, and the logged radioactivity compared with the results of the radiometric and chemical assays. In this way, the logging results can be verified and evaluated as to reliability. It is important to establish the reliability of the logging device as it affords the possibility of materially reducing the costs of exploration. It is as yet, however, unproved.

SUMMARY AND RECOMMENDATIONS

Because of their location adjacent to ground known to be rather intensively mineralized, the Flat Top No. 4 and No. 5 claims are considered to afford favorable chances of finding 3,000 to 6,000 tons of uranium ore. Exploration of these claims, however, will be somewhat more costly than DMEA projects heretofore recommended in the district because of the thicker overburden and consequent greater depth of drilling. The anticipated discoveries are expected to have a value sufficient to repay the government from 20 to 50 percent of its share (90 percent) of the costs of a DMEA exploration project.

A program of rotary air drilling and radiometric logging on the holes, together with necessary sampling and assaying, is recommended in three stages. Stage I, consisting of 30 holes averaging 105 feet deep and spaced 200 feet apart on a rectangular grid system, would test for the presence of the Todilto limestone throughout the area of the claims. Stage II, consisting of 91 holes averaging 100 feet deep and located at 100-foot grid intersections, would test for uranium minerals in areas proved by Stage I drilling to be underlain by limestone. Stage III, consisting of a maximum of 80 offset holes averaging 100 feet deep and located at 50-foot grid intersections, would seek ore-grade material in the vicinity of mineralization encountered in Stage I and Stage II drilling. The recommended drilling totals a maximum of 20,250 feet in 201 holes. It is recommended that a contract covering this program be offered to the applicant by the Government.

DMEA 3151

FLAT TOP 4 AND 5 CLAIMS
FOUR CORNERS EXPLORATION COMPANY
McKINLEY COUNTY, NEW MEXICO

Engineering Report

By Russell R. McLellan
Mining Engineer
Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE

5-21-54
(date)

DMEA 3151

FOUR CORNERS EXPLORATION COMPANY
FLAT TOP 4 AND 5 CLAIMS
McKINLEY COUNTY, NEW MEXICO

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ILLUSTRATIONS

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1. Location map, Flat Top 4 and 5 claims, McKinley County, New Mexico	2
2. Sketch map showing location of Stage I drill holes recommended for Flat Top claims Nos. 4 and 5, McKinley County, New Mexico	6

DMEA 3151

FLAT TOP 4 AND 5 CLAIMS
FOUR CORNERS EXPLORATION COMPANY
McKINLEY COUNTY, NEW MEXICO

ENGINEERING REPORT

By Russell R. McLellan

INTRODUCTION

The Four Corners Exploration Company of Grants, New Mexico, has applied to the Defense Minerals Exploration Administration for assistance to explore for uranium on the Flat Top 4 and 5 claims, McKinley County, New Mexico. The company proposes to prospect the Todilto limestone with 35,060 feet of rotary (non-core) drilling estimated to cost $29,464.45--Government participation 90 percent, or $26,518.01.

Although the ore-bearing Todilto limestone is not exposed on the property, the claims are considered to be geologically favorable for exploration largely as a result of development and production from adjoining ground. After field examinations by Region IV DMEA representatives, a revised program of exploration is recommended authorizing 9,450 feet of rotary drilling at an estimated cost of $13,259.00--Government participation 90 percent, or $11,933.10.

ACKNOWLEDGEMENTS

Acknowledgment is due to H. S. Johnson of the U. S. Geological Survey and to W. A. Carlson of the Atomic Energy Commission for their assistance in making the field examination on February 4, 1954.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The claims are readily accessible by traveling 3 miles west of Grants, New Mexico, on U. S. Highway 66, 11 miles north on Stage Highway

53, and 1/2 mile west on a graded dirt road to the claims in the SE 1/4 Sec. 30, T. 13 N., R. 9 W., New Mexico principal meridian (fig. 1). The corner posts and location pits are visible on a broad gently sloping bench. The topography is ideally suited for the type of exploration proposed as the ground surface is nearly flat and appears to be completely free from abrupt erosional irregularities as well as from timber and brush. The climate is semiarid and is favorable for year-around surface operations. Supplies and equipment may be obtained at Grants or at Albuquerque, 80 miles west of Grants. The nearest source of water is 3 miles away. Milling facilities for the limestone ores are available at Bluewater, 18 miles to the west where a mill of the Anaconda Copper Mining Company recently commenced operations. There is presently a surplus of labor in the area, and the claims are within commuting distance from Grants.

HISTORY AND PRODUCTION

The Flat Top 4 and 5 claims are recent locations and have had no exploration or development work conducted on them.

OWNERSHIP AND EXTENT

According to the application, the Flat Top 4 and 5 claims are leased to the Four Corners Exploration Company; however, no mention was made of the actual owner of the claims and apparently no copy of a lease was submitted with the application. As Irving Rapaport and F. O. Manol, owners of the Four Corners Exploration Company, were not available on the date of the engineering examination, they could not be questioned on the subject.

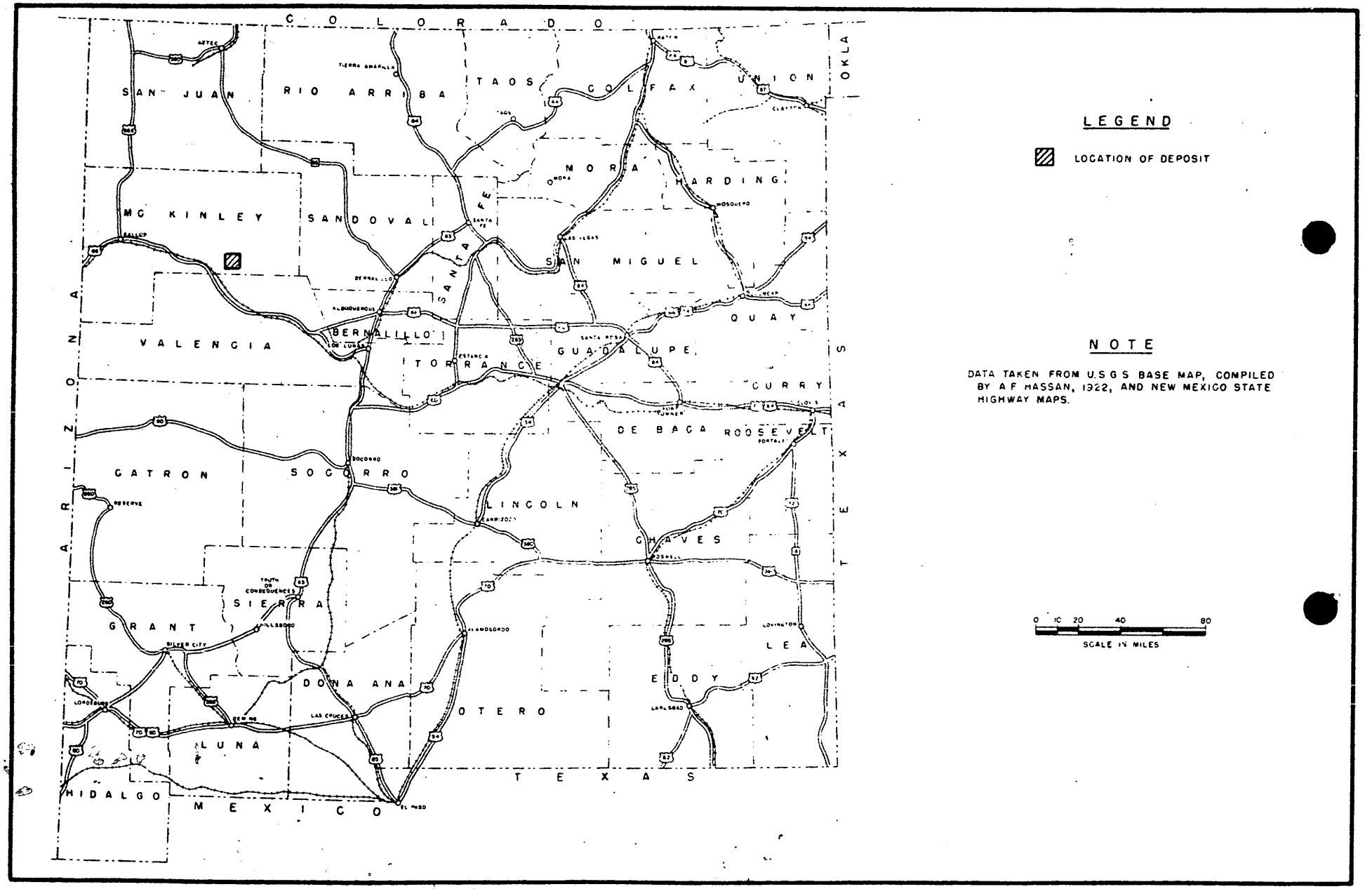


FIGURE 1 - LOCATION MAP, FLAT TOP 4 AND 5 CLAIMS, MC KINLEY COUNTY, NEW MEXICO (DMEA 3151)

DESCRIPTION OF THE DEPOSITS

As no exploration or development has been done on these claims, the nature of the deposits that might be encountered can be inferred only by comparison with the deposits that have been discovered nearby.

In general, the Todilto limestone bed and associated ore deposits are under a shallow cover of dune sand and alluvium. This cover may range in thickness from a few inches to well over 100 feet. The sand probably will average 75 feet in thickness on the Flat Top 4 and 5 claims. The ore deposits in general are decidedly elongate with small areal extent though ranging up to 5 or more feet in thickness. One deposit was observed that averaged about 7 feet in thickness and had been mined for a distance of several hundred feet across a width ranging from about 30 feet to 100 feet. According to U. S. Geological Survey and Atomic Energy Commission estimates, 25 known deposits in the area contain ore reserves ranging from 25 to 10,000 tons with an average of 3,000 tons for each deposit. The U_3O_8 content ranges from 0.1 to 0.5 percent or higher with an average 0.23 percent to date. Vanadium apparently is not an important constituent of this type of ore.

All deposits observed by the writer are being developed by open pit methods at a relatively low cost per ton of ore produced. Stripping of moderate depths of dune sand and alluvium can be accomplished quickly at a cost estimated by the applicant as $0.22 per cubic yard. Should the depth of overburden on the Flat Top claims prove impractical for stripping, the grade of ore will have to be considerably higher than the average of the district to be mined profitably. If the ore is directly under the alluvium, stripping will be the only practical way of gaining access to the deposit as the cost of holding a back composed of fine sand and alluvium

would be prohibitive. At best, underground mining in the Todilto limestone is expected to be costly due to the probability of encountering bad ground in and above the ore-bearing limestone.

In the event it is possible in mining to maintain a firm back underground, limestone containing 0.3 percent U_3O_8 probably can be mined at a profit. If the ground requires considerable timbering, the limestone probably will have to contain at least 0.4 percent U_3O_8 to be mined profitably.

The possibility of locating uranium mineralization of average grade on the Flat Top 4 and 5 claims appears to be exceptionally good; however, the depth and character of the overburden probably will be the controlling factor in determining whether or not a deposit can be mined at a profit on the claims.

MINEABLE ORE RESERVES

As no exploration or development has been done on the claims, no ore reserves can be estimated.

PRESENT STATUS

Except to set corner posts and dig discovery pits, no work has been done, and there is no mining or milling equipment or other facilities available on the property.

PROJECT PROPOSALS WITH COSTS

The applicant proposes the following four-stage program of rotary drilling for the entire area covered by both claims:

Stage I.

Drill both claims on a grid pattern with holes spaced at intervals of 200 feet to determine the base of the Todilto limestone and to disclose areas of erosion.

Stage II.

Drill both claims on a grid pattern with holes spaced at intervals of 100 feet except in the eroded areas as determined in the Stage I drilling.

Stage III.

Drill offset holes on 50-foot centers around all Stage I and II holes that encounter uranium mineralization.

Stage IV.

Drill offset holes on 25-foot centers around Stage III holes that encounter uranium mineralization.

The applicant proposes to log all holes radiometrically and collect cuttings only from the holes drilled on 25-foot centers. The cuttings would be assayed chemically and radiometrically as a check against the values obtained on probing the holes.

Following are the estimated footages and costs as presented by the applicant:

Phase	No. holes	Average depth	Total feet	Average cost per foot	Total cost
(1) 200-foot grid	42	112.93	4,733.0	$0.585	$2,740.00
(2) 100-foot grid	92	102.93	8,893.59	0.560	4,988.82
(3) 50-foot grid	127	102.93	12,273.16	0.560	6,884.57
(4) 25-foot grid	95	102.93	9,160.29	0.664	6,086.05
	356	104.28	35,060.04	$0.590	$20,699.44
(5) Radiometric logging and preparation of a permanent geologic record of each hole at $0.15 per foot					5,259.01
(6) Supervision, accounting, correspondence, surveying, chemical and radiometric assays, geologic mapping, and ore reserve calculations at $0.10 per foot					3,506.01
Total cost of project					$29,464.45

In considering the applicant's proposals the examining team is of the opinion that

(1) The sampling procedure should be revised
(2) That offset holes should be drilled on centers no closer than 50 feet, thus eliminating Stage IV of the applicant's program
(3) That the footage requested for Stages II and III is excessive.

The following revised program is recommended for approval:

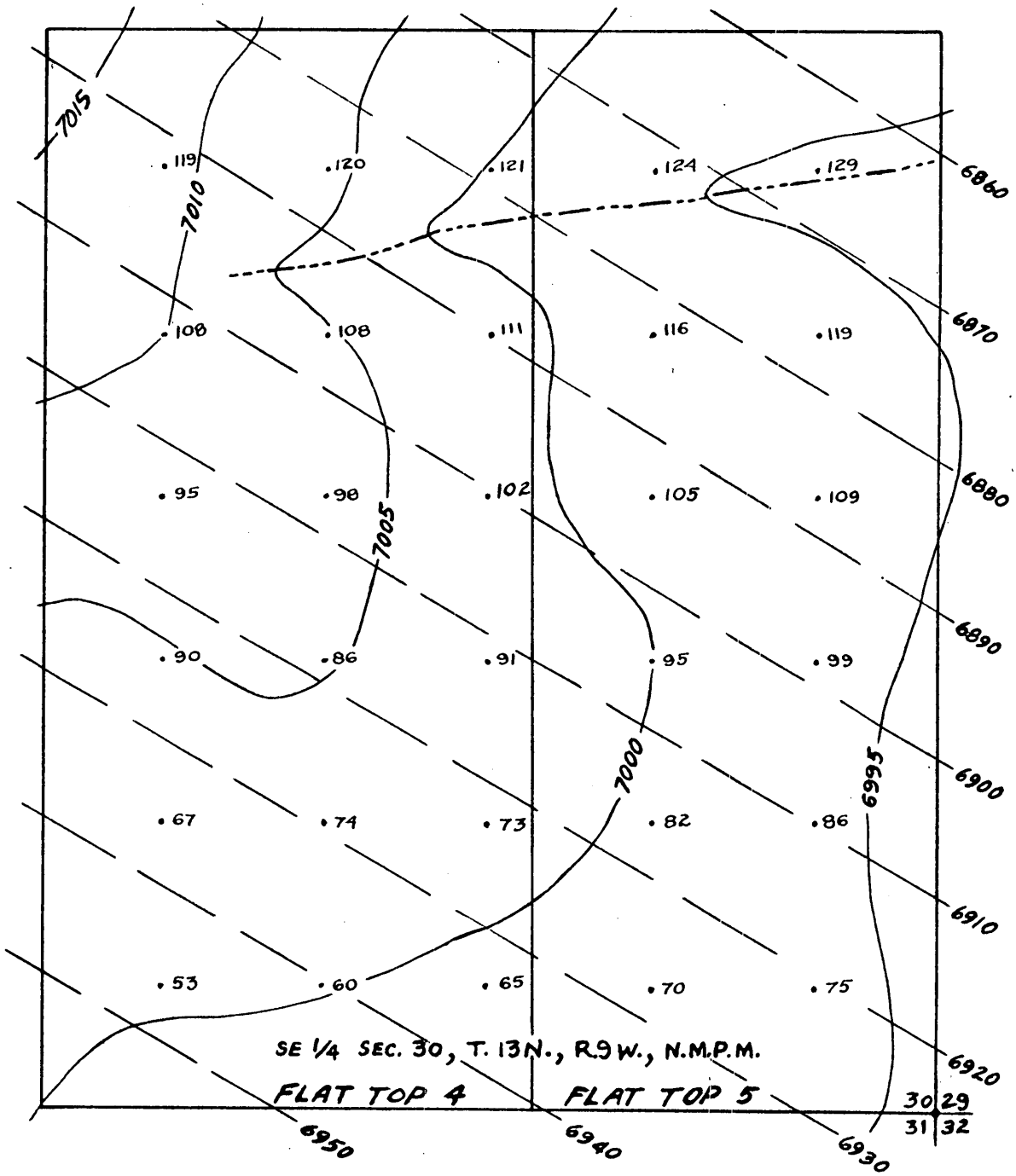
Stage I.

Drill 30 holes at intervals of 200 feet on a rectangular grid. The holes would be drilled no closer than 150 feet from the east, west, and south claim lines and 165 feet from the north claim line (fig. 2) These holes will average 105 feet in depth and should be bottomed no less than 10 feet below the base of the Todilto limestone to insure testing its full thickness. The main purpose of this stage will be to establish the extent of the limestone underneath the two claims. It is estimated that 20 percent of the area will be eliminated for successive drilling due to complete erosion of the limestone.

Stage II.

The amount and distribution of the limestone as well as mineralization encountered by Stage I drilling will determine the number and location of Stage II holes to be drilled on centers of no closer than 50 feet. A maximum of 24 holes should be authorized for this stage. The drilling of all Stage II holes should have prior approval of the Region IV Field Team.

Basic data from maps submitted by applicant and U.S.G.S.



•120 Stage 1 holes on 200-foot centers, showing depth to base of limestone.(est.)

7000 Surface contours, 5-foot interval

—— ——Structure contours on base of Todilto limestone, 10-foot interval

200 0 200 400 Feet

Mineral Resources Branch
Mining Div.- Region IV
BUREAU OF MINES

Fig. 2 - Sketch map showing location of Stage 1 drill holes recommended for Flat Top Claims Nos. 4 and 5, McKinley County, New Mexico, D M E A 3151

These holes probably will average 100 feet in depth and should be bottomed 5 feet below the base of the Todilto limestone.

Stage III.

Drill a maximum of 39 offset holes on centers of 50 feet in the vicinity of Stage I and Stage II holes that encounter favorable mineralization. The location of these holes is subject to prior approval from the Field Team. The holes probably will average 100 feet in depth and should be bottomed 5 feet below the base of the Todilto limestone. Any excess footage authorized for Stage III might profitably be used for additional offset holes in areas that show no uranium mineralization but appear to be geologically favorable for exploration.

Holes of any stage that apparently do not encounter limestone should be bottomed at depths not to exceed 140 feet in the north half of the area and at depths not to exceed 115 feet in the south half of the area.

The following sampling procedure as practiced by the Geological Survey is recommended by the writer for all stages of drilling:

(1) Cuttings should be collected in 2-foot runs through the thickness of the limestone. All cuttings including the fine fraction should be collected.

(2) The sample may be split and sacked at the hole, but should be stored under suitable protection from weather and preserved for further use.

(3) Each sample should be checked immediately by means of a Geiger counter, and those apparently mineralized should be assayed radiometrically to check the field counter. Allowance should be made for 140 radiometric assays.

(4) Chemical assays should be obtained to verify the results of the radiometric analysis. Allowance should be made for at least 15 chemical assays.

(5) Each hole should be logged radiometrically, and the logged radioactivity compared with the results of the radiometric and chemical assays in order to verify and evaluate the reliability of the logging results.

With an average depth of 75 feet of dune sand and alluvium covering the limestone, the collection of undiluted samples will be impossible unless the holes are cased to the top of the ore horizon. Since the development of any ore deposit discovered on these claims is expected to be costly, it is imperative that the grade determination be as accurate as possible even though the cost of the drilling may be greatly increased by casing off the overburden. Casing loss due to sticking probably will be at a minimum in the relatively loose sandy overburden.

Following are the estimated costs for the revised program:

Contract Rotary Drilling

Stage	No. holes	Average depth	Total feet	Average cost per foot including casing*	Total cost
I	30	105	3,150	$1.05	$3,307.50
II	24	100	2,400	1.00	2,400.00
III	39	100	3,900	1.00	3,900.00
	93	102	9,450	1.017	$9,607.50

*Average cost will not exceed $0.59 per foot if casing is not needed due to erosion of limestone.

Labor and Supervision

One sampler at $1.50 per hour, 48 hours per week, 10 weeks (400 hours)	$600.00	
80 hours at time and one-half	180.00	
One supervisor and engineer at $400.00 per month, 3 months	1,200.00	
Total Labor and Supervision		$ 1,980.00
Operating Materials and Supplies		
Sample sacks		15.00
Miscellaneous costs		
Radiometric logging at $0.15 per foot	1,417.50	
140 radiometric assays at $1.00 each	140.00	
20 chemical assays at $3.00 each	60.00	
Payroll taxes and compensation	39.00	
Total Miscellaneous Costs		1,656.50
Estimated total cost of project		$13,259.00
Government participation at 90 percent		$11,933.10

In the event limestone is encountered in all holes, the over-all unit cost for drilling will be $1.40 per foot based on the above estimate. However, it is probable that several Stage I and Stage II holes will not encounter limestone due to complete erosion of the bed and therefore will not require casing or sampling. In preparing a contract, payment of no more than $0.59 per foot direct drilling cost in addition to $0.31 per foot for labor, supervision, and miscellaneous costs should be authorized for all holes that do not encounter the Todilto limestone. The average over-all cost for such drilling is not expected to exceed $0.90 per foot.

Summary of Costs

Costs for the revised program of drilling are summarized as follows:

Contract rotary drilling:

Stage I	- 3,150 feet at $1.05* per foot	$3,307.50	
Stage II	- 2,400 feet at $1.00* per foot	2,400.00	
Stage III	- 3,900 feet at $1.00* per foot	3,900.00	
	Total drilling		$ 9,607.50

*$0.59 per foot if Todilto limestone is not encountered.

Labor and supervision:	1,980.00
Operating materials and supplies:	15.00
Miscellaneous costs:	1,656.50
Total cost of project	$13,259.00
Government participation at 90 percent	11,933.10
Over-all cost per foot of drilling - limestone present	1.40
Over-all cost per foot of drilling - limestone not present	0.90

CONCLUSIONS

The area covered by the Flat Top 4 and 5 claims is in a location geologically favorable for the occurrence of uranium mineralization. The surrounding area is sufficiently mineralized to greatly increase the possibility that uranium ore will be discovered on the applicant's claims; however, due to the depth of overburden, either the grade of mineralization or the size of the deposits will have to show a substantial increase above the average before mining can be carried on profitably. Also, the necessity of penetrating a thick mantle of overburden will result in a considerably higher average cost per foot of drilling than is generally required in the area as casing will have to be set to the top of the Todilto limestone to prevent excessive dilution of samples. Since an accurate determination of grade will be essential prior to any attempt to produce ore from these claims, considerable emphasis should be placed upon the sampling technique employed on this project.

RECOMMENDATIONS

The following rotary drilling program is recommended for approval:

Stage I.

Thirty holes averaging 105 feet in depth drilled at intervals of 200 feet on a rectangular grid pattern to test the extent, thickness, and mineralization of the Todilto limestone (fig. 2).

Stage II.

A maximum of 24 holes averaging 100 feet in depth drilled on centers of no less than 50 feet to test favorable areas determined by Stage I drilling. The locations must be approved by the Region IV Field Team prior to drilling the holes.

Stage III.

A maximum of 39 offset holes averaging 100 feet in depth drilled on centers of no less than 50 feet to further explore the vicinity of Stage I and Stage II holes that encounter mineralization. The locations must be approved by the Region IV Field Team prior to drilling the holes.

In addition, the following recommendations are proposed:

(1) Overburden should be cased off in all holes that encounter the Todilto limestone to insure the recovery of undiluted samples.

(2) All cuttings should be collected at the end of each 2-foot run throughout the thickness of the limestone and should be checked immediately with a Geiger counter.

(3) All cuttings exhibiting radioactivity should be assayed radiometrically and should be occasionally checked by chemical assay.

(4) All holes should be logged radiometrically and the logged radioactivity compared with the results of the radiometric and chemical assays.

(5) Holes that do not encounter limestone should be bottomed at depths not in excess of 140 feet in the north half of the area or at depths not in excess of 115 feet in the south half of the area.

(6) A lower rate of reimbursement should be authorized for holes that do not encounter the Todilto limestone as the added cost of casing and sampling will not be necessary. These holes should be logged radiometrically, however.

The program as recommended above will require approximately 93 holes or a total of 9,450 feet of drilling at a cost not to exceed $13,259.00--Government participation 90 percent, or $11,933.10.

Docket No. 3151

Commodity Uranium

DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

STRATEGIC AND CRITICAL MINERALS EXPLORATION PROGRAM

TO: Chief, Finance Section, Budget and Finance Branch, Bureau of Mines

Please enter on the records of the Defense Minerals Exploration Administration under the Strategic and Critical Minerals Exploration Program, the following contract, or amendment to contract.

Contract No. Idm-E 671

Date of Contract ~~or Amendment:~~ May 10, 1954

Name and Address of Operator:
Four Corners Exploration Co.
P. O. Box 101
Grants, New Mexico

Amount of Government participation $10,970.10

Percent of Government participation 90 %

Region: IV State: New Mexico

(Name)

J. L. Chambers, Chief
Contract Administration and
Audit Division

(Title)

Date Delivered to Bureau of Mines, Washington.
5-11-54

54458

HEAdams/[illegible]/5-11-54

DRAFT - Department of the Interior

14 X 4401(01) Revolving Fund, Defense Production Act, Interior (Allocated Working Funds to the Office of the Secretary).

T E L E T Y P E

MR. W. H. KING, EXECUTIVE OFFICER MAY 11 1954
DRAFT FIELD TEAM, REGION IV
BUREAU OF MINES
224 NEW CUSTOMHOUSE BUILDING
DENVER 1, COLORADO

RE TSX 5/10/54, CONTRACT NO. IDM-2671 ASSIGNED TO DOCKET NO. DMA-3151, FOR CORNERS EXPLORATION COMPANY, AND CONTRACT NO. IDM-2672 ASSIGNED TO DOCKET NO. DMA-3190, FILED BY WOPAC, ET AL, dba PLATEAU MINING COMPANY.

C. O. Mittenderf

C. O. MITTENDORF, ADMINISTRATOR

Copy to: Docket No. 3151
Docket No. 3190
Adm. Reading File
Mails & Files
Mr. Adams

SENT
MAY 11 1954
Clerical Service Section

R.P.S.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 11 1954

Mr. C.O. Mittendorf
May 10, 1954
4:12 PM.

671

BUR MINES DN 235 5-10-54 12-59 PM

C O MITTENDORF

PLEASE ASSIGN A NUMBER T O CONTRACT COVERING DOCKET NO. DMEA 3151, COMMODITY URANIUM, FOUR CORNERS EXPLORATION COMPANY, P O BOX 101, GRANTS, CXXXX NEW MMEXICO, A CORPXXXXX COPARTNERSHIP CONSISTING OF FRANK O. MANOL AND IRVING RAPAPORT. CONTRACT DATED MAY 10,1954. PROPERTY LOCATED IN MCKINLEY COUNTY, NEW MEXIOC. AMOUNT OF GOVERNMENT PARTICIPATION $10,970.10, TOTAL AMOUNT OF CONTRACT $12,189.00.

W H KING

NEXT TO LAST LINE WORD SHOULD BE NEW MEXICO

Denver C.B.

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

DEPARTMENT OF THE INTERIOR
Bureau of Land Management
RECEIVED
MAY 7 - 1954

224 New Customhouse
Denver 2, Colorado

April 30, 1954.

Memorandum

To: Administrator, Defense Minerals Exploration Administration

From: Field Team, Region IV

Subject: Report of Examination - DMEA Docket 3151 (Uranium), Four Corners Exploration Company, Flat Top 4 and 5 claims, McKinley County, New Mexico.

The application for Government assistance in exploration work estimated to cost $12,189.00 has been approved by us and a contract is being prepared.

Government participation will be 90 per cent, or $10,970.10.

Four copies of the Report of Examination will be forwarded when the contract is executed.

The original and one copy of Form 3b is attached.

W. H. King
W. H. King

E. N. Hirschman
for A. H. Koschmann

Enclosures

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

4-16-54

MEMORANDUM

To: Robert E. Adams, Operations Control and Statistics Division

From: Rare & Misc. Metals Division

Subject: Docket DMEA-3151 (Uranium)
Four Corners Exploration Company
Flat Top Claims Nos. 4 and 5
McKinley County, New Mexico

The Executive Officer, Region IV, has requested that the captioned docket be transferred to Region IV for contract processing inasmuch as the amount of aid contemplated is within his delegated authority to process, and the exploration work should conform to similar work on an adjoining property.

We are in accord with this transfer and request that you alter your records accordingly.

Ernest Wm. Ellis

Ernest Wm. Ellis

700

Docket
Surname

Ching
Ellis
Selfridge
Hedges
Mittendorf

APR 19 1954

. M. King, Executive Officer
Field Team, Region IV
New Customhouse Building
ver 2, Colorado

Re: Docket No. DMA-3151 (Uranium)
Four Corners Exploration Company
Flat Top Claims Nos. 4 and 5
McKinley County, New Mexico

Dear Mr. King:

In accordance with your teletype of April 14 to Mr. C. C. Mittendorf we are forwarding herewith the one copy of the Mining Lease and the one copy of Figure 1 which accompanied the four copies of the subject application when originally received by you. This material is the only pertinent data in our files which you do not already have.

We are pleased to know that action on this application has now been made possible.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee (GCS)

APPROVED:

J. H. Hedges (GCS)
Member, Bureau of Mines

D. M. Larrabee (GCS)
Member, Geological Survey

MChing:foc
4-16-54
cc to: Adm. Reading File
Operating Comm.
Docket
Messrs. H. D. Keiser, USBM, Rm. 3641
A. P. Butler, Jr., USGS, Rm. 3212
Code 709
Mr. Ching
Field Team, Region IV

Enclosures

R.C.S.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 15 1954

Mr. C. O. Mittendorf
April 14, 1954
(Unattended service after 4:15)

BUR MINES DN 235 4-14-54 3-59 PM

C O MEX
C O MITTENDORF

EXPLORATION AID WITHIN OUR DELEGATED AUTOXXX AUTHORITY HAS BEEN APPROVED ON DMEA-3151, URANIUM, FOUR CORNERS EXPLORATION COMPANY, MCKINLEY COUNTY, NEW MEXICO. WE ARE PROCESSING THE VOPAT CONTRACT ON ADJOINING PROPERTY AND REQUEST THAT WE PROCESS CONTRACT ON DMEA-3151 TO CONFORM. PLEASE FORWARD THE COPY OF LEASE AND ANY OTHER PERTINENT DATA IN YOUR FILE FOR USE IN PREPARING THIS CONTRACT.

W H KING

Gen. Cob.

APR 15 8 20 AM '54
BUREAU OF MINES
MAIL ROOM
WASHINGTON, D. C.

3/2/54 gla

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 1 - 1954

224 New Customhouse
Denver 2, Colorado

February 25, 1954.

Memorandum

To: Chairman of the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA-3151 (Uranium), Four Corners Exploration Company, Flat Top claims Nos. 4 and 5, McKinley County, New Mexico.

This responds to your letter of February 16, 1954 on the subject docket.

The field examination was made during the week of February 1 - 5, 1954. The reports are in preparation and approval of a revised project is indicated.

W. H. King

W. H. King

Surname
DOCKET COPY

700

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

Ching
Selfridge

FEB 1 6 1954

Mr. W. H. King
Executive Officer
DMEA Field Team, Region IV
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA-3151 (Uranium)
Four Corners Exploration Company
Flat Top Claims Nos. 4 and 5
McKinley County, New Mexico

Dear Mr. King:

The subject application was referred to you for investigation and recommendation on September 21, 1953.

Since a decision on the proposed project is due the applicant, we would appreciate receiving the Field Team's report and recommendations at your earliest convenience.

Sincerely yours,

George C. Selfridge

(JHB)

Chairman, Operating Committee

APPROVED:

J. H. Hedges (JHB)
Member, Bureau of Mines

D. M. Larrabee (JHB)
Member, Geological Survey

MChing/gla
2/11/54
cc to: Adm. Reading File
Operating Committee
Docket
Messrs. HDKeiser, Rm. 3641
APButler, Jr. Rm. 3212, GSA
FLKnouse
Code 700
DMEA Field Team, Region IV

R.C.G.
2-16-54

FILE COPY
SURNAME:

Ching
Ellis
Kuhel
Hedges

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

SEP 21 1953

Four Corners Exploration Company
Box 101
Grants, New Mexico

Re: Docket No. DMA-3151 (Uranium)
McKinley County, New Mexico

Gentlemen:

The application for assistance in exploring your property in McKinley County, New Mexico, under the above docket number, has been reviewed by the Rare and Miscellaneous Metals Division of the Defense Minerals Exploration Administration. It has been referred to the Executive Officer of Region IV at the following address:

Mr. R. H. King
Executive Officer
DMEA Field Team, Region IV
224 New Customhouse Building
Denver 2, Colorado

The Field Team will contact you if they require any additional information.

Sincerely yours,

Frank E. Johnson (fw)

ACTING Administrator

MChing/db
9-17-53
cc to: Adm. Reading File
Docket
Messrs: Ellis
DMEA Field Team, Region IV (2)

R.C.G.
9-21-53

FILE COPY
SURNAME:

Ching
Elis
Selfridge

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

SEP 21 1953

Mr. L. M. King
Executive Officer
DMEA Field Team, Region IV
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA-3151 (Uranium)
Four Corners Exploration Company
Flat Top Claims Nos. 4 and 5
McKinley County, New Mexico

Dear Mr. King:

The subject application is being referred to you for investigation and recommendations. A copy of the application was retained by your office.

Attached are copies of memoranda from Mr. W. D. Keiser, Bureau of Mines, and Mr. Arthur F. Butler, Jr., of Geological Survey, dated September 8 and 10 respectively, which outline some important questions to be considered by the Field Team.

You will note that this application has much in common with Docket No. DMEA-2897, which covers the three claims adjoining those of the present application on the west and much of the information secured in connection with DMEA-2897 will be equally applicable to this proposed project.

It is suggested that Applicant's unit costs for drilling, radiometric logging, and supervision be checked for reasonableness in that locality. In the event the Field Team recommends a modification of the proposed program with approval by the Applicant, the effect of such modification upon unit costs should be determined.

If a contract is recommended, the usual number of copies of Form MT-203, Owner's Consent to Lien, will be required from the Applicant.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

Enclosure

APPROVED:

J. H. Hedges

Member, Bureau of Mines

A. R. Kinkel, Jr.

Member, Geological Survey

Messrs. W. D. Keiser, Rm. 3641
A. F. Butler, Jr., Rm. 3212, GSA
Ellis

MChing/eb
9-17-53
cc to: Adm. Reading File
Operating Committee
Docket

R.C.S.
9-21-53

STANDARD FORM NO. 64

9/16/53 gla

Office Memorandum • UNITED STATES GOVERNMENT

TO : E. Wm. Ellis, DMEA Member, Uranium Commodity Committee

DATE: September 10, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
SEP 15 1953

FROM : Arthur P. Butler, Jr., USGS Member, Uranium Commodity Committee

SUBJECT: Application-DMEA Docket 3151, Four Corners Exploration Co., applicant, Box 101, Grants, New Mexico; Flat Top claims nos. 4 and 5, S.E. $\frac{1}{4}$, Section 30, Township 13 North, Range 9 West, McKinley County, New Mexico.

The application for Government assistance to explore the property identified above has been reviewed and discussed with H. D. Keiser, Bureau of Mines member, Uranium Commodity Committee, and J. O. Hosted, Atomic Energy Commission.

Proposal

The applicant proposes to explore for uranium ore bodies in the Todilto limestone by drilling 35,060 feet 355 holes averaging 104 feet deep and spaced from 25 to 200 feet apart. Drilling would be rotary air drill, and total cost is estimated to be $29,464.45.

Comment

According to a geologic map prepared by the U. S. Atomic Energy Commission and submitted as Figure 1 of this application the applicant's property is probably underlain by the Todilto limestone, although it is covered by alluvium in the general vicinity of the claims. The Todilto is one of the principal host rocks for uranium ore in the general area.

Uranium ore occurs on a property immediately west of the applicant's in the same section and within half a mile south of the applicant's property, but the applicant does not present any evidence of the presence of uranium on their own property. A classified report of the Atomic Energy Commission written by Rapaport, one of the members of the applicant partnership, RMO-840, interprets the trend of a belt of ore bodies in the Todilto as passing close to but not necessarily across the property included in this application. Thus, although the property may lie within the favorable belt, there is no direct evidence of uranium on the applicant's property.

Details of the geology available in the Washington files of the Geological Survey are inadequate for a definitive appraisal of the geologic merits of the application, and this can be abtained best by field inspection and consultation with the staff of the Grants Sub-Office, U.S. Atomic Energy Commission.

The applicant proposes to define extent of ore by final offset

holes on a grid spacing of 25 feet. A cursory calculation suggests ore would have to average 3 feet in thickness and have an average grade of 0.25 percent uranium to provide enough royalty to repay the Government's share of the cost of defining ore on so fine a scale. Inasmuch as ore bodies 1 foot thick are considered minable in many parts of the Colorado Plateaus, it appears that critical attention to the optimum minimum spacing is a particularly pertinent point in Field Team review of this proposal.

The desirability of the substitution of radioactivity logging for collection of samples should also be carefully considered in consultation with the Atomic Energy Commission staff at Grants. In addition some agreement should be reached with the applicant as to the level of radioactivity that might warrant drilling of offset holes around a logged hole so that unnecessary offset holes will not be drilled around essentially barren primary holes.

Recommendation

I recommend that this application be referred to the Field Team for review and recommendation. I suggest that examining members of the field team consult with the Atomic Energy Commission at Grants, New Mexico, for the benefit of their information and suggestions, particularly with respect to points raised above, and that consideration be given to the analysis set forth in the memorandum of August 18 from J. D. Strobell, Jr., to R. P. Fischer, Acting District Supervisor, Mineral Deposits Branch, Geological Survey, that accompanied the Field Team report concerning DMEA Docket 2897 Flat Top-Vilatie Hyde claims. The claims reported on in that Docket apparently adjoin the claims of the present application on the west, and Strobell's reasoning would appear to be particularly applicable to the proposal reviewed in this memorandum.

Arthur P. Butler Jr.

Copies to: Ellis (2)

9/9/53 glc

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 8 - 1953

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

September 8, 1953

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4640

From: H. D. Keiser, Bureau of Mines Member
Uranium Commodity Committee

Subject: DMEA Docket 3151, Four Corners Exploration Co., Box 101, Grants, New Mexico.

I have reviewed the application included in the subject docket, and discussed it with Arthur P. Butler, Geological Survey Member, and Joseph O. Hosted, representative of the Atomic Energy Commission.

It is recommended that the application be referred to the Field Team for investigation and report, and that the Field Team be requested to consult the Chief of the Atomic Energy Commission suboffice at Grants, New Mexico.

Consideration is suggested by the Field Team of the advisability of drilling on 25-foot centers as specified in the application, and of the economics of the entire drilling program, taking into account the economic analysis presented by J. D. Strobell, Jr., in his memorandum of August 18, which memorandum is part of DMEA Docket 2897, Flat Top - Vilatie Hyde claims, McKinley County, New Mexico.

H D Keiser mdl
H. D. Keiser

Attachment

Four Corners Exploration Company
Box 101
Grants, New Mexico

August 31, 1953
Subject: DMEA-3151
Re: Exploration Assistance
Flat Top Claims #4 & 5

Gentlemen:

The receipt of your application dated August 22, 1953, for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-3151 and referred to the Rare and Miscellaneous Metals Division.

Kindly refer to DMEA-3151 in any future correspondence relating to your application.

Sincerely yours,

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

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

August 31, 1953

Memorandum

To: Executive Officer, DMEA Field Team, Region IV

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number DMEA-3151

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

DMEA 3151 - Four Corners Exploration Company

ROBERT E. ADAMS

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

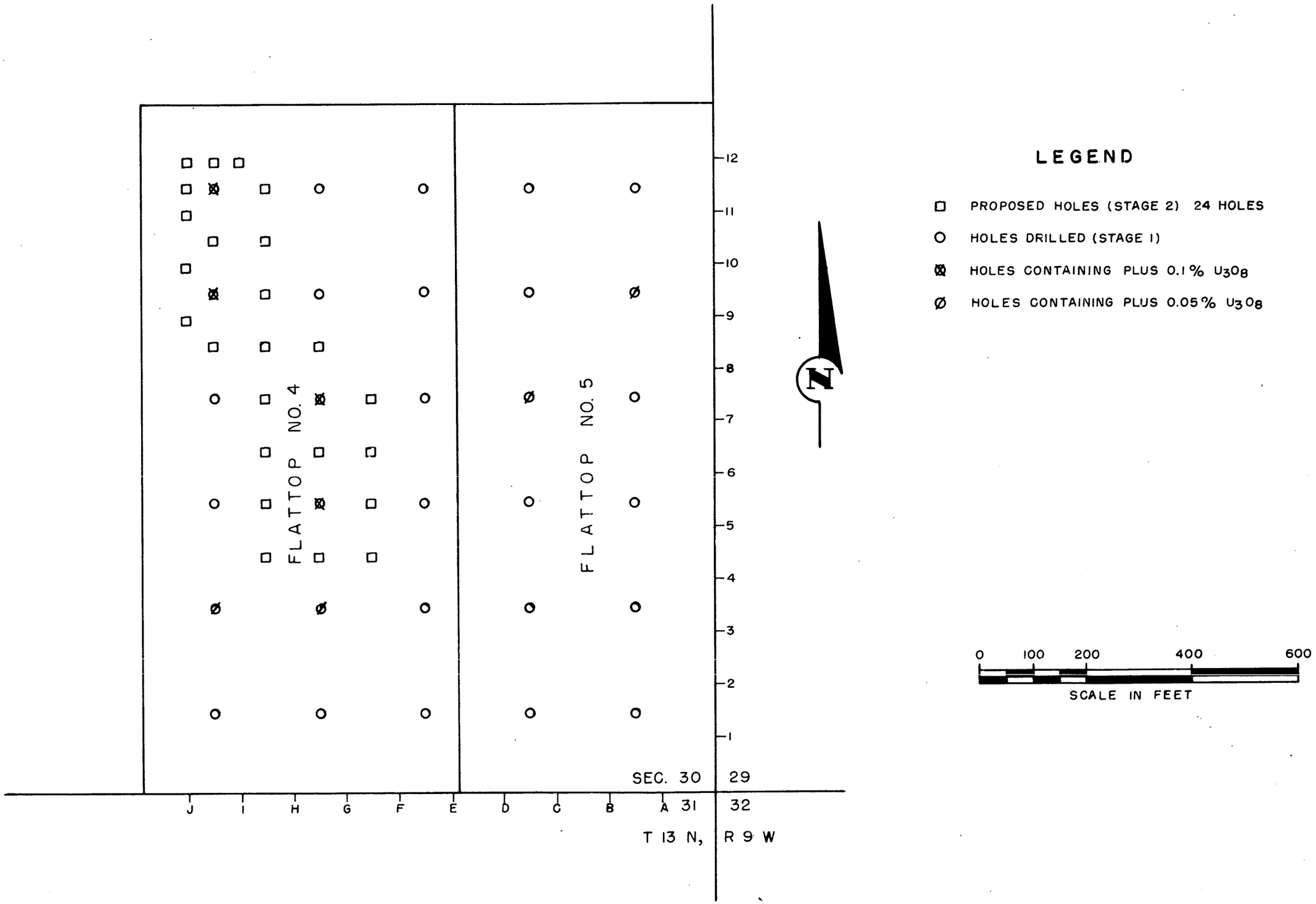
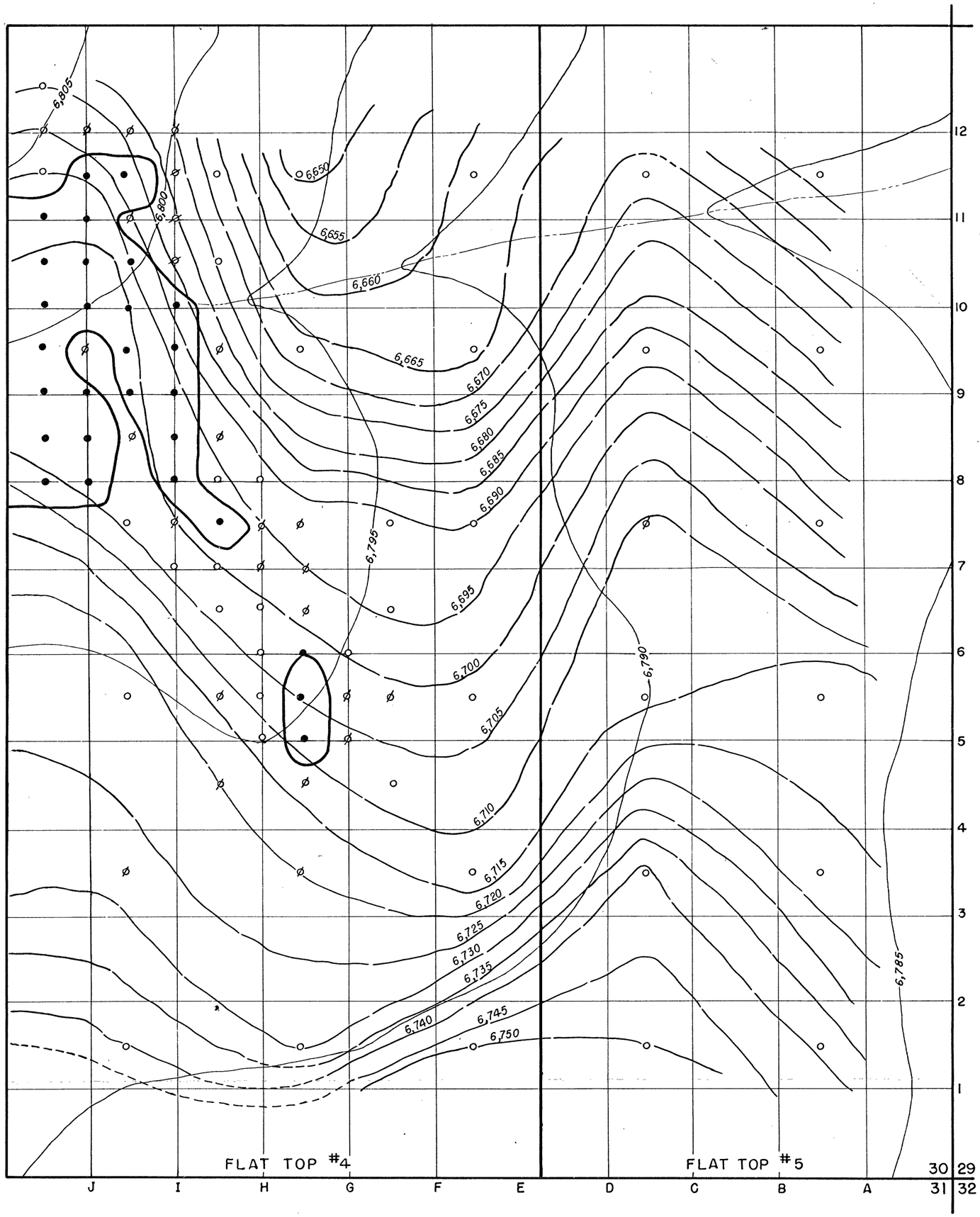


FIGURE 1 - PROPOSED DRILLING STAGE 2, FOUR CORNERS EXPLORATION CO., McKINLEY COUNTY, N. MEX.
(DMEA 3151, CONTRACT Idm E671)

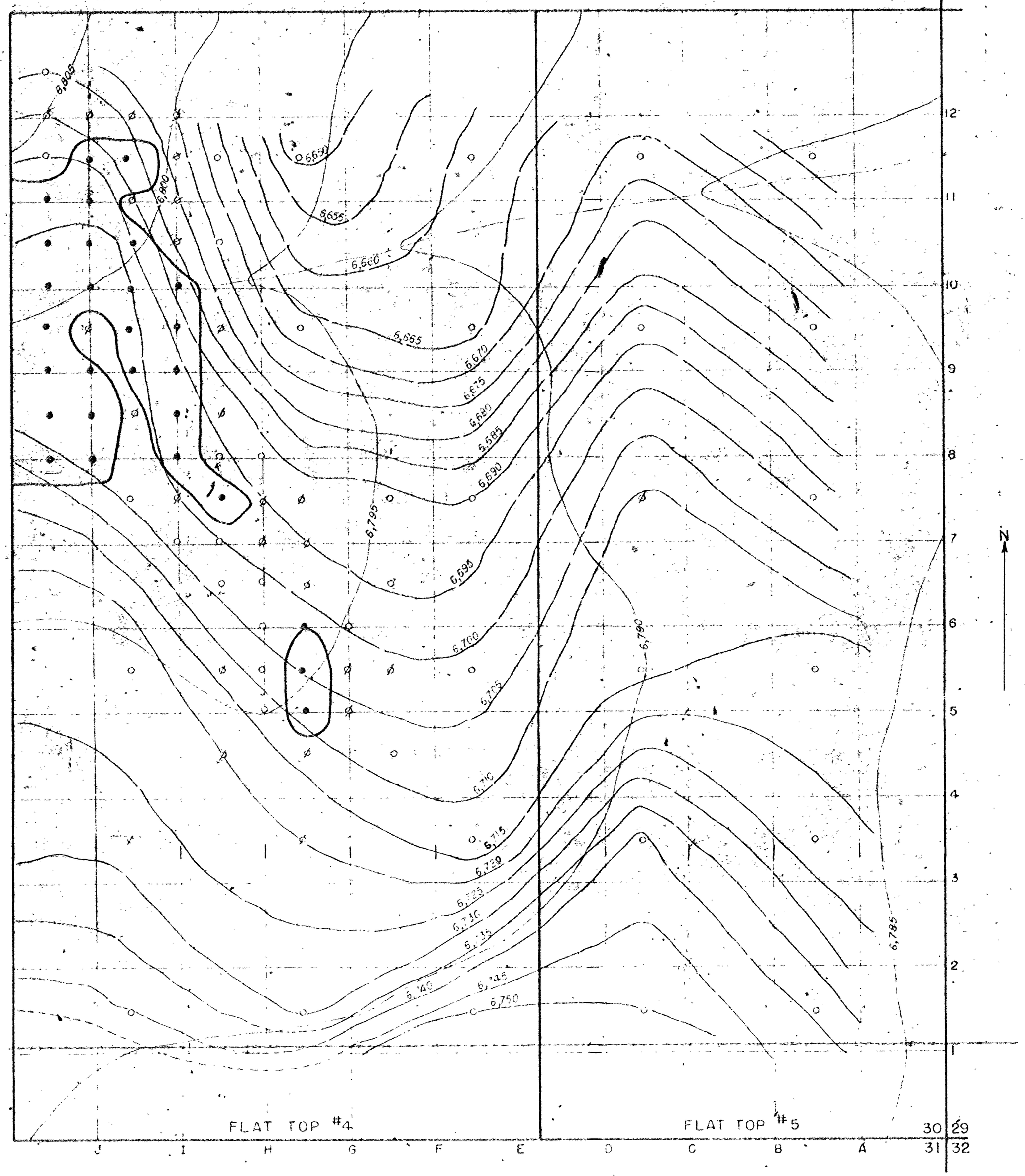


- Ore hole.
- Mineralized hole.
- Barren hole.
- 6790 — Surface contour line.
- 6700 — Structure contour on base of Todilto limestone.
- Approximate outline of ore body.

FIGURE 2 - PLAN MAP SHOWING HOLES, OREBODIES, AND SURFACE AND STRUCTURE CONTOURS, FLAT TOP NOS. 4 AND 5 CLAIMS, FOUR CORNERS EXPLORATION CO., McKINLEY COUNTY, NEW MEXICO. (DMEA 3151, CONTRACT Idm-E671)

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
AUGUST 1956 Idm-E671 DOCKET 3151



EXPLANATION

5700 STRUCTURE CONTOUR DRAWN ON BASE OF TODILTO LIMESTONE OF JURASSIC AGE.

APPROXIMATE OUTLINE OF ORE BODY.

6790 SURFACE CONTOUR

DRILL HOLE

● ORE-BEARING

ø MINERALIZED

o BARREN

100 0 300 FEET
CONTOUR INTERVAL 5 FEET

NOTE: BASE AND GEOLOGY FROM APPLICANTS' MAP.

Figure 2.--MAP OF FLAT TOP NOS. 4 AND 5 CLAIMS SHOWING SURFACE AND STRUCTURE CONTOURS AND HOLE LOCATIONS FOUR CORNERS EXPLORATION CO., McKINLEY COUNTY, NEW MEXICO.

DMEA 3151, Contract Idn-E671

FLAT TOPS #4 & 5

Section 30, T13N, R9W, N.M.

Scale 1" = 100'

0 50 100 200

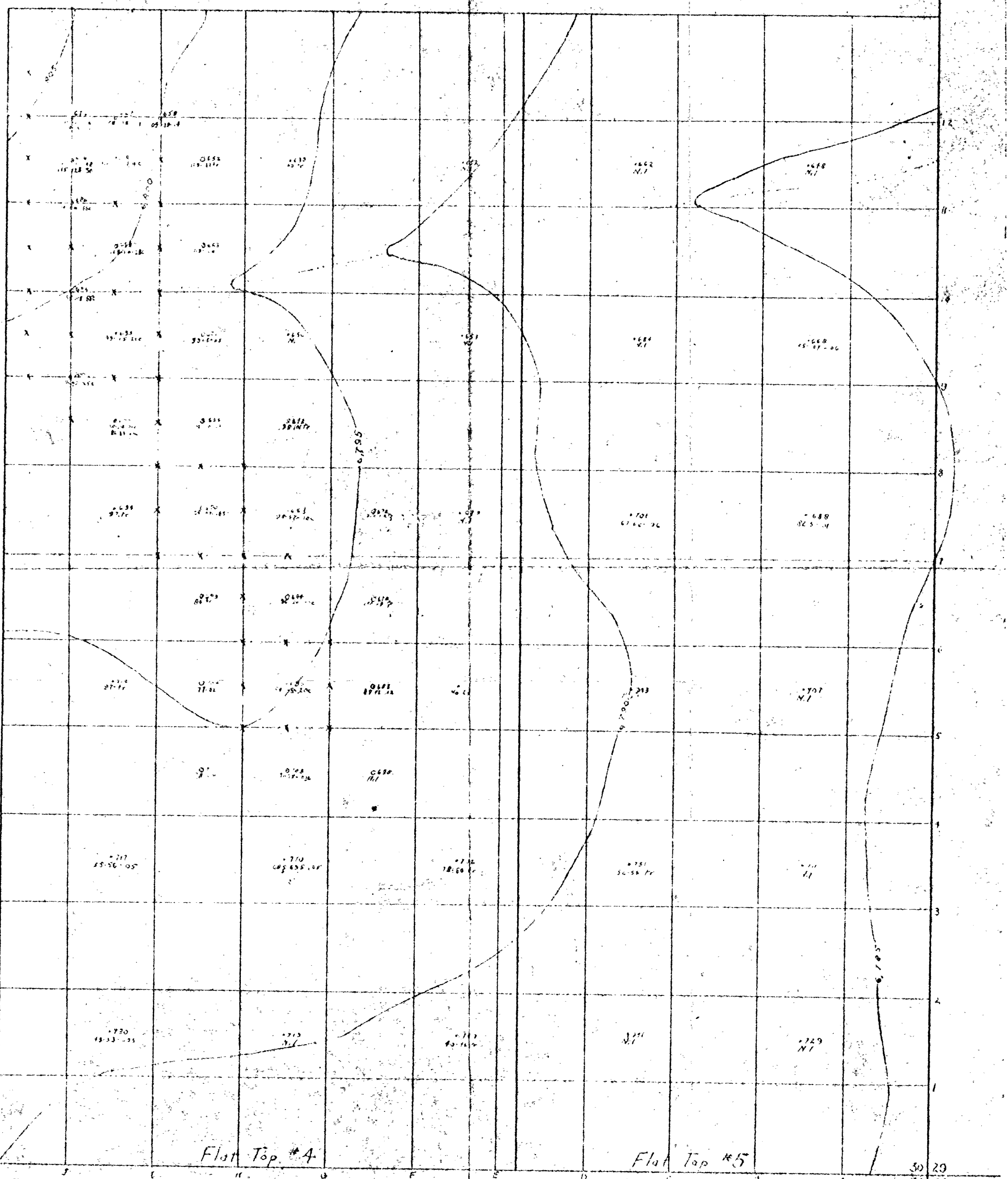
N

Legend

-6,700- Surface elevation (sea level datum)

0678 elevation base Tatilta limestone

.05-.05-.05 [illegible] from 35'-56' below surface

= chemical assay on cuttings

Hole drilled on 1st stage