DMEA Form 9
Rev. 6/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE Idm-E NO._____ DMEA NO. 4845

Application
- [ ] Denied
- [ ] Withdrawn

Contract 4 FEB 1958 1167
- [ ] Terminated - Not Certified
- [ ] Terminated - Certified

- [ ] Cancelled
- [ ] Royalty Agreement

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

Folder No. 1:

Left Side

- [ ] Royalty Audits
- [ ] Certification of Discovery
- [x] Closing Letter
- [x] Cost Audits
- [ ] Termination Notice or Agreement
- [ ] Recision Notice
- [ ] Assignment of Contract
- [ ] Contract Amendments
- [x] Contract with all exhibits and annexes
- [ ] 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
- [ ] Operator's monthly reports and all attachments
- [x] On-site Exam Report (Tab)
- [ ] Settlement Sheets
- [ ] Drill Logs

Additional Folders:

Left Side

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

Right Side

- [ ] Field Team Semi-Annual Report for Certified Project
- [ ] Field Team Interim Reports
- [x] Operator's Monthly Reports with transmittal, narrative and maps. 104's

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

Folders No._____ : Settlement Sheets

Folders No._____ : Drill Logs

Folders No._____ : Royalty material

17963

DMEA FORM 6 REFERENCE SLIP

REV. 12-56 DEFENSE MINERALS EXPLORATION ADMINISTRATION

TO:	INITIALS	DATE
1. Mr. Frank E. Johnson	FEJ	3/20
2. Mr. George C. Selfridge		
3. Mr. F. L. Knouse		
4.		
5.		
FROM: Jay L. Chambers	JLC	3/19

FOR: Check items for action desired

____ Action ____ Reply for signature of _____

____ Approval ____ Investigate ____ Surname

____ Comment ____ Recommendations ____ Signature

____ Conference ____ Rewrite ____ File

____ Instructions XXX Your information

REMARKS:

OFFICE OF MINERALS EXPLORATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

MAR 19 1959
O.M.E

REPORT OF REVIEW

I have reviewed the Monthly Reports of:

Food Machinery and Chemical Corporation
Westvaco Mineral Products Division,
161 East 42nd Street,
New York 17, New York

pertaining to Exploration Project Contract No. Idm-X1167, DMEA No. 4845, for the months of April, 1958 to July, 1958, inclusive, covering a project for the exploration of Uranium on property known as Sec. 17, T 13 N, R 9 W, 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, verification of work performed by reference to Field Team reports and correspondence, 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 reasons given on the attachment to this report.

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

Total cost as billed by Contractor		$15,735.02
Exceptions: (Schedule attached)		
Prior to this review	$44.82	
Less: Reinstatement by review	0.00	
Herewith	0.00	44.82
Total Accepted Cost		$15,690.20

The contract calls for a 75 percent participation of exploration expenses by the United States Government. Therefore, payment to the contractor by the Government in the amount of Eleven Thousand, Seven Hundred Sixty-Seven and 65/100ths Dollars is valid and proper, provided that the Regional Executive Officer, the Director, or other competent official has accepted or will accept the project as having otherwise met the terms of the contract.

Amount payable to Operator	$11,767.65
Amount reimbursed	11,267.65
Balance due Operator	$ 500.00

Pl. Cpr. 3/25/59

Donald T. Finch
Donald T. Finch
OME Auditor

March 12, 1959

REASONS FOR REPORT OF REVIEW IN LIEU OF FINAL AUDIT

FOOD MACHINERY AND CHEMICAL CORPORATION
WESTVACO MINERAL PRODUCTS DIVISION

Contract IAm-X1167 Docket No. ERDA 4845

(a) The monthly reports were supported by documentary proof of that portion ($12,213.50) of the costs which covered work performed at unit rates under independent contract, and that portion ($94.50) which covered other costs for contribution by the Government on the basis of actual costs (per summary attached).

(b) The balance ($3,308.20) of the costs incurred were under a contract provision for payment by the Government on the basis of fixed unit costs of work actually performed; and

(c) The administrative cost to the Government of an audit would be excessive in relation to the estimated amount of possible further cost disallowances thereunder.

SCHEDULE OF EXCEPTIONS

FOOD MACHINERY AND CHEMICAL CORPORATION
WESTVACO MINERAL PRODUCTS DIVISION

Contract Idm-E1167 Docket No. DMEA 4845

Prior Disallowances by the Field Team

The following excessive non-core drilling was disallowed by the Field Team.

Hole No.	Excess Footage	
2140 - 4040	6 Feet	
2740 - 1040	4	
2740 - 440	6	
[illegible]40 - 1640	5	
[illegible]40 - 4040	2	
940 - 1040	5	
940 - 2240	7	
4540 - 2840	6	
4540 - 4040	2	
5140 - 1040	4	
5140 - 2240	4	
5140 - 440	1	
Total Excess Footage at 65¢/Foot	54 Feet	$ 5.10
Incidental Allowance applicable to the foregoing excess footage at 18¢/Foot		9.72
Total Prior Disallowances		$ 44.82

BUREAU OF RECLAMATION COSTS

FOOD MACHINERY AND CHEMICAL CORPORATION
VARIAN ASSOCIATES, PHOENIX DIVISION

Contract Ilm-X1167 | Docket No. BRDA 4045

Independent Contractor		
Non-core Drilling		
18,790 feet at 65¢/feet	$12,213.50	
Miscellaneous		
Chemical Analyses		
27 at $3.50 each	94.50	
Total Documented Costs		$12,308.00
Fixed Unit Costs		
Incidental Allowance		
18,790 feet of completed acceptable drilling at 16¢/feet		$ 3,382.00
Total Accepted Cost		$15,690.00

Government's copy

ORIGINAL FILE COPY
DMEA
RECEIVED APR 2 1958

MF-200
(Revised June 1954)

Docket No. DMEA 4845

Commodity Uranium

Contract No. Idm-E 1167

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

EXPLORATION PROJECT CONTRACT[1]

It is agreed this 4 FEB 1958 day of ....., 195..., between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and [2] Food Machinery and Chemical Corporation, a Delaware corporation (Westvaco Mineral Products Division),

whose mailing address is 161 East 42nd Street
New York 17, New York,

hereinafter called the "Operator," as follows:

ARTICLE 1. *This contract* is entered into under the authority of the Defense Production Act of 1950, as amended. It consists of this form (MF-200), the attached Exhibit "A," Annex I, ~~XXX~~ Annex II, and map (Figure 2).

The Operator shall not transfer or assign this contract or any right thereunder without the written consent of the Government.

ARTICLE 2. *Operator's property rights.*—(a) The land which is the subject of this contract (hereinafter called "the land") is in the State of New Mexico, County of McKinley, and is described in Annex I.[3]

(b) The Operator represents and undertakes that:

(1) The Operator is the [4] Lessee of [5] the rights to uranium in the land, in possession and entitled to possession for all of the purposes of this contract, under and by virtue of a [6] Lease and Agreement [7] recorded in Book --, page --, official records of said County; and

(2) The Operator's right, title, or interest (whether as owner, lessee, or otherwise) is subject only to the following claims, liens, or encumbrances: Interests of Lessor

(c) The Subordination Agreement of the holder of any claim, lien, or encumbrance listed above, and (if the Operator does not hold the legal title) the Consent to Lien of any holder of the legal title

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] Insert name, and if an organization, its nature (corporation and place of incorporation, partnership with names of partners, etc.).
[3] State on a separate sheet marked "Annex I" the legal description or enough to identify the property, particularly excluding any areas from which the production is not to be subject to the Government's percentage royalty.
[4] Insert "owner," "lessee," "contract purchaser," "locator," etc.
[5] Insert "the entire interest," "the mineral rights," "an undivided one-third," etc.
[6] Insert "deed," "lease," "contract," "location notice," "patent," etc.
[7] If not recorded, so indicate by inserting "un."

of the land (lessor, seller, optionor, etc.), are attached, as follows: A performance bond is attached hereto in lieu of Consent to Lien and Subordination Agreement of Santa Fe Pacific Railroad Company, lessor.

(d) The Operator shall preserve and maintain his right, title, and interest in the land and his right to the possession thereof for the purposes of this contract, and shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of this contract. Until the lapse of the time within which the Government may make a certification of discovery or development without any such certification having been made, and after any such certification has been made, the Operator shall neither transfer, convey, nor surrender the land nor any right, title, or interest therein, nor permit nor suffer any claim, lien, or encumbrance thereon, without expressly referring to and providing in the instrument of conveyance, lien, or encumbrance for the preservation of the Government's right to a percentage royalty on production and lien for the payment thereof. If the Government makes no certification of discovery or development within the time limited in Article 8, it shall thereafter have no claim against the land or any production therefrom except for any production referred to in Article 8(b)(1).

ARTICLE 3. *The exploration project.*—The project is a search for indicated or undeveloped deposits of Uranium. The work to be performed is described in Exhibit "A." The Operator on or before April 10, 1958 shall commence the work, and on or before July 31, 1958 (unless the Operator's obligation to prosecute the work is terminated—see Article 10) shall ~~either~~ have completed the work ~~or shall have incurred allowable costs (see Article 6) in a sum not less than the estimated total allowable cost set forth in Exhibit A~~, except as otherwise provided in Exhibit "A" with respect to stages of work. See Annex II.

ARTICLE 4. *Performance of the work.*—(a) *Operator's responsibility.*—The work shall be performed with reasonable diligence, efficiently, expertly, in a workmanlike manner, in accordance with good mining standards and State regulations for health and safety and for liability insurance covering employment; and with suitable and adequate equipment, facilities, materials, supplies, and labor, to bring it to completion within the time fixed.

(b) *Independent contracts.*—To the extent that the allowable costs are estimated in Exhibit "A" with express reference to performance by independent contractors on a unit-price basis (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations), the work may be so performed; but if the reference in Exhibit "A" to any such independent contract requires the Government's approval thereof, payments under such contract will not be allowable costs unless the Government gives its written approval of the contract. Any such independent contract shall refer to some specific and identifiable part of the work, and shall be subject to all of the pertinent terms and conditions of this exploration contract; but the Government shall not be considered a party thereto, and its rights under this contract, including the right to terminate its contributions, shall not be affected thereby. Regardless of the provisions of any such independent contract and regardless of the Government's approval thereof, the Government will participate in payments to the independent contractor only on account of work performed in accordance with the provisions of this exploration project contract, and only to the extent that the Government deems the unit prices for the work under the independent contract to be reasonable.

(c) *Government may inspect.*—The Operator shall consult with and inform the Government on all phases of the work as it progresses. The Government may enter at all reasonable times to inspect the work under the contract, and also after a certification of discovery or development to inspect production operations and underground workings. The operator shall provide the Government with all reasonable means of access for such inspections.

ARTICLE 5. *Contribution by the Government.*—The estimated total allowable cost of the project, set forth in Exhibit "A," is the sum of $28,460.00. The Government shall contribute 75 percent of the allowable costs as they are incurred in a total sum not in excess of $21,345.00: *Provided,* That until the Operator has rendered to the Government his final report, and any final 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 10 percent of the estimated total cost of the work or not in excess of the amount of the Government's contribution to the cost of property which is or may become subject to disposal as provided in Article 9(c), whichever is greater. The Government will make its contribution on the basis of the monthly vouchers referred to in Article 7(b), but all payments by the Government are provisional only, subject to audit, until the account between the Operator and the Government is finally audited and settled. "Costs incurred" mean costs that have been paid or have become due and payable, or that in the opinion of the Government have become an obligation. The Government may make payments directly to independent contractors and suppliers for the account of the Operator rather than to the Operator.

ARTICLE 6. *Estimated costs.*—(a) *Categories of costs.*—The allowable costs of the work to which the Government shall contribute are limited to those that are direct, reasonable, necessary, and that are estimated in Exhibit "A" by categories as specified in this article. If any category or subcategory is omitted from the estimate of costs, or if the word "none" is annexed to the listing thereof, costs under such category or subcategory are not allowable. Any excess over any estimate which is indicated as the maximum of any category, subcategory, or item, either as to requirement or related cost, and any excess over the estimated total allowable cost of the work, shall not be allowable. Any excess over the estimate of any category, subcategory, or item, either as to requirement or related cost, not indicated as a maximum shall be allowable within the limit of the estimated total allowable cost of the work. To the extent that excesses over maximums other than the estimated total allowable cost of the work may be necessary for the performance of the work, the Operator shall incur such excesses for his own account without contribution by the Government; but except for any such excess any excess for a category or subcategory or item under the Operator is not obligated for more than his agreed percentage of the estimated total allowable cost of the work. See Annex II

To the extent specified in this article or in Exhibit "A" the following categories, subcategories, and elements thereof are maximums; but if not so specified either here or in Exhibit "A" they are not maximums, and may be exceeded within the limit of the estimated total allowable cost of the work:

CATEGORY (1)—INDEPENDENT CONTRACTS.—Work to be performed under independent contracts (see Article 4(b)). The estimated total amount of this category and the estimated cost of each unit of work for performance under an independent contract are maximums. See Annex II.

CATEGORY (2)—PERSONAL SERVICES.

Subcategory (a)—Supervision.—All elements of this subcategory (number of supervisors, periods of employment, rates of pay, and total) are maximums.

Subcategory (b)—Technical services.—All elements of this subcategory (number of technicians, periods of employment, rates of pay, and total) are maximums.

Subcategory (c)—Labor.

CATEGORY (3)—OPERATING MATERIALS AND SUPPLIES.—Includes such items as drill bits and steel, explosives, fuel, pipe, power, small tools costing less than $50 each, timber, track.

CATEGORY (4)—OPERATING EQUIPMENT.

Subcategory (a)—Rental.—The number of each object to be rented [6 mine cars, 1 truck], the rate of rental [$100 per month, $5 per hour], and the total of this subcategory are maximums.

Subcategory (b)—Purchases.—The estimated total of this subcategory is a maximum.

Subcategory (c)—Depreciation.—All elements of this subcategory (time periods, rate of depreciation, and subcategory total) are maximums.

CATEGORY (5)—INITIAL REHABILITATION AND REPAIRS.—Estimates under this category include all requirements and related costs, such as labor, materials and supplies, and supervision at a rate not higher than provided for in Category (2), and shall not be duplicated under any other category. The estimated total of this category is a maximum.

Subcategory (a)—Initial rehabilitation and repairs of existing buildings, fixtures, and installations (exclusive of mine workings).—The estimated total of this subcategory is a maximum.

Subcategory (b)—Initial rehabilitation and repairs of operating equipment.—The estimated total of this subcategory is a maximum.

CATEGORY (6)—NEW BUILDINGS, FIXTURES, AND INSTALLATIONS (EXCLUSIVE OF MINE WORKINGS).—Estimates under this category include all requirements and related costs, such as labor, materials and supplies, and supervision at a rate not higher than provided for in Category (2), and shall not be duplicated under any other category. The estimated total of this category is a maximum.

CATEGORY (7)—MISCELLANEOUS.—Repairs and maintenance (other than initial) of operating equipment, analytical work, prints and other reproductions, accounting, Operator's share of payroll taxes, liability insurance covering employment, travel, communications, and any other items of requirement or cost that do not fall within any of the first 6 categories.

THE ESTIMATED TOTAL ALLOWABLE COST of the work is a maximum.

(b) *Nonallowable costs.*—The following costs are not allowable for contribution by the Government:

(1) *Costs of the land,* such as rental, depreciation, depletion, or other cost of acquiring, owning, or holding possession;

(2) *Indirect costs,* such as general overhead, corporate management, interest, taxes (other than payroll and sales taxes), insurance (other than liability insurance covering employment), damages to persons, damages to property (other than necessary repairs or replacements of equipment or other property used in the work);

(3) *Previous work* performed or costs incurred before the date of this contract; and

(4) *Deferred payments.*—Any costs incurred by the Operator under any rental-purchase agreement, installment-purchase agreement, or any agreement for the purchase of goods under the provisions of which payment of the full purchase price is deferred more than 90 days from the delivery of the goods; unless the purchase agreement is approved by the Government in writing.

(c) *Reductions in costs.*—The Operator shall account for and give the Government credit for any incidental benefits, credits, or money received in the ordinary course of business in prosecuting the work (as by salvage or sale of materials or equipment, furnishing of room or board, furnishing of power or services to third persons, rebates or discounts on purchases, etc.), in the same ratio in which the Government contributes to costs; and such amounts shall be treated as a reduction in costs incurred so that they are available for use within the limit of the original estimated total cost. This provision does not apply to receipts from production which are subject to the Government's percentage royalty under the provisions of Article ~~9~~. 8. See Annex II.

ARTICLE 7. *Reports, accounts, audits.*—(a) *Operator's records.*—The Operator shall keep suitable records and accounts of the work performed and of any production in which the Government may have an interest; and shall preserve those with respect to work performed for at least three years after final payment by the Government, and those with respect to production for at least three years after any obligation to pay royalties to the Government has terminated. The Government may inspect and audit said records and accounts at any time, either by itself or by a certified public accountant. If the Government elects to audit said records and accounts relating to the exploration work by certified public accountant, it may do so as a cost of the work to which the Operator shall contribute. The Comptroller General of the United States or his representative, until the expiration of said three-year periods, shall have access to and the right to examine any pertinent books, documents, papers, and records of the Operator. All of the Operator's vouchers and records and accounts relating thereto and the Government's payments thereof remain subject to adjustment until final audit by the Government. If work under this contract is carried on in conjunction with any other operations, or if labor, supervision, services, materials, supplies, equipment, facilities, or other requirements for carrying on the work are also used in connection with other operations, the costs shall be segregated and accounted for on a basis and by methods and accounts that are satisfactory to and approved by the Government.

(b) *Progress reports and vouchers.*—The Operator shall provide the Government with five copies of monthly progress reports in three sections as follows: (1) Operator's Monthly Report and Voucher showing detailed costs incurred during the reporting period; (2) Operator's Unit Cost and Progress Report showing the various types of work performed during the reporting period and costs incurred for each type of work; and (3) a Narrative Report of the work performed during the reporting period including adequate engineering-geological maps or sketches, drill hole logs and locations, and assay reports on samples taken concurrently with advance in mineralized ground. (Forms for reporting under (1) and (2) above will be provided by the Government.)

(c) *Final report.*—Upon completion of the work or termination of the Government's obligation to contribute to costs, the Operator shall furnish the Government with five copies of a final report (in addition to the final progress report and voucher). This final report shall include a geological and engineering evaluation of the results of the work performed under the contract with an estimate of the ore reserves resulting from such work, complete assay data, adequate geological and engineering maps or sketches, and a summary of the work performed and related costs incurred.

(d) *Report of sales.*—The Operator shall provide the Government with suitable accounting and documentary evidence covering all production to which the Government's percentage royalty relates, such as copies of smelter or concentrator settlement sheets, and certified accounts of production and sale or other disposition of production.

(e) *Compliance with requirements.*—If in the opinion of the Government any of the Operator's reports, records, or accounts are insufficient or incomplete, or if the Operator fails to make them, the Government may procure the making or completion of such with suitable attachments as an expense of the work to which the Operator shall contribute. The Government may withhold approval and payment of any vouchers relating to insufficient or incomplete reports, records, or accounts.

ARTICLE 8. *Repayment by Operator.*—(a) *Certification.*—If the Government considers that a discovery or development from which production may be made has resulted from the work, the Government, at any time not later than six months after a sufficient final report and final account (see Article 7) 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.

(b) *Royalty on production.*—The Operator, as principal if the Operator is the producer, or as surety if the Operator is not the producer, shall pay to the Government a royalty on all minerals mined or produced from the land, 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, or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first; or (2) if the Government makes a certification of discovery or development, within 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. See Annex II.

(c) *Basis for computation.*—The Government's royalty shall be a percentage of the gross proceeds (including any bonuses, premiums, allowances, or other benefits) from the production sold, in the form sold (ore, concentrates, metal, or equivalent), at the point of delivery (the f. o. b. point); *except,* that charges of *the buyer* arising in the regular course of business, and shown as deductions on the buyer's settlement sheets, on account of the cost of treatment processes performed by *the buyer,* sampling and assaying to determine the value of the production sold, and freight paid by *the buyer* to a carrier (not the Operator), shall be allowed as deductions in arriving at the "gross proceeds" as that term is used herein. Any costs of treatment processes, sampling or assaying, or transportation, performed or paid by the Operator or by anyone other than the buyer, are not deductible in arriving at the "gross proceeds" as that term is here used. The term "treatment processes," as here used, means those processes (such as milling, concentrating, smelting, refining, or equivalent) applied to the crude ore or other production after it is extracted from the ground, to put it into a commercially marketable form; excluding fabricating or manufacturing.

(d) *Unsold production.*—If any production (ore, concentrates, metal, or equivalent), after the lapse of six months from the date the ore was extracted from the ground, remains neither sold nor used by the Operator in integrated manufacturing or fabricating operations (for instance, if it is stockpiled), the Government, at its option, as long as it so remains, may require the computation and payment of its royalty on the value of such production in the form (ore, concentrates, metal, or equivalent) it is in when the Government elects to require computation and payment. If any production is used by the Operator in integrated manufacturing or fabricating operations before the Government makes its election, the Government's royalty on such production shall be computed on the value therof in the form in which and at the time when it is so used. "Value" as here used means what is or would be gross income from mining operations for percentage depletion purposes in Federal income tax determination, or the market value, whichever is greater.

(e) *Percentages of royalty.*—The percentages of the Government's royalty shall be as follows:

One and one-half (1½) percent of amounts ("gross proceeds" or "value") not in excess of eight dollars ($8.00) per ton of production in the form in which sold, held, or used, plus one-half (½)

percent for each additional full fifty cents ($0.50) by which such amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) percent of such amounts.

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

(f) *Time for computation and payment.*—The Government's royalty shall be computed and paid currently upon each lot sold, held, or used in integrated operations, as the case may be, as above provided in this article.

(g) *Lien for payment.*—To secure the payment of its percentage royalty, there is hereby granted to the Government a lien upon the land or the Operator's interest in the land and upon any production of minerals therefrom, until the royalty claim is extinguished by lapse of time or is fully paid.

(h) *Notice to purchasers.*—The Operator shall give notice of the Government's claim for royalty to any purchaser of the production, and shall authorize and direct such purchaser to pay the royalty directly to the Government and to furnish the Government with copies of the settlement sheets. If the records of any production and sales or other disposition of production, whether the production is by the Operator or by others, are not made available to the Government, the amount of the royalty may be estimated by the Administrator, Defense Minerals Exploration Administration, or his successor, and his estimate thereof shall be final and binding upon the Operator.

(i) *No obligation to produce.*—Nothing in this contract is to be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any production operations.

(j) *Government not obligated to buy.*—Nothing in this contract shall be construed as imposing any obligation on the Government to purchase any minerals mined or produced from the land.

ARTICLE 9. *Interests in purchased property.*—(a) *Title and ownership.*—All costs under this contract shall be incurred by the Operator in the Operator's own name and for the Operator's own account; but any property acquired to the cost of which the Government contributes shall belong to the Operator and the Government jointly in proportion to their respective contributions, although title thereto shall be taken in the name of the Operator.

(b) *Preservation of property.*—Until the final disposal of any property in which the Government has an interest the Operator shall preserve and protect same for the best interest of the Government, any reasonable and necessary costs thereof to be treated as an allowable cost of the project. After the completion of the work or termination of the Government's obligation to contribute, or when such property is not in use for or needed for the work, the Operator shall neither use it without the written consent of the Government nor without paying a reasonable rental to be fixed by the Government for its interest.

(c) *Disposal of property.*—Upon the completion of the work or termination of the Government's obligation to contribute to costs, or when the property is no longer needed for the work, the Operator shall promptly dispose of salable or salvageable property in which the Government has an interest for the joint account of the Government and the Operator, either by return to the vendor, by sale to others, or purchase by the Operator or the Government at a price at least as high as could be obtained from others, unless the Government in writing waives its interest in any such property. Without advance approval of the sales price by the Government the Operator shall not sell at any price any item of property the cost of which was more than $500, and shall not sell at less than 25 percent of the purchase price any item of property which cost $500 or less. The Government, in lieu of approving the sales price for any such item, may itself purchase the item at the best price which the Operator is able to obtain or himself cares to give. Property remaining upon any termination of the work shall be considered in groups or categories (such as drill steel, or explosives, or pipe, or rails), and if the original cost of the remaining unexpended portion of any such group or category is less than $50, the Government waives its interest therein. If necessary to accomplish the disposal of any item the Operator shall dismantle and sever it from the land, the cost thereof to be treated as a cost of the project.

(d) *Default of the Operator re disposal.*—If within 90 days after the completion of the work or termination of the Government's obligation to contribute to costs, or after the property is no longer needed for the work, or after such further time as the Government may in writing allow, the Operator has failed to sell or otherwise liquidate or dispose of any property in which the Government has an interest, the Government, at any time prior to final settlement under the contract, may pursue one of the following two courses: (1) the Government, by written notice to the Operator, may place upon such property what in its opinion is a fair valuation thereof, not in excess of the cost less 1.66 percent per month from the

date such property was purchased under this contract to the termination of said 90-day period; and such property shall thereupon be considered and accounted for as having been purchased by the Operator at the valuation so fixed by the Government; or (2) the Government may enter and take possession of such property wherever it may be found, and remove and dispose of it for the joint account of the parties.

ARTICLE 10. *Termination of the Government's obligations.*—(a) If in the opinion of the Government operations at any time have failed to achieve anticipated results that indicate the probability of making a worthwhile discovery, and in the opinion of the Government further operations are not justified, the Government may give the Operator written notice thereof, and thereupon: (1) the Government shall be free of all obligation to contribute to costs not then incurred other than such as may be allowable under the provisions of the contract as necessary and incidental to winding up, reporting, and accounting; and (2) the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting.

(b) If in the opinion of the Government the Operator is in any manner in default under the terms of the contract, the Government may give the Operator written notice of such default with a specification of reasonable time within which the default must be cured; and if the Operator fails to cure such default as required, thereupon: (1) the Government shall be relieved of all obligation to contribute to costs not incurred when the notice was given, other than such as may be allowable by the provisions of the contract as necessary and incidental to winding up, reporting, and accounting; and (2) the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting. The remedy provided for the Government in this paragraph "(b)" is in addition to any other remedy provided in this contract, and in addition to any other remedy the law may provide for breach of contract.

(c) The giving of any notice by the Government under the provisions of this Article 10 shall not affect the Government's rights as provided for in the contract with respect to a percentage royalty, and such rights shall be fully preserved.

ARTICLE 11. *Notices to be given by the Government* may be delivered to the Operator, or may be sent by registered mail addressed to the Operator at his mailing address stated in this contract. If mailed, notices are deemed to have been delivered five days after the date of mailing.

ARTICLE 12. *Officials not to benefit.*—No member of or delegate to Congress or resident commissioner shall be admitted to any share or part of this contract or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

ARTICLE 13. *Changes and added provisions.*—

See Annex II.

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By O. Mittendorf
Administrator, Defense Minerals
Exploration Administration

Antoni
Kenyer

FOOD MACHINERY AND CHEMICAL
CORPORATION (Operator)

By W. N. Williams

Title Vice President

Ching
Ellis
Talbert

I, M. E. Gilbert, certify that I am the Assistant secretary of the corporation named as Operator herein; that W. N. Williams who signed this contract on behalf of the Operator, was then Vice President 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.

M E Gilbert

[CORPORATE SEAL]

Selfridge
Johnson

U. S. GOVERNMENT PRINTING OFFICE 16—70617-1

EXPLORATION PROJECT CONTRACT
FOOD MACHINERY AND CHEMICAL CORPORATION
DOCKET NO. DMEA-4845

ANNEX I

The land referred to in Article 2 of the Contract consists of the NE$\frac{1}{4}$, the SE$\frac{1}{4}$ and the NW$\frac{1}{4}$ of section 17, township 13 north, range 9 west, N.M.P.M.&B., McKinley County, New Mexico.

The land is shown on the map entitled, "Figure 2 - Planimetric Map of Section 17, T. 13 N., R. 9 W., N.M.P.M. . . . Westvaco Minerals Division of Food Machinery and Chemical Corporation . . .," attached hereto and made a part hereof.

EXPLORATION PROJECT CONTRACT
FOOD MACHINERY AND CHEMICAL CORPORATION
DOCKET NO. DMEA-4845

ANNEX II

Article 13. Changes and added provisions.--

(a) That part of the last sentence of Article 3 beginning with the word "either" is deleted and replaced by the words "have completed the work, except as otherwise provided in Exhibit 'A' with respect to stages of work."

(b) That part of the last sentence in the first paragraph of Article 6(a) commencing after the semicolon is deleted.

(c) Categories (2) through (6) of Article 6(a) are deleted.

(d) In addition to the costs of work estimated in Exhibit "A" by categories of actual costs, the costs of work requirements specified in Exhibit "A" as "Fixed Unit Costs" are allowable costs of the project. The Government will contribute to the fixed unit costs as work units are performed. A "Fixed Unit Cost" is an agreed price for each unit of work to be performed regardless of costs incurred by the Operator. Costs set forth in Exhibit "A" include all allowable costs of the work to be performed under the Contract.

(e) In the last sentence of Article 6(c), the words "Article 8" are substituted for the words "Article 9."

(f) Notwithstanding any other provision of the Contract, the allowable unit cost per foot of a drilling item is the average unit cost per foot computed on the basis of all the actual unit costs of said drilling item incurred by the Operator: Provided, That the Government will not contribute to any portion of an average unit cost of a drilling item that exceeds the estimated unit cost of said item set forth in the Contract.

(g) In Article 8(b), the words "all minerals mined or produced" mean, for the purposes of this Contract, uranium-bearing ore and minerals or products associated therewith.

EXPLORATION PROJECT CONTRACT
FOOD MACHINERY AND CHEMICAL CORPORATION
DOCKET NO. DMEA-4845

Exhibit "A"

Description of the Work

General Provisions

The work consists of exploration by non-core drilling to test the Poison Canyon and Westwater Canyon sandstones of the Jurassic Morrison formation for uranium.

Drilling depths are estimated to average 220 feet to penetrate the Poison Canyon sandstone and 320 feet to penetrate the Westwater Canyon sandstone. Holes designed to explore both the Poison Canyon and the Westwater Canyon sandstones shall not extend more than 10 feet into the underlying Recapture member. Because of the difficulty of recognizing the lower contact of the Poison Canyon sandstone no specific lower limit is placed on holes designed to explore that member only. However, the Operator shall exercise diligence to avoid excessive drilling depths.

Samples shall be taken at 2-foot intervals from the top of the Poison Canyon sandstone to the bottom of each hole. Cuttings shall be collected with a Duclone sample collector or equivlaent unit of another make, unless wet drilling is necessary, in which case provision shall be made for taking satisfactory sludge samples. All samples shall be checked for radioactivity and those indicating significant mineralization shall be split. One portion shall be analyzed chemically for uranium and the other portion shall be properly labeled and stored for the use of the Government. The non-mineralized samples also shall be labeled and stored for inspection by the Government. Any stored samples may be disposed of by the Operator upon approval by the Government.

All cuttings from the drill holes shall be logged geologically and the holes probed radiometrically, and the record of such logging and probing, together with certified copies of all assay certificates, shall be submitted with the Operator's monthly progress reports.

No hole shall be drilled closer than 100 feet to the outer boundaries of the land described in Annex I.

The Government will not contribute to any costs of an incompleted drill hole.

Access roads and drill sites shall be prepared, when required, with a D-7 bulldozer, or an equivalent unit of another make.

The project shall be supervised at all times by a geologist or mining engineer, who shall devote full time to the project work.

The location, direction, inclination, and extent of all project work are subject to the approval of the Government.

The work is divided into two stages as hereinafter described. The Operator shall complete Stage I and shall perform as much of Stage II as the Government approves in writing in advance.

Stage I

Prepare access roads and drill sites, as required, and drill approximately 71 holes, aggregating an estimated 17,420 feet, at the locations indicated on the map (Figure 2) referred to in Annex I. The holes shall be drilled in eight east-west rows spaced about 600 feet apart, with the holes in each row spaced about 300 feet apart. As indicated on the map, previously drilled areas are omitted from this pattern. Fifty-three holes shall penetrate through the Poison Canyon sandstone only, and 18 holes shall be extended through the Westwater Canyon sandstone. If more than 17,420 feet of drilling are required to reach the desired horizons,

the additional footage and funds required may, with the written approval of the Government, be transferred and deducted from Stage II.

Stage II

Prepare access roads and drill sites, as required, and drill not more than 60 holes aggregating not more than 14,800 feet as offsets to previously drilled holes showing favorable mineralization. No hole shall extend through the Westwater Canyon sandstone unless it is offsetting a hole that shows favorable mineralization at that horizon. Offset holes shall be drilled not closer than 100 feet to any previously drilled hole.

Estimated Cost of the Project

Stage I

Actual Costs

Category (1) Independent Contracts

17,420 feet non-core drilling @ $0.65/ft. (See Annex II(f))	$11,323.00	
35 hours drill crew standby time @ $10/hr.	350.00	
24 hours bulldozing @ $12/hr.	288.00	

Categories (2) through (6)

None

Category (7) Miscellaneous

None except: 48 chemical analyses @ $5/each	240.00	$12,201.00

Fixed Unit Costs (See Annex II(d))

Incidental allowance 1/ for each foot of hole drilled, 17,420 feet @ $0.18/ft.	$3,135.60

Estimated Total Cost of Stage I		$15,336.60

Stage II

Actual Costs

Category (1) Independent Contracts

14,800 feet non-core drilling @ $0.65/ft. (See Annex II(f))	$9,620.00	
30 hours drill crew standby time @ $10/hr.	300.00	
20 hours bulldozing @ $12/hr.	240.00	

Categories (2) through (6)

None

Category (7) Miscellaneous

None, except: 60 chemical analyses @ $5/each	300.00	$10,460.00

Fixed Unit Costs (See Annex II(d))

Incidental allowance 1/ for each foot of hole drilled, 14,800 feet @ $0.18/ft.		2,664.00
Estimated Total Cost of Stage II		$13,124.00

S U M M A R Y

Estimated Total Cost of Stage I	$15,336.60	
Estimated Total Cost of Stage II	$13,124.00	
Estimated Total Cost of the Project (rounded)		$28,460.00
Government Participation @ 75%		$21,345.00

1/ Includes all costs that might be allowable costs of the project under Categories (1) through (7) of Article 6(a), except as otherwise scheduled in Exhibit "A."

FED. INS. CO. BOND NO. 7869163

STANDARD FORM 25
REVISED NOVEMBER 1950
PRESCRIBED BY GENERAL
SERVICES ADMINISTRATION
GENERAL REGULATION NO. 5

PERFORMANCE BOND

(See Instructions on Reverse)

DATE BOND EXECUTED: March 4, 1958

PRINCIPAL: FOOD MACHINERY AND CHEMICAL CORPORATION, a Delaware Corporation

RECEIVED MAR 11 1958 D.M.E.A.

SURETY: FEDERAL INSURANCE COMPANY, a New Jersey Corporation of 90 John Street, New York 38, New York

PENAL SUM OF BOND (*express in words and figures*)	CONTRACT NO.	DATE OF CONTRACT
TWENTY ONE THOUSAND, THREE HUNDRED FORTY FIVE AND 00/100 ($21,345.00) - - - - -DOLLARS	IDM-E 1167 (DMEA) Docket No. 4845	February 4, 1958

KNOW ALL MEN BY THESE PRESENTS, That we, the **PRINCIPAL** and **SURETY** above named, are held and firmly bound unto the United States of America, hereinafter called the Government, in the penal sum of the amount stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the Government, numbered and dated as shown above and hereto attached;

NOW THEREFORE, if the principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the Government, with or without notice to the surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

In Presence of:

WITNESS		INDIVIDUAL PRINCIPAL	
1.	as to		[SEAL]
2.	as to		[SEAL]
3.	as to		[SEAL]
	as to		[SEAL]

DMEA
DEPARTMENT OF THE INTERIOR
MAR 10 1958
REGION III
DENVER, COLORADO

WITNESS		INDIVIDUAL SURETY	
1.	as to		[SEAL]
2.	as to		[SEAL]

Attest:

Assistant Secretary

CORPORATE PRINCIPAL: FOOD MACHINERY AND CHEMICAL CORPORATION

BUSINESS ADDRESS: 161 East 42nd Street, New York, N.Y.

BY: W. N. Williams

TITLE: Vice President

AFFIX CORPORATE SEAL

(Attest:)

And Adelaide Natale

Adelaide Natale, Attorney-in-Fact

CORPORATE SURETY: FEDERAL INSURANCE COMPANY

BUSINESS ADDRESS: 90 John Street, New York 38, N. Y.

BY: Stephen Plum

TITLE: Stephen Plum, Assistant Secretary

AFFIX CORPORATE SEAL

STANDARD FORM 25
NOVEMBER 1950 EDITION

EXECUTED IN SIX COUNTERPARTS

16—30441-2

The rate of premium on this bond is $7.50 per thousand.

Total amount of premium charged, $160.09

(The above must be filled in by corporate surety)

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, M.E. Gilbert, certify that I am the Assistant secretary of the corporation named as principal in the within bond; that W.N. Williams, who signed the said bond on behalf of the principal, was then Vice President of said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed, and attested for and in behalf of said corporation by authority of its governing body.

[CORPORATE SEAL]

INSTRUCTIONS

1. This form shall be used for construction work or the furnishing of supplies or services, whenever a performance bond is required. There shall be no deviation from this form except as authorized by the General Services Administration.

2. The surety on the bond may be any corporation authorized by the Secretary of the Treasury to act as surety, or two responsible individual sureties. Where individual sureties are used, this bond must be accompanied by a completed Affidavit of Individual Surety for each individual surety (Standard Form 28).

3. The name, including full Christian name, and business or residence address of each individual party to the bond shall be inserted in the space provided therefor, and each such party shall sign the bond with his usual signature on the line opposite the scroll seal, and if signed in Maine or New Hampshire, an adhesive seal shall be affixed opposite the signature.

4. If the principals are partners, their individual names shall appear in the space provided therefor, with the recital that they are partners composing a firm, naming it, and all the members of the firm shall execute the bond as individuals.

5. If the principal or surety is a corporation, the name of the State in which incorporated shall be inserted in the space provided therefor, and said instrument shall be executed and attested under the corporate seal as indicated in the form. If the corporation has no corporate seal the fact shall be stated, in which case a scroll or adhesive seal shall appear following the corporate name.

6. The official character and authority of the person or persons executing the bond for the principal, if a corporation, shall be certified by the secretary or assistant secretary, according to the form herein provided. In lieu of such certificate there may be attached to the bond copies of so much of the records of the corporation as will show the official character and authority of the officer signing, duly certified by the secretary or assistant secretary, under the corporate seal, to be true copies.

7. The date of this bond must not be prior to the date of the instrument in connection with which it is given.

U. S. GOVERNMENT PRINTING OFFICE : 1955—O—337010

CITY, COUNTY & STATE OF NEW YORK, ss:

On this 4th day of March 19 58, before me personally came Stephen Plum and Adelaide Natale to me known, who, being by me duly sworn, did depose and say that they reside in Orange, N. J. and Staten Island, N. Y. respectively; that they are Assistant Secretary and Attorney-in-Fact respectively of the Federal Insurance Company, the corporation described in and which executed the annexed instrument; that they know the corporate seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order and authority of the Board of Directors of said corporation, and that they signed their names thereto by like order and authority.

CLARA MALAHY
NOTARY PUBLIC, State of New York
No. 41-7377550
Qualified in Queens County
Certificate filed with New York Co. Clerk
Term Expires March 30, 1958

RECEIVED MAR. 11 1958

Sworn to and Acknowledged before me on the date above written

Clara Malahy
(Notary's Signature, Description and Seal)

Certified Copy of Resolution Authorizing Execution of Bonds

At a regular meeting of the Board of Directors of the **FEDERAL INSURANCE COMPANY,** duly held at the office of the Company in New York, N. Y. on the 14th day of October, 1957, a quorum being present, on motion it was unanimously RESOLVED, That Percy Chubb 2nd, President, or Nathan Mobley or Junius L. Powell or James G. Cannon or Thos. R. Dew or Ernest W. Fields or Alexander Kerner or George F. Meredith, Vice Presidents of this Company, or Joseph J. Magrath, Secretary of this Company, AND Frederick C. Gardner or John C. Harden or Willis Koenig or Arthur A. Kuhne or Fred Moran or Horace C. Neville or Stephen Plum or Davis Quinn or Daniel F. Randolph or George C. Josephson, Assistant Secretaries of this Company; OR that any one of said persons AND Mary E. Asplund or Marie C. Gotthard or Donald H. Haeseker or Edgar R. Heckman or Richard G. Hight or M. C. Hoefer or Emily Kraft or B. Britton May, Jr., or Adelaide Natale or Richard D. O'Connor or Donald E. Rapp or Matilda Smith, who are hereby appointed Attorneys-in-Fact of this Company for the purposes specified in this resolution; be and they are hereby authorized to jointly execute under their respective designations, in this Company's name and to affix its corporate seal to, and deliver for and on its behalf, as surety thereon or otherwise, bonds or obligations given or executed in the course of this Company's business, and any instruments amending or altering the same, and consents to the modification or alteration or assignment of any instruments referred to in said bonds or obligations, and the execution of any and all instruments in this Company's name and on its behalf as surety thereon or otherwise by such persons in the authorized manner and under their respective designations, under the seal of this Company, in pursuance of the authority hereby conferred, shall be valid and binding upon this Company."

Financial Statement of Federal Insurance Company as of June 30, 1957

Assets	
United States Government Bonds	$ 50,800,026
State and Municipal Bonds	19,119,266
Other Bonds	6,485,894
Preferred and Guaranteed Stocks	5,121,916
Common Stocks	53,135,855
Capital Stock of Vigilant Insurance Company	12,790,958
Cash	9,636,242
Premiums Receivable	12,121,035
Reinsurance Recoverable on Paid Losses	284,852
Other Assets	3,251,848
Total	172,747,892
Deduct: Premiums over 90 days due and other non-admitted assets	2,457,733
Reinsurance Premiums Payable	4,191,429
	6,649,162
Total Admitted Assets	$166,098,730

Liabilities and Surplus to Policyholders	
Unearned Premiums	$ 41,118,147
Outstanding Losses and Claims: As Estimated by Company	24,247,332
Dividend Payable September 10	540,000
Taxes and Expenses	2,337,779
Funds Held Under Reinsurance Treaties	3,676,460
Non-Admitted Reinsurance	5,132,846
Total Liabilities	77,052,564
Capital Stock—$4 Par Value—3,100,000 shares authorized, 2,700,000 shares issued and outstanding	10,800,000
Surplus	43,548,539
Unrealized Appreciation of Investments	34,697,627
Surplus to Policyholders	89,046,166
Total	$166,098,730

Investments are valued in accordance with requirements of the National Association of Insurance Commissioners. On the basis of market values at June 30, 1957 for all investments, Investments would be decreased by $4,831,498 and Surplus to Policyholders would be $84,214,668.
Investments valued at $7,544,639 are deposited with government authorities as required by law.

Certification

CITY, COUNTY & STATE OF NEW YORK, ss:

I, George C. Josephson Assistant Secretary of the **FEDERAL INSURANCE COMPANY,** do hereby certify that I have compared the foregoing resolution with the original thereof as recorded in the Minute Book of said Company, and that the same is a correct and true copy of the whole of said original resolution and that said resolution has not been modified or rescinded; that the Company is duly and legally incorporated under the laws of the State of New Jersey and has complied with the provisions of the Act of Congress August 13, 1894, as amended, allowing certain corporations to be accepted as Surety on bonds; that the Company is duly licensed in each of the States of the United States of America, Alaska, Hawaii and Puerto Rico to transact a Fidelity and Surety business; and that the above statement of such Company's assets and liabilities is true and correct.

Given under my hand and seal of said Company at the City of New York, this 4th day of March, 19 58

George C. Josephson
Assistant Secretary

Form 11158F Rev. (10-57)
F-2919 (2M)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
224 New Customhouse
Denver 2, Colorado

OFFICIAL FILE COPY
DMEA
RECEIVED OCT 10 1957

DATE	INITIALS	CODE

October 7, 1957

Memorandum

To: Secretary to the Operating Committee, DMEA

From: DMEA Field Team, Region III

Subject: Application for DMEA Aid (Uranium) Food Machinery and Chemical Corporation (Land in Sec. 17, T. 13 N., R. 9 W., N.M.M.) McKinley County, New Mexico

Enclosed are the original and one copy of the subject application. One more copy of the application is being requested from the Applicant per our letter of even date, and upon receipt will be forwarded to the Grand Junction Office, DMEA. One copy of the application is being retained in our file.

The Applicant proposes to explore a mineralized target area by 41,580 feet of non-core rotary drilling at a total estimated project cost of $62,203.68.

The Applicant's estimated cost of $0.80 per foot of non-core drilling is not supported by bids from three independent drilling contractors.

E. N. Harshman

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

Enclosures

OFFICIAL FILE COPY
DMEA
RECEIVED OCT 10 1957
DATE | CODE

224 New Customhouse
Denver 2, Colorado

October 7, 1957

Mr. Clarence R. Peterson,
Assistant Counsel
Chemical Divisions
Food Machinery and Chemical Corp.
161 East 42nd Street
New York 17, New York

Re: Application for DMEA Aid (Uranium)
Food Machinery and Chemical Corp.
(Land in Sec. 17, T. 13 N., R. 9 W., N.M.M.)
McKinley County, New Mexico

Dear Mr. Peterson:

The following material has been received concerning the captioned application:

1. Original and two copies of Form MF-103, Application for Aid in an Exploration Project, with four copies of URANIUM MINING LEASE AND AGREEMENT NO. SFP 9589.

2. Your letter, dated October 1, 1957, forwarding Item 1 to this office.

3. Two copies of URANIUM MINING LEASE AND AGREEMENT, dated March 15, 1957, MINING LEASE NO. SFP 9588. ← Not required nce

4. Your letter, dated October 2, 1957, transmitting Item 3 above to this office.

From Item 1, GENERAL INSTRUCTIONS printed on Form MF-103 request that you submit four copies of the application; therefore, please submit one more copy to this office at once. To expedite the processing of your application, we are forwarding copies to Washington for review. You are cautioned, however, that field referral of the application and examination of the property may be delayed until all four copies of the application have been received.

To date, we have received four copies of MINING LEASE NO. SFP 9589, but only two copies of MINING LEASE NO. SFP 9588. Cursory inspection indicates that both leases are pertinent to the application. Therefore, you are also requested to provide this office with two additional copies of MINING LEASE NO. SFP 9588.

Very truly yours,

Original signed by
E. N. HARSHMAN

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

MHM:jy

cc: Sec. Op. Comm. (2)
Harshman
DMEA/DFC (2)
Hasler
Docket
Chron.

w/copy of Items 2 & 4.

FOOD MACHINERY AND CHEMICAL CORPORATION

CHEMICAL DIVISIONS

161 EAST 42ND STREET
NEW YORK 17, N. Y.

DMEA
DEPARTMENT OF THE INTERIOR
OCT 4 - 1957
REGION III
DENVER, COLORADO

October 1, 1957

Executive Officer
DMEA--Region III
224 New Customhouse
Denver 2, Colorado

Dear Sir:

Enclosed in triplicate is this Company's application for DMEA aid in connection with the exploration of certain property in McKinley County, New Mexico. Also enclosed are four copies of the "Uranium Mining Lease and Agreement" under which Santa Fe Pacific Railroad grants this Company the right to explore for and mine uranium. ← LEASE No 9589

I trust that you will find the enclosures are in order. If you require any further information, we shall be pleased to help in every way possible.

Very truly yours,

FOOD MACHINERY AND CHEMICAL CORPORATION

Clarence R Peterson

Clarence R. Peterson
Assistant Counsel
Chemical Divisions

CRP:vl
Enc.

FOOD MACHINERY AND CHEMICAL CORPORATION

CHEMICAL DIVISIONS

161 EAST 42ND STREET
NEW YORK 17, N. Y.

DMEA
DEPARTMENT OF THE INTERIOR
OCT 4 - 1957
REGION III
DENVER, COLORADO

October 2, 1957

Executive Officer
DMEA--Region III
224 New Customhouse
Denver 2, Colorado

Dear Sir:

Supplementing our letter dated October 1 in which we advised we were enclosing "four copies of the 'Uranium Mining Lease and Agreement' under which Santa Fe Pacific Railroad grants this Company the right to explore for and mine uranium," and as we inadvertently only forwarded you two copies, attached hereto are two additional copies of this agreement.

2 cys
Lease No 9588
Enclosed

We regret any inconvenience this may have caused you.

Very truly yours,

FOOD MACHINERY AND CHEMICAL CORPORATION

Clarence R. Peterson
Clarence R. Peterson
Assistant Counsel
Chemical Divisions

VL
Att.

ATTACHED TO APPL
PRIOR TO TRANS
TO WO

Docket

Form MF–103
Revised Feb. 1957

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42–R1035.3
Approval expires June 30, 1958

APPLICATION FOR AID IN AN EXPLORATION PROJECT

PURSUANT TO DMEA ORDER I, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

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

Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
161 East 42nd Street
New York 17, New York

RECEIVED OCT 10 '57 D.M.E.A.

DMEA
DEPARTMENT OF THE INTERIOR
OCT 4 - 1957
REGION III
DENVER, COLORADO

APPLICANT NOT TO USE THIS BLOCK

Docket Number: DMEA- 4845
Date Received: 10/10/57
Government Participation %:
Region: III
Division Code: 700

BUSINESS ORGANIZATION (Check one)

- Individual [ ]
- Corporation [x]
- Partnership [ ]
- Other (Specify) [ ]

State in which firm is organized: Delaware

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

Name	Address	Title
Paul F. Davies	San Jose, Calif.	Chairman of Board
Ernest Hart	San Jose, Calif.	President
Benjamin C. Carter	San Jose, Calif.	Exec. Vice Pres.
J. D. Fennebresque	San Jose, Calif.	Exec. Vice Pres.
James M. Hait	San Jose, Calif.	Exec. Vice Pres.
Carl F. Prutton	New York, N. Y.	Exec. Vice Pres.
Wm. N. Williams	New York, N. Y.	Vice Pres.

Mineral(s) for which you wish to explore: Uranium

Estimated Cost of Project: $ 62,203.68

LOCATION OF PROPERTY

Name	County	State
N W¼, NE¼, SE¼, Section 17, T. 13 N., R. 9 W., N.M.M.	McKinley	N. Mex.

GENERAL INSTRUCTIONS

Before filling out this application, please read DMEA Order–I, Amended, "Government Aid in Defense Exploration Projects." To assure prompt action, your application must provide all applicable material and information specified on the back of this application form. Avoid unnecessary correspondence and delays by submitting complete and accurate information. *Please submit four copies of this application and all accompanying papers* except as otherwise noted. Place your name and address on each sheet. Each item of information, maps, and reports required as a part of this application is described on the back of this form. Identify each attached statement by the item number to which it applies. If an item does not apply to your application, show the item number on your statement and after it write "not applicable." Maps or sketches should be used to supplement narrative descriptions of the property location and boundaries in item 1, existing mine workings and geology in item 2, and the proposed exploration project in item 4. When this information is not too complex, all of it may be shown on one map or sketch. All documents and other attachments submitted as a part of this application, except those in item 2(g) which you mark to be returned, become the property of the Government and will not be returned to the applicant. Send true copies, *not originals*, of leases, contracts, and other documents which are an essential part of your business records. *File this application with the Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest DMEA Field Office.*

CERTIFICATION

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

September 30, 1957
Dated

W. N. Williams
BY *(Signature)*

President,
Westvaco Mineral Products Division
Title

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

INFORMATION REQUIRED WITH THIS APPLICATION

1. *Applicant's Property Rights:*

(a) State the legal description (section, township, and range; metes and bounds; patent number of claims) of the land upon which you wish to explore and all land adjacent to the proposed project area which you own or control. Describe any part of the project land or workings which should not be subject to Government lien for royalty payments. If the land consists of unpatented claims, state the book and page number for each recorded location notice, including amended locations, and the place where recorded (courthouse, recorder's office, county, and state).

(b) State all the names by which you know the property.

(c) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise. If you are not the owner, submit with this application one exact copy of the lease, contract, or other document (with address of owner) under which you control the property.

(d) Describe all liens, mortgages, or other encumbrances on the property.

2. *Physical Description:*

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

(b) State your interest, if any, in operations stated in 2*(a)*.

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

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

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

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

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

3. *Accessibility of Project:*

(a) To aid DMEA representatives who may be required to examine the property, state the name and address of the person who will meet the DMEA representative; give directions for reaching the property; and describe accessibility of the property including the mine workings.

(b) Name the shipping and supply points and places where employees reside and state the distances between them and the property.

4. *The Exploration Project:*

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

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

(c) In the event that an exploration contract with DMEA is executed, how soon will the work start and how many months will be required to complete it? State your anticipated average daily or monthly rate of progress for each type of work.

5. *Experience:*

State your operating experience and background with relation to your ability to carry out this exploration project, and also that of the person or persons who will supervise the operations.

6. *Estimate of Costs:*

Furnish detailed estimates of the costs *for each item of the work proposed in 4(a)* under the headings listed below with a total for each heading and the estimated total cost of the project. Costs for any work to be performed by an independent contractor should be shown separately under category *(a)* below. Costs for any work that is not to be performed by an independent contractor should be given in detail under categories *(b)* through *(g)*.

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

(b) Personal services. For necessary supervision, engineering and geological services, and labor, include an itemized schedule of numbers, classes, rates of wages, salaries or fees, and periods of employment. State whether these technicians and employees are available.

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

(d) Operating equipment. List items of operating equipment to be used giving specifications and indicating how each item is to be acquired – i.e., rented, purchased, or provided by the applicant. If it is rented or purchased, state the estimated rental or purchase price. If it is to be furnished by the applicant, give its present fair market value.

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

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

(g) Miscellaneous. For the operating equipment listed in 6*(a)*, describe the type and estimate the cost of repairs and maintenance expected during project operations. Do not repeat initial repairs listed in 6*(e)*. Show also the costs of analytical work, accounting, workmen's compensation and employees' liability insurance, payroll taxes, and other required costs that do not fall within the previous categories.

Note – 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)* State whether you are prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation stated in Sec. 7 of DMEA Order–I, Amended.

(b) Explain to what extent you propose to furnish your share of the costs by providing money, by use of equipment owned by you, or otherwise.

* * * * *

INT.-DUP. SEC., WASH., D.C. 15539

Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
161 East 42nd Street
New York 17, New York

OFFICIAL FILE COPY
DMEA
RECEIVED OCT 10 1957
DATE | INITIALS | CODE

Attachment to DMEA Form MF-103

PROPERTY STATUS

The property concerned in this application is legally described as:

NE$\frac{1}{4}$ and SE$\frac{1}{4}$ and NW$\frac{1}{4}$, Section 17, Township 13 North, Range 9 West, New Mexico Meridian, McKinley County, New Mexico.

All property is leased from the Santa Fe Pacific Railroad Company (see attached lease agreement). Adjacent lands also leased by Westvaco are Sections 7, 9, and 21, T. 13 N., R. 9 W.

This property is known by no other name than the section number.

ACCESSIBILITY

Section 17 is easily accessible and can be reached by these directions. From the junction of U. S. Highway 66 and New Mexico State Highway 53, proceed north on N. M. 53 for 11.7 miles, then turn left over cattle guard and off of paving. After 1.2 miles, bear right at fork in road and continue 0.3 miles to next fork. Bear to the right and continue 1 mile to the crest of the mesa. Bear left at fork and continue on the main track for 0.95 miles. At this point, the steel pipe marking the southwest corner of Section 17 is 57 feet to the right of the road.

Company offices are maintained at Cactus Gardens, 2 miles west of Grants, New Mexico, on U. S. Highway 66. Mailing address is --Star Route-Box 24, Grants, New Mexico.

Shipping, supply, living, and other facilities are available in Grants.

GEOLOGY

Topographically, the section is relatively flat, and slopes gently to the northeast. Minor relief is provided by occassional dry stream beds.

Regionally, the section is on the northeast flank of the Zuni Uplift and locally, on the south rim of the Ambrosia Lake Basin.

The section is underlain by relatively flat undisturbed sediments dipping gently -approximately 5°- to the northeast. The surface, a dip slope of the Dakota sandstone, is underlain by the Jurassic Morrison formation. Because of varied sedimentation, the Morrison is subdivided into the Brushy Basin shales, the Poison Canyon sandstone, the Westwater sandstone and the Recapture shales and sandstones.

The Poison Canyon and the Westwater members are coarse to medium grained arkosic sandstones and are normally buff to gray in color. Although these two sandstones are usually separated by a layer of Brushy Basin shale, it is not unnatural for them to coalesce at irregular intervals. These sandstones are the potential ore-bearing horizons.

Past drilling has indicated the subsurface structure to be mostly minor folds and warps. Although minor faulting undoubtedly is present, no major shears have been found.

MINERALIZATION

Westvaco has conducted limited exploration drilling on Section 17. Of the total 108 holes, 10 were in ore (0.20% U308 or higher), 50 were mineralized (0.05 to 0.20% U308), and 48 were barren.

In the three quarter-sections covered by this application, 39 holes were barren and 10 were mineralized.

Most drilling was confined to the southwest quarter-section after the discovery of ore-grade mineralization. Close spaced drilling indicated a low grade ore body with the following reserves: 3100 tons of 0.15% and higher U308, 55,000 tons of 0.05 to 0.15% U308. As in other ore bodies in surrounding sections, the deposit is bedded and localized in the PoisonCanyon sandstone. The ores are apparently the same coffinite-type ores found elsewhere in the Ambrosia district. Assay values were based on scaler assays of core and cuttings.

Many mineralized and/or ore-bearing areas have been found in surrounding sections:

Section 20--Four mines. Production over 30,000 tons. Numerous mineralized areas.
Section 19--Producing mine. Ore trends northeast toward common corner with Section 17.
Section 21--Two ore bodies in western half.
Section 18--Several mineralized areas in east half.
Section 8---Low grade ore body in north half.
Section 16--Mineralized areas in west half.

The above mineralized areas are mostly in the Poison Canyon sandstone. Only minor amounts of drilling have penetrated through the Westwater sandstone, thus it has not been properly evaluated.

To date, no mining operations have been conducted on Section 17 and the only exploration drilling has been done by Westvaco.

PROPOSED EXPLORATION

Westvaco proposes exploration drilling of the three quarter-sections because of the excellant potential for ore discovery. Among favorable

indications are:

- the widespread mineralization in the southwest corner of Section 17
- the trend of the Poison Canyon ore body toward the section
- the favorable Poison Canyon sandstone thickness of 70 feet
- the surrounding ore and mineralization on other sections.

To explore the stated three quarter-sections, Westvaco proposes a drilling program of 154 holes, using a staggered 300 foot grid. Average hole depth to the base of the Poison Canyon sandstone is 220 feet, and continued drilling through the Westwater sandstone is an additional 100 feet.

It is proposed that alternate holes be drilled through the Westwater sandstone while the remainder test only the Poison Canyon sandstone. Total estimated footage is 41,580 feet, all non-core as core is not believed to be of sufficient value to warrant the expense. The preparation of access roads would be very limited.

Work would be started immediately after contract approval and would take an estimated three months to complete.

EXPERIENCE

Westvaco is well qualified to conduct a DMEA exploration program for uranium. During the past two years, the company has received and completed three DMEA Uranium Exploration Contracts, one of which was successful in locating a commercial ore deposit.

The company personnel who would conduct the program are well experienced in uranium exploration. In addition to two competent geologists, the Grants office is staffed by a surveyor, an assay laboratory technician and a draftsman. Facilities are available for radiometric assaying, and analytical work would be performed in the laboratories of the parent corporation--Food Machinery and Chemical Corporation.

ESTIMATE OF COSTS

Item	Dollars per foot
Contract drilling (tri-cone rotary)	$ 0.800
Site preparation	0.015
Probing	0.016
Core boxes, sample sacks, etc.	0.015
Salaries	0.235
Living costs	0.078
Labor	0.008
Office rental	0.021
Car rental	0.024
Car repairs	0.015
Gas and oil	0.031
Office supplies	0.018
Telephone and telegraph	0.014
Bookkeeping, clerical, etc.	0.031

Mapping	$ 0.025
Drafting and printing	0.014
	$ 1.360
Contingency at 10%	0.136
Total	$ 1.496

Estimated Total Cost for 41,580 feet at $1.496 per foot--$ 62,203.68

The applicant is prepared to pay that portion of the cost not covered by the Government contribution.

Lessee accepts this lease subject to and agrees to comply with the provisions of that certain Purchase Agreement between Anaconda Copper Mining Company and Santa Fe Pacific Railroad Company, dated July 14, 1952, which gives Anaconda the first right to purchase any limestone gangue, low-vanadium ores produced by Santa Fe.

CFM

(Sgd) BGJ

DMEA
DEPARTMENT OF THE INTERIOR
OCT 4 - 1957
REGION III
DENVER, COLORADO

Lease No. _____

URANIUM MINING LEASE AND AGREEMENT

THIS INDENTURE, entered into in duplicate this _____ day of _____, 19[illegible], by and between SANTA FE PACIFIC RAILROAD COMPANY, a corporation created by Act of Congress approved March 3, 1897, first party, hereinafter called the "Lessor," and [illegible] of [illegible] second party, hereinafter, whether one or more, called the "Lessee."

WITNESSETH, that the parties hereto, for the considerations hereinafter expressed, covenant and agree as follows:

1. Lessor, upon the terms and conditions and subject to the reservations hereinafter set forth, hereby grants to Lessee the exclusive right and privilege for a period of twelve (12) months, beginning with the date hereof, to search and explore for uranium-bearing ore by methods used and recognized in the industry and, thereafter for a period of five (5) years, to conduct mining operations on areas where uranium ore is discovered on the following described lands situated in the County of [illegible], state of _____:

[illegible]

Official
~~EXTRA~~ COPY
DMEA
RECEIVED OCT 10 1957

DATE	INITIALS	CODE

including the right to construct and maintain thereon at the sole cost and expense of Lessee all works, buildings, plants, waterways, roads, telegraph or telephone lines or other structures necessary and desirable in the exploration, development or conduct of mining operations upon said lands.

SUBJECT to the rights of grantees, vendees and licensees of the surface of said lands under deeds, contracts of purchase or other agreements heretofore made by Lessor and to the obligations of Lessor under the provisions thereof.

SUBJECT ALSO to all leases or agreements now outstanding for use of said lands, or any portion thereof, for mining or other purposes, but Lessor represents that there are no such leases or agreements valid and outstanding made by Lessor for the development and production of uranium-bearing ore and associated minerals, as hereinafter defined.

SUBJECT ALSO to the right of Lessor (which right is hereby expressly reserved) to enter into leases, permits, or other agreements with others covering said lands or any portion thereof for any purpose whatsoever not inconsistent with the rights of Lessee hereunder.

It is understood that the Lessee is hereby granted the right to mine only within the exterior boundaries, extended vertically downward, of the land hereby leased.

2. Lessee agrees on or before the expiration of the first twelve (12) months period above-mentioned to surrender to Lessor by an appropriate instrument, in writing, all of the land described above on which uranium ore has not been discovered, retaining only such lands as appear to contain uranium-bearing ore in commercial quantities. Lessee further agrees the retained lands shall be divided into units, to be designated by Lessee of not to exceed six hundred and forty (640) acres each, conforming as nearly as possible to legal subdivisions, and that all of the terms and covenants of this lease shall separately apply to each such unit as fully as if covered by a separate lease.

3. Lessee agrees to enter into and upon the said premises within sixty (60) days from the date hereof and to work and operate on the leased premises steadily and continuously during the period of this lease in accordance with approved methods so as to discover, mine and remove the greatest amount of uranium-bearing ore possible in a manner proper and necessary to good and economical mining with due regard to the development and preservation of the said premises as mining ground. Lessee further agrees that all work done in and upon said premises and property shall be done in full compliance with the mining laws and regulations of the State, the United States and any other competent public authority.

[illegible]. Lessor reserves the right through its agents or representatives to enter from time to time into and upon all parts of said premises and workings thereon for the purpose of inspection, surveys, or taking samples therefrom, and lessee agrees to render said agents or representatives proper assistance in making said inspection, surveys or examinations. Lessee shall furnish quarterly reports to the lessor, including maps, showing all exploration work and all of the mining and exploration work done, [illegible] the property, together with assays of the ore encountered, during the preceding quarter.

[illegible]. All ore mined or removed from the leased premises for the purpose of milling, treatment, stockpiling after weighing and assaying, sale or other disposition, lessee shall pay lessor, or deliver for [illegible] account, a royalty, or rentalties, as set forth below:

(a) [illegible] ores mined from underground and purchased by the [illegible] of America, or agents thereof, a percentage of mine value per dry ton as shown below:

Mine Value per Dry Ton	Royalty Percentage of Mine Value per Dry Ton
[illegible] to $1[illegible].00	[illegible]%
[illegible] to $20.[illegible]	11.0%
[illegible] to $30.[illegible]	[illegible]%
[illegible] to $40.[illegible]	[illegible]
[illegible] to $50.[illegible]	16.4%
[illegible] or more	[illegible]

(b) [illegible] ores mined from underground and purchased by others than the [illegible] of America, or agents thereof, a percentage of the [illegible] as shown below:

[illegible] per Dry Ton	Royalty Percentage of Mine Value per Dry Ton
[illegible] to $10.[illegible]	[illegible]%
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible] or more	[illegible]

[illegible]

[illegible]	[illegible]	0.37	[illegible]	0.52	[illegible]	0.67	[illegible]
[illegible]	[illegible]	0.38	[illegible]	0.53	.8125	0.68	1.1[illegible]38
[illegible]	[illegible]	0.39	[illegible]	0.54	.8300	0.69	1.1675
						0.70	1.[illegible]363

On ore exceeding 0.7[illegible] U_3O_8 content, the corresponding pounds [illegible] concentrate [illegible] delivered to lessor shall [illegible] [illegible] value of the ore [illegible] [illegible] of the A.E.C. [illegible] [illegible] value of [illegible] per pound.

[illegible] all ores mined by open pit method which are purchased [illegible] America, or agents thereof, a percentage of mine value per dry ton as shown below:

Mine Value per Dry Ton	Royalty Percentage of Mine Value per Dry Ton
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible] or more	[illegible]

(e) On all ores mined by open pit method which are purchased by others than the United States of America, or agents thereof, a percentage of mine value per dry ton as shown below:

Mine Value per Dry Ton	Royalty Percentage of Mine Value per Dry Ton
$0.01 to $10.01	10.0%
$10.01 to $20.01	14.0%
$20.01 to $30.01	18.0%
$30.01 to $40.01	22.0%
$40.01 to $50.01	28.6%
$50.01 or more	33.0%

provided that if the mine value per dry ton under the above schedule for ore yields less than the following tabulation, the following tabulation shall be the royalty required to be paid per dry ton of ore:

Ore Content U_3O_8 Percent	Royalty per Ton	Ore Content U_3O_8 Percent	Royalty per Ton	Ore Content U_3O_8 Percent	Royalty per Ton	Ore Content U_3O_8 Percent	Royalty per Ton
0.10	$ 0.30	0.25	$ 2.55	0.40	$ 6.82	0.55	$ 12.58
0.11	0.37	0.26	2.67	0.41	7.01	0.56	12.84
0.12	0.46	0.27	2.79	0.42	7.19	0.57	13.10
0.13	0.55	0.28	3.74	0.43	7.38	0.58	13.36
0.14	0.64	0.29	3.90	0.44	7.57	0.59	13.61
0.15	0.75	0.30	4.05	0.45	7.76	0.60	13.87
0.16	0.86	0.31	4.20	0.46	7.94	0.61	14.13
0.17	0.99	0.32	4.36	0.47	8.13	0.62	16.60
0.18	1.56	0.33	4.51	0.48	8.32	0.63	16.90
0.19	1.76	0.34	4.66	0.49	8.50	0.64	17.19
0.20	1.96	0.35	4.82	0.50	8.69	0.65	17.49
0.21	2.08	0.36	4.97	0.51	11.55	0.66	17.79
0.22	2.20	0.37	5.12	0.52	11.81	0.67	18.03
0.23	2.32	0.38	5.27	0.53	12.07	0.68	18.33
0.24	2.44	0.39	6.63	0.54	12.33	0.69	18.63
						0.70	18.93

[illegible] hereafter [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] payment [illegible] day of [illegible] next following [illegible] soil or [illegible]

[illegible] accounting [illegible] of all [illegible] operations, including [illegible] values, prices, [illegible] and the [illegible] amount of [illegible] produced, the [illegible] and [illegible] the gross receipts [illegible] therefrom, together with any [illegible] or [illegible] payments [illegible] furnish [illegible] further reports [illegible] day of the succeeding month.

[illegible] to the payments [illegible] shall pay [illegible] for the [illegible] this lease [illegible] ($1.00) per [illegible] year this lease may be [illegible] paid annually in [illegible] however, [illegible] year and each year [illegible] credited on the [illegible] to Lessor for that year.

[illegible] any liability or [illegible] made or materials [illegible] the failure of Lessee [illegible] or liens shall be filed against the [illegible] pay and discharge the [illegible] so advanced or paid [illegible] said [illegible] may be [illegible] as aforesaid, and Lessor may also at its [illegible] declare a forfeiture of this

lease. Lessee agrees to post forthwith and keep posted on said property in all places required by law, a notice of nonliability of the Lessor for labor or materials furnished the Lessee, and the Lessor agrees to furnish such notices.

8. Lessee shall file reports with the proper taxing authorities covering the mineral estate being leased, the uranium-bearing ore or other mineral produced from the leased premises, and all personal property which may be placed upon said premises by Lessee; and shall pay, before the same shall become delinquent, all taxes, charges, rates and assessments which may during the term of this lease, be levied upon or assessed in any respect upon or against said mineral estate, ore, mineral products or personal property, together with all taxes, charges, rates or assessments upon the land by reason of the discovery or production of such minerals or on account of improvements erected on said land, including buildings, machinery and other fixtures placed thereon by Lessee. Where any such taxes, charges, rates or assessments are assessed in the general amount of taxes charged upon the land herein, separately or in conjunction with other property of the Lessor or the surface owner, and the Lessor shall pay such taxes or refund the same to the surface owner, then Lessee shall promptly repay or refund to Lessor the proportion or part of the tax, charge, rate or assessment attributable to this lease to Lessee. All such payments by Lessee on account of Lessor shall bear interest at the rate of eight percent (8%) per annum until paid.

9. Lessee shall save harmless and indemnify Lessor against all claims, actions, suits, judgments, expenses and costs of any and every kind on account of the injury to or death of persons or loss of or damage to property arising in any manner out of or in connection with the operations of Lessee hereunder and Lessee shall at Lessee's sole cost and expense defend all such claims, demands or suits; and if at any time Lessee employs any person or persons to work upon the leased premises, Lessee shall comply with the provisions of the Workman's Compensation Act of _____ and all regulations and requirements of competent public authority.

10. At the expiration of this lease, or upon its earlier termination as herein provided, Lessee shall surrender the leased premises in good order and condition and remove therefrom all machinery, tools, and equipments, except such as shall become the property of the Lessor under this lease by purchase or otherwise, provided, however, that no such tools, equipment, or improvements shall be removed while Lessee may be in any manner indebted to Lessor under any obligation incurred under this lease. Lessee shall not, however, remove any [illegible] improvements to which may be permanently affixed to leave in the premises to protect same from [illegible] or as a [illegible] property unless requested [illegible] to do so.

11. Any notice to be given by Lessor to Lessee hereunder shall be deemed to be properly served if the same be deposited in a United States post office, registered mail postpaid, return receipt requested, addressed to

[illegible]

and any notice to be given by Lessee to Lessor hereunder shall be deemed to be properly served if the same be deposited in a United States post office,

registered mail postage, return receipt requested, addressed to Santa Fe Pacific Railroad Company, attention Secretary, Room 220, 920 Jackson Street, Topeka, Kansas, or at such other address as Lessor may request.

12. Lessor does not warrant the quiet possession of said lands by the Lessee and Lessor shall in no event become liable for damage arising from any lack or failure of title in the Lessor to said lands or eviction of the Lessee therefrom by title paramount to the title of the Lessor. The Lessor covenants, however, and warrants that it has made no agreement on its part in reference to said lands, or any conveyance thereof which will give to third parties right to interfere in any way with the operations of the Lessee under this lease.

Lessor has, however, sold and conveyed all of said lands by deed, in which it has expressly reserved and excepted all oil, gas, coal and minerals whatsoever, already found or which may be found upon or under said lands, with the right to prospect for, mine and remove the same, and to use so much of the surface of said lands as shall be necessary and convenient for shafts, wells, tanks, pipe lines, rights of way, railroad tracks, storage purposes and other and different structures and purposes necessary and convenient for the digging, drilling, and working of any mines or wells which may be operated on said lands. Lessee accepts this lease and agreement subject to the terms and provisions of said deed reservation.

Lessee agrees (a) to pay all damages to the surface owner's buildings and growing crops caused by the erection or construction of facilities to be used in connection with mining operations; (b) that all pipe lines shall be buried below plow depth where such lines cross cultivated lands; and (c) that where there are fences, to construct gates or cattle guards therein where necessary for Lessee to cross the same, and to keep such gates and cattle guards in repair and the gates closed.

Lessee will also indemnify and save Lessor harmless from any and all claims of or liability to the owner or owners of the surface of the land leased by reason of the failure of Lessee to perform the requirements mentioned in clauses (a), (b) and (c) hereof.

Any amounts which Lessor shall be required to pay to any such surface owner or owners by reason of the failure of the Lessee to perform such obligations shall be refunded by Lessee to Lessor within thirty (30) days after demand therefor, and upon failure to make such payment within said time, all amounts so due shall become a lien upon all property of the Lessee upon said premises and all of the Lessee's interest in any uranium ore produced therefrom and the proceeds thereof.

13. No termination of this lease, whether by lapse of time or otherwise, shall release Lessee from any liability or obligation hereunder, whether of indemnity or otherwise, resulting from any acts, omissions, or events happening prior to the date of such termination.

14. Lessee shall not assign this lease or any interest therein nor sublet any portion of the leased premises except with the written consent of Lessor first had and obtained in each instance.

15. Lessor agrees that if during the term of this lease Lessee has found and is, at the expiration hereof, producing uranium-bearing ore in commercial quantities from the demised premises, Lessor will, upon written request from Lessee, made prior to the expiration date hereof, renew this lease for an additional three-year period, upon the same terms and conditions, including the right to like and successive renewals thereafter, upon the same conditions, subject always during any such extended period to termination whenever uranium-bearing ore in commercial quantities shall cease to be produced for sixty (60) consecutive days; provided, however, that in all instances in which Lessee is required to perform any particular act or to begin or to carry on any operation, except payment of rentals or other money due Lessor, any delay on account of floods, washouts, strikes, lockouts, the elements, acts of God or the public enemy, or other causes beyond Lessee's control, shall not be computed as any part of the time within which any such act shall be begun or performed. Lessor shall not be under no obligation to renew this lease at any time or times if Lessee shall then be in default hereunder, or if this lease has been previously terminated by reason of any such default.

16. Lessee may, at any time, surrender any unit of the leased premises to the Lessor by an appropriate instrument, in writing, duly executed and acknowledged so as to entitle the same to be recorded, and thereupon all rights and obligations of the parties hereto, one to the other, shall cease and determine as to the premises thereby surrendered, provided, however, that Lessee shall have first paid all rentals, taxes or royalties due and shall have performed all obligations of the Lessee hereunder.

17. If Lessor at any time believes that Lessee is in default under the terms and provisions of this lease, it shall notify Lessee in writing of the particular default claimed, and if such default shall not be cured within thirty (30) days after the giving of such notice, Lessor may terminate this lease by written notice to Lessee. In the event Lessee shall fail to make any payment of rentals or royalties or other fixed amounts when due, Lessor may terminate this lease upon ten (10) days' written notice to Lessee and Lessee's failure to pay the full amount due within that time.

18. All of the covenants and agreements of this lease shall extend to and be binding upon and every benefit hereof shall inure to the heirs, executors, administrators, successors or assigns of the parties hereto, as the context may be.

Official
~~EXTRA~~ COPY
DMEA
RECEIVED OCT 10 1957

DATE	INITIALS	CODE

IN WITNESS WHEREOF, this lease and agreement has been executed by the parties thereunto duly authorized the day and year first above written.

SANTA FE PACIFIC RAILROAD COMPANY

/s/ By C. F. Mapper
President

LESSOR

ATTEST:

/s/ J. W. Alexander
Secretary

/s/ W. N. Williams

/s/ J. Vogel

LESSEE

Official
~~EXTRA~~ COPY
DMEA
RECEIVED OCT 10 1957

DATE	INITIALS	CODE

STATE OF ILLINOIS)
: ss
COUNTY OF COOK)

The foregoing instrument was acknowledged before me this

_____ day of _____, 19____, by

_____, _____

of the SANTA FE PACIFIC RAILROAD COMPANY, a corporation organized and existing under and by virtue of an Act of Congress approved March 3, 1897, on behalf of said corporation.

_____
Notary Public

My commission expires _____

Official
~~EXTRA~~ COPY
D M & A
RECEIVED OCT 10 1957

DATE	INITIALS	CODE

STATE OF NEW YORK)
COUNTY OF NEW YORK) ss

The foregoing instrument was acknowledged before me this 26 day of August, 19 57, by W. H. Williams and Harold Vogel of Food Machinery and Chemical Corporation a Delaware corporation, on behalf of said corporation.

/s/ Anna Becker
Notary Public

My Commission Expires:
March 30, 1959

U. S. Government Messenger Envelope

Standard Form No. 65 (Rev. 1/46)

1. Use blocks consecutively, one at a
2. Void previous block.
3. Write clearly.

NAME OR TITLE OF PERSON, DEPARTMENT, ADDRESS, AND ROOM		NAME OR TITLE OF PERSON, DEPARTMENT, ADDRESS, AND ROOM	
Mr. Dahan Room 4456	RUN STOP		RUN STOP
	RUN STOP		RUN STOP
	RUN STOP		RUN STOP
	RUN STOP		RUN STOP
	RUN STOP		RUN STOP
	RUN STOP		RUN STOP
	RUN STOP		RUN STOP
	RUN STOP		RUN STOP
	RUN STOP		RUN STOP
	RUN STOP		RUN STOP

Send surplus envelopes to supply room for reissue.

Use other side

Use RUN and STOP only when messenger service between Government buildings in Washington is required. Your mail room has RUN and STOP information.

NAME OR TITLE OF PERSON, DEPARTMENT, ADDRESS, AND ROOM	
	RUN STOP
	RUN STOP
	RUN STOP
	RUN STOP
	RUN STOP
	RUN STOP
	RUN STOP
	RUN STOP
	RUN STOP
	RUN STOP

NAME OR TITLE OF PERSON, DEPARTMENT, ADDRESS, AND ROOM	
	RUN STOP
	RUN STOP
	RUN STOP
	RUN STOP
	RUN STOP
	RUN STOP
	RUN STOP
	RUN STOP
	RUN STOP
	RUN STOP

Use other side first

Docket copy

Project Summary Report

By: Michael Ching March 23, 1959

1. Docket No. DMEA-4845 (Uranium)
Contract No. Idm-E1167

Operator - Food Machinery andChemical Corporation
(Westvaco Mineral Products Division)
161 East 42nd Street
New York 17, N. Y.

Property - The NE¼, the SE¼, and the NW¼ of section 17, T. 13 N., R. 9 W., N.M.P.M. & B., McKinley County, New Mexico

Operator's Property Rights -
Lessee of the uranium rights. A performance bond, dated March 4, 1958, furnished in lieu of Consent to Lien and Subprdination Agreement of Santa Fe Pacific Railroad Company, the lessor.

2. Contract (Long Form) dated February 4, 1958.

Final starting date - April 10, 1958
Actual starting date- April 8, 1958
Contract completion date - July 31, 1958
Actual completion date - July 19, 1958

Work Authorized -

Test the Poison Canyon and Westwater Canyon sandstones of the Jurassic Morrison formation for uranium by non-core drilling in two stages as follows:

Stage I (approx. 71 holes, 53 through the Poison Canyon and 18 through the Westwater Canyon)

Actual Costs

17,420 ft. non-core drilling @ $0.65/ft.	$11,323.00	
35 hrs. standby time @ $10.00/hr.	350.00	
24 hrs. bulldozing @ $12.00/hr.	288.00	
48 chem. analyses @ $5.00 ea.	240.00	

Fixed Unit Costs

17,420 ft. @ $0.18/ft. incidental allowance	3,135.60	$15,336.60

2. Contract (continued)

Work Authorized (continued)

Stage II (not more than 60 offset holes)

Actual Costs

14,800 ft. non-core drilling @ $0.65/ft.	$9,620.00	
30 hrs. standby time @ $10.00/hr.	300.00	
20 hrs. bulldozing @ $12.00/hr.	240.00	
60 chem. analyses @ $5.00 ea.	300.00	

Fixed Unit Costs

14,800 ft. @ $0.18/ft. incidental allowance	2,664.00	$13,124.00

Estimated total cost of the project(rounded)	$28,460.00
Government participation @ 75%	$21,345.00

Amendments - None

Work Completed (Work was confined to Stage I)

Stage I (71 holes, 51 thru Poison Canyon, 18 through Westwater)

18,790 ft. non-core drilling @ $0.65/ft.	$12,213.50	
27 chem. analyses @ $3.50 each	94.50	
18,790 ft. @ $0.18/ft. incidental allowance	3,382.20	
Total cost of project		$15,690.20
Government participation @ 75%		$11,767.65

Final Reports Received -

Operator - dated February 28, 1959, recd.Mar.16, 1959
Field Team - dated November, 1958, recd. Nov. 28, 1958

3. Auditor's Report of Review - dated March 12, 1959

Total cost as billed by Operator	$15,735.02
Exceptions	44.82
Total accepted cost	$15,690.20
Government participation @ 75%	$11,767.65

4. Certification of discovery - None.

5. Results and Comments -

All the 71 holes drilled were barren except 11 holes that penetrated weakley mineralized ground. Seven of the most strongly mineralized holes contained 4 to 10 feet thicknesses of material in the Poison Canyon which ranged from 0.027% to 0.09% U_3O_8. Mineralization was found in the Westwater Canyon in only one of the 18 holes drilled to that depth. This was one of 4 holes where mineralization was present, but so slight that chemical assays were not considered warranted.

Drilling was done with a model 1500 Failing rotary drill using a non-core wet method and 4½-inch diameter bits. In about 20 working days in April, 17,901 feet were drilled in 71 holes. In July, 28 of the holes were deepened a total of 889 feet to make the total drilling footage 18,790. Average depth of the holes was 265 feet. Holes were spaced on a 300 by 600-foot grid.

The work was well supervised and efficiently carried out. The Operator believed that some Stage II offsetting was warranted, but a review of Stage I results does not support this. It is concluded that the work has shown that the potential of the contract area is limited, and the chances of finding a worthwhile ore body by further drilling are not good. A certification of discovery is not justified.

Michael Ching

Michael Ching

DMEA Form 17
Feb. 58

DEFENSE MINERALS EXPLORATION ADMINISTRATION

WORK COMPLETED ANALYSIS

After final audit or review report is received, prepare original only and file in official docket

Operator: Food Machinery and Chemical Corporation		Actual Cost	X
State: New Mexico		Agreed Unit Cost	
Final Report of Audit		Commodity: Uranium	Docket No. DMEA-4845
Final Report of Review	x		Contract No. Idm-E1167

Operation	Authorized by Contract and Amendments		Completed		Net cost after sale of Government Property
	Units	Cost	Units	Cost	
Drifting & Crosscutting					
Raising					
Shafts					
Winzes					
Drilling (Specify) Rotary Non-core	32,220'	$ 27,392.00	18,790'	$ 15,595.70	$ 15,595.70
Surface Excavation					
Underground Excavation					
Roads and Trails		528.00			
Operating Equipment Purchased					
Surface Rehabilitation & Repairs					
Underground Rehabilitation					
New Building, Improvements, etc.					
Other (Specify) Chem. Analyses		540.00		94.50	94.50
Totals		$ 28,460.00		$ 15,690.20	$ 15,690.20

* Net cost total must agree with final report of audit or review.

Prepared by Michael Ching Date 3-23-59

31398

OFFICIAL FILE COPY
O. M. E.
RECEIVED DEC 8 1958

DATE	INITIALS	CODE
12/8	C	220
12/8	[illegible]	800
12/8	MC	700

244 New Customhouse
Denver 2, Colorado

December 4, 1958

CERTIFIED MAIL

Mr. W. S. Cavender
Food Machinery and Chemical Corporation
Westvaco Mineral Development
P. O. Box 327
Grants, New Mexico

Re: Docket No. DMEA 4845 (Uranium)
Contract No. Idm-K1167
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
(Sec. 17, T 15 N, R 9 W)
McKinley County, New Mexico

Dear Mr. Cavender:

Reference is made to our letter of September 30, 1958 relative to the rendering by your company of a final engineering and geologic report as required under Article 7 (c) of the contract form.

A final audit of the project expenditures cannot be scheduled until your final report is received, and final payment cannot be made to Food Machinery and Chemical Corporation until the Report of Audit is released to this office.

We are desirous of closing the account at an early date; therefore, please advise by return mail as to the date on or before which we can expect to receive the required five copies of the final report.

Very truly yours,

J. W. Townsend

J. W. Townsend
Executive Officer
OME Field Team, Region III

JDC/ad
cc: Chm., Op. Comm. (2)
Harshman
Romalo, OME/TUC
Emerick
Corres. File
Cooper
Chron.

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
3/24/59	Ching	700
3/24	Knowlt	700
9/14	Talbut	800
		120
		~~110~~
		~~100~~
9-15	gad	220
		~~700~~
		225

SEP 15 1959

Hold until

Mr. W. N. Williams
Vice President
Food Machinery and Chemical Corporation
161 East 42nd Street
New York 17, New York

Re: Docket No. DMEA-4845 (Uranium)
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
Sec. 17, T. 13 N., R. 9 W.
McKinley County, New Mexico
Contract No. Idm-E1167

Dear Mr. Williams:

Reference is made to your terminated exploration contract with the Government.

We sincerely regret that the work performed did not result in a certification of discovery or development under the provisions of the contract. In the absence of such certification, the Government retains no claim or lien against the property subject to the contract or any future production therefrom. We, therefore, are closing our books and records on this project. Your attention, however, is called to the provisions of the contract which require the operator to keep and preserve certain records for the period indicated.

We appreciate your interest and participation in the DMEA exploration program which has now been succeeded by the Office of Minerals Exploration program.

Sincerely yours,

George C. Selfridge (for)

ACTING Director

cc: Federal Insurance Company

MChing/gla 3-24-59
cc to: Director's Reading File
Mr. Ching
OME Field Team, Region III (2)
Contract Adm. & Audit Division

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
3/24/59	Ching	700
3/24	Kuzuk	700
9/11	Talbut	800
		120
		~~110~~
9/15	GCS	~~100~~
9-15	gad	220
		~~700~~
		225

SEP 15 1959

Hold until

Mr. Stephen Plum
Assistant Secretary
Federal Insurance Company
90 John Street
New York 38, New York

Re: Docket No. DMRA-4845 (Uranium)
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
Sec. 17, T. 13 N., R. 9 W.
McKinley County, New Mexico
Contract No. Idm-E1167

Dear Mr. Plum:

Enclosed is a copy of a self-explanatory letter of today to the Operator under the above-cited contract.

The property as set forth in the contract is covered by your Performance Bond, dated March 4, 1958, under the captioned name and contract number.

In the absence of certification, the Government retains no claim against the bonding company that assumed the responsibility for performance under the contract.

Sincerely yours,

George C. Selfridge (for)

ACTING Director

Enclosure

MChing/gla
3-24-59
cc to: Director's Reading File
Mr. Ching
OME Field Team, Region III (2)

43683

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
224 New Customhouse
Denver 2, Colorado
March 25, 1959

OFFICIAL FILE COPY
O. M. E.
RECEIVED MAR 30 1959

DATE	INITIALS	CODE
3/30	C	220
		700

Memorandum

To: Chairman, Operating Committee, OME

From: OME Field Team, Region III

Subject; Docket No. DMEA 4845 (Uranium) Contract Idm-E1167, Food Machinery and Chemical Corporation, (Westvaco Mineral Products Division) (Sec. 17, T 13 N, R 9 W) McKinley County, New Mexico - FINAL SUMMARY REPORT

F.T. FINAL SUMMARY

The original and two copies of the Joint Final Engineering and Geologic Report, by the OME field examiners, were forwarded by memorandum of November 25, 1958. The original and one copy of the Operator's final report were forwarded by memorandum of March 12, 1959.

The contract was considered completed on completion of the authorized work under Stage I, and the Operator was so notified by our letter of September 30, 1958.

Final payment of the Operator's account was processed by this office March 25, 1959, in conformance with the Report of Review of reported project costs, by the Contract Administration and Audit Division, OME, dated March 12, 1959.

Exploration completed under the contract consisted of the drilling of 71 holes, aggregating 18,790 feet of non-core drilling. Additional work or service completed consisted of analysis of 27 samples for uranium content, and incidental allowance for 18,790 feet of drilling; all at a total accepted cost of $15,690.20, toward which the Government contributed 75 percent, or $11,767.65.

Exploration work completed under the contract did not result in the discovery of a significant quantity of uranium ore, therefore certification of the project as a discovery or development is not recommended.

By J. W. Townsend
J. W. Townsend

By E. N. Harshman
E. N. Harshman

DMEA FORM 6 REFERENCE SLIP

REV. 12-56 DEFENSE MINERALS EXPLORATION ADMINISTRATION

TO:	INITIALS	DATE
1. 110	JCF	12/5
2. ~~800~~	[illegible]	12/8
3. 700	MMC	12/10
4.		
5.		
FROM:		

FOR: Check items for action desired

____ Action ____ Reply for signature of ____

____ Approval ____ Investigate ____ Surname

____ Comment ____ Recommendations ____ Signature

____ Conference ____ Rewrite ____ File

____ Instructions ____ Your information ____

REMARKS:

UNITED STATES
DEPARTMENT OF THE INTERIOR
~~DEFENSE MINERALS EXPLORATION ADMINISTRATION~~
OFFICE OF MINERALS EXPLORATION
224 New Customhouse
Denver 2, Colorado

November 25, 1958

OFFICIAL FILE COPY
O. M. E.
RECEIVED NOV 28 1958

DATE	INITIALS	CODE
11 28	C	220
11/28	esf	130
	JHO	110
12/5	JHB	130
12/5	C	220
12		700

MEMORANDUM

To: Chairman, Operating Committee, OME

From: Executive Officer, OME Field Team, Region III

Subject: Docket No. DMEA-4845 (Uranium) Contract No. Idm-E1167,
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
N $\frac{1}{2}$ and SE $\frac{1}{4}$ Sec. 17, T. 13 N., R. 9 W.
McKinley County, New Mexico
Final Joint Engineering and Geologic Report

Enclosed are the original and two copies of a Final Joint Engineering and Geologic Report, dated November, 1958 by W. L. Emerick, Geologist, Geological Survey and T. M. Romslo, Mining Engineer, Bureau of Mines pertaining to work completed under the subject contract.

The field examiners state that no significant zones of uranium mineralization were encountered by the drilling project; therefore, a Certification of Discovery or Development is not recommended.

The Field Team Final Summary Report will be submitted when the Operator's report is received and all other matters prerequisite to closing the account have been resolved.

J. W. Townsend

Enclosures

Reviewed by
OME OPERATING COMMITTEE
12-5-58
(date)

FINAL F.T. REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
OFFICE OF MINERALS EXPLORATION
Box 4126 University Station
Tucson, Arizona

OME
DEPARTMENT OF THE INTERIOR
NOV 24 1958
DENVER, COLORADO

MINERAL DEPOSITS
O M E
RECEIVED
NOV 20 1958

OFFICIAL FILE COPY
O. M. E.
RECEIVED NOV 28 1958
U. S. GEOLOGICAL SURVEY
DENVER, COLORADO

DATE	INITIALS	CODE
12/5		130
		220

November 18, 1958

MEMORANDUM

To: J. W. Townsend, Executive Officer
OME Field Team, Region III

From: T. M. Romslo
W. L. Emerick Through: E. N. Harshman

Subject: Docket No. DMEA-4845 (Uranium) Contract No.Idm-E1167,
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
N 1/2 and SE 1/4 Sec. 17, T. 13 N., R. 9 W.
McKinley County, New Mexico
Final Joint Engineering and Geologic Report.

Enclosed are the original and 10 copies of a final joint engineering and geologic report on the above subject contract.

No significant zones of uranium mineralization were encountered by the drilling project; therefore a Certificate of Discovery or Development is not recommended.

T. M. Romslo
U. S. Bureau of Mines

W. L. Emerick
U. S. Geological Survey

TMR:WLE:ms

cc: J. W. Townsend (10)
OME/TUC (2)

Reviewed by
OME OPERATING COMMITTEE
12-5-58
(date)

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

OFFICE OF MINERALS EXPLORATION

OFFICIAL FILE COPY
O. M. E.
RECEIVED NOV 28 1958

DATE	INITIALS	CODE
12/5	246	130
		220

FINAL JOINT ENGINEERING AND GEOLOGIC REPORT
REGION III

DMEA-4845 (Uranium) Contract Idm-E1167

Food Machinery and Chemical Corp.

(Westvaco Mineral Products Division)

N 1/2 and SE 1/4 Sec. 17, T. 13 N., R.9 W.

McKinley County, New Mexico

W. L. Emerick, Geologist
U. S. Geological Survey

T. M. Romslo, Mining Engineer
U. S. Bureau of Mines

November 1958

Reviewed by
OME OPERATIONS
12-5-58

DMEA-4845 (URANIUM) CONTRACT Idm-E1167
FOOD MACHINERY AND CHEMICAL CORP.
(WESTVACO MINERAL PRODUCTS DIVISION)
N 1/2 and SE 1/4 SEC.17,T.13N.,R.9W.
McKINLEY COUNTY, NEW MEXICO

CONTENTS

	page
INTRODUCTION	1
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	1
LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES	3
PROPERTY	3
History and Production (Pre-DMEA)	3
Extent and Ownership of the Property	6
Present Status	6
GEOLOGY	6
General	6
Stratigraphy	7
Structure	10
Ore Deposits	10
THE PROJECT	11
Authorized Work	11
Estimated Cost of the Work	12
Work Performed with Costs	13
Efficiency of the operations	14
Ore Reserves	14

APPENDIX
Summary of drill hole logs

ILLUSTRATIONS

Figure 1 - Location map ---------- Following page 3

Figure 2 - Planimetric map of Section 17 --- In folder

INTRODUCTION

An exploratory project for uranium in McKinley County, New Mexico, was carried out during mid-1958 by the Westvaco Mineral Products Division of Food Machinery and Chemical Corporation, 161 East 42nd Street, New York 17, New York, with governmental aid authorized by the Defense Production Act of 1950, as amended. It was confined to the N 1/2 and SE 1/4 of Sec. 17, T. 13 N., R. 9 W., N.M.P.M. & B.

The corporation's application for aid in the project was received and assigned docket number DMEA-4845 by the Defense Minerals Exploration Administration October 4, 1957. Field investigations which had been requested by the Operating Committee were made for the Field Team, Region III, by Fred R. Shawe, U. S. Geological Survey, and M. H. Salsbury, U. S. Bureau of Mines, during November 1957. The applicant was represented by W. S. Cavender, manager of exploration.

An exploratory project recommended by the examining team and approved by the Field Team and Operating Committee was authorized by contract Idm-E1167, dated February 4, 1958.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The property of the exploratory project is situated in southeastern McKinley County, New Mexico, in what is now commonly referred to as the Ambrosia Lake Area. It is adjacent to several previously explored properties, a few of which have been developed into presently producing mines.

The Brushy Basin and Westwater Canyon members of the Morrison formation, dipping about 5° to the northeast, are the important uranium-bearing rocks in the general area of Section 17. One thick sandstone bed near the base of the Brushy Basin member, locally called the Poison Canyon sandstone, is the principal ore-bearing bed of the area. The ore deposits in this area are of the coffinite type.

The exploratory project of Docket DMEA-4845, Contract Idm-E1167, was designed to test for uranium in the 2 favorable geological formations by non-core drilling. Stage I of the project, which was completed, comprised the drilling and the geologic and radiometric logging of an allowable total of 18,790 feet in 71 holes, and the chemical analysis of 27 samples. The findings did not justify additional explorations provided for in Stage II and the contract was being processed for termination at the time of this writing. The total cost of the project was $15,690.20, of which the Government's share at 75 percent was $11,767.65.

One deposit, containing 3,100 tons of 0.15 percent U_3O_8 and 55,000 tons of 0.05 percent to 0.15 percent U_3O_8, was found by independent drilling in the SW 1/4 of Section 17. The material is considered to be of sub-ore grade at the present time. No ore grade material or significantly mineralized ground was penetrated by DMEA drilling in the other three-quarters of Section 17.

The findings of the project were unfavorable inasmuch as none of the 71 holes encountered uranium mineralized zones of potential economic interest. Consequently, a discovery certification of the project is not recommended by the writers.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

Messrs. Salsbury and Shawe[1/] said the following about the property that is located in what is now commonly referred to as the Ambrosia Lake Area:

> "The property to be subordinated is the north 1/2 and the southeast 1/4 of Section 17, T. 13 N., R. 9 W., NMPM, McKinley County, New Mexico (fig. 1). It is reached by traveling 12 miles north on a hard-surfaced road from the junction of U. S. Highway 66 and New Mexico Highway 53 just west of Grants, New Mexico, a shipping point on the Santa Fe Railroad, thence about 4 miles west and north on a graded access road to the property.
>
> "The surface at the property consists of a dip slope of Dakota sandstone dissected at a few points by shallow steep-walled arroyas. A growth of scrub cedar, pinon pine, and desert vegetation is supported by a thin soil cover.
>
> "There is a wide variation in temperature and precipitation with extremes of both heat and cold. The climate is generally arid with violent storms of short duration at any season. Year around surface operations are usually feasible."

PROPERTY

History and Production (Pre-DMEA)

Messrs. Salsbury and Shaw reported[2/] :

1/ Joint Geologic and Engineering Report of Examination, December 1957.
2/ Previously cited.

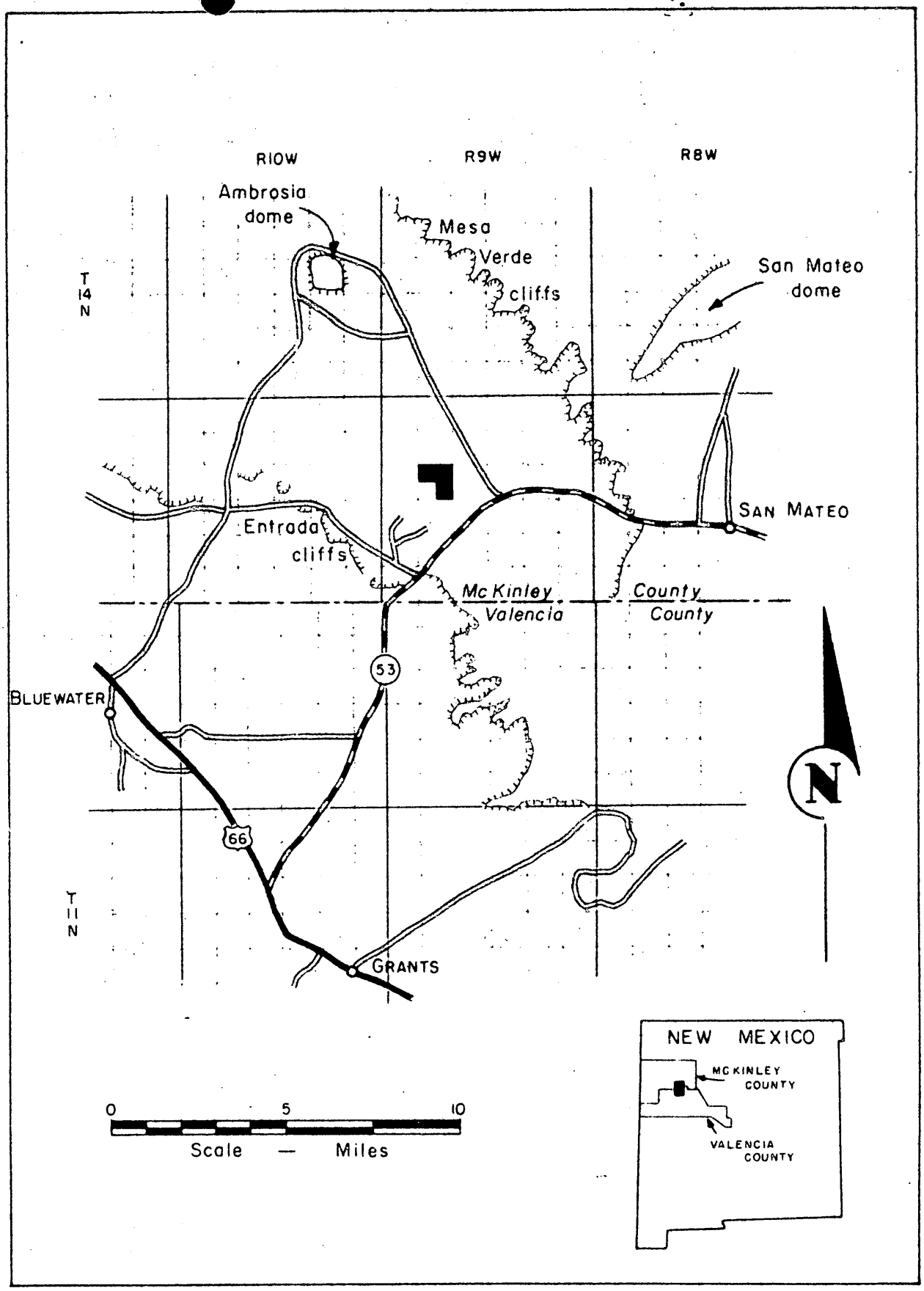


Figure 1 -- Location Map, N.½-S.E. ¼, Sec. 17, T. 13 N., R. 9 W., Westvaco Mineral Products Division, Food Machinery and Chemical Corporation, McKinley County, New Mexico. MRA-1845

"Discovery of uranium in the Grants area dates from 1949 when a party of California geologists noted uranium minerals in the Todilto limestone of Jurassic age. The first discovery of ore in commercial quantities was made by an Indian sheepherder in 1951. Since then exploration has revealed large reserves of uranium ore in the Dakota and Morrison formations as well as the Todilto.

"There have been a number of DMEA projects in the Grants area. Of these, 4 were completed in a tier of sections just north of section 17 and are of immediate interest. These are as follows:

Table I

Operator	DMEA No.	Contract No.	Property	Location
Westvaco 1/	3939	E 934	Santa Fe RR lease	Sec.7, T.13N., R.9W.
Colamer Corp.	3632	E 797	State claims (located)	Sec. 8, T.13N., R.9W.
Westvaco 1/	3943	E 932	Santa Fe RR lease	Sec.9, T.13N., R. 9W.
Colamer Corp.	4017	E 940	Located claims	Sec.10, T.13N., R. 9W.

1/ Westvaco Mineral Products Division of Food Machinery and Chemical Corporation.

"There has been no production to date from Section 17 or from any of the properties in Table I. Results of DMEA exploration were negative except on section 8 where an ore body 1,100 feet long by 500 feet wide with an average thickness of 7.5 feet was found in the northwest corner of the section. The calculated reserve in a smaller, minable portion of this ore body, together with production and reserves from other mines in the vicinity are as follows:

"Table II. -- Production and ore reserves of the Brushy Basin and Westwater Canyon members of the Jurassic Morrison formation in Sections 7, 8, 9, 16, 17, 18, 19, 20, and 21, T. 13 N., R. 9 W., NMPM, McKinley County, New Mexico.

					RESERVES			
			Production 1/		Indicated 1/		Inferred 1/	
Sec.	No. Mines	Host Rock	Tons	Grade	Tons	Grade	Tons	Grade
7	0							
8 2/	1	Westwater			54000	0.22	18000	0.22
9	0							
16	0							
17 3/	1	Brushy Basin			3100	0.15		
18 2/	1	Brushy Basin	4988	0.56	10000	0.40		
19 2/	1	Brushy Basin	150950	0.25	213000	0.23	74000	0.23
20 2/	4	1 Westwater 3 Brushy Basin	75059	0.23	46415	0.32	14383	0.29
21	0							
Total			200,997 *		326,515		89,383**	

1/ In percent U_3O_8.

2/ From Production and Reserve file of the A.E.C.

3/ Furnished by the applicant."

* The correct total is 230,997.
** The correct total is 106,383.

Extent and ownership of the Property

The property of the exploratory project comprises the N 1/2 and SE 1/4 of sec. 17, T. 13 N., R. 9 W., N.M.P.M. & B., McKinley County, New Mexico (Figs. 1 and 2). It is owned by the Santa Fe Railroad Company.

The property rights of the Food Machinery and Chemical Corporation, a Delaware corporation (Westvaco Mineral Products Division), hereafter called the "Operator", are vested in Uranium Mining Lease and Agreement No. S.F.P. 9589 that was granted by the owner March 15, 1957.

Present Status

The property which has been inactive, except for 2 periods when it was explored by a total of 118 drill holes, contains no buildings or equipment. Forty-seven of the drill holes were put down at widely spaced intervals prior to the 71 holes that were drilled during the exploratory program described in this report.

GEOLOGY *

General

The general area of section 17, T. 13 N., R. 9 W., is on the northeast flank of the Zuni uplift and the southwest flank of the San Juan Basin. Ambrosia Lake dome, a small structural high on the gently

---

*Material for this section extracted from Joint Field Examination report by Shawe and Salsbury, supplemented by a minor amount of additional information.

dipping east flank of the Zuni uplift, lies a few miles toward the north. Dips vary, but are generally less than 10 degrees northeasterly. Formations encountered in the uranium mining operations in this area are, from oldest to youngest: Entrada sandstone, Todilto limestone, Summerville formation, Bluff sandstone and Morrison formation of Jurassic age and Dakota sandstone of Cretaceous age. Only the Dakota sandstone crops out on the property. Important uranium deposits are found in the Morrison formation and Todilto limestone and minor deposits are known to occur in the Dakota sandstone.

Stratigraphy

The formations involved in mining operations in the immediate area are summarized in Table III, on the following page. Because no uranium-bearing ground is known in the Dakota sandstone on the property and the Todilto limestone is considered too deep to be a target horizon in the vicinity, only the Morrison formation is described.

The Morrison formation, in the Grants area, is divided into three members; these members are, from oldest to youngest: the Recapture shale member, the Westwater Canyon sandstone member, and the Brushy Basin member. The Recapture member consists of thin even-bedded fine to coarse sandstone, clayey sandstone and clayey siltstone with a few mudstone lenses. Color ranges from gray through red in the clayey material and is mostly various shades of buff-orange in the cleaner, more pure sandstones.

Table III.--Uranium-producing formations and related formations in the vicinity of section 17, T. 13 N., R. 9 W., NMPM, McKinley County, New Mexico.

Age	Formation	Member	Approximate Thickness	Description
Cretaceous	Dakota		50' - 75' (top not present)	Massive, light colored sandstone underlain by black carbonaceous shale; contains small uranium deposits.
Jurassic	Morrison	Brushy Basin	150'	Reddish gray and greenish gray, bentonitic mudstone with sandstone lenses; includes ore-bearing "Poison Canyon" sandstone.
		Westwater Canyon	80' - 150'	Light colored, arkosic sandstone; crossbedded; contains uranium deposits.
		Recapture	125'	Red and gray mudstone with intercalated, buff orange sandstone lenses.
	Bluff		200'	Massive, light colored, cross-bedded sandstone.
	Summerville		100'	Reddish brown, flat-bedded siltstone.
	Todilto		10' - 35'	Light gray limestone locally containing petroleum residues and uranium deposits.

The Westwater Canyon sandstone is a medium- to coarse-grained, massive, arkosic sandstone, light grayish red to light brown and various shades of buff-orange in color and containing lenses of gray-green, arenaceous shale. Low angle, broadly sweeping crossbeds are prominent. Scour and fill structures are common throughout, and the contact with the underlying Recapture member is gently undulating where the sandstone fills shallow scours in the underlying Recapture member.

The Brushy Basin member consists of light greenish-gray to dark red-gray bentonic mudstone and silty mudstone with interlayered coarse sandstone. Both mudstone and silty mudstone are often mottled, and the sandstone is usually buff-orange. In a few places the sandstone is conglomeratic. One thick sandstone bed near the base of the member, locally called the "Poison Canyon sandstone", is the principal ore-bearing bed in the Brushy Basin member in this area.

The "Poison Canyon sandstone" beneath the subject property ranges from 27 to 86 feet in thickness and averages about 70 feet. The sandstone is composed of gray arkosic, limey and cherty sandstones containing gray-green arenaceous and limey shale lenses. The sandstone ranges from fine- to coarse-grained and the coarser and more pebbly beds appear to be at or near the base of the sandstone. This "Poison Canyon sandstone" of the Brushy Basin member and the underlying Westwater Canyon sandstone member are nearly the same lithologically and are known to coalesce. There apparently was no break in sedimentation between the Brushy Basin and Westwater Canyon members, and the "Poison Canyon sandstone" could well be referred to as a tongue of the Westwater Canyon sandstone; the lower Brushy Basin and upper Westwater Canyon being in part contemporaneous.

Structure

The structure in the immediate area is relatively simple. The rocks have an average dip of about 5° toward the northeast, forming the northeast flank of the Zuni uplift and the southwest flank of the San Juan Basin. Gentle warps superimposed upon this homocline cause dips as high as 10°; flat-lying beds may be seen in a few places. Drilling and mining operations in nearby sections have disclosed the presence of several small shear zones, but no pattern to this faulting is known and the shears do not seem to have any bearing upon the position of an ore deposit.

Ore Deposits

The ore deposits in areas adjacent to section 17 where found at the depth presumed for the lower Brushy Basin member and the Westwater Canyon member, are of the coffinite type. Carbon is abundant in and close to ore. The ore may occur at almost any stratigraphic position within the sandstone but seems to be found usually about midway between the top and the bottom of the sandstone. The host rock surrounding ore deposits in both the "Poison Canyon sandstone" and the Westwater Canyon sandstone is bleached to a light gray. However, these bleached areas are very large and cannot be used to determine the presence or absence of ore deposits on the subject property; drilling has indicated all of section 17 is underlain by this bleached zone. Thicker and coarser portions of the sandstone contain most of the ore; however, some good ore deposits have been found in thinner and less coarse portions. No positive correlation between the localization of ore and thickness and/or

grain size of the sandstone host rock is apparent; more ore, however, is found in the thicker parts of the sandstone. Ore is found both as large tabular bodies and as clusters of small discontinuous lenses; deposits ranging in size from 5,000 to almost 500,000 tons may be discovered.

The DMEA exploratory program was recommended because of the favorability of the "Poison Canyon sandstone" beneath Section 17 and because of an apparent mineralized zone that trends toward the project area.

THE PROJECT

Authorized Work

Contract Idm-E1167 provided for work consisting of exploration by non-core drilling to test the Poison Canyon and Westwater Canyon sandstones of the Jurassic Morrison formation for uranium. It divided the work into 2 stages and specified that the Operator must complete Stage I and as much of Stage II as the Government approved in writing in advance.

Stage I provided for the preparation of access roads and drill sites, as required, and the drilling of approximately 71 holes aggregating an estimated 17,420 feet. Fifty-three of the holes were designed to penetrate through the Poison Canyon sandstone only, and 18 holes were to be extended through the Westwater Canyon sandstone. If more than 17,420 feet of drilling was required to reach the desired horizons, the additional funds required could, with the written approval of the Government, be transferred and deducted from Stage II.

Stage II provided for the preparation of access roads and drill sites, as required, and the drilling of not more than 60 holes aggregating not more than 14,800 feet as offsets to previously drilled holes showing favorable mineralization. Offset holes must be drilled not closer than 100 feet to any previously drilled hole.

Estimated Cost of the Work

Stage I

Actual Costs

Independent Contracts:		
17,420 feet non-core drilling @ $0.65/ft.	$11,323.00	
35 hours drill crew standby time @ $10/hr.	350.00	
24 hours bulldozing @ $12/hr.	288.00	
48 chemical analyses @ $5/each	240.00	$12,201.00

Fixed Unit Costs

Incidental allowance for each foot of hole drilled, 17,420 feet @ $0.18/ft.	3,135.60
Estimated Total Cost of Stage I	$15,336.60

Stage II

Actual Costs

Independent Contracts:		
14,800 feet non-core drilling @ $0.65/ft.	$ 9,620.00	
30 hours drill crew standby time @ $10/hr.	300.00	
20 hours bulldozing @ $12/hr.	240.00	
60 chemical analyses @ $5/each	300.00	$10,460.00

Fixed Unit Costs

Incidental allowance for each foot of hole drilled, 14,800 feet @ $0.18/ft.	2,664.00
Estimated Total Cost of Stage II	$13,124.00

Work Performed with Costs

The project was supervised by W. S. Cavender, the operator's manager of exploration. Drilling operations which were sub-contracted to the Stewart Bros. & Parker Drilling Company of Grants, New Mexico, were started April 8, 1958. A model 1500, Failing rotary drill rig was employed to drill all holes by the non-core wet method; $4\frac{1}{2}$-inch diameter bits were used. Samples comprising the sludge from 2-foot intervals were taken from the top of the Poison Canyon sandstone to the bottom of the hole. They were logged geologically and radiometrically, packaged and labelled. In addition, Log-Master Services, Inc., of Enid, Oklahoma, logged the holes by the gamma-ray and electric resistance methods.

A review of the logs of the 71 holes of Stage I that were completed during April, 1958, revealed that 28 of the Poison Canyon test holes had been stopped at too shallow a depth. These 28 holes were deepened and the newly drilled portion of each hole was sampled and logged during July, 1958. The total footage drilled in the 71 holes was 18,844. Allowable total footage was 18,790 after deducting 54 feet of drilling in 12 holes that were bottomed at more than the allowable 10 feet below the Westwater Canyon sandstone.

Other allowable work comprised the chemical analysis of 27 samples for U_3O_8 by the Grants Assay Office, Grants, New Mexico.

The operator requested approval for the Stage II drilling of 4700 feet in 22 holes in a weakly mineralized area found by the initial drilling. The request was denied and the contract was being

processed for termination at this writing.

1/ The approved costs of the project follow:

Actual Costs	
Drilling 18,790 feet @ $0.65 a foot	$12,213.50
Chemical assays - 27 @ $3.50 each	94.50
Fixed Costs	
Incidental allowance for 18,790 feet of drilling @ $0.18 a foot	3,382.20
Total	$15,690.20
Government's share @ 75 percent	$11,767.65

1/ Subject to Audit

Efficiency of the Operations

All phases of the exploratory project were carried out in an efficient manner under the supervision of W. S. Cavender, the Operator's manager of explorations. Shortly after completion of the project, Mr. Cavender resigned from the Company because of ill health and in order to complete graduate study.

Ore Reserves

Uranium mineralization on Section 17 is confined to one known occurrence of presently sub-ore grade material. Prior drilling by Food Machinery and Chemical Corporation in the SW 1/4 of the section indicated a deposit containing 3,100 tons of 0.15 percent U_3O_8 and 55,000 tons of 0.05 percent to 0.15 percent U_3O_8. The deposit, of unknown thickness, is approximately 500 feet wide by 700 feet long and trends northeasterly. In addition to this sub-ore grade deposit, 10 of 39 holes drilled by the Company in the other 3/4 of the section

prior to DMEA work penetrated mineralized ground (0.05-0.15 percent U_3O_8). The mineralized holes were scattered.

Of the 71 holes drilled under DMEA, radiometric logs showed that all were barren except for 11 holes that penetrated weakly mineralized ground. Check chemical assays of material from 7 of the 11 weakly mineralized DMEA holes, containing mineralized thicknesses of 4 to 10 feet, ranged from 0.027 percent to 0.09 percent U_3O_8. Chemical assays were not considered warranted on the other 4 weakly mineralized holes because of indicated insignificant thicknesses and uranium content.

APPENDIX

Summary of Drill Hole Logs

Hole No.	Total Depth (Ft.)	Mineralized Zone (Ft.) * Interval	Thickness	Classification	%eU_3O_8	%U_3O_8
940N-2840E	320	-	-	Unfavorable	-	-
940N-3140E	230	-	-	"	-	-
940N-3440E	240	-	-	"	-	-
940N-3740E	240	-	-	"	-	-
940N-4340E	250	206.8-208.0	1.2	Slight or minor mineralization	<.025	-
1540N-2840E	255	236.8-238.0	1.2	"	.02	-
1540N-3140E	235	-	-	Unfavorable	-	-
1540N-3440E	305	-	-	"	-	-
1540N-3740E	240	-	-	"	-	-
1540N-4040E	250	-	-	"	-	-
1540N-4340E	240	-	-	"	-	-
2140N-2840E	345	-	-	"	-	-
2140N-3140E	250	-	-	"	-	-
2140N-3440E	250	-	-	"	-	-
2140N-3740E	250	-	-	"	-	-
2140N-4040E	350	-	-	"	-	-
2140N-4340E	240	-	-	"	-	-
2740N-1040E	320	-	-	"	-	-
2740N-1940E	200	-	-	"	-	-
2740N-2840E	235	-	-	"	-	-
2740N-3140E	245	-	-	"	-	-
2740N-3440E	336	-	-	"	-	-

*All in Poison Canyon sandstone except where otherwise noted.

Summary of Drill Hole Logs - Cont'd

Hole No.	Total Depth (Ft.)	Mineralized Zone (Ft.) * Interval	Thickness	Classification	$\%eU_3O_8$	$\%U_3O_8$
2740N-3740E	255	-	-	Unfavorable	-	-
2740N-4040E	260	-	-	"	-	-
2740N-4340E	250	-	-	"	-	-
3340N-1040E	235	197-207	10'	Minor mineralization	.024	.016
3340N-1640E	310	178-182	4'	"	.025	.024
3340N-1940E	200	174-182	8'	"	.021	.010
3340N-2240E	207	181-185 189-195	4' 6'	" "	(.020 (.015	.010 .015
3340N-2540E	210	-	-	Unfavorable	-	-
3340N-2840E	303	-	-	"	-	-
3340N-3140E	250	-	-	"	-	-
3340N-3440E	265	-	-	"	-	-
3340N-3740E	270	-	-	"	-	-
3340N-4040E	376	-	-	"	-	-
3340N-4340E	275	-	-	"	-	-
3940N-1040E	290	209-217	8'	Minor mineralization	.011	.009
3940N-1340E	224	206-210	4'	"	.035	.017
3940N-1640E	226	195-203	8'	"	.017	.027
3940N-1940E	230	-	-	Unfavorable	-	-
3940N-2240E	315	-	-	"	-	-
3940N-2540E	214	-	-	"	-	-

*All in Poison Canyon sandstone except where otherwise noted.

Summary of Drill Hole Logs - Cont'd

Hole No.	Total Depth (Ft.)	Mineralized Zone (Ft.) * Interval	Thickness	Classification	%eU_3O_8	%U_3O_8
3940N-2840E	225	-	-	Unfavorable	-	-
3940N-3140E	241	-	-	"	-	-
3940N-3440E	347	-	-	"	-	-
3940N-3740E	255	-	-	"	-	-
3940N-4040E	265	-	-	"	-	-
3940N-4340E	275	-	-	"	-	-
4540N-1040E	245	-	-	"	-	-
4540N-1640E	320	-	-	"	-	-
4540N-1940E	258	-	-	"	-	-
4540N-2240E	265	-	-	"	-	-
4540N-2540E	230	-	-	"	-	-
4540N-2840E	340	$330\frac{1}{2}$-$331\frac{1}{2}$ in Jmw	1'	Slight or minor mineralization	<0.05	-
4540N-3140E	270	-	-	Unfavorable	-	-
4540N-3440E	170	-	-	"	-	-
4540N-3740E	242	-	-	"	-	-
4540N-4040E	365	-	-	"	-	-
4540N-4340E	256	-	-	"	-	-
5140N-1040E	300	-	-	"	-	-
5140N-1340E	227	-	-	"	-	-
5140N-1640E	260	-	-	"	-	-

*All in Poison Canyon sandstone except where otherwise noted.

Summary of Drill Hole Logs - Cont'd

Hole No.	Total Depth (Ft.)	Mineralization Zone (Ft.) * Interval	Thickness	Classification	$\%eU_3O_8$	$\%U_3O_8$
5140N-1940E	255	-	-	Unfavorable	-	-
5140N-2240E	320	181-182	1'	Slight or minor mineralization	0.05 app.	-
5140N-2540E	234	-	-	Unfavorable	-	-
5140N-2840E	260	-	-	"	-	-
5140N-3140E	263	-	-	"	-	-
5140N-3440E	330	-	-	"	-	-
5140N-3740E	276	-	-	"	-	-
5140N-4040E	276	-	-	"	-	-
5140N-4340E	281	-	-	"	-	-

*All in Poison Canyon sandstone except where otherwise noted.

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
3/19	GMcCarthy	800
3/19	Talbott	800
3/19	C	220
		700

MAR 19 1959

Memorandum

To: Donald T. Finch, OME Auditor

From: Jay L. Chambers (Signed) J. L. Chambers
Contract Administration and Audit Division

Subject: Docket No. DMEA-4845 (Uranium)
Food Machinery and Chemical Corporation
Contract No. Idm-E1167

Your Report of Review on the above referenced contract is acceptable and normal distribution is authorized.

GMcCarthy/GMcC
March 19, 1959

cc: Docket
Director's Reading File
Mr. Chambers

8623

OFFICIAL FILE COPY
O.
RECEIVED
DATE
3/16 C 220
700

224 New Customhouse
Denver 2, Colorado
March 12, 1959

Memorandum

To: Donald T. Finch, GAE Auditor

From: Executive Officer, GAE Field Team, Region III

Subject: Docket No. RMEA 4845 (Uranium) Contract I&m-E1167
Food Machinery and Chemical Corporation, (Westvaco
Mineral Products Division) (Sec. 17, T 13 N, R 9 W)
McKinley County, New Mexico

The subject contract was considered completed on completion of the work provided for under Stage I, and the Operator was so notified by our letter of September 30, 1958. A copy of which is enclosed for your records.

The Operator has rendered its final report as required by the contract, therefore, final payment of the Operator's account is in order, contingent on release to this office of a Certificate and Report of Audit, or Report of Review, of reported project costs, whichever the case indicates.

Work or service completed on a fixed unit cost basis consisted of Incidental Allowance for 18,790 feet of drilling.

The sum of $500.00 was withheld from reimbursement to the Operator in processing its final accounting report, which was for the month of July, 1958.

Original signed by
J. W. TOWNSEND

J. W. Townsend

Enclosure

JBC:hmh

cc: Chmn. Op. Comm. (2)
Marshman
Romaio, GAE/Tuc.
Emerick
Corres.file, Reg.III
Cooper
Chron

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
224 New Customhouse
Denver 2, Colorado
March 12, 1959

OFFICIAL FILE COPY
O. M. E.
RECEIVED MAR 16 1959

DATE		
3/16	C	220
3/16		800
3/17	Chiang	700

Memorandum

To: Chairman, Operating Committee, OME

From: Executive Officer, OME Field Team, Region III

Subject: Docket No. DMEA 4845 (Uranium) Contract Idm-E1167, Food Machinery and Chemical Corporation, (Westvaco Mineral Products Division) (Sec. 17, T 13 N, R 9 W) McKinley County, New Mexico

Enclosed are the original and one copy of a Final Engineering and Geologic Report, submitted by the Operator, pertaining to work under the subject contract.

The Operator's final report appears to be complete, therefore, we recommend that it be accepted as complying with the requirements under Article 7(c) of the contract form.

J. W. Townsend

Enclosures

OPR'S FINAL REPORT

FOOD MACHINERY AND CHEMICAL CORPORATION

FOOD MACHINERY AND CHEMICAL CORPORATION

MINERAL DEVELOPMENT DEPARTMENT

CHEMICAL DIVISIONS

FOOD MACHINERY AND CHEMICAL CORPORATION

PLEASE REPLY TO
P. O. BOX 250
POCATELLO, IDAHO
TELEPHONE: CE 3-1911

February 28, 1959

OME
DEPARTMENT OF THE INTERIOR
MAR 11 1959
REGION III
DENVER, COLORADO

Mr. J. W. Townsend
Executive Office, O.M.E.
Field Team, Region III
224 New Customhouse
Denver 2, Colorado

Dear Mr. Townsend:

Re: Final Report
Docket No. DMEA 4845
Contract Idm E-1167
FMC Mineral Development
E½ & NW¼, Sec. 17, T.13 N., R 9 W.
McKinley County, New Mexico

Under the terms of the contract, the original and four copies of the narrative report and five copies of the maps and cross sections are being sent to you.

Very truly yours,

Robert C. Kirchman

Robert C. Kirchman
Superintendent of Mines

OFFICIAL FILE COPY
O. M. E.
RECEIVED MAR 16 1959

DATE	INITIALS	CODE

MINERAL DEVELOPMENT DEPARTMENT

FOOD MACHINERY & CHEMICAL CORPORATION

BOX 327, GRANTS, NEW MEXICO

OME
DEPARTMENT OF THE INTERIOR
MAR 11 1959
REGION III
DENVER, COLORADO

FINAL REPORT

DOCKET NO. D.M.E.A. 4845 (URANIUM)

CONTRACT Idm. E-1167

E½ & NW¼ SECTION 17, T. 13 N., R. 9 W.

MCKINLEY COUNTY, NEW MEXICO

February 28, 1959

PURPOSE

On April 8, 1958, FMC Mineral Development Department began work on Docket No. D.M.E.A. 4845, Contract Idm E-1167 in the E½ and the NW¼ of Section 17, T. 13 N., R. 9 W., for purpose of uranium exploration. The project is now completed and this report will review and summarize the data obtained from the exploration work.

D.M.E.A. SECTION 17

LOCATION AND TOPOGRAPHY

Section 17, T. 13 N., R. 9 W., is approximately 14 miles north of the intersection of U. S. Highway 66 and New Mexico Highway 53. The northward extension of Highway 53 is about two miles east of Section 17 and unimproved roads cross the Section.

The Section is on top of a mesa that has a gentle rolling surface cut by several arroyos. The average elevation is 6950 feet and the relief is about 100 feet.

GEOLOGY

Stratigraphy

The mesa is capped by the Dakota formation which is covered by a varying thickness of "blow sand" and alluvium. A brief summary of the stratigraphy is outlined below:

Dakota Lower Cretaceous --- The Dakota crops out over most of the area and consists of light colored, fine to coarse sandstone with a carbonaceous zone near the base that some stratigraphers call the Purgatoine formation.

Morrison Upper Jurassic --- The Morrison is a thick sequence of rocks with different lithologic facies that is subdivided as follows:

a. Brushy Basin --- The Brushy Basin unit underlies the Dakota and consists of gray, green or red shales and sandy siltstones with a few gray to brown sandstone lenses that are very

similar to the underlying Poison Canyon and Westwater sandstones.

b. Poison Canyon --- Although the Poison Canyon formation is usually considered to be a sandstone, it contains some shale beds that are almost identical to the Brushy Basin shales. The base of the last sandstone above a well developed shale is considered to be the base of the Poison Canyon formation. Frequently it is very difficult to pick the bottom of the Poison Canyon with any degree of certainty. The Poison Canyon ranges in thickness from 58 to 87 feet in the holes drilled on Section 17. (See isopach map)

c. Westwater Canyon --- The Poison Canyon and Westwater sandstones are almost identical; extensive drilling in the Ambrosia Lake district has proved that the Poison Canyon is an upper tongue of the Westwater Canyon with a shale bed as a divider. In some places the two formations coalesce to form one thick sandstone.

d. Recapture Creek --- The variegated green to lavender shales and siltstones of the Recapture Creek underlie the Westwater Canyon.

STRUCTURE

Regionally, Section 17 is on the northeast flank of the Zuni uplift and locally it is on the south flank of Ambrosia Dome. The regional dip is a few degrees to the northeast. The dominant structural features are a north trending, north plunging anticline and syncline in the NW¼ of the Section. The syncline roughly coincides with a zone of thinning in the Poison Canyon

sandstone. (See Maps 1 & 2)

A small fault in the SE¼ striking northwest with the northeast block downthrown, was the only fault encountered.

MINERALIZATION

The potential ore zones in Section 17 are the Poison Canyon and Westwater Canyon sandstones. Gamma ray logs run by the Log Master company showed mineralization in eleven of 71 holes. Several copies of the gamma ray logs were included in the last progress report. Chemical assays of cuttings showed a maximum of 0.03 U_3O_8. Table I shows the location of the mineralized holes, the depth and thickness of the mineralization and the maximum gamma ray probe reading.

TABLE I

Coordinates North	Coordinates East	Depth of Mineralization	Gamma Ray Probe Maximum Values cts./sec *	Gamma Ray Probe Maximum Values U_3O_8	Mineralized Formation
5140	2240	118-183	2,100	.055	Poison Canyon
		310-322	1,100	.028	Recapture Creek
4540	2840	323-335	1,650	.043	" "
3940	1040	197-218	750	.02	Poison Canyon
3940	1340	190-211	1,700	.043	" "
3940	1640	194-207	850	.023	" "
3340	1040	198-208	1,100	.028	" "
3340	1640	175-194	1,100	.028	" "
		269-273	850	.023	Westwater
3340	1940	169-185	1,300	.033	Poison Canyon
3340	2240	177-196	1,350	.033	" "
1540	2840	235-240	880	.024	Brushy Basin
940	4340	205-210	980	.025	" "

*8000 cts./sec = approx. .20 U_3O_8

Most of the mineralized holes are in the NW¼; in or near the zone of thinning where there is a local flattening of the dip.

On the basis of the mineralized holes and the mining in adjacent sections, Westvaco applied for a Stage II program of

22 holes to test the mineralized area but this request was subsequently denied.

EXPLORATION

Drilling

The D.M.E.A. authorized Westvaco to drill 71 holes in the E½ and the NW¼, Section 17, T. 13 N., R. 9 W. for uranium exploration. The grid spacing was 600 feet north-south and 300 feet east-west. All of the holes were to penetrate the base of the Poison Canyon and 18 of the holes were to be drilled through the Westwater Canyon. After the initial drilling was completed, examination of the drill logs revealed that 28 of the Poison Canyon holes were bottomed in a shale that was not the Brushy Basin but a similar shale up in the Poison Canyon. These holes were then deepened to the required depth and relogged.

All of the holes were plug drilled (non-core) by rotary rigs using 4½ inch bits. Two foot cutting samples were taken from the top of the Poison Canyon to the bottom of the hole. These samples were checked with a counter, examined for lithologic characteristics, packaged and labeled. In addition, Westvaco contracted the Log Master Company to log all holes using a gamma ray and resistivity probe.

COST AND STATISTICS

Expenditures (Under D.M.E.A.)

Non-core drilling @ $.65 per foot	$ 12,248.60
Incidental allowance @ $.18 per foot	3,391.92
Assays @ $3.50 per sample	94.50
	$ 15,735.02
Disallowal for excess footage	less 44.82
	$ 15,690.20
D.M.E.A. Share --- 75%	$ 11,767.65
FMC Share --- 25%	3,922.55
	$ 15,690.20

Expenditures (by F.M.C.)

Salaries	$ 2,000.00
Office	300.00
Car Rental	300.00
Gamma ray logging	1,300.00
Operating Expenses --- Telephone, Postage, Supplies printing etc.	150.00
Exploration expenses --- Sample Containers, etc.	200.00
	$ 4,250.00

CONCLUSIONS

Although no ore was found by the drilling program, one can not say that there are no ore bodies lying between the wide spaced drill holes. Additional holes --- offset holes to the mineralized holes and holes to test the structural and stratigraphic trends are necessary before one can determine with any degree of certainty the presence or absence of an ore body.

J. W. Townsend's memo March 12, 1959, transmitting Operator's final report, with 5 maps as follows:

(1) Structure Contour Map
(2) Isopach Map Showing Thickness of Poison Canyon Sandstone
(3) Generalized Stratigraphic Sections, 2740 N. Line
(4) " " " , 2840 E. Line
(5) " " " , 3740 E. Line

OME
DEPARTMENT OF THE INTERIOR
FEB 2[illegible] 1959
REGION III
DENVER COLORADO

FOOD MACHINERY
AND CHEMICAL
CORPORATION

MINERAL DEVELOPMENT DEPARTMENT
CHEMICAL DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION

OFFICIAL FILE COPY
O. M. E.
RECEIVED MAR 2 1959

DATE	INITIALS	CODE
3/2	C	220
3/2	[illegible]	800
	/	700

PLEASE REPLY TO
P. O. BOX 327
GRANTS NEW MEXICO
TELEPHONE TRINITY 6-2379

21 February, 1959

J.W. Townsend
Executive Officer, OME
Field Team, Region III

Re: Docket No. DMEA 4845 (Uranium)
Contract Idm-E1167
Food Machinery and Chemical
Corporation
(Sec. 17, T13N, R9W)
McKinley County, New Mexico

Dear Mr. Townsend:

I thank you for your patience regarding the final report on the drilling on section 17. As soon as I get a couple of drilling bills straightened out the report will be complete. I will send the report to Pocatello next week for typing and you should receive the report the week following.

Very truly yours,

V.E. Larsen

OFFICIAL FILE COPY
O. M. E.
RECEIVED FEB 24 1959

DATE	INITIALS	CODE
2/24	[illegible]	220
[illegible]	[illegible]	800
[illegible]	[illegible]	700

224 New Customhouse
Denver 2, Colorado
February 19, 1959

Mr. V. E. Larsen
Food Machinery and Chemical Corporation
P.O. Box 327
Grants, New Mexico

Re: Docket No. DMEA 4845 (Uranium)
Contract Idm-E1167
Food Machinery and Chemical
Corporation
(Sec. 17, T 13 N, R 9 W)
McKinley County, New Mexico

Dear Mr. Larsen:

By letter of January 9, 1959, you informed this office that the final report for the captioned contract was being prepared, and that it would be forwarded to us when completed.

We are desirous of closing the account at an early date, and your final report must be received before we can formulate plans for further closing procedures. Therefore, we will appreciate advice by return mail as to the date on or before which we can expect to receive the required five copies of the final report.

Very truly yours,

Original signed by
J. W. TOWNSEND
J. W. Townsend
Executive Officer, OME
Field Team, Region III

JDC:hmh

cc: Comm. Op. Comm. (2)
Harshman
Emerick
Romslo, OME/Tuc.
Corres.file, Reg.III
Cooper
Chron

JAN 13 1959
REGION III
DENVER, COLORADO

FMC CHEMICAL CORPORATION

MINERAL DEVELOPMENT DEPARTMENT

CHEMICAL DIVISIONS

FOOD MACHINERY AND CHEMICAL CORPORATION

PLEASE REPLY TO
P. O. BOX 327
GRANTS, NEW MEXICO
TELEPHONE: TRINITY 6-2379

OFFICIAL FILE COPY
D. M. E.
RECEIVED JAN 19 1959

DATE	REMARKS	COST
1-19	C	220
1-19	[illegible]	800
"	[illegible]	700

1-9-58

Re: Docket No. D.M.E.A. 4845 (Uranium)
Contract Idm - E1167
Sec 17, T. 13N., R. 9W.
McKinley County, New Mexico

To: Executive Officer
D.M.E.A. Field Team, Region III
224 New Customhouse
Denver 2, Colorado

Dear Sir:

Several changes have been made in out geologic personnel and in the resulting confusion the final report for Docket No. D.M.E.A. 4845 (uranium) has never been submitted. We are now in the process of finishing this report and as soon as the report is completed we will send it to you.

Very truly yours,

V. E. Larsen

V. E. Larsen

C.C. to
Romslo
Emerick
Harshman
Tonsend

copies to:
Harshman
Chm Op. Comm (2)
Romslo
Emerick
Cones file, Reg III
Cooper

OFFICIAL FILE COPY O. M. E. RECEIVED DEC 5 1958		
DATE	INITIALS	CODE
12/5	C	220
12/5	mc	700

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

Date December 4, 1958
DMEA Docket No. 4845
DMEA Contract No. Idm-E1167
Commodity Uranium
Name of Applicant Food Machinery and Chemical Corp.
Location of property McKinley County, New Mexico
Estimated cost of project $15,690.20

Memorandum

To: Frederick L. Knouse, Acting Director, OME
Rare and Misc. Minerals Division

From: James Paone, Bureau of Mines Member JP
Uranium Commodity Committee

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

1. Date of subject document: 11/25/58 2. Date received by reviewer: 12/3/58

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 meeting 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 ☒
e. Disagree with Field Team ☐
f. Suggest alternate plan ☐
g. Request another consultation ☐
h. Approval ☐
i. Consult with Mr. _____ at _____ AEC Office

10. Remarks: (Use back of page if necessary). Certification of discovery not recommended.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

224 New Customhouse
Denver 2, Colorado
September 30, 1958

OFFICIAL FILE COPY
O. M. E.
RECEIVED OCT 3 1958

DATE	INITIALS	CODE
10/3	C	220
"	Chairman	700

Memorandum

To: Chairman, Operating Committee, OME

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

Subject: Docket No. DMEA-4845 (Uranium), Contract Idm-E1167
Food Machinery and Chemical Corporation (Westvaco Mineral Products Division, Sec. 17, T 13 N, R 9 W)
McKinley County, New Mexico

Enclosed are the following pertaining to operations under the subject contract:

(1) Three copies of Field Team, Region III, denial of the Operator's request for Government approval of drilling under Stage II, and notice that the contract is to be considered completed upon completion of the work under Stage I.

(2) Two copies of the Operator's letter of September 18, 1958, requesting the Government's approval for the drilling under Stage II.

(3) Three copies of a memorandum from W. L. Emerick, Geologist, Geological Survey, pertaining to the requested additional drilling.

E. N. Harshman

E. N. Harshman

Encls.

OFFICIAL FILE COPY
O. M. E.
RECEIVED OCT 1958

22[illegible] New Customhouse
Denver 2, Colorado
September 30, 1958

Mr. W. S. Cavender
Westvaco Mineral Development
P. O. Box 327
Grants, New Mexico

Re: Docket No. DMRA-4845 (Uranium)
Contract No. Idm-[illegible]167
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
(Sec. 17, T 13 N, R 9 W)
McKinley County, New Mexico

Dear Mr. Cavender:

Reference is made to your letter dated September 18, 1958, wherein you request the Government's approval for the drilling of 22 holes under the provisions of Stage II of the contract.

Review of the results of the drilling performed under Stage I and other data presently available to this office indicates that the possibility of discovering a significant quantity of minable ore is too remote to warrant Government participation in the cost of the additional drilling requested. Therefore, your request is denied.

Since the Government's approval for additional drilling will not be forthcoming, the contract is to be considered completed upon completion of the work provided for under Stage I.

In conjunction with closing the account, you are referred to the provision under Article 7(c) of the contract form, relative to the rendering by your Company of a final engineering and geologic report pertaining to the work completed under the contract.

A required final audit or report of review of contract expenditures by the Contract Administration and Audit Division, OME,

cannot be scheduled until the final report is received; therefore, as we are desirous of closing the account at an early date, we will appreciate your prompt attention to the matter of rendering five copies of the final report.

Very truly yours,

CMH Field Team, Region III

E. M. Hershman

E. M. Hershman

J. W. Townsend

J. W. Townsend

JWT:bh

cc: Chmn. Op. Comm. (3)
Finance Office, Reg.III
Amendment File, Reg.III
CMH Auditor, Reg. III
Hershman
Emerick
Romslo, CMH/TUC
Corres. File
Cooper
Chron.

OME
DEPARTMENT OF THE INTERIOR

SEP 29 1958
REGION III
DENVER, COLORADO

OFFICIAL FILE COPY SEP 29 1958

OC. 3 1958

Box 4126 University Station
Tucson, Arizona

September 29, 1958

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: W. L. Emerick Through: E. N. Harshman

Subject: Docket No. DMEA-4845 (Uranium) Contract Idm-21167,
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
(Section 17, T. 13 N., R. 9 W.), McKinley County, New Mexico

Enclosed are the original and 4 copies of the operator's proposed Stage II drilling program on the above subject docket, involving 22 holes that would penetrate the Poison Canyon sandstone and average 210 feet in depth. Footage would be approximately 4700 feet at $0.83 per foot ($0.65 for drilling plus $0.18 for incidentals) for an estimated total cost of $3900. Holes to be drilled as offsets on a grid approximately 100 X 200 feet. Coordinates mentioned by the operator in the proposal, but omitted from his maps, were added in pencil at the Tucson office.

The operator, in support of his proposal, offers three points, namely: (1) an elongated N-S structure along coordinate 1600 E (isopach map) in the NW 1/4 of Section 17, representing a thinning of the Poison Canyon sandstone and suggesting the possible presence of an asphalt or oil trap in which uranium might be localized; (2) that the known size of Poison Canyon ore bodies is small, therefore the 300 X 600 foot grid pattern of Stage I possibly could have missed ore bodies; (3) a citation of discovered ore bodies in sections adjacent to Section 17.

Point (3) reiterates a point of justification introduced in the DMEA field examination report recommending Stage I drilling in Section 17. Point (2) appears to be a valid argument based on exploration of the Poison Canyon sandstone elsewhere in the district. The structure of Point (1) is, as the operator states, a feature of interest, but similar smaller structures of the same type also are present in Section 17, one in the NE 1/4 and 2 in the SE 1/4. One of the structures in the SE 1/4 contains two weakly mineralized holes with 3 additional weakly(?) mineralized holes lying about 500 feet south of the structure.

A review of the radiometric logs of all DMEA holes drilled in Section 17 indicates that no zones of significant uranium mineralization were penetrated in the Poison Canyon sandstone. Lacking information on company-drilled holes in Section 17 it must be assumed that they also carried no stronger mineralization than the DMEA holes. Assay results on the seven DMEA holes in the proposed Stage II area ranged from nil to a high of 0.03 percent U_3O_8. Drilling in the SW 1/4 of Section 17 by the operator, including development drilling around low-grade mineralization discovered from wide-spaced drilling, indicated only a sub-ore grade deposit. The overall uranium mineralization in Section 17 appears to be generally very weak and the overall results of Stage I drilling are not impressive.

As a result of reviewing all of the data on the Stage I drilling and from a careful study of the operator's proposal for Stage II work, it is my opinion that the finding of significant amounts of minable grade ore appears remote in Section 17 and that Stage II drilling would not therefore be warranted. The results of the Stage I drilling were thoroughly discussed with Mr. Romslo prior to his departure on annual leave. At that time the field examiners were mutually unimpressed with the results.

W L Emerick

W. L. Emerick
U. S. Geological Survey

WLE:ms

cc: Executive Officer (9)
Marshman
DMEA/TUC
Emerick

September 18, 1958

Re: Stage II Proposal
Contract Idm-E-1167
Docket No. 4845
Section 17, T. 13 N., R. 9 W.
McKinley County, New Mexico

OME
DEPARTMENT OF THE INTERIOR
SEP 29 1958
EGION III
DENVER COLORADO

OFFICE FILE COPY

To: Executive Officer
DMEA Field Team, Region III
224 New Customhouse
Denver, Colorado

Dear Sir:

Under provisions of the above contract, a Stage I exploration program of 71 holes was performed by Westvaco, being completed in July, 1958. Geologic and other details have been covered in past reports, but to review: eleven of the 71 holes recorded mineralization by hole probing. Cuttings which were chemically assayed indicated values up to 0.03% U_3O_8. Of the eleven holes, seven showed the mineralization to be in the basal Poison Canyon sandstone, and four showed it to be in Brushy Basin or Recapture shales.

The seven Poison Canyon holes are in the NW¼ of the section and are grouped along the 3340N and 3940N coordinates. Bordering the group are six mineralized holes drilled originally by Westvaco. It is with this mineralized area that this proposal is concerned.

Two maps of Section 17 have been prepared and are included with this report. The first, an isopach map of the Poison Canyon sandstone, shows the thickness to vary from 50 to 90 feet; however, no dominant patterns or structures are evident. The only feature of interest is the elongate zone of thinning extending north-south along the 1600E coordinate and passing through the mineralized area.

Structure contours on the base of the Poison Canyon sandstone are shown on the second map. Dipping to the northeast, the sandstone has no major folds or faults. A small fault with its west side upthrown is indicated in the SE¼. Along the 2500E coordinate the sandstone is folded into an anticline which strikes north-south and plunges to the north. To the southeast and west of the fold, the contours indicate a steepening of the dip or a gentle monocline. Updip from the monocline the beds flatten, and the dip angle decreases. Note that this flattened area coincides with the mineralized area.

Considering that the uranium deposits of Ambrosia Lake are localized by asphalt deposits, it follows that any structural condition suggesting possible asphalt or oil traps should warrant extra attention as a potential ore-bearing areas. In the Rocky Mountains gently dipping flattened areas bordered by monoclines have been found to be structural and stratigraphic oil traps. Therefore, as this structure might be an area for oil accumulation, further testing appears logical.

On a basis of the relative sizes of known Poison Canyon ore bodies, the area also warrants further investigation. The 300 by 600 ft. grid pattern of Stage I is of such size, that had any of the nearby Poison Canyon ore bodies been drilled on such centers, they could have easily been straddled. These ore bodies include the 60,000 ton Mesa Top, the 5,000 ton Beacon Hill, and the 7,000 ton Moe of Section 20; the 7,000 ton Moe of Section 18; and the Poison Canyon bodies of Section 19 which have yielded over 200,000 tons. Most of the 500,000 ton Calumet and Hecla body of Section 23 would fit inside the stated grid. Consequently, in a district where 25 foot center drilling is often required to trace commercial ore bodies, the Stage I grid has not proved that commercial ore bodies are not present.

It is proposed by Westvaco that the mineralized area be further tested by a Stage II program of 22 holes, as shown on the maps. These holes would penetrate through the Poison Canyon sandstone and would average 210 feet in depth. Footage would approximate 4700 at $0.83 per foot ($0.65 drilling plus $0.18 incidental) for an estimated total of $3900.

Yours very truly,

W S Cavender

W. S. Cavender
Westvaco Mineral Development
P. O. Box 327
Grants, New Mexico

WSC/ac

OFFICIAL FILE COPY
DMEA
RECEIVED SEP 19 1958

DATE	INITIALS	CODE
9/19	C	220
9/19	[illegible]	800
9/22	[illegible]	700

[illegible] New Castanhorse
Denver 2, Colorado
September 16, 1958

Mr. W. S. Cavender, Manager of Exploration
Food Machinery and Chemical Corporation
P. O. Box 307
Grants, New Mexico

Re: Contract No. DMEA 4045 (Uranium)
Contract No. [illegible]
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
(Sec. 17, T 13 N, R 9 W)
McKinley County, New Mexico

Dear Mr. Cavender:

Reference is made to your letter of July 23, 1958, and to our letters to you dated July 29, 1958 and August 13, 1958, regarding possible extension of the completion date to provide for possible additional work under Stage II of the contract.

As we informed you in our letter of August 13, 1958, the contract cannot be maintained in an indefinite status for any considerable length of time. Therefore, please submit to this office either your request for such additional work as you may wish to perform or, if, in your opinion, the results of Stage I drilling do not warrant additional work under the contract, please submit to this office your request for the Government's approval to terminate the contract in its present status.

In the event Government approval for additional work is requested and granted, the contract completion date would have to be extended more than sixty days, as originally requested by you, and you should therefore revise your request for extension of the contract completion date for such additional time as you anticipate will be required.

Your immediate attention in the above matters is requested.

JBC:pel

Very truly yours,

Original signed by
J. W. TOWNSEND

J. W. Townsend
Alternate Acting Executive Officer
DMEA Field Team, Region III

cc: Chan. Op. Comm. (2)
Hardman
Emerick
Ronald
Corres. file
Cooper
Charon.

OFFICIAL FILE COPY
DMEA
RECEIVED SEP 19 1958

DATE	INITIALS	CODE
9-19	C	220
9/19	[illegible]	800
9/22	[illegible]	700

224 New Customhouse
Denver 2, Colorado
Sept. 15, 1958

Mr. Henry C. Messman
Food Machinery and Chemical Corporation
161 East 42nd Street
New York 17, New York

Re: Docket No. DMEA 4845 (Uranium)
Contract Idm-E1167
Food Machinery and Chemical
Corporation
Sec. 17, T 13 N. R 9 W)
McKinley County, New Mexico

Dear Mr. Messman:

Form MF-104, Operator's Monthly Report and Voucher, for the month of July, 1958, is being processed for payment.

The amount of $500.00 is being withheld from reimbursement to you pending possible additional work under Stage II. In the event additional work is not approved by the Government and performed by the Operator, the amount will continue to be withheld pending resolution of matters prerequisite to closing the account.

You will be further advised of the above disallowance by means of an Administrative Audit Difference Statement, which will be forwarded to you by the Finance Office, Region III.

Very truly yours,

Original signed by
J. W. TOWNSEND

J. W. Townsend
Alternate Acting Executive Officer
DMEA Field Team, Region III

MHM:hmh

cc: Chmn. Op. Comm. (2)
Romslo, DMEA/Tuc.
Harshman
Emerick
Cooper
Corres. file, Reg. III
Chron

OFFICIAL FILE COPY
DMEA
RECEIVED SEP 15 1958

DATE	INITIALS	CODE
9/15	C	220
9/15	[illegible]	800
"	Murphy	700
	(Chung)	

224 New Customhouse
Denver 2, Colorado
Sept. 12, 1958

Mr. Henry C. Meesman
Food Machinery and Chemical Corporation
161 East 42nd Street
New York 17, New York

Re: Docket No. DMEA 4845 (Uranium)
Contract Idm-E1167
Food Machinery and Chemical
Corporation (Westvaco Mineral
Products Division) (Sec. 17,
T 13 N, R 9 W)
McKinley County, New Mexico

Dear Mr. Meesman:

Form MF-104, Operator's Monthly Report and Voucher, for the month of April, 1958, is being processed for payment.

The contract specifies that holes designed to explore both the Poison Canyon and the Westwater Canyon sandstones shall not extend more than 10 feet into the underlying Recapture member. The 12 holes listed below were drilled in excess of the contract provisions; therefore, the reported costs including Incidental Allowance for 54 feet of drilling is disallowed.

Hole No.	Total Depth	Lower Contact Westwater	Excess Footage
2140-4040	350	334	6
2740-1040	320	306	4
2740-3440	336	320	6
3340-1640	310	295	5
3340-4040	376	364	2
3940-1040	290	275	5
3940-2240	315	298	7
4540-2840	340	324	6
4540-4040	365	353	2
5140-1040	300	286	4
5140-2240	320	306	4
5140-3440	330	317	3

Total excess footage----------54 feet.

You will be further advised of the above disallowance by means of an Administrative Audit Difference Statement, which will be forwarded to you by the Finance Office, Region III.

Very truly yours,

Original signed by
E. N. HARSHMAN

E. N. Harshman
Acting Executive Officer
EMBA Field Team, Region III

MEM:hmh

cc: Chmn. Op. Comm. (2)
Romslo, EMBA/Tuc.
Emerick
Harshman
Cooper
Corres. file, Reg. III
Chron

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
224 New Customhouse
Denver 2, Colorado

AUG 20 1958

Memorandum

To: Chairman, Operating Committee, DMEA

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

Subject: Docket No. DMEA 4845 (Uranium) Contract Idm-E1167, Food Machinery and Chemical Corporation, (Westvaco Minerals Products Division), (Sec. 17, T 13 N, R 9 W) McKinley County, New Mexico

Enclosed are three copies of a project work approval issued by the DMEA Field Team, Region III, for the transfer of drilling footage and Incidental Allowance, together with incident funds, from Stage II to Stage I of the contract.

Also enclosed are three copies of a joint memorandum dated August 12, 1958, from T. M. Romslo, Mining Engineer, Bureau of Mines, and W. L. Emerick, Geologist, Geological Survey, pertaining to the matter.

Two copies of the Operator's request dated July 23, 1958, were forwarded to you with copies of our memorandum of July 29, 1958, to the field examiners, whereby we requested their recommendations in the matter.

Copies of the work approval have been distributed to the Operator, the Finance office, and to others concerned in Region III.

J. W. Townsend

Enclosures

OFFICIAL FILE COPY
DMEA
RECEIVED AUG 26
DATE | DATE
8/26 C 220
Chiang 700

224 New Customhouse
Denver 2, Colorado

AUG 20 1958

Mr. W. S. Cavender
Food Machinery and Chemical Corporation
Box 24, Star Route
Grants, New Mexico

Re: Docket No. DMEA 4845 (Uranium)
Contract Idm-E1167
Food Machinery and Chemical Corporation
(Westvaco Minerals Products Division)
(Sec. 17, T 13 N, R 9 W)
McKinley County, New Mexico

Dear Mr. Cavender:

In reference to your letter of July 23, 1958, and consistent with the provisions of the contract pertaining to the transfer of drill footage and funds from Stage II to Stage I, to permit completion of the Seventy-one (71) holes under Stage I to the contract objective, this constitutes the Government's approval for transfer of drill footage and funds from State II to Stage I, as follows:

Not to exceed 1,424 feet of non-core drill footage at $0.65 per foot---------- $925.00

Not to exceed 1,424 feet of Incidental Allowance at $0.18 per foot---------- 256.32

Nothing in this work approval shall be construed to increase the estimated total cost of the project, the aggregate amount which the Government may be required to contribute, nor the fixed unit of any item of work, or any item of allowable cost which is expressly designated "maximum."

Very truly yours,

DMEA Field Team, Region III

By J. W. Townsend
J. W. Townsend

By E. N. Harshman
E. N. Harshman

JDC:hmh

cc: Chmn. Op. Comm. (3)
Finance Office, Reg.III
Amendment File, Reg.III
E. N. Harshman
W. L. Emerick
T. M. Romslo (Tucson)
Cooper
Corres.file, Reg. III
Chron

DMEA
DEPARTMENT OF THE INTERIOR

AUG 15 1958
REGION III
DENVER, COLORADO

MINERAL DEPOSITS
DMEA
RECEIVED
AUG 14 1958
GEOLOGICAL SURVEY
DENVER, COLORADO

Box 4126 University Station
Tucson, Arizona

August 12, 1958

Memorandum

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

From: T. M. Romslo
W. L. Emerick

Through: B. N. Harshman

Subject: Docket No. DMEA 4845 (Uranium), Contract No. Ida-N1167,
Food Machinery and Chemical Corporation,
Westvaco Mineral Products Division (Sec. 17, T. 13 N., R. 9 W.)
McKinley County, New Mexico

In reference to Alternate Acting Executive Officer's letter on the above subject property, dated July 29, 1958, and telephone communication from Grants, New Mexico, between T. M. Romslo and J. M. Townsend on August 6, 1958, it is the opinion of the field examiners that the operator exercised diligence during the drilling and that hole depths were not excessive. It is recommended that 1,424 feet of drilling be transferred from Stage II and applied to Stage I.

It is also the opinion of the field examiners that the contract should not be terminated until the operator has a chance to propose additional exploration under Stage II.

Original signed by
T. M. Romslo

T. M. Romslo
U. S. Bureau of Mines

W L Emerick

W. L. Emerick
U. S. Geological Survey

TMR:WLE:ms

cc: Acting Executive Officer (9)
Harshman
DMEA/WE
Emerick

FILE COPY
D M E A
RECEIVED AUG 18 1958

DATE		CODE
8/18	N.G.	225
8/18	[illegible]	800
8/19	[illegible]	700

20th Day Continuance
Denver 2, Colorado
August 13, 1958

Mr. W. R. Cavender, Manager of Exploration
Food Machinery and Chemical Corporation
P. O. Box 787
Grants, New Mexico

Re: Contract No. [illegible] (Terminal)
Contract No. [illegible]
Food Machinery and Chemical Corporation
(Uranium Mineral Products Division)
(Section 17, T 13 N, R 9 W)
McKinley County, New Mexico

Dear Mr. Cavender:

Reference is made to your letter of July 23, 1958 and to our letter to you of July 29, 1958, relative to your request for a sixty-day extension of the contract completion date.

We understand that you will submit within a short time a request for additional drilling under Stage II of the contract, after the results of Stage I drilling have been evaluated. Therefore, the matter of extension of the completion date will be deferred until the outcome of your request for additional drilling is known.

The contract cannot be maintained in its present indefinite status for any considerable length of time. Therefore, attention should be given to submitting your request for drilling under Stage II, or advise to this office that additional work under the contract is not to be proposed.

Very truly yours,

Original signed by
J. W. TOWNSEND

J. W. Townsend
Alternate Acting Executive Officer
DMEA Field Team, Region III

JWC:grl
cc: Chem. Op. Comm. (2)
Harshman
Harrick
Ramsle DMEA/Duncan
Curran.
Cooper
Chron.

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
8-7	Ching	700
8-7	Kuonst	700
8/7	[illegible]	130
"	[illegible]	110
"	[illegible]	100
8/8	C	220
		700

AUG 7 1958

Department of the Interior

DMEA
14X4401(01) Revolving
Defense Production Act
Interior, (Transfer to Office of
Secretary)

T E L E T Y P E

J. W. TOWNSEND
ALTERNATE ACTING EXECUTIVE OFFICER
DMEA FIELD TEAM, REGION 3
224 NEW CUSTOMHOUSE BUILDING
DENVER, COLORADO

REURTT AUGUST 6 FOOD MACHINERY AND CHEMICAL CORPORATION DOCKET 4845. ACTION MAY BE DEFERRED UNTIL FIELD RECOMMENDATIONS ARE KNOWN.

George C. Selfridge
CHAIRMAN, OPERATING COMMITTEE (GCS)

MChing/izm 8-7-58
cc: Mr. Ching
Admr.'s Reading File
Operating Committee
THKiilsgaard, 5224
Confirmation Copy

8623

Mr. Geo. Selfridge

OFFICIAL FILE COPY
DMEA
RECEIVED AUG 7 1958

DATE	INITIALS	CODE
8/7	H.J.	225
8/7	~~HC~~	700

DN 235 BUR MINES 8-6-58 11-13

CHAIRMAN OPERATNG COMM. DMEA

REURTT 7-31-58. DOCKET DMEA 4845, CONTRACT IDM-E1167, FOOD MACHINERY AND CHEMICAL CORP. OPERATOR WILL SUBMIT PROPOSAL FOR STAGE II WORK AS SOON AS STAGE I WORK CAN BE COMPLETELY EVALUATIXXX EVALUATED. FIELD EXAMINERS HAVE SOME DUXX DOUBT AS TO APPROVAL OF ANY PORTION OF PROPOSED WORK BUT ARE NOT CERTAIN UNTIL OPERATOR S DATA IS RECEVXX RECEIVED AND REVIEWED. IF POSSIBLE TO MAINTAIN CONTRACT IN INDEFINITE STATUS, RECOMMEND MATTER OF COMPLETION DATE EXTENSION BE DEFERRED UNTIL FIELD RECOMMENDATIONS AR XXX ARE KNOWN.

J W TOWNSEND

Klemmer, Colo.

224 New Customhouse
Denver 2, Colorado

July 29, 1958

RECEIVED AUG 4 1958		
DATE	INITIALS	AMT
8/4	J. G.	225
8/4	uwo	800
8/5	uwo	700

Mr. W. S. Cavender, Mgr. of Exploration
Food Machinery and Chemical Corporation
Box 327
Grants, New Mexico

Re: Docket No. DMEA 4845 (Uranium)
Contract No. Idm-E1167
Food Machinery and Chemical Corp.
Westvaco Mineral Products Division
(Sec. 17, T 13 N, R 9 W)
McKinley County, New Mexico

Dear Mr. Cavender:

Reference is made to your two letters of July 23, 1958, one requesting a sixty-day extension of the contract termination date, and the other requesting approval for the transfer of 1,424 feet of drilling and applicable funds from Stage II to Stage I.

The matter of the contract termination date has been forwarded to the Washington Office for consideration and appropriate action, and request for transfer of the drilling footage is under consideration by field representatives. As soon as the Government's decision in the matter has been reached, you will be advised.

Very truly yours,

Original signed by
J. W. TOWNSEND

J. W. Townsend
Alternate Acting Executive Officer
DMEA Field Team, Region III

JWT:bh
cc: Chmn. Op. Comm.(2)
Harshman
Emerick
Romslo
Corres. File
Cooper
Chron.

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
7/30/58	Ching	700
7/31	Nicoll	700
	Martin	130
7/31	Johnson	110
"	Chatenay	100
8/1	C	220
		700

JUL 31 1958

Department of the Interior

DMEA

14X4401(01) Revolving Fund, Defense Production Act, Interior, (Transfer to Office of Secretary)

T E L E T Y P E

J. W. TOWNSEND
ALTERNATE ACTING EXECUTIVE OFFICER
DMEA FIELD TEAM, REGION III
224 NEW CUSTOMHOUSE BUILDING
DENVER 2, COLORADO

REURTT JULY 29 FOOD MACHINERY AND CHEMICAL CORPORATION DOCKET 4845. INFORMATION SUBMITTED TO DATE INDICATES NEGATIVE RESULTS WHICH DO NOT JUSTIFY STAGE II WORK. PLEASE TELETYPE JUSTIFICATION FOR TIME EXTENSION.

W. S. Martin
(esf)
ACTING CHAIRMAN, OPERATING COMMITTEE

MChing/gla
7-31-58
cc to: Admr.'s Reading File
Operating Committee
THKiilsgaard, 5224
Mr. Ching
Confirmation to Region III

8623

OFFICIAL FILE COPY
DMEA
RECEIVED AUG 1 1958

DATE	INITIAL	CODE
8-1	C	220
8/1	TW	800
"	MJC	700

224 New Customhouse
Denver 2, Colorado

July 29, 1958

Memorandum

To: W. L. Emerick - with enclosure
T. M. Romalo

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

Subject: Docket No. DMEA 4845 (Uranium), Contract No. Idm-E1167
Food Machinery and Chemical Corporation, Westvaco Mineral Products Division (Sec. 17, T 13 N, R 9 W)
McKinley County, New Mexico

Enclosed is one copy each of the Operator's two letters of July 23, 1958, one requesting a sixty-day extension of the completion date and the other requesting transfer of 1,424 feet of drilling from Stage II to Stage I. A note on the Operator's letters indicated that carbon copies had been sent to T. M. Romalo.

The matter of the sixty-day extension of the completion date has been referred to the Washington Office by telatype for appropriate action, with the recommendation that the extension be granted.

Relative to the transfer of drill footage, please submit a joint memorandum report containing your recommendations in the matter, outlining the necessity for added footage. The contract makes provision for transfer of necessary drill footage and funds. However, for guidance in the matter as to your recommendations, please refer to Exhibit "A" of the contract, subheading General Provisions, second paragraph.

When the Operator's accounting reports are processed, if there is any question as to the cutoff point for the drilling, the report being forwarded to this office should be accompanied by a geologic interpretation as to the proper cutoff point.

Original signed by
J. W. TOWNSEND

J. W. Townsend

JWT:bh
cc: Chmn. Op. Comm.(2) } with copy of
Harshman } the Operator's
Correspondence File } requests
Cooper
Chron.

July 23, 1958

DMEA
DEPARTMENT OF THE INTERIOR

JUL 29 1958
REGION III
DENVER, COLORADO

Executive Officer
DMEA Field Team, Region III
224 New Customhouse
Denver 2, Colorado

OFFICIAL FILE COPY
DMEA
RECEIVED AUG 1 1958

DATE	INITIALS	CODE

Re: Extension of Contract
Docket No. DMEA 4845
Contract Idm E-1167
Food Mach. & Chem. Corp.
Westvaco Mineral Products
NE¼, SE¼, NW¼, Sec. 17,
T. 13 N., R. 9 W.
McKinley County, New Mexico

Dear Sir:

Under the terms of the contract, all activity is to be terminated by July 31, 1958.

The Stage I program was completed in mid-July, 1958, and the reports are just completed. These reports show that several mineralized areas were discovered by the drilling. Although the quality of mineralization is not high, the lateral extent is considerable.

In order to propose a Stage II drilling program and to complete such a program, if approved, Westvaco requests an extension of 60 days of the contract termination date.

If such an extension is not allowable, a final report will then be submitted.

Very truly yours,

W. S. Cavender

W. S. Cavender
Mgr. of Exploration
Food Mach. & Chem. Corp.
Box 327
Grants, New Mexico

WSC/ac

July 23, 1958

DMEA
DEPARTMENT OF THE INTERIOR
JUL 29 1958
REGION III
DENVER, COLORADO

Executive Officer
DMEA Field Team, Region III
224 New Customhouse
Denver 2, Colorado

OFFICIAL FILE COPY
DMEA
RECEIVED AUG 1 1958

DATE	INITIALS	CODE

Re: Transfer of Footage
Docket No. DMEA 4645
Contract Idn E-1167
Food Mach. & Chem. Corp.
Westvaco Mineral Products
SE¼, SW¼, NW¼, Sec. 17,
T. 13 N., R. 9 W.
McKinley County, New Mexico

Dear Sir:

Under the provisions of the stated contract, Westvaco has completed the Stage I exploration drilling program of 71 holes. The total footage allowable for this stage is 17,420 feet. Actual drilled footage totals 18,844 feet, or 1,424 feet in excess.

Inasmuch as diligence was exercised during the drilling to prevent excessive hole depths, Westvaco believes itself eligible for consideration for a footage transfer. Therefore, it is requested that 1,424 feet of drilling be transferred from Stage II and applied to Stage I.

Very truly yours,

W. S. Cavender

W. S. Cavender
Mgr. of Exploration
Food Mach. & Chem. Corp.
Box 327
Grants, New Mexico

WSC/ec

Chairman Oper. Comm.
DMEA

DMEA
RECEIVED JUL 30 1958

DATE	INITIALS	CODE
7-30	C	220
	WSM	130
	MC	700

DN 235 BUR MINES 7-29-58 4-15

CHARCXXX CHAIRMAN OPERATING COMMITTEE, DMEA

RE DOCKET DMEA 4845, CONTRACT IDM-E1167, FOOD MACHINERY AND CHEIXXXXX CHEMICAL CORPORATION . OPERATOR REQUESTS AND WE CONCUR IN AN AEXXX AMENDMENT T XX TO THE CONTRACT T XX TO EXTEND COMPLETION DATE SIXTY DAYS. PLEASE TELETYPE ADVICE AS TO YOUR DECISION.

J W TOWNSEND

Denver, Colo.

BUREAU OF MINES
MAIL ROOM
WASHINGTON, D. C.

JUL 30 8 44 AM '58

7/28 C 220
7/29 CWJ 800
" MC 700

224 New Customhouse
Denver 2, Colorado
July 25, 1958

Memorandum

To: T. M. Romslo

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

Subject: Docket No. DMEA 4845 (Uranium), Contract No. Idm-E1167, Food Machinery and Chemical Corporation (Westvaco Mineral Products Division) (Sec. 17, T 13 N, R 9 W), McKinley County, New Mexico

Reference is made to the last sentence of your Interim Progress Report, dated July 24, 1958, pertaining to operations under the subject contract.

In view of the Regional Director's instructions by memorandum of July 18, 1958, the proposed trip must not be made if per diem travel expense is involved.

It is assumed that Mr. Cavender will reply to our letter of July 23, 1958, a copy of which was forwarded to you at the time of writing, concerning the possibility of terminating the contract upon completion of the work under Stage I.

Original signed by
J. W. TOWNSEND

J. W. Townsend

JWT:prl
cc: Chmn.Op.Comm.-2) w/copy of Romslo's
Harshman) Interim Report.
Emerick)
Corres. file)
Cooper
Chron.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
REGION III

SOUTHWEST
EXPERIMENT STATION

P. O. BOX 4097
UNIVERSITY STATION
TUCSON, ARIZONA

DMEA
DEPARTMENT OF THE INTERIOR
JUL 25 1958
REGION III
DENVER, COLORADO

July 24, 1958

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: T. M. Romslo, Mining Engineer, Tucson, Ariz.

Subject: Interim Progress Report, DMEA-4845 (Uranium) Idm-E1167, Food Machinery and Chemical Corp. (Westvaco Minerals Products Division), McKinley County, N. Mex.

During a visit to the Faith mine July 15, 1958 with W. L. Emerick and J. W. Hasler, geologist, U. S. Geological Survey, I obtained from W. S. Cavender, Exploration Mgr., the following information relative to the status of the project of subject contract.

Drilling of the 71 holes of stage I was reportedly started April 8, 1958 and completed early in June. Logging of the holes showed that about 25 of the holes had been bottomed 5 to 25 feet short. Deepening of the holes was in progress and was expected to be completed by about July 19. Above background radioactivity encountered to date was confined to minor amounts in 9 of the holes.

Mr. Cavender said that favorable findings in deepening the last few holes were not expected and that permission for Stage II drilling probably would not be requested. He was aware of the July 31, 1958 termination date of the contract and realized that a request for a time extension would be necessary in event Stage II drilling is proposed.

I plan to make a complete inspection of the project early in August.

T M Romslo

T. M. Romslo

CC Executive Officer (Orig. & 8)
DMEA-4845
DF

TMRomslo:fri

DMEA
RECEIVED JUL 29 1958
CODE

7/28	N.G.	225
7/29		800
7/29	MC	700

224 New Customhouse
Denver 2, Colorado
July 23, 1958

Mr. W. S. Cavender
Food Machinery and Chemical Corporation
Box 24
Star Route
Grants, New Mexico

Re: Docket No. DMEA 4645 (Uranium)
Contract Idm-E1107
Food Machinery and Chemical Corporation
(Sec. 17, T 13 N, R 9 W)
McKinley County, New Mexico

Dear Mr. Cavender:

The date fixed in Article 3 of the captioned contract, on or before which the work is to be completed is July 31, 1958.

Information available in this office indicates that Stage I work has been completed with essentially negative results, therefore if you do not intend to request Government approval for additional work under the contract, you should submit to this office for consideration by the Government, the original and five copies of a request for Government approval to terminate the contract in its present status without requiring performance of the balance of work provided for.

In the event that you intend to request Government approval for additional work an extension of the completion date will also be required. In order to obtain favorable consideration by the Government, any request for extension of the completion date must be strongly and convincingly supported as to the reasons why the work could not be completed within the time originally provided.

Very truly yours,

Original signed by
J. W. TOWNSEND
J. W. Townsend
Alternate Acting Executive Officer
DMEA Field Team, Region III

JDC:hmh

cc: Chmn. Op. Comm. (2)
Harshman
DMEA/Tucson
Emerick
Cooper
Corres.file, Reg.III
Chron

cc: Henry C. Messman
161 East 42nd Street
New York 17, New York

RECEIVED JUL 16 1958		
DATE	INITIALS	CODE
7-16	C	220
7/16	[illegible]	800
7/17	[illegible]	700

224 New Customhouse
Denver 2, Colorado
July 14, 1958

Mr. W. S. Cavender
Food Machinery and Chemical Corporation
Box 24, Star Route
Grants, New Mexico

Re: Docket No. DMEA 4845 (Uranium)
Contract Idm-K1167
Food Machinery and Chemical Corporation
(Sec. 17, T 13 N, R 9 W)
McKinley County, New Mexico

Docket No. DMEA 5009 (Uranium)
Contract Idm-K1220
Food Machinery and Chemical Corporation
(N½ Sec. 21, T 13 N, R 9 W)
McKinley County, New Mexico

Dear Mr. Cavender:

Enclosed for your information are copies of our letters dated March 31, 1958, and July 7, 1958, concerning operations under Contracts Idm-K1167 and Idm-K1220 respectively. The original of each letter was forwarded to the New York office of Food Machinery and Chemical Corporation.

The field work in connection with both contracts will be conducted by DMEA personnel stationed at Tucson, Arizona, therefore the addresses listed on pages 1 and 2 of our letter of July 7, 1958, will be applicable for both contracts.

Very truly yours,

Original Signed
J. W. TOWNSEND

J. W. Townsend
Alternate Acting Executive Officer
DMEA Field Team, Region III

JDC:hmh

cc: Chmn. Op. Comm. (4)
Harahman (2)
Emerick (2)
DMEA/Tucson (2)
Corres.file, Reg. III (2)
Cooper (2)
Chron

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

224 New Customhouse
Denver 2, Colorado
June 24, 1958

Memorandum

To: Chairman, Operating Committee, DMEA

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

Subject: Gamma-ray log interpretations

Enclosed are four copies each of gamma-ray log interpretations for the following DMEA contracts:

Docket No. DMEA 4826 (Uranium) Contract Idm-E1181, New Idria Mining and Chemical Company, (Hubbard Homestead, Pack Rat et al. claims) Mesa County, Colorado

Docket No. DMEA 4835 (Uranium) Contract Idm-E1169, Stocks-Gramlich, Inc., (Fire Fly et al. claims,) San Juan County, Utah

Docket No. DMEA 4845 (Uranium) Contract Idm-E1167, Food Machinery and Chemical Corporation, (Sec. 17, T 13 N, R 9 W) McKinley County, New Mexico

Docket No. DMEA 4858 (Uranium) Contract Idm-E1180, Rex Uranium Corporation, (Renegade et al.claims), Montrose County, Colorado

J. W. Townsend

Enclosures

Food Machinery & Chemical Corp.
Sec. 17, T.13N.,R.9W.
McKinley County, New Mexico
DMEA Docket 4845

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
2740N-1040E	320.0		118.0	318.0	159.4	160.4	1.0	200			<.005	
					179.2	180.1	0.9	200			<.005	
					189.5	190.6	1.1	240			<.005	
					204.2	205.2	1.0	260			<.005	
					205.2	206.4	1.2	230			<.005	
					210.8	211.7	0.9	500			.013	
					211.7	213.1	1.4	360			<.010	
					213.1	214.8	1.7	240			<.005	
					214.8	215.9	1.1	430			.010	
					216.7	218.2	1.5	260			<.005	
					218.2	219.5	1.3	200			<.005	
					221.5	222.2	0.7	200			<.005	
					223.1	223.7	0.6	220			<.005	
					309.6	310.5	0.9	230			<.005	
2740N-1940E	200.0		96.0	198.0	130.7	132.6	1.9	280			<.005	
					150.2	151.1	0.9	210			<.005	
					152.3	153.4	1.1	220			<.005	
					177.8	178.8	1.0	230			<.005	
					188.8	190.1	1.3	340			<.010	
					190.1	191.1	1.0	320			<.010	
2740N 2840E	200.0		93.0	193.0	122.6	123.6	1.0	220			<.005	
					132.2	133.2	1.0	220			<.005	
					133.2	134.0	0.8	440			.012	
					155.8	156.7	0.9	220			<.005	
					164.6	165.4	0.8	220			<.005	
					171.1	172.0	0.9	230			<.005	
					186.0	187.1	1.1	230			<.005	

* From top to bottom depths

Food Machinery & Chemical Corp.
Sec. 17, T.13N.,R.9W.
McKinley County, New Mexico
DMEA Docket 4845

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 $\%_eU_3O_8$	Remarks
2740N-4340E	225.0		115.0	219.0	131.3	132.3	1.0	220			<.005	
					150.0	150.9	0.9	220			<.005	
					196.4	197.2	0.8	220			<.005	
					201.7	202.8	1.1	280			<.010	
					206.2	207.0	0.8	260			<.010	
					210.1	211.3	1.2	220			<.005	
3340N-1040E	215.0		114.0	214.0	116.0	116.9	0.9	220			<.005	
					126.3	127.2	0.9	270			<.010	
					127.2	218.5	1.3	260			<.005	
					155.2	156.0	0.8	300			<.010	
					186.9	187.8	0.9	220			<.005	
					195.3	196.3	1.0	270			<.010	
					196.9	197.8	0.9	250			<.010	
					198.9	200.3	1.4	300			<.010	
					200.3	201.5	1.2	760			.021	
					201.5	202.9	1.4	660			.016	
					202.9	204.0	1.1	360			<.010	
					205.5	206.3	0.8	330			<.010	
					206.6	207.7	1.1	300			<.010	

* From top to bottom depths

Food Machinery & Chemical Corp.
Sec. 17, T.13N.,R.9W.
McKinley County, New Mexico
DMEA Docket 4845

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
3340N-2540E	210.0		110.0-210.0	190.2-191.8	1.6	300			<.010	
3340N-2240E	207.0		82.0-206.0	122.2-124.5	2.3	360			<.010	
				162.7-163.6	0.9	440			.011	
				163.6-165.5	1.9	260			<.005	
				176.6-181.4	4.8	300			.005	
				181.4-182.6	1.2	900			.027	
				185.2-189.4	4.2	300			.005	
				189.4-193.7	4.3	480			<.010	
				193.7-194.6	0.9	360			<.010	
3340N-3440E	347.0		126.0-346.0	156.1-157.1	1.0	280			<.010	
				157.1-158.0	0.9	220			<.005	
3940N-3140E	241.0		114.0-238.0	147.7-148.8	1.1	360			<.010	
				149.9-151.3	1.4	240			<.005	
3940N-2840E	195.0		93.0-193.0	185.4-186.7	1.3	230			<.005	
3940N-2540E	214.0		112.0-212.0	Barren						
3940N-2240E	316.0		114.0-314.0	230.4-231.4	1.0	270			<.010	

* From top to bottom depths

Food Machinery & Chemical Corp.
Sec. 17, T. 13N., R.9W.
McKinley County, New Mexico
DMEA Docket 4845

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
2740N-3140E	245.0		132.0-232.0	138.7-319.6	0.9	200			<.005	
				141.2-142.0	0.8	200			<.005	
				147.5-148.2	0.7	210			<.005	
				168.9-170.0	1.1	230			<.005	
				171.5-172.4	0.9	220			<.005	
				173.3-174.2	0.9	230			<.005	
				192.8-193.8	1.0	250			<.005	
				205.5-206.3	0.8	290			<.010	
				206.3-207.1	0.8	260			<.005	
				207.8-208.7	0.9	270			<.010	
				210.0-211.0	1.0	250			<.010	
				211.0-212.0	1.0	220			<.005	
				212.0-212.8	0.8	220			<.005	
2740N-3440E	336.0		132.0-332.0	135.3-136.8	1.5	300			<.010	
				157.4-158.4	1.0	500			.014	
				158.4-159.3	0.9	300			<.010	
				175.3-176.0	0.7	290			<.010	
				179.3-180.4	1.1	260			<.010	
				203.7-204.6	0.9	440			.012	
				204.6-205.7	1.1	250			<.005	
				212.6-213.4	0.8	250			<.010	
				231.5-232.7	1.2	280			<.005	
				237.2-237.9	0.7	200			<.005	
2740N-4040E	240.0		122.0-222.0	218.2-219.0	0.8	230			<.005	

* From top to bottom depths

Food Machinery & Chemical Co.
Sec. 17, T.13N.,R.9W.
McKinley County, New Mexico
DMEA Docket 4845

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
3940N-1340E	224.0		122.0-222.0	134.9-135.7	0.8	310			<.010	
				159.6-160.4	0.8	240			<.005	
				189.7-199.6	9.9	340			<.010	
				199.6-201.4	1.8	260			<.005	
				201.4-203.2	1.8	440			<.010	
				203.8-205.6	1.8	460			<.010	
				205.6-206.6	1.0	220			<.005	
				206.6-208.4	1.8	440			<.010	
				208.4-209.3	0.9	1400			.036	
				209.3-210.6	1.3	420			<.010	
3340N-3740E	230.0		125.0-225.0	219.5-220.2	0.7	260			<.010	
3340N-3440E	224.0		122.0-222.0	212.3-213.2	0.9	360			<.010	
3340N-3140E	214.0		112.0-212.0	146.7-148.0	1.3	270			<.010	
				195.8-197.3	1.5	300			<.010	
3340N-2840E	303.0		102.0-302.0	216.8-217.9	1.1	230			<.005	

* From top to bottom depths

Food Machinery & Chemical Co.
Sec. 17, T.13N.,R.9W.
McKinley County, New Mexico
DMEA Docket 4845

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
3940N-1940E	230.0		129.0	229.0	178.6	179.8	1.2	240			<.005	
					194.7	195.7	1.0	490			.013	
					195.7	196.7	1.0	320			<.010	
					197.5	198.4	0.9	300			<.010	
					199.2	201.0	1.8	400			<.010	
					201.0	203.6	2.6	300			.005	
					203.6	205.9	2.3	360			<.010	
					205.9	207.1	1.2	240			<.005	
					207.1	208.6	1.5	320			<.010	
					209.1	209.9	0.8	300			<.010	
3340N-4340E	226.0		113.0	213.0	Barren							
3340N-4040E	376.0		172.0	372.0	263.9	265.1	1.2	260			<.005	
					283.6	284.8	1.2	270			<.005	
					323.2	324.8	1.6	270			<.005	
					364.7	365.9	1.2	240			<.005	
3940N-1640E	226.0		123.0	223.0	183.2	186.5	3.3	380			<.010	
					193.9	195.4	1.5	580			.013	
					195.4	197.3	1.9	400			<.010	
					197.3	200.9	3.6	560			.012	
					200.9	202.0	1.1	200			<.005	
					202.0	204.9	2.9	360			<.010	
					204.9	205.8	0.9	600			.018	
					205.8	211.0	5.2	380			<.010	

* From top to bottom depths

Food Machinery & Chemical Corp.
Sec. 17, T.13N.,R.9W.
McKinley County, New Mexico
DMEA Docket 4845

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 $\%_eU_3O_8$	Remarks
3340N 1640E	310.0		88.0	288.0	100.7	101.6	0.9	230			<.005	
					132.9	133.7	0.8	220			<.005	
					142.5	143.2	0.7	250			<.010	
					170.0	171.1	1.1	480			.012	
					177.3	178.8	1.5	340			<.010	
					178.8	180.0	1.2	520			.013	
					180.6	181.8	1.2	720			.020	
					181.8	183.2	1.4	420			<.010	
					183.2	184.4	1.2	360			<.010	
					184.8	186.0	1.2	500			.012	
					188.9	190.4	1.5	380			<.010	
					191.7	193.0	1.3	460			.010	
					270.7	271.9	1.2	620			.016	
3340N-1940E	200.0		90.0	190.0	114.3	115.1	0.8	260			<.010	
					132.0	132.9	0.9	280			<.010	
					133.2	134.0	0.8	220			<.005	
					157.4	158.4	1.0	460			.012	
					158.8	159.9	1.1	420			<.010	
					159.9	160.7	0.8	360			<.010	
					169.5	170.8	1.3	360			<.010	
					170.8	172.3	1.5	310			<.010	
					172.3	173.6	1.3	860			.024	
					173.6	174.4	0.8	600			.019	
					175.0	175.8	0.8	530			.016	
					176.5	177.8	1.3	780			.021	
					177.8	178.9	1.1	660			.018	
					178.9	180.0	1.1	560			.015	
					180.4	182.0	1.6	530			.011	

* From top to bottom depths

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

224 New Customhouse
Denver 2, Colorado
June 18, 1958

Memorandum

To: Chairman, Operating Committee, DMEA

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

Subject: Gamma-ray log interpretations

Enclosed are four copies each of gamma-ray log interpretations for the following DMEA contracts:

Docket DMEA-4665 (Uranium) Contract Idm-E1127, Mid-Continent Uranium Corp., (West Limestone Group) McKinley County, New Mexico.

Docket DMEA-4755 (Uranium) Contract Idm-E1141, Climax Uranium Company, (D. V. and Vanderwalker claim groups) San Miguel County, Colorado.

Docket DMEA-4759 (Uranium) Contract Idm-E1153, Maxim Exploration Co., (Wild Horse claims) San Juan County, Utah.

Docket DMEA-4845 (Uranium) Contract Idm-E1167, Food Machinery and Chemical Corporation, (Sec. 17, T 13 N, R 9 W), McKinley County, New Mexico

/s/ J. W. Townsend

J. W. Townsend

Enclosures

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

Food Mach. & Chemical Co.
Sec. 17, T.13N.,R.9W.
McKinley County, New Mexico
DMEA Docket No. 4845

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
940N-4340E	215.0		112.0	212.0	153.7	154.9	1.2	400			<.010	
					194.0	195.3	1.3	280			<.010	
					205.7	207.2	1.5	260			<.005	
					207.2	208.1	0.9	890			.031	
1540N-4040E	220.0		116.0	218.0	207.6	208.5	0.9	230			<.005	
					213.0	214.2	1.2	230			<.005	
1540N-3740E	210.0		108.0	208.0	150.1	151.3	1.2	260			<.005	
					199.5	200.6	1.1	300			<.010	
					206.9	207.7	0.8	420			.011	
940N-3740E	200.0		100.0	200.0	189.6	190.4	0.8	250			<.010	
					195.6	197.0	1.4	260			<.005	
					197.0	198.1	1.1	710			.020	
					198.1	199.7	1.6	240			<.005	
2150N-4040E	350.0		126.0	348.0	216.9	217.7	0.8	320			<.010	
					217.7	218.7	1.0	240			<.005	
					240.5	241.6	1.1	280			<.010	
					255.8	257.0	1.2	220			<.005	
2140N-3140E	225.0		68.0	218.0	203.2	204.0	0.8	270			<.010	
940N-3440E	195.0		43.0	193.0	Barren							

* From top to bottom depths

Food Mach. & Chemical Co.
Sec. 17, T. 13 N., R. 9 W.
McKinley County, New Mexico
DMEA Docket No. 4845

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
4540N-1940E	260.0		130.8-215.0	193.1-193.9	0.8	260			<.005	
				207.4-208.5	1.1	260			<.005	
				211.1-212.3	1.2	210			<.005	
4540N-2240E	232.0		145.7-220.0	180.0-181.0	1.0	280			<.010	
				183.9-184.9	1.0	240			<.005	
				187.4-188.4	1.0	330			<.010	
				189.2-190.1	0.9	300			<.010	
				190.1-192.6	2.5	260			<.005	
				193.8-194.8	1.0	260			<.005	
				198.7-199.5	0.8	390			.010	
				199.5-200.5	1.0	300			<.010	
				202.6-204.6	2.0	350			<.010	
				204.6-206.0	1.4	400			<.010	
				206.0-208.7	2.7	370			<.010	
				208.7-209.7	1.0	420			.010	
				210.4-211.4	1.0	360			<.010	
				211.4-212.2	0.8	260			<.005	
				213.1-214.1	1.0	290			<.010	
				215.7-216.6	0.9	210			<.005	
				217.1-217.9	0.8	230			<.005	
4540N-2540E	230.0		131.8-214.0	186.0-187.2	1.2	210			<.005	
				194.2-195.2	1.0	310			<.010	
				200.5-201.5	1.0	240			<.005	
4540N-2840E	236.0		157.2-231.4	181.5-182.4	0.9	220			<.005	
				205.2-206.3	1.1	220			<.005	

* From top to bottom depths

Food Mach. & Chemical Co.
Sec. 17, T. 13N., R. 9W.
McKinley County, New Mexico
DMEA Docket No. 4845

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
3740N-3740E	208.0		126.0	208.0	144.6	145.6	1.0	260			<.010	
					145.6	146.5	0.9	240			<.010	
3940N-4040E		Caved										
3940N-4340E	184.0		77.8	180.0	177.5	179.2	1.7	330			<.010	
3940N-1040E		Caved										
4540N-1040E	202.0		94.8	195.0	126.0	127.0	1.0	230			<.005	
					127.0	128.2	1.2	200			<.005	
					135.9	136.9	1.0	210			<.005	
4540N-1640E	320.0		138.9	277.0	200.5	201.5	1.0	260			<.010	
					203.5	204.5	1.0	320			<.010	
					204.5	205.7	1.2	220			<.005	
					205.7	206.9	1.2	280			<.010	
					208.3	209.5	1.2	300			<.010	
					210.0	210.9	0.9	360			<.010	
					215.3	216.1	0.8	270			<.010	
					230.0	232.2	2.2	260			<.005	
					232.2	236.0	3.8	340			<.010	
					236.0	237.2	1.2	300			<.010	
					237.2	238.5	1.3	500			.012	
					239.1	240.3	1.2	320			<.010	
					240.3	242.0	1.7	420			<.010	
					242.0	243.2	1.2	300			<.010	
					243.2	245.2	2.0	200			<.005	
					245.2	246.6	1.4	330			<.010	
					246.6	247.7	1.1	250			<.010	
					273.0	274.3	1.3	200			<.005	

* From top to bottom depths

Food Machinery & Chemical Co.
Sec. 17, T. 13 N., R. 9 W.
McKinley County, New Mexico
DMEA Docket No. 4845

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 $\%_eU_3O_8$	Remarks
4540N-3140E	259.0		184.0	256.2	188.0	189.0	1.0	240			<.005	
4540N-3440E		Caved										
4540N-3740E	242.0		173.7	232.0	Barren							
4540N-4040E	365.0		194.7	363.0	354.2	355.6	1.4	290			<.005	
4540N-4340E	256.0		180.8	253.0	Barren							
5140N-1040E		Caved										
5140N-1340E	225.0		149.8	212.0	198.6	200.0	1.4	270			<.010	
					207.2	207.9	0.7	310			<.010	
					210.3	211.6	1.3	430			<.010	
5140N-1640E	261.0		171.7	234.0	185.2	187.4	2.2	220			<.005	
					198.0	198.9	0.9	280			<.010	
					228.9	230.2	1.3	400			<.010	
5140N-1940E		Caved										
5140N-2240E	320.0		189.9	246.0	224.0	224.8	0.8	220			<.005	
					240.9	242.0	1.1	320			<.010	
5140N-2540E	237.0		154.8	229.0	Barren							
5140N-2840E	230.0		167.5	221.6	217.3	218.4	1.1	200			<.005	

* From top to bottom depths

Food Mach. & Chemical Co.
Sec. 17, T. 13 N., R. 9 W.
McKinley County, New Mexico
DMEA Docket 4845

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
5140N-3140E	266.0		165.8	238.0	167.5	168.8	1.3	340			<.010	
					232.3	233.2	0.9	210			<.005	
5140N-3440E	330.0		177.4	274.0	Barren							
5140N-3740E	276.0		186.7	259.0	235.1	236.3	1.2	300			<.010	
5140N-4040E	276.0		187.9	260.0	242.7	244.0	1.3	250			<.005	
5140N-4340E		Caved										

* From top to bottom depths

T
C

WESTVACO MINERAL PRODUCTS DIVISION

April 1, 1958

CHRYSLER BUILDING EAST
161 EAST 42ND STREET
NEW YORK 17, N. Y.
TELEPHONE MURRAY HILL 7-7400

DMEA-4845

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

Dear Mr. King: Re: Contract Idm-E1167

It is our understanding that we should name a representative to whom you may address notifications and other correspondence pertaining to subject contract.

We so designate Mr. W. S. Cavender, Box 24, Star Route, Grants, New Mexico, who has charge of our mineral development activities in that vicinity.

Very truly yours,

WESTVACO MINERAL PRODUCTS DIVISION

W. N. Williams

W. N. Williams

LBQ

DMEA
DEPARTMENT OF THE INTERIOR
APR 11 1958
REGION III
DENVER, COLORADO

APR 11 1958

Copies distributed to:
Chmn. Op. Comm. (2) ✓
Harchman
Hosler
DMEA/Gr. Jct.
DMEA/DTC
Townsend

4/15 C 220
4/16 Chiz 700

DMEA
DEPARTMENT OF THE INTERIOR
APR 3 - 1958
REGION III
DENVER, COLORADO

FOOD MACHINERY AND CHEMICAL CORPORATION

WESTVACO MINERAL PRODUCTS DIVISION

MINERAL DEVELOPMENT DEPARTMENT

TELEPHONE: [redacted]
TRinity 6-2379

April 1, 1958

PLEASE REPLY TO
P[redacted]
Star Route Box 24
Grants, New Mexico

Mr. W. H. King,
Executive Officer, DMEA
224 New Custom House
Denver 2, Colorado

RE: Docket No. DMEA 4845 (Uranium)
Contract No. Idm-E1167
Section 17, T. 13 N., R. 9 W.
McKinley County, New Mexico

Dear Mr. King:

This is to notify the DMEA that Westvaco Mineral Products intends to commence the exploration drilling of Stage I on April 8, 1958 under the above contract.

Yours very truly,

W. S. Cavender

WSC:ag

Copies distributed to
Chm Op. Comm (2)
Hardman
Haslam
DMEA, DFC
DMEA, G. Jet.
Townsend
Copies file, Reg III

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
224 New Customhouse
Denver 2, Colorado
March 31, 1958

Memorandum

To: Chairman, Operating Committee, DMEA

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

Subject: Docket No. DMEA-4845 (Uranium), Contract No. Idm-E1167, Food Machinery and Chemical Corporation(Westvaco Mineral Products Division), Sec. 17, T 13 N, R 9 W), McKinley County, New Mexico

Enclosed are the Government's and Audit copies of executed Contract No. Idm-E1167, which was forwarded by your letter of February 4, 1958 for signature by the Operator after obtaining the Performance Bond, and insertion of a suitable starting date under Article 3 of the Contract.

Also enclosed are three copies of a letter from this office, dated March 31, 1958, whereby we forwarded the "Operator's Copy" of the contract and wherein we provided instructions relative to reporting on work performed under the contract and procedures to be followed in corresponding with this office on matters in conjunction with the contract.

The original of a Performance Bond on Standard Form 25, issued by the Federal Insurance Company, was forwarded to you by memorandum of March 10, 1958.

The Operator advised that work could be started by March 31, 1958. However, April 10, 1958 was inserted in Article 3, as the date on or before which work shall be commenced.

The contract, dated February 4, 1958, provides for exploration work estimated to cost $28,460.00, toward which the Government will contribute 75 percent, or an amount not in excess of $21,345.00.

Copies of the contract have been distributed to the Finance Office, Region III, and to others concerned.

E. N. Harshman

E. N. Harshman

224 New Customhouse
Denver 2, Colorado

CERTIFIED MAIL

MAR 31 1958

Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
161 East 42nd Street
New York 17, N. Y.

Re: Docket No. DMEA 4245 (Uranium)
Contract No. Idm-21167
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
(Sec. 17, T 13 N, R 9 W)
McKinley County, New Mexico

Gentlemen:

Enclosed is the "Operator's Copy" of Exploration Project Contract No. Idm-21167, Docket No. DMEA 4245.

Also enclosed are six copies of Form MF-104, "Operator's Monthly Report and Voucher," and six copies of Form MF-104A, "Operator's Unit Cost and Progress Report." At the end of the first calendar month after work is commenced, and monthly thereafter, you are required to submit the original and four copies of each form to the

Executive Officer
Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado.

The extra copy is for your records.

Forms MF-104 and MF-104A are to be combined into five sets of one of each form. Each set of the combined forms is to be accompanied by map or sketch, showing the location and extent of work performed, and a signed narrative report which describes the work performed, conditions encountered, and results of the work. The monthly accounting report will not be processed for reimbursement to you unless it is accompanied by a signed narrative report and other required or pertinent data. Additional copies of Forms MF-104 and MF-104A will be forwarded to you each month on receipt of your report for the prior month.

The U. S. Geological Survey maintains a field office in the A.E.C. Compound at Grand Junction, Colorado. The DMEA representative can be contacted as follows:

J. W. Hasler, Geologist, Geological Survey
P. O. Box 300, Grand Junction, Colorado
Telephone, Chapel 5-2110, Ext. 272 or 282.

For your information, and in reply to many questions that have been asked, after Forms MF-104 and MF-104A are received, an engineer will check progress on the project and review your accounts, after which the report forms will be forwarded to this office for administrative examination and vouchering. If the report is in order, a check will be issued by the Treasury Department for the Government's portion of the approved costs. If you have any difficulty in completing these forms and the reports, please call on either the field representative or this office for assistance.

In the matter of your claim for reimbursement of drilling costs under the terms of the contract, reimbursement to you will be on the basis of a hole or holes completed to the objective, which has, or have been, drilled in compliance with the conditions under the "General Provisions" section of Exhibit "A" of the contract and the special conditions pertaining to the drilling under each stage. Therefore, your monthly report should include only such holes which are completed to that extent and the required records made a part of your claim for reimbursement.

The contract is prepared on form MF-100, and under its provisions and as outlined in Exhibit "A" attached to the contract, the allowable costs are a combination of "Actual Costs" and "Fixed Unit Costs," with a maximum average unit cost established for the drilling under Category (1) and maximum unit costs established for the remaining items of work or service under Category (1) and other numbered categories. Under the provisions of the contract, the work outlined in Exhibit "A" under Category (1) is to be performed by an independent contractor. The unit cost established for each item of work for both Stages I and II is a maximum unit cost toward which the Government will contribute its appropriate share as provided for in the contract, except for drilling, which is handled in another manner, and as expressly provided for on a maximum average unit cost basis. The costs of work completed under Category (1) are to be recorded under item (1) of Form MF-104 and must be supported and documented by a signed or certified true copy of the billing from the subcontractor. The costs of sample analysis, under Category (7), are to be recorded under item (7) on Form MF-104 and must be supported by a copy of the assay return and a signed or certified true copy of the billing from the assayer. Amounts reported on the basis of "Fixed Unit Costs" require no documentation, as they are otherwise verified. However, costs on a "Fixed Unit Cost" basis are also to be recorded on Form MF-104 under item (1).

In reference to ANNEX II (f) of the contract, pertaining to the average unit cost of the drilling, if excess costs are suspended by reason of exceeding the maximum unit cost of the drilling described under Category (1), the excess costs will be held in suspense and be reinstated by this office, to the extent suspended funds are available, in the event the unit costs for any month should cause the average unit cost to fall below the maximum average unit cost established in the contract for the drilling.

In the event you desire to perform the work under Category (1) on company account instead of subcontracting it, as provided in the contract, it will be necessary that you request and obtain an appropriate amendment to the contract before reimbursement can be made to you for the Government's portion of the allowable incurred costs.

Your requests to this office for work approval, changes in the contract, or any other communication pertaining to operations under the contract, must be in writing, of which please supply the original and five copies, each copy complete with maps or other pertinent data. Each request for action by this office must pertain to one matter only. Such requests are <u>not</u> to be incorporated in your narrative report accompanying monthly progress report Forms MF-104 and MF-104A.

The locations of holes to be drilled under Stage I are indicated on the map, "Figure 2," attached to the contract. Should conditions encountered necessitate or make desirable a change in the location of any of the holes, approval of this office for the change must be obtained prior to performance of the drilling. Otherwise, the drilling may not be acceptable for reimbursement to you under the terms of the contract.

Your attention is directed to the provision that Stage II work is contingent on results obtained from Stage I, and performance of the work under Stage II is subject to the prior written approval of the Government.

When work under Stage I has been completed, or sufficiently so to permit evaluation of the results of the work, you must request approval from this office for the work you propose to perform under the next stage. Your request for the work approval must be in sextuplicate, each copy complete with a map showing the location and extent of the work completed and the location of the additional work proposed. Also, your request must include an evaluation of the work completed and include assay returns and any other pertinent data which will be of value to the Government in appraising the results of the work.

If the work under Stage I is completed in its entirety before requesting approval for work under Stage II, you should anticipate a suspension of operations between stages of work, to enable the Government geologist and engineer to evaluate the results of the work performed and make their recommendations to this office relative to the additional work you propose.

To eliminate as much delay to operations as possible, if that is of serious consideration, you should expedite forwarding of the results of the work completed and your request for the Government's approval of the additional work you propose.

No oral statement of any person shall be construed to modify or change the terms of the contract. Field representatives of the Government are not authorized to approve any changes in the work program or contract provisions. Such approval can only be given by the Washington Office, DMEA, or by the DMEA Field Team, Region III.

It is a regulation that reimbursement to you for the cost of work accomplished prior to the date of the contract will not be allowed. It is a requirement and imperative that you notify this office in writing the date work actually commences under the contract.

Very truly yours,

Original signed by
E. N. HARSHMAN

Acting Executive Officer, DMEA
Field Team, Region III

Enclosures

JMT:prl

cc: Chmn. Op. Comm. (3)
Finance Office, Reg. III
Amendment file, Reg. III
Harshman
DMEA/DFC (Belser)
Hasler
Corres. file
Townsend
Chron.

ORIGINAL FILE COPY
DMEA
RECEIVED 17 1958
DATE

3/7	C	220
11	~~Chang~~	700

224 New Customhouse
Denver 2, Colorado
March 13, 1958

CERTIFIED MAIL

Mr. Henry C. Messman
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
161 East 42nd Street
New York, N. Y.

Re: Docket No. DMEA 4845 (Uranium)
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
(Sec. 17, T 13 N, R 9 W)
McKinley County, New Mexico -
Proposed Exploration Project Contract
No. Idm-E1167

Mr. Messman:

Receipt is acknowledged of your letter of March 6, 1958 and the enclosed material.

When the formal document pertaining to extension of the lease is executed, we will appreciate receiving two true copies of it.

Since you have complied with the prerequisites to releasing the Contract to you for signature, enclosed are the Government's, Audit, Finance Office, and Field Team copies of proposed Contract No. Idm-E1167, which has been prepared pursuant to your application for assistance in exploration work under the Defense Minerals Exploration Administration program.

If the Contract is satisfactory, all copies are to be signed by an official of Food Machinery and Chemical Corporation authorized to sign such an instrument, the signer's title inserted, the signature attested to by the Secretary of the Corporation, the corporate seal affixed, and all copies promptly returned to this office.

In the event the Contract is not satisfactory, all copies are to be returned promptly to this office, together with your comments on or objections to the Contract.

OFFICIAL FILE COPY
DMEA
RECEIVED 17 1958
DATE
3/17 C 220
7/11 700

224 New Customhouse
Denver 2, Colorado
March 13, 1958

CERTIFIED MAIL

Mr. Henry C. Messman
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
161 East 42nd Street
New York 17, N. Y.

Re: Docket No. DMEA 4845 (Uranium)
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
(Sec. 17, T 13 N, R 9 W)
McKinley County, New Mexico -
Proposed Exploration Project Contract
No. Idm-E1167

Dear Mr. Messman:

Receipt is acknowledged of your letter of March 6, 1958 and the enclosed material.

When the formal document pertaining to extension of the lease is executed, we will appreciate receiving two true copies of it.

Since you have complied with the prerequisites to releasing the Contract to you for signature, enclosed are the Government's, Audit, Finance Office, and Field Team copies of proposed Contract No. Idm-E1167, which has been prepared pursuant to your application for assistance in exploration work under the Defense Minerals Exploration Administration program.

If the Contract is satisfactory, all copies are to be signed by an official of Food Machinery and Chemical Corporation authorized to sign such an instrument, the signer's title inserted, the signature attested to by the Secretary of the Corporation, the corporate seal affixed, and all copies promptly returned to this office.

In the event the Contract is not satisfactory, all copies are to be returned promptly to this office, together with your comments on or objections to the Contract.

Your attention is especially directed to three provisions in the Contract:

1. The Government will not contribute to the costs of any of the work that is provided for in the Contract which is performed prior to the date of the Contract.

2. The Contract requires completion of the exploration work by the date fixed therefor. Approval must be obtained from the Government for any suspension of work which may result in failure to complete the work by the date specified.

3. Royalty is due the Government on all production from the land described in the Contract, beginning on the date of the Contract.

If the Contract is satisfactory, and upon return of all copies properly signed, the "Operator's Copy" of the Contract will be forwarded to you, together with blank report forms and instructions relative to reporting on work performed under the Contract. Also, instructions will be given as to the procedure to be followed in corresponding with this office in matters concerning operations under the Contract.

When the signed copies of the Contract are returned, please advise us the date on or before which work will be commenced, for our insertion in Article 3 of the Contract form.

Very truly yours,

W. H. King
Executive Officer, DMRA
Field Team, Region III

Enclosures

JWT:prl

cc: Chmn. Op. Comm. (2)
Harshman
DMRA/DFC (Belser)
Hasler
Docket
Townsend
Chron.

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
3/12/58	Ching	700
"	Ellis	700
3/12	RCS	130
"	Johnson	110
"	Chatfield	100
3/13	C	220
		700
3/17	Rutin	140

MAR 13 1958

Department of the Interior

DMEA

14X4401(01) Revolving Fund, Defense Production Act, Interior, (Transfer to Office of Secretary)

T E L E T Y P E

W. H. KING, EXECUTIVE OFFICER
DMEA FIELD TEAM, REGION III
224 NEW CUSTOMHOUSE BUILDING
DENVER 2, COLORADO

REURMEM MARCH 10 FOOD MACHINERY AND CHEMICAL CORPORATION DOCKET 4845 CONTRACT MAY BE RELEASED TO APPLICANT FOR SIGNATURE.

SOLICITOR

MAR 12 1958

INTERIOR DEPT.

George C. Selfridge

CHAIRMAN, OPERATING COMMITTEE (HB)

MChing/gla
3-12-58
cc to: Admr.'s Reading File
Operating Committee
THKiilsgaard, 5224
Mr. Ching
Confirmation to Region III

8623

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

224 New Customhouse
Denver 2, Colorado
March 10, 1958

OFFICIAL FILE COPY
DMEA
RECEIVED MAR 11 1958

DATE	INITIALS	CODE
3/11	C	220
3/12	Cherry	700

VIA AIR MAIL
SPECIAL DELIVERY

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket No. DMEA 4845, Food Machinery and Chemical Corporation (Westvaco Mineral Products Division), (Sec. 17, T 13 N, R 9 W), McKinley County, New Mexico - Proposed Exploration Project Contract No. Idm-E1167

In reference to matter discussed in your letter of February 4, 1958, enclosed are the following:

1. The Operator's letter of March 6, 1958.

2. The original of a Performance Bond on Standard Form 25, issued by the Federal Insurance Company, for the amount of Government participation under the proposed contract.

3. One copy of a letter, Dated February 28, 1958, from Santa Fe Pacific Railroad Company wherein, in the last paragraph, the lease involved in the contract is extended to March 15, 1959.

Please note that the Performance Bond is dated March 4, 1958 instead of February 4, 1958, the date of the contract.

When you have reviewed the enclosed material, please teletype advice as to whether or not we should now release copies of the contract to the Applicant for signature, or if we should defer the matter until the actual instrument extending the lease is received.

We will defer acknowledging receipt of the Applicant's letter and enclosed material until advised by you.

W H King
W. H. King

Enclosures

WSK

FOOD MACHINERY AND CHEMICAL CORPORATION

FOOD MACHINERY AND CHEMICAL CORPORATION

WESTVACO MINERAL PRODUCTS DIVISION

ORIGINAL FILE COPY
RECEIVED MAR 11 1958

DATE		CODE

6 March 1958

CHRYSLER BUILDING EAST
161 EAST 42ND STREET
NEW YORK 17, N. Y.

ASSISTANT TO THE PRESIDENT

DMEA
DEPARTMENT OF THE INTERIOR
MAR 10 1958
REGION III
DENVER, COLORADO

Mr. W. H. King, Executive Officer
Field Team, Region III
Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado

Dear Mr. King: RE: DMEA 4845

Complying with the instructions in your letter of February 24, we inclose two copies of a surety company performance bond and two copies of a letter from the Santa Fe Pacific Railroad Company agreeing to extend the exploration term on Section 17, T 13N, R 9W. A more formal document is being drawn to cover this extension and, if you wish, copies can be forwarded to you as soon as it is executed.

We trust that these inclosures will adequately support your submitting contract No. Idm-E1167 to us for signature and shall look forward to its receipt at an early date.

Very truly yours,

Henry C. Messman

HCM/jc
Inc.

DMEA
RECEIVED FEB 26 1958

Date	Initials	CODE
2/26	C	220
2/26	[illegible]	700

224 New Customhouse
Denver 2, Colorado

February 24, 1958

Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
161 East 42nd Street
New York 17, N. Y.

Re: Docket No. DMEA 4845 (Uranium)
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
(Sec. 17, T 13 N, R 9 W)
McKinley County, New Mexico

Gentlemen:

We have at hand proposed Exploration Project Contract No. Idm-E1167, which has been prepared pursuant to your Application for Government assistance under the DMEA program, which was docketed No. DMEA 4845.

We are instructed by the Washington Office, DMEA, that the proposed Contract is to be forwarded to you for signature contingent on prior receipt of the following, and that you were being so advised by them:

1. Two copies of a Surety Company Performance Bond on Standard Form 25 in lieu of Constent to Lien and Subordination Agreement;

2. Two copies of an Agreement extending the exploration term of the Mining Lease on the property involved.

We will appreciate advice as to when we can expect to receive the foregoing listed instruments.

Very truly yours,

Original signed by
W. H. KING

W. H. King
Executive Officer, DMEA
Field Team, Region III

JWT:prl

cc: Chmn. Op. Comm. (2)
Harshman
DMEA/DFC (Belser)
Hasler
Docket
Townsend
Chron.

Mr. Selfridge -

?

This is not too hot a project. However, I am willing to go along with it. I do not think we need to bother about the limestone. Believe 100' offset okay as smaller ore bodies than previously found should be expected and then also drilling should show areas of mineable ore in low grade areas.

DMEA 4845

FEJohnson

[illegible] should show [illegible]
for [illegible] of normal procedure
[illegible] with low grade, low [illegible]
[illegible] would be subject to [illegible] results of [illegible]
[illegible]

DMEA Form 7
(12-56)

OFFICIAL FILE

Date	Surname	
1-30	Chiang	
1-30	Ellis	70
1/31	Talbot	800
2/3	[illegible]	130
"	Johnson	110
"	Bartenstein	100
		~~210~~
2/4	C	220
		700

FEB 4 1958

B

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

Re: Docket No. DMEA-4845 (Uranium)
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
Sec. 17, T. 13 N., R. 9 W.
McKinley County, New Mexico

Dear Mr. King:

Enclosed are the original and four copies of a proposed long-form contract between the Government and Food Machinery and Chemical Corporation, signed by the Administrator. The contract consists of Form MF-200, Annex I, Annex II (2 pages), Exhibit "A" (5 pages), and a map (Figure 2). Also enclosed are two extra copies each of Annexes I and II, Exhibit "A," and the map (Figure 2) for the use of the Field Team.

If you and the Applicant find the proposed contract satisfactory, it is ready for the signature of the Applicant, provided that the following requirements are met:

1. A suitable final starting date is inserted under Article 3;

2. Two copies of a Surety Company Performance Bond on Standard Form 25 are provided in lieu of Consent to Lien and Subordination Agreement; and

3. Two copies of an agreement extending the exploration term of the mining lease are provided.

We will instruct the Applicant to forward the Performance Bond and agreement directly to you. One copy of each should be retained for your files and the other copies forwarded to this office.

You will note that the contract covers only three quarters of section 17. Omission of the southwest quarter is justified since the Applicant had made a discovery in that area and had expressly requested that it be excluded.

The following modifications were made in the costs suggested by the examiners:

8623

1. No provisions were made by the examiners for chemical analyses, site preparation and drill crew standby time. Since the Applicant had made allowances for these items in the application and our contracts usually provide for them, we have allowed a modest amount for each;

2. The surveyor's helper was eliminated since a sampler or assistant to the supervisor was provided. However, this did not change the amount of the Incidental Allowance; and

3. Stage II footage was reduced from 19,200 feet to 14,800 feet since the latter figure is sufficient to offset Stage I holes in proportion to the number of deep or shallow holes.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (GHB)

Enclosures

APPROVED:

Frank D. Lamb (GHB)

Member, Bureau of Mines

Thor H. Kiilsgaard (GHB)

Member, Geological Survey

MChing/izm 1-30-58

cc: Mr. Ching
Admr.'s Reading File
Operating Committee
THKiilsgaard, 5224

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SOLICITOR
WASHINGTON 25, D. C.

Filed in lieu of "Docket" copy

JAN 28 1958

Memorandum

To: Administrator, DMEA
Attention: Director, Division of Rare and Miscellaneous Metals

From: Associate Solicitor, Division of Rare and and Miscellaneous Metals

Subject: Docket No. DMEA-4845 (Uranium)
Proposed Contract
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
McKinley County, New Mexico

As requested in Mr. Ellis' memorandum dated January 21, 1958, we have prepared the attached Contract. The following are required, however, prior to execution of the Contract:

(1) Surety Company Performance Bond in lieu of Consent to Lien and Subordination Agreement; and

(2) Copy of agreement extending the exploration term of the lease.

It should be noted that applicant's rights in the land are limited to exploring for and mining "uranium-bearing ore and associated minerals." Accordingly, Article 8(b) of the Contract form has been revised to limit the Government's royalty to the production of said minerals only.

Robert P. Dwyer

HCRubin:md
1/28/58
CC: Solicitor's Docket (2)
Mr. Ellis (2)
R. P. Dwyer
H. C. Rubin
Chron.

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
1/21/58	Ching	700
"	Ellis	700
		140

January 21, 1958

INTERIOR DEPT.
JAN 21 1958
SOLICITOR

Memorandum

To: Associate Solicitor,
Division of Mineral Resources

From: Ernest Wm. Ellis, Director
Division of Rare and Miscellaneous Metals

Subject: Proposed Contract
Docket No. DMEA-4845 (Uranium)
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
Sec. 17, T. 13 N., R. 9 W.
McKinley County, New Mexico

Please prepare a long-form contract between the Government and the subject Applicant in accordance with the attached draft.

Also attached are 8 copies of the map (Figure 2) for use with the contract.

You will note from the Applicant's letter of November 1, 1957, that a Performance Bond will be furnished in lieu of a Consent to Lien, and that any necessary extension of the agreement between the Applicant and Santa Fe will be forthcoming.

/s/ Ernest Wm. Ellis

Ernest Wm. Ellis

MChing/gla
cc to: Mr. Ching

RECEIVED
JAN 2[illegible] 1958
ASSOC. SOLICITOR
MINERAL RESOURCES

8623

OFFICIAL FILE COPY

Date	Surname	Code
1/21/58	Ching	700
		700
		225

January 21, 1958

Memorandum

To: The File

From: Michael Ching, Mining Engineer
Division of Rare and Miscellaneous Metals

Subject: Proposed Contract Costs
Docket No. DMEA-4845 (Uranium)
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
Sec. 17, T. 13 N., R. 9 W.
McKinley County, New Mexico

The costs suggested in the Report of Examination, dated December, 1957, have been used in the contract as drafted, with the following modifications:

1. The Applicant has made allowances for chemical analyses, site preparation, and probing of holes, but the examiners did not make provisions for these items. Since our contracts usually provide for them, a modest amount was allowed for each in both stages. (See contract draft.)

2. Under Labor, Supervision, and Technical Services the examiners provided for a surveyor's helper as well as for a surveyor for ½ month. Since a sampler or assistant to the supervisor was also provided, the surveyor's helper was eliminated. This, however, did not change the estimate of $0.18 per foot for Incidental Allowance, which is now based on costs for Stage I only.

3. In Stage II the examiners provided 19,200 feet of drilling in 60 holes, which is sufficient footage to drill all holes through the Westwater Canyon sandstone. Since three-fourths of Stage I holes are to be drilled through the Poison Canyon sandstone only, the total footage in Stage II was reduced to 14,800 feet, sufficient to offset Stage I holes in proportion to the number of deep or shallow holes.

All other requirements and costs are in accordance with those suggested by the examiners.

Michael Ching
Michael Ching

January 21, 1958

Memorandum

To: The File

From: Michael Ching, Mining Engineer
Division of Rare and Miscellaneous Metals

Subject: Proposed Contract Costs
Docket No. DMEA-485 (Uranium)
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
Sec. 17, T. 13 N., R. 9 W.
McKinley County, New Mexico

The costs suggested in the Report of Examination, dated December, 1957, have been used in the contract as drafted, with the following modifications:

1. The Applicant has made allowances for chemical analyses, site preparation, and probing of holes, but the examiners did not make provisions for these items. Since our contracts usually provide for them, a modest amount was allowed for each in both stages. (See contract draft.)

2. Under Labor, Supervision, and Technical Services the examiners provided for a surveyor's helper as well as for a surveyor for ½ month. Since a sampler or assistant to the supervisor was also provided, the surveyor's helper was eliminated. This, however, did not change the estimate of $0.18 per foot for Incidental Allowance, which is now based on costs for Stage I only.

3. In Stage II the examiners provided 19,200 feet of drilling in 60 holes, which is sufficient footage to drill all holes through the Westwater Canyon sandstone. Since three-fourths of Stage I holes are to be drilled through the Poison Canyon sandstone only, the total footage in Stage II was reduced to 14,800 feet, sufficient to offset Stage I holes in proportion to the number of deep or shallow holes.

All other requirements and costs are in accordance with those suggested by the examiners.

Michael Ching

DRAFT
MChing/izm
1-21-58

MF-200
(Revised June 1954)

Docket No. DMEA 4845

Commodity Uranium

Contract No. Idm-E

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

EXPLORATION PROJECT CONTRACT[1]

It is agreed this ..... day of ....., 195...., between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and [2] Food Machinery and Chemical Corporation, a Delaware corporation (Westvaco Mineral Products Division), whose mailing address is 161 East 42nd Street New York 17, New York, hereinafter called the "Operator," as follows:

ARTICLE 1. *This contract* is entered into under the authority of the Defense Production Act of 1950, as amended. It consists of this form (MF-200), the attached Exhibit "A," Annex I, ~~and~~ xxxx Annex II, and map (Figure 2)

The Operator shall not transfer or assign this contract or any right thereunder without the written consent of the Government.

ARTICLE 2. *Operator's property rights.*—(a) The land which is the subject of this contract (hereinafter called "the land") is in the State of New Mexico, County of McKinley, and is described in Annex I.[3]

(b) The Operator represents and undertakes that:

(1) The Operator is the [4] Lessee of [5] the rights to uranium in the land, in possession and entitled to possession for all of the purposes of this contract, under and by virtue of a [6] Lease and Agreement, [7] un recorded in Book ....., page ....., official records of said County; and

(2) The Operator's right, title, or interest (whether as owner, lessee, or otherwise) is subject only to the following claims, liens, or encumbrances: None

(c) The Subordination Agreement of the holder of any claim, lien, or encumbrance listed above, and (if the Operator does not hold the legal title) the Consent to Lien of any holder of the legal title

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] Insert name, and if an organization, its nature (corporation and place of incorporation, partnership with names of partners, etc.).
[3] State on a separate sheet marked "Annex I" the legal description or enough to identify the property, particularly excluding any areas from which the production is not to be subject to the Government's percentage royalty.
[4] Insert "owner," "lessee," "contract purchaser," "locator," etc.
[5] Insert "the entire interest," "the mineral rights," "an undivided one-third," etc.
[6] Insert "deed," "lease," "contract," "location notice," "patent," etc.
[7] If not recorded, so indicate by inserting "un."

of the land (lessor, seller, optionor, etc.), are attached, as follows: **Attached performance bond is in lieu of Consent to Lien and Subordination Agreement of Santa Fe Pacific Railroad Company**

(d) The Operator shall preserve and maintain his right, title, and interest in the land and his right to the possession thereof for the purposes of this contract, and shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of this contract. Until the lapse of the time within which the Government may make a certification of discovery or development without any such certification having been made, and after any such certification has been made, the Operator shall neither transfer, convey, nor surrender the land nor any right, title, or interest therein, nor permit nor suffer any claim, lien, or encumbrance thereon, without expressly referring to and providing in the instrument of conveyance, lien, or encumbrance for the preservation of the Government's right to a percentage royalty on production and lien for the payment thereof. If the Government makes no certification of discovery or development within the time limited in Article 8, it shall thereafter have no claim against the land or any production therefrom except for any production referred to in Article 8(b)(1).

ARTICLE 3. *The exploration project.*—The project is a search for indicated or undeveloped deposits of **Uranium** The work to be performed is described in Exhibit "A." The Operator on or before ..... shall commence the work, and on or before **July 31, 1958** (unless the Operator's obligation to prosecute the work is terminated—see Article 10) shall either have completed the work or shall have incurred allowable costs (see Article 6) in a sum not less than the estimated total allowable cost set forth in Exhibit "A." **See Annex II**

ARTICLE 4. *Performance of the work.*—(a) *Operator's responsibility.*—The work shall be performed with reasonable diligence, efficiently, expertly, in a workmanlike manner, in accordance with good mining standards and State regulations for health and safety and for liability insurance covering employment; and with suitable and adequate equipment, facilities, materials, supplies, and labor, to bring it to completion within the time fixed.

(b) *Independent contracts.*—To the extent that the allowable costs are estimated in Exhibit "A" with express reference to performance by independent contractors on a unit-price basis (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations), the work may be so performed; but if the reference in Exhibit "A" to any such independent contract requires the Government's approval thereof, payments under such contract will not be allowable costs unless the Government gives its written approval of the contract. Any such independent contract shall refer to some specific and identifiable part of the work, and shall be subject to all of the pertinent terms and conditions of this exploration contract; but the Government shall not be considered a party thereto, and its rights under this contract, including the right to terminate its contributions, shall not be affected thereby. Regardless of the provisions of any such independent contract and regardless of the Government's approval thereof, the Government will participate in payments to the independent contractor only on account of work performed in accordance with the provisions of this exploration project contract, and only to the extent that the Government deems the unit prices for the work under the independent contract to be reasonable.

(c) *Government may inspect.*—The Operator shall consult with and inform the Government on all phases of the work as it progresses. The Government may enter at all reasonable times to inspect the work under the contract, and also after a certification of discovery or development to inspect production operations and underground workings. The operator shall provide the Government with all reasonable means of access for such inspections.

ARTICLE 5. *Contribution by the Government.*—The estimated total allowable cost of the project, set forth in Exhibit "A," is the sum of $ 28,460.00 The Government shall contribute 75 percent of the allowable costs as they are incurred in a total sum not in excess of $ 21,345.00 : *Provided,* That until the Operator has rendered to the Government his final report, and any final 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 10 percent of the estimated total cost of the work or not in excess of the amount of the Government's contribution to the cost of property which is or may become subject to disposal as provided in Article 9(c), whichever is greater. The Government will make its contribution on the basis of the monthly vouchers referred to in Article 7(b), but all payments by the Government are provisional only, subject to audit, until the account between the Operator and the Government is finally audited and settled. "Costs incurred" mean costs that have been paid or have become due and payable, or that in the opinion of the Government have become an obligation. The Government may make payments directly to independent contractors and suppliers for the account of the Operator rather than to the Operator.

ARTICLE 6. *Estimated costs.*—(a) *Categories of costs.*—The allowable costs of the work to which the Government shall contribute are limited to those that are direct, reasonable, necessary, and that are estimated in Exhibit "A" by categories as specified in this article. If any category or subcategory is omitted from the estimate of costs, or if the word "none" is annexed to the listing thereof, costs under such category or subcategory are not allowable. Any excess over any estimate which is indicated as the maximum of any category, subcategory, or item, either as to requirement or related cost, and any excess over the estimated total allowable cost of the work, shall not be allowable. Any excess over the estimate of any category, subcategory, or item, either as to requirement or related cost, not indicated as a maximum shall be allowable within the limit of the estimated total allowable cost of the work. To the extent that excesses over maximums other than the estimated total allowable cost of the work may be necessary for the performance of the work, the Operator shall incur such excesses for his own account without contribution by the Government; but except for any such necessary excesses in categories, subcategories, or items thereunder the Operator is not obligated to incur more than his agreed percentage of the estimated, total allowable cost of the work. **See Annex II**

To the extent specified in this article or in Exhibit "A" the following categories, subcategories, and elements thereof are maximums; but if not so specified either here or in Exhibit "A" they are not maximums, and may be exceeded within the limit of the estimated total allowable cost of the work:

CATEGORY (1)—INDEPENDENT CONTRACTS.—Work to be performed under independent contracts (see Article 4(b)). The estimated total amount of this category and the estimated cost of each unit of work for performance under an independent contract are maximums. **See Annex II**

CATEGORY (2)—PERSONAL SERVICES.

Subcategory (a)—Supervision.—All elements of this subcategory (number of supervisors, periods of employment, rates of pay, and total) are maximums.

Subcategory (b)—Technical services.—All elements of this subcategory (number of technicians, periods of employment, rates of pay, and total) are maximums.

Subcategory (c)—Labor.

CATEGORY (3)—OPERATING MATERIALS AND SUPPLIES.—Includes such items as drill bits and steel, explosives, fuel, pipe, power, small tools costing less than $50 each, timber, track.

CATEGORY (4)—OPERATING EQUIPMENT.

Subcategory (a)—Rental.—The number of each object to be rented [6 mine cars, 1 truck], the rate of rental [$100 per month, $5 per hour], and the total of this subcategory are maximums.

Subcategory (b)—Purchases.—The estimated total of this subcategory is a maximum.

Subcategory (c)—Depreciation.—All elements of this subcategory (time periods, rate of depreciation, and subcategory total) are maximums.

CATEGORY (5)—INITIAL REHABILITATION AND REPAIRS.—Estimates under this category include all requirements and related costs, such as labor, materials and supplies, and supervision at a rate not higher than provided for in Category (2), and shall not be duplicated under any other category. The estimated total of this category is a maximum.

Subcategory (a)—Initial rehabilitation and repairs of existing buildings, fixtures, and installations (exclusive of mine workings).—The estimated total of this subcategory is a maximum.

Subcategory (b)—Initial rehabilitation and repairs of operating equipment.—The estimated total of this subcategory is a maximum.

CATEGORY (6)—NEW BUILDINGS, FIXTURES, AND INSTALLATIONS (EXCLUSIVE OF MINE WORKINGS).—Estimates under this category include all requirements and related costs, such as labor, materials and supplies, and supervision at a rate not higher than provided for in Category (2), and shall not be duplicated under any other category. The estimated total of this category is a maximum.

CATEGORY (7)—MISCELLANEOUS.—Repairs and maintenance (other than initial) of operating equipment, analytical work, prints and other reproductions, accounting, Operator's share of payroll taxes, liability insurance covering employment, travel, communications, and any other items of requirement or cost that do not fall within any of the first 6 categories.

THE ESTIMATED TOTAL ALLOWABLE COST of the work is a maximum.

(b) *Nonallowable costs.*—The following costs are not allowable for contribution by the Government:

(1) *Costs of the land,* such as rental, depreciation, depletion, or other cost of acquiring, owning, or holding possession;

(2) *Indirect costs,* such as general overhead, corporate management, interest, taxes (other than payroll and sales taxes), insurance (other than liability insurance covering employment), damages to persons, damages to property (other than necessary repairs or replacements of equipment or other property used in the work);

(3) *Previous work* performed or costs incurred before the date of this contract; and

(4) *Deferred payments.*—Any costs incurred by the Operator under any rental-purchase agreement, installment-purchase agreement, or any agreement for the purchase of goods under the provisions of which payment of the full purchase price is deferred more than 90 days from the delivery of the goods; unless the purchase agreement is approved by the Government in writing.

(c) *Reductions in costs.*—The Operator shall account for and give the Government credit for any incidental benefits, credits, or money received in the ordinary course of business in prosecuting the work (as by salvage or sale of materials or equipment, furnishing of room or board, furnishing of power or services to third persons, rebates or discounts on purchases, etc.), in the same ratio in which the Government contributes to costs; and such amounts shall be treated as a reduction in costs incurred so that they are available for use within the limit of the original estimated total cost. This provision does not apply to receipts from production which are subject to the Government's percentage royalty under the provisions of Article 9. **See Annex II**

ARTICLE 7. *Reports, accounts, audits.*—(a) *Operator's records.*—The Operator shall keep suitable records and accounts of the work performed and of any production in which the Government may have an interest; and shall preserve those with respect to work performed for at least three years after final payment by the Government, and those with respect to production for at least three years after any obligation to pay royalties to the Government has terminated. The Government may inspect and audit said records and accounts at any time, either by itself or by a certified public accountant. If the Government elects to audit said records and accounts relating to the exploration work by certified public accountant, it may do so as a cost of the work to which the Operator shall contribute. The Comptroller General of the United States or his representative, until the expiration of said three-year periods, shall have access to and the right to examine any pertinent books, documents, papers, and records of the Operator. All of the Operator's vouchers and records and accounts relating thereto and the Government's payments thereof remain subject to adjustment until final audit by the Government. If work under this contract is carried on in conjunction with any other operations, or if labor, supervision, services, materials, supplies, equipment, facilities, or other requirements for carrying on the work are also used in connection with other operations, the costs shall be segregated and accounted for on a basis and by methods and accounts that are satisfactory to and approved by the Government.

(b) *Progress reports and vouchers.*—The Operator shall provide the Government with five copies of monthly progress reports in three sections as follows: (1) Operator's Monthly Report and Voucher showing detailed costs incurred during the reporting period; (2) Operator's Unit Cost and Progress Report showing the various types of work performed during the reporting period and costs incurred for each type of work; and (3) a Narrative Report of the work performed during the reporting period including adequate engineering-geological maps or sketches, drill hole logs and locations, and assay reports on samples taken concurrently with advance in mineralized ground. (Forms for reporting under (1) and (2) above will be provided by the Government.)

(c) *Final report.*—Upon completion of the work or termination of the Government's obligation to contribute to costs, the Operator shall furnish the Government with five copies of a final report (in addition to the final progress report and voucher). This final report shall include a geological and engineering evaluation of the results of the work performed under the contract with an estimate of the ore reserves resulting from such work, complete assay data, adequate geological and engineering maps or sketches, and a summary of the work performed and related costs incurred.

(d) *Report of sales.*—The Operator shall provide the Government with suitable accounting and documentary evidence covering all production to which the Government's percentage royalty relates, such as copies of smelter or concentrator settlement sheets, and certified accounts of production and sale or other disposition of production.

(e) *Compliance with requirements.*—If in the opinion of the Government any of the Operator's reports, records, or accounts are insufficient or incomplete, or if the Operator fails to make them, the Government may procure the making or completion of such with suitable attachments as an expense of the work to which the Operator shall contribute. The Government may withhold approval and payment of any vouchers relating to insufficient or incomplete reports, records, or accounts.

ARTICLE 8. *Repayment by Operator.*—(a) *Certification.*—If the Government considers that a discovery or development from which production may be made has resulted from the work, the Government, at any time not later than six months after a sufficient final report and final account (see Article 7) 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.

(b) *Royalty on production.*—The Operator, as principal if the Operator is the producer, or as surety if the Operator is not the producer, shall pay to the Government a royalty on all minerals mined or produced from the land, 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, or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first; or (2) if the Government makes a certification of discovery or development, within 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.

(c) *Basis for computation.*—The Government's royalty shall be a percentage of the gross proceeds (including any bonuses, premiums, allowances, or other benefits) from the production sold, in the form sold (ore, concentrates, metal, or equivalent), at the point of delivery (the f. o. b. point); *except,* that charges of *the buyer* arising in the regular course of business, and shown as deductions on the buyer's settlement sheets, on account of the cost of treatment processes performed by *the buyer,* sampling and assaying to determine the value of the production sold, and freight paid by *the buyer* to a carrier (not the Operator), shall be allowed as deductions in arriving at the "gross proceeds" as that term is used herein. Any costs of treatment processes, sampling or assaying, or transportation, performed or paid by the Operator or by anyone other than the buyer, are not deductible in arriving at the "gross proceeds" as that term is here used. The term "treatment processes," as here used, means those processes (such as milling, concentrating, smelting, refining, or equivalent) applied to the crude ore or other production after it is extracted from the ground, to put it into a commercially marketable form; excluding fabricating or manufacturing.

(d) *Unsold production.*—If any production (ore, concentrates, metal, or equivalent), after the lapse of six months from the date the ore was extracted from the ground, remains neither sold nor used by the Operator in integrated manufacturing or fabricating operations (for instance, if it is stockpiled), the Government, at its option, as long as it so remains, may require the computation and payment of its royalty on the value of such production in the form (ore, concentrates, metal, or equivalent) it is in when the Government elects to require computation and payment. If any production is used by the Operator in integrated manufacturing or fabricating operations before the Government makes its election, the Government's royalty on such production shall be computed on the value therof in the form in which and at the time when it is so used. "Value" as here used means what is or would be gross income from mining operations for percentage depletion purposes in Federal income tax determination, or the market value, whichever is greater.

(e) *Percentages of royalty.*—The percentages of the Government's royalty shall be as follows:

One and one-half (1½) percent of amounts ("gross proceeds" or "value") not in excess of eight dollars ($8.00) per ton of production in the form in which sold, held, or used, plus one-half (½)

percent for each additional full fifty cents ($0.50) by which such amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) percent of such amounts.

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

(f) *Time for computation and payment.*—The Government's royalty shall be computed and paid currently upon each lot sold, held, or used in integrated operations, as the case may be, as above provided in this article.

(g) *Lien for payment.*—To secure the payment of its percentage royalty, there is hereby granted to the Government a lien upon the land or the Operator's interest in the land and upon any production of minerals therefrom, until the royalty claim is extinguished by lapse of time or is fully paid.

(h) *Notice to purchasers.*—The Operator shall give notice of the Government's claim for royalty to any purchaser of the production, and shall authorize and direct such purchaser to pay the royalty directly to the Government and to furnish the Government with copies of the settlement sheets. If the records of any production and sales or other disposition of production, whether the production is by the Operator or by others, are not made available to the Government, the amount of the royalty may be estimated by the Administrator, Defense Minerals Exploration Administration, or his successor, and his estimate thereof shall be final and binding upon the Operator.

(i) *No obligation to produce.*—Nothing in this contract is to be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any production operations.

(j) *Government not obligated to buy.*—Nothing in this contract shall be construed as imposing any obligation on the Government to purchase any minerals mined or produced from the land.

ARTICLE 9. *Interests in purchased property.*—(a) *Title and ownership.*—All costs under this contract shall be incurred by the Operator in the Operator's own name and for the Operator's own account; but any property acquired to the cost of which the Government contributes shall belong to the Operator and the Government jointly in proportion to their respective contributions, although title thereto shall be taken in the name of the Operator.

(b) *Preservation of property.*—Until the final disposal of any property in which the Government has an interest the Operator shall preserve and protect same for the best interest of the Government, any reasonable and necessary costs thereof to be treated as an allowable cost of the project. After the completion of the work or termination of the Government's obligation to contribute, or when such property is not in use for or needed for the work, the Operator shall neither use it without the written consent of the Government nor without paying a reasonable rental to be fixed by the Government for its interest.

(c) *Disposal of property.*—Upon the completion of the work or termination of the Government's obligation to contribute to costs, or when the property is no longer needed for the work, the Operator shall promptly dispose of salable or salvageable property in which the Government has an interest for the joint account of the Government and the Operator, either by return to the vendor, by sale to others, or purchase by the Operator or the Government at a price at least as high as could be obtained from others, unless the Government in writing waives its interest in any such property. Without advance approval of the sales price by the Government the Operator shall not sell at any price any item of property the cost of which was more than $500, and shall not sell at less than 25 percent of the purchase price any item of property which cost $500 or less. The Government, in lieu of approving the sales price for any such item, may itself purchase the item at the best price which the Operator is able to obtain or himself cares to give. Property remaining upon any termination of the work shall be considered in groups or categories (such as drill steel, or explosives, or pipe, or rails), and if the original cost of the remaining unexpended portion of any such group or category is less than $50, the Government waives its interest therein. If necessary to accomplish the disposal of any item the Operator shall dismantle and sever it from the land, the cost thereof to be treated as a cost of the project.

(d) *Default of the Operator re disposal.*—If within 90 days after the completion of the work or termination of the Government's obligation to contribute to costs, or after the property is no longer needed for the work, or after such further time as the Government may in writing allow, the Operator has failed to sell or otherwise liquidate or dispose of any property in which the Government has an interest, the Government, at any time prior to final settlement under the contract, may pursue one of the following two courses: (1) the Government, by written notice to the Operator, may place upon such property what in its opinion is a fair valuation thereof, not in excess of the cost less 1.66 percent per month from the

date such property was purchased under this contract to the termination of said 90-day period; and such property shall thereupon be considered and accounted for as having been purchased by the Operator at the valuation so fixed by the Government; or (2) the Government may enter and take possession of such property wherever it may be found, and remove and dispose of it for the joint account of the parties.

ARTICLE 10. *Termination of the Government's obligations.*—(a) If in the opinion of the Government operations at any time have failed to achieve anticipated results that indicate the probability of making a worthwhile discovery, and in the opinion of the Government further operations are not justified, the Government may give the Operator written notice thereof, and thereupon: (1) the Government shall be free of all obligation to contribute to costs not then incurred other than such as may be allowable under the provisions of the contract as necessary and incidental to winding up, reporting, and accounting; and (2) the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting.

(b) If in the opinion of the Government the Operator is in any manner in default under the terms of the contract, the Government may give the Operator written notice of such default with a specification of reasonable time within which the default must be cured; and if the Operator fails to cure such default as required, thereupon: (1) the Government shall be relieved of all obligation to contribute to costs not incurred when the notice was given, other than such as may be allowable by the provisions of the contract as necessary and incidental to winding up, reporting, and accounting; and (2) the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting. The remedy provided for the Government in this paragraph "(b)" is in addition to any other remedy provided in this contract, and in addition to any other remedy the law may provide for breach of contract.

(c) The giving of any notice by the Government under the provisions of this Article 10 shall not affect the Government's rights as provided for in the contract with respect to a percentage royalty, and such rights shall be fully preserved.

ARTICLE 11. *Notices to be given by the Government* may be delivered to the Operator, or may be sent by registered mail addressed to the Operator at his mailing address stated in this contract. If mailed, notices are deemed to have been delivered five days after the date of mailing.

ARTICLE 12. *Officials not to benefit.*—No member of or delegate to Congress or resident commissioner shall be admitted to any share or part of this contract or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

ARTICLE 13. *Changes and added provisions.*—

See Annex II

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By .....

.....
(Operator)

By .....

.....

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—70617-1

ANNEX I

The land referred to in Article 2 of the contract consists of the NE¼, the SE¼ and the NW¼ of section 17, Township 13 North, Range 9 West, N.M.P.M.&B., McKinley County, New Mexico.

The land is shown on the map entitled "Figure 2 - Planimetric Map of Section 17, T. 13 N., R. 9 W., N.M.P.M. Showing Location of Drill Holes and Proposed Drill Holes, -------," attached hereto and made a part hereof.

Annex II

(a) That part of the last sentence of Article 3 beginning with the word "either" is deleted and replaced by the words "have completed the work, except as otherwise provided in Exhibit 'A' with respect to stages of work."

(b) That part of the last sentence in the first paragraph of Article 6(a) commencing after the semicolon is deleted.

(c) Categories (2) through (6) of Article 6(a) are deleted.

(d) In addition to the costs of work estimated in Exhibit "A" by categories of actual costs, the costs of work requirements specified in Exhibit "A" as "Fixed Unit Costs" are allowable costs of the project. The Government will contribute to the fixed unit costs as work units are performed. A "Fixed Unit Cost" is an agreed price for each unit of work to be performed regardless of costs incurred by the Operator. Costs set forth in Exhibit "A" include all allowable costs of the work to be performed under the Contract.

(e) In the last sentence of Article 6(c), the words "Article 8" are substituted for the words "Article 9."

(f) Notwithstanding any other provision of the Contract, the allowable unit cost per foot of a drilling item is the average unit cost per foot computed on the basis of all the actual unit costs of said drilling item incurred by the Operator: Provided, That the Government will not contribute to any portion of an average unit cost of a drilling item that exceeds the estimated unit cost of said item set forth in the contract.

Exhibit "A"

Description of the Work

General Provisions

The work consists of exploration by non-core drilling to test the Poison Canyon and Westwater Canyon sandstones of the Jurassic Morrison formation for uranium.

Drilling depths are estimated to average 220 feet to penetrate the Poison Canyon sandstone and 320 feet to penetrate the Westwater Canyon sandstone. Holes designed to explore both the Poison Canyon and the Westwater Canyon sandstones shall not extend more than 10 feet into the underlying Recapture member. Because of the difficulty of recognizing the lower contact of the Poison Canyon sandstone no specific lower limit is placed on holes designed to explore that member only. However, the Operator shall exercise diligence to avoid excessive drilling depths.

Samples shall be taken at 2-foot intervals from the top of the Poison Canyon sandstone to the bottom of each hole. Cuttings shall be collected with a Duclene sample collector or equivalent unit of another make, unless wet drilling is necessary, in which case provision shall be made for taking satisfactory sludge samples. All samples shall be checked for radioactivity and those indicating significant mineralization shall be split. One portion shall be analyzed chemically for uranium and the other portion shall be properly labeled and stored for the use of the Government. The non-mineralized samples also shall be labeled and stored for inspection by the Government. Any stored samples may be disposed of by the Operator upon approval by the Government.

All cuttings from the drill holes shall be logged geologically and the holes probed radiometrically, and the record of such logging and probing, together with certified copies of all assay certificates, shall be submitted with the Operator's monthly progress reports.

No hole shall be drilled closer than 100 feet to the outer boundaries of the land described in Annex I.

The Government will not contribute to any costs of an incompleted drill hole.

Access roads and drill sites shall be prepared, when required, with a D-7 bulldozer, or an equivalent unit of another make.

The project shall be supervised at all times by a geologist or mining engineer, who shall devote full time to the project work.

The location, direction, inclination, and extent of all project work are subject to the approval of the Government.

The work is divided into two stages as hereinafter described. The Operator shall complete Stage I and shall perform as much of Stage II as the Government approves in writing in advance.

Stage I

Prepare the required access roads and drill sites, and drill approximately 71 holes, aggregating an estimated 17,420 feet, at the locations indicated on the map (Figure 2) referred to in Annex I. The holes shall be drilled in 8 east-west rows 600 feet apart, with the holes in each ~~hole~~ row spaced 300 feet apart. As indicated on the map, previously drilled areas shall be omitted from this pattern, and the 71 holes are to be bottomed at two horizons. 53 holes shall penetrate through the Poison Canyon sandstone only, and 18 holes shall be extendedd through the Westwater Canyon sandstone. If more than 17,420 feet of drilling is required to reach the desired horizons, the additional footage and funds required may, with the written approval of the Government, be transferred and deducted from Stage II.

Stage II

Prepare the necessary access roads and drill sites and drill not more than 60 holes aggregating not more than 14,800 feet as offsets to previously

drilled holes showing favorable mineralization. No hole shall extend through the Westwater Canyon sandstone unless it is offsetting a hole that shows favorable mineralization at that horizon. Offset holes shall be drilled not closer than 100 feet to any previously drilled hole.

Estimated Cost of the Project

Stage I

Actual Costs

Category (1) Independent Contracts

17,420 ft. non-core drilling @ $0.65/ft.	$11,323.00	
35 hrs. drill crew standby time @ $10/hr.	350.00	
24 hrs. bulldozing @ $12/hr.	288.00	
Categories (2) through (6) None		
Category (7) Miscellaneous		
48 chemical analyses @ $5.00/each	240.00	$12,201.00

Fixed Unit Costs (See Annex II-d)

Incidental allowance[1/] for each foot of hole drilled

17,420 ft. @ $0.18/ft.	3,135.60
Estimated Total Cost of Stage I	$15,336.60

Stage II

Actual Costs

Category (1) Independent Contracts

14,800 ft. non-core drilling @ $0.65/ft.	$9,620.00	
30 hrs. drill crew standby time @ $10/hr.	300.00	
20 hrs. bulldozing @ $12/hr.	240.00	
Categories (2) through (6) None		
Category (7) Miscellaneous		
60 chemical analyses @ $5.00/each	300.00	$10,460.00

Fixed Unit Costs (See Annex II-d)

Incidental allowance[1/] for each foot of hole drilled

14,800 ft. @ $0.18/ft.	2,664.00
Estimated Total Cost of Stage II	$13,124.00

Summary of Costs

Estimated Total Cost of Stage I	$15,336.00
Estimated Total Cost of Stage II	$13,124.00
Estimated Total Cost of the Project (rounded)	$28,460.00
Government Participation @ 75%	$21,345.00

1/ Includes all costs that might be allowable costs of the project under Categories (1) through (7) of Article 6(a), except as otherwise scheduled in Exhibit "A."

OFFICIAL FILE COPY
DMEA
RECEIVED JAN 20 1958
DATE | INITIALS | CODE
1/20 | C | 220
" | Chung | 700

IN REPLY REFER TO:

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

January 17, 1958
Re: DMEA 4845
Food Machinery and Chemical Corp.
(Westvaco Division)
Sect. 17, T. 13 N., R. 9 W.
McKinley County, New Mexico
Applicant's Estimate $62,203.68
Recommended Estimate $30,362.56 - Uranium

Memorandum

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

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of Field Team Report

The applicant requested assistance in exploring by non-core drilling the northwest, northeast and southeast quarters of Section 17, one of a double tier of sections on which much drilling has been done and little or no immediately valuable material found. The southwest quarter of the section has been drilled by the applicant and an ore body containing 3,100 tons of +0.15% U_3O_8 is indicated. Also 55,000 tons of material of 0.05 to 0.15% U_3O_8 is considered a possible reserve for the future. In sections 19 and 20, to the southwest and south, valuable ore bodies have been found and a substantial production from them obtained.

No deposition pattern appears to have been visualized and no undrilled area can as yet be set aside as wholly unfavorable. Therefore the all-out 300 x 600 drilling recommended by the examiners and the Field Team is probably a must, although in view of the lack of a deposition pattern, a 600 x 600 drilling design would seem to be as logical as a 300 x 600 design.

I concur with the recommendations of the examiners and Field Team.

N. E. Nelson

N. E. Nelson

OFFICIAL FILE COPY
DMEA
RECEIVED JAN 14 1958

DATE	INITIALS	CODE
1/14	C	220
1/15	[illegible]	700

[illegible]

Date January 14, 1958

DMEA Contract No. 4845
DMEA Contract No.
Commodity Uranium
Name of Applicant Food Machinery & Chemical Corp
Name of Property Westvaco Mineral Products
Location of Property McKinely County, NewMexico
Estimated cost of project $20,000

Ernest Williams Ellis, DMEA Member
Uranium Commodity Committee
James Paone, Bureau of Mines Member
Uranium Commodity Committee

Field Team Report

[illegible] 1/6/58 [illegible] 1/10/58

[illegible] Yes [ ] No [ ]

[illegible] production Yes [ ] No [ ]

[illegible] to revision: Yes [ ] No [ ]

[illegible]:

[illegible] information:

[illegible]
[illegible]
[illegible] of Information [ ]
[illegible]

[illegible]
[illegible]
[illegible]
[illegible]

[illegible]:

[illegible] from applicant [ ]
[illegible] [ ]
[illegible] [ ]
[illegible] [x]
[illegible] [illegible] at [illegible] AIC office.

[illegible] (Use back of page if necessary)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

224 New Customhouse
Denver 2, Colorado

January 6, 1958

OFFICIAL FILE COPY
DMEA
RECEIVED JAN 8 1958

DATE	INITIALS	CODE
1/8	gb	220
1-13	DB	130
1/14	C	220
1.	Ching	700

Memorandum

To: Secretary to the Operating Committee, DMEA

From: DMEA Field Team, Region III

Subject: Docket No. DMEA 4845 (Uranium) Food Machinery and Chemical Corporation (Westvaco Mineral Products Division) Section 17, T. 13 N., R. 9 W., McKinely County, New Mexico - Joint Report of Examination

Enclosed are the original and two copies of the Joint Report of Examination on the subject property by M. H. Salsbury, USBM, and Fred R. Shawe, USGS.

The field examiners conclude that the probability for making a significant discovery is sufficiently promising to justify Government participation. Accordingly, they recommend that the Applicant's work proposal be approved, as modified by them, in which the Field Team concurs.

Our recommended drilling might find an ore body extending into the southwest quarter of Section 17 which area the Applicant appears hesitant to subordinate because he has ten ore holes in the extreme westerly part of the quarter section. Our proposed drilling, on two sides of the excluded 160 acres, will greatly benefit the southwesterly quarter of Section 17 and we recommend that consideration be given to subordinating Section 17 in its entirety.

Also enclosed are eight extra copies of Figure 2 for possible use in the contract.

W. H. King
Executive Officer

ON SITE FIELD REPORT

Released by
DMEA
1-13-58
(D.30)

OFFICIAL FILE COPY
DMEA
RECEIVED JAN 8 1958

IN REPLY REFER TO:
MINERAL DEPOSITS
DMEA
RECEIVED
JAN 2 1958
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

DATE	INITIALS	CODE
1-13	2/2	130
		220

DMEA
DEPARTMENT OF THE INTERIOR
JAN 2 - 1957
REGION III
DENVER, COLORADO

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. Box 360
Grand Junction, Colorado

December 31, 1957

Memorandum

To: W. H. King, Executive Officer, DMEA Field Team, Region III

Through: E. N. Harshman

From: J. William Hasler

Subject: Transmittal of report of examination of DMEA Docket No. 4845 (Uranium), Food Machinery and Chemical Corporation (Westvaco Mineral Products Division), Section 17, T. 13 N., R. 9 W., McKinley County, New Mexico.

TRANSMITTED
JAN 6 1957

The Westvaco Mineral Products Division of Food Machinery and Chemical Corporation, 161 East 42nd Street, New York 17, New York applied for DMEA assistance to explore for uranium in section 17, T. 13 N., R. 9 W., NMPM, McKinley County, New Mexico. The application was referred to the field and an examination was made on November 14, 1957 by a U. S. Geological Survey geologist and on November 20 by a U. S. Bureau of Mines engineer. The applicant was represented by W. S. Cavender, the company's resident geologist.

The known ore-bearing horizon of the area is the Poison Canyon sandstone unit of the Brushy Basin member of the Morrison formation. There is a good possibility that the underlying Westwater member may contain ore grade mineralization. The applicant has carried on exploration in the SW¼ of section 17, including development drilling around low-grade mineralization discovered from wide-spaced drilling which has resulted in an indicated and inferred reserve of 3,100 tons of ore with a content of 0.15 percent U_3O_8 or more, and 55,000 tons of ore estimated to contain between 0.05 and 0.15 percent U_3O_8.

In the tier of sections immediately north of section 17, 4 DMEA projects have been completed and the "Poison Canyon sandstone" was the target in each case. Exploration results in secs. 7, 9, and 10 were negative. However, on section 8, adjoining the applicant's section 17 immediately to the north, the Colamar Corporation developed ore deposits calculated to contain an indicated 139,982 tons of ore averaging 7.5 feet thick with an average content of 0.178 percent U_3O_8, according to their final DMEA report on the project.

Reviewed by
DMEA OFFICIAL FILE COPY
1-13-58
(Date)

It is concluded that the Poison Canyon member is favorable in thickness and within the known belt of mineralization in the area. Even though the frequency of occurrence of ore deposits has been low, not all deposits found to date have contained minable ore-grade material in commercial tonnages. Nevertheless there appears to be a reasonable chance of finding a significant tonnage of ore which, perhaps may not be minable at present, but would represent a future reserve.

A revised drilling plan was agreed on in a conference with the applicant's representatives and a project in two stages requiring an estimated 36,620 feet of non-core drilling at a maximum cost of $30,394.60 is recommended for approval. Government participation at 75 percent would be $22,795.95.

The Atomic Energy Commission was consulted relative to the appraisal of section 17 and correspondence from various Washington personnel were noted. I concur with the conclusions and recommendations of the examining team and therefore recommend that a contract be prepared to complete the proposed exploration work.

Enclosed are the required numbers of copies of figure 1, location map, sec. 17, T. 13 N., R. 9 W., Food Machinery and Chemical Corporation, McKinley County, New Mexico; figure 2, planimetric map of sec. 17, showing location of drill holes and proposed drill holes, Food Machinery and Chemical Corporation, McKinley County, New Mexico; figure 3, sketch map of part of T. 13 N., R. 9 W., section 17, showing location of known ore deposits, Food Machinery and Chemical Corporation, McKinley County, New Mexico. Enclosed also are 3 tables for inclusion in the joint engineering and geologic report. The applicant supplied the Grand Junction office with a copy of their application at the same time they submitted their application to Washington, therefore, there will be no applicant's brochure accompanying the transmittal of this report of examination.

J. William Hasler

J. William Hasler,
Geologist

JWH/bh

FOR UNITED STATES GOVERNMENT USE ONLY

TRANSMITTED
JAN 6 1958

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY EXAMINING TEAM
REGION III

DMEA
RECEIVED JAN 8 1958

DATE		CODE
1/13		130
		220

DMEA 4845

Food Machinery and Chemical Corporation

(Westvaco Mineral Products Division)

Section 17, T. 13 N., R. 9 W.

McKinley County, New Mexico

Uranium

Joint Geologic and Engineering Report

by

Fred R. Shawe
U.S. Geological Survey

M. H. Salsbury
U.S. Bureau of Mines

December 1957

Reviewed by
DMEA OPERATING COMMITTEE
1-13-58

DMEA 4845
FOOD MACHINERY AND CHEMICAL CORPORATION
(WESTVACO MINERAL PRODUCTS DIVISION)
SECTION 17, T. 13 N., R. 9 W.
McKINLEY COUNTY, NEW MEXICO

CONTENTS

Joint Engineering and Geologic Report

	Page
Introduction and Summary	1
Acknowledgements	3
Location, Topography, and Physical Features	3
History, Production, and Ownership	4
Geology	
General	7
Stratigraphy	8
Structure	10
Ore Deposits	11
Minable Ore Reserves	12
Present Status	
Exploration and development	13
Mining and milling machinery and other facilities	13
Project Proposals with Costs	14
Estimated costs	18
Breakdown of costs	21
Conclusions and Recommendations	22

TABLES

Number		
I.	Other DMEA projects just north of sec. 17, McKinley County, New Mexico	5
II.	Production and ore reserves of Brushy Basin and Westwater Canyon members of Jurassic Morrison formation in secs. 7, 8, 9, 16, 17, 18, 19, 20, 21, T.13N.,R.9W., McKinley County, New Mexico	6
III.	Uranium-producing formations and related formations in the vicinity of sec. 17, T.13N.,R.9W., McKinley County, N.M.	8

ILLUSTRATIONS

Figure		Follows page
1.	Location map, Sec. 17,T.13N.,R.9W., Food Machinery and Chemical Corp., McKinley County, New Mexico	23
2.	Planimetric map of sec. 17, showing location of drill holes and proposed drill holes, Food Machinery and Chemical Corporation, McKinley County, New Mexico	23
3.	Sketch map of part of T.13N.,R.9W.,sec. 17, showing location of known ore deposits, Food Machinery and Chemical Corp., McKinley County, New Mexico	23

DMEA 4845
FOOD MACHINERY AND CHEMICAL CORPORATION
(WESTVACO MINERALS PRODUCTS DIVISION)
SECTION 17, T. 13 N., R. 9 W.
McKINLEY COUNTY, NEW MEXICO

INTRODUCTION AND SUMMARY

The Westvaco Mineral Products Division of Food Machinery and Chemical Corporation, 161 East 42nd Street, New York 17, New York, has applied for DMEA assistance to explore for uranium in Sec. 17, T. 13 N., R. 9 W., NMPM, McKinley County, New Mexico.

The original proposal called for 154 dry non-core holes averaging 220 feet in depth on a staggered 300-foot grid to explore three-fourths of section 17, excluding the S.W. quarter section. The estimated drilling footage was 41,580 feet and the total cost was $62,203.68. Government participation for uranium exploration of 75 percent was in effect at the time the application was received.

The property was visited by the Geological Survey member of the examining team on November 14, 1957, and by the DMEA engineer on November 20, 1957. The applicant was represented by W. S. Cavender, the resident geologist.

The known ore-bearing horizon of the area is the "Poison Canyon sandstone" unit of the Brushy Basin member of the Morrison formation; there is good possibility that the underlying Westwater member may contain ore grade mineralization. The applicant has carried on exploration in the SW$\frac{1}{4}$ of section 17, including development drilling around low-grade mineralization

discovered from wide-spaced drilling which has resulted in an indicated and inferred reserve of 3,100 tons of ore with a content of 0.15 percent U_3O_8 or more, and 55,000 tons of ore estimated to contain between 0.05 and 0.15 percent U_3O_8. A commercial ore body has not been indicated. In the tier of sections immediately north of section 17, 4 DMEA projects have been completed: sec. 7, DMEA 3939, Contract E-934; sec. 8, DMEA 3632, Contract E-797; sec. 9, DMEA 3943, Contract E-932; sec. 10, DMEA 4017, Contract E-940. The "Poison Canyon sandstone" was the target in each case. Exploration results in secs. 7, 9, and 10 were negative. On sec. 8, joining the applicant's section 17 on the north, the Colamar Corporation developed ore deposits calculated to contain an indicated 139,982 tons of ore averaging 7.5 feet thick with an average content of 0.178 percent U_3O_8, according to the final DMEA report on the project. Ore reserves in sec. 8 as computed by the A.E.C. differ considerably from the DMEA figures and are given in table II.

It is concluded that on section 17, the Poison Canyon member is favorable in thickness and within the known belt of mineralization in the area. Even though the frequency of occurrence of ore deposits has been low, and not all deposits found to date have contained minable grade ore in commercial tonnages, nevertheless there appears to be a reasonable chance of finding significant tonnages of ore which, although perhaps not minable now, would represent a future reserve.

A revised drilling plan was agreed on in a conference with the applicant's representative. A project in 2 stages requiring an estimated 36,620 feet of non-core drilling at a maximum cost of $30,394.60 is recommended for approval. Government participation at 75 percent would be $22,795.95.

ACKNOWLEDGMENTS

The applicant submitted with the application a brief report with map and drilling plan, 3 drilling bids from independent contractors, and a cost estimate. Data from the four previous DMEA projects in the immediate area, from Geological Survey and A.E.C. investigations, and from A.E.C. production and reserve records were used.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The property to be subordinated is the north ½ and the southeast ¼ of section 17, T. 13 N., R. 9 W., NMPM, McKinley County, New Mexico (fig. 1). It is reached by traveling 12 miles north on a hard-surfaced road from the junction of U. S. Highway 66 and New Mexico Highway 53 just west of Grants, New Mexico a shipping point on the Santa Fe Railroad, thence about 4 miles west and north on a graded access road to the property.

The surface at the property consists of a dip slope of Dakota sandstone dissected at a few points by shallow steep-walled arroyas. A growth of scrub cedar, pinon pine, and desert vegetation is supported by a thin soil cover. Drill sites will require little preparation.

There is a wide variation in temperature and precipitation with extremes of both heat and cold. The climate is generally arid with violent storms of short duration at any season. Year around surface operations are usually feasible.

There are no unusual problems of supply, power, or access. Limited ore tonnages can be marketed at the A.E.C. Grants buying station and at several operating mills. At the present time marketing of large tonnages of new ore is difficult because of limited mill capacity committed elsewhere. However, completion of mills now under construction should remedy this situation.

Water for drilling is scarce in some locations and must be purchased from local ranchers. In others, mine drainage provides an adequate supply. Dry non-core drilling is preferred in exploration insofar as it is feasible if the thickness and relationship of the lithologic units in the section has been determined.

Skilled labor and housing facilities are both in demand. The proposed exploration project would be carried on by a drilling contractor who would furnish operating personnel already based in the Grants area.

HISTORY, PRODUCTION, AND OWNERSHIP

Discovery of uranium in the Grants area dates from 1949 when a party of California geologists noted uranium minerals in the Todilto limestone of Jurassic age. The first discovery of ore in commercial quantities was made by an Indian sheepherder in 1951. Since then exploration has revealed

large reserves of uranium ore in the Dakota and Morrison formations as well as the Todilto.

There have been a number of DMEA projects in the Grants area. Of these, 4 were completed in a tier of sections just north of section 17 and are of immediate interest. These are as follows:

Table I

Operator	DMEA NO.	Contract No.	Property	Location
Westvaco 1/	3939	E 934	Santa Fe RR lease	Sec.7,T.13N.,R.9W.
Colamer Corp.	3632	E 797	State claims (located)	Sec.8,T.13N.,R.9W.
Westvaco 1/	3943	E 932	Santa Fe RR lease	Sec.9,T.13N.,R.9W.
Colamer Corp.	4017	E 940	Located claims	Sec.10,T.13N.,R.9W.

1/Westvaco Mineral Products Division of Food Machinery and Chemical Corporation.

There has been no production to date from Section 17 or from any of the properties in table I. Results of DMEA exploration were negative except on section 8 where an ore body 1,100 feet long by 500 feet wide with an average thickness of 7.5 feet was found in the northwest corner of the section. The calculated reserve in a smaller, minable portion of this ore body, together with production and reserves from other mines in the vicinity are as follows:

Table II.--Production and ore reserves of the Brushy Basin and Westwater Canyon members of the Jurassic Morrison formation in Sections 7, 8, 9, 16, 17, 18, 19, 20, and 21, T. 13 N., R. 9 W., NMPM, McKinley County, New Mexico.

Sec.	No. Mines	Host Rock	Production 1/		RESERVES			
					Indicated 1/		Inferred 1/	
			Tons	Grade	Tons	Grade	Tons	Grade
7	0							
8 2/	1	Westwater ? me			54000	0.22	18000	0.22
9	0							
16	0							
17 3/	1	Brushy Basin			3100	0.15		
18 2/	1	Brushy Basin	4988	0.56	10000	0.40		
19 2/	1	Brushy Basin	150950	0.25	213000	0.23	74000	0.23
20 2/	4	1 Westwater 3 Brushy Basin	75059	0.23	46415	0.32	14383	0.29
21	0							
Total			200,997		326,515		89,383	

1/ In percent U_3O_8

2/ From Production and Reserve file of the A.E.C.

3/ Furnished by the applicant.

The applicant's property rights are vested in a lease, No. S.F.P.9589, covering section 17, T. 13 N., R. 9 W., granted by the owner, the Santa Fe Pacific Railroad Company. This lease runs until March 15, 1958 but is subject to extension. The operator has carried on previous DMEA exploration under the same type of lease. Lease extensions have been granted when necessary. The Washington office DMEA suggests that an extension of one year should be obtained as was done on property where earlier DMEA projects were executed.

A performance bond is assumed to be necessary as in other DMEA projects carried on by the applicant.

GEOLOGY

General

The general area of section 17, T. 13 N., R. 9 W., is on the northeast flank of the Zuni uplift and the southwest flank of the San Juan Basin. Ambrosia Lake dome, a small structural high on the gently dipping east flank of the Zuni uplift lies a few miles toward the north. Dips vary, but are generally less than 10 degrees northeasterly. Formations in the uranium mining operations in this area are, from oldest to youngest: Entrada sandstone, Todilto limestone, Summerville formation, Bluff sandstone and Morrison formation of Jurassic age and Dakota sandstone of Cretaceous age. Only the Dakota sandstone crops out on the property. Important uranium deposits are found in the Morrison formation and Todilto limestone and minor deposits are known to occur in the Dakota sandstone.

Stratigraphy

The formations involved in mining operations in the immediate area are summarized in Table III. Because no uranium-bearing ground is known

Table III.--Uranium-producing formations and related formations in the vicinity of section 17, T. 13 N., R. 9 W., NMPM, McKinley County, New Mexico.

Age	Formation	Member	Approximate Thickness	Description
Cretaceous	Dakota		50' - 75' (top not present)	Massive, light colored sandstone underlain by black carbonaceous shale; contains small uranium deposits.
Jurassic	Morrison	Brushy Basin	150'	Reddish gray and greenish gray, bentonitic mudstone with sandstone lenses; includes ore-bearing "Poison Canyon" sandstone.
		Westwater Canyon	80' 150'	Light colored, arkosic sandstone; crossbedded; contains uranium deposits.
		Recapture	125'	Red and gray mudstone with intercalated, buff orange sandstone lenses.
	Bluff		200'	Massive, light colored, cross-bedded sandstone.
	Summerville		100'	Reddish brown, flat-bedded siltstone.
	Todilto		10' - 35'	Light gray limestone locally containing petroleum residues and uranium deposits.

in the Dakota sandstone on the property and the Todilto limestone is considered too deep to be a target horizon in the vicinity, only the Morrison formation is described.

The Morrison formation, in the Grants area, is divided into three members; these members are, from oldest to youngest, the Recapture shale member, the Westwater Canyon sandstone member, and the Brushy Basin member. The Recapture member consists of thin even bedded fine to coarse sandstone, clayey sandstone and clayey siltstone with a few mudstone lenses. Color ranges from gray through red in the clayey material and is mostly various shades of buff-orange in the cleaner, more pure sandstones.

The Westwater Canyon sandstone is a coarse, massive, arkosic sandstone that is light grayish red to light brown and various shades of buff-orange. Low angle, broadly sweeping crossbeds are prominent. Scour and fill structures are common throughout, and the contact with the underlying Recapture member is gently undulating where the sandstone fills shallow scours in the underlying Recapture member.

The Brushy Basin member consists of light greenish-gray to dark red-gray bentonic mudstone and silty mudstone with interlayered coarse sandstone. Both mudstone and silty mudstone are often mottled, and the sandstone is usually buff-orange. In a few places the sandstone is conglomeratic. One thick sandstone bed near the base of the member, locally called the "Poison Canyon sandstone", is the principal ore-bearing bed in the Brushy Basin member and reaches a maximum thickness of about 70 feet

on the subject property. This "Poison Canyon sandstone" of the Brushy Basin member and the underlying Westwater Canyon sandstone member are nearly the same lithologically and are known to coalesce. There apparently is no break in sedimentation between the Brushy Basin and Westwater Canyon members, and the "Poison Canyon sandstone" could well be referred to as a tongue of the Westwater Canyon sandstone; the lower Brushy Basin and upper Westwater Canyon being in part contemporaneous. As both the "Poison Canyon sandstone" and Westwater Canyon sandstone are ore-bearing, miners have difficulty distinguishing between them; miners often do not know in which horizon they are mining, and geologists often disagree on relative positions of ore deposits.

Structure

The structure in the immediate area is relatively simple. The rocks have an average dip of about 5° toward the northeast, forming the northeast flank of the Zuni uplift and the southwest flank of the San Juan Basin. Gentle warps superimposed upon this homocline cause dips as high as 10°; flat-lying beds may be seen in a few places. Drilling and mining operations in surrounding sections have disclosed the presence of several small shear zones, but no pattern to this faulting is known and the shears do not seem to have any bearing upon the position of an ore deposit.

ORE DEPOSITS

One occurrence of sub-ore grade material is known on section 17. Drilling by Food Machinery and Chemical Company in the SW¼ of the section has indicated a deposit containing 3,100 tons of 0.15 percent U_3O_8 and 55,000 tons of 0.05 percent to 0.15 percent U_3O_8. The deposit is approximately 500 by 700 feet including the non-commercial mineralization and trends in a northeasterly direction. In addition to this deposit, 10 of the 39 holes drilled by the company in the other 3/4 of the section have penetrated mineralized ground (0.05-0.15 percent U_3O_8). (See figure 2.)

Several mines in the Morrison formation in the surrounding tier of sections are known (see table II and fig. 3). These mines have had a total production of 200,997 tons of ore with an average grade of about 0.25 percent U_3O_8 and have a total indicated and inferred reserve of over 400,000 tons of ore of like grade. Five to ten miles northerly is the Ambrosia Lake area with its many millions of tons of indicated ore. Although many Todilto ore deposits have been mined in this general vicinity, no production or reserve figures will be quoted here as the Todilto formation is not considered as a part of this application.

The ore deposits in this area, where found at the depth presumed for the lower Brushy Basin member and the Westwater member, are of the coffinite type. Carbon is abundant in and close to ore. It may occur at almost any stratigraphic position within the sandstone but seems to be found usually about midway between the top and the bottom of the sandstone. The host rock surrounding ore deposits in both the "Poison

Canyon sandstone" and the Westwater Canyon sandstone is bleached to light gray. However, these bleached areas are very large and cannot be used to determine the presence or absence of ore deposits on the subject property; private company drilling has indicated all of section 17 is probably underlain by this bleached zone. Thicker and coarser portions of the sandstone contain most of the ore, however, some good ore deposits have been found in thinner and less coarse portions. No positive correlation between the localization of ore and thickness and/or grain size of the sandstone host rock is apparent. Ore is found both as large tabular bodies and as clusters of small discontinuous lenses; deposits ranging in size from 5,000 to almost 500,000 tons may be discovered.

Because the presence of ore or significant mineralization is the only criterion for finding ore in this immediate area, a moderately close-spaced (300'x600') drilling pattern is required.

A northeast trending ore-bearing "zone" is suggested by the areal relationships of deposits in sections 17, 18, 19 and 20. This "zone" includes the Poison Canyon mine and the low-grade deposit in the SW$\frac{1}{4}$ of section 17 and may project into the central part of the area considered in this report of examination.

MINABLE ORE RESERVES

In the SW$\frac{1}{4}$ of section 17, the following ore reserve based on the applicant's drilling exploration has been calculated:

3,100 tons with a content of 0.15 percent or more U_3O_8

55,000 tons with a content between 0.05 and 0.15 percent U_3O_8.

None of the ore is minable at the present time, although the higher grade ore would be minable if the available tonnage was large enough to justify development through a shaft operation.

No reserves have been developed by drilling done to date in the proposed DMEA project area.

PRESENT STATUS

Exploration and Development

Exploration to date on section 17 consists of 27 wide-spaced holes in the SW$\frac{1}{4}$ followed by 33 close-spaced development holes. A total of 39 were mineralized (from 0.05 to 0.20 percent eU_3O_8) and 10 were ore (over 3 feet containing 0.20 percent or more eU_3O_8). Wide-spaced exploration drilling in the rest of section 17 was confined largely to strips along the western, eastern, and southern boundaries and resulted in discovery of low grade mineralization in 10 out of a total of 47 holes (fig. 2). The balance of the holes were barren.

Mining and Milling Machinery and Other Facilities

The operator has operating mines in the Grants area which are fully equipped. No equipment or other facilities are maintained on section 17. Drilling equipment for the proposed project would be furnished by the drilling contractor.

PROJECT PROPOSALS WITH COSTS

The applicant proposed a drilling project in one stage requiring an estimated 41,150 feet of non-core rotary drilling in 154 holes on 300-foot centers in staggered north-south rows, utilizing previously drilled holes in the pattern. The cost of the proposed exploration was estimated at $62,203.68. Government participation at 75 percent would have been $46,652.76.

Core drilling in the area has not proven to be successful because of very poor core recovery. In fact one DMEA project which provided for core drilling was later changed to non-core drilling, and adequate information was obtained from the work. Completed DMEA contracts in the immediate area provided for three stages of drilling. In contract Idm-E 797, Stage I consisted of drilling on a 400-by 800-foot pattern followed by a 200-foot by 400-foot pattern in a second stage. Stage III consisted of a 100- by 200-foot pattern in favorable ground as established in Stages I and II. In contract Idm-E 940, two north-south rows of holes 4,000 feet apart spaced on 400-foot centers in each row were provided in Stage I to evaluate the "Poison Canyon sandstone". Stage II consisted of intermediate north-south rows 800 feet apart with spacing within a row of 400 feet, confined to favorable ground established in Stage I. Stage III consisted of offset holes on 100-foot centers around previously drilled holes which penetrated significant mineralization.

Previous drilling in the proposed project area is equivalent to the Stage I of contract Idm-E 940. In addition a few scattered holes have been drilled which can be utilized in the pattern for a second stage. It has been determined that the Poison Canyon member is of favorable thickness and there is low-grade mineralization present in 10 holes. It remains to be determined whether significant mineralization occurs in the unexplored portions of the area. There does not appear to be justification for the density of drilling proposed by the applicant. The minimum target size which is believed to be worthwhile exploring is 500 feet by 700 feet, the size of the deposit, including the non-commercial low grade material surrounding minable ore, found in the SW$\frac{1}{4}$ of sec. 17. The deposit found in sec. 8, including low grade mineralization, has dimensions of approximately 500 feet by 1,100 feet. The revised drilling plan in the present proposal calls for a first stage with a rectangular pattern of holes spaced 300 feet apart east-west and 600 feet north-south. Completion of this work would establish the presence or absence of individual deposits with minimum dimensions of 500 feet by 700 feet with the long axis oriented northeast and southwest, as in the SW$\frac{1}{4}$ of sec. 17, or northwest and southeast, as in sec. 8. While the minable portions of deposits may not be large enough to insure being spotted by such a drilling pattern, there is a good probability that the mineralized areas, if present, are large enough so that some evidence of them would be obtained through penetration of low-grade mineralization at least.

The applicant proposed that alternate holes should be drilled through the underlying Westwater member, based on evidence of mineralization in this member in other drill holes on sec. 17 as well as the position of part of the ore body in the Holly Uranium Corporation's Mesa Top mine in sec. 20 which may be in the Westwater rather than the Poison Canyon member.

While the DMEA drilling in sections 7, 8, 9, and 10 that penetrated the Westwater Canyon was unsuccessful (the section 8 deposit is placed in the "Poison Canyon sandstone" by DMEA geologists and placed in the Westwater Canyon sandstone by A.E.C. geologists. See table II); the presence of ore in the Westwater sandstone in this vicinity and the minor mineralization found in a few of the drill holes that penetrated the Westwater sandstone on section 17 warrants some exploration of the Westwater sandstone, but testing this member in every fourth hole as shown in figure 2 should be sufficient in Stage I. "Poison Canyon" deposits are more numerous in the area of the subject property than are Westwater Canyon deposits, and for this reason the examining team believes the probability of finding ore in the higher horizon is greater than in the lower horizon.

Stage I, then, in the revised proposal, consists of 71 holes as shown in figure 2. The average depth of 75 percent of the holes, (53), to penetrate the Poison Canyon member is estimated at 220 feet. The average depth of the remainder (18 holes) is 320 feet for a total of 17,420 feet of non-core drilling.

Stage II provides for a maximum of 60 holes offsetting Stage I holes that penetrate significant mineralization; Stage II holes are not to be drilled less than 100 feet from any previously drilled hole. Provision is made for footage to drill these holes through the Westwater member if specifically authorized. The estimated non-core footage is 19,200 feet.

The applicant submitted three drilling bids with the application, the lowest of which is $0.75 per foot in holes up to 400 feet deep, made by the W. T. Mayers Drilling Company of Grants, New Mexico. However, another project was being considered by the applicant on sec. 21 which has a common corner with sec. 17, and the drilling conditions in the two sections are identical. The lowest of three drilling bids obtained for the section 21 project was $0.65 per foot up to 400 feet deep. Even though the applicant has decided not to make application for DMEA exploration assistance on section 21, the lower bid obtained, reflecting, according to the applicant's representative, later trends in contract prices in the Grants area caused by increased competition, is used in the DMEA examiner's cost estimate. The bid was made by the Clyde L. Jones Drilling Company of Albuquerque, New Mexico. This contractor was not one of the bidders on section 17 but it is assumed that the bid made on section 21 would hold good on section 17.

The applicant's cost estimate calls for $0.70 per foot for all costs other than actual drilling. This amount is considered to be high, and a considerably lower figure is arrived at in the DMEA estimate. Use of 2 drill rigs drilling 250 feet each per shift is assumed.

Estimated Costs

Stage I

Number of holes	71
Estimated non-core footage	17,420 feet
Estimated time for completion (including preliminary work)	2 months

(1) Independent Contracts

non-core drilling-17,420 feet at $0.65/ft.	$11,323.00	
Total independent contracts		$11,323.00

(2) Labor, Supervision, and Technical Services

1 supervisor-geologist, 2 months at $600/mo	1,200.00	
1 sampler-2 months at $450/mo.	900.00	
1 surveyor-½ month at $500/mo	250.00	
1 surveyor's helper-½ month at $350/mo.	175.00	
Total labor, supervision and technical services		$ 2,525.00

(3) Operating Supplies

Fuel and oil for pickup truck-2 mo. at $30/mo	60.00	
Office and drafting and sampling supplies-2 months at $20/mo.	40.00	
Total operating supplies		$ 100.00

(4) Operating Equipment

Depreciation on probing and surveying equipment at $20/mo.--2 months	40.00	
Depreciation on pickup truck at $50/mo.--2 months	100.00	
Total operating equipment		$ 140.00

(5) Rehabilitation and Repairs

none

(6) New Buildings and Equipment

none

(7) Miscellaneous

Accounting-2 months at $50/mo.	$ 100.00	
Compensation ins. and payroll taxes at 7 percent of $2,525.00	176.75	
New Mexico school tax on contracts at 2 percent of $11,323.00	226.46	
Total miscellaneous		$ 503.21
Total Stage I		$14,591.21

Stage II

Number of holes	60
Estimated non-core footage	19,200 feet
Estimated time for completion (including evaluation between stages)	2 months

(1) Independent Contracts

non-core drilling, 19,200 feet at $0.65/ft.	$12,480.00	
Total independent contracts		$12,480.00

(2) Labor, Supervision and Technical Services

Same as Stage I

Total labor, supervision, and technical services $ 2,525.00

(3) Operating Material and Supplies

Same as Stage I

Total operating material and supplies $ 100.00

(4) Operating Equipment

Same as Stage I

Total operating equipment $ 140.00

(5) (6) none

(7) Miscellaneous

Accounting-2 months at $50/mo.	$ 100.00	
Compensation Ins. and payroll taxes at 7 percent of $2,525.00	176.75	
New Mexico school tax on contracts at 2 percent of $12,480.00	249.60	
Total miscellaneous		$ 526.35
Total Stage II		$15,771.35
Total for Project		$30,362.56

Breakdown of Costs

Items	STAGE I Units	STAGE I Cost	STAGE II Units	STAGE II Cost	PROJECT Units	PROJECT Cost
(1) Independent contracts non-core drilling	17,420 ft.	$11,323.00	19,200 ft.	$12,480.00	36,620 ft.	$23,803.00
(2) Labor, supervision, and technical serv.	2 months	2,525.00	2 months	2,525.00	4 months	5,050.00
(3) Operating materials and supplies	2 months	100.00	2 months	100.00	4 months	200.00
(4) Operating equipment	2 months	140.00	2 months	140.00	4 months	280.00
(5) (6) none						
(7) Miscellaneous	2 months	503.21	2 months	526.35	4 months	1,029.56
Sub-total items (2) thru (7)		$ 3,268.21		$ 3,291.35		$ 6,559.56
Item (1)		11,323.00		12,480.00		
Total		$14,591.21		$15,771.35		$30,362.56

Drilling cost per foot of items (2) through (7) (Incidental allowance) $\frac{\$6,559.56}{36,620 \text{ ft.}} = \$0.18$

Overall drilling cost per foot $\frac{\$30,362.56}{36,620 \text{ ft.}} = \$0.83$

Summary of Costs suggested for Contract use

Stage I

Actual Costs

17,420 feet of non-core drilling at $0.65/ft.	$11,323.00	
Fixed Costs		
Incidental allowance for 17,420 feet non-core drilling at $0.18/ft.	$ 3,135.60	
Total Stage I		$14,458.60

Stage II

Actual Costs-

19,200 feet non-core drilling at $0.65/ft	$12,480.00	
Fixed Costs		
Incidental allowance for 19,200 feet of non-core drilling at $0.18/ft.	$ 3,456.00	
Total Stage II		$15,936.00
Total for Project		$30,394.60
Government participation at 75 percent		$22,795.95

CONCLUSIONS AND RECOMMENDATIONS

It is concluded that there is a reasonable probability of discovering significant ore reserves (containing tens of thousands of tons of ore averaging 0.20 percent U_3O_8 or more) on section 17. A drilling program as outlined in this report is recommended for approval at an estimated maximum

cost of $30,394.60. Government participation at 75 percent would be $22,795.95.

The usual provisions governing operation should be incorporated. Inasmuch as no drill core is to be obtained, graphically-recorded probing logs should be required, and samples of cuttings representing not more than 5-foot intervals should be taken for radiometric and visual examination. Portions of cutting samples which show radioactivity should be sacked and preserved for comparison with probing results. Chief reliance for evaluation of holes is placed however on probing.

Stage II drilling in both the Poison Canyon and Westwater members should require prior written Government authorization.

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
DECEMBER 1957
DOCKET 4845

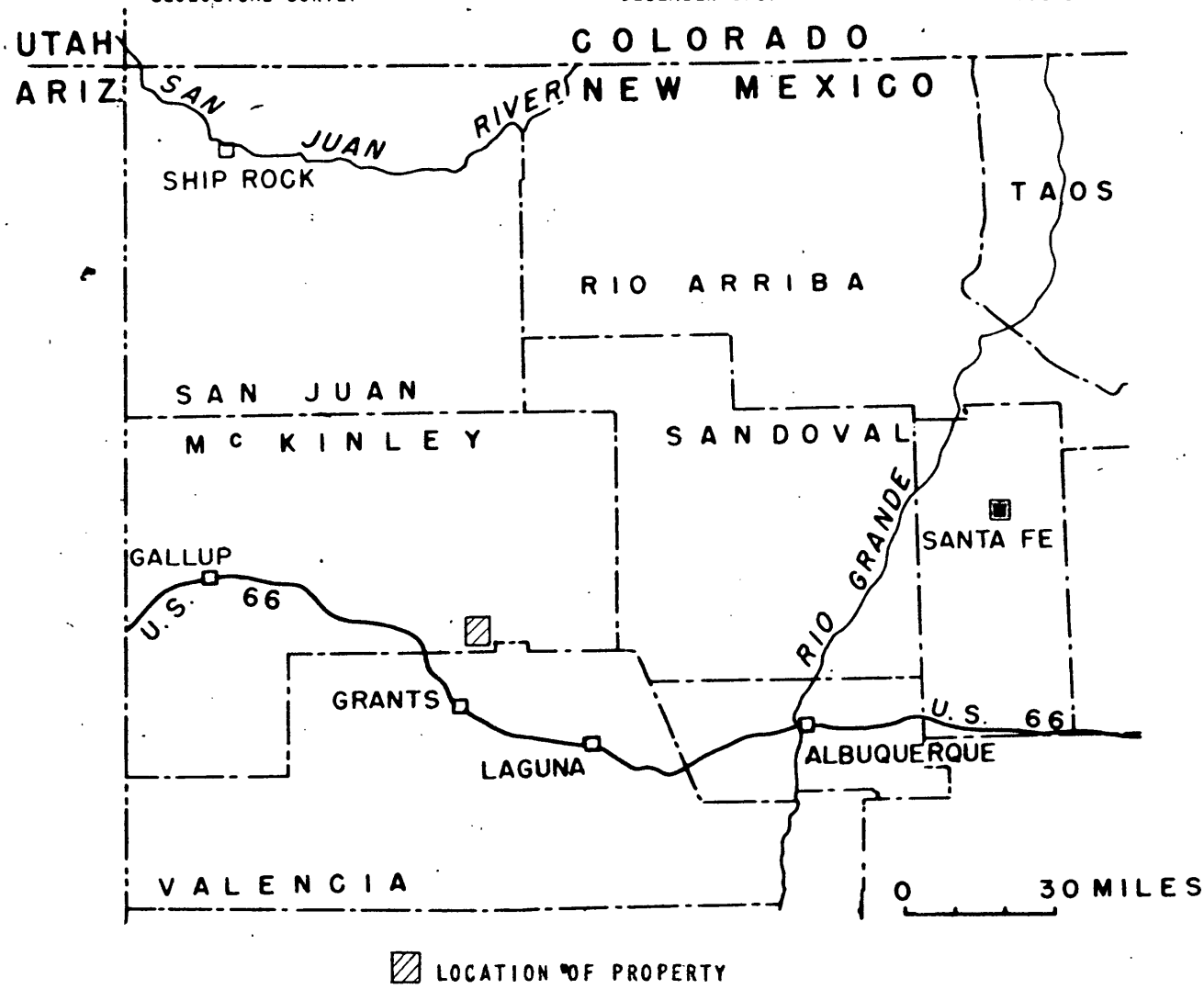


FIGURE 1.--LOCATION MAP, SEC.17, T.13 N., R.9 W., WESTVACO MINERAL PRODUCTS DIVISION, FOOD MACHINERY AND CHEMICAL CORPORATION, McKINLEY COUNTY, NEW MEXICO.

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
DECEMBER 1957
DOCKET 4845

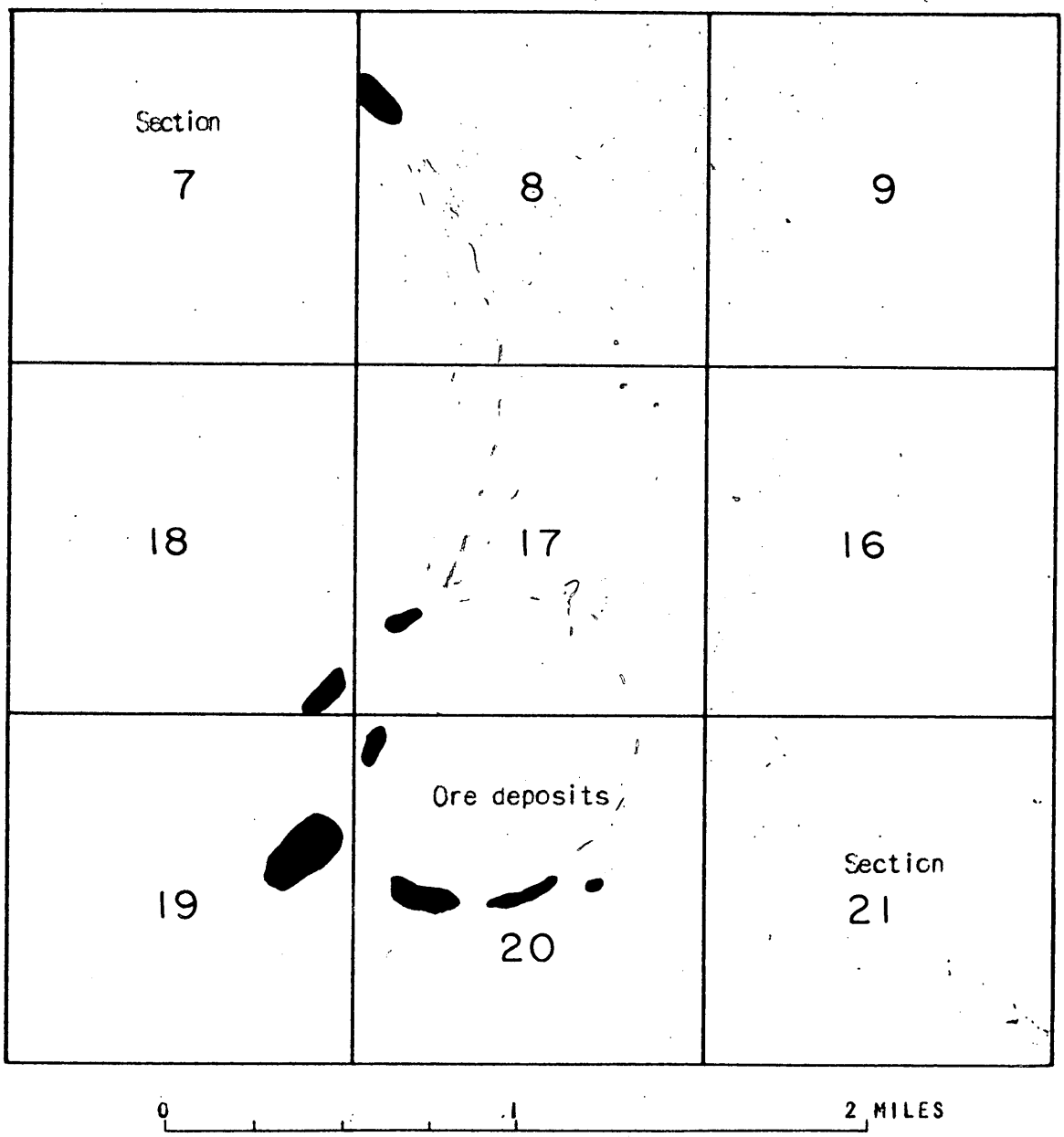


FIGURE 3.--SKETCH MAP OF PART OF T.13 N., R.9 W. SHOWING LOCATION OF KNOWN ORE DEPOSITS, WESTVACO MINERALS DIVISION OF FOOD, MACHINERY, AND CHEMICAL CORPORATION, McKINLEY COUNTY, NEW MEXICO.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

224 New Customhouse
Denver 2, Colorado

OFFICIAL FILE COPY
DMEA
RECEIVED DEC 9 1957
DATE | CODE
12-9 | C | 220
700

December 5, 1957

Memorandum

To: Chairman, Operating Committee, DMEA

From: DMEA Field Team, Region III

Subject: Docket No. DMEA 4845 (Uranium) Food Machinery and Chemical Corporation (Sec. 17, T. 13 N., R. 9 W.) and Docket DMEA (Uranium) Food Machinery & Chemical Corporation (Sec. 21, T. 13 N., R. 9 W.) McKinley County, New Mexico

Enclosed are the original and two copies of a memorandum informing us that the subject Applicant will not submit another application for exploration on Sec. 21, T. 13 N., R. 9 W., McKinley County, New Mexico.

W H King
W. H. King
Executive Officer

WMK
HMC

MINERAL DEPOSITS
IN REPLY REFER TO:
DMEA
RECEIVED
DEC 3 1957
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. Box 360
Grand Junction, Colorado

December 2, 1957

Memorandum

To: Executive Officer, DMEA Field Team, Region III

Through: E. N. Harshman EWH

From: J. William Hasler
M. H. Salsbury

Subject: Docket No. DMEA 4845 (Uranium), Food Machinery and Chemical Corporation (Sec. 17, T. 13 N., R. 9 W.), and Docket DMEA ___ (Uranium), Food Machinery & Chemical Corporation (Sec. 21, T. 13 N., R. 9 W.), McKinley County, New Mexico.

Mr. Heath Fowler, chief of exploration, Food Machinery and Chemical Company, informed this office by telephone December 2, that the company has decided not to submit the application for exploration on Sec. 21, T. 13 N., R. 9 W., McKinley County, New Mexico.

The application that was submitted to the Grand Junction DMEA office will be returned to the applicant. As a result of this action it will not be necessary to consider combining Docket No. DMEA 4845 and the proposed work on Sec. 21, referred to in Salsbury and Shawe's memorandum of November 25, 1957.

J. William Hasler

J. William Hasler,
Geologist

M. H. Salsbury

M. H. Salsbury,
Mining Engineer

JWH/bh

OFFICE FILE COPY
DMEA
RECEIVED DEC 3 1957
DATE

DMEA
DEPARTMENT OF THE INTERIOR
DEC 4 - 1957
REGION III
DENVER, COLORADO

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
224 New Customhouse
Denver 2, Colorado

November 27, 1957

Memorandum

To: Chairman, Operating Committee, DMEA

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

Subject: Docket No. DMEA 4845 (Uranium), Food Machinery and Chemical Corporation (Sec. 17, T 13 N, R 9 W), McKinley County, New Mexico

Enclosed are the original and two copies of a self-explanatory memorandum regarding the subject DMEA application.

I concur with the conclusion that the exploration proposed on Section 17 and that to be proposed on Section 21 should be considered as one project and one lien should cover both sections.

Due to the change of Government participation on uranium projects, it appears impossible to combine the applications for field processing.

We will continue to process DMEA Docket 4845 separately, as proposed in the memorandum, and if agreeable to you I suggest that exploration on Section 21 be considered as an additional work, (requiring additional funds) under any contract granted under DMEA Docket 4845.

E. N. Harshman

E. N. Harshman

Enclosures

No action until new application received.
mme.

OFFICIAL FILE COPY
DMEA
RECEIVED NOV 29 1957
DATE | INITIALS | CODE
11/29 | C | 220
12/2 | Chairman | 700

MINERAL DEPOSITS
IN REPLY REFER TO:
RECEIVED
NOV 26 1957
U.S. GEOLOGICAL SURVEY
DENVER, COLORADO

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. Box 360
Grand Junction, Colorado

DMEA
DEPARTMENT OF THE INTERIOR
NOV 27 1957
REGION III
DENVER, COLORADO

November 25, 1957

Memorandum

To: Executive Officer, DMEA Field Team, Region III

Through: E. N. Harshman
J. William Hasler

From: M. H. Salsbury
F. R. Shawe

Subject: Docket No. DMEA 4845 (Uranium), Food Machinery & Chemical Corporation, Sec. 17, T. 13 N., R. 9 W., and Docket No. DMEA (Uranium), Food Machinery & Chemical Corporation, Sec. 21, T. 13 N., R. 9 W., McKinley County, New Mexico

A field examination of the application for Government assisted exploration under Docket No. DMEA 4845 has been made. During the visit, the applicant's representative furnished the examiners with a copy of another application submitted, or about to be submitted on Sec. 21 which has a common corner with the section investigated. Evaluation in the field indicated that the exploration proposals are similar, that essentially the same drilling pattern is applicable to both, and that both will probably be recommended for approval by the examining team. A separate field examination for the second application will not be necessary.

In accordance with DMEA policy as expressed in a letter from the Chairman of the Operating Committee to E. N. Harshman dated October 14, 1957 regarding Docket No. DMEA 4842, it appears that sections 17 and 21 should be under one lien and considered as one project. There is one difficulty in doing this. Docket No. DMEA 4845 calls for 75 percent participation and the second application 50 percent.

For the present, the report on Docket No. DMEA 4845 will be processed separately. If a decision is made by Washington to consider the two applications as one project the report can be expanded to include the second one.

The applicant has obtained sets of three drilling bids for both applications. The low bid under Docket No. DMEA 4845 is $0.75 per foot for non-core drilling, the only type proposed. Under the second application the low bid is $0.65 per foot. The applicant states that the reason for the difference is that drilling activity is declining somewhat in the area and that competition is becoming more severe. The field examiners propose to use

the low bid for the second application for cost estimating purposes on the first application, even though the second application is not combined with the first.

M. H. Salsbury,
Mining Engineer

Fred R. Shawe by [illegible]

Fred R. Shawe,
Geologist

MHS/bh

224 New Customhouse
Denver 2, Colorado

November 13, 1957

RECEIVED NOV 18 1957
11-19 C 220
" Ching 700

Memorandum

To: J. W. Easler) W/enclosures
M. H. Salsbury) "

From: DMEA Field Team, Region III

Subject: Docket No. DMEA 4845 (Uranium) Food Machinery and Chemical Corporation (Westvaco Mineral Products Division) Sec. 17, T. 13 N., R. 9 W., McKinley County, New Mexico

Enclosed is a set of bids submitted by three different drilling contractors which were submitted to the Washington Office, DMEA, by the Applicant.

Will you please attach a set of bids to your copy of the brochure.

E. N. Harshman
Acting Executive Officer

Enclosures

EMC:eh

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

224 New Customhouse
Denver 2, Colorado

November 7, 1957

11/12 C 220 700

Memorandum

To: J. W. Hasler) W/enclosures, Items 2-5 Below
DMEA/DFC) " " 1-5 "

From: DMEA Field Team, Region III

Subject: Docket No. DMEA 4845 (Uranium) Food Machinery and Chemical Corporation (Land in Sec. 17, T. 13 N., R. 9 W., N.M.M.) McKinley County, New Mexico

Enclosed is the following material relating to the subject docket.

1. Copy of application for Government assistance in exploration work under the DMEA program.
2. Memorandum of Review by James Paone, USBM.
3. Memorandum of Review by W. P. Williams, USGS.
4. Letter of transmittal of the foregoing to this office, dated November 1, 1957, from the Chairman, Operating Committee, DMEA.
5. Routing Control Sheet.

The Applicant has promised to forward this office a fourth copy of the application which will be forwarded the field as soon as received.

A field examination of the property and a joint report of findings and recommendations pertaining to the Applicant's work proposal are requested.

If the field examiners recommend Government participation in the proposed exploration program, please submit eleven extra copies of each map used in the joint report which show the land to be subordinated and the location and extent of recommended work, relative to property boundaries.

The Bureau of Mines' copy of the application should not be returned to this office, but is to be kept for the Examining Engineer's file. The Routing Control Sheet, however, is to be completed, detached from the application, and forwarded to the Executive Officer with the Joint Examination Report.

E. N. [illegible]

E. N. Harshman
Acting Executive Officer

Enclosures

HMC:eh

cc: Sec. Op. Comm. (2)
Harshman W/enclosures 2-4
Docket
Chron.

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
11-4	Ching	700
11-4	Ellis	200
11/6	ECS	138
"	Jorman	112
		~~100~~
		2HB
11/7	gb	200
		700

NOV 7 1957

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

Re: Docket No. DMEA-4845 (Uranium)
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
Sec. 17, T. 13 N., R. 9 W.
McKinley County, New Mexico

Dear Mr. Harshman:

Further to our letter of November 1, regarding the subject application, we are enclosing three copies of a letter, dated November 1, 1957, from the Applicant, and three sets of bids submitted by three different drilling contractors.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (2HB)

Enclosures

APPROVED:

Frank D. Lamb (2HB)
Member, Bureau of Mines

Thor H. Kiilsgaard (2HB)
Member, Geological Survey

MChing/izm 11-4-57
cc: Mr. Ching
Admr.'s Reading File
Operating Committee
THKiilsgaard, 5224

8623

FOOD MACHINERY
AND CHEMICAL
CORPORATION

WESTVACO MINERAL PRODUCTS DIVISION

4845

RECEIVED		
DATE		
11/4	C	220
11	C Cheng	700

CHRYSLER BUILDING EAST
161 EAST 42ND STREET
NEW YORK 17, N. Y.
TELEPHONE MURRAY HILL 7-7400

November 1, 1957

Mr. Michael Ching
Rare and Miscellaneous Metals Division
Defense Materials Exploration Administration
Washington 25, D. C.

Dear Mr. Ching:

Please accept my apologies for not responding more promptly to the points you have raised with Mr. Groggins of our Washington Office with respect to our currently pending DMEA Application (Docket 4845). A combination of business and personal circumstances has kept me away from the office a major part of the time during recent weeks.

We enclose three contractors' bids for the proposed exploration work, pursuant to your request.

We affirm our intention to furnish a bond in lieu of a Consent to Lien in the event our lessor declines to execute a Form MF-203.

We understand that your third point had to do with the period of time during which we are entitled to continue exploration work under the terms of our lease. Please accept our assurance that, on the basis of our discussions with Santa Fe Pacific Railroad Company, our lessor, we are confident that we can obtain any extension necessary to complete the exploration work contemplated. Such extensions have been readily granted in the past. In addition, due to the high incidence of ore pockets in this area and the nearness to this parcel of a number of large proven deposits, we believe that we should have no difficulty in retaining possession of this parcel under the language of the lease itself.

Please feel free to call upon us if we can furnish any further information or in other ways expedite the processing of our application.

Very truly yours,

FOOD MACHINERY AND CHEMICAL CORPORATION
Westvaco Mineral Products Division

W. N. Williams

W. N. Williams
President

Enc.

C. C. SMITH DRILLING CO.
LUBBOCK, TEXAS

Oct. 24,1957

Drilling Bid To.

Westvaco Minerals Product Co.
Grants, New Mexico.

Bid for drilling to be done on Section 17-T-13-N 9-W. McKinnly County, New Mexico.

Plugging Prices.

From 0 To 400 ft..... $ 0.85 per foot.

C.C. Smith Drilling Co.
200 Leach Ave.
Grants, New Mexico.

Signed: C. L. Sutton

Approved: _____

_____

W. T. Myers Drilling Company
SHOT HOLE AND CORE DRILLING
PHONE ~~6XXXX~~ AT7-4416
~~XXXXXXXXXXXX~~ P. O. Box 154
~~ALBUQUERQUE NEW MEXICO~~
Grants, New Mexico
October 21, 1957

Westvaco Mineral Products
P. O. Box 24, Star Route
Grants, New Mexico

Gentlemen:

In response to your request for a bid on drilling 41,500 feet in Section 17, T13N, R9W, McKinley County, New Mexico, we submit the following:

0-400 feet @ $.75¢ per foot

If we can be of further assistance, do not hesitate to call on us.

Sincerely yours,

W. T. Myers

W. T. Myers

STEWART BROS. & PARKER DRILLING COMPANY
EXPLORATION DRILLING CONTRACTORS
P. O. BOX 2449 PHONE 6-6143
ODESSA, TEXAS

Aug. 15, 1957

RECEIVED
DATE

Westvaco Mineral Products Co.
Grants, New Mexico

Dear Sirs,

Our proposed price for the drilling of 41,500 feet (ave. depth 270') on your section 17-T13N-R9W is as follows.

0-400 $.80 Per foot

This price may seem a little high compared to the passed price of drilling. However, we have had increases in Bit cost for the last two months amounting to $12.00 per bit.

We hope that your Company will understand this situation which has compelled us to increase our price of drilling.

This letter, being only a proposal, we will be looking foward to talking with you more about this job.

Sincerely yours,

Bob G. Stewart

Bob G. Stewart, Partner
Stewart Bros. & Parker
Drilling Company

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
10/30	Ching	700
10/30	Ellis	700
11/1	[illegible]	130
11/1	[illegible]	110
		~~100~~
		~~[illegible]~~
		200
		700

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

NOV 1 1957

Re: Docket No. DMEA-4845 (Uranium)
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
Sec. 17, T. 13 N., R. 9 W.
McKinley County, New Mexico

Dear Mr. Harshman:

The subject application is being referred to you for investigation, a field examination if warranted, and recommendations.

Enclosed for your information are memoranda, dated October 14 and 15, 1957, by James Paone, USBM, and W. P. Williams, USGS, respectively, relating to the application. Also enclosed is a copy of the application for the use of the Field Team.

The Applicant's Washington representative, Mr. Philip H. Groggins, has been advised of the following requirements and has indicated that they will be met in due time:

1. The exploratory period under the Uranium Mining Lease and Agreement between the Applicant and Santa Fe Pacific Railroad Company, ends on March 15, 1958; therefore, it must be extended another year to permit completion of any work covered by the proposed contract. This was done in the case of the earlier Food Machinery contracts;

2. The Applicant must be prepared to furnish a Performance Bond in lieu of a Consent to Lien and Subordination Agreement inasmuch as Santa Fe refuses to furnish the latter; and

3. Three drilling bids by independent contractors must be submitted.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (HB)

Enclosures
APPROVED:

P. F. Yopes (HB)
Member, Bureau of Mines

Thor H. Kiilsgaard (HB)
Member, Geological Survey

RChing/izm 10-30-57
cc: Mr. Ching
Admr.'s Reading File
Operating Committee
THKiilsgaard, 5224

8623

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
10/30	Ching	100
10/30	Ellis	700
11/1	Selfridge	130
11/1	Wilgaard	130
11/4		

Mr. W. N. Williams, President
Westvaco Mineral Products Division
Food Machinery and Chemical Corporation
161 East 42nd Street
New York 17, New York

NOV 1 1957

Re: Docket No. DMEA-4845 (Uranium) 11/1 Yoyes (130)
Sec. 17, T. 13 N., R. 9 W.
McKinley County, New Mexico

Dear Mr. Williams:

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

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

The Regional Office will contact you in regard to your project if additional information is required.

Sincerely yours,

Frank E. Johnson (fw)

ACTING Administrator

MChing/izm 10-3-57
cc: Mr. Ching
Admr.'s Reading File
DMEA FT Reg. 3 (2)

8623

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

Ellis

OFFICIAL FILE COPY
DMEA
RECEIVED OCT 16 1957
IN REPLY REFER TO:

DATE	INITIALS	CODE
10/17	B	220
11	~~P. Henry~~	700
	Complete	

Memoranum

October 15, 1957

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

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

Subject: Review of application, DMEA 4845 (uranium), Food Machinery and Chemical Corporation, sec. 17, T. 13 N., R. 9 W., N.M.M., McKinley County, New Mexico.

The applicant proposes to explore for uranium ore deposits on lands comprising 3/4 of a land section located in the Grants district of New Mexico.

The proposed project would consist of a total of 41,580 feet of non-core drilling at a total estimated cost of $62,204.

The land in question is immediately adjacent and to the south of DMEA 3632, Colamer Corp. The project would seek for deposits in both the Poison Canyon and Westwater Canyon members.

The applicant has completed some exploration work on the property. I recommend that the Field Team be asked to review the application and advise upon further action.

W. P. Williams

W. P. Williams

OFFICIAL FILE COPY
DMEA
RECEIVED OCT 14 1957

DATE	INITIALS	CODE
10/15	C	230
"	Colony	700

Ellis

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

Date October 14, 1957

DMEA Docket No. 4845
DMEA Contract No.
Commodity Uranium
Name of applicant Food Mach. & Chem. Corp.
Name of property Section 17
Location of property McKinley County, N. Mex.
Estimated cost of project $62,203.68

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee

From: James Paone, Bureau of Mines Member JP
Uranium Commodity Committee

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

1. Date of subject document: 9/30/57. 2. Date received by reviewer: 10/11/57

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

10. Remarks: (Use back of page if necessary)

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
10/25	Ching	700
10/28	Ellis	700
		~~400~~
10/28	Johnson	110
10/28	gb	900
		700

OCT 28 1957

Mr. Clarence R. Peterson
Assistant Counsel, Chemical Divisions
Food Machinery and Chemical Corporation
161 East 42nd Street
New York 17, New York

Re: Docket No. DMEA-4845 (Uranium)
Sec. 17, T. 13 N., R. 9 W.
McKinley County, New Mexico

Dear Mr. Peterson:

In accordance with your letter of October 22, 1957, to Mr. E. N. Harshman, we are returning two copies of Uranium Mining Lease and Agreement No. SFP 9588 which were inadvertently submitted by you, but which have no bearing on the captioned application.

Sincerely yours,

SIGNED

Ernest Wm. Ellis, Director
Division of Rare and
Miscellaneous Metals

Enclosures

MChing/izm 10-25-57
cc: Mr. Ching
Admr.'s Reading File
DMEA FT Reg. 3 (2)

8623

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
224 New Customhouse
Denver 2, Colorado

October 23, 1957

OFFICIAL FILE COPY
DMEA
RECEIVED OCT 25 1957

DATE	INITIALS	CODE
10/25	gb	220
"	Chung	700

Memorandum

To: Secretary to the Operating Committee, DMEA

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

Subject: Docket DMEA-4845 (Uranium) Food Machinery and Chemical Corporation (Land in Sec. 17, T. 13 N., R. 9 W., N.M.M.) McKinley County, New Mexico

Enclosed for your attention and reply is a letter, dated October 22, 1957, from the Applicant, Clarence R. Peterson, which among other things requests the return of two copies of Uranium Mining Lease and Agreement No. SFP 9588.

Mr. Peterson's letter is enclosed for your attention, since the two copies of this lease were forwarded to your office with the original and one copy of the subject application.

E. N. Harshman

E. N. Harshman

Enclosure

FOOD MACHINERY AND CHEMICAL CORPORATION

CHEMICAL DIVISIONS

DMEA
DEPARTMENT OF THE INTERIOR

OCT 23 1957
REGION III
DENVER, COLORADO

161 EAST 42ND STREET
NEW YORK 17, N. Y.

OFFICIAL FILE COPY
DMEA
RECEIVED OCT 25 1957

DATE	INITIALS	CODE

October 22, 1957

Mr. E. N. Harshman
United States Department of the Interior
Defense Minerals Exploration Administration
224 New Customhouse
Denver 2, Colorado

Dear Mr. Harshman:

Subject: DMEA Docket No. 4845

Geographical disadvantages have served to delay our compliance with your request for a fourth copy of our application, but I hope to be able to send it to you in the very near future.

By inadvertence we sent you two copies of our Uranium Mining Lease and Agreement No. SFP 9588, which is not related to our pending application, and I request that you return them to us at your convenience.

Number SFP 9589, of which you have four copies, is the pertinent lease.

Very truly yours,

FOOD MACHINERY AND CHEMICAL CORPORATION

Clarence R. Peterson

Clarence R. Peterson
Assistant Counsel
Chemical Divisions

CRP:vl

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

October 10, 1957

Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
161 East 42nd Street
New York 17, New York

Gentlemen: Subject: DMEA-4845

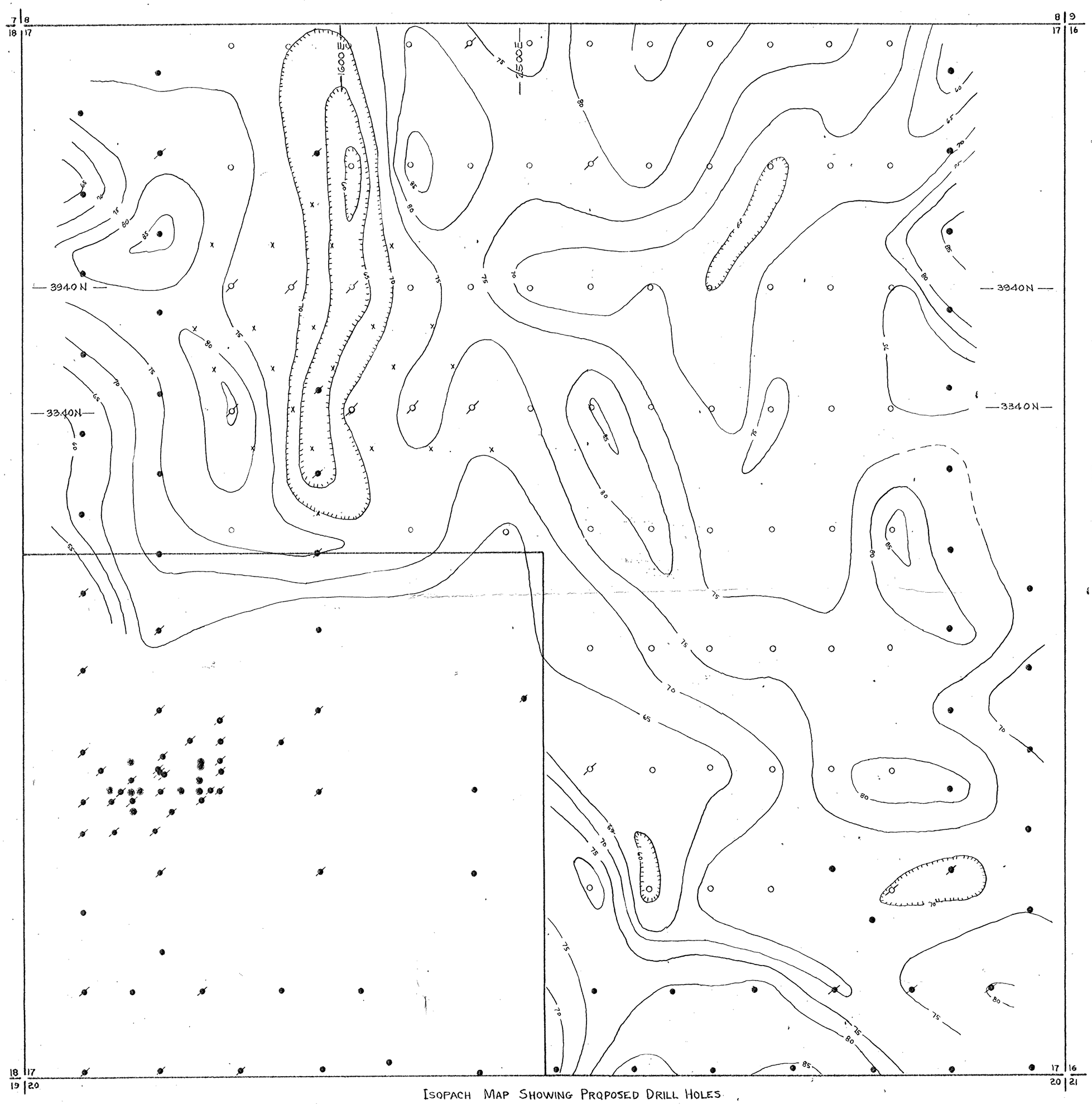
Your application for exploration assistance, dated September 30, 1957 submitted to our office at Denver, Colorado has been assigned Docket Number DMEA-4845 and referred to the Rare and Miscellaneous Metals Division in the Washington office. Kindly identify all future correspondence relating to your application by this Docket Number.

Sincerely yours,

Allen S. Dakan, Director
Operations Control and
Statistics Division

Copy to:

Region III



N

LEGEND

D.M.E.A. Holes		Westvaco Holes
○	Barren	●
⊘	Mineralized < 0.20% U_3O_8	⊘
◐	Ore > 0.20% U_3O_8	◐

X Proposed Stage II hole

Scale – 1" = 300'

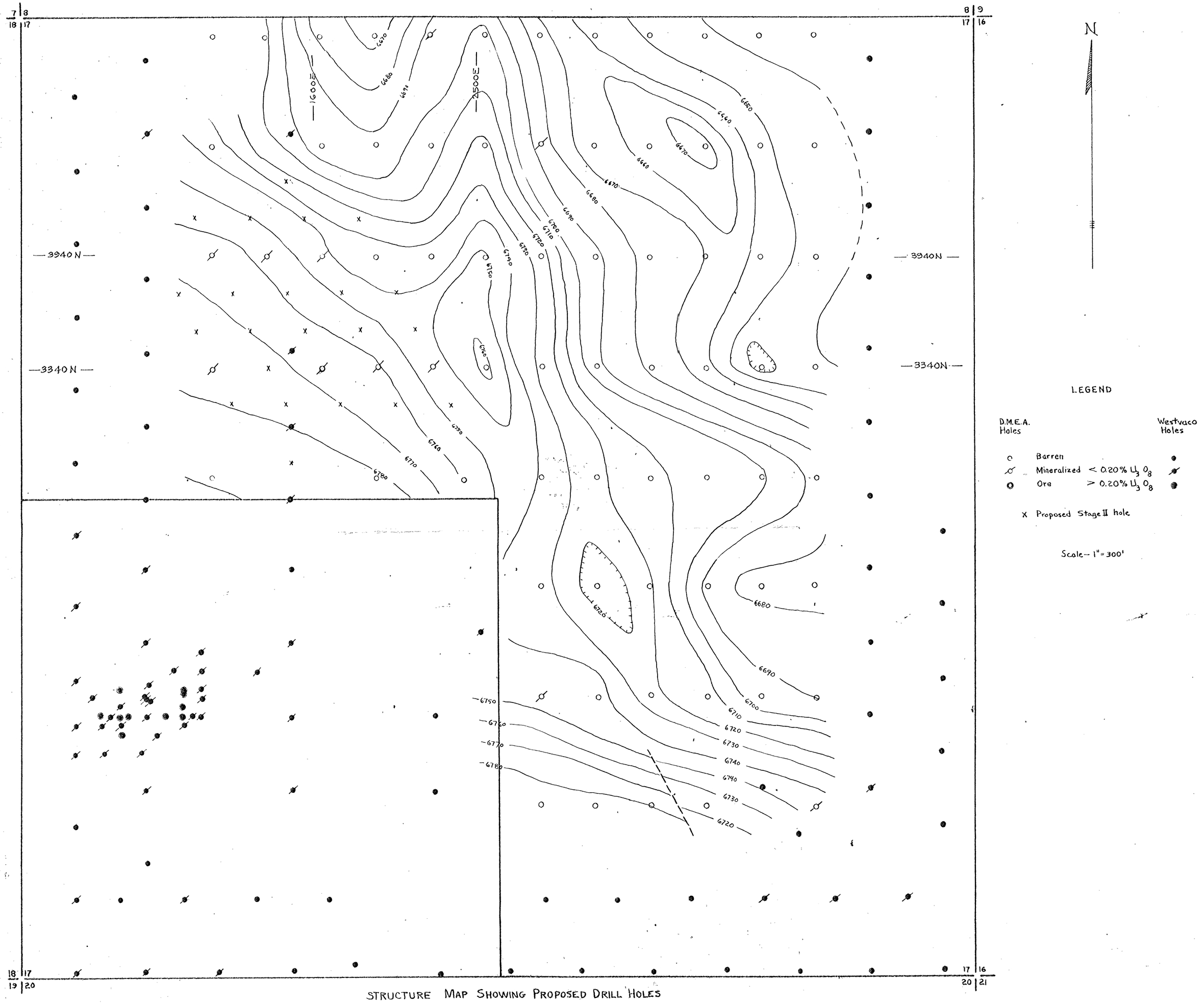
ISOPACH MAP SHOWING PROPOSED DRILL HOLES

McKinley County, New Mexico
Section 17, T.13N., R.9W.

Contract No. Idm-E 1167
Docket No. 4845

Mapped on Poison Canyon Ss.

Sept 17, '58



STRUCTURE MAP SHOWING PROPOSED DRILL HOLES

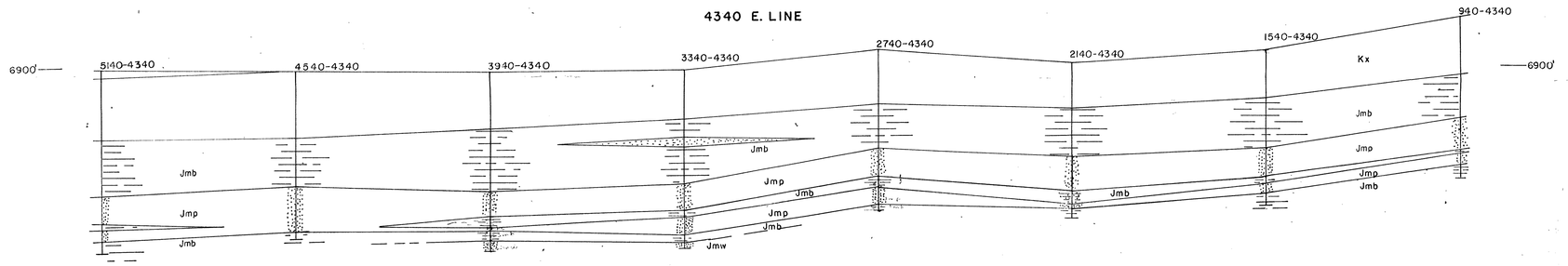
McKinley County, New Mexico
Section 17, T.13N., R.9W.

Contract No. Idm-E 1167
Docket No. 4845

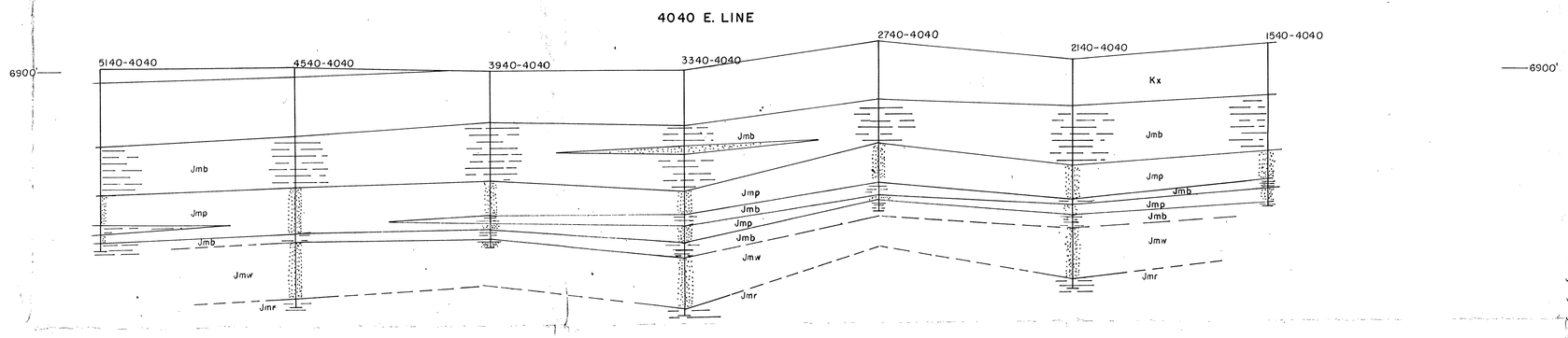
Contoured on base of Poison Canyon, Ss.

Sept 17, '58

4340 E. LINE



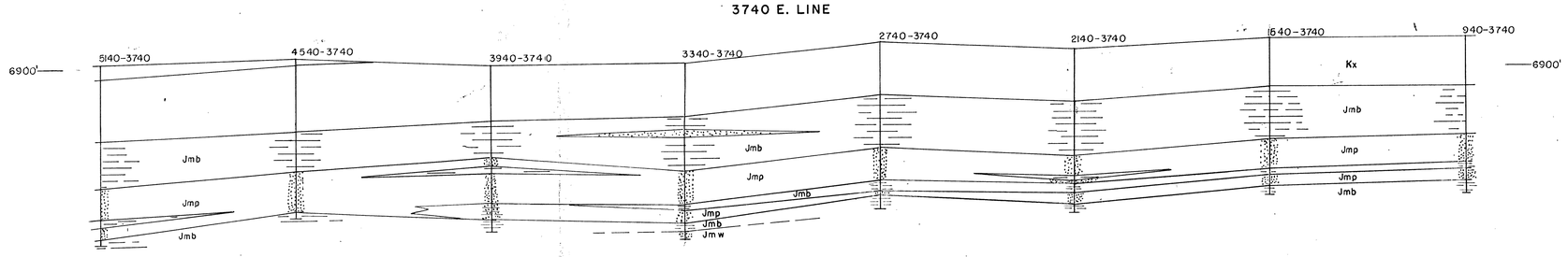
4040 E. LINE



Kx CRETACEOUS OR YOUNGER
Jm JURASSIC MORRISON FORMATION
Jmb BRUSHY BASIN MEMBER
Jmp POISON CANYON MEMBER
Jmw WESTWATER MEMBER
Jmr RECAPTURE MEMBER

SECTIONS LOOKING EAST

3740 E. LINE



MARK	DESCRIPTION	DATE	BY	CHK.
	REVISIONS			

WESTVACO MINERAL PRODUCTS DIVISION
FOOD MACHINERY & CHEMICAL CORPORATION
MINERAL DEVELOPMENT DEPT. POCATELLO, IDAHO

REFERENCE DRAWINGS

NUMBER	TITLE

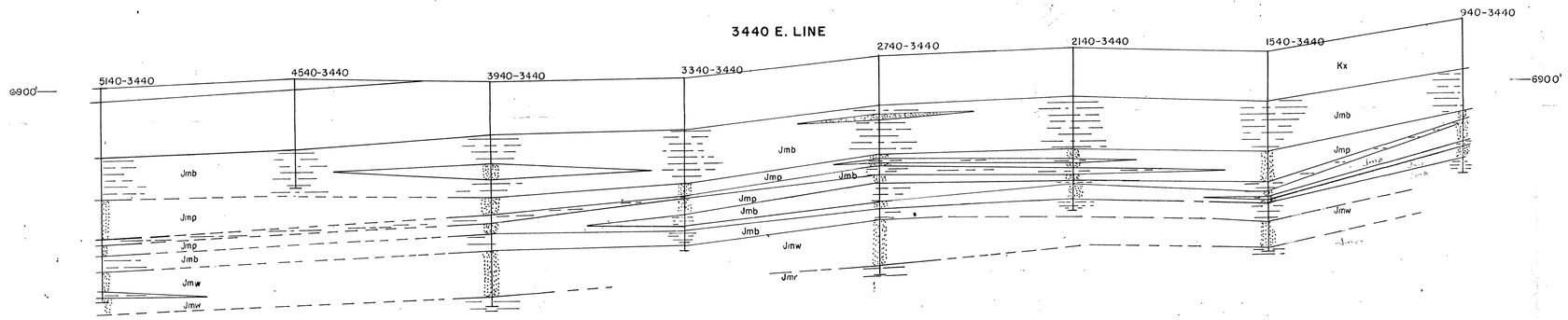
GENERALIZED STRATIGRAPHIC SECTIONS

SEC. 17, T.13N., R.9W., McKinley Co. N.M.

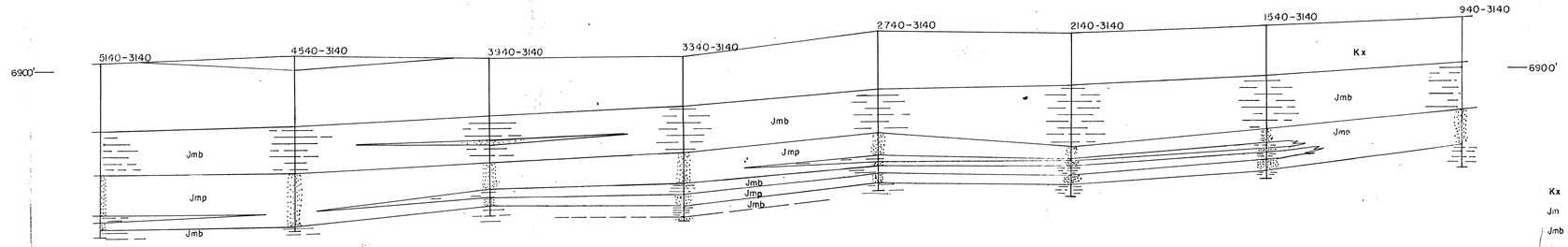
DRAWN RRB APPROVED.
CHECKED APPROVED.
CHARGE DRAWING NO.
SCALE 1"=200' HOR. 1"=100' VER.
PRINT DATE 5-58

THIS PRINT AND ALL INFORMATION THEREON IS OUR PROPERTY, IS CONFIDENTIAL AND MUST NOT BE MADE PUBLIC OR COPIED UNLESS AUTHORIZED BY US. IT IS SUBJECT TO RETURN ON DEMAND.
WESTVACO MINERAL PRODUCTS DIVISION

3440 E. LINE



3140 E. LINE



Kx CRETACEOUS OR YOUNGER

Jm JURASSIC MORRISON FORMATION

Jmb BRUSHY BASIN MEMBER

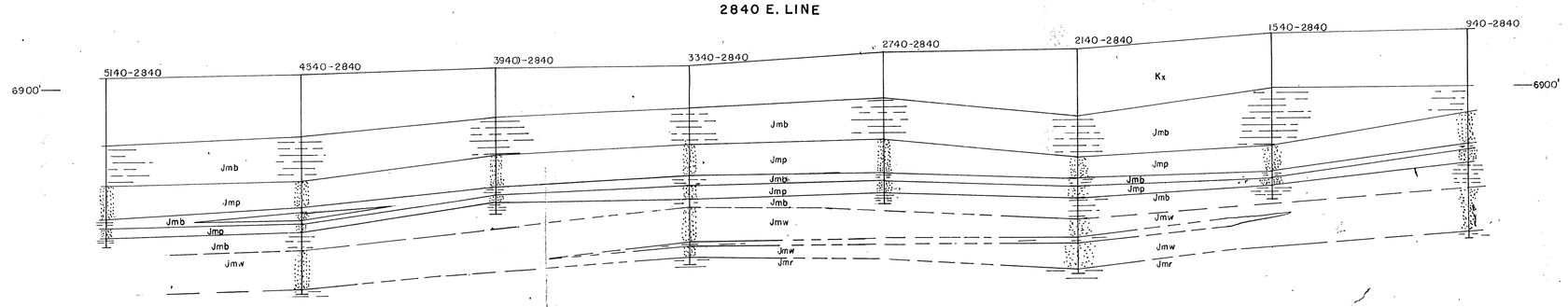
Jmp POISON CANYON MEMBER

Jmw WESTWATER MEMBER

Jmr RECAPTURE MEMBER

SECTIONS LOOKING EAST

2840 E. LINE



MARK	DESCRIPTION	DATE	BY	CHK.
	REVISIONS			

WESTVACO MINERAL PRODUCTS DIVISION
FOOD MACHINERY & CHEMICAL CORPORATION
MINERAL DEVELOPMENT DEPT. POCATELLO, IDAHO

REFERENCE DRAWINGS

NUMBER	TITLE

GENERALIZED STRATIGRAPHIC SECTIONS

SEC. 17, T.13N., R.9W., McKinley Co., N.M.

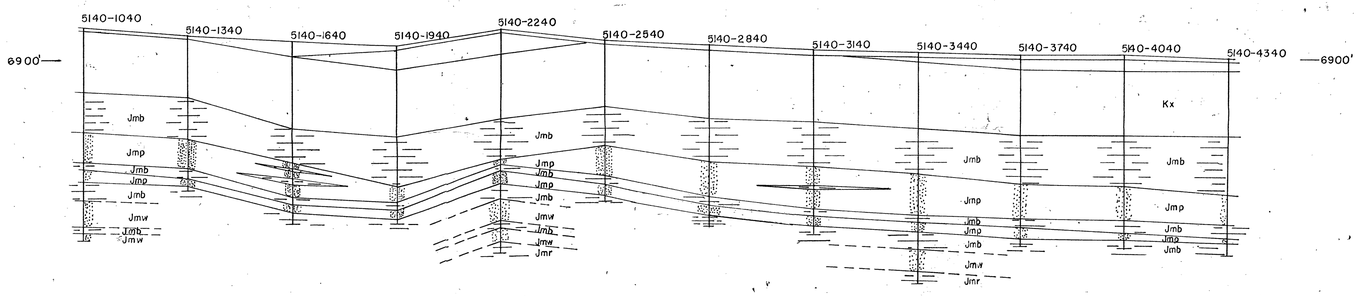
DRAWN RRB APPROVED:
CHECKED APPROVED:

CHARGE
SCALE 1"=200' HOR. 1"=100' VER.
PRINT DATE 5-58

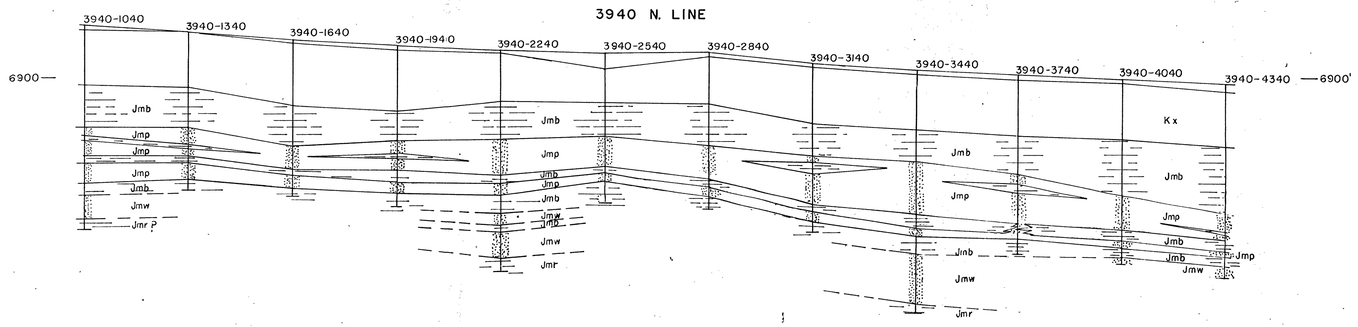
DRAWING NO.

THIS PRINT AND ALL INFORMATION THEREON IS OUR PROPERTY AND CONFIDENTIAL. NOT TO BE COPIED OR MADE PUBLIC OR COPIED UNLESS AUTHORIZED BY US. IT IS SUBJECT TO RETURN ON DEMAND.
WESTVACO MINERAL PRODUCTS DIVISION

5140 N. LINE



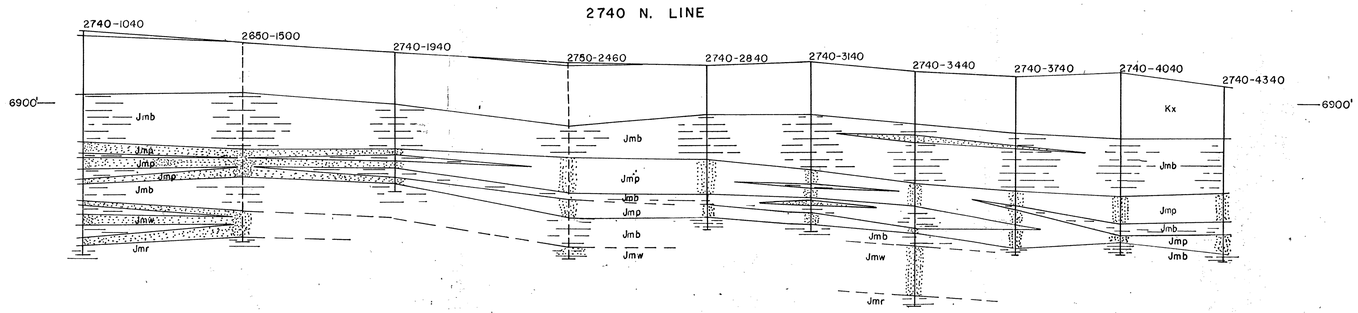
3940 N. LINE



Kx CRETACEOUS OR YOUNGER
Jm JURASSIC MORRISON FORMATION
Jmb BRUSHY BASIN MEMBER
Jmp POISON CANYON MEMBER
Jmw WESTWATER MEMBER
Jmr RECAPTURE MEMBER

SECTIONS LOOKING NORTH

2740 N. LINE



MARK	DESCRIPTION	DATE	BY	CHK.
	REVISIONS			

WESTVACO MINERAL PRODUCTS DIVISION
FOOD MACHINERY & CHEMICAL CORPORATION
MINERAL DEVELOPMENT DEPT. POCATELLO, IDAHO

REFERENCE DRAWINGS

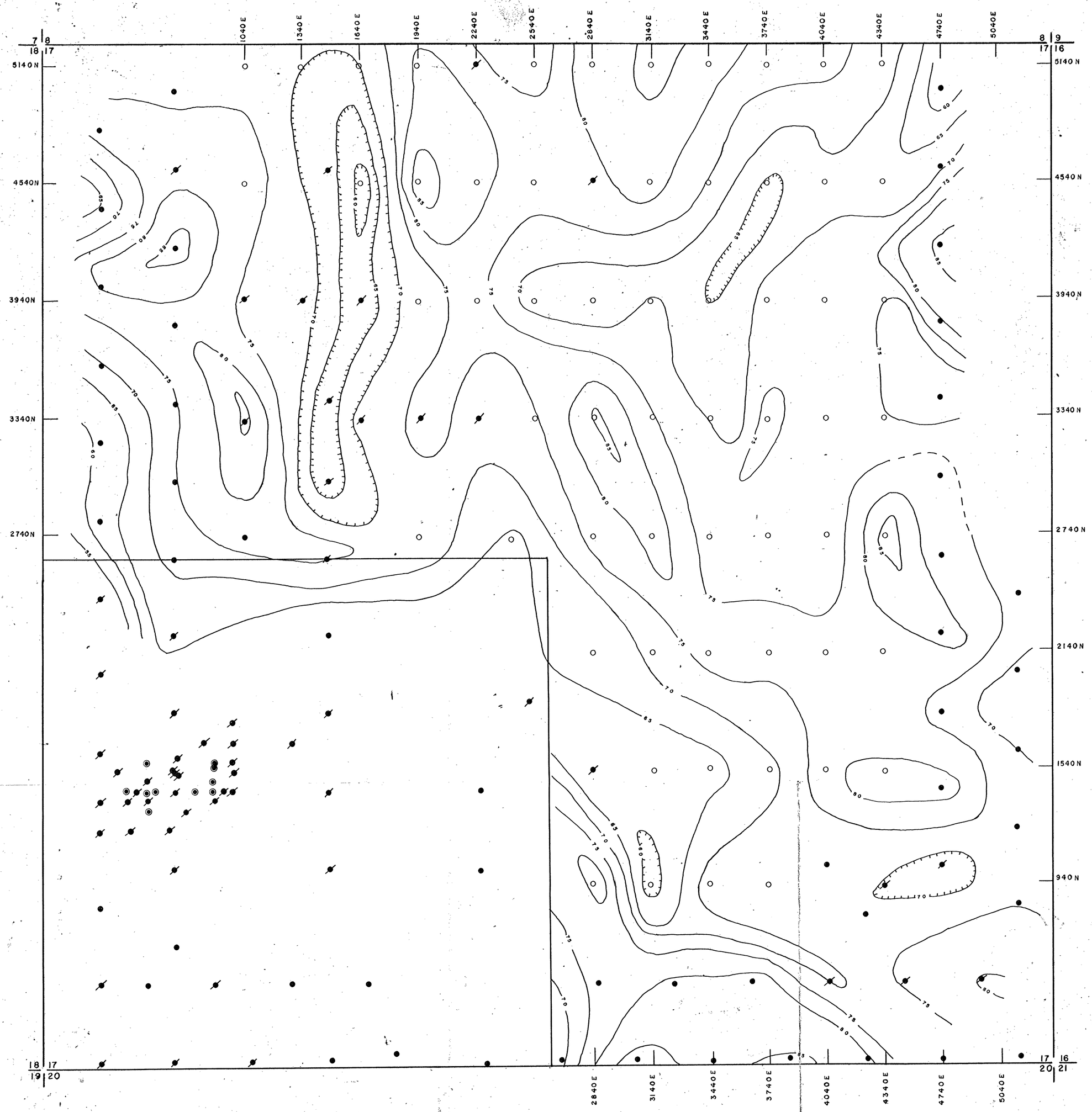
NUMBER	TITLE

GENERALIZED STRATIGRAPHIC SECTIONS

SEC. 17, T.13N, R.9W., McKinley Co., N.M.

DRAWN RRB APPROVED
CHECKED APPROVED
CHARGE
SCALE 1"200' HOR. 1"100' VER.
PRINT DATE 5-58
DRAWING NO.

THIS PRINT AND ALL INFORMATION THEREON IS OUR PROPERTY, IS CONFIDENTIAL AND MUST NOT BE MADE PUBLIC OR COPIED UNLESS AUTHORIZED BY US. IT IS SUBJECT TO RETURN ON DEMAND.
WESTVACO MINERAL PRODUCTS DIVISION



LEGEND

DMEA Holes	○
Westvaco Holes	●
Barren Holes	●
Mineralized Holes (-.20% U308)	⊘
Ore Holes (+.20% U308)	◉

N

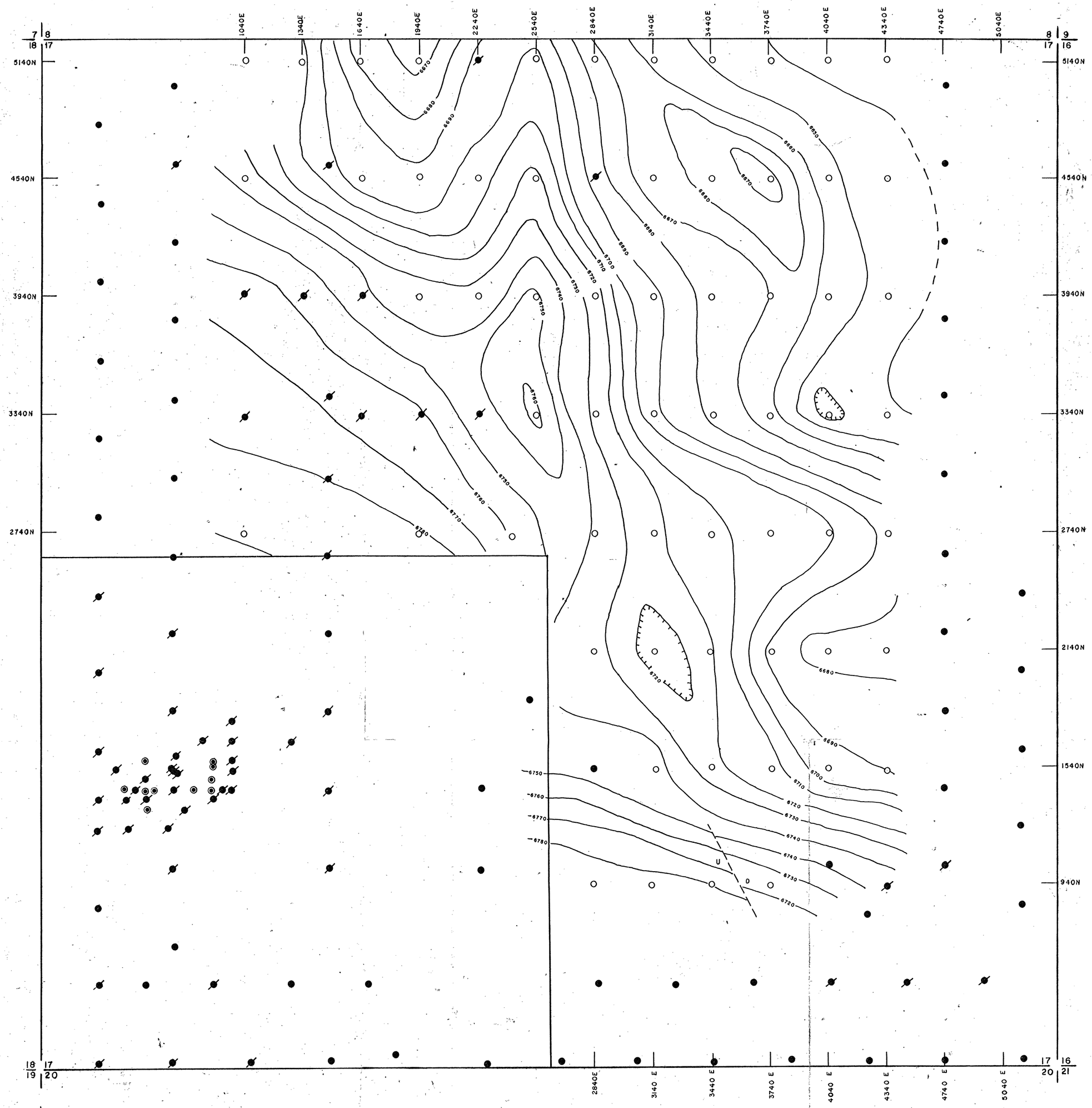
MINERAL DEVELOPMENT DEPARTMENT
CHEMICAL DIVISIONS
FOOD MACHINERY & CHEMICAL CORPORATION
POCATELLO, IDAHO

ISOPACH MAP SHOWING THICKNESS OF POISON CANYON SANDSTONE
Isopach Interval 5 Feet
Section 17, T.13N., R.9W., McKinley County, New Mexico
Contract No. Idm-E1167 Docket No. 4845

REFERENCE DRAWINGS		REVISIONS		
NO.	TITLE	DATE	DESCRIPTION	BY

DRAWN: DB	PRINT DATE 1/8/59	DRG. NO.
CHECKED:	SCALE 1" = 300'	
FLD. WK.:	APPROVED	NO. SHEETS

THIS PRINT AND ALL INFORMATION THEREON IS OUR PROPERTY, IS CONFIDENTIAL AND MUST NOT BE MADE PUBLIC OR COPIED UNLESS AUTHORIZED BY US. IT IS SUBJECT TO RETURN ON DEMAND.
MINERAL DEVELOPMENT DEPT.



LEGEND

DMEA Holes	○
Westvaco Holes	●
Barren Holes	●
Mineralized Holes (-.20%U308)	●
Ore Holes (+.20%U308	◉

N

MINERAL DEVELOPMENT DEPARTMENT
CHEMICAL DIVISIONS
FOOD MACHINERY & CHEMICAL CORPORATION
POCATELLO, IDAHO

STUCTURE CONTOUR MAP
Contoured on Base of Poison Canyon Sandstone, Contour Interval 10 Feet
Section 17, T.13N, R.9W, McKinley County, New Mexico
Contract No. Idm-E1167 Docket No. 4845

REFERENCE DRAWINGS		REVISIONS		
NO.	TITLE	DATE	DESCRIPTION	BY

DRAWN: DB	PRINT DATE 1/8/59	DRG. NO.
CHECKED:	SCALE 1" = 300'	
FLD. WK.:	APPROVED	NO. SHEETS

THIS PRINT AND ALL INFORMATION THEREON IS OUR PROPERTY, IS CONFIDENTIAL AND MUST NOT BE MADE PUBLIC OR COPIED UNLESS AUTHORIZED BY US. IT IS SUBJECT TO RETURN ON DEMAND.
MINERAL DEVELOPMENT DEPT.

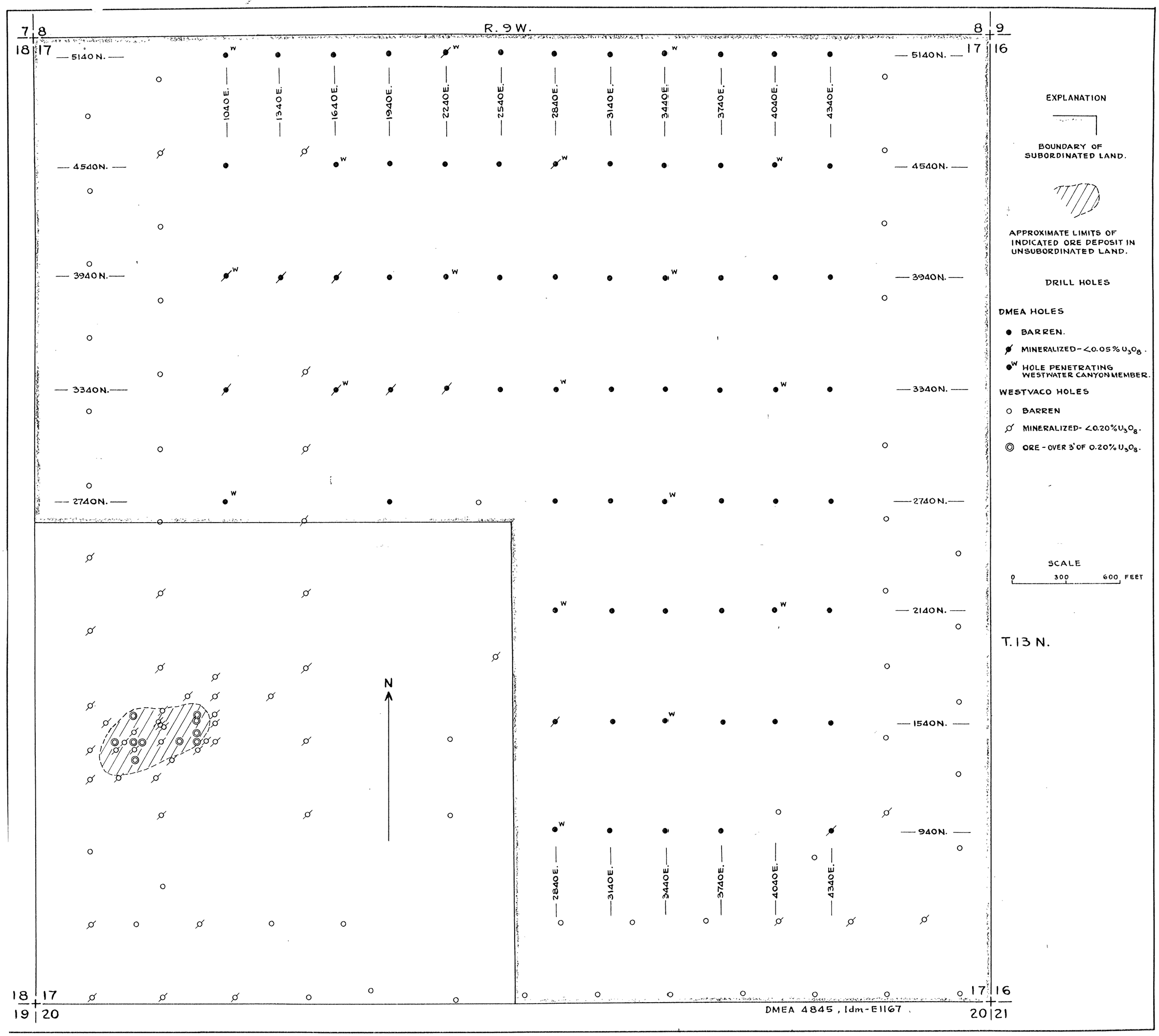
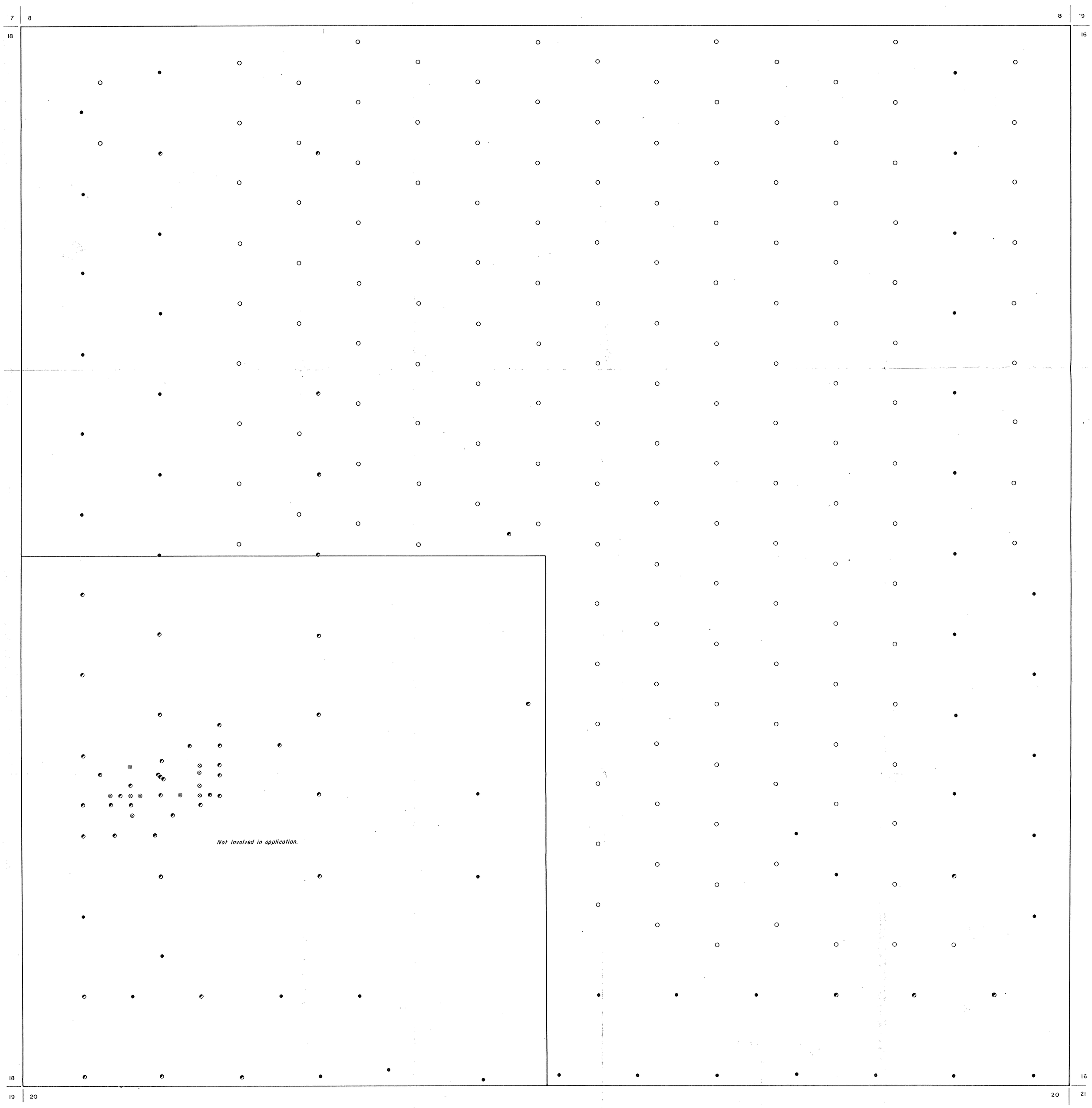


FIGURE 2.- PLANIMETRIC MAP OF SECTION 17, T. 13 N., R. 9 W., N.M.P.M. SHOWING LOCATION OF DRILL HOLES, WESTVACO MINERALS DIVISION OF FOOD MACHINERY AND CHEMICAL CORPORATION, McKINLEY COUNTY, NEW MEXICO.



PROPOSED D.M.E.A. DRILL HOLES --- SECTION 17, T. 13 N., R. 9 W.

MC·KINLEY COUNTY, NEW MEXICO

Westvaco holes
- ● —barren
- ◐ —mineralized—0.05 to 0.20% U_3O_8
- ⊗ —ore—over 3' of 0.20+% U_3O_8

○ Proposed holes

—Scale—
1" = 200'

8-15-57 —— W.S.C.

U. S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
DECEMBER 1957 DOCKET 4845

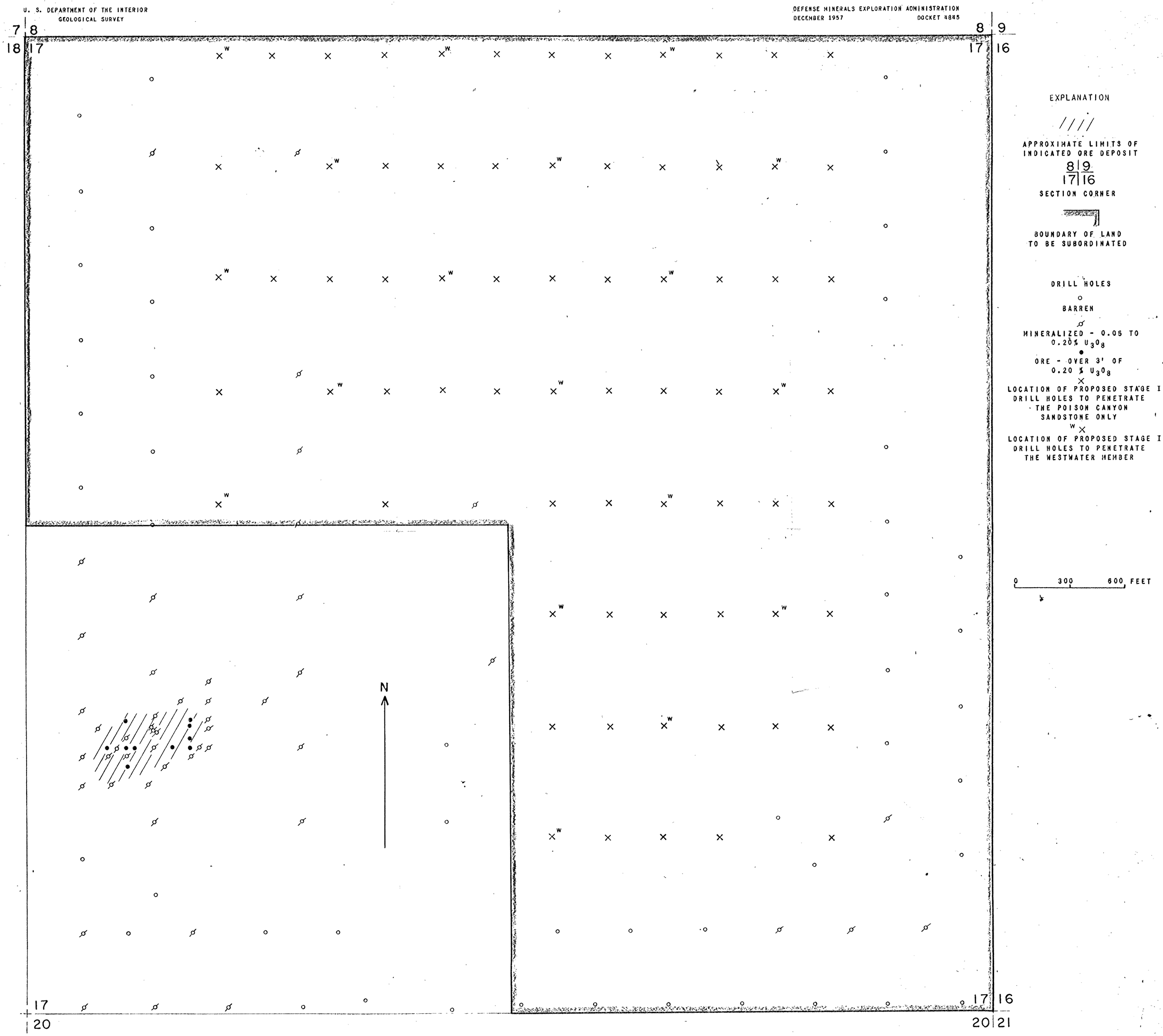


FIGURE 2.--PLANIMETRIC MAP OF SECTION 17, T.13 N., R.9 W., N.M.P.M. SHOWING LOCATION OF DRILL HOLES AND PROPOSED DRILL HOLES, WESTVACO MINERALS DIVISION OF FOOD MACHINERY AND CHEMICAL CORPORATION, McKINLEY COUNTY, NEW MEXICO.