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

September 19, 1955

224 New Customhouse
Denver 2, Colorado

Memorandum

DMEA-3988

To: Secretary to the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA Aid, (Uranium), Food Machinery and Chemical Corporation, Section 1, T. 13 N., R. 10 W., McKinley County, New Mexico

Enclosed are two copies of the subject application in the amount of $47,614.00.

When this application is given a docket number, will you please advise which docket number is associated with Section 1, R. 10 W., since there are two applications in the same township from the same applicant.

One copy of the application has been forwarded to the Grand Junction office and one copy is being retained in our file.

W. M. Traver

W. M. Traver

Enclosures

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

RECEIVED
SEP 28 1955

September 26, 1955

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Chairman of the Operating Committee, DMEA

From: Field Team, Region III

Subject: Docket DMEA 3988, (Uranium), Food Machinery and Chemical Corporation, Sec. 1, T. 13 N., R. 10 W., McKinley County, New Mexico

Enclosed are four copies of a review of the subject application by the Grand Junction Office.

We would appreciate receiving the review of this application by members of the Commodity Committee before releasing the subject docket for a field examination.

In the event that additional information is required from the applicant, will you please make this request from your office.

W. M. Traver

W. M. Traver

E. N. Harshman

Enclosures

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

September 22, 1955

Memorandum

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

From: J. W. Easler USGS
M. H. Salsbury USBM

Subject: DMEA.....(uranium), Food Machinery and Chemical Corporation, Sec. 1, T. 13 N., R. 10 W., McKinley County, New Mexico

The applicant has applied for Government assistance to explore for uranium on the S 1/2 of Sec. 1, T. 13 N., R. 10 W., McKinley County, New Mexico.

There are several active DMEA contracts as well as several applications for DMEA aid in the immediate area.

At the present very little exploratory drilling has been done in this area. It would be to our advantage to either postpone, for an indefinite period, a field examination or to make a field examination and request that the applicant do limited drilling on the subject property. The information obtained from this drilling would be useful in setting up a DMEA contract if approved and also serve to determine the favorability of section 1.

Therefore we recommend a field examination be made, either as soon as appropriate or in the future when other drilling in the area has been completed and evaluated.

J. William Easler
J. William Easler
Geologist

M H Salsbury by JWE
M. H. Salsbury
Mining Engineer

JWH/vll

700

FILE COPY
Surname:
Ching
Yoss
Hetzer
Selfridge
Hyman

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

MAR 26 1956

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

Re: Docket No. DMEA-3988 (Uranium)
Sec. 1, T. 13 N., R. 10 W.
McKinley County, New Mexico

Gentlemen:

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

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

Careful study of all our information indicates to us that the probability of disclosing significant ore reserves is not sufficiently promising to justify Government participation. We regret to advise you that, under these circumstances, your application for exploration assistance is denied.

Such denial, however, is made without prejudice. In the event further work on your part discloses more favorable evidence of ore deposition on the property, we shall be pleased to consider a new application.

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

Sincerely yours,

Administrator

MChing/ism 3-23-56
cc to: Docket
Code 700
Mr. Ching
Admr.'s Reading File
Operating Committee
DMEA Field Team, Region III (2)
Messrs. JECrawford, Rm.3641; TMKiilsgaard, Rm.5224; JCHested, Rm. 3210, GSA

P.G.H.

Docket Copy
700

Ching
Ellis

Summary of Proposed Project

March 23, 1956

Object: Denial of application for an exploration project.

Docket No.: DMEA-3988

Commodity: Uranium

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

Property: Sec. 1, T. 13 N., R. 10 W., N.M.P.M., McKinley County, New Mexico. Applicant is the Lessee.

Date of Application: September 13, 1955

Amount of Application: $47,614.00

Work Proposed:

Explore the South ½ of the property by 95 rotary drill holes aggregating 26,600 feet. The holes are to be drilled on a grid pattern with 400 foot spacing. Average depth of holes estimated as 280 feet. Sampling footage 3,800 feet, coring footage for geological information 800 feet.

Independent contract drilling 26,600 ft. @ $0.69/ft.	$18,354.00
All other costs - 26,600 ft. @ $1.10/ft.	29,260.00
Estimated Total Cost of Project	$47,614.00
Government Participation @ 75%	$35,710.50

Field Team Report: January 27, 1956 by Howard F. Albee, USGS, and Glen Walker, USBM

The Westwater Canyon and Brushy Basin members of the Morrison formation are the potential ore-bearing rocks of the subject property. The Poison Canyon sandstone within the Brushy Basin ranges from 50 feet to 200 feet thick. The underlying Westwater Canyon sandstone ranges from 25 feet to 100 feet thick.

Five widely spaced preliminary holes drilled by the Applicant to depths of 400 feet showed that the Poison Canyon sandstone is favorable in thickness through the center of the section and toward the northeast. However, the sandstone color is predominantly reddish-gray to reddish-brown instead of the requisite gray to yellowish-gray associated with ore deposits. Some alteration in color was found near the center and toward the northeast corner of the section but it was not sufficient to be considered favorable for ore.

The Westwater Canyon is unfavorable both lithologically and in thickness in all the preliminary holes. None of the holes showed mineralization in either the Poison Canyon or Westwater Canyon.

It is recommended that the application be denied without prejudice.

Commodity Group Comments:

USGS, W. P. Williams, February 14, 1956:

The five preliminary holes are spaced such that the holes are about 3,000 feet apart. Since the hole in the center of the section was favorable, it does not seem valid that the unfavorable characteristics found in some of the other holes could be projected with any confidence across more than 5,000 feet of ground between the (unfavorable) holes.

The property is located in a region where exceptionally large uranium deposits are known. Large ore bodies could exist between the few widely spaced holes already drilled. Favorable consideration should be given the application.

USBM, J. E. Crawford, February 27, 1956:

Discussed the report of examination with the AEC representative. Concurs in the recommendation that the application be denied without prejudice on the grounds that the five preliminary holes failed to provide evidence of mineralization and the chances of finding ore on the property are only fair.

Rare and Miscellaneous Metals Division, Michael Ching, March 23, 1956:

From the information submitted in the report of examination, we may conclude that there are large areas on the subject property where the Poison Canyon sandstone is of sufficient thickness to be favorable in that respect, but the lithological characteristics are unfavorable or only slightly favorable.

While not mentioned in the field report, of particular significance is the information available on sec. 36, T. 14 N., R. 10 W., (Docket 4070) immediately to the north. Here some 24 holes drilled in the southern three-fourths of the section all failed to intersect sandstone in either the Poison Canyon or Westwater Canyon members which appeared to be favorable for ore deposition. Seven of the holes were parallel to and within 300 feet of the boundary between the two sections. This would indicate, at least, that there is no favorable trend from the north.

Under the circumstances a denial without prejudice appears to be in order.

Conclusions and Recommendations:

The limited information available on this property indicates that the probability of discovering a significant ore deposit is not good. Because the information is limited and the potential of the area as a whole is impressive, it is recommended that the application be denied without prejudice.

Ernest Wm Ellis

Ernest Wm. Ellis, Chief
Rare and Miscellaneous
Metals Division

2-28-56 dgm

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

RECEIVED
FEB 28 1956

February 27, 1956

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4445

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

Subject: Report of Examination, DMEA Docket 3988, Food Machinery and Chemical Corporation, Westvaco Minerals Products Division, Sec. 1, T. 13 N., R. 10 W., N.M.P.M., McKinley County, New Mexico

I have reviewed the report of examination, Food Machinery and Chemical Corporation, DMEA Docket 3988, dated February 1 and received in this office February 8. I have also discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

The examining team suggested that the applicant drill five preliminary holes at his own expense in order to obtain subsurface geologic data on which to appraise the property. The applicant complied with the suggestion of the team, but the holes failed to provide evidence of mineralization. Therefore, it was concluded that the chances of finding ore in Section 1 are only fair and recommendation was made that the application be denied.

We concur in the recommendation that the application for assistance be denied without prejudice.

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

John E. Crawford
John E. Crawford

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

RECEIVED
FEB 28 1956

February 27, 1956

Memorandum

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Uranium Commodity Committee, Room 4445

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We concur in the recommendation that the application for assistance be denied without prejudice.

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

John E. Crawford

FOOD MACHINERY AND CHEMICAL CORPORATION

Westvaco Mineral Products Division

Chrysler Building East
161 East 42nd Street
New York 17, N. Y.

February 24, 1956

Mr. Ernest W. Ellis, Chief,
Rare and Miscellaneous Metals Div.,
U. S. Department of the Interior,
Washington 25, D. C.

Dear Mr. Ellis:

At the request of Mr. Phillip Groggins of our company, we are sending you herewith a copy of the amendment which extends until March 16, 1957 our agreement with the Santa Fe Pacific Railroad Company covering a tract of land in New Mexico on which we are conducting uranium exploration operations.

Mr. Groggins indicated that you had asked whether we are prepared to accelerate our development work promptly following approval of our DMEA applications. We wish to advise you that we are ready to proceed with the work without any delay.

Sincerely yours,

WESTVACO MINERAL PRODUCTS DIVISION

/s/ W. N. Williams
President

LBT
Attach.

Copies for following dockets:
DMEA-3939
DMEA-3943
DMEA-~~3984~~ 3988
DMEA-~~3985~~ 3989

Route List

M.E.Gilbert (orig.) - NY
V.E.Cuneo - NY
L.F.Silano - NY
Legal Dept. - NY
W.N.Williams - NY
O.A.Power - Pcc

NY 112-A
(Supplementing NY 112)
Lease No. 9442

URANIUM MINING LEASE AND AGREEMENT

between

SANTA FE PACIFIC RAILROAD COMPANY

and

FOOD MACHINERY AND CHEMICAL CORPORATION
(WESTVACO MINERAL PRODUCTS DIVISION)

Dated: January 9, 1956

Re: Supplement to Lease No. 9442
Extension of period of time
from 12 months to 24 months
from March 16, 1955.

c
o
p
y

Lease No. 9442

SUPPLEMENT to Uranium Mining Lease and Agreement heretofore entered into in duplicate on the 16th day of March, 1955, by and between SANTA FE PACIFIC RAILROAD COMPANY, a corporation created by Act of Congress approved March 3, 1897, with its principal offices in Albuquerque, New Mexico, first party, hereinafter called the "Lessor", and FOOD MACHINERY AND CHEMICAL CORPORATION (WESTVACO MINERAL PRODUCTS DIVISION) a Delaware corporation, second party, hereinafter called the "Lessee".

WHEREAS, Lessor andLessee mutually desire to extend the period of time from twelve (12) months to twenty-four (24) months from March 16, 1955, during which Lessee may search and explore for uranium-bearing ore on the lands described in said Lease and Agreement.

IT IS, THEREFORE, MUTUALLY AGREED that the words "twelve (12) months" appearing on the fourth line of Paragraph 1 and in the second line of Paragraph 2 be changed to read "twenty-four (24) months", and that Paragraph 6, on page 5, shall read as follows:

> "6. In addition to the payments hereinabove mentioned, Lessee shall pay Lessor as rental for the leased premises upon the execution of this lease the sum of One Dollar ($1.00) per acre, and commencing March 16, 1957, the sum of One Dollar ($1.00) per acre a year for each year this lease may be in effect, to be paid annually, in advance; provided, however, that beginning with March 16, 1957, and each year thereafter the rental so paid for any one year shall be credited on the royalty due to Lessor for that year."

Except as altered hereby, all of the terms, covenants and agreements of saidoriginal lease shall remain in full force and effect.

IN WITNESS WHEREOF, this supplemental agreement has been executed in duplicate by the parties thereunto duly authorized this 9th day of January, 1956.

SANTA FE PACIFIC RAILROAD COMPANY

BY /s/ R. S. Rydin

VICE-PRESIDENT

LESSOR

ATTEST:

/s/ W. L. Camp

ASST. SECRETARY

FOOD MACHINERY AND CHEMICAL CORPORATION

BY /s/ Ernest Hart

EXECUTIVE VICE PRESIDENT

LESSEE

ATTEST:

/s/ Harold Vogel

ASST. SECRETARY

2/15/56 [illegible]

IN REPLY REFER TO:

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

RECEIVED
FEB 15 1956

February 14, 1956

Memorandum

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

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

Subject: Review of field examination report, DMEA 3988, Food Machinery and Chemical Corporation, Westvaco Minerals Products Division, Sec. 1, T. 13 N., R. 10 W., N.M.P.M., McKinley County, New Mexico.

The subject property was first examined on November 15, 1955. At that time the examining team suggested that the applicant drill five preliminary holes for his own account by which to appraise the property more adequately. This the applicant did. The examination report was apparently held in abeyance until the applicant completed drilling the suggested five holes.

The examining team concludes that the results of the applicant's drilling were not favorable enough to justify DMEA participation in exploration on the property. The examiners state that a thick favorable belt of Poison Canyon sandstone extends through the center of section 1 and trends northeast. The applicant indicated that mineralization was present near the northeast corner of the section, but the examining team neither confirms or denies this.

Figure 2, in the examination report, shows what appears to be five previously-drilled holes about 250 feet north of the north boundary of section 1. The report neither mentions the holes nor gives any results obtained from them.

The five drill holes on section 1 are spaced such that the holes are about 3,000 feet apart. Since the hole in the center of the section was favorable it does not seem valid that the unfavorable characteristics found in some of the other holes could be projected with any confidence across more than 5,000 feet of ground between the holes.

The examining team recommends denial of the application without prejudice--which is, in effect, what was done earlier when the applicant was advised to drill the five holes for his own account. To deny the application again without prejudice with the necessary implication that the applicant do even further drilling would indicate indecision and vacillation on the part of the Field Team as well as DMEA.

The application should now be either denied outright or given favorable consideration for a contract. The property is located in a region where exceptionally large uranium deposits are known. The applicant has discovered favorable Poison Canyon sandstone by his own drilling. Large ore bodies could exist between the few drill holes that are very widely spaced. From the information available to me it seems that favorable consideration should be given the application.

W P Williams

W. P. Williams

IN REPLY REFER TO:

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

RECEIVED
FEB 15 1956

February 14, 1956

Memorandum

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

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

Subject: Review of field examination report, DMEA 3988, Food Machinery and Chemical Corporation, Westvaco Minerals Products Division, Sec. 1, T. 13 N., R. 10 W., N.M.P.M., McKinley County, New Mexico.

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Figure 2, in the examination report, shows what appears to be five previously-drilled holes about 850 feet north of the north boundary of section 1. The report neither mentions the holes nor gives any results obtained from them.

The five drill holes on section 1 are spaced such that the holes are about 3,000 feet apart. Since the hole in the center of the section was favorable it does not seem valid that the unfavorable characteristics found in some of the other holes could be projected with any confidence across more than 5,000 feet of ground between the holes.

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W. P. Williams

WPWilliams:iml
G-2/14/56

cc: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
J. E. Crawford, 3641
J. O. Rosted, 3210

2/9/56 lgm

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

RECEIVED
FEB - 6 1956

February 1, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Joint Report of Examination, Docket DMEA 3988 (Uranium), Food Machinery and Chemical Corporation, Westvaco Minerals Products Division, Sec. 1, T. 13 N., R. 10 W., N.M.P.M., McKinley County, New Mexico

Enclosed are the original and three copies of the Joint Report of Examination on the subject docket.

Geologic information obtained from the five widely spaced holes drilled by the applicant subsequent to the submission of the DMEA application indicates that the property does not warrant further exploration at this time. The field examiners therefore recommend that the application be denied without prejudice. We concur in this recommendation.

Should additional exploration on this or adjoining properties reveal more favorable conditions, a new request for exploration assistance would be given proper consideration.

DMEA Field Team, Region III

W. M. Traver

By W. M. Traver
Executive Officer

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
2-8-56
(date)

DMEA
Date Rec'd.

JAN 31 1956

BUREAU OF MINES
Denver, Colorado

Region III

Building 20
Denver Federal Center
Denver 2, Colorado
January 30, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

TRANSMITTED
FEB 1 - 1956

From: E. N. Harshman
John F. Shaw

Subject: Examination Report, Docket DMEA 3988, Food Machinery & Chemical Corp., Westvaco Mineral Products Division, McKinley County, New Mexico

Enclosed are the original and 9 copies of the Joint Engineering and Geologic Report by Howard F. Albee and Glen Walker covering Docket DMEA 3988.

The Westvaco Mineral Products Division of Food Machinery & Chemical Corp. requested exploration assistance to explore Sec. 1, T. 13 N., R. 10 W., N.M.P.M., McKinley County, New Mexico for uranium.

The applicant proposed drilling 95 core and dry rotary holes totaling 26,000 feet of drilling at an estimated cost of $47,614.00.

The property was examined on November 15, 1955 by Glen Walker, Mining Engineer and Howard F. Albee, Geologist. The examining team suggested that the applicant drill 5 preliminary holes at his own expense in order to obtain subsurface geologic data on which to appraise the property. The 5 holes revealed the existence of both the Westwater Canyon and the Poison Canyon sandstone, but their physical features are not those usually associated with uranium deposition in the area.

It is believed that there is little possibility of discovering a significant amount of uranium on this property and it is recommended that the application be denied.

E. N. Harshman

E. N. Harshman
Member Field Team

Reviewed by
DMEA OPERATING COMMITTEE
2-8-56
(date)

John F. Shaw

John F. Shaw
Supervising Mining Engineer

cc 9
GWalker
EHHarshman
DMEA 3988
Chron.
JFS/ch

DMEA
Rec'd.
JAN 1 1956
BUREAU OF MINES
Denver, Colorado

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. BOX 360
GRAND JUNCTION, COLORADO

RECEIVED
FEB - 6 1956

MINERAL DEPOSITS
DMEA
RECEIVED
JAN 26 1956
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

January 20, 1956

TRANSMITTED
FEB 1 - 1956

Memorandum

To: E. N. Harshman, DMEA Field Team, Region III

From: J. William Hasler

Subject: Transmittal of a report of field examination on DMEA docket 3988, Westvaco Minerals Products Division of Food Machinery and Chemical Company, Sec. 1, T. 13 N., R. 10 W., McKinley County, N.Mex.

Enclosed is a geologic and engineering report prepared as a result of a field examination made November 15, 1955, by H. F. Albee, U. S. Geological Survey, and Glen Walker, U. S. Bureau of Mines.

The subject section of land is on the northwest edge of the Zuni uplift of northern New Mexico, and the rocks dip about 3° to the northeast. The rocks exposed in the area of Sec. 1 are the Cretaceous Dakota sandstone and sandstone lenses of the Tres Hermanos member of the Mancos formation. The ore-bearing rocks of the Morrison formation of Jurassic age underlie the Dakota formation, but are not exposed. The Morrison formation is divided into three members: the Recapture shale, the Westwater sandstone, and the Brushy Basin shale members, of which the Westwater and the Brushy Basin members are the main potential ore-bearing members in the area. The Brushy Basin shale commonly intertongues with the underlying Westwater member. A prominent sandstone, the "Poison Canyon sandstone" unit of the Brushy Basin contains most of the ore in the area. The Brushy Basin member ranges from 75 feet to 250 feet thick in Sec. 1 and the Poison Canyon sandstone intertongues with the Brushy Basin and ranges from 50 to as much as

Reviewed by
DMEA OPERATING COMMITTEE
2-8-56
(date)

200 feet thick. An unusually thick section of the Poison Canyon sandstone trends northeast through the center of Sec. 1. Ore deposits are usually confined to such thick sections; however, preliminary drilling on Sec. 1, has shown the sandstone to be predominantly reddish gray to reddish-brown. The ore deposits in the area ordinarily occur where the Poison Canyon sandstone has been altered from a reddish gray to a predominantly gray- to yellowish-gray.

The geologic logs from the preliminary drill holes show no mineralization in either the Poison Canyon or the Westwater sandstone. The Westwater sandstone appears to be unfavorable lithologically and in thickness and the Poison Canyon sandstone appears to be only semifavorable to unfavorable.

It is concluded that the chances of finding ore in Sec. 1 are only fair and it is, therefore, recommended that the application for assistance be denied without prejudice. Should further exploration work prove favorable, the application may be reviewed at a later date.

I concur with the conclusions and recommendations of the examining team.

The Atomic Energy Commission has been consulted relative to the appraisal of Sec. 1,and the required number of maps and figures, as well as the brochure, are returned herewith.

J. William Hasler

J. William Hasler,
Geologist

JWH/mlr
Enclosures

DMEA
Rec'd.
JAN 31 1956
BUREAU OF MINES
Denver, Colorado
RECEIVED
TRANSMITTED
FEB 1 - 1956

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

JOINT REPORT OF EXAMINATION BY EXAMINING TEAM
REGION III

DMEA 3988

FOOD MACHINERY AND CHEMICAL CORPORATION

Westvaco Mineral Products Division

Sec. 1, T. 13 N., R. 10 W.

McKinley County, New Mexico

Uranium

Joint Engineering and Geologic Report

By

Howard F. Albee, Geologist
Geological Survey

Glen Walker, Mining Engineer
Bureau of Mines

January 27, 1956

Reviewed by
DMEA OPERATING COMMITTEE
2-8-56
(date)

DMEA 3988

FOOD MACHINERY AND CHEMICAL CORPORATION
WESTVACO MINERAL PRODUCTS DIVISION
Sec. 1, T. 13 N., R. 10 W., N.M.P.M.
McKINLEY COUNTY, NEW MEXICO

FEB - 3 1956

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Project Proposal	6
Conclusions and Recommendations	6

ILLUSTRATIONS

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1.	Location Map, Westvaco Mineral Products Division of Food Machinery & Chemical Corp., Property, McKinley County, New Mexico	2
2.	Sketch Map showing existing drill holes with depths drilled, and proposed Stage I drill holes with estimated drilling depths, Section 1, T. 13 N., R. 10 W., N.M.P.M., McKinley County, New Mexico	5

DMEA 3988
Food Machinery and Chemical Corporation
Westvaco Mineral Products Division
Sec. 1, T. 13 N., R. 10 W.,N.M.P.M.
McKinley County, New Mexico

RECEIVED
FEB - 6 1958

SUMMARY AND INTRODUCTION

The Westvaco Mineral Products Division of Food Machinery and Chemical Corp. of New York City requested DMEA assistance to explore for uranium ore on Section 1, T. 13 N., R. 10 W., N.M.P.M., McKinley County, New Mexico.

The applicant proposed drilling 95 core and dry rotary holes on a 400- by- 400-foot grid over the south half of the section through the Poison Canyon sandstone lens of the Brushy Basin member of the Jurassic Morrison formation. It was estimated the project would total 26,000 feet of drilling with 800 feet being cored and would cost $47,614.00.

On November 15, 1955, a field investigation of the property was made by a DMEA Region III examining team at which time five preliminary holes were suggested to be drilled by the applicant to obtain subsurface geologic data on which a better appraisal of the property could be made. The five holes were widely spaced through the section and revealed the existence of both the Westwater Canyon and the Poison Canyon sandstone, member of the Morrison formation, but their physical features are not those usually associated with uranium deposition in the area.

It is therefore recommended that the application for assistance be denied without prejudice.

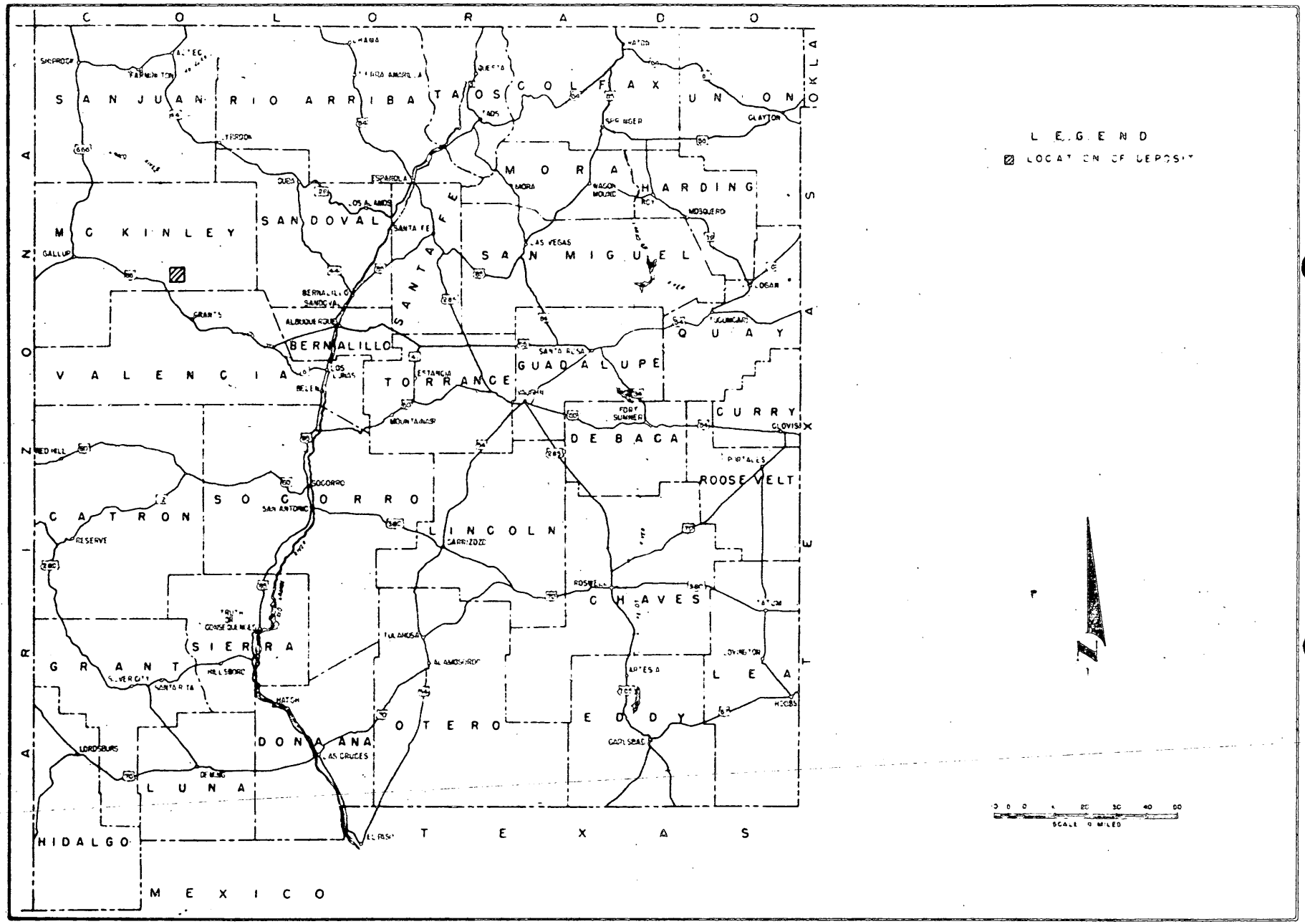


FIGURE 1 - LOCATION MAP, WESTVACO MINERAL PRODUCTS DIVISION OF FOOD MACHINERY AND CHEMICAL CORPORATION, MCKINLEY COUNTY, NEW MEXICO. DMEA 3988

ACKNOWLEDGMENT

Mr. C. Johnston, Engineer and Mr. Tipton, geologist for Westvaco accompanied the examiners and volunteered considerable information on this and adjoining properties. Mr. Gene K. Ealy, geologist, A.E.C. offered pertinent geologic data on the general vicinity.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

Section 1, T. 13 N., R. 10 W., New Mexico Principal Meridian, McKinley County, New Mexico can be easily reached by travelling west from Grants, the nearest railhead, 3 miles to the San Mateo road, New Mexico highway 53, then north about 13 miles to the Ambrosia Lake road, north along it about 3 miles to the first fork, then travelling the left fork for 1-1/2 miles to the property (fig. 1). The Blue Water uranium mill of Anaconda Copper Mining Company is about 22 miles southwest of section 1, over a surfaced road. Albuquerque, New Mexico's largest City, is about 70 miles east of Grants by either highway or rail.

The surface of Sec. 1 is essentially a dip-slope on the Cretaceous Dakota formation. The dip is to the northeast. Vegetation consists of a thick growth of scrubby pinon and cedar with some native grass. There is no timber of a size sufficient for mining purposes; however, it can be obtained from small saw-mills in the vicinity of Mt. Taylor, about 15 miles east.

A permanent supply of water would have to be developed but amounts sufficient for exploration may be obtained from livestock wells and ponds within a few miles of the property.

Power for any type operation can be most economically provided by internal combustion engines as adequate public utility power is not presently available.

Experienced underground labor is practically non-existent; however, it is reported that Navajo Indians have proven satisfactory after a period of apprenticeship. Common labor is plentiful in the area.

HISTORY, PRODUCTION AND OWNERSHIP

Uranium minerals in the Grants district were first reported by a party of field geologists from the University of California in 1949. In 1950 a sheepherder found carnotite in the Jurassic Todilto limestone outcrop south of Haystack Butte on Santa Fe R.R. land. These original discoveries were followed by widespread prospecting which resulted in ore being found in the Cretaceous Dakota and the Jurassic Morrison sandstone formations as well as the Todilto. Recently large deposits have been reported in the Westwater Canyon member of the Jurassic Morrison formation. And still more recent are reports of uranium ore in the Recapture Creek member of the Morrison and the Cretaceous Mancos formation.

Most of the current production comes from the Todilto formation and the Poison Canyon member of the Morrison Brushy Basin. Section 1 has no production and the nearest operating mine is about 3 miles south.

The property was originally granted by the government to the Santa Fe R.R. and in March 1955 the uranium mineral rights were leased to the applicant.

GEOLOGY AND ORE DEPOSITS

Section 1, T. 13 N., R. 10 W., New Mexico Principal Meridian, McKinley County, New Mexico is in the Grants area on the northwest edge of the Zuni uplift. The rocks strike northwest, parallel to the Zuni Uplift, and dip about 3 degrees to the northeast. The dip, however, is greater than 3 degrees in the southwest part and less than 3 degrees in the northeast part of the section.

The rocks exposed in the subject area are the Cretaceous Dakota sandstone and, in places, sandstone lenses of the Tres Hermanos member of the Mancos formation. A thin veneer of blowsand covers the surface in places. The ore-bearing rocks of the Morrison formation underly the Dakota but are not exposed in the section.

The Morrison formation of Jurassic age is the main ore-bearing formation and is divided into three members which are, from oldest to youngest: the Recapture shale; Westwater sandstone; and Brushy Basin shale. The Westwater and Brushy Basin members are the potential ore-bearing rocks of the subject section of land and, therefore, will be the only ones described.

The Brushy Basin member is composed of gray and green, soft, gypsiferous mudstone sporadically interbedded with lenses of cross-bedded, coarse-grained to conglomeratic sandstone. The Brushy Basin commonly intertongues with the underlying Westwater. One such tongue of Westwater lithology is known locally as the "Poison Canyon sandstone". It is separated from the Westwater by a tongue of Brushy Basin shale that ranges from 10 to 20 feet thick. The Brushy Basin ranges from 75 feet to about 270 feet thick in section 1 and the "Poison Canyon sandstone"

tongue within the Brushy Basin ranges from 50 feet to as much as 200 feet thick.

The underlying Westwater sandstone member is a fine- to medium-grained, in places arkosic, sandstone that contains sparse shale and siltstone beds up to 30 feet thick. The sandstone color may be yellowish gray, grayish green, red, or reddish brown. The shale splits may be gray, grayish green, or red. Within Section 1 the Westwater ranges from 25 feet to 100 feet thick.

An unusually thick section of the "Poison Canyon sandstone" trends northeast through the center of Section 1. Ore deposits are usually confined to such thicker sections; however, preliminary drilling (fig. 2) has shown the sandstone color to be predominantly reddish gray to reddish brown, whereas ore deposits are usually found where the sandstone is predominantly gray to yellowish gray. Some alteration in color was found near the center and possibly near the northeast corner of the section. The geologic logs of the preliminary drill holes show no mineralization in the "Poison Canyon" or Westwater sandstones, although the applicant shows slight mineralization in both sandstones near the northeast corner of the section on an isometric diagram that was compiled from the logs.

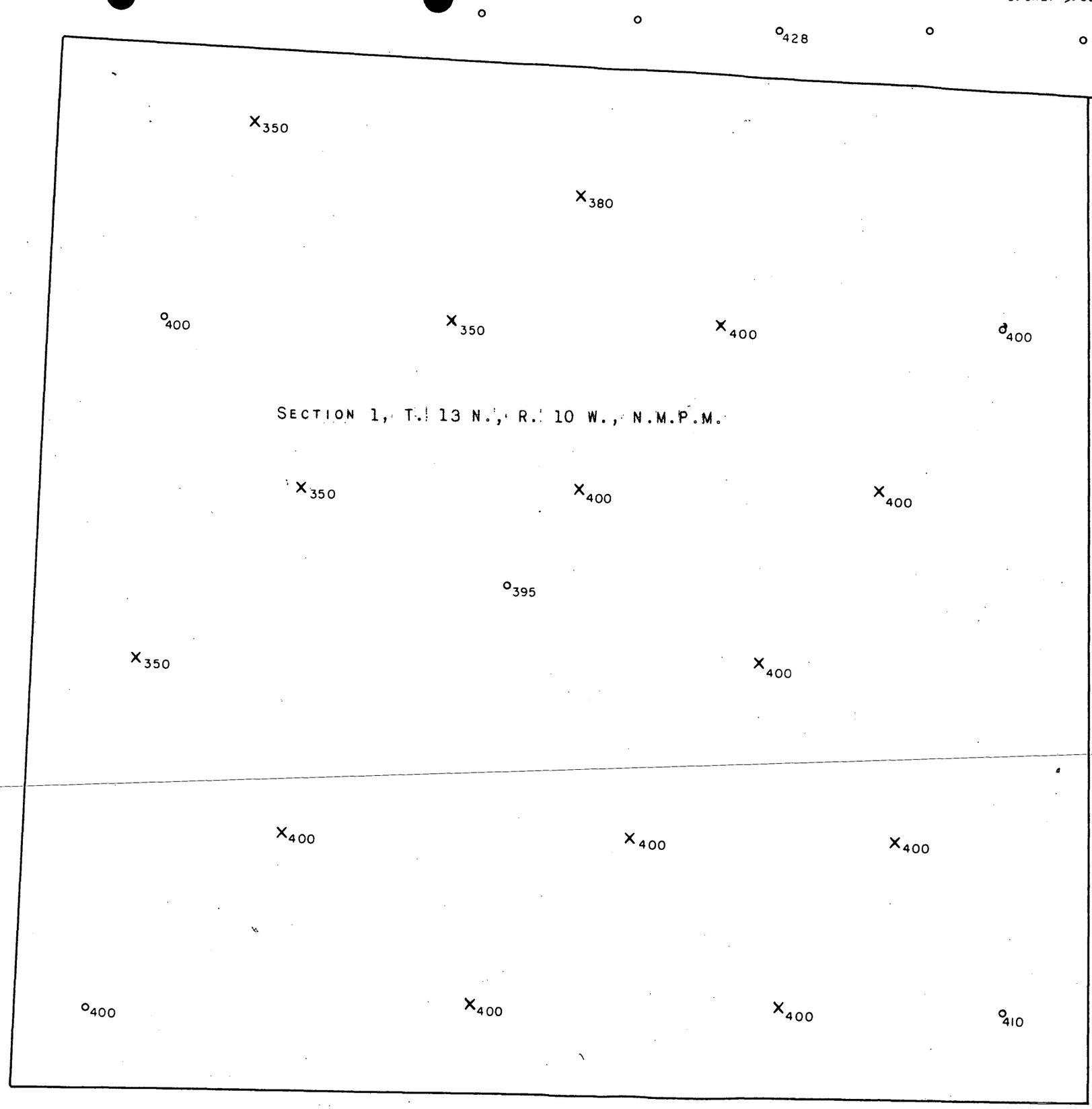
The Westwater sandstone is unfavorable both lithologically and in thickness in all preliminary drill holes. The "Poison Canyon sandstone" is favorable in thickness in part of section 1, but unfavorable to semi-favorable lithologically.

MINABLE ORE RESERVES

There are no known minable ore reserves on the property.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS EXPLORATION ADMINISTRATION
DOCKET 3988
JANUARY 1956



EXPLANATION

o400 EXISTING DRILL HOLES AND DEPTH DRILLED

X350 PROPOSED STAGE I DRILL HOLES AND ESTIMATED DRILLING DEPTH

Note; SURFACE EXPOSURES ALL LOWER CRETACEOUS ROCKS AND BLOWSAND. LAND LINES AND DRILL HOLE LOCATIONS AND DEPTHS FROM APPLICANTS MAP.

N

600 0 1200 FEET

FIGURE 2. SKETCH MAP SHOWING EXISTING DRILL HOLES WITH DEPTHS DRILLED, AND PROPOSED STAGE I DRILL HOLES WITH ESTIMATED DRILLING DEPTHS, SECTION 1, T. 13 N., R. 10 W. N.M.P.M., MCKINLEY COUNTY, NEW MEXICO.

PRESENT STATUS

Five preliminary holes were drilled at widely spaced intervals throughout the section to obtain subsurface data (fig. 2). Only the hole nearest the center of the section could be interpreted as being favorable. The Poison Canyon sandstone of the Jurassic Morrison Brushy Basin had good thickness in this hole but it was not leached sufficiently to be considered favorable for ore.

There is no mining or milling equipment on the property.

PROJECT PROPOSAL

The applicant proposed drilling 95, mostly dry rotary holes on a 400-foot- by- 400-foot grid over the south half of the section through the Jurassic Brushy Basin Poison Canyon sandstone lens. The project consisting of 26,600 feet of drilling was estimated to cost $47,614.00.

The examining team has no exploration proposal for the property.

CONCLUSIONS AND RECOMMENDATIONS

Geologic information obtained from the five widely spaced holes drilled by the applicant subsequent to the submission of this DMEA application indicates that the property does not warrant further exploration at this time. Should additional exploration on this or adjoining properties reveal more favorable conditions, a new request for exploration assistance should be given consideration.

It is recommended the application for DMEA assistance be denied without prejudice.

2/6/56 gla

February 1, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Joint Report of Examination, Docket DMEA 3988 (Uranium), Food Machinery and Chemical Corporation, Westvaco Minerals Products Division, Sec. 1, T. 13 N., R. 10 W., N.M.P.M., McKinley County, New Mexico

Enclosed are the original and three copies of the Joint Report of Examination on the subject docket.

Geologic information obtained from the five widely spaced holes drilled by the applicant subsequent to the submission of the DMEA application indicates that the property does not warrant further exploration at this time. The field examiners therefore recommend that the application be denied without prejudice. We concur in this recommendation.

Should additional exploration on this or adjoining properties reveal more favorable conditions, a new request for exploration assistance would be given proper consideration.

DMEA Field Team, Region III

By W. M. Traver
Executive Officer

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
2-8-56
(date)

DMEA
Date Rec'd.

JAN 31 1956

BUREAU OF MINES
Denver, Colorado

Region III

Building 20
Denver Federal Center
Denver 2, Colorado
January 30, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

TRANSMITTED

FEB 1 1956

From: E. N. Harshman
John F. Shaw

Subject: Examination Report, Docket DMEA 3988, Feed Machinery & Chemical Corp., Westvaco Mineral Products Division, McKinley County, New Mexico

Enclosed are the original and 9 copies of the Joint Engineering and Geologic Report by Howard F. Albee and Glen Walker covering Docket DMEA 3988.

The Westvaco Mineral Products Division of Feed Machinery & Chemical Corp. requested exploration assistance to explore Sec. 1, T. 13 N., R. 10 W., N.M.P.M., McKinley County, New Mexico for uranium.

The applicant proposed drilling 95 core and dry rotary holes totaling 26,000 feet of drilling at an estimated cost of $47,614.00.

The property was examined on November 15, 1955 by Glen Walker, Mining Engineer and Howard F. Albee, Geologist. The examining team suggested that the applicant drill 5 preliminary holes at his own expense in order to obtain subsurface geologic data on which to appraise the property. The 5 holes revealed the existence of both the Westwater Canyon and the Poison Canyon sandstone, but their physical features are not those usually associated with uranium deposition in the area.

It is believed that there is little possibility of discovering a significant amount of uranium on this property and it is recommended that the application be denied.

E. N. Harshman

E. N. Harshman
Member Field Team

DMEA Date

2-8-56

John F. Shaw

John F. Shaw
Supervising Mining Engineer

cc 9
GWalker
ENHarshman
DMEA 3988
Chron.
JFS/eh

MINERAL DEPOSITS
DMEA
RECEIVED
JAN 26 1956
U. S.
GEOLOGICAL SURVEY
DENVER, COLORADO

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. BOX 360
GRAND JUNCTION, COLORADO

RECEIVED
FEB - 6 1956

January 20, 1956

Memorandum

To: E. N. Harshman, DMEA Field Team, Region III

TRANSMITTED
FEB 1 - 1956

From: J. William Hasler

Subject: Transmittal of a report of field examination on DMEA docket 3988, Westvaco Minerals Products Division of Food Machinery and Chemical Company, Sec. 1, T. 13 N., R. 10 W., McKinley County, N.Mex.

Enclosed is a geologic and engineering report prepared as a result of a field examination made November 15, 1955, by H. F. Albee, U. S. Geological Survey, and Glen Walker, U. S. Bureau of Mines.

The subject section of land is on the northwest edge of the Zuni uplift of northern New Mexico, and the rocks dip about 3° to the northeast. The rocks exposed in the area of Sec. 1 are the Cretaceous Dakota sandstone and sandstone lenses of the Tres Hermanos member of the Mancos formation. The ore-bearing rocks of the Morrison formation of Jurassic age underlie the Dakota formation, but are not exposed. The Morrison formation is divided into three members: the Recapture shale, the Westwater sandstone, and the Brushy Basin shale members, of which the Westwater and the Brushy Basin members are the main potential ore-bearing members in the area. The Brushy Basin shale commonly intertongues with the underlying Westwater member. A prominent sandstone, the "Poison Canyon sandstone" unit of the Brushy Basin contains most of the ore in the area. The Brushy Basin member ranges from 75 feet to 250 feet thick in Sec. 1 and the Poison Canyon sandstone intertongues with the Brushy Basin and ranges from 50 to as much as

Reviewed by
DMEA OPERATING COMMITTEE
2-8-56
(date)

200 feet thick. An unusually thick section of the Poison Canyon sandstone trends northeast through the center of Sec. 1. Ore deposits are usually confined to such thick sections; however, preliminary drilling on Sec. 1, has shown the sandstone to be predominantly reddish gray to reddish-brown. The ore deposits in the area ordinarily occur where the Poison Canyon sandstone has been altered from a reddish gray to a predominantly gray- to yellowish-gray.

The geologic logs from the preliminary drill holes show no mineralization in either the Poison Canyon or the Westwater sandstone. The Westwater sandstone appears to be unfavorable lithologically and in thickness and the Poison Canyon sandstone appears to be only semifavorable to unfavorable.

It is concluded that the chances of finding ore in Sec. 1 are only fair and it is, therefore, recommended that the application for assistance be denied without prejudice. Should further exploration work prove favorable, the application may be reviewed at a later date.

I concur with the conclusions and recommendations of the examining team.

The Atomic Energy Commission has been consulted relative to the appraisal of Sec. 1,and the required number of maps and figures, as well as the brochure, are returned herewith.

J. William Hasler
J. William Hasler,
Geologist

JWH/mlr
Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

JOINT REPORT OF EXAMINATION BY EXAMINING TEAM
REGION III

TRANSMITTED
FEB 1 - 1956

DMEA 3988

FOOD MACHINERY AND CHEMICAL CORPORATION

Westvaco Mineral Products Division

Sec. 1, T. 13 N., R. 10 W.

McKinley County, New Mexico

Uranium

Joint Engineering and Geologic Report

By

Howard F. Albee, Geologist
Geological Survey

Glen Walker, Mining Engineer
Bureau of Mines

January 27, 1956

Reviewed by
DMEA OPERATING COMMITTEE
2-8-56
(date)

DMRA 3988

FOOD MACHINERY AND CHEMICAL CORPORATION
WESTVACO MINERAL PRODUCTS DIVISION
Sec. 1, T. 13 N., R. 10 W., N.M.P.M.
McKINLEY COUNTY, NEW MEXICO

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Geology and Ore Deposits 4
Minable Ore Reserves 5
Present Status 6
Project Proposal 6
Conclusions and Recommendations 6

ILLUSTRATIONS

Figure — Follows Page

1. Location Map, Westvaco Mineral Products Division of Food Machinery & Chemical Corp., Property, McKinley County, New Mexico 2

2. Sketch Map showing existing drill holes with depths drilled, and proposed Stage I drill holes with estimated drilling depths, Section 1, T. 13 N., R. 10 W., N.M.P.M., McKinley County, New Mexico 5

DMEA 3986
Food Machinery and Chemical Corporation
Westvaco Mineral Products Division
Sec. 1, T. 13 N., R. 10 W., N.M.P.M.
McKinley County, New Mexico

SUMMARY AND INTRODUCTION

The Westvaco Mineral Products Division of Food Machinery and Chemical Corp. of New York City requested DMEA assistance to explore for uranium ore on Section 1, T. 13 N., R. 10 W., N.M.P.M., McKinley County, New Mexico.

The applicant proposed drilling 95 core and dry rotary holes on a 400- by- 400-foot grid over the south half of the section through the Poison Canyon sandstone lens of the Brushy Basin member of the Jurassic Morrison formation. It was estimated the project would total 26,000 feet of drilling with 800 feet being cored and would cost $47,614.00.

On November 15, 1955, a field investigation of the property was made by a DMEA Region III examining team at which time five preliminary holes were suggested to be drilled by the applicant to obtain subsurface geologic data on which a better appraisal of the property could be made. The five holes were widely spaced through the section and revealed the existence of both the Westwater Canyon and the Poison Canyon sandstone, member of the Morrison formation, but their physical features are not those usually associated with uranium deposition in the area.

It is therefore recommended that the application for assistance be denied without prejudice.

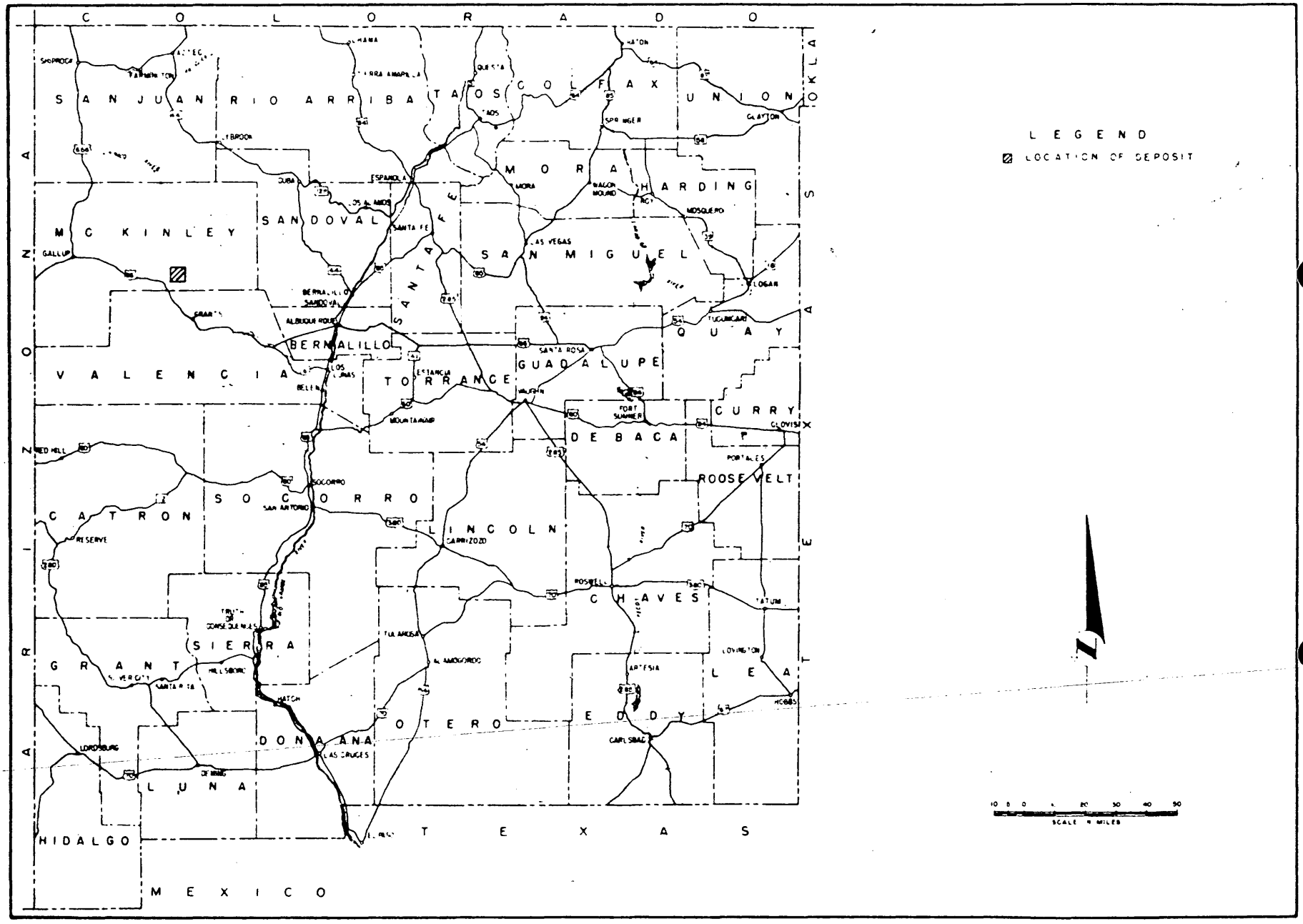

FIGURE 1 - LOCATION MAP, WESTVACO MINERAL PRODUCTS DIVISION OF FOOD MACHINERY AND CHEMICAL CORPORATION, MCKINLEY COUNTY, NEW MEXICO. DMEA 3988

ACKNOWLEDGMENT

Mr. C. Johnston, Engineer and Mr. Tipton, geologist for Westvaco accompanied the examiners and volunteered considerable information on this and adjoining properties. Mr. Gene K. Baly, geologist, A.E.C. offered pertinent geologic data on the general vicinity.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

Section 1, T. 13 N., R. 10 W., New Mexico Principal Meridian, McKinley County, New Mexico can be easily reached by travelling west from Grants, the nearest railhead, 3 miles to the San Mateo road, New Mexico highway 53, then north about 13 miles to the Ambrosia Lake road, north along it about 3 miles to the first fork, then travelling the left fork for 1-1/2 miles to the property (fig. 1). The Kiva Water uranium mill of Anaconda Copper Mining Company is about 22 miles southwest of section 1, over a surfaced road. Albuquerque, New Mexico's largest City, is about 70 miles east of Grants by either highway or rail.

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A permanent supply of water would have to be developed but amounts sufficient for exploration may be obtained from livestock wells and ponds within a few miles of the property.

Power for any type operation can be most economically provided by internal combustion engines as adequate public utility power is not presently available.

Experienced underground labor is practically non-existent; however, it is reported that Navajo Indians have proven satisfactory after a period of apprenticeship. Common labor is plentiful in the area.

HISTORY, PRODUCTION AND OWNERSHIP

Uranium minerals in the Grants district were first reported by a party of field geologists from the University of California in 1949. In 1950 a sheepherder found carnotite in the Jurassic Todilto limestone outcrop south of Haystack Butte on Santa Fe R.R. land. These original discoveries were followed by widespread prospecting which resulted in ore being found in the Cretaceous Dakota and the Jurassic Morrison sandstone formations as well as the Todilto. Recently large deposits have been reported in the Westwater Canyon member of the Jurassic Morrison formation. And still more recent are reports of uranium ore in the Recapture Creek member of the Morrison and the Cretaceous Mancos formation.

Most of the current production comes from the Todilto formation and the Poison Canyon member of the Morrison Brushy Basin. Section 1 has no production and the nearest operating mine is about 3 miles south.

The property was originally granted by the government to the Santa Fe R.R. and in March 1955 the uranium mineral rights were leased to the applicant.

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Section 1, T. 13 N., R. 10 W., New Mexico Principal Meridian, McKinley County, New Mexico is in the Grants area on the northwest edge of the Zuni uplift. The rocks strike northwest, parallel to the Zuni Uplift, and dip about 3 degrees to the northeast. The dip, however, is greater than 3 degrees in the southwest part and less than 3 degrees in the northeast part of the section.

The rocks exposed in the subject area are the Cretaceous Dakota sandstone and, in places, sandstone lenses of the Tres Hermanos member of the Mancos formation. A thin veneer of blowsand covers the surface in places. The ore-bearing rocks of the Morrison formation underly the Dakota but are not exposed in the section.

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The Brushy Basin member is composed of gray and green, soft, gypsiferous mudstone sporadically interbedded with lenses of cross-bedded, coarse-grained to conglomeratic sandstone. The Brushy Basin commonly interfingues with the underlying Westwater. One such tongue of Westwater lithology is known locally as the "Poison Canyon sandstone". It is separated from the Westwater by a tongue of Brushy Basin shale that ranges from 10 to 20 feet thick. The Brushy Basin ranges from 75 feet to about 270 feet thick in section 1 and the "Poison Canyon sandstone"

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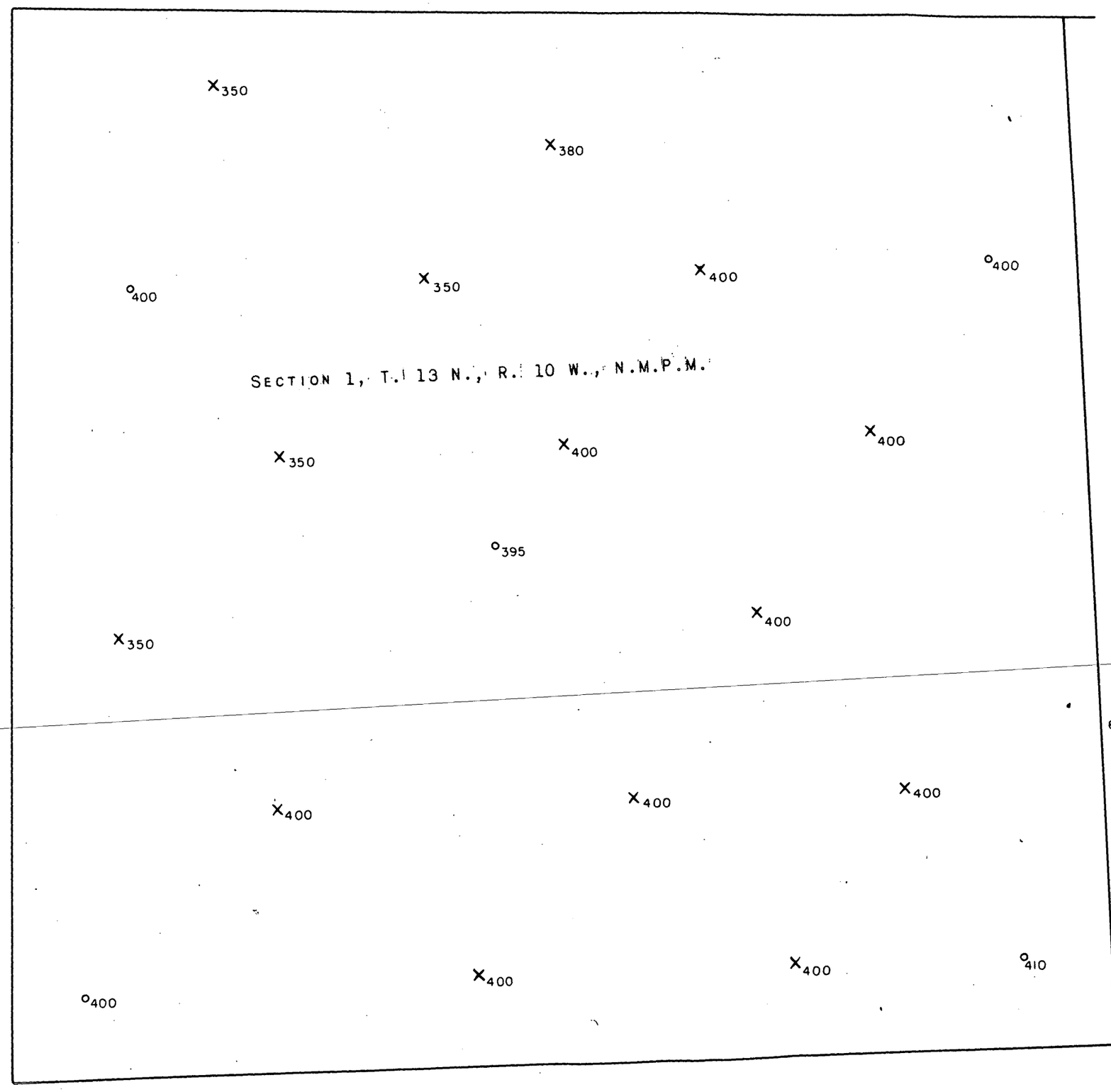
The Westwater sandstone is unfavorable both lithologically and in thickness in all preliminary drill holes. The "Poison Canyon sandstone" is favorable in thickness in part of section 1, but unfavorable to semi-favorable lithologically.

MINABLE ORE RESERVES

There are no known minable ore reserves on the property.



EXPLANATION

o400 EXISTING DRILL HOLES AND DEPTH DRILLED

X350 PROPOSED STAGE I DRILL HOLES AND ESTIMATED DRILLING DEPTH

Note; SURFACE EXPOSURES ALL LOWER CRETACEOUS ROCKS AND BLOWSAND. LAND LINES AND DRILL HOLE LOCATIONS AND DEPTHS FROM APPLICANTS MAP.

N

600 0 1200 FEET

FIGURE 2. SKETCH MAP SHOWING EXISTING DRILL HOLES WITH DEPTHS DRILLED, AND PROPOSED STAGE I DRILL HOLES WITH ESTIMATED DRILLING DEPTHS, SECTION 1, T. 13 N., R. 10 W. N.M.P.M., McKINLEY COUNTY, NEW MEXICO.

PRESENT STATUS

Five preliminary holes were drilled at widely spaced intervals throughout the section to obtain subsurface data (fig. 2). Only the hole nearest the center of the section could be interpreted as being favorable. The Poison Canyon sandstone of the Jurassic Morrison Brushy Basin had good thickness in this hole but it was not leached sufficiently to be considered favorable for ore.

There is no mining or milling equipment on the property.

PROJECT PROPOSAL

The applicant proposed drilling 95, mostly dry rotary holes on a 400-feet- by- 400-feet grid over the south half of the section through the Jurassic Brushy Basin Poison Canyon sandstone lens. The project consisting of 26,600 feet of drilling was estimated to cost $47,614.00.

The examining team has no exploration proposal for the property.

CONCLUSIONS AND RECOMMENDATIONS

Geologic information obtained from the five widely spaced holes drilled by the applicant subsequent to the submission of this DMEA application indicates that the property does not warrant further exploration at this time. Should additional exploration on this or adjoining properties reveal more favorable conditions, a new request for exploration assistance should be given consideration.

It is recommended the application for DMEA assistance be denied without prejudice.

RECEIVED
OCT 31 1955

October 27, 1955

Memorandum

To: John F. Shaw

From: Superintendent, Denver Experiment Station, Reg. III

Subject: Docket DMEA 3988 (Uranium), Food Machinery and Chemical Corporation, sec. 1, T. 13 N., R. 10 W., McKinley County, New Mexico

The subject application in the amount of $47,614.00 is enclosed. The brochure consists of:

1. Form MF-103 and supplementary information sheets
2. Map of company's property
3. Photocopy of memo from John E. Crawford to E. W. Ellis
4. Photocopy of memo from W. P. Williams to E. W. Ellis
5. Photocopy of letter of transmittal from Chairman, Operating Committee, to Executive Officer
6. Copy of memo of transmittal from Executive Officer to this office

A field examination and suitable report are required. The completed report should be forwarded directly to the Executive Officer with a copy of the memo of transmittal to this office.

W. E. King

Enclosures

Copy to: E. E. Harshman
J. W. Hasler
W. M. Traver (3)
Sec. Op. Com. (2)

RECEIVED
OCT 31 1955

October 27, 1955

Memorandum

To: John F. Shaw

From: Superintendent, Denver Experiment Station, Reg. III

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W. H. King

Enclosures

Copy to: E. W. Harshman
J. W. Hasler
W. M. Traver (3)

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

RECEIVED
OCT 27 1955

October 24, 1955

25th New Customhouse
Denver 2, Colorado

Memorandum

To: W. H. King (With brochure)
J. W. Hasler

From: Executive Officer, DMEA Field Team, Region III

Subject: DMEA Docket 3988 (Uranium), Food Machinery and Chemical Corporation, Sec. 1, T. 13 N., R. 10 W., McKinley County, New Mexico

Enclosed is the subject application in the amount of $47,614.00. Also enclosed is a copy of a letter from the Chairman of the Operating Committee and memorandum of a review of the application by John K. Crawford and W. F. Williams of the Uranium Commodity Committee.

A field examination and suitable report are required.

W. M. Traver

W. M. Traver

Enclosures

HMC:ab
cc: Sec. Opr. Comm. (2)
Harshman
Docket 3988
Chron.

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

October 24, 1955

224 New Customhouse
Denver 2, Colorado

RECEIVED
OCT 27 1955

Memorandum

To: W. H. King (With brochure)
J. W. Ensler

From: Executive Officer, DMEA Field Team, Region III

Subject: DMEA Docket 3988 (Uranium), Food Machinery and Chemical Corporation, Sec. 1, T. 13 N., R. 19 W., McKinley County, New Mexico

Enclosed is the subject application in the amount of $47,614.00. Also enclosed is a copy of a letter from the Chairman of the Operating Committee and memoranda of a review of the application by John E. Crawford and W. F. Williams of the Uranium Commodity Committee.

A field examination and suitable report are required.

W. M. Traver

W. M. Traver

Enclosures

HMC:ab
cc: Sec. Opr. Comm. (2)
Harshman
Docket 3988
Chron.

Surname copy

700

Ching
Ellis
Yopes
Hulsgaard
Selfridge

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

OCT 20 1955

Mr. W. N. Williams, Vice-President
Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
161 East 42nd Street
New York 17, New York

Re: Docket No. DMEA-3966 (Uranium)
Sec. 1, T. 13 N., R. 10 W.
McKinley County, New Mexico

Dear Mr. Williams:

The application for assistance in exploring the subject property under the captioned docket number has been reviewed by the Rare and Miscellaneous Metals Division. It has been referred for further study to the Executive Officer of Region III at the following address:

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

The Regional Office will contact you in regard to your proposed project in the event a field examination is scheduled.

Sincerely yours,

Frank E. Johnson

Acting Administrator

MChing/gla
10-18-55
cc to: Admr.'s Reading File
Docket ✓
Code 700
Mr. Ching
DMEA Field Team, Region III (2)

R.G.S.

Surname copy

700

Ching
Ellis
Selfridge
Jensen

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

OCT 20 1955

Mr. W. H. Traver
Executive Officer
DMEA Field Team, Region III
22h New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA-3988 (Uranium)
Feed Machinery & Chemical Corp.
Sec. 1, T. 13 N., R. 19 W.
McKinley County, New Mexico

Dear Mr. Traver:

This is with reference to your memoranda of September 19 and September 26, 1955, and enclosures, relating to the subject application.

Enclosed are two copies each of memoranda from John E. Crawford, USBM, dated September 29, and W. P. Williams, USGS, dated October 12, 1955.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee (JB)

Enclosures

APPROVED:

P. F. Jones (JB)
Member, Bureau of Mines

Thor H. Kiilsgaard (JB)
Member, Geological Survey

MChing/gla
10-18-55
cc to: Admr.'s Reading File
Operating Committee
Docket
Messrs. JECrawford, Rm. 3641
THKiilsgaard, Rm. 5224
JOHosted, Rm. 3210, GSA
Code 700
Mr. Ching

R.C.S.

10/14/55 gla

IN REPLY REFER TO:

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

RECEIVED
OCT 13 1955

October 12, 1955

Memorandum

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

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

Subject: Review of Application, DMEA 3988, Food Machinery and Chemical Corporation, section 1, T. 13 N., R. 10 W., McKinley County, New Mexico.

The property described in the application is located diagonally adjacent to the site of DMEA 3939, also submitted by Food Machinery and Chemical Corporation.

The property is located 2 to 3 miles north of active uranium mines. Favorable structural trends are known to extend northward from the present mines. It is possible, and probable, that section 1 is underlain by rocks favorable for uranium ore.

A drilling project on the property should consist of rows of drill holes with the rows oriented east-west so as to intersect the favorable structural trends. The grid spacing proposed by the applicant would succeed in finding ore bodies that might be present but would probably also result in wasted drilling footage. The main ore host in the vicinity has been the Poison Canyon sandstone in the Brushy Basin member of the Morrison formation. From best information available, however, a new uranium discovery has recently been made about 5 miles north of section 1. The deposit is reported to contain a large tonnage and is in the Westwater Canyon member of the Morrison. Some, or perhaps all, of the drill holes should be drilled through the Westwater Canyon member in an effort to find another large deposit in the Westwater. Drilling through the Westwater Canyon would make the drilling about 250 feet deeper.

I recommend that the application be referred to the Field Team for field examination and report.

W P Williams

W. P. Williams

IN REPLY REFER TO:

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

RECEIVED
OCT 13 1955

October 12, 1955

Memorandum

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

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

Subject: Review of Application, DMEA 3968, Food Machinery and Chemical Corporation, section 1, T. 13 N., R. 10 W., McKinley County, New Mexico.

The property described in the application is located diagonally adjacent to the site of DMEA 3939, also submitted by Food Machinery and Chemical Corporation.

The property is located 2 to 3 miles north of active uranium mines. Favorable structural trends are known to extend northward from the present mines. It is possible, and probable, that section 1 is underlain by rocks favorable for uranium ore.

A drilling project on the property should consist of rows of drill holes with the rows oriented east-west so as to intersect the favorable structural trends. The grid spacing proposed by the applicant would succeed in finding ore bodies that might be present but would probably also result in wasted drilling footage. The main ore host in the vicinity has been the Poison Canyon sandstone in the Brushy Basin member of the Morrison formation. From best information available, however, a new uranium discovery has recently been made about 5 miles north of section 1. The deposit is reported to contain a large tonnage and is in the Westwater Canyon member of the Morrison. Most, or perhaps all, of the drill holes should be drilled through the Westwater Canyon member in an effort to find another large deposit in the Westwater. Drilling through the Westwater Canyon would make the drilling about 850 feet deeper.

I recommend that the application be referred to the Field Team for field examination and report.

WFWilliams:iml
G-10/12/55

W. F. Williams

cc: Directors' reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
J. E. Crawford, 3641
J. O. Nosted, 3210

9/30/55 gla

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

September 29, 1955

Memorandum

To: Ernest William Ellis, DMEA Member
Uranium Commodity Committee, Room 4445

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

Subject: Application for assistance, DMEA Docket 3988, Food Machinery and Chemical Corporation, Sec. 1, T. 13 N., R. 10 W., McKinley County, New Mexico

I have reviewed the application for assistance, Food Machinery and Chemical Corporation, DMEA Docket 3988; and I have discussed it with Joseph O. Hosted, Washington representative of the Atomic Energy Commission.

The Food Machinery and Chemical Corporation has made previous applications for exploration assistance in the same general area as represented in DMEA Docket 3988. The applications were reviewed in our memoranda of August 11 and August 19 and dealt with Section 7 and Section 9 respectively, in McKinley County, New Mexico. As we indicated in the review of the foregoing applications, based on information submitted by the Food Machinery and Chemical Corporation, assistance is being requested for prospecting rather than for exploration. This is concluded since no tangible evidence has been presented showing that favorable ore-bearing horizons or mineralized land exist within the subject area. It is possible that several holes drilled at the applicant's expense might reveal sufficient information to indicate that an exploration project would be warranted.

We are forwarding the application, together with a copy of this memorandum, to Thor Kiilsgaard, Geological Survey, in accordance with instructions received from DMEA.

John E. Crawford
John E. Crawford

9/28/55 glu

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

RECEIVED
SEP 28 1955

September 26, 1955

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Chairman of the Operating Committee, DMEA

From: Field Team, Region III

Subject: Docket DMEA 3988, (Uranium), Food Machinery and Chemical Corporation, Sec. 1, T. 13 N., R. 10 W., McKinley County, New Mexico

Enclosed are four copies of a review of the subject application by the Grand Junction Office.

We would appreciate receiving the review of this application by members of the Commodity Committee before releasing the subject docket for a field examination.

In the event that additional information is required from the applicant, will you please make this request from your office.

W. M. Traver

E. N. Harshman

Enclosures

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

September 22, 1955

Memorandum

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

From: J. W. Hasler USGS
M. H. Salsbury USBM

Subject: DMEA.....(uranium), Food Machinery and Chemical Corporation, Sec. 1, T. 13 N., R. 10 W., McKinley County, New Mexico

The applicant has applied for Government assistance to explore for uranium on the S 1/2 of Sec. 1, T. 13 N., R. 10 W., McKinley County, New Mexico.

There are several active DMEA contracts as well as several applications for DMEA aid in the immediate area.

At the present very little exploratory drilling has been done in this area. It would be to our advantage to either postpone, for an indefinite period, a field examination or to make a field examination and request that the applicant do limited drilling on the subject property. The information obtained from this drilling would be useful in setting up a DMEA contract if approved and also serve to determine the favorability of section 1.

Therefore we recommend a field examination be made, either as soon as appropriate or in the future when other drilling in the area has been completed and evaluated.

J. William Hasler
J. William Hasler
Geologist

M H Salsbury by JWH
M. H. Salsbury
Mining Engineer

JWH/vll

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

RECEIVED
SEP 28 1955

September 26, 1955

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Chairman of the Operating Committee, DMEA

From: Field Team, Region III

Subject: Docket DMEA 3988, (Uranium), Food Machinery and Chemical Corporation, Sec. 1, T. 13 N., R. 10 W., McKinley County, New Mexico

Enclosed are four copies of a review of the subject application by the Grand Junction Office.

We would appreciate receiving the review of this application by members of the Commodity Committee before releasing the subject docket for a field examination.

In the event that additional information is required from the applicant, will you please make this request from your office.

W. M. Traver
W. M. Traver

E. N. Harshman
E. N. Harshman

Enclosures

RECEIVED
SEP 23 1955

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

September 22, 1955

Memorandum

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

From: J. W. Hasler USGS
M. H. Salsbury USBM

Subject: DMEA.....(uranium), Food Machinery and Chemical Corporation, Sec. 1, T. 13 N., R. 10 W., McKinley County, New Mexico

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Therefore we recommend a field examination be made, either as soon as appropriate or in the future when other drilling in the area has been completed and evaluated.

J. William Hasler
J. William Hasler
Geologist

M H Salsbury by JWH
M. H. Salsbury
Mining Engineer

JWH/vll

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

September 19, 1955

224 New Customhouse
Denver 2, Colorado

Mr. W. N. Williams, President
Westvaco Mineral Products Division
Food Machinery and Chemical Corporation
Chrysler Building, East
161 E. 42nd Street
New York 17, New York

3988

Dear Mr. Williams:

This will acknowledge receipt of your two DMEA applications covering Section 1, T. 13 N., R. 10 W., and Section 29, T. 13 N., R. 9 W., McKinley County, New Mexico.

These applications have been placed in line for further processing.

Very truly yours,

W. M. Traver

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

HMC:ab
cc: Sec. Oper. Comm. (2)
Harshman
Shaw
Hasler
Docket
Chron.

September 22, 1955
Subject: DMEA-3988
Re: Exploration Assistance

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

My dear Mr. Williams:

The receipt of your application dated September 13, 1955, for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-3988 and referred to the Rare & Misc. Metals Division.

Kindly identify all future correspondence relating to your application by this docket number.

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

60932

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

September 22, 1955

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

There is listed below the assigned docket number to an application recently received from Region III.

DMEA - 3988 **Food Machinery and Chemical Corporation**

Robert E. Adams
Chief, Operation's Control
and Statistics Division

Sec. 1 T. 13 N., R. 10 W.

cc: Hasler

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

September 19, 1955

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA Aid, (Uranium), Food Machinery and Chemical Corporation, Section 1, T. 13 N., R. 10 W., McKinley County, New Mexico

Enclosed are two copies of the subject application in the amount of $47,614.00.

When this application is given a docket number, will you please advise which docket number is associated with Section 1, R. 10 W., since there are two applications in the same township from the same applicant.

One copy of the application has been forwarded to the Grand Junction office and one copy is being retained in our file.

W. M. Traver

W. M. Traver

Enclosures

MF-103
(Revised April 1952)

DMEA
Docket

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

SEP 16 1955

RECEIVED
SEP 21 1955
BUREAU OF MINES
Denver, Colorado

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

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

Not to be filled in by applicant

Docket No. DMEA-3988
Metal or Mineral Uranium
Date Received 9/21/55
Estimated Cost $47,614.00
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
161 East 42nd Street
New York 17, New York

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract
Sec. 1 T. 13 N. R. 10 W. N. M. P. M. in McKinley ~~County~~ County
New Mexico and within Mt. Taylor Mining District.

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

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Lessee
in accordance with Lease and Agreement with Santa Fe Pacific Railroad Co.

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

(*e*) If you own the land, describe any liens or encumbrances on it Not applicable

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. Not applicable

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

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. None

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

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

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

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

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

(*c*) The work will start within 15 days and be completed within 6 months from the date of an exploration project contract.

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

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

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

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

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

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

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

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

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

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

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

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

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

☐ Money ☐ Use of equipment owned by you ☐ Other

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated SEPTEMBER 13, 1955

Food Machinery and Chemical Corporation
(Westvaco Mineral Products Division)
(Applicant)

By W. N. Williams

W. N. Williams

Vice-President

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

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

Application For Aid
In An Exploration Project

Food Machinery and Chemical Corporation
Westvaco Mineral Products Division
Section 1, T. 13 N., R. 10 W.

RECEIVED
SEP 21 1955

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

Attachment of DMEA Form MF-103

Instr. No.		Explanation		
1	(b)	Corporation incorporated in the State of Delaware.		
	(c)	Chairman of the Board	John D. Crummey	San Jose, California
		President	Paul L. Davies	San Jose, California
		Executive Vice President	Benjamin C. Carter	San Jose, California
		Executive Vice President	Ernest Hart	New York, New York
		Vice President	Max E. Bretschger	Buffalo, New York
		Vice President	Hubert L. Byrd	Lansing, Michigan
		Vice President	William de Back	St Nicolas-Waes, Belgium
		Vice President	James M. Hait	San Jose, California
		Vice President	Bernard H. Jacobson	Nitro, West Virginia
		Controller	James N. Kirkwood	San Jose, California
		Treasurer and Secretary	Everett D. Myers	San Jose, California
		Vice President	Jack M. Pope	San Jose, California
		Vice President	Carl F. Prutton	New York, New York
		Vice President	Max Y. Seaton	New York, New York
		Vice President	Gerald F. Twist	Los Angeles, California
		Vice President	Jackson V. Vernon	Middleport, New York
		Vice President	Paul C. Wilbur	San Jose, California
		Vice President	William N. Williams	New York, New York
		(President - Westvaco Mineral Products Division)		
		Vice President	Clifford K. Wilson	San Jose, California
4	(a)	Exploration on this property has consisted of reconnaissance geologic mapping performed by applicant. There are no mine working or facilities.		
4	(c)	Geologic Features of Area:		

Generally this area is on the back slope of the Mesa, which forms the main Grants uranium area. The major uranium mines, namely Poison Canyon, Mesa Top, Garcia, Sec. 25, Sec. 31, Flat Top and Hanosh are in close proximity to this property. The principal ore zones, the Todilto limestone and the Brushy Basin member of the Jurassic Morrison formation underlie this area at relatively shallow depth. There is at present drilling activity in the immediate area of the subject section.

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

Attachment to DMEA Form MF-103 Continued

Instr. No.	Explanation
4 (c)	Continued

Geologic Features - Section 1, T. 13 N. R. 10 W:

Section 1 is covered by northeasterly dipping series of Cretaceous Dakota and Mancos beds. The Dakota formation directly overlies the local sandstone ore bearing zone, the Brushy Basin member of the Jurassic Morrison formation. The average dip in the area is 4°. The surface of the ground alternately forms a dip slope and flattens with a resulting thickening of the overburden toward the northeast.

The portion of Section 1 in which the Brushy Basin member is most accessible to drilling and most promising stratigraphically, is in the S½ of the Section. In this locality the Brushy Basin is overlain by only 100 to 150 feet of Dakota sandstone. The Brushy Basin itself would be approximately 150 feet thick. Drill holes in this area would have a total depth of approximately 280 feet. A small number of holes in the underlying Westwater member of the Morrison formation would serve to test the probability of ore in that zone (a minor ore bed in this district). Such holes would be on the order of 350 feet deep.

Structural features likely to influence the distribution of ore are present in the S½ of the section. A prominent northerly trending fracture zone extends from a mineralized area approximately 2½ miles to the south (Garcia Mine) and penetrates Section 1 near the West boundary. Another prominent northeasterly linear feature intersects the above mentioned fault zone in the S½ of the Section. This linear, while not known to contain Morrison-sandstone type ore, is a general extension of a mineralized fault system in the Todilto limestone 2½ miles distant (Red Point prospect).

4 (d) All property is accessible by graveled surfaced New Mexico State Highway 53, an unimproved dirt road. Section 1 can be reached by travelling west from Grants, New Mexico on U. S. Highway 66 for three miles, then north on State Highway 53, approximately 18 miles, then northwest on private unimproved Ambrosia Lake road, three miles, then west on unimproved dirt road one and one-half miles to the southwest corner of Section 1. The Anaconda Bluewater Mill is located approximately 20 miles from Section 1 by present access road. Supplies and limited residence are available at Grants, New Mexico.

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

Attachment to DMEA Form MF-103 Continued

Instr. No.		Explanation
4	(d)	Nine men can be made available to carry out reconnaissance and technical work in connection with this exploration. Applicant now has all material, supplies and equipment in the area necessary to perform the proposed work. Adequate water and power can be obtained in the immediate area. Applicant has set up laboratory equipment at Grants with a full time laboratory technician in charge to handle various forms of sampling work in connection with laboratory radiometric assaying. In addition, facilities of other plants connected with the applicant Company are prepared to handle further analytical work. Chemical analyses can be made by the present staff of applicant Company.
5	(b)	Applicant wishes to explore the area by drilling on a designated grid with a rotary drill, collecting samples for chemical assay when drilling through promising horizons, probing the holes for radioactivity, and at various intervals coring the horizons for geological information. The approximate depth of the holes in this area was estimated by projecting the regional dip of the ore horizon, (Brushy Basin member of the Morrison formation) from the nearest outcrop, or from the nearest available drill hole information. Listed below are figures showing the expected depths of the holes and general grid patterns.

Average Depth Holes	Grid Area	Grid Spacing	No. of Holes	Total Footage	Footage Samples	Footage Cored	Average Depth to Ore Horizon
280	S½	400	95	26,600	3,800	800	230

5	(d)	Applicant is well qualified to undertake the proposed exploration program. Applicant has explored, developed and its subsidiary is now mining 2000 tons per day of trona at Green River, Wyoming. Applicant is mining and processing 125,000 tons annually of dolomite in Newark, California. A subsidiary of applicant, Barium Products, Ltd., has explored and developed, and is now mining barite ores to the extent of 50,000 tons annually. Applicant has explored, developed and mined millions of tons of phosphate rock in the States of Idaho and Utah. In addition, applicant processes into chemicals all these various minerals at plants located thoughout the United States. The personnel who have supervised and carried on the work at these various operations will be directly responsible for the uranium exploration program in the Grants, New Mexico area. Applicant's project engineer stationed at Grants, has been employed by applicant for seven years, is a graduate Mining Engineer from the University of Nevada and has held various positions from Engineer up through Mine Foreman at the Green River trona mine. Applicant's geologist, who is in charge of geology and map interpretation, has been employed by applicant for four years, was

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

Attachment to DMEA Form MF-103 Continued

Instr. No.	Explanation
5 (d)	Continued

formerly a Professor of Geology at Idaho State College, Pocatello, Idaho, is a graduate of the University of Colorado and has been connected with various mining firms throughout the United States. These gentlemen will be assisted in the field by thoroughly competent graduate mining engineers and geologists. A full time consultant with several years experience in uranium exploration has been retained.

6 Estimate of Costs

Estimated cost for contract drilling.....$0.69 per foot (tri-cone rotary drill)

Estimated total cost of other items listed

in 6 (b - h) equivalent..... 1.10 per foot

Estimated Total Cost Equivalent to.....$1.79 per foot drilled

Estimated Totals for 26,600 feet of drilling..$47,614

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

RECEIVED
SEP 21 1955

Attachment to DMEA Form MF-103 Continued

Instr. No.	Explanation		Dollars Per Foot
6	Estimate of Costs (Additional Detail):		
	Estimated Cost for contract drilling		$ 0.69
	Estimated Cost of other items		
	Salaries	$ .336	
	Consultants	.051	
	Living Costs	.102	
	Hourly Labor	.005	
	Total Personnel	$ .494	$ .494
	Rental		
	Office	$ .017	
	Excavation Machinery	.015	
	Total Rentals		$ .032
	Supplies		
	Office	$ .020	
	Mapping	.010	
	Laboratory	.010	
	Sample Sax, Core Boxes, Etc.	.017	
	Total Supplies		$ .057

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

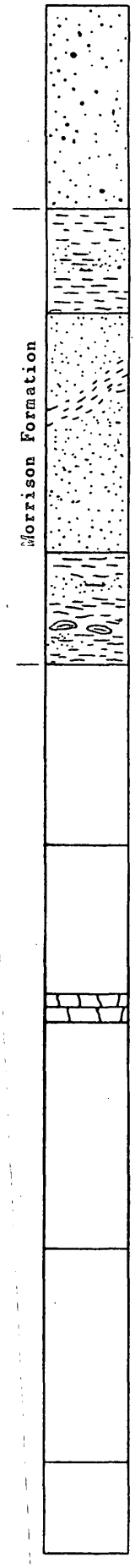
Attachment to DMEA Form MF-103 Continued

Instr. No.	Explanation		
	Transportation		
	Repairs	$ .020	
	Gas and Oil	.031	
	Car Rental	.035	
	Airline Tickets	.020	
	Total Transportation		$ .106
	Miscellaneous		
	Drill Site Preparation	$ .017	
	Airplane	.045	
	Bookeeping, Clerical, Stenographic	.090	
	Map Preparation and Drafting	.090	
	Tel and Tel	.017	
	Total Miscellaneous		$ .249
	Contingency at 10%		.160
	Total		$1.79

The above estimates are based upon recent exploration operations conducted by applicant in the Grants area.

7 (b) The applicant has a staffed and equipped mineral development department, whose qualifications were listed under Section 5, which would be assigned to this exploration. The applicant is prepared to pay the portion of the cost of this program which is not covered by the Government contribution.

GENERALIZED GEOLOGIC COLUMN OF GRANTS, NEW MEXICO AREA



Lithologic Column	Formation and Thickness	Description
	Dakota Sandstone 60' to 120'	Gray to white or buff medium to coarse grained massive sandstone, locally cross bedded. One or two "coat" seams, having maximum thickness of 5 feet each appear in some areas and are underlain by about 5 feet of buff, medium grained, locally conglomeratic, limonitic, blocky and resistant sandstone. The coal is slightly to moderately radioactive in some areas.
	Brushy Basin Shale 0' to 130'	Pale green, incompetent, gypsiferous mudstone with buff fine to coarse-grained, channel type sand lenses containing mudstone galls and laminae and relict feldspar grains. Weathers to a steep slope littered by huge talus blocks of Dakota. The sand lenses are lithologically identical with those of the underlying westwater. Complex basal and lateral inter-tonguings between westwater and brushy basin are common throughout the northern portion of the Zuni Uplift.
	Westwater Canyon Sandstone 50' to 290'	Light red to buff, medium to coarse-grained poorly sorted subangular sandstone with occasional conglomeratic zones which contain rounded, flattened clay galls and boulders up to two feet in diameter, pebbles of chert and fine grained ingneous rock, and silicified and carbonized logs and wood fragments. Cross bedding is prominent. Rich but small carnotite deposits have been formed by replacement of carbonized wood. The base is drawn at the bottom of the lowest major coarse-grained channel sand.
	Recapture Creek Shale 0' to 140'	Interstratified red-brown, chocolate-brown, light green and white siltstone shale and fine grained sandstone with a few ribs of coarse grained channel sand and mottled red and green, thin, dense, unfossiliferous limestone beds usually produces a steep detrital covered slope ore. Where slope is clean it has a knobby color banded, ribbed appearance. Locally weathers into bad lands.
	Bluff Sandstone 220' to 625'	Light green, white to light buff, fine grained, extremely massive color banded, fairly well sorted, subangular. Sandstone with occasional light green, silty arillaceous beds. Weathers into blocky, vertical cliffs. Intertongues and grades laterally into the recapture creek shale.
	Summerville Formation 0' to 185'	Interstratified, red-brown to light green and white, fine grained parallel-bedded, banded sandstone, siltstones and shales. It has a mottled appearance and generally weathers into a steep, talus littered slope with occasional knobby outcrops. The basal ten feet are highly calcareous and contain lenses of limestone almost identical with the underlying Todilto.
	Todilto Limestone 0' to 30'	Dark gray, fine grained, dense, unfossiliferous limestone, thin bedded and platy. Weathers into rubbly, rectangular fragments. Locally contains uranium ore deposits in erratic yellow patches of disseminated carnotite, tyuyamunite, and uranophane associated with small amounts of pitchblende.
	Entrada Sandstone 130' to 280'	Deep red to light buff sandstone. Grains subangular, well sorted frosted. Huge sweeping concave cross beds segregated in wedge-shaped units, parallel planes divide the formation into units 5 to 50 feet thick. Erodes into characteristic rounded pedestal rocks, and smooth, virtually unscalable cliffs.
	Carmel Formation 55' to 260'	Dark pink to brown, very fine grained, well sorted, limonite-coated, very poorly parallel bedded, quartzose, silty sandstone. Weathers to a knobby, vertically-fluted, blocky, steep slope, and may form cliffs. Top has a one to two foot zone of leaching and reworking which is usually directly below a thin grit layer.
	Wingate Formation 0' to 120'	Orange to light buff, fine to medium grained sub-rounded, well sorted, poorly cemented, thin bedded, slabby, pure quartzose sandstone with scattered, limonite coated and varicolored chert grains. Locally in vertical cliffs but generally rounded, orange colored knobs. Top usually marked by a one to three foot zone of bleaching and reworking.

W.C.I.

April 4, 1955.

Santa Fe Pacific Railroad Company,
Albuquerque, New Mexico.

Attention: Mr. C. B. McClelland.

Gentlemen:

Returned herewith are two (2) copies of the uranium mining lease and agreement dated March 16, 1955 (lease No. 9442) executed by us.

Our acceptance of this lease is subject to the following interpretation of Sections 1, 3, and 12.

1) "...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."

It is understood and agreed that this language in no way constitutes an assignment by Santa Fe or an assumption by this Company of all of Santa Fe's rights and obligations under the Anaconda agreement, and that this Company will be deemed to have "complied with" the provisions of the Anaconda agreement if we offer all ore mined by us (of the kind specified in Section 1 of that agreement) for sale to Anaconda (conditioned upon payment to us of the prices and allowances set out in that agreement), and give Anaconda a reasonable opportunity to accept or reject such offers, before we sell it to another buyer or mill it ourselves.

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."

It is understood and agreed that the sixty-day period requirement applies to our obligation to commence exploration operations on the premises and that the obligation to mine commences only after we have given Santa Fe notice under Section 2 so as to take the lands out of exploration status and place them under mining lease status.

12) "...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."

It is understood and agreed that the words "subject to the terms and provisions of said deed reservation" do not constitute an assignment by Santa Fe nor an assumption by this Company of any obligation to pay Santa Fe's grantees for appropriating any part of the premises for exploration or mining operations. The obligation referred to immediately above is the one set out in Santa Fe's form of deed immediately following the expressed reservation of mineral rights. This interpretation is not intended to apply to the two later paragraphs in Section 12 under which we agree to pay surface owners damages for harm to crops, and buildings caused by "the erection or construction of facilities to be used in connection with mining operations."

If the above interpretations fit your understanding of the Sections involved, kindly so indicate by signing and returning one copy of this letter with a copy of the fully executed lease.

Very truly yours,

FOOD MACHINERY AND CHEMICAL CORPORATION
(Westvaco Mineral Products Division)

s/ W. N. Williams

W. N. Williams
Vice President

ACCEPTED:
Santa Fe Pacific Railroad Company

By s/ R. S. Ryding
Title Vice President

Lease No. 9442

URANIUM MINING LEASE AND AGREEMENT

THIS INDENTURE, entered into in duplicate this sixteenth day of March, 1955, by and between SANTA FE PACIFIC RAILROAD COMPANY, a corporation created by Act of Congress approved March 3, 1897, with its principal offices in Albuquerque, New Mexico, first party, hereinafter called the "Lessor," and FOOD MACHINERY AND CHEMICAL CORPORATION (WESTVACO MINERAL PRODUCTS DIVISION), a Delaware corporation, second party, hereinafter 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 Counties of McKinley, Sandoval and Valencia, State of New Mexico:

NEW MEXICO MERIDIAN, NEW MEXICO

Township twelve North, Range three West

NW¼ and SE¼ section 19 and NW¼ and SE¼ section 31.

Township twelve North, Range four West

Lots 1, 2 and NE¼ section 13 and lots 1, 2 and E½NE¼ section 25.

Township ten North, Range nine West

Section 3, all that part section 9 lying north and east of the right of way of The Atchison, Topeka and Santa Fe Railway Company, subject to easement to the State of New Mexico dated December 1, 1933, for highway right of way, and NE¼NE¼ section 15.

Township eleven North, Range nine West

Sections 17, 21, 29 and 33.

Township thirteen North, Range nine West

Sections 7, 9, 17, 21, 29 and 33.

Township thirteen North, Range ten West

Sections 1, 3, 5, 7, 9, 11, 13, 15 and 17.

Containing in the aggregate thirteen thousand, nine hundred seventy-one and three hundredths (13,971.03) acres,

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 agricultural, horticultural, grazing, 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.

SUBJECT ALSO to all existing easements, servitudes and rights of way for canals, ditches, levees, roads, highways, telegraph, telephone and electric power lines, railroads, pipe lines and any other purposes, to any public roads heretofore laid out or established, and to rights of way for ditches and canals which may be constructed under authority of the United States.

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.

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.

4. 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 data and all of the mining and exploration work done, or in progress, upon the property, together with assays of the ore encountered, during the preceding quarter.

5. On all ores mined or removed from demised premises for the purpose of milling, treatment, stockpiling, sale, or other disposition, Lessee shall pay to the Lessor a percentage royalty of the mined value per dry ton as set forth in the following schedules:

(a) Lessee shall pay Lessor on all underground ore mined from the demised premises through shaft or tunnel on the following royalty schedule:

Percentage Royalty Schedule

Mine Value Per Dry Ton	Royalty Percentage of Mine Value Per Dry Ton
$ 0.01 to $10.01	10%
$10.01 to $20.01	11%
$20.01 to $30.01	12%
$30.01 to $40.01	13%
$40.01 to $50.01	14%
$50.01 or more	15%

(b) Lessee shall pay Lessor on all open pit ore mined by surface mining methods on the following royalty schedule:

Percentage Royalty Schedule

Mine Value Per Dry Ton	Royalty Percentage of Mine Value Per Dry Ton
$ 0.01 to $10.01	10%
$10.01 to $20.01	14%
$20.01 to $30.01	18%
$30.01 to $40.01	22%
$40.01 to $50.01	26%
$50.01 or more	30%

"MINE VALUE PER DRY TON," wherever used herein, is hereby defined as the dollar value per dry ton of crude ores at the mine as determined by the application to the valuable metal content of such ore of the price schedules for such ores established and currently in effect by the Atomic Energy Commission or other government authorized agencies, but excluding any allowance for transportation or development, and all mine production bonuses. However, if the Government at any time hereafter does not establish or have in effect a price schedule for the purchase of such ores on a fixed or scheduled dollar value per dry ton of crude ores at the mine, or said ores contain salable minerals, some, or all, of which are disposed of to a custom treatment plant or smelter for treatment and sale, then mine value per dry ton shall be the gross value per dry ton of said crude ores paid therefor by the Atomic Energy Commission, or other Government authorized agency, or by a mill or other buyer, less any allowances or reimbursements for the following specific items:

(1) Transportation of ores.

(2) Allowances paid to Lessee by the Atomic Energy Commission or other Government authorized agency for exploration for or development of ores.

Wherever minerals or other products associated with uranium-bearing ore are recovered from the ores which are not included in determining "mine value per dry ton" as heretofore defined, there shall be paid by Lessee to the Lessor for such minerals or other products, a royalty of ten per cent (10%) of the gross value of such products, less milling cost charged to Lessee thereon.

All royalty payments to be made by Lessee to Lessor shall be made on or before the twentieth day of the month next following receipt by Lessee of payments for the products sold or disposed of.

Lessee shall keep accurate account of all mining operations, showing the sales, prices, dates, purchasers, and the whole amount of minerals mined, the amount removed and the gross receipts derived therefrom, together with any bonus or other payments, and furnish to Lessor sworn monthly reports thereon not later than the twentieth day of the succeeding month.

6. In addition to the payments hereinabove mentioned, Lessee shall pay Lessor as rental for the leased premises upon the execution of this lease the sum of One Dollar ($1.00) per acre and thereafter One Dollar ($1.00) per acre a year for each year this lease may be in effect, to be paid annually in advance; provided, however, that beginning with the second year and each year thereafter the rental so paid for any one year shall be credited on the royalty due to Lessor for that year.

7. Lessee shall not subject Lessor or the leased premises to any liability or lien for or on account of any work done or improvements made or materials placed on or used upon said premises, and if by reason of the failure of Lessee to pay bills or expenses incurred by Lessee any lien or liens shall be filed against the leased premises, Lessor may forthwith pay and discharge the same and hold Lessee bound to repay to Lessor all sums so advanced or paid to clear said premises from liens which may be filed as foresaid,

and Lessor may also at its election 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 returns with the proper taxing authorities covering the mineral estate hereby leased, the uranium-bearing ore or other minerals 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 increases in such charges, rates or assessments upon the land, by reason of the discovery or production of such minerals or on account of improvements erected upon said land, including buildings, machinery and other fixtures placed thereon by Lessee. Where any such taxes, charges, rates or assessments may be embraced in the general amount of taxes charged upon the leased premises, separately or in conjunction with other property of the Lessor or of 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 amount or part of the tax, charge, rate or assessment attributable under this lease to Lessee. All such payments by Lessor on account of Lessee shall bear interest at the rate of eight per cent (8%) per annum until paid.

9. Lessee shall save harmless and indemnify Lessor against all claims, demands, 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 Workmen's Compensation Act of New Mexico 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 improvements, except such as may become the property of the Lessor under this lease by purchase or otherwise; provided, however, that no such tools, machinery, 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 timbers or improvements which may be necessary or desirable to leave in the workings to protect same from subsidence or as a mining property unless requested by Lessor 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 Westvaco Mineral Products Division,

Food Machinery and Chemical Corporation, 161 East 42nd Street, New York 17, New York, 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 postpaid, return receipt requested, addressed to Lessor at 314 First Street SW, Albuquerque, New Mexico, 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, lock-outs, 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 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, the 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 case may be.

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,

by S/ R. S. Ryding
Vice President

(SEAL)

ATTEST:

LESSOR

S/ R. D. Brown
Assistant Secretary

FOOD MACHINERY AND CHEMICAL CORPORATION
(WESTVACO MINERAL PRODUCTS DIVISION)

By S/ W. N. Williams
President

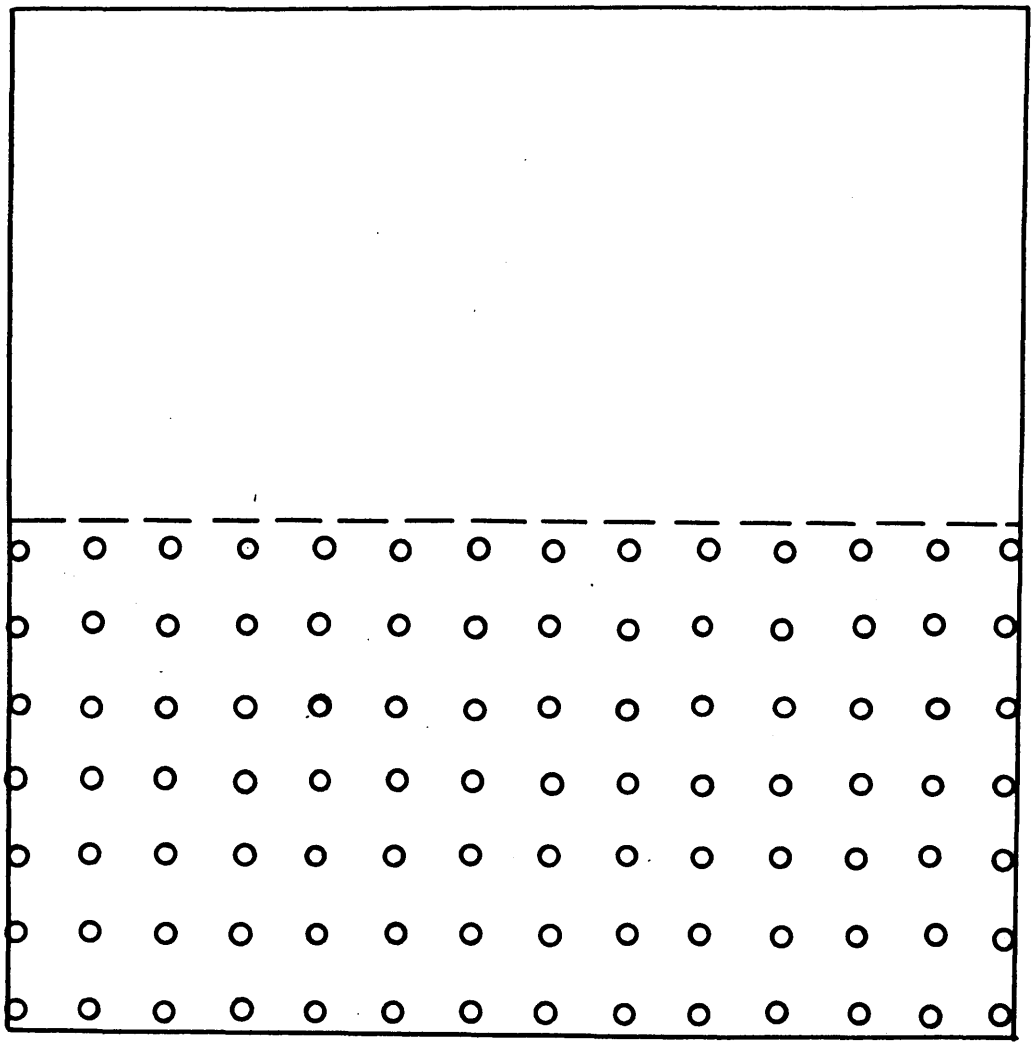
(SEAL)

LESSEE

ATTEST:

S/ Lloyd C. Hartman
Assistant Secretary

Section 1, T. 13 N. R. 10 W.



Note — Proposed grid pattern is based upon surface geologic evidence. Sub-surface geology, established by drilling, will control actual grid pattern.

WESTVACO MINERAL PRODUCTS DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION
MINERAL DEVELOPMENT DEPARTMENT POCATELLO, IDAHO

PROPOSED GRID PATTERN

MARK	REVISION	DATE	BY	CHECK

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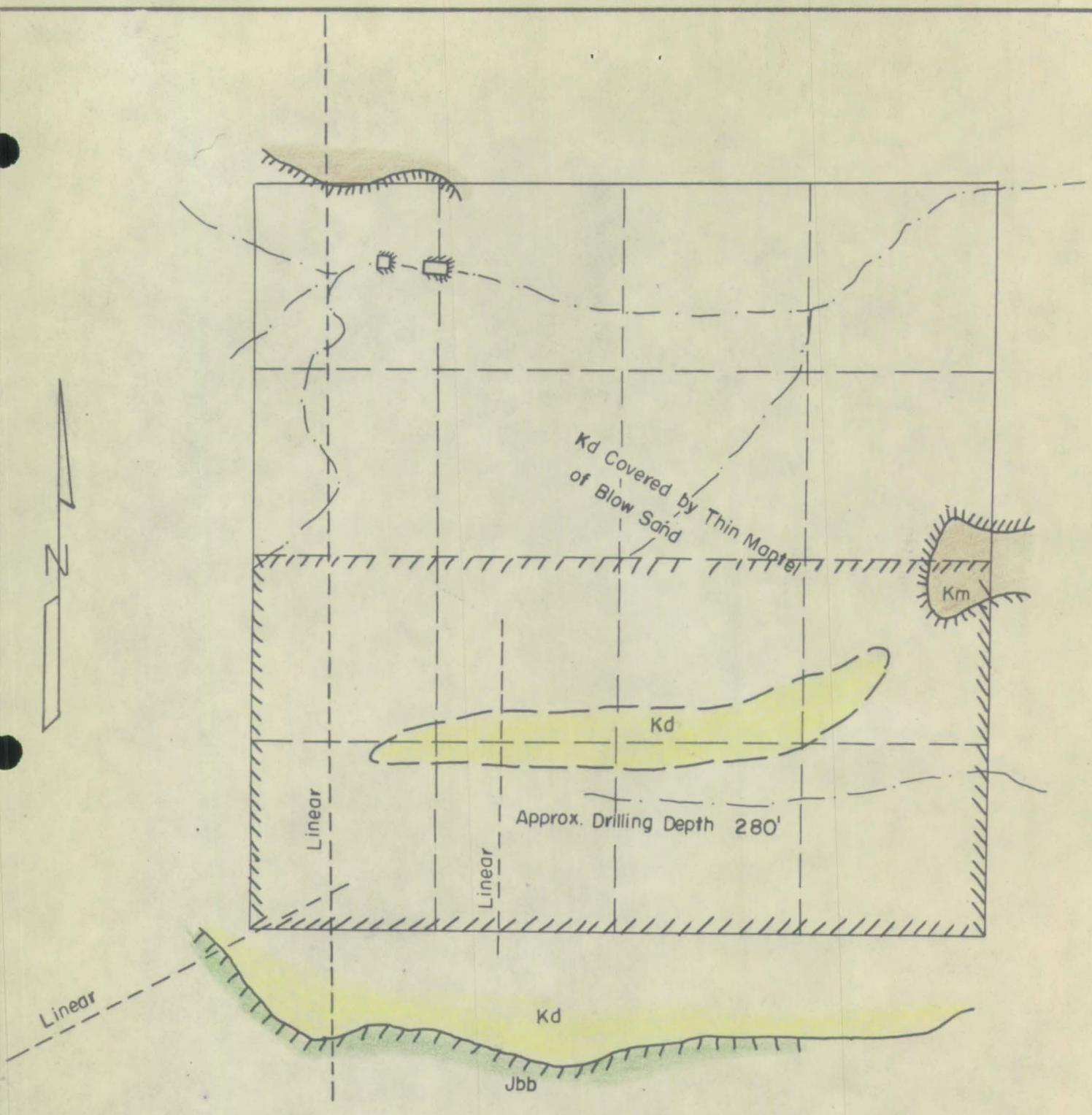
WESTVACO MINERAL PRODUCTS DIVISION

DRAWN-
DATE-
CHECKED-
APPROVED-

CHARGE-
SCALE-
PRINT DATE 9-1-'55

DRAWING No. 765

"ALBANENE" NO. 195L



Section 1, T. 13 N. R. 10 W.

Playa Streams				
Mancos Km Formation				
Dakota Kd Formation				
Brushy Basin Member (Morrison Formation)				
Area to be Drilled	DATE	BY	CHECK	

WESTVACO MINERAL PRODUCTS DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION
MINERAL DEVELOPMENT DEPARTMENT POCATELLO, IDAHO

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WESTVACO MINERAL PRODUCTS DIVISION

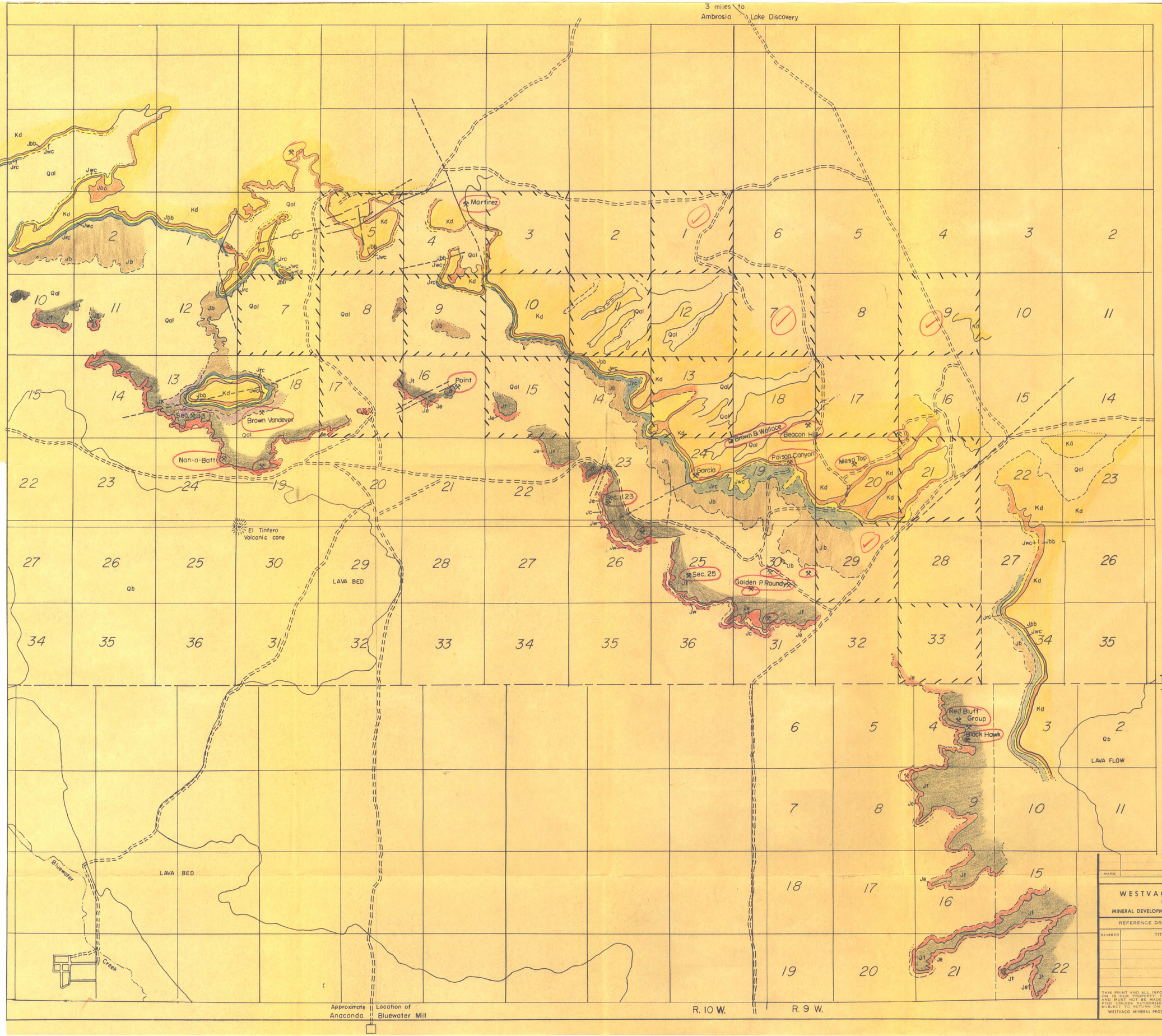
DRAWN- M.D.	CHARGE-	DRAWING No.	
DATE-	SCALE-	747	
CHECKED-	PRINT DATE 7-6-'55		
APPROVED-			

"ALBANENE" NO. 195L

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1201 N. DIVISION ALLEY
SPOKANE 2, WASHINGTON

SPOKANE WASH
AG 17 8 PM
1955

Mr. George C. Selfridge
Chairman, Operating Committee
Defense Minerals Explor. Admin.
Department of the Interior
Washington 25, D. C.



✓ The four Food Machinery & Chemical Corp. Sections each under a separate application.

MARK	DESCRIPTION	DATE	BY	CHK.
	REVISIONS			

WESTVACO MINERAL PRODUCTS DIVISION
FOOD MACHINERY & CHEMICAL CORPORATION
MINERAL DEVELOPMENT DEPT. POCATELLO, IDAHO

REFERENCE DRAWINGS

NUMBER	TITLE

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WESTVACO MINERAL PRODUCTS DIVISION

SANTA FE URANIUM LEASE MAP

DRAWN M.D.	APPROVED
CHECKED	APPROVED
CHARGE	DRAWING NO.
SCALE 2" = 1 mile	752
PRINT DATE 7-14-'55	