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Application For Aid
In An Exploration Project

Food Machinery and Chemical Corporation
Westvaco Mineral Products Division
Section 1, T. 13 N., R. 10 W.
DMEA-3988

MF-103
(Revised April 1952)

DMEA
Filed

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

SEP 16 1955

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BUREAU OF MINES
Denver, Colorado

Not to be filled in by applicant

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

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. See attachment

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

(*d*) If a partnership, add to the above statement the names and addresses of all partners. Not applicable

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 Co.
New Mexico and within Mt. Taylor Mining District.

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

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

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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
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161 East 42nd Street
New York 17, New York

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
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161 East 42nd Street
New York 17, New York

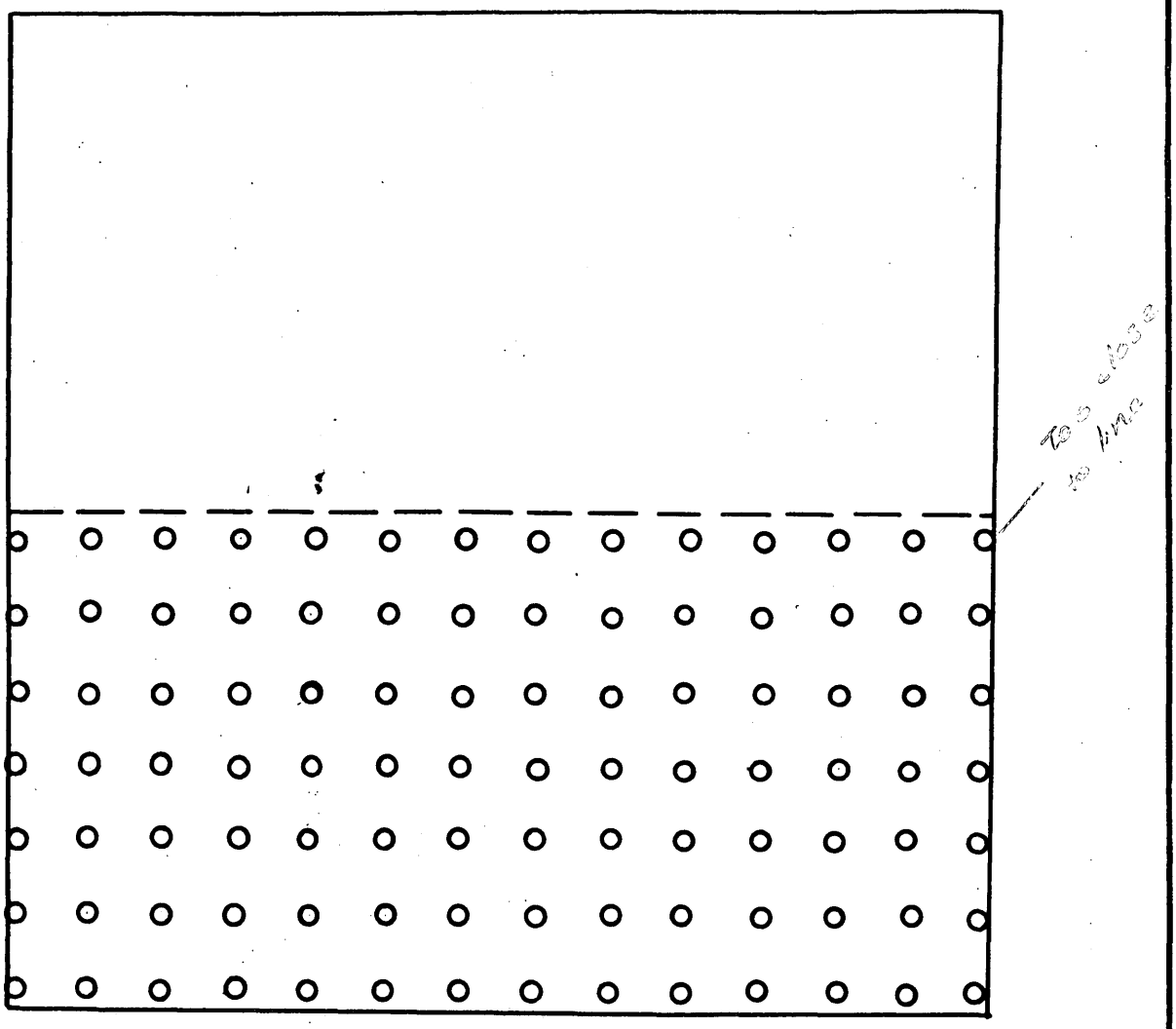
Attachment to DMEA Form MF-103 Continued

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.

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

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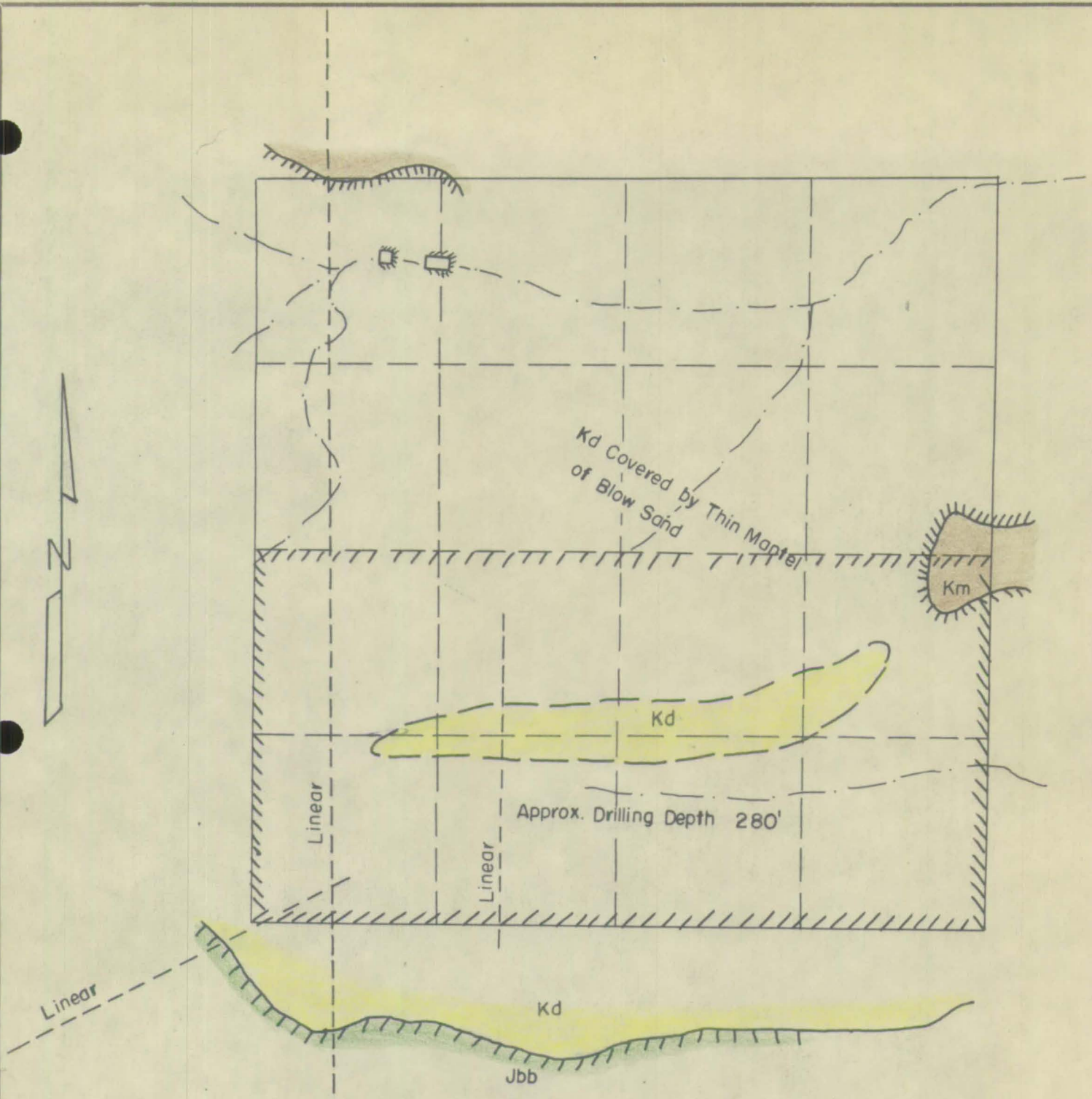
DATE-
CHECKED-
APPROVED-

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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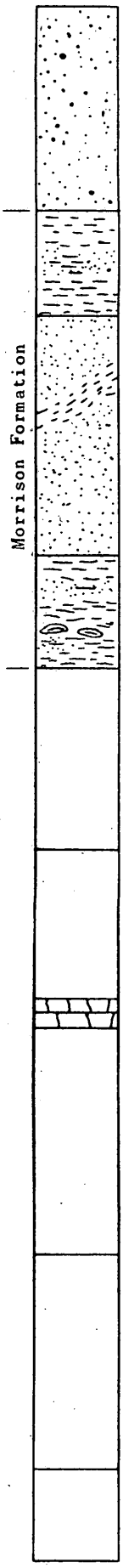
CHARGE-
SCALE-
PRINT DATE 7-6-'55

DRAWING No. 747

"ALBANENE" NO. 195L

GENERALIZED GEOLOGIC COLUMN OF GRANTS, NEW MEXICO AREA



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 "coal" 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 igneous 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)

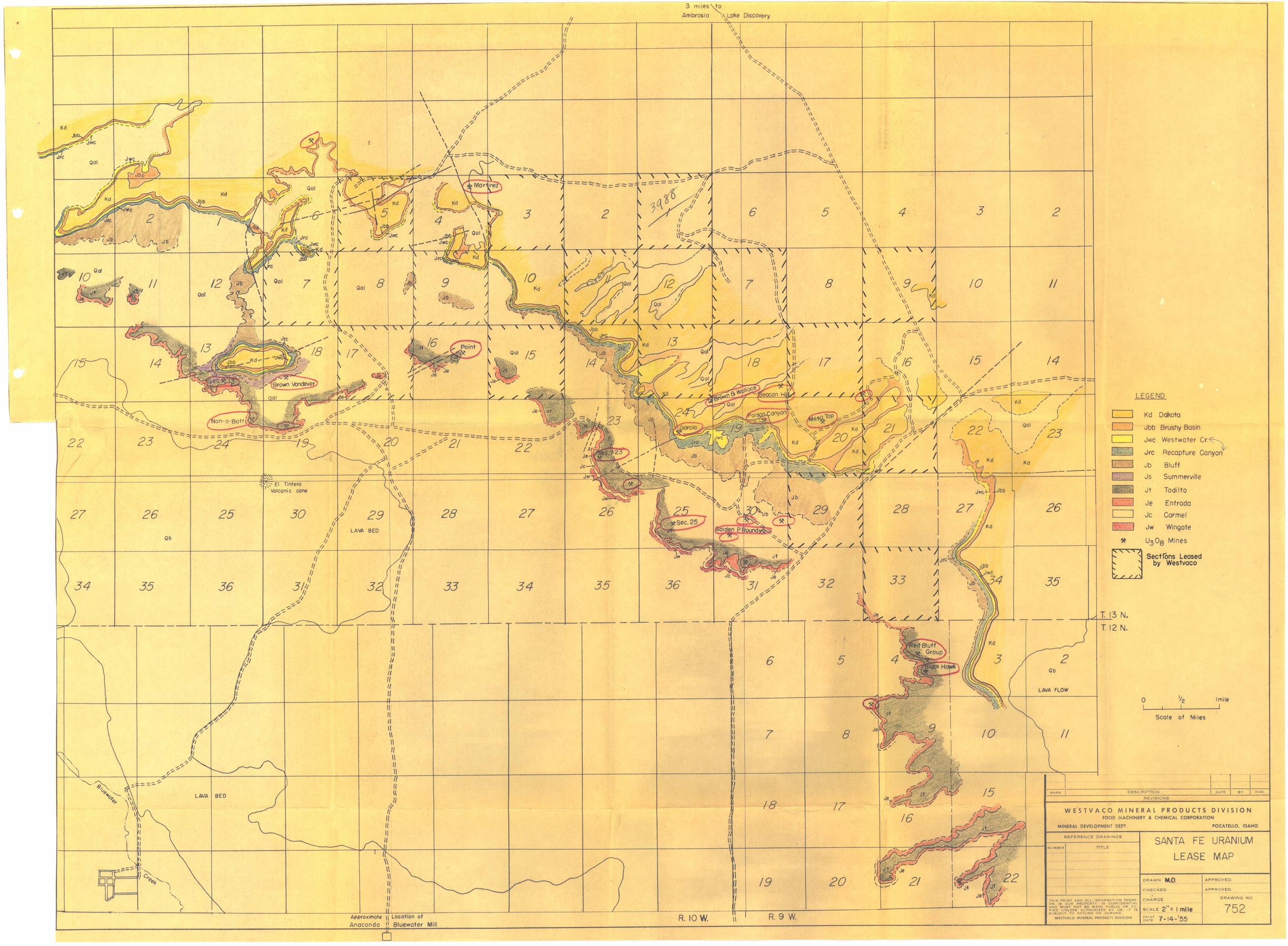
By S/ W. N. Williams
President

(SEAL)

LESSEE

ATTEST:

S/ Lloyd C. Hartman
Assistant Secretary


3 miles to
Ambrosia Lake Discovery
Martinez
Point
Brown Vandever
Nan-a-Batt
Brown & Wallace
Beacon Hill
Poison Canyon
Garcia
Mesa Top
Sec. 23
Sec. 25
Golden P Roundy
Red Bluff Group
Black Hawk
El Tintero Volcanic cone
LAVA BED
LAVA FLOW
Bluewater Creek
Approximate Location of Anaconda Bluewater Mill
R. 10 W.
R. 9 W.
T. 13 N.
T. 12 N.
LEGEND
Kd Dakota
Jbb Brushy Basin
Jwc Westwater Cr.
Jrc Recapture Canyon
Jb Bluff
Js Summerville
Jt Todilto
Je Entrada
Jc Carmel
Jw Wingate
U3O8 Mines
Sections Leased by Westvaco
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Scale of Miles
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
SCALE 2" = 1 mile
PRINT DATE 7-14-'55
DRAWING NO. 752