UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE

Terminated ~~(or cancelled)~~ without certification. DMEA No. 1318

This is the official contract file containing all official records of the project. Duplicate material has been removed. The records contained in the files are checked and are arranged in this manner:

Left Side

Certificate of Audit (Final).

Interim Audit(s).

✓ Report of Review.

✓ Termination Notice or Agreement.

Recision Notice.

Assignment of Contract.

✓ Contract Amendments (latest on top).

✓ Contract with all exhibits and annexes.

Owner's Consent to Lien.

✓ Subordination Agreement.

✓ Leases and assignments of leases.

✓ Application and attachments.

Schedule of Collections.

✓ Operator's monthly reports and all attachments (latest on top).

Right Side

✓ Project summary.

✓ Work completed analysis.

✓ All other material is filed in chronological order with correspondence including the following reports as checked:

✓ Final Field Team Report. (Tab)

✓ Operator's Final Report.

✓ Interim Reports.

On-site Exam Report(s). (Tab)

Settlement Sheets.

If additional folders are required because of volume of records, show folder numbers and contents below:

Maps in folder number _____

Operator's Monthly Reports in folder number _____

CW
Reviewer's Initials

7973

DEFENSE MINERALS EXPLORATION ADMINISTRATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF REVIEW

I have reviewed the Monthly Reports of:

Kenneth L. Porter
420 Lexington Ave.
New York, New York

pertaining to Exploration Project Contract No. Idm-X 124, Docket No. DMEA 1318X, including Amendment No. 1, for the months of December 1951 to April 1954, including termination agreement dated April 30, 1953, and approval for disposal of property dated August 26, 1954, covering a project for the exploration of sulphur on property, known as Hope & Brimstone placer claims, located in Hot Springs County, Wyoming.

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

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

(A) An audit of the Operator's records, covering the initial claim ($9,984.29), was made on November 13, 1953, by B. J. Brekhus, DMEA Auditor;

(B) A supplemental claim ($1,416.13) was supported by documentary proof of the costs incurred under the contract; and

(C) The administrative costs to the Government of a final audit would be excessive in relation to the estimated amount of possible further disallowances thereunder.

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

Total cost as billed by Contractor:		$11,400.42
Less: Proceeds from property disposition:		220.00
Net cost as claimed by Contractor:		11,180.42
Exceptions (schedule attached):		
By DMEA Finance Officer $		
Herewith	1,402.25	1,402.25
Total Accepted Cost		$ 9,778.17

The contract calls for a 50 percent participation of exploration expenses by the United States Government. Therefore, payment to the contractor by the Government in the amount of Four Thousand Eight Hundred Eighty-Nine and 09/100ths Dollars - $4,889.09

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

Date: Sept. 15, 1954

R. H. Brading
R. H. Brading, Auditor

Defense Minerals Administration
RECEIVED
SEP 28 1954

SCHEDULE OF EXCEPTIONS

Kenneth L. Porter **DMEA 1376X** **IV# E-12X**

Interim Audit

Not Supported

Engineer Salary and Expense		$ 8.32
Repairs to Core Bits		157.29
Transportation		102.90

Credits for Returned Items

1 - Inner Tube Clamp	$ 28.00	
1 - Inner Tube Hoist Plug	30.00	
4 - Core Catchers	70.00	
	$128.00	
Sales Tax	2.56	
	$130.56	
Diamond Core Bit Salvage	119.24	$249.80
Total		$515.31

This Report of Review

Total Engineering Services Claimed	$2,096.13	
Total Engineering Services allowed by contract	1,500.00	$596.13
Additional salvage on diamond bits for which operator admits receiving check		135.81

Storage from August 1, 1953 to May 31, 1954 at $15.00 per month $150.00. Not considered as being a reasonable charge as contract was terminated April 30, 1951. This allowed operator 90 days to dispose of equipment, which is considered as reasonable and all storage charges in excess of 90 days are considered as being operator's responsibility.

Total disallowances made by auditor in this Report of Review in the amount of $883.94 were approved by a representative of the Regional Officer of Region IV.

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GOVERNMENT COPY

NOTICE OF TERMINATION OF EXPLORATION PROJECT CONTRACT, UNDER THE TERMS OF THE CONTRACT, BEFORE THE COMPLETION OF THE WORK

To: Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Operator under Exploration Project Contract Idm-E124, Docket No. DMEA 1318X, dated August 23, 1951.

The United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, under the terms of the above-mentioned contract, hereby terminates the contract on the following grounds:

In the opinion of the Government, you have failed to prosecute operations pursuant to the terms of the contract.

Upon the receipt of this notice, as provided in said contract, you are required to dispose of any remaining materials, supplies, facilities, buildings, fixtures, equipment, or other items, in which the Government has an interest, for the joint account of yourself and the Government; and to render to the Government a full and final accounting of your operations under the contract and of your expenditures of money on account thereof.

Any work prosecuted or costs incurred by you after the receipt of this notice shall be for your sole account, except for (a) such necessary and reasonable costs and expenses as may be incurred in preserving and disposing of any facilities, buildings, fixtures, equipment, or other items, to the cost of which the Government has contributed and in which the Government has an equity, and (b) the costs of any reports, accounts, and winding-up and settlement actions provided for in the contract.

Dated this 30th day of April, 1953

UNITED STATES OF AMERICA

By W. R. King
Executive Officer
DMEA Field Team Region IV

DEPARTMENT OF THE INTERIOR
Bureau Mines Administration
RECEIVED
MAY 4 1953

No. 1

AMENDMENT OF CONTRACT: No. Idm-E124

Contract Docket No. DMA 1318X, dated August 23, 1951, between the United States of America and Kenneth L. Porter is hereby amended as follows, effective as of the date of said Contract:

> Referring to "Exhibit "A" - Exploration Project" attached to Exploration Project Contract Form MF-200, page 2, last line, delete the word "Maximum" and in lieu thereof substitute the word "Estimated"; after said line add the following:
>
> Stage A funds may be augmented by a portion of Stage B funds for additional exploratory drilling if deemed necessary by and with the written prior approval of the Executive Officer, DMEA Field Team, Region IV.

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may pay or the percentage of the costs which the Government may pay under the provisions of Article 13 of the contract form.

Dated November 7, 1952.

KENNETH L. PORTER

Kenneth L. Porter

UNITED STATES OF AMERICA

By W. H. King

Executive Officer - DMEA
Field Team, Region IV

Contract dated August 30, 1951, between Kenneth L. Porter and Fred E. Butler for carrying out certain specified work under the provisions of Exploration Project Contract Docket No. Idm-E124, between the United States of America and Kenneth L. Porter is hereby approved.

This approval shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may pay, or the percentage of the costs which the Government may pay, under the provisions of Article 13 of the contract form.

Dated September 21, 1951.

UNITED STATES OF AMERICA

By J. H. Smith

Executive Officer - DMA

MF-200
(June 1951)

Docket No. DMA 1318X
Commodity Sulphur
Idm-E 124

Reviewed 10/10/51

RECEIVED
SEP 11 1951
G. A. O.

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

EXPLORATION PROJECT CONTRACT [1]

It is agreed this 23rd day of August, 1951, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration, hereinafter called the "Government," and [2]

Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

hereinafter called the "Operator," as follows:

1. *Authority for contract.* This agreement is entered into under the authority of the Defense Production Act of 1950, pursuant to Mineral Order 5, entitled "Regulations Governing Government Aid in Defense Exploration Projects."

2. *Operator's property rights.* The exploration project shall be conducted on that certain property situated in the State of Wyoming, County of Hot Springs described as follows: [3]

See description in Appendix I.

with respect to which the Operator represents and undertakes: [4]

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

(*b*) That he is a lessee, in possession and entitled to possession, and the subordination agreement of the lessor is attached.

3. *Exploration project.* The Operator, within thirty (30) days from the date of this contract shall commence work on a project of exploration for [5] sulphur; shall prosecute the work efficiently, expertly, in a workmanlike manner, in accordance with good mining standards, with suitable and adequate equipment, materials, and labor, all properly designed to bring the project to completion within a period of [6] two (2) years from the date of this contract. The exploration project and the work to be performed are more fully described on Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, is made a part of this contract.

4. *Performance of the work.* The work shall be performed by the Operator, under his sole direction and control: *Provided,* That with the consent of the Government and its written approval of the contract or contracts, all or any part of the work may be performed by the Operator through contract or contracts with independent contractors. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

5. *Fixtures and improvements.* The Operator shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of the exploration project without any allowance for the use, rental value, depreciation, depletion, or other cost of acquiring, owning, or holding possession thereof. Any additional facilities, buildings, and fixtures, to be purchased, installed, or erected by the Operator, with the estimated cost of each, to which the Government will contribute currently its agreed pro rata share, are listed in Exhibit "A" attached hereto. The difference between the cost of such additional facilities, buildings, or fixtures, and the salvage value thereof at the conclusion of the work, shall be charged as a cost of the project to which the Government has contributed its pro rata share.

6. *Operating equipment.* Any operating equipment to be rented, purchased, or furnished by the Operator, with the allowable rental, purchase price, or depreciation, as the case may be, is listed under appropriate headings in Exhibit "A" attached hereto. As to equipment purchased for the project, the Government will contribute its agreed pro rata share of the cost thereof, and the difference between the cost and the salvage value at the conclusion of the work shall be charged as a cost of the project to which the Government has contributed its pro rata share.

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] State name, address, and nature of organization if any.
[3] Give legal description or enough to identify the property.
[4] Strike out the provision not applicable.
[5] Name of mineral.
[6] Not in excess of 2 years.

Supplement No. _____, dated 9-21-51 Attached 11-14-51 SML

16—64066-2

7. *Title to and disposition of property.* All facilities, buildings, fixtures, equipment, or other items costing more than $50 each, paid for or purchased with funds contributed jointly by the Operator and the Government, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the termination of the contract, if they have any salvage value, shall be disposed of for their joint account unless the Government, in writing, waives its interest in any such items. The Government may require the dismantling, severance from land, and removal of any such items in order to realize its interest in the salvage value thereof, and the cost of any such removal and of the disposal of the items shall be for the joint account of the parties in proportion to their respective interests.

8. *Labor and supervision.* An itemized schedule of labor, by numbers and classes (miners, muckers, millmen, etc.), and of supervisors, by numbers and positions, with the maximum wages or salaries that may be paid to each as an allowable cost of the project is set forth in Exhibit "A" attached hereto.

9. *Rehabilitation and repairs.* A statement of the cost of any necessary rehabilitation or repairs to put existing facilities, buildings, installations, and fixtures into useful and operable condition and which are to be allowed as costs of the project is included in Exhibit "A."

10. *Allowable costs of the project.* The costs of the project in which the Government will participate are limited to the necessary, reasonable, direct costs of performing the exploration work, including the costs of materials, supplies, engineering, power, water, analytical work, accounting, and utilities, including items of equipment costing less than $50 each; and the costs referred to in Articles 5, 6, 8, and 9, and the exhibits annexed to and referred to in this contract. Although the Government may pay part of the cost of new or additional facilities, structures, buildings, and equipment, only the depreciation on such items, computed as indicated in Articles 5 and 6, will be charged as a cost of the project. No items of general overhead, corporate management, interest, taxes, or any other indirect costs not expressly allowed by these provisions, or work performed or costs incurred before the date of this contract, shall be allowed as costs of the project in which the Government will participate.

11. *Accounts and audits.* The Operator shall keep suitable records and accounts of operations, which the Government may inspect and audit at any time. The Government may at any time require an audit of the Operator's records and accounts by a certified public accountant, the cost thereof to be treated as a cost of the project. The Operator shall keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract.

12. *Progress reports.* The Operator shall provide the Government with monthly reports of work performed under the contract upon forms to be provided by the Government. Each monthly progress report shall bear the certification of the Operator and shall constitute the Operator's invoice of costs incurred on the project during the period covered by the report.

13. *Payment to the Operator.* The monthly progress report (invoice), to the extent approved by the Government, shall be processed for payment by the Government. Payment shall be made in the amount of 50 percent of the approved costs incurred; *Provided,* That the aggregate total of all sums paid by the Government under this agreement shall not exceed $49,575.00, which is 50 percent of the agreed estimated total cost of this project, $99,150.00.

14. *Final reports by Operator.* Upon completion of the project or termination of this contract, the Operator shall provide the Government with a comprehensive geologic and engineering report, including an estimate of ore reserves, to the best of his ability. Four copies of all reports shall be furnished to the Government.

15. *Repayment by Operator.* If, upon the completion of the exploration project or termination of the contract, the Government considers that a discovery or development has resulted from the work from which commercial production of ore may be made, the Government, within 6 months thereafter, shall so certify to the Operator, particularly describing and delimiting its estimate of the discovery or the development. Thereafter, if and as ore is produced as a result of such discovery or development, the Operator and his successor in interest shall be and become obligated to pay to the Government a percentage royalty on the net smelter returns or other net proceeds realized from such ore, concentrates, or metal produced within ten (10) years from the date of this contract, until the total amount contributed by the Government, without interest, is fully repaid or said 10 years have elapsed, whichever occurs first, as follows:

Of net smelter returns or other net proceeds not in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent.

Of net smelter returns or other net proceeds in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent, plus one-half (½) percent for each additional full fifty cents ($0.50) in excess of eight dollars ($8.00) per ton of ore, but not in excess of a maximum of five (5) percent.

This obligation to repay from net returns or proceeds shall be and remain a claim and lien upon the mineral deposit which is the subject of the exploration project and upon any production resulting from such discovery or development, in favor of the Government, until fully paid, or until said 10-year period has elapsed; and this claim and lien and the Government's right to repayment shall survive any termination of the contract, whether by completion of the exploration project or otherwise. This article is not to be construed as imposing any obligation on the Operator or his successor in interest to produce ore from any such discovery or development.

16. *No assignment of contract.* Without the written consent of the Government, the Operator shall not assign or otherwise transfer or hypothecate this contract or any rights thereunder.

17. *Termination and completion.* The Government may, at any time, by written notice to the Operator, terminate this contract: (*a*) If the Operator fails to provide his share of the money necessary to prosecute operations pursuant to the terms of the contract; (*b*) if the Operator, in the opinion of the Government, fails to prosecute operations pursuant to the terms of the contract; or (*c*) if in the opinion of the Government, operations up to the time of the notice have not indicated the probability of making any worthwhile discovery and in the opinion of the Government further operations are not justified. Upon the completion of the project or any termination of the contract the Operator shall render to the Government a full and final accounting of his operations under the contract and his expenditures of money; shall dispose of any unused materials, supplies, and equipment for the joint account of the Operator and the Government in the proportion of their respective interests; and shall pay to the Government its pro-rata share of any money remaining.

Executed in sextuplicate the day and year first above written.

Kenneth L. Porter
(Operator)

By Kenneth L. Porter

THE UNITED STATES OF AMERICA

By C. D. Mitterdorf

Director, Production Expansion Division
Defense Minerals Administration

U. S. GOVERNMENT PRINTING OFFICE 16—64066-2

APPENDIX I

DMA 1318-X

The property consists of one parcel, described as follows:

Hope Placer Mining Claim comprising the SE$\frac{1}{4}$NE$\frac{1}{4}$ Section 20.

Brimstone No. 1 Placer Mining Claim comprising the N$\frac{1}{2}$N$\frac{1}{2}$, Section 28.

Brimstone No. 2 Placer Mining Claim comprising the NW$\frac{1}{4}$ NE$\frac{1}{4}$SW$\frac{1}{4}$; S$\frac{1}{2}$NE$\frac{1}{4}$SW$\frac{1}{4}$, SE$\frac{1}{4}$SW$\frac{1}{4}$ and the W$\frac{1}{2}$SW$\frac{1}{4}$ of Section 21.

Brimstone No. 3 Placer Mining Claim comprising the SE$\frac{1}{4}$NW$\frac{1}{4}$, S$\frac{1}{2}$NE$\frac{1}{4}$, and the NE$\frac{1}{4}$SE$\frac{1}{4}$ of Section 28.

All the above in Township 43 North of Range 95 West of the 6th P.M. Wyoming consisting of 520 acres more or less.

EXHIBIT "A" - Exploration Project

Performance of work

Work will consist of:

This project involves the exploration of a sulphur property known as the "Brutch Sulfur Deposits," located about 3½ miles northwest of Thermopolis, Wyoming. These deposits lie in a limestone formation which forms part of a prominent anticline known locally as Cedar Dome. Present exposures of the sulphur-bearing rock, on both the north and south slopes of this anticline, indicate the probability that these sulphur deposits extend entirely through and across the anticline, and to the north and south thereof, and for a distance of over half a mile in the direction of the longitudinal axis of the anticline.

It is proposed to determine the probable size, shape and extent of these deposits, and estimate the probable total tonnage available by this exploration program, as well as determine the sulphur content. This information to be used as a basis for the design of a suitable method of mining the sulphur-bearing material, and a plant and process for the extraction of the sulphur.

The exploration program involves the core-drilling of the deposit, in accordance with a pattern designed to supply the desired information, first by means of a series of pilot holes to indicate the general nature of the deposit as quickly as possible, and thereafter by additional and intermediate drill-holes where necessary to check and confirm the thickness and continuity of the deposits.

In addition to the core-drilling, it is proposed to supplement that part of the program by making a series of longitudinal cuts and trenches, more or less horizontally disposed along the hillside, with a bulldozer. This operation is designed to remove shallow overburden from the sulphur deposits where required to further indicate their nature and extent and to sample the sulphur content.

These proposed operations are outlined in a map attached to this contract.

Further, it is planned to keep complete and adequate records of all exploration operations, including drilling logs, sampling, analyses, maps, cross-sections to illustrate geological conditions, and such supplementary sketches as may be necessary for a clear and adequate monthly report to the Government office or official designated to receive it.

Further, it is planned to render a monthly financial statement, showing expenditures in whatever detail may be required.

It is believed that the execution of the proposed exploration program will indicate the availability of a substantial tonnage of sulphur ore, sufficient to constitute the basis for a commercial operation.

This exploration program is to be done in two stages--Stage A and Stage B; Stage B will be contingent on the findings in Stage A. Stage A will consist of core-drilling 12 holes for a total footing of 900 feet (approximately), recovering a drill core of about 2 11/16 inch diameter, together with 2000 feet of tractor dozer trenching. The total cost of Stage A project is not to exceed $10,000.00. Stage B will consist of core-drilling 9900 feet of hole, recovering a drill core of about 2 11/16 inch diameter, together with 8000 feet of tractor dozer trenching. The total cost of Stage B project is not to exceed $89,150.00.

Cost of Project:

Stage A (one month - Estimated cost)

2000 ft. Tractor dozer trenching and access and preparation of drill sites Tractor w/dozer rental @ $12.50/hr. - 200 hours	$ 2,500
900 feet drill hole Core drill equipment rented with all required labor supplied by contractor @ $2500/month - 1 month	2,500
Purchase of extra equipment for drilling drill bits, core barrels, and core boxes	2,000
Engineer and geologist	1,000
Engineer's traveling expense	500
Sampler @ $360/month	360
Commercial assaying	500
Miscellaneous Expense, transportation of supplies, office, etc.	640
Maximum total cost Stage A	$10,000

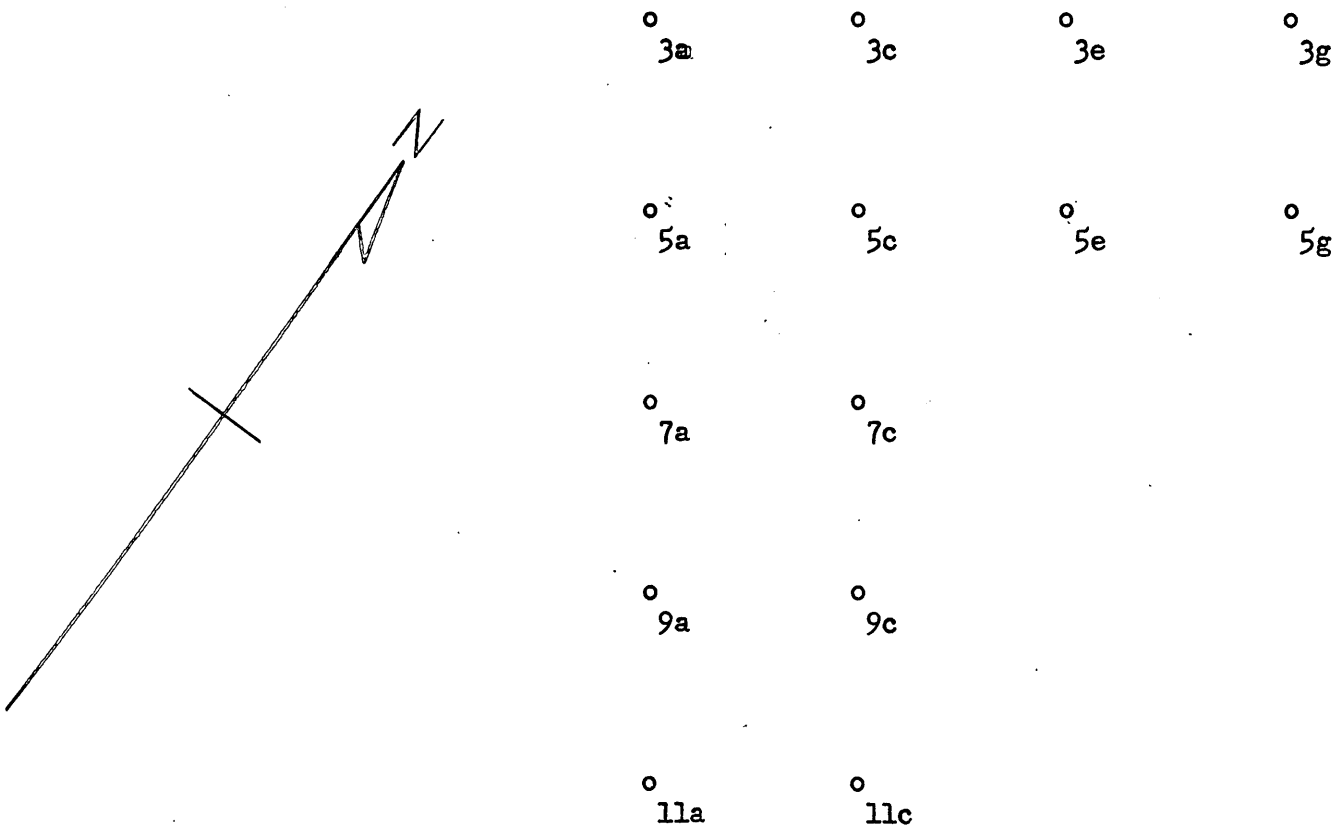
PART OF EXHIBIT A

Stage A of Prospecting Program

Plan showing approximate location of holes to be drilled.

Note: The numbers and the relative locations of these holes correspond to those shown on the accompanying contour map which sets forth the general drilling program, and the location of the proposed bulldozer cuts.

These holes are shown as if located at the corners of 400-ft. squares. Their exact location on the ground may have to be modified to conform to physical conditions on the surface.



Holes to be drilled in Stage A.

Item	Hole No.	Item	Hole No.
1	3a	7	5c
2	3b	8	5d
3	3c	9	7a
4	3d	10	7c
5	5a	11	9a
6	5b	12	9c

Possibly 11a and 11c

Stage B

If the exploration program in Stage A encounters mineralization, that in the opinion of the Government Field Engineers justifies additional exploration of this sulphur deposit, then with their approval a part of or all of the drilling and trenching as outlined on the attached map will be done, as well as the construction of facilities and the purchase of the equipment required to do this work as is indicated below.

Stage B - 11 Months Estimated Cost

8000 feet tractor dozer trenching, access and preparation of drill sites, tractor w/dozer blade rental @ $12.50/hour - 1320 hours	$16,500
9900 feet of core drilling core-drilling equipment rental with all required labor supplied by contractor @ $2500/month - 11 months	27,500
Purchase pickup truck	2,000
Core boxes	2,750
Drill bits, and core barrel replacements	2,750
Office and assay office building	1,200
Assay office equipment	1,800
Consulting engineer 20 days/month @ $50 - 11 mos.	11,000
" " Travelling expenses	5,500
Assayer-chemist salary $450/month - 11 months	4,950
" " Helper @ $200/month	2,200
Miscellaneous expenses, supplies, office and assay office supplies, repairs, and gasoline.	11,000
Maximum total cost Stage B	$89,150
Total cost of Project	$99,150

Fixtures and Improvements (to be erected on property)

Office and Assay Office Building	$1200

Operating Equipment

Stage A

To be purchased:

Core-drilling equipment and core boxes	$2000

To be rented from contractor:

1/ Tractor w/dozer @ $12.50/hr.
2/ Core-drilling equipment @ $2500/month

Stage B

To be purchased:

Pickup Truck	$2000
Core-drilling equipment	2700
Core boxes	2700
Assay office equipment	1800
	9200

To be rented from contractor:

1/ Tractor w/dozer @ $12.50/hour
2/ Core-drilling equipment @ $2500/month

1/ Total cost includes supplies, operator's wages and repair cost. Rental rate to be charged will be for actual operating time.

2/ Rental rate includes all labor required to operate the drilling rig.

Labor and Supervision

Stage A

Consulting Mining Engineer 20 days @ $50/day
Sampler @ $360/month

Stage B

Consulting Mining Engineer @ $50/day 20 days/month
Assayer and chemist @ $450/month
Assayer's helper@ $200/month

Assayer with his helper to do the sampling, assaying and analytic work on the samples, and office work.

Rehabilitation and Repairs

Does not apply to this contract.

MF-202

BMA. 1318X

LANDLORD'S SUBORDINATION AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned are ~~is~~ the owners or holders of valid placer mining claims in fee simple of that certain parcel of ground in the county of Hot Springs, State of Wyoming, described in a certain Exploration Project Contract dated August 23, 1951, between Kenneth L. Porter, the Lessee of said property, and the United States of America;

NOW, THEREFORE, the undersigned, as Lessor of said property under lease dated October 18, 1950, does by these presents subordinate all of his right, title, and interest under the provisions of said lease to the right, title, and interest of the United States of America under the provisions of said Exploration Project Contract, and agrees that the lien and claim of the United States of America under the provisions of said contract shall be prior to the undersigned's rights to rentals or royalties under the terms of said lease; and

The undersigned further agrees that if said leasehold interest should be surrendered or if said lease should terminate at any time prior to the expiration of the rights of the United States of America under said Exploration Project Contract, the undersigned shall assume and does hereby assume all of the obligations of the Lessee under said Exploration Project Contract to make repayment to the United States of America according to the terms of said contract; and

The undersigned agrees to commit no act, nor assert any claim under judicial process or otherwise that may contravene or conflict with the prior lien and claim of the United States of America under the provisions of said Exploration Project Contract.

This undertaking and covenant shall be binding upon the heirs, successors, and assigns of the undersigned.

Dated this 25th day of June, 1951.

Mattie S Noble

H. Tatell

U. S. GOVERNMENT PRINTING OFFICE 940768

Marion C. Brutch

By Joe Carroll

Attorney-in-Fact.

Perry

LANDLORD'S SUBORDINATION AGREEMENT.

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the original lessee under a certain mining lease, dated October 18, 1950, made by Marion C. Brutch and Mattie S. Noble, to the undersigned, which lease covers that certain parcel of ground in Hot Springs County, Wyoming, described in a certain Exploration Project Contract dated ~~May 29th~~ Aug 28rd, 1951, between Kenneth L. Porter of 420 Lexington Avenue, New York 17, New York and the United States of America; K.L.P.

AND WHEREAS the undersigned did by Document dated January 4th, 1951, assign said lease unto the said Kenneth L. Porter;

NOW THEREFORE, the undersigned, does by these presents subordinate all of his right, title and interest under the provisions of said lease and under the provisions of said document dated January 4th, 1951, whereby the undersigned assigned said lease to said Kenneth L. Porter, to the right, title and interest of the United States of America, under the provisions of said Exploration Project Contract and agrees that the lien and claim of the United States of America under the provisions of said contract shall be prior to the undersigned's rights to rentals or royalties under the terms of said lease and said assignment of lease;

AND The undersigned further agrees that if said lease-hold interest should be surrendered or if said lease should terminate at any time prior to the expiration of the rights of the United States of America under said Exploration Project Contract, and the said lease and the rights thereunder should revert unto the undersigned, then the undersigned shall assume and hereby assumes all of the obligations of Kenneth L. Porter under said Exploration Project Contract to make repayment to the United States of America according to the terms of said contract; and

The undersigned agrees to commit no act, nor assert any claim under judicial process or otherwise that may contravene or conflict with the prior lien and claim of the United States of America under the provisions of said Exploration Project Contract.

This undertaking and covenant shall be binding upon the heirs, successors, and assigns of the undersigned.

DATED this 20th day of August, 1951.

Jack W. Perry

LANDLORD'S SUBORDINATION AGREEMENT.

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner of an royalty interest in that certain parcel of ground in the County of Hot Springs, State of Wyoming, described in a certain Exploration Project Contract, dated ~~May 29th~~ Aug 23rd, 1951, between Kenneth L. Porter of 420 Lexington Avenue, New York 17, New York, the present lessee of said property, and the United States of America;

NOW THEREFORE, the undersigned as such royalty owner in said property under lease dated October 18, 1950, does by these presents subordinate all of his right, title and interest under the provisions of said lease and the instrument whereby the undersigned acquired said royalty, to the right, title and interest of the United States of America under the provisions of said Exploration Project Contract, and agrees that the lien and claim of the United States of America under the provisions of said contract shall be prior to the undersigned's rights to rentals or royalties under the terms of said lease; and

The undersigned further agrees that if said leasehold interest should be surrendered or if said lease should terminate at any time prior to the expiration of the rights of the United States of America under said Exploration Project Contract, the undersigned shall assume and does hereby assume all of the obligations of the Lessee under said Exploration Project Contract to make repayment to the United States of America according to the terms of said contract; and

The undersigned agrees to commit no act, nor assert any claim under judicial process or otherwise that may contravene or conflict with the prior lien and claim of the United States of America under the provisions of said Exploration Project Contract.

This undertaking and covenant shall be binding upon the heirs, successors, and assigns of the undersigned.

DATED this 18th day of August, 1951.

A. J. Hardendorf

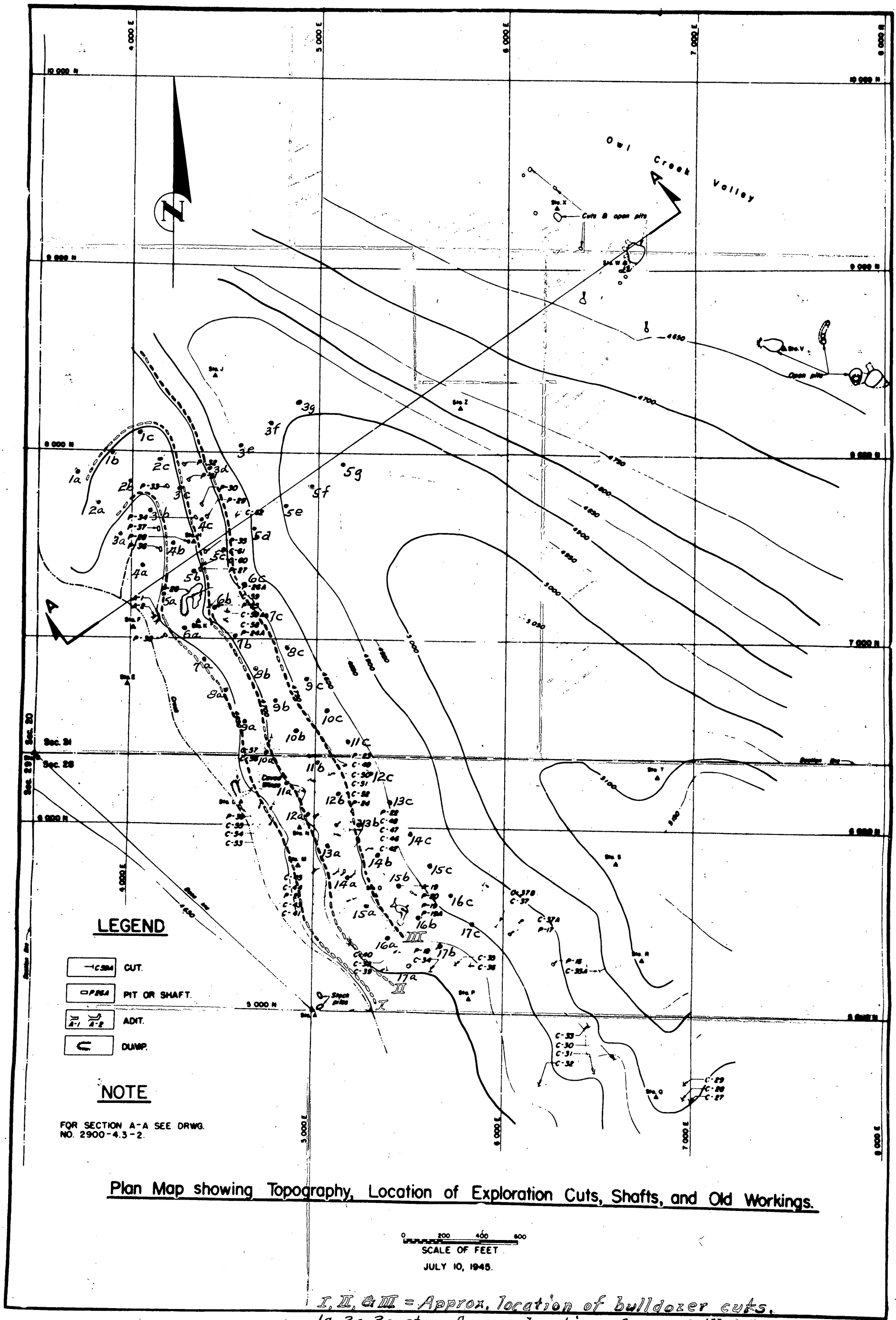


Figure 2. - Plan of Brutch Sulphur Property, near Thermopolis, Hot Springs Co., Wyoming.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 9 - 1951
Executive Secretary

MF-200
(April 1951)

1318X
Docket No. IV-1 Sulphur
Commodity

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

EXPLORATION PROJECT CONTRACT [1]

(signed)

It is agreed this _____ day of _____, 195__, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration, hereinafter called the "Government," and [2] Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

hereinafter called the "Operator," as follows:

1. *Authority for contract.* This agreement is entered into under the authority of the Defense Production Act of 1950, pursuant to Mineral Order 5, entitled "Regulations Governing Government Aid in Defense Exploration Projects."

2. *Operator's property rights.* The exploration project shall be conducted on that certain property situated in the State of Wyoming, County of Hot Springs described as follows: [3] See description in Appendix I, also on copies of leases attached.

with respect to which the Operator represents and undertakes: [4]

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

(*b*) That he is a lessee, in possession and entitled to possession, and the subordination agreement of the lessor is attached.

3. *Exploration project.* The Operator, within 30 days from the date of this contract shall commence work on a project of exploration for [5] Sulphur; shall prosecute the work efficiently, expertly, in a workmanlike manner, in accordance with good mining standards, with suitable and adequate equipment, materials, and labor, all properly designed to bring the project to completion within a period of [6] two (2) years from the date of this contract. The exploration project and the work to be performed are more fully described on Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, is made a part of this contract.

4. *Performance of the work.* The work shall be performed by the Operator, under his sole direction and control: *Provided,* That with the consent of the Government and its written approval of the contract or contracts, all or any part of the work may be performed by the Operator through contract or contracts with independent contractors. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

5. *Fixtures and improvements.* The Operator shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of the exploration project without any allowance for the use, rental value, depreciation, depletion, or other cost of acquiring, owning, or holding possession thereof. Attached hereto, marked "Exhibit 'B'," is a detailed list of additional facilities, buildings, and fixtures, to be purchased, installed, or erected by the Operator, with the estimated cost of each, to which the Government will contribute its agreed pro-rata share of the cost. The difference between the cost of such additional facilities, buildings, or fixtures, and the salvage value thereof at the conclusion of the work, shall be charged as a cost of the project to which the Government has contributed its pro-rata share.

6. *Operating equipment.* Attached hereto, marked "Exhibit 'C'," is a detailed list of operating equipment divided into categories of items to be rented, purchased, or furnished by the Operator, with the allowable rental, purchase price, or rental value, as the case may be, annexed to each. As to equipment purchased for the project, the Government will contribute its agreed pro-rata share of the cost thereof, and the difference between the cost and the salvage value at the conclusion of the work shall be charged as a cost of the project to which the Government has contributed its pro-rata share.

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] State name, address, and nature of organization if any.
[3] Give legal description or enough to identify the property.
[4] Strike out the provision not applicable.
[5] Name of mineral.
[6] Not in excess of 2 years.

7. *Title to and disposition of property.* All facilities, buildings, fixtures, equipment, or other items costing more than $50 each, paid for or purchased with funds contributed jointly by the Operator and the Government, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the termination of the contract, if they have any salvage value, shall be disposed of for their joint account unless the Government, in writing, waives its interest in any such items. The Government may require the dismantling, severance from land, and removal of any such items in order to realize its interest in the salvage value thereof, and the cost of any such removal and of the disposal of the items shall be for the joint account of the parties in proportion to their respective interests.

8. *Labor and supervision.* Attached hereto, marked "Exhibit 'D'," is an itemized schedule of labor, by numbers and classes (miners, muckers, millmen, etc.), and of supervisors, by numbers and positions, with the maximum wages or salaries that may be paid to each as an allowable cost of the project.

9. *Rehabilitation and repairs.* Attached hereto, marked "Exhibit 'E'," is a detailed schedule of existing facilities, buildings, installations, and fixtures, with a statement of the cost of any necessary rehabilitation or repairs to put into useful and operable condition, which cost shall be allowed as a cost of the project.

10. *Allowable costs of the project.* The allowable costs of the project in which the Government will participate are limited to the necessary, reasonable, direct costs of performing the exploration work, including the costs of materials, supplies, engineering, power, water, and utilities, including items of equipment costing less than $50 each; and the costs referred to in Articles 5, 6, 8, and 9, and the exhibits annexed to and referred to in the contract. Although the Government may pay part of the cost of new or additional facilities, structures, buildings, and equipment, only the depreciation on such items, computed as indicated in Articles 5 and 6, will be charged as a cost of the project. No items of general overhead, corporate management, interest, or any other indirect costs not expressly allowed by these regulations, or work performed or costs incurred before the date of this contract, shall be allowed as costs of the project in which the Government will participate.

11. *Participation by the Government.* At the end of the first full calendar month after the Operator has commenced work under the project, and at the end of each succeeding calendar month, the Operator shall submit to the Government a voucher for payment with a detailed statement of work done and allowable costs (as defined in Article 10 of this agreement) incurred, in a form and with supporting data acceptable to the Government. After approving the voucher, the Government shall pay to the Operator 50 percent of the sum of such costs incurred; *Provided,* That the aggregate total of all sums paid by the Government under this agreement shall not exceed $50,675, which is 50 percent of the agreed estimated total cost of this project, $101,350.

12. *Accounts and audits.* The Operator shall keep suitable records and accounts of operations, which the Government may inspect and audit at any time. The Government may at any time require an audit of the Operator's records and accounts by a certified public accountant, the cost thereof to be treated as a cost of the project. The Operator shall keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract.

13. *Progress reports.* The Operator shall provide the Government with monthly reports of progress in form and content satisfactory to the Government, and upon the completion of the project or termination of the contract shall provide the Government with a comprehensive geologic and engineering report, including an estimate of ore reserves, to the best of his ability. Four copies of all reports shall be furnished to the Government.

14. *Repayment by Operator.* If, upon the completion of the exploration project or termination of the contract, the Government considers that a discovery or development has resulted from the work from which commercial production of ore may be made, the Government, within 6 months thereafter shall so certify to the Operator, particularly describing and delimiting its estimate of the discovery or the development. Thereafter, if and as ore is produced as a result of such discovery or development, the Operator and his successor in interest shall be and become obligated to pay to the Government a percentage royalty on the net smelter returns or other net proceeds realized from such ore, concentrates, or metal produced within ten (10) years from the date of this contract, until the total amount contributed by the Government, without interest, is fully repaid or said 10 years have elapsed, whichever occurs first, as follows:

Of net smelter returns or other net proceeds not in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent.

Of net smelter returns or other net proceeds in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent, plus one-half (½) percent additional for each full fifty cents ($0.50) in excess of eight dollars ($8.00) per ton of ore, but not in excess of a maximum of five (5) percent.

This obligation to repay from net returns or proceeds shall be and remain a claim and lien upon the property which is the subject of the exploration project and upon any production resulting from such discovery or development, in favor of the Government, until fully paid, or until said 10-year period has elapsed; and this claim and lien and the Government's right to repayment shall survive any termination of the contract, whether by completion of the exploration project or otherwise. This article is not to be construed as imposing any obligation on the Operator or his successor in interest to produce ore from any such discovery or development.

15. *No assignment of contract.* Without the written consent of the Government, the Operator shall not assign or otherwise transfer or hypothecate this contract or any rights thereunder.

16. *Termination and completion.* The Government may, at any time, by written notice to the Operator, terminate this contract: (*a*) If the Operator fails to provide his share of the money necessary to prosecute operations pursuant to the terms of the contract; (*b*) if the Operator, in the opinion of the Government, fails to prosecute operations pursuant to the terms of the contract; or (*c*) if in the opinion of the Government, operations up to the time of the notice have not indicated the probability of making any worthwhile discovery and in the opinion of the Government further operations are not justified. Upon the completion of the project or any termination of the contract the Operator shall render to the Government a full and final accounting of his operations under the contract and his expenditures of money; shall dispose of any unused materials, supplies, and equipment for the joint account of the Operator and the Government in the proportion of their respective interests; and shall pay to the Government its pro-rata share of any money remaining.

Executed in ~~triplicate~~ the day and year first above written.

THE UNITED STATES OF AMERICA

(Operator)

By _____

By _____
Director, Production Expansion Division
Defense Minerals Administration

U. S. GOVERNMENT PRINTING OFFICE 16—64066-1

APPENDIX I

DMA 1318-X

The property consists of two parcels, one on which a Landlord's Subordination Agreement has been furnished an a second on which the Subordination Agreement will be furnished before any Government funds will be available for payment for work done.

The first parcel is described as follows:

Home Placer Mining Claim comprising the SE¼NE¼ Section 20.

Brimstone No. 1 Placer Mining Claim comprising the N½NW¼, Section 28.

Brimstone No. 2 Placer Mining Claim comprising the NW¼ NE¼SW¼, S½NE¼SW¼, SE¼SW¼ and the W½SW¼ of Section 21.

Brimstone No. 3 Placer Mining Claim comprising the SE¼NW¼, S½NE¼, and the NE¼SE¼ of Section 28.

All the above in Township 43 North of Range 95 West of the 6th P.M. Wyoming consisting of 520 acres more or less.

The second parcel having no Landlord's Subordination Agreement at the date of contract is described as follows:

Section 20, Lot 3.

Section 21, Lots 3, 4, 5 and 6, S½NE¼, N½SE¼, N½S½SE¼, SE¼NW¼.

Section 26, S½NE¼, SE¼NW¼.

All in Township 43 North, Range 95 West, 6th P.M., Wyoming, including a certain pile or dump of worked-over sulfur ore lying and being either on or near the premises above described.

* * * * *

STATE OF TEXAS, }
COUNTY OF DALLAS. }

ASSIGNMENT AGREEMENT

This Assignment Agreement made and entered into this 15th day of July, 1953, by and between Kenneth L. Porter of 420 Lexington Avenue, New York 17, N. Y., hereinafter styled First Party, and Continental Sulphur & Phosphate Corporation, a Delaware corporation with offices at 2010 Tower Petroleum Building, Dallas, Texas, hereinafter referred to as Second Party,

W I T N E S S E T H :

Whereas, Kenneth L. Porter is the Lessee under that certain Mining Lease, dated December 20, 1950, given by A. L. Freudenthal to A. J. Hardendorf, and thereafter duly assigned on January 2, 1951, to said Kenneth L. Porter, covering the following described property situated in Hot Springs County, Wyoming, and more particularly described as follows, to-wit:

> Lot 3, Section 20; Lots 3, 4, 5 and 6, S 1/2 NE 1/4, N 1/2 SE 1/4, N 1/2 S 1/2 SE 1/4. SE 1/4 NW 1/4, Section 21; S 1/2 NW 1/4, Section 26, all in Township 43 North, Range 95 West, 6th P. M., Hot Springs County, Wyoming, including a certain or dump of worked-over sulphur ore lying and being either on or near the premises above described,

reference to which lease is hereby made for all purposes as if fully incorporated herein; and

Whereas, Kenneth L. Porter is also the Lessee under that certain Mining Lease dated October 18, 1950, given by Marion O. Brutch, Mattie S. Noble and C. W. Axtell to Jack W. Perry and thereafter duly assigned on January 2, 1951, to said Kenneth L. Porter covering the following described property in Hot Springs County, Wyoming, more particularly described as follows, to-wit:

> Hope Placer Claim, embracing SE 1/4 NE 1/4, Sec. 20, Twp. 43N., Rge. 95 W., 6th P. M., Wyoming.
>
> Brimstone No. 1 Placer Mining Claim, covering N 1/2 N 1/2 Sec. 28, Twp. 43 N., Rge. 95 W., 6th P. M , Wyoming.
>
> Brimstone No. 2 Placer Mining Claim, covering W 1/2 SW 1/4, SE 1/4 SW 1/4 Sec. 21, Twp. 43 N., Rge. 95 W., 6th P. M., Wyoming.

Brimstone No. 3 Placer Mining Claim, covering S 1/2 NE 1/4, SE 1/4 NW 1/4 Sec. 28, Twp. 43 N., Rge 95 W., 6th P. M., Wyoming.

NE 1/4 SW 1/4 Sec. 21, and the NE 1/4 SE 1/4 Sec. 28, Twp. 43 N. Rge. 95W., of the 6th P. M., Wyoming,

reference to which mining lease is hereby made for all purposes as if fully re-written herein; and

Whereas, Second Party has purchased from First Party an undivided one-half (1/2) interest in and to the mining leases aforementioned under the terms and conditions hereinafter set forth:

NOW, THEREFORE, KNOW ALL MEN BY THESE PRESENTS that for and in consideration of the sum of Twenty-One Thousand ($21,000.00) Dollars, payable as follows: $15,750.00 cash, receipt of which is hereby acknowledged by First Party, and $5,250.00 due and payable on or before January 15, 1954, as evidenced by one promissory note in said sum of $5, 250.00, bearing interest at the rate of five (5%) percent per annum, payable to the order of Kenneth L. Porter, the further consideration of the delivery to Second Party of Eighty Thousand (80,000) shares of the capital stock of Continental Sulphur & Phosphate Corporation, said capital stock having a market value as of this date of fifty cents (50¢) per share, and in further consideration of the obligations assumed by Second Party as hereinafter set forth, First Party has granted, sold, transferred and assigned, and by these presents does grant, sell, transfer and assign unto Second Party an undivided one-half interest in and to the mining leases hereinabove more particularly described.

It is agreed and understood that any and all agreements heretofore entered into between the parties hereto relative to that certain Exploration Contract DMA, Docket No. 1318X, Idm-E124, is hereby in all things cancelled and held for naught, and each party hereto fully releases the other from any and all liability thereon.

It is agreed and understood that in the mining lease from Marion Brutch, et al, there is reserved to Kenneth L. Porter the exclusive

right to purchase the property owned by said Brutch, et al. Such right to purchase by Kenneth L. Porter is hereby exclusively reserved to Kenneth L. Porter, and Second Party shall in no way share in such option to purchase, and the rights of Second Party in such mining leases shall be and are expressly limited to the purchase and ownership of an undivided one-half (1/2) interest in said mining leases only.

First Party hereby warrants the titles to the properties aforementioned by, through and under him only.

As a further consideration for this Assignment, Second Party hereby agrees and obligates itself to be bound by the terms and provisions of the leases hereinabove described and specifically agrees to pay one-half (1/2) of the minimum royalties provided for thereon, to-wit, the sum of Two Hundred Fifty ($250.00) Dollars per month, the total minimum royalty being the sum of Five Hundred ($500.00) per month. It is further agreed that Second Party shall remit to First Party its share of such minimum royalty no later than twenty (20) days prior to the due date thereof, said payment to be mailed to First Party at his office address, 420 Lexington Avenue, New York 17, N. Y., on or before the tenth (10th) day of each and every month during the terms of said leases aforementioned.

It is agreed and understood by and between the parties hereto that in the Freudenthal lease aforementioned, there has been reserved to the lessee, Kenneth L. Porter, a tailings dump of worked-over sulphur ore lying and being either on or near the premises described in said lease. The title and ownership of said tailings dump is hereby expressly and exclusively reserved unto Kenneth L. Porter and Second Party shall have no interest or ownership whatsoever therein.

It is further agreed and understood that neither party herein shall take any action nor enter into any agreements relative to the operation of the properties herein without the written consent of the other.

This agreement shall be binding upon both parties, their executors, administrators and successors.

It is further agreed and understood that if Second Party shall default in the payment of the minimum royalty aforementioned or default in the payment of any other obligations to keep the leases aforementioned in full force and effect, then written notice by registered mail of such default shall be given by First Party to Second Party, and if such default is not cured within 30 days from date of such written notice, then this assignment shall be null and void and title to said one-half (1/2) interest herein conveyed shall automatically revert to First Party, and Second Party shall have no further interest therein and all monies paid in by Second Party shall be deemed rentals for the period said property has been held by said Second Party.

It is further agreed and understood that in the event First Party shall fail to pay the full rentals due under said leases aforementioned on or before ten (10) days from the due dates thereof, or shall fail to discharge his obligations under the leases aforementioned, Second Party shall have the express right to advance sufficient funds to keep such leases in full force and effect. Should Second Party advance any funds necessary for such purpose or purposes, it shall be reimbursed by First Party for any such advances together with interest at the rate of five (5%) per cent per annum, and in addition thereto, Second Party shall have and is specifically granted a lien against the undivided one-half (1/2) interest of First Party to secure said advance or advances, said lien to be a first lien thereon, subject only to the terms and provisions of the leases aforementioned.

But, it is expressly agreed and stipulated that the Vendor's Lien is retained against the above described property and premises, until the above described note and all interest thereon are fully paid according to its face and tenor, effect and reading, when this assignment shall become absolute.

IN WITNESS WHEREOF, the parties have hereunto set their hands at Dallas, Texas, this 15th day of July, 1953.

Kenneth L. Porter, First Party

ATTEST:

Secretary

CONTINENTAL SULPHUR & PHOSPHATE CORPORATION

By R. Dawson Hughes

R. Dawson Hughes, President, Second Party

STATE OF TEXAS)
)
COUNTY OF DALLAS)

BEFORE ME, the undersigned authority, on this day personally appeared Kenneth L. Porter, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this 15th day of July, 1953.

Julian A. Lerner
Notary Public in and for Dallas County, Texas

STATE OF TEXAS)
)
COUNTY OF DALLAS)

BEFORE ME, the undersigned authority, on this day personally appeared R. Dawson Hughes, President, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said Continental Sulphur & Phosphate Corporation, a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this 15th day of July, 1953.

Julian A. Lerner
Notary Public in and For Dallas County, Texas

140847

STATE OF WYOMING } ss.
Hot Springs County }

Filed for record at 9:00 *o'clock* A. *M.*
July 28th *19* 53 *and recorded in*
Book 17 *of* P.R. *on page* 247-251

Betty Anderson
CONTY CLERK AND EX.-OFF. OF DEEDS

.....DEPUTY

PHOTOSTATIC RECORD
ABSTRACTED
INDEXED

STATE OF TEXAS |

COUNTY OF DALLAS |

This agreement made and entered into this 18th day of September, 1951, by and between Kenneth L. Porter of Lexington Avenue, New York 17, N.Y., hereinafter styled First Party, and Continental Sulphur & Phosphate Corporation, a Delaware corporation with offices at 2010 Tower Petroleum Building, Dallas, Texas, hereinafter referred to as Second Party,

W I T N E S S E T H:

Whereas, Kenneth L. Porter is the Lessee under that certain Mining Lease, dated December 20, 1950, given by A. L. Freudenthal to A. J. Hardendorf, and thereafter duly assigned on January 2, 1951, to said Kenneth L. Porter, covering the following described property situated in Hot Springs County, Wyoming, and more particularly described as follows, to-wit:

> Lot 3 Section 20; Lots 3, 4, 5 and 6, S1/2NE1/4, N1/2SE1/4, N1/2S1/2SE1/4, SE1/4NW1/4, Section 21; S1/2NW1/4, Section 26, all in Township 43 North, Range 95 West, 6th P.M., Hot Springs County, Wyoming, including a certain pile or dump of worked-over sulphur ore lying and being either on or near the premises above described.

reference to which lease is hereby made for all purposes as if fully incorporated herein; and

Whereas, Kenneth L. Porter is also the Lessee under that certain Mining Lease dated October 18, 1950, given by Marion O. Brutch, Mattie S. Noble and C. W. Axtell to Jack W. Perry and thereafter duly assigned on January 2, 1951, to said Kenneth L. Porter covering the following described property in Hot Springs County, Wyoming, more particularly described as follows, to-wit:

> Hope Placer Claim, embracing SE1/4NE1/4, Sec. 20, Twp. 43N., Rge. 95 W., 6th P.M., Wyoming.
>
> Brimstone No. 1 Placer Mining Claim, covering N1/2N1/2 Sec.26, Twp. 43 N., Rge. 95W., 6th P.M., Wyoming.

Brimstone No. 2 Placer Mining Claim, covering W1/2SW1/4, SE1/4SW1/4 Sec. 21, Twp. 43 N., Rge. 95 W., 6th P.M., Wyoming.

Brimstone No. 3 Placer Mining Claim, covering S1/2NE1/4, SE1/4NW1/4 Sec. 28, Twp. 43 N., Rge. 95 W., 6th P.M., Wyoming.

NE1/4SW1/4 Sec. 21, and the NE1/4SE1/4 Sec. 28, Twp. 43 N. Rge. 95 W., of the 6th P.M., Wyoming.

reference to which mining lease is hereby made for all purposes as if fully re-written herein; and

Whereas, Second Party is desirous of securing an option from First Party ~~for the purchase of~~ an undivided one-half (1/2) interest in and to the mining leases aforementioned under the terms and conditions hereinafter set forth:

NOW, THEREFORE, for and in consideration of the mutual covenants and agreements hereinafter set forth, it is agreed by and between the parties hereto as follows:

I.

First Party hereby grants to Second Party an exclusive option to purchase from First Party an undivided one-half (1/2) interest in and to the mining leases hereinabove particularly described.

II.

For and in consideration of the exclusive option hereinabove mentioned, hereby granted by First Party to Second Party, Second Party agrees to pay to First Party the sum of Twenty-One Thousand ($21,000.00) Dollars, payable as follows: Ten Thousand Five Hundred ($10,500.00) Dollars cash, receipt whereof is hereby acknowledged by First Party, and Ten Thousand Five Hundred ($10,500.00) Dollars on or before six months from date hereof, evidenced by one promissory note in said sum of $10,500.00 bearing interest at the rate of five (5%) percent per annum.

III.

As an additional consideration for such option to purchase as aforementioned, Second Party agrees to pay to First Party the sum of Ten Thousand ($10,000.00) Dollars in installments as and when certain obligations

are incurred by First Party under that certain Exploration Contract DMA, Docket No. 1318X, Idm-E124, entered into on the 23rd day of August, 1951, by and between First Party and the United States of America, acting through the Department of the Interior, Defense Minerals Administration, covering the second property (Brutch property) hereinabove described, consisting of 520 acres more or less. As and when First Party incurrs such obligations, he shall immediately forward invoice therefor to Second Party who shall forthwith transmit check to First Party in the amount of said invoice; provided, however, that the total amount of such invoices shall not exceed the aforementioned sum of Ten Thousand ($10,000.00) Dollars under Stage "A" hereinafter mentioned.

IV.

It is agreed and understood by and between the parties hereto that said Contract DMA, Docket No. 1318X, Idm-E124, as aforementioned provides for the participation in such exploration contract of the United States of America in two stages, designated stages "A" and "B". Under Stage "A", First Party agrees to expend the sum of Ten Thousand ($10,000) Dollars, for preliminary exploration, with the United States of America agreeing to pay fifty percent (50%) of the approved costs incurred under such Stage "A". Under Stage "B", First Party agrees to expend the further sum of Eighty-Nine Thousand One Hundred Fifty ($89,150.00) Dollars, for final exploration, with the United States agreeing to pay 50% of such further approved costs incurred under such Stage "B"; provided, that the aggregate total of all sums paid by the government under said agreement shall not exceed $40,575.00, which is 50% of the agreed estimated total cost of this entire project, $99,150.00. It is further agreed and understood that the participation of the United States of America, in Stage "B" is conditioned and contingent upon the said United States of America, in the opinion of the government field engineers, being satisfied that the results of exploration

under said Stage "A" justify the expenditure of additional funds under Stage "B".

V.

It is further agreed by and between the parties hereto that Stage "A" of the Exploration Contract aforementioned shall be immediately pursued in accordance with the terms of said Exploration Agreement; that after completion of such Stage "A" by the expenditure of $10,000.00 as aforementioned, a conference shall be held between the parties hereto and a decision shall be made as to whether Stage "B" of such Exploration Contract shall be pursued or the Exploration Contract abandoned. In the event that the parties shall mutually agree to proceed with Stage "B" of said Exploration Contract, then Second Party shall become obligated to advance the further sum necessary for such Stage "B" exploration, and Second Party shall be entitled to receive the 50% reimbursement from the United States Government under the Exploration Contract aforementioned. In the event that the parties hereto agree upon the matter of abandoning such Stage "B" of said Exploration Contract, then Second Party shall be reimbursed for the outlay of expenditures made by Second Party in an amount to be agreed upon between the parties upon the sale of such mining leases or any salvage secured from said properties aforementioned.

In the event that Second Party shall refuse or be unable to proceed with Stage "B" of the Exploration Contract aforementioned, then First Party shall have the right to proceed by himself, and in such event, Second Party shall be reimbursed for the outlay of expenditures made by Second Party in an amount to be agreed upon between the parties, and any rights of Second Party to such option aforementioned shall forthwith terminate and be of no further force and effect.

VI.

It is further agreed and understood that upon the expenditure by Second Party of the sum of $10,000.00 under Stage "A" of the Exploration Contract aforementioned, Second Party shall be entitled to receive whatever sums are contributed by the United States of Am rica under said Stage "A" of said Exploration Contract.

VII.

In the event Second Party shall proceed with the entire Exploration Contract, then upon final completion of said Exploration Contract, First Party shall, by formal assignment, grant, sell, convey and assign to Second Party such undivided one-half (1/2) interest in and to said mining leases, together with one-half of any and all interests in property, real, personal or mixed, owned by First Party under said mining leases, subject to any rights of the United States Government under the Exploration Contract aforementioned.

VIII.

It is agreed and understood that in the mining lease from Marion Brutch, et al, there is reserved to Kenneth L. Porter the exclusive right to purchase the property owned by said Brutch, et al. Such right to purchase by Kenneth L Porter is hereby exclusively reserved to Kenneth L. Porter, and Second Party shall in no way share in such option to purchase, and the rights of Second Party in such mining leases shall be and are expressly limited to the purchase and ownership of an undivided one-half (1/2) interest in said mining leases only.

IX.

It is further agreed and understood that ~~First Party shall have full, complete and exclusive charge of the operations of such mining claims under said leases~~, and the act or actions of said First Party in this respect are and shall be in all things approved and confirmed.

X.

It is agreed that First Party shall carry out the terms and conditions of such Exploration Contract aforementioned in accordance with the terms thereof and afford Second Party every opportunity to assist First Party in carrying out such terms, as well as the full opportunity to Second Party to avoid any possibility of default in any of the obligations under such exploration contract as well as under such mining leases aforementioned.

XI.

Strict performance is of the essence of this option and is to be of the essence of any further or future contract that may be made between the parties, and if any default is made in any particular, any payments made by Second Party to First Party shall be retained by First Party as liquidated damages.

XII.

First Party hereby warrants the titles to the properties aforementioned by, through and under him only.

XIII.

It is agreed and understood by and between the parties hereto that in the Freudenthal lease aforementioned, there has been reserved to the lessee, Kenneth L. Porter, a tailings dump of worked-over sulphur ore lying and being either on or near the premises described in said lease. The title and ownership of said tailings dump is hereby expressly and exclusively reserved unto Kenneth L. Porter and Second Party shall have no interest or ownership whatsoever therein.

XIV.

This agreement shall be binding upon both parties, their executors, administrators and successors.

IN WITNESS WHEREOF, the parties have hereunto set their hands at Dallas, Texas, this 18th day of September, 1951.

Kenneth L. Porter, First Party

Continental Sulphur & Phosphate Corp.

Attest:

Secretary

By

Vice-President, Second Party

STATE OF TEXAS |

COUNTY OF DALLAS |

Before me, the undersigned authority, on this day personally appeared Kenneth L. Porter, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office this 18th day of September, 1951.

STANLEY KAUFMAN

Notary Public in and for Dallas County, Texas

STATE OF TEXAS |

COUNTY OF DALLAS |

Before me, the undersigned authority, on this day personally appeared S. A. Winfrey, Vice-President, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that the same was the act of the said Continental Sulphur & Phosphate Corporation, a corporation, and that he executed the same as the act of such corporation for the purposes and consideration therein expressed, and in the capacity therein stated.

Given under my hand and seal of office this 18th day of September, 1951.

Notary Public in and for Dallas County, Texas

Amd 1318X

This Lease does not apply to this contract

ASSIGNMENT OF LEASE.

KNOW ALL MEN BY THESE PRESENTS, That I, Jack W. Perry, of Casper, Wyoming, in consideration of the sum of One Dollar ($1.00) and other valuable considerations to me paid by Kenneth L. Porter, of 420 Lexington Ave., New York, New York, the receipt whereof is hereby acknowledged, do assign unto the said Kenneth L. Porter, his heirs and assigns, a certain Mining Lease bearing date the 18th day of October, A. D. 1950 made by Marion C. Brutch of Greenville, Ohio, by Joe Cavalli, her attorney in fact, and Mattie S. Noble to said Jack W. Perry, and recorded in the Office of the County Clerk of Hot Springs County, Wyoming on January 2, 1951 and appearing therein of record in Book 7 of P. R., on pages 585-589, covering certain premises situate in Hot Springs County, Wyoming more particularly described as follows, to-wit:

Hope Placer Mining Claim comprising the SE¼NE¼ of Section 20;
Brimstone No. 1 Placer Mining Claim comprising the N½N½, Section 28;
Brimstone No. 2 Placer Mining Claim comprising the NW¼NE¼SW¼; S½NE¼SW¼, SE¼SW¼ and the W½SW¼ of Section 21;
Brimstone No. 3 Placer Mining Claim comprising the SE¼NW¼, S½NE¼, and the NE¼SE¼ of Section 28, all in Township 43 North of Range 95 West of the 6th P. M., Wyoming, consisting of 520 acres, more or less,

for the full term as expressed in said Mining Lease and now remaining.

TO HOLD The same unto the said Kenneth L. Porter, his executors, administrators and assigns, from the date of this Assignment for and during all the residue and remainder of said term mentioned in said Lease, subject nevertheless, to the rents, royalties, covenants, conditions and provisions therein mentioned, which rents, royalties, covenants, conditions and provisions of said Lease the said Kenneth L. Porter, for himself and his heirs and assigns, by accepting this Assignment, assumes and agrees to pay and perform as the case may be; and I do hereby covenant with the said Kenneth L. Porter, his executors, administrators and assigns, that the covenants and agreements in said lease contained on the part of the Lessee to be observed and performed have been up to the date hereof duly observed and performed, and that the said assigned premises are now free and clear of all charges and encumbrances, grants, leases, taxes, and assessments whatsoever, made or suffered by said Lessee.

EXPRESSLY RESERVING AND ASSIGNING, However, to A. J. Hardendorf, of Lander, Wyoming, his heirs and assigns, a royalty of thirty cents (30¢) per ton on all sulphur ores, calcium sulphate containing sulphur, and all other minerals and production mined and produced under said lease from the said premises.

This Assignment shall cover, convey and transfer unto the said Kenneth L. Porter, his heirs and assigns, the option granted the Lessee in said Mining Lease, to purchase the leased premises, as provided in said Mining Lease.

The Warranties herein made by the undersigned Jack W. Perry shall cover payment of the minimum royalty or rental of Two Hundred Dollars ($200.00) due the Lessors in said Mining Lease on or before January 10, 1951, which payment shall be made by the said Jack W. Perry.

IN WITNESS WHEREOF, I hereunto set my hand this 4th day of January, 1951.

Jack W. Perry

Signed in the presence of:

_____
Witness

THE STATE OF MONTANA)
) SS.
COUNTY OF YELLOWSTONE)

On this 4th day of January, A. D. 1951, before me personally appeared Jack W. Perry, to me known to be the person described in and who executed the foregoing instrument and acknowledged that he executed the same as his free act and deed.

Given under my hand and notarial seal the day and date in this Certificate first above written.

Warren F. Vaughan
Notary Public.

My Commission expires_____

NOTARY [illegible] Billings, Montana
My Commission Expires October 21, 195[illegible]

Lease 1318 X
Lease Duplicate to
this contract

MINING LEASE

THIS AGREEMENT, Made and entered into on this 15th day of October 1950, by and between MARION C. BRUTCH, of Greenville, Ohio, by Joe Cavalli, her attorney-in-fact, and MATTIE S. NOBLE, Lessors, and JACK W. PERRY, of Casper, Wyoming, Lessee,

W I T N E S S E T H :

That in consideration of the sum of Ten Dollars ($10.00) and other good and valuable consideration to them in hand paid, the receipt thereof is hereby acknowledged, and of the covenants and agreements hereinafter to be kept and performed by the parties hereto, the Lessors do hereby grant and lease to the Lessee, his successors and assigns, the exclusive right and privilege to enter into and upon and mine for gypsum and other minerals (not including petroleum or petroleum products) those certain placer mining claims and mining ground, more particularly described as follows, all situate within the County of Hot Springs, State of Wyoming namely:

Hope Placer Mining Claim comprising the SE¼NE¼ of Section 20;
Brimstone No. 1 Placer Mining Claim comprising the N½N½, Section 28;
Brimstone No. 2 Placer Mining Claim comprising the N½NE¼SW¼; S½NE¼SW¼, SE¼SW¼ and the W½SW¼ of Section 21;
Brimstone No. 3 Placer Mining Claim comprising the SE¼SW¼, S½NE¼, and the NE¼SE¼ of Section 28,

all in Township 43, North of Range 95 West of the 6th P. M., in Wyoming, consisting of 520 acres, more or less, for the full period of ten years, and so long thereafter as any of such minerals shall be mined and produced from said placer mining claims in such quantities as to return to the Lessors at the minimum price hereinafter set forth, to-wit: the sum of Two Hundred Dollars ($200.00) monthly.

Lessors hereby agree that the Lessee shall forthwith enter into and upon said above described placer mining claims and take exclusive possession thereof, and may begin mining operations at any time, and may remove minerals therefrom, process and sell the same.

In further consideration of the foregoing, the Lessee promises and agrees to pay to the Lessors, their heirs and assigns, the sum of Fifty Cents (50¢) for every ton of minerals, mineral ores or other products, mined and produced and removed from the said above described premises. Provided, however, that all such payments for minerals mined, and other products produced and removed, and all payments made by Lessee in advance of the mining, producing and removal of said minerals, shall be applied on the total purchase price of the said premises as set out in this lease in the form of an option to buy, if made prior to the expiration of such option. All payments becoming due and owing to the Lessors shall be made on or before the 10th day of each and every month, beginning with the month of November, 1950, and all such payments shall be deposited to the credit of Joe Cavalli, in the First National Bank at Thermopolis, Wyoming.

The Lessee further agrees to pay to Lessors a royalty of 12½ per cent on all by-products mined, extracted or produced, other than sulphur and phosphate, and not specifically herein mentioned, excepting petroleum and petroleum products, as reserved by Lessors.

Lessee agrees to furnish Lessors a monthly statement, showing all minerals and by-products mined and produced from said premises, and by Lessee removed therefrom, and showing the means of form of transportation; granting unto the Lessors, or their agent or attorney, the right and privilege of examining any and all original bills of lading, showing shipments of minerals by Lessee to any point or place whatsoever, and right of inspection of all mining, processing and production facilities.

Lessee agrees to make and maintain payments under this contract of not less than Two Hundred Dollars ($200.00) per month, whether a sufficient quantity of minerals be by it produced and sold or not, but with the understanding, to which Lessors agree, that any sum or sums paid in accordance with this contract in advance of the mining, producing and removal of minerals, shall operate as a credit against which Lessee may thereafter mine, produce and sell minerals from said premises until at the rate of Fifty Cents (50¢) a ton the credit shall be exhausted. Thereupon, all such minerals shall be paid for at the rate of 50¢ a ton at the times and in the manner set forth.

Lessee agrees to do all assessment work required by the laws of the State of Wyoming and of the United States under the mining laws, and for and on behalf of the Lessors to file returns thereof in the proper office in the County of Hot Springs, State of Wyoming, and the United States, at his own expense.

The Lessee covenants and agrees that he will operate and mine said premises in a good and workmanlike manner, having due regard to the development and preservation of said mine or mining property as a workable mining unit, and will comply with all state and federal laws in relation to, or bearing upon mining operations, and will incur no obligation whatsoever that will subject said property to labor or material or other liens of any kind. That he will pay all production taxes or assessments, and will conform with all the rules and regulations having to do with industrial insurance, social security and workmens compensation, or other laws governing employment of labor.

In event that the Lessee shall default in the making of the payments, or any one of them, as hereinBefore provided, for a period of ten days, and shall not, upon notice in writing of such default, cure the same by making all such payments as may be in default at the time in full, within ten days after notice, or should the Lessee fail to keep and perform any of the provisions herein provided to be kept and performed by it, after notice thereof, as above provided, the Lessors or their agent or assigns, shall have the right, and is hereby empowered, at their option, to cancel this agreement and hold it for naught, and to re-enter upon the said premises and take possession thereof, and upon such cancellation, Lessee agrees to promptly deliver up possession of said leased premises.

In consideration of the foregoing payments, covenants and agreements, and the further sum of Five Dollars ($5.00) to them in hand paid, the Lessors hereby expressly give to Lessee, his successors and assigns, the sole and exclusive right and privilege to buy the above described placer mining claims for the full sum of Fifty Thousand Dollars ($50,000.00).

Lessors grant this option on the express terms and conditions that it may be exercised by Lessee at any time within three years from the date of this instrument, said option expiring at midnight on the last day of said period of time, and Lessor expressly agrees that all payments for and on account of minerals mined, produced and sold from said above described placer mining claims shall be considered as having been paid as a part of the purchase price, in event Lessee exercises said option, and Lessors further expressly agree that at any time the said payments shall amount to the full sum of the purchase price herein in this paragraph set out, if paid within said option period, they will, upon payment to them of the further and additional sum of One Hundred Dollars ($100.00), execute, acknowledge and deliver to Lessee a quit claim deed conveying all their right, title and interest to the said above described placer mining claims, reserving, however, to Lessors, the right to drill the same for oil, and to take and remove therefrom, oil and/or natural gas.

Time is the essence of this lease and agreement and option, and each and every covenant and condition hereof, are made binding upon the Lessors, their heirs, administrators, executors and assigns, and upon the Lessee and its successors and assigns.

SIGNED, SEALED and DELIVERED on this, the 18th day of October, 1950, at Thermopolis, in the County of Hot Springs, State of Wyoming.

Mattie S. Noble
Mattie S. Noble

MARION C. BRUTCH
Lessors.

By [illegible]
Her Attorney-in-Fact.

Jack W. Perry
Lessee.

THE STATE OF WYOMING,)
: ss.
COUNTY OF HOT SPRINGS,)

On this 18 day of October, 1950, before me personally appeared Joe Cavalli, Attorney-in-Fact for Marion C. Brutch, and Mattie S. Noble, individually, to me known to be the persons who executed the foregoing instrument in behalf of said Marion C. Brutch, and acknowledged that they executed the same as their free act and deed.

Fred C. Lenn
Notary Public.

My Commission expires May 14 1951.

THE STATE OF WYOMING,)
: ss.
COUNTY OF NATRONA,)

On this 31 day of October, 1950, before me personally appeared Jack W. Perry, to me known to be the person who executed the foregoing instrument and acknowledged that he executed the same as his free act and deed.

A. A. Gerriere
Notary Public.

My Commission expires May 10, 1953.

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. dma 1318 X

Date received 5-29-51

Participation

Kenneth L. Porter
420 Lexington Avenue
Suite 1405
New York 17, New York

Name and address of applicant

Date May 28, 1951

FILL IN THIS BLOCK

Date of application May 28, 1951

Estimated cost $100,000

Mineral or metal Elemental Sulphur

Percentage of Government participation 50%

Location of mine 3½ miles N.W. of Thermopolis, Wyoming, Hot Springs County

Date of filing MF-100 -----

DMA Docket Number, if available -----

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation? (See attached schedule)
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.
*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.

*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.

*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.

*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.

15. State in detail how the ore could be shipped and how and where milled.

*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.

19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?

21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.

24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

(Name of company)

By ---
(Signature of authorized official)

(Date)

(Title)

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.

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

SCHEDULE

APPLICATION FOR AID FOR AN EXPLORATION PROJECT
PURSUANT TO MINERAL ORDER 5, UNDER
DEFENSE PRODUCTION ACT OF 1950

Kenneth L. Porter May 28, 1951

---

1. Applicant is an individual.

2. -----

3. -----

4. The general experience of the applicant is a mechanical engineer by profession with two years experience in the exploration and development of Wyoming sulphur deposits. It is planned to use the services of Mr. Harry J. Wolf, well-known consulting mining engineer and geologist to supervise the operation of the project.

5. I am the lessee of the property.

6. There are no liens, claims or encumbrances against the property.

7. See attached copy of leases.

8. Financial references:

Mr. McLaren Vice President Chase National Bank Grand Central Branch Graybar Building New York 17, New York	Mr. Joseph Moran Vice President Bank of Manhattan Co. 40 Wall Street New York, New York

9. I am prepared to invest at least $50,000 to explore and core drill this property. It is sufficient to pay my part of the cost of the project, as detailed in Question 23.

10. See attached leases.

11. This is covered in attached report of Harry J. Wolf.

12. Refer to report of Harry J. Wolf.

13. The northern boundary of the property is Owl Creek, which flows the year around and has ample water for any mining or power uses that may be required.

14. No facilities now exist on the property.

15. The ore would be shipped by truck $3\frac{1}{2}$ miles to Thermopolis, which is on the C.B.&Q. Railroad.

16. Please refer to report of Harry J. Wolf.

17. There is no production.

18. Please refer to report of Harry J. Wolf and Bureau of Mines Report R.I.-3964, dated October, 1946, written by Forest H. Majors.

19. -----

20. The exploration will be conducted to determine the magnitude and nature of the deposits of elemental sulphur ore which are known to exist on the property.

21. The proposed work to be conducted is outlined in the report of Harry J. Wolf, and the time required to complete will be covered under Question 23.

22. Please refer to report of Harry J. Wolf.

23. Negotiations have been consummated for a core drilling rig to start operations immediately after June 15, 1951. The cost of this rig will be $2,500 per month, and the estimated footage is 40 feet per day and a minimum of 22 days of drilling per month. In addition, the bulldozer work, core analyses conducted in the field on the premises as the cores are pulled and miscellaneous expense are estimated at another $2,500 per month. It is estimated that in four months at an outside cost of $40,000 that enough information can be obtained from the program as outlined to determine whether or not to continue the program for an additional six months. It is felt that a ten months drilling and exploration program should be sufficient to block out a substantial ore reserve so that the information will be available to determine the size and magnitude of the mining operation and the facilities to be installed for the benefication of the ore.

All of the work contemplated will be on a contract basis and outside of possibly $2,500 worth of laboratory equipment necessary for the core analyses, no additional equipment is contemplated for purchase. It is planned that the bulldozer will be two-fold as far as benefits are concerned, as these cuts will provide locations for core drilling as well as preliminary cuts on which to start the strip mining operations.

24. This has been covered in Question 23.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 2 1951
LANDON F. STROBEL
Executive Secretary

LExington 2-9570-1

KENNETH L. PORTER
Oil and Sulphur
420 LEXINGTON AVENUE
NEW YORK 17, NEW YORK

May 28, 1951

U. S. Department of the Interior
Defense Minerals Administration
Washington, D. C.

Attention: Mr. James Barr

Gentlemen:

Attached are four Applications for Aid for an Exploration Project Pursuant to Mineral Order 5, under Defense Production Act of 1950, together with a mining and geological report prepared by Mr. Harry J. Wolf, consulting mining engineer and geologist, and a Bureau of Mines Report of Investigations covering the sulphur deposits at Thermopolis, Wyoming, as well as copies of leases and assignments of them to me.

If there is any additional information required other than that submitted, kindly advise.

Writer has underway plans to initiate this exploration program starting June 15, and would greatly appreciate anything that can be done to expedite action on this application, so that if the government is going to participate, the program can be integrated with the government from the outset.

Very truly yours,

Kenneth L. Porter

Kenneth L. Porter

KLP:MCH

Encs.

CABLE ADDRESS: MINEWOLF, NEW YORK
CODES: BEDFORD MCNEILL, BENTLEY
OR WESTERN UNION

TELEPHONES: {PLAZA 9-1700
{GREAT NECK 4-2423

HARRY J. WOLF
MINING AND CONSULTING ENGINEER
420 MADISON AVENUE
NEW YORK 17, N. Y.

May 25, 1951

Mr. Kenneth L. Porter
Room 1405, 420 Lexington Ave.
New York, 17, New York

Dear Mr. Porter:

On April 25 and 26, 1951, I visited the Brutch Sulphur Deposits, located about 3½ miles southwest of Thermopolis, Wyoming, accompanied by yourself and Mr. W. T. Hardendorf. We inspected most of the available exposures of the sulphur-bearing material on both the north and south sides of Cedar Mountain Dome.

The results of this preliminary investigation on the ground, together with a review of available reports, estimates, technical data, and other related information, are presented herewith.

Yours very truly,

Harry J. Wolf

HJW:el

SUMMARY AND CONCLUSION

The Brutch sulphur property covers the western part of the partially eroded anticline known as Cedar Mountain Dome, three and one-half miles northwest of Thermopolis, Wyoming. The sulphur deposits lie within the formation known as the Embar. The Embar is divided into two layers, the upper being called Dinwoody, and the lower being named Phosphoria. Everything above the Embar has been eroded completely off the top of the anticline. The upper half of the Embar, namely the Dinwoody, has been eroded off the top of the anticline, and completely off the southern slope of this hill. The lower half of the Embar, namely the Phosphoria, extends clear across the top of the anticline, having been only partly eroded off the south slope of the hill.

As the sulphur deposits on the north slope of the anticline are in the Dinwoody, they are exposed to view as they emerge from under the overlying travertine and alluvium which covers the plain to the north of the hill. These deposits may be traced partly up the north slope of the hill, but they are completely eroded along with the enclosing Dinwoody before they reach the top of the anticline. Hence, this Dinwoody sulphur is found only in the lower part of the north slope of the anticline.

The sulphur deposits exposed along the lower half of the south slope of the anticline are in the Phosphoria, which has not been completely eroded and therefore extends clear over the anticline. If the sulphur which was deposited in both Dinwoody and Phosphoria was deposited by the same sulphur-laden waters or gases, then it is reasonable to suppose that the Phosphoria sulphur extends clear over the hill and continues to underly the Dinwoody sulphur to the north as far as the sulphur deposits could form. It is important to know whether this be true, for if so, then the estimates of tonnage justifiable on the basis of only what can be seen in the present exposures could be multiplied many times.

On the basis of the present exposures, it seems reasonable to estimate the availability of about 200,000 tons of sulphur ore having a sulphur content of 10% to 40%, with an average somewhere between 15% and 30%. With this showing in view, the core-drill prospecting required to demonstrate the presence of five to ten times this quantity, or even more, is justified and is recommended.

While such core-drill prospecting is in progress, the south slope of the hill should be developed with a bulldozer, in such a manner that the work will also prove useful from an operating standpoint, with a view to start production of sulphur, and possibly by-products such as fertilizer, on a commercial basis, but on a pilot-plant scale until the best method of treatment has been determined.

The present exposures of sulphur ore encourage the belief that the property could be made the basis of a commercial enterprise. It is reasonably probable that this belief could be confirmed by a moderate amount of additional development designed to increase the demonstrated tonnage of sulphur-bearing material. Also, and equally important, are the two probabilities that the average grade of the ore will be high enough to justify its treatment, and that a suitable process can be devised to produce a marketable product.

Yours very truly,

Harry J. Wolf

HJW:dl

LOCATION

The Brutch Sulphur Property is located in Hot Springs County, Wyoming, about 3½ miles northeast of Thermopolis, in Sections 20, 21 and 28, Township 43 North, Range 95 West of the 6th Principal Meridian. In 1946, it was reported (1) that the property comprised 550 acres, of which 80 acres were held by deed, and the remainder by placer location. Records produced in 1951 indicate an aggregate area of 918.46 acres. (2) It is probable that the exact area at this time is still a matter for negotiation.

The property lies south of Owl Creek and extends thence southward over an anticlinal structure called Cedar Mountain Dome. The accessible sulphur-bearing material is exposed on the gentle northeast slope of the eroded anticline adjacent to the valley of Owl Creek, and also on the steeper southwest slope of the hill.

The property may be reached from Thermopolis over State Highway 120. Thermopolis is on the Chicago, Burlington & Quincy Railway, about 477 miles from Denver, and on U. S. Highway 20. Altitudes range from 4,600 feet in Owl Creek Valley to over 5,100 feet at the crest of the anticline which contains the deposits. The sulphur exposures are at an elevation of about 4,700 feet, or approximately 400 feet above the elevation of Thermopolis.

HISTORY

The Wyoming Sulphur Company began development operations on the property, on the north side of the anticline, in Sections 20 and 21, in the fall of 1903. Prospecting was done by diamond drilling, and mining operations were started in open pit quarries, the rock being broken down by drilling and blasting. It is reported (3) that a considerable number of drill holes put down by the Wyoming Sulphur Company located deposits of sulphur in a zone about 1/8 mile wide and ½ mile long, along the base of the anticline to the northeast of a timber-covered limestone ridge. A thorough prospecting of all the territory in which geologic conditions were believed to be favorable was not undertaken at that time, but it was believed that the sulphur-bearing zone would extend beyond the limits of the proved ground. A condition that was considered favorable to the presence of sulphur in the area, was the occurrence of travertine upon beds of altered limestone.

The operating procedure of the Wyoming Sulphur Company is described as follows:

The sulphur-bearing rock was broken to convenient size and sorted by hand. The sorted ore was hauled in wagons to the reduction works about ½ mile distant, on the south bank of Owl Creek. At the processing plant, the ore was placed in bins, from which it was discharged into small steel cars with perforated sides, each car holding about two tons. A string of three cars was then run into a large cylindrical retort, the door closed, and steam admitted at 60 pounds pressure for two hours. The sulphur was melted and flowed to the bottom of the retort, from which it escaped through a trap into bins, where it was allowed to cool.

The cars containing the gangue, from which sulphur had been melted, were removed from the retort and replaced by other cars loaded with ore. It is reported (3) that the process was not highly efficient, as only about 2/3 of the contained sulphur was melted out, the remainder being lost in the discard. The cooled sulphur was crushed in an 8-inch Blake crusher, and then pulverized to an impalpable powder in a rotary grinder. It was then sacked and taken to Crosby, eight miles distant, for shipment to various points in Wyoming and adjoining states.

The plant which was operated in 1908 had a rated capacity of 20 tons of sulphur a day, but was then yielding 10 tons a day. Up to December 15, 1908, the plant had produced 200 tons of sulphur, and it is reported (2) that by the end of 1909, when operations ceased, the production of brimstone had reached 4,000 tons. It is probable that the maximum productive capacity of the plant was about 10 tons of sulphur a day. It is reported that the demand for ground sulphur in 1908 was fairly good at $35 a ton at destination.

The closing of this plant at the end of 1909 was said to be due to the fact that all of the high-grade ore bodies were mined out. The validity of this statement would depend on what was meant by "high-grade" ore at that time. It is probable that "high grade" ore meant material containing a percentage of sulphur substantially higher than that found in the tailings of the plant which treated the material. Material in the tailings dump of the plant is variously reported to assay from 10% to as high as 30% sulphur. Hence "high-grade" must have referred to a sulphur content of say 30% to 50%, or higher. Whether the reason for shutting down the plant was primarily due to lack of a

supply of sufficiently high-grade ore, or to the inefficiency of the process, it is reasonable to conclude that the operation could not be conducted at a profit under the combination of circumstances existing at that time.

The American Sulphur Company conducted mining operations on the south side of the anticline in 1915 and treated the ore in the Wyoming Sulphur Company's plant. It is reported (2) that 5,000 to 6,000 tons of ore yielded 1,000 tons of sulphur. This would indicate a yield of sulphur equivalent to between 17% and 20% of the weight of the ore treated. If the efficiency of the plant remains unchanged, then the average ore treated must have contained from 25% to 30% sulphur. Following the above operation, this plant was acquired by The American Sulphur Company and was moved to the south side of the anticline, but it is reported that the work was discontinued before the plant was completely rebuilt.

Later, the Ohio Mineral Company purchased the property of the American Sulphur Company and the dump at the Wyoming Sulphur Company's plantsite. This dump was said to contain about 20,000 tons of low-grade material, which according to reports may have assayed as high as 30% sulphur. The Ohio Mineral Company completed the retort plant and also constructed a fertilizer plant.

The brimstone plant consisted of a horizontal, cylindrical retort 22 feet by 6 feet, and a 40-hp boiler. Selected ore was placed in flat cars, with bottoms and sides of wood slats. These cars held 1½ tons each, and three cars filled the retort. Steam under 20 pounds pressure was admitted to the retort for a short time to drive off the moisture in the ore. The steam pressure was then raised to 40 pounds and maintained there until the maximum extraction of sulphur was obtained. The molten sulphur was run out at intervals during the treatment, through a steam-heated valve into a shallow concrete pit. When the sulphur was about 6 inches thick and had solidified, it was broken up into blocks by hand. The total time for a cycle of operations, including loading and discharging, was two hours. It was claimed that an extraction of about 50% was obtained from ore running 25% to 35% sulphur. In 1924, the plant was running one shift a day, and producing about three tons of brimstone. The operating crew consisted of a general superintendent and two men.

The fertilizer plant consisted of a Raymond mill and a sacking bin. The fertilizer consisted of ground spent ore from the retort, or ground low-grade ore, and ground lime-

stone that contained a small percentage of phosphate. This product was offered for sale in 100-pound sacks.

It is reported that operations were eventually terminated owing to an underground fire. Recent inspection indicated that all of the treatment plants above mentioned disappeared completely several years ago, for at present nothing is left excepting parts of the old foundations. The only structure on the property at this time is a small mill, stripped of equipment, at the westerly pit on the south side of the mountain.

GEOLOGY AND MINERALOGY

The sulphur deposits are found in the partly eroded anticline known as Cedar Mountain Dome, which has a gentle slope to the north and a steeper slope to the south. This anticline is formed by a sharp fold in the surface rocks, partly covered by travertine deposits. The general structure of this anticline is illustrated in the cross sections on exhibits A and B. Apparently, the rocks have been sufficiently fractured along their crests, and along the slopes each side thereof, to form passages through which sulphur-bearing thermal water, heated fumes and gases, could work upward, and deposit part of their sulphur by oxidation or replacement, and perhaps in part escape to the surface.

These rocks, named in the order of their occurrence above the underlying igneous rocks, are known locally as: Deadwood, Bighorn, limestone, Madison limestone, Amsden, Tensleep sandstone, Ember limestone (locally divided into Phosphoria, overlain by Dinwoody), Chugwater (red rocks), Sundance, and Morrison, overlain by travertine and alluvium. The sulphur deposits are found in the Ember formations. On the north slope of the anticline, the sulphur is in the Dinwoody, and on the south slope it is in the underlying Phosphoria.

At the base of the north slope, and extending out over the flat towards Owl Creek, is a deposit of travertine which consists mostly of calcium carbonate with some calcium sulphate in small crystals. The sulphur on this side of the anticline has been exposed in irregularly distributed pockets in the Dinwoody limestone immediately below the travertine, with only a small amount of sulphur in the travertine itself. These exposures of sulphur, in pockets, open cuts, quarries and shafts, indicate deposition by crystallization from aqueous solutions,

oxidation from fumes and gases, and by replacement in the altered limestone. The present exposures do not necessarily indicate the extent and size of the deposits, inasmuch as the faces of the cuts, and the bottoms of some of the shafts expose sulphur-bearing material.

On the south side of the anticline, the sulphur deposits are exposed in altered limestone, and associated with considerable gypsum which occurs in numerous cracks and stringers. These deposits are of various sizes, ranging up to 100 to 150 feet horizontally and 20 to 50 feet thick, as indicated by the development work. The openings in the sulphur-bearing rock, up and down the slope of the enclosing formation, do not determine the full extent of the ore in this direction. It is apparent that the ore does not occur with any uniformity as to width or thickness, but that it has been deposited in various-sized pockets, distorted lenses, and irregular streaks, which were formed along or near the old hot springs vents or channels.

The overburden varies from a few feet up to 20 feet, and consists of weathered material, including sandstone and altered limestone. The sulphur is found in tiny crystals throughout the altered limestone, filling fissures and lining cavities throughout the rock, and frequently replacing the limestone in varying degree, sometimes entirely. In some places the sulphur is discolored by hydrocarbons, and some asphaltic material is found in the Ember formation just below the sulphur horizon. Towards the westerly end of the general formation, and more particularly on the north side of the anticline, small veins of alum are exposed, and the mineral sometimes forms in crystalline clusters suspended from the roofs of caverns extending into the sulphur-bearing rock.

There are numerous indications that the deposition of the sulphur is not completed, but that the process is going on continuously. Inspection of underground openings indicates the formation of hydrogen sulphide and sulphur dioxide gases; and numerous exposures of sulphur-bearing rock, both underground and in the surface cuts and quarries, indicate the recent formation of sulphur crystals and crusts on surfaces which had been freshly exposed within the past six to ten months. Whenever an exposed surface in the sulphur-bearing formation is freshly excavated with a pick, the odors of the sulphur-bearing gases and fumes are noticeably increased.

HOT SPRINGS

The occurrence of hot springs near Thermopolis lends color to a theory regarding conditions which may have much to do with the sulphur deposits on the slopes of the Cedar Mountain anticline. The fact that these springs exist today, and certain indications that the deposition of sulphur at the anticline is probably in process at the present time, make the following discussion of them by E. G. Woodruff (3) interesting and possibly significant:

"At the present time (1908) one mammoth hot spring and several small ones are discharging their water into Bighorn River near Thermopolis, at a rate estimated to be 3,000 to 4,000 gallons a minute. The water issues from the large spring at a temperature of 135° F. The odor of hydrogen sulphide is strong about the spring and the quantity of carbon dioxide escaping indicates that the water is saturated with that gas also. An analysis has shown potassium, sodium, magnesium, calcium, and iron salts in large quantities. These salts are deposited when the water spreads out and cools, and in this way the terraces are built up.

"Though the springs are now building their terraces rapidly, there is evidence that they have had a long period of activity and that they have been distributed over several square miles, as extinct cones and terraces along the river show a wider distribution at about the present level. The earlier positions of the springs are indicated by the terraces at various levels along the side and crest of the anticline. One bed of travertine caps a mesa three miles northeast of Thermopolis and 700 feet higher than the mammoth spring. This does not indicate, however, that the travertine is 700 feet thick at any one point, but that there has been continuous deposition while the streams of the region have lowered their channels that amount. Although the travertine is not thick, its distribution is rather widespread, as is shown by remnants of terraces over an area of several square miles. It is most extensive adjacent to Bighorn River, but occurs at short intervals on the crest and slopes of the anticline between the river and Owl Creek. The remnants of the travertine are too few and scattered to determine with precision the previous extent of those beds or their greatest thickness. The first springs seem to have been situated at the crest of the anticline, about

three miles northwest of Thermopolis; since they began to issue there has been a gradual progression toward the present site on Bighorn River, the springs probably following the stream in its meandering and downward cutting. To the west, however, there seem to have have been two periods of activity, one along the crest of the anticline and another, of later days, during which the travertine and sulphur were deposited along the base of the uplift."

PROBABLE ORIGIN OF THE SULPHUR

There seems to be little doubtthat the sulphur was deposited by the cooling of thermal-spring waters and the oxidation of hydrogen sulphide emanating from them. This is indicated by the large bed of travertine on the north slope, and by the occurrence of hot water in one of the deepest pits on the side of the hill, and in a well 186 feet deep on the south side. It has been suggested (2) (3) that the heat is supplied by large uncooled bodies of igneous rocks close to the surface and that the water enters the strata of the Owl Creek Mountains to the south, passes down through some permeable stratum, and then rises through fractures in the anticline. Thewater level has been lowered to the present site of the Thermopolis hot springs by the cutting down of the Bighorn River bed.

There is also the possibility that at certain points the deposition may have been fumarolic in character, although there is no direct evidence of such action in the presently exposed workings.

DEVELOPMENT

Along the north slope of the anticline, the Wyoming Sulphur Company developed and mined out a considerable quantity of what was probably the better grade ore in an area about 2,000 feet long and 200 feet wide. Some of the pits are 75 feet deep and 100 feet wide. The ore bodies were apparently irregular bunches grading out laterally and in depth. It is reasonable to assume that the ore that was left was considered too low-grade for exploitation by the process and methods then employed.

On the south side of the anticline, The American Sulphur Company developed an irregular ore zone about one-half mile long and 300 feet to 400 feet wide. In this general zone, sulphur has been opened in three main ore shoots and several smaller ones. The company mined most of its ore from a large open cut in the ore shoot at the westerly end of the zone. The ore here is over 100 feet wide and 20 feet thick. At one time, this cut apparently extended under the overburden which has since caved down. A good grade of ore was exposed in the face, running about 35% to 40% sulphur. (2). In 1946 a series of 25 samples taken in this cut, over widths up to 19 feet, assayed from 10% to 46% sulphur, and averaged 28% sulphur over an average width of 10.6 feet (1). The nearest exposure of good ore to the east of this cut was 300 feet distant, and the continuity of the ore between the two points has not been established, owing to the overburden.

About 1,000 feet east of the westerly ore shoot, almost pure sulphur was at one time stoped in a large cavern or irregular fissure in the limestone. Where the sulphur did not entirely fill the fissure, stalactites of sulphur were formed (2). Some sulphur remains in this deposit, but the workings could not be explored because of the presence of much carbon dioxide.

The third big ore body lies one-quarter mile east of this central ore shoot or stope. Here, ore has been opened in a cut 40 feet or 50 feet east and west, and in an inclined winze about 20 feet deep. This deposit was formerly connected with the retort plant at the bottom of the hill and across the creek by a funicular railroad (2). The foundation of this inclined railroad or tramway is still in evidence, and is illustrated in one of the attached photographs.

The above described development is insufficient to determine the quantity of possible sulphur ore on the property. However, it does demonstrate that the ore occurs in bunches, irregular lenses, and scattered pockets, and that the development has not opened any extensive beds of uniform quality or thickness. The best ore now opened is reported to average 35% to 40% sulphur, and a general average of the ore available over any substantial area would be about 28%. It is reported that some fairly high-grade ore was encountered, a small quantity assaying up to 75% (2).

SAMPLING

During this preliminary investigation, no time was available for the taking of formal or representative samples of sulphur ore, such as would be necessary to form the basis for any reliable estimates of quantity and average quality of ore available. Only a few selected samples were taken for the purposeof observing the general types and the characteristics of the sulphur-bearing material available. However, a systematic sampling of the deposits along the south slope of the anticline was undertaken as recently as 1944, and these results are available (1). In the preparation for this sampling, 126 cuts, pits, or other openings, were selected or made available for sampling, or for purpose of exploration. Of these, 25 were discarded because the sampling of the material exposed therein wouldserve no useful purpose. In the remaining 101 openings, about 215 individual samples were taken, and many of these were combined into composite samples to show the average grade of material over certain widths of the sulphur-bearing beds.

For purposes of analysis, the 101 samples recorded by the engineers of the U. S. Bureau of Mines in 1944 (1) are classified into four groups, as follows:

Group 1, 25 samples taken in and around Pit No. 26, where the American Sulphur Company conducted its mining operations in the ore shoot farthest to the west. These 25 samples indicated an average width of 10.6 feet, and an average sulphur content of 23.07%.

Group 2. 33 samples taken mostly along the hillside between Pit No. 26 and a point about 600 feet to the west thereof. These samples indicated an average width of 7.63 feet, and an average sulphur content of 7.81%.

Group 3. 16 samples taken in and around Pit 19, in the large ore shoot to the extreme east of the zone on the south side of the hill, These samples indicated width of 9.32 feet, and an average content of 19.35%.

Group 4. 27 pits prepared for sampling at various scattered points along the hillside between Group 1 and Group 3. These samples cover the ground containing the middle ore shoot, but it seems obvious that none of the high-grade ore supposed to be in the caved stope was represented, no doubt because the old workings where the sulphur was found is at a horizon too low to be tapped by

any of these samples. In many of these pits, no sulphur was found, so it is presumed that they were not located in the sulphur-bearing formation, and no samples were taken. Only eight of these pits were sampled. The widths sampled ranged from 2 feet to 10 feet and the sulphur assays varied from .1% to .9%.

It seems probable that few of these samples were taken over the actual thickness of the sulphur-bearing material at the points sampled, hence the above mentioned average widths probably fall short of indicating the average thickness of the sulphur-bearing material.

On the other hand, these samples do not indicate, nor do they pretend to indicate, any uniformity in the occurrence of the sulphur-bearing beds along the side of the hill, nor in the geologic stratum which contains them. As a matter of fact, the sulphur ore is found in large and small bunches and pockets, and in shapes which might be described as distorted lenses. The larger ore shoots are continuous over distances as great as 100 or 200 feet in a generally horizontal direction, and their thickness varies from 10 to 50 feet within the limits of their present exposures. To gain a more accurate idea of their size and extent, more particularly their extension into the hillside, it would be necessary to perform additional development work, either in the form of drifts or diamond-drill holes.

AVAILABLE ORE

Two of the important fundamental considerations in this case, namely: Tonnage of sulphur-bearing material available; and the average value, or the range of values, of this material, are difficult to estimate with any degree of assurance. However, certain preliminary estimates are based on two sources of information. One of these is the record of sampling during 1944 by engineers of the U. S. Bureau of Mines, during the preparation of information for the "Exploration of the Brutch Sulphur Deposits, Hot Springs County, Wyoming", R. I. 3964, to which reference has been made hereinabove (1), under the caption "Sampling". The other source of information is the actual visual inspection of many pits, cuts, and other excavations where these samples were taken, and where certain previous mining operations were obviously conducted.

The sampling, and the measurements, to which reference has been made, relate to the south side of the anticline only, and hence to the sulphur found in the Phosphoria formation, in the lower half of the Ember. The thicknesses of the beds sampled in the region of Pit No. 26, range from 5 feet to 19 feet, and the assays ranged from about 10% to about 47%, the average being about 29%. It seems apparant that in many cases the full thickness of the bed could not be sampled. Similar comments would apply to the sampling in the region of Pit No. 19, and to most of the samples taken at various points along the hillside in the territory between the above mentioned pits, and in the territory west of Pit No. 26.

Combining the recorded facts with the results of observation on the ground, and assuming conservative and realistic dimensions and values, there appears to be reasonable justification for estimating the availability of 100,000 to 200,000 tons of ore having a sulphur content somewhere between 18,000 tons and 36,000 tons.

It is possible that this kind of an estimate could be multiplied by some substantial factor, such as five or ten, and with a reasonable degree of assurance, provided such needed information could be obtained by additional exploration in the form of logically placed core-drill holes, drifts following the sulphur-bearing material into the hillside, or the local removal of shallow overburden by means of a bulldozer to demonstrate whether known sulphur beds extend thereunder.

A considerable quantity of sulphur ore exists on the northern slope of the anticline, in the Dinwoody formation, in the upper half of the Ember. The extent and nature of this material could be estimated with some degree of assurance from information that could be disclosed by core-drill holes at proper locations. In this locality, the drill holes would demonstrate the nature of not only the sulphur deposits in the Dinwoody but also the possible continuance to the north of the deposits in the underlying Phosphoria.

EXPLORATION RECOMMENDED

In order to provide the information believed to be necessary for a more comprehensive estimate, and at the same time a justifiable estimate of the probable tonnage of sulphur-bearing material, additional exploration is suggested as follows:

1. Core Drilling. A row of core-drill holes driven in a vertical plane cutting through the westerly end of the anticline, and extending from the large Pit P-26 on the south side of the hill to the most prominent exposure of sulphur on the north side of the hill. These holes may be spaced approximately 200 feet apart. Their chief purpose is to demonstrate the presence or absence of sulphur in the Embar formation as it laps over the anticline from the south side to the north side, and at the same time indicate the thickness of the sulphur-bearing layers, and to some extent their shape and continuity.

A second row of holes drilled along the south slope of the hill, in a line approximately perpendicular to the line of the first row of holes, thus constituting a longitudinal section of the Embar formation, as distinguished from the "cross-section" of the hill represented by the first row of holes. This series of drill holes would supply information which is lacking in the present pits, cuts and other openings on the south slope of the anticline, namely the true vertical thickness of the sulphur-bearing layer. It is believed that the present openings and the recorded samples do not in many cases disclose and represent the entire thickness of the sulphur formation, inasmuch as the bottoms of many of these openings are still in sulphur. These holes should be spotted so as to coordinate with the openings already existing along this slope of the hill, and thus help to establish possible continuity of the sulphur beds in this part of the general formation.

A third row of holes just above the flats along the north slope of the anticline, to demonstrate the extent and depth of both the Dinwoody and the underlying phosphoria sulphur.

2. Tunnels or Adits. A few specially placed adits driven into the south slope of the hill, and following the sulphur-bearing material to demonstrate its continuity and quality, and especially its extent in a northerly direction into the hillside. These drifts will coordinate with the drill holes and serve to confirm and extend the information supplied by these holes.

3. Bulldozer Cuts along the south slope of the anticline. One of these cuts should be made at the level where the sulphur-bearing material is prominently exposed in large Pit P-26, and thence in both directions along the hillside, for the purpose of exposing more of the sulphur outcrop along the slope by removing shallow overburden . This operation should indicate whether the sulphur outcrop is continuous under the overburden, or whether it is irregular and spotty in character. The operation will also indicate the thickness and disposition of the overburden with respect to the surface ore, and supply information that should be helpful in planning the general procedure to be employed in mining the deposits.

A second bulldozer cut at a somewhat higher level than the first, to serve not only for the purpose of testing the thickness of the overburden where it may be relatively shallow, but also as a road over which the drilling equipment can be hauled for the drilling operations already mentioned.

A third bulldozer cut may be advisable at the north side of the property, not only to establish possible continuity of some of the exposed sulphur, but also to provide easy transport of the drilling equipment

MINING METHODS

It is believed that the most satisfactory method of working sulphur deposits of this general character would be to remove the overburden with a bulldozer; loosen the sulphur ore by drilling and blasting it down in benches where necessary; and then moving the loose material by bulldozer or power shovel into motor trucks for transportation to the treatment plant where the sulphur is to be recovered.

The loose material may be pushed by a bulldozer over a loading platform into a truck, or into a loading bin from which it is drawn into a truck spotted below such bin. Otherwise, the ore may be scooped up from a bench by a power shovel which loads it directly into a truck driven onto the bench.

In the past, certain underground methods of mining this sulphur have been attempted, and actually practiced to a limited extent. However, it is reported that the rapid development of poisonous gas in the workings made such methods difficult and dangerous. It appears that any attempt to mine this sulphur by underground stoping or caving methods would involve a difficult ventilation

problem, and that any impairment in the ventilating system, of even temporary duration, might have serious consequences.

Therefore, it appears that the mining of sulphur at any appreciable depth in the ground north of the anticline, would involve some system of exploitation by open pits. If these pits should follow the sulphur to any substantial depth (as they might, if the sulphur in the Phosphoria formation should prove to be valuable in this locality), then the pits and the ramps leading into them would have to be provided with proper drainage facilities.

SULPHUR RECOVERY

Various methods of recovering sulphur from material like that under review have been considered. The methods applied to this particular problem in the past have been outlined briefly above, under "History". For the most part, these methods consisted of the simple procedure of melting the sulphur out of the ore by treating it with steam in a retort. Apparently, this method resulted in the extraction of from 50% to 65% of the sulphur content of the ore.

Several methods of procedure have been proposed and developed, and some of the features involved have been patented. These methods include the following:

1. Melting the sulphur out of the ore by treating it with steam in a retort. Although the recovery was stated to be only one-half to two-thirds of the sulphur content, the brimstone recovered is reported to have assayed as high as 99.88% sulphur; 0.0037% arsenic; and 0.0163% water. The discard which contained about 22.45% sulphur was mixed with ground limestone and calcium sulphate, and sold as fertilizer. (2)

2. Flotation followed by liquation.

3. Liquation followed by flotation.

4. A combination of 2 and 3.

5. Chemical solution followed by precipitation.

STATISTICS

Domestic Production and Consumption of Sulphur

Year	Production Long Tons	Shipped Long Tons	Approximate Value Total	Per Ton
1944	3,218,158	3,519,083	$56,300,000.	$16.00
1945	3,753,188	3,833,294	61,300,000.	16.00
1946	3,859,642	4,128,212	66,100,000.	16.00
1947	4,441,214	4,828,103	85,200,000.	17.63
1948	4,869,210	4,978,912	89,600,000.	18.00
1949	4,745,014	4,789,311	86,200,000.	18.00
1950	5,192,184	5,504,714		
Jan. 1951	452,060	361,849		
Feb. 1951	409,377	342,532		

Since the beginning of 1950, prices for sulphur have increased. Current prices are around $22.50 a ton, FOB Houston, Texas; or around $25.00 a ton at New York. Restrictions on exports are increasing. Regular domestic customers of domestic producers are having their orders cut back to about 80% of their actual requirements.

Sulphur is reported to be changing hands at prices considerably above those above mentioned. Foreign transactions are reported to have taken place at as high as $90.00 a ton. It is obvious that the statistical position of sulphur is strong.

USE PATTERNS

To illustrate the well-known and almost universal industrial uses of sulphur, two use patterns are presented, one by the U. S. Bureau of Mines, and the other as estimated by "Chemical Engineering."

As Estimated by U.S.B.M.

Sulphuric Acid (Heavy Chemicals) Per Cent of Total: 51.7%

	Acid Use.	Total.
Fertilizer	35.4%	18.30%
Chemicals	19.9	10.30
Petroleum Refining	10.7	5.53
Paints and Pigments	6.7	3.47
Coal Products	6.4	3.31
Rayon and Film	6.2	3.20
Iron and Steel	5.6	2.89
Miscellaneous	4.0	2.07
Other Metallurgical	3.2	1.65
Industrial Explosives	1.2	.62
Textiles	0.7	.36
	100.0	51.70

(continued on next page)

Sulphuric Acid (Heavy Chemicals)	51.7%
Fertilizers and Insecticides	20.6
Pulp and Paper	10.5
Miscellaneous	6.2
Paint and Varnish	3.5
Explosives	2.8
Dyes and Coal Tar Products	2.7
Rubber	1.8
Food Products	0.2
Total:	100.0

END-USE PATTERN FOR SULPHUR

And Percentage Breakdown of Consumption from All Sources Except Natural Sulphates. (As estimated by "Chemical Engineering.")

	Thousands of Long Tons.		Percentage Breakdown.	
	1949	1950	1949	1950
Acid Uses:				
Fertilizer	1200	1224	27.9	25.8
Chemicals	644	819	15.0	17.3
Petroleum Refining	425	466	9.9	9.8
Paint and Pigment	243	305	5.6	6.4
Coal Products	170	191	3.9	4.0
Rayon and Films	205	237	4.8	5.0
Iron and Steel	155	192	3.6	4.1
Other Metals	101	109	2.4	2.3
Industrial Explosives	38	41	0.9	0.9
Textiles	23	26	0.5	0.5
Miscellaneous	117	121	2.7	2.6
Acid Subtotal:	3321	3731	77.2	78.7
Non-Acid Uses:				
Pulp and Paper	330	425	7.7	8.9
Industrial Explosives	60	60	1.4	1.3
Rubber	58	65	1.3	1.4
Chemical and Misc.	536	460	12.4	9.7
Non-Acid Subtotal:	984	1010	22.8	21.3
TOTAL:	4305	4741	100.0	100.0

REFERENCES

(1) Exploration of the Brutch Sulphur Deposits, Hot Springs County, Wyoming, By Forest H. Majors, U.S.B.M. R.I. 3964, Oct. 1946, p. 2 et seq.

(2) Private Communications.

(3) Sulphur Deposits Near Thermopolis, Wyoming, By E. G. Woodruff, U.S.G.S. Bull. No. 380, 1908, p.p. 373 - 379.

(4) Mineral Year Book, U.S.B.M.

(5) Mining Engineering, May 1951, P. 404. Article on "Sulphur" By William L. Swager and John D. Sullivan.

EXHIBITS

The following exhibits are in the attached envelope:

EXHIBIT A. Cross-section near the west end of Cedar Mountain Dome, at the approximate location of the proposed line of core-drill holes designed to prospect the sulphur-bearing formations

EXHIBIT B. Contour map and cross-section of Cedar Mountain Dome. The cross-section in this exhibit is about 3/4 mile southeast of the one shown in Exhibit A, and passes through the test well which was sunk from the top of the hill.

EXHIBIT C. Contour map of the northeast end of Cedar Mountain Dome, showing the locations of the northerly and southerly sulphur workings, and the position of the cross-section illustrated in Exhibit A.

EXHIBIT D. Map showing sample locations and assays reported in Reference (1).

Exhibit B

It is understood that the Defense Minerals Administration Field Team Region IV will review conditions as soon during Step 4 ~~that~~ as data are available and recommend which of the three above suggestions will be ~~followed~~ followed out, i.e., whether a building should be built, a building should be rented or a trailer should be purchased.

EXHIBIT "B"

FIXTURES AND IMPROVEMENTS

A detailed list of additional facilities, buildings and fixtures to be purchased, installed, or erected by the Operator, with the estimated cost of each.

1. Estimated cost of an office building at the mine (or other equivalent provision, such as an especially designed trailer which may be moved about for convenience) - - - - -	$ 3,000.
2. Estimated cost of an assay outfit - - - - - - - -	2,500.
Total:	5,500.

Note: It is probable that the most convenient procedure with respect to the chemical analysis of samples, (after the first month, referred to as Stage A of the Program) will be to house the assay outfit in some low-rental building in Thermopolis, Wyoming, to which samples from the field may be delivered daily for reduction and analysis, inasmuch as Thermopolis is only 3½ miles distant from the property under exploration.

EXHIBIT "B"

FIXTURES AND IMPROVEMENTS

A detailed list of additional facilities, buildings and fixtures to be purchased, installed, or erected by the Operator, with the estimated cost of each.

1. Estimated cost of an office building at the mine (or other equivalent provision, such as an especially designed trailer which may be moved about for convenience) - - - - -	$ 3,000.
2. Estimated cost of an assay outfit - - - - - - - -	2,500.
Total:	5,500.

Note: It is probable that the most convenient procedure with respect to the chemical analysis of samples, (after the first month, referred to as Stage A of the Program) will be to house the assay outfit in some low-rental building in Thermopolis, Wyoming, to which samples from the field may be delivered daily for reduction and analysis, inasmuch as Thermopolis is only 3½ miles distant from the property under exploration.

EXHIBIT "B"

FIXTURES AND IMPROVEMENTS

A detailed list of additional facilities, buildings and fixtures to be purchased, installed, or erected by the Operator, with the estimated cost of each.

1. Estimated cost of an office building at the mine (or other equivalent provision, such as an especially designed trailer which may be moved about for convenience) - - - - -	$ 3,000.
2. Estimated cost of an assay outfit - - - - - - - -	2,500.
Total:	5,500.

Note: It is probable that the most convenient procedure with respect to the chemical analysis of samples,(after the first month, referred to as Stage A of the Program) will be to house the assay outfit in some low-rental building in Thermopolis, Wyoming, to which samples from the field may be delivered daily for reduction and analysis, inasmuch as Thermopolis is only 3½ miles distant from the property under exploration.

Exhibit C

It is understood that when the data from Step A is reviewed by the Defense Minerals Administration ~~Field Team~~ representatives the items listed above ~~under~~ as "Trucking and Misc. $1,000.00", will be shown in detail ~~before~~ to facilitate approval of this item in the final stages of the exploration work.

EXHIBIT "C"

OPERATING EQUIPMENT

A detailed list of operating equipment divided into categories of items to be rented, purchased, or furnished by the Operator.

STAGE A. (First Month)

Rented:	Core-drilling equipment,	$ 2,500.		
	Bulldozer,	2,500.		
			$ 5,000.	
Purchased:	Bits and core Barrels,	2,000.		
	Trucking and Misc.	1,000.		
			3,000.	
	Sub-total:			$ 8,000.

STAGE B. (Second Month)

Rented:	Core-drilling equipment,	2,500.		
	Bulldozer,	1,500.		
			4,000.	
Purchased:	Truck, (a)	2,000.		
	Surveying equipment, (b)	800.		
	Core boxes,	250.		
	Bit & Core bbl. replacements,	250.		
	Trucking and Misc.	1,000.		
			4,300.	
	Sub-total:			8,300.

3rd to 12th month, inc. (10 months):

Rented items, $4,000 per mo. for 10 mos.,	40,000.	
Purchased items, except (a) and (b), $1,500. per mo. for 10 mos.,	15,000.	
Sub-total:		55,000.
TOTAL:		$ 71,300.

EXHIBIT "C"

OPERATING EQUIPMENT

A detailed list of operating equipment divided into categories of items to be rented, purchased, or furnished by the Operator.

STAGE A. (First Month)

Rented:	Core-drilling equipment,	$ 2,500.		
	Bulldozer,	2,500.		
			$ 5,000.	
Purchased:	Bits and core Barrels,	2,000.		
	Trucking and Misc.	1,000.		
			3,000.	
	Sub-total:			$ 8,000.

STAGE B. (Second Month)

Rented:	Core-drilling equipment,	2,500.		
	Bulldozer,	1,500.		
			4,000.	
Purchased:	Truck, (a)	2,000.		
	Surveying equipment, (b)	800.		
	Core boxes,	250.		
	Bit & Core bbl. replacements,	250.		
	Trucking and Misc.	1,000.		
			4,300.	
	Sub-total:			8,300.

3rd to 12th month, inc. (10 months):

Rented items, $4,000 per mo. for 10 mos.,	40,000.	
Purchased items, except (a) and (b), $1,500. per mo. for 10 mos.,	15,000.	
Sub-total:		55,000.
TOTAL:		$ 71,300.

EXHIBIT "C"

OPERATING EQUIPMENT

A detailed list of operating equipment divided into categories of items to be rented, purchased, or furnished by the Operator.

STAGE A. (First Month)

Rented: Core-drilling equipment,		$ 2,500.		
Bulldozer,		2,500.	$ 5,000.	
Purchased: Bits and core Barrels,		2,000.		
Trucking and Misc.		1,000.	3,000.	
Sub-total:				$ 8,000.

STAGE B. (Second Month)

Rented: Core-drilling equipment,		2,500.		
Bulldozer,		1,500.	4,000.	
Purchased: Truck,	(a)	2,000.		
Surveying equipment,	(b)	800.		
Core boxes,		250.		
Bit & Core bbl. replacements,		250.		
Trucking and Misc.		1,000.	4,300.	
Sub-total:				8,300.

3rd to 12th month, inc. (10 months):

Rented items, $4,000 per mo. for 10 mos.,	40,000.	
Purchased items, except (a) and (b), $1,500. per mo. for 10 mos.,	15,000.	
Sub-total:		55,000.
TOTAL:		$ 71,300.

EXHIBIT "D"

LABOR AND SUPERVISION

STAGE A.

Consulting engineering services, 20 days at $50.00 per day,	$ 1,000.
Travelling expense,	500.
Commeráial Assayer (1st month only)	500.
Sub-total:	2,000.

STAGE B.

A continuation of State A, and is presented on an estimated monthly basis to continue for eleven additional months, or until the termination of the contract:

Assayer and Chemist,	$ 450.	
Assayer's Helper,	300.	
Office Clerk (to keep records and books of account),	300.	
Supervision (Mining Engineer),	1,000.	
Sub-total:	2,050.	
Elevel months at $2,050 per month,		22,550.
TOTAL:		$ 24,550.

EXHIBIT "D"

LABOR AND SUPERVISION

STAGE A.

Consulting engineering services, 20 days at $50.00 per day,	$ 1,000.
Travelling expense,	500.
Commercial Assayer (1st month only)	500.
Sub-total:	2,000.

STAGE B.

A continuation of State A, and is presented on an estimated monthly basis to continue for eleven additional months, or until the termination of the contract:

Assayer and Chemist,	$ 450.	
Assayer's Helper,	300.	
Office Clerk (to keep records and books of account),	300.	
Supervision (Mining Engineer),	1,000.	
Sub-total:	2,050.	
11 level months at $2,050 per month,		22,550.
TOTAL:		$ 24,550.

EXHIBIT "D"

LABOR AND SUPERVISION

STAGE A.

Consulting engineering services, 20 days at $50.00 per day,	$ 1,000.
Travelling expense,	500.
Commercial Assayer (1st month only)	500.
Sub-total:	2,000.

STAGE B.

A continuation of State A, and is presented on an estimated monthly basis to continue for eleven additional months, or until the termination of the contract:

Assayer and Chemist,	$ 450.	
Assayer's Helper,	300.	
Office Clerk (to keep records and books of account),	300.	
Supervision (Mining Engineer),	1,000.	
Sub-total:	2,050.	
11 level months at $2,050 per month,		22,550.
TOTAL:		$ 24,550.

RESUME OF COST ESTIMATES

By Exhibits:

Exhibit "B" (Fixtures and Improvements),	$ 5,500.
Exhibit "C" (Operating Equipment),	71,300.
Exhibit "D" (Labor and Supervision),	24,550.
TOTAL:	$ 101,350.

Sy Stages:

Stage "A" (First Month),	$ 10,000
Stage "B" (Second Month),	15,850.
(3rd to 12th month, inc.; 10 months at $7,550. per month),	75,500.
TOTAL:	$ 101,350.

RESUME OF COST ESTIMATES

By Exhibits:

Exhibit "B" (Fixtures and Improvements),	$ 5,500.
Exhibit "C" (Operating Equipment),	71,300.
Exhibit "D" (Labor and Supervision),	24,550.
TOTAL:	$ 101,350.

By Stages:

Stage "A" (First Month),	$ 10,000
Stage "B" (Second Month),	15,850.
(3rd to 12th month, inc.: 10 months at $7,550. per month),	75,500.
TOTAL:	$ 101,350.

It is understood that the item shown above as "Stage B (Second Month) $15,850.00" will be shown in detail to facilitate review and approval of this item by the Defense Minerals Administration ~~Field~~ Representative

RESUME OF COST ESTIMATES

By Exhibits:

Exhibit "B" (Fixtures and Improvements),	$ 5,500.
Exhibit "C" (Operating Equipment),	71,300.
Exhibit "D" (Labor and Supervision),	24,550.
TOTAL:	$ 101,350.

By Stages:

Stage "A" (First Month),	$ 10,000
Stage "B" (Second Month),	15,850.
(3rd to 12th month, inc.; 10 months @ $7,550. per month),	75,500.
TOTAL:	$ 101,350.

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LANDON F. STROBEL
Executive Secretary

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 1 9 1951
LANDON F. STROBEL
Executive Secretary

EXHIBIT "A"

This exploration project involves the development of sulphur ore deposits, known as the "Brutch Sulfur Deposits," located about $3\frac{1}{2}$ miles northwest of Thermopolis, Wyoming. These deposits lie in a limestone formation which forms part of a prominent anticline known locally as Cedar Dome. Present exposures of the sulphur-bearing rock, on both the north and south slopes of this anticline, indicate the probability that these sulphur deposits extend entirely through and across the anticline, and to the north and south thereof, and for a distance of over half a mile in the direction of the longitudinal axis of the anticline.

It is proposed to determine the probable size, shape and extent of these deposits, and estimate the probable total tonnage available for exploitation, and determine its sulphur content, such information to be used as the basis for the design of a suitable method of mining the sulphur-bearing material, and a plant and process for the extraction of the sulphur and the production of marketable by-products.

The exploration and development program involves the core-drilling of the deposit, in accordance with a pattern designed to supply the desired information, first by means of a series of pilot holes to indicate the general nature of the deposit as quickly as possible, and thereafter by additional and intermediate drill-holes where necessary to check and confirm the thickness and continuity of the deposits.

In addition to the core-drilling, it is proposed to supplement that part of the program by making a series of longitudinal cuts and trenches, more or less horizontally disposed along the hillside, with a bulldozer. This operation is designed not only to remove shallow overburden from the sulphur deposits where required to further indicate their nature and extent, but also to cut benches in the sulphur ore in preparation for mining operations.

These proposed operations are outlined in a map heretofore supplied in connection with the initial application relating to this project.

Further, it is planned to keep complete and adequate records of all exploratory operations, including drilling logs, sampling, analyses, maps, cross-sections to illustrate geological conditions, and such supplementary sketches as may be necessary for a clear and adequate monthly report to the Government office or official designated to receive it.

Further, it is planned to render a monthly financial statement, showing expenditures in whatever detail may be required.

It is believed that the execution of the proposed exploration and development program will indicate the availability of a substantial tonnage of sulphur ore, sufficient to constitute the basis for a commercial operation.

EXHIBIT "A"

This exploration project involves the development of sulphur ore deposits, known as the "Brutch Sulfur Deposits," located about 3½ miles northwest of Thermopolis, Wyoming. These deposits lie in a limestone formation which forms part of a prominent anticline known locally as Cedar Dome. Present exposures of the sulphur-bearing rock, on both the north and south slopes of this anticline, indicate the probability that these sulphur deposits extend entirely through and across the anticline, and to the north and south thereof, and for a distance of over half a mile in the direction of the longitudinal axis of the anticline.

It is proposed to determine the probable size, shape and extent of these deposits, and estimate the probable total tonnage available for exploitation, and determine its sulphur content, such information to be used as the basis for the design of a suitable method of mining the sulphur-bearing material, and a plant and process for the extraction of the sulphur and the production of marketable by-products.

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It is proposed to determine the probable size, shape and extent of these deposits, and estimate the probable total tonnage available for exploitation, and determine its sulphur content, such information to be used as the basis for the design of a suitable method of mining the sulphur-bearing material, and a plant and process for the extraction of the sulphur and the production of marketable by-products.

The exploration and development program involves the core-drilling of the deposit, in accordance with a pattern designed to supply the desired information, first by means of a series of pilot holes to indicate the general nature of the deposit as quickly as possible, and thereafter by additional and intermediate drill-holes where necessary to check and confirm the thickness and continuity of the deposits.

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Pa be typed on all copies when approved.

EXHIBIT B

It is understood that the Defense Minerals Administration Field Team, Region IV will review conditions as soon during Stage A as data are available and recommend which of the three above suggestions will be followed out, i.e., whether a building should be built, a building should be rented or a trailer should be purchased.

EXHIBIT "B"

FIXTURES AND IMPROVEMENTS

A detailed list of additional facilities, buildings and fixtures to be purchased, installed, or erected by the Operator, with the estimated cost of each.

1. Estimated cost of an office building at the mine (or other equivalent provision, such as an especially designed trailer which may be moved about for convenience) - - - - -	$ 3,000.
2. Estimated cost of an assay outfit - - - - - - - - -	2,500.
Total:	5,500.

Note: It is probable that the most convenient procedure with respect to the chemical analysis of samples, (after the first month, referred to as Stage A of the Program) will be to house the assay outfit in some low-rental building in Thermopolis, Wyoming, to which samples from the field may be delivered daily for reduction and analysis, inasmuch as Thermopolis is only 3½ miles distant from the property under exploration.

To be typed on all copies when approved.

EXHIBIT C

It is understood that when the data from Stage A is reviewed by the Defense Minerals Administration representative, the items listed above as "Trucking and Misc. $1,000.00", will be shown in detail to facilitate approval of this item in the final stages of the exploration work.

~~EXHIBIT "C"~~

OPERATING EQUIPMENT

A detailed list of operating equipment divided into categories of items to be rented, purchased, or furnished by the Operator.

STAGE A. (First Month)				
Rented: Core-drilling equipment,		$ 2,500.		
Bulldozer,		2,500.	$ 5,000.	
Purchased: Bits and core Barrels,		2,000.		
Trucking and Misc.		1,000.	3,000.	
Bub-total:				$ 8,000.
STAGE B. (Second Month)				
Rented: Core-drilling equipment,		2,500.		
Bulldozer,		1,500.	4,000.	
Purchased: Truck,	(a)	2,000.		
Surveying equipment,	(b)	800.		
Core boxes,		250.		
Bit & Core bbl. replacements,		250.		
Trucking and Misc.		1,000.	4,300.	
Sub-total:				8,300.
3rd to 12th month, inc. (10 months):				
Rented items, $4,000 per mo. for 10 mos.,			40,000.	
Purchased items, except (a) and (b), $1,500. per mo. for 10 mos.,			15,000.	
Sub-total:				55,000.
TOTAL:				$ 71,300.

EXHIBIT "D"

LABOR AND SUPERVISION

STAGE A.

Consulting engineering services, 20 days at $50.00 per day,	$ 1,000.
Travelling expense,	500.
Commercial Assayer (1st month only)	500.
Sub-total:	2,000.

STAGE B.

A continuation of State A, and is presented on an estimated monthly basis to continue for eleven additional months, or until the termination of the contract:

Assayer and Chemist,	$ 450.	
Assayer's Helper,	300. 2,200	
Office Clerk (to keep records and books of account),	300. 2,	
Supervision (Mining Engineer),	1,000.	
Sub-total:	2,050.	
Elevel months at $2,050 per month,		22,550.
TOTAL:		$ 24,550.

Should be typed on all copies when approved

EXHIBIT D

It is understood that the item shown above as "Stage B (Second Month) $15,850.00" will be shown in detail to facilitate review and approval of this item by the Defense Minerals Administration representative.

RESUME OF COST ESTIMATES

By Exhibits:

Exhibit "B" (Fixtures and Improvements),	$ 5,500.
Exhibit "C" (Operating Equipment),	71,300.
Exhibit "D" (Labor and Supervision),	24,550.
TOTAL:	$ 101,350.

Sy Stages:

Stage "A" (First Month),	$ 10,000
Stage "B" (Second Month),	15,850.
(3rd to 12th month, inc.; 10 months at $7,550. per month),	75,500.
TOTAL:	$ 101,350.

Spec 1318X

R. I. 3964

OCTOBER 1946

UNITED STATES
DEPARTMENT OF THE INTERIOR
J. A. KRUG, SECRETARY

BUREAU OF MINES
R. R. SAYERS, DIRECTOR

REPORT OF INVESTIGATIONS

EXPLORATION OF THE BRUTCH SULFUR DEPOSITS

HOT SPRINGS COUNTY, WYO.

BY

FOREST H. MAJORS

R. I. 3964,
October 1946.

REPORT OF INVESTIGATIONS

UNITED STATES DEPARTMENT OF THE INTERIOR - BUREAU OF MINES

EXPLORATION OF THE BRUTCH SULFUR DEPOSITS HOT SPRINGS COUNTY, WYO.[1]

By Forest H. Majors[2]

INTRODUCTION

The Brutch sulfur deposits were explored by the Bureau of Mines during the spring and summer of 1944. Old workings were rehabilitated and sampled, test pits and shafts were sunk, and trenches were cut through the surface alluvium.

ACKNOWLEDGMENTS

In its program of exploration of mineral deposits, the Bureau of Mines has as its primary objective the more effective utilization of our mineral resources to the end that they make the greatest possible contribution to national security and economy. It is the policy of the Bureau to publish the facts developed by each exploratory project as soon as practicable after its conclusion. The Mining Branch, Lowell B. Moon, chief, conducts preliminary examinations, performs the actual exploratory work, and prepares the final report. The Metallurgical Branch, R. G. Knickerbocker, chief, analyzes samples and performs beneficiation tests. Both these branches are under the supervision of Dr. R. S. Dean, assistant director.

Special acknowledgment is due S. R. Zimmerley, regional engineer, and Paul T. Allsman, principal engineer, Bureau of Mines, Salt Lake City, for their supervisory aid, and to the metallurgical staff, Salt Lake City, for beneficiation of samples.

LOCATION AND ACCESSIBILITY

The Brutch property is 3-1/2 miles northwest of Thermopolis, Hot Springs County, Wyo. (figs. 1 and 2). It may be reached from Thermopolis over State highway 120, which continues northwest through Cody, Wyo. U. S. highway 20 also passes through Thermopolis.

The Chicago, Burlington & Quincy Railroad passes through Thermopolis, and connects with the Chicago & Northwestern line at Shoshoni, Wyo.

1/ The Bureau of Mines will welcome reprinting of this paper provided the following footnote acknowledgment is used: "Reprinted from Bureau of Mines Report of Investigations 3964."

2/ Mining engineer, Salt Lake City Division, Mining Branch, Bureau of Mines.

PHYSICAL FEATURES AND CLIMATE

The topography of the area is characteristic of central Wyoming - moderate relief and treeless, rolling hills. Altitudes range from 4,600 feet in Owl Creek Valley to over 5,000 feet at the crest of the asymmetrical anticline, which contains the sulfur deposits. Owl Creek, which flows along the northeast side of the anticline and empties into the Big Horn River at Thermopolis, is a perennial stream fluctuating in volume with the seasons.

The climate in the Thermopolis area is typical of central Wyoming. Summers usually are hot and dry, with considerable wind. Winters are severe, with high winds and many ground blizzards.

HISTORY AND PRODUCTION

Mining claims were located as early as 1908 in the Owl Creek side of the anticline, and a plant for the extraction of sulfur was constructed. A thermal process was employed, but, as shown by tailing piles, which assay as much as 10 percent sulfur, poor recovery was made. The process consisted essentially of enclosing cars of hand-mined and sorted raw ore in a cylindrical steel retort and injecting steam to melt the sulfur. As late as 1922 or 1923, a similar plant was operated on the opposite limb of the anticline. As shown by tailings and pit workings in this area, the operation did not continue long and was terminated by an underground fire in 1923. The mill heads are reported to have been hand-sorted to a 30-percent sulfur content. The portals of the main workings were closed, and superficial investigation indicates that the workings are caved. Toxic gases emanate from the portals as hydrogen sulfide, carbon dioxide, and sulfur dioxide.

Production records are not obtainable. However, judging by the size of the tailing dumps and the mine dumps, production was not large.

PROPERTY AND OWNERSHIP

The Brutch sulfur property comprises 550 acres: SE1/4 sec. 20; N1/2 sec. 28; NW1/4 NE1/4 SW1/4, S1/2 NE1/4 SW1/4, SE1/4 SW1/4, and W1/2 SW1/4 sec. 21; and the SE1/4 NW1/4, S1/2 NE1/4, and NE1/4 SE1/4 sec. 28, T. 43 N., R. 95 W., sixth principal meridian. Eighty acres are held by deed and the remainder by placer location. Lin I. Noble, Thermopolis, Wyo., is attorney in fact for the owners.

DESCRIPTION OF THE DEPOSITS

The sulfur deposits of the Brutch are occur along both limbs of a northwest-trending asymmetrical anticline for approximately half a mile on the northeast limb and 1-1/2 miles on the southwest limb (figs. 2 and 4).

Sulfur pods and lenses ranging from a few inches to more than 100 feet in horizontal diameter, enclosed in travertine, mantel rock, or limestone, represent the better-grade deposits in the area. Other types of deposits are

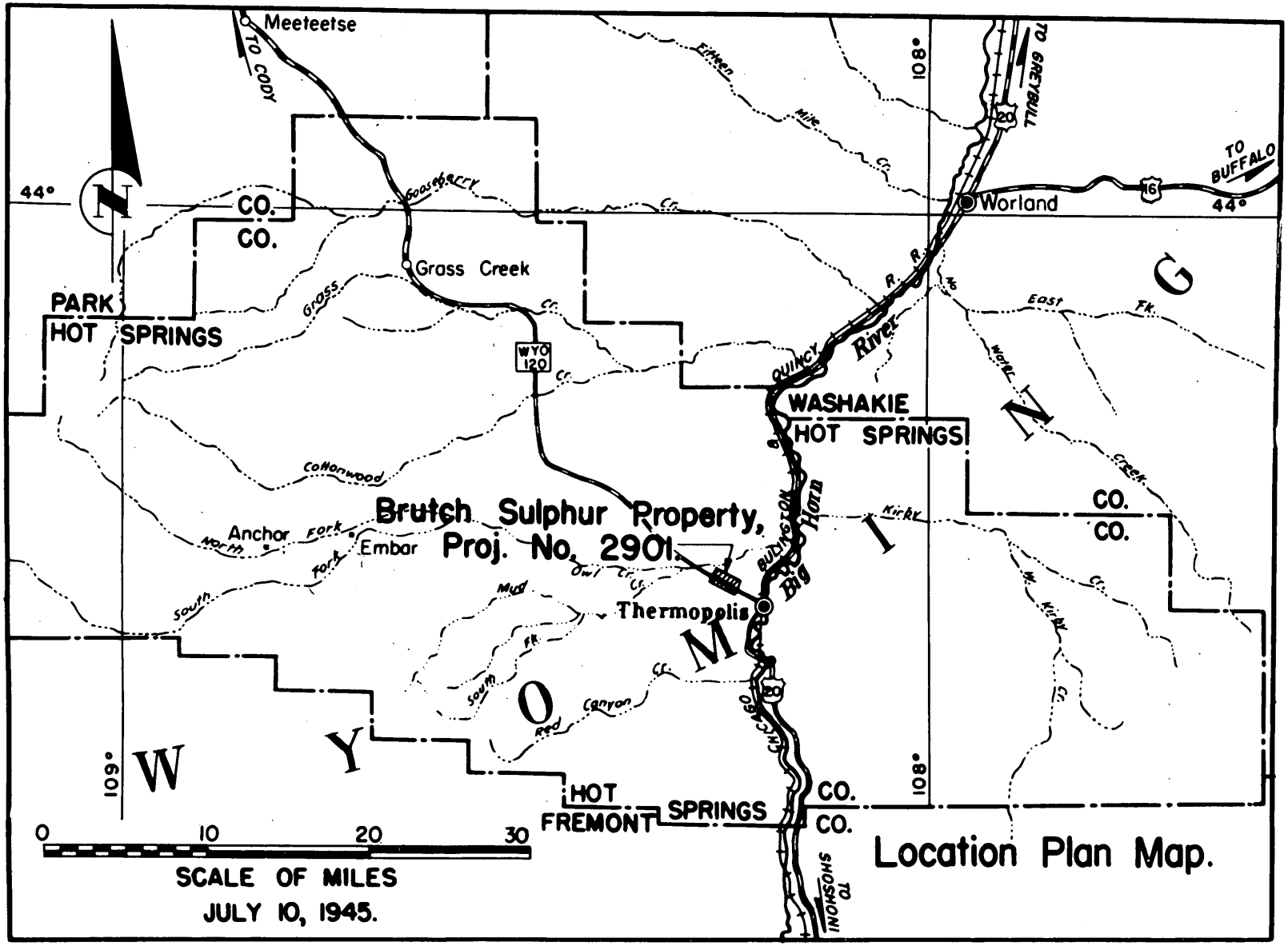


Figure 1. - Location Map, Brutch Sulphur, Thermopolis, Hot Springs Co., Wyoming.

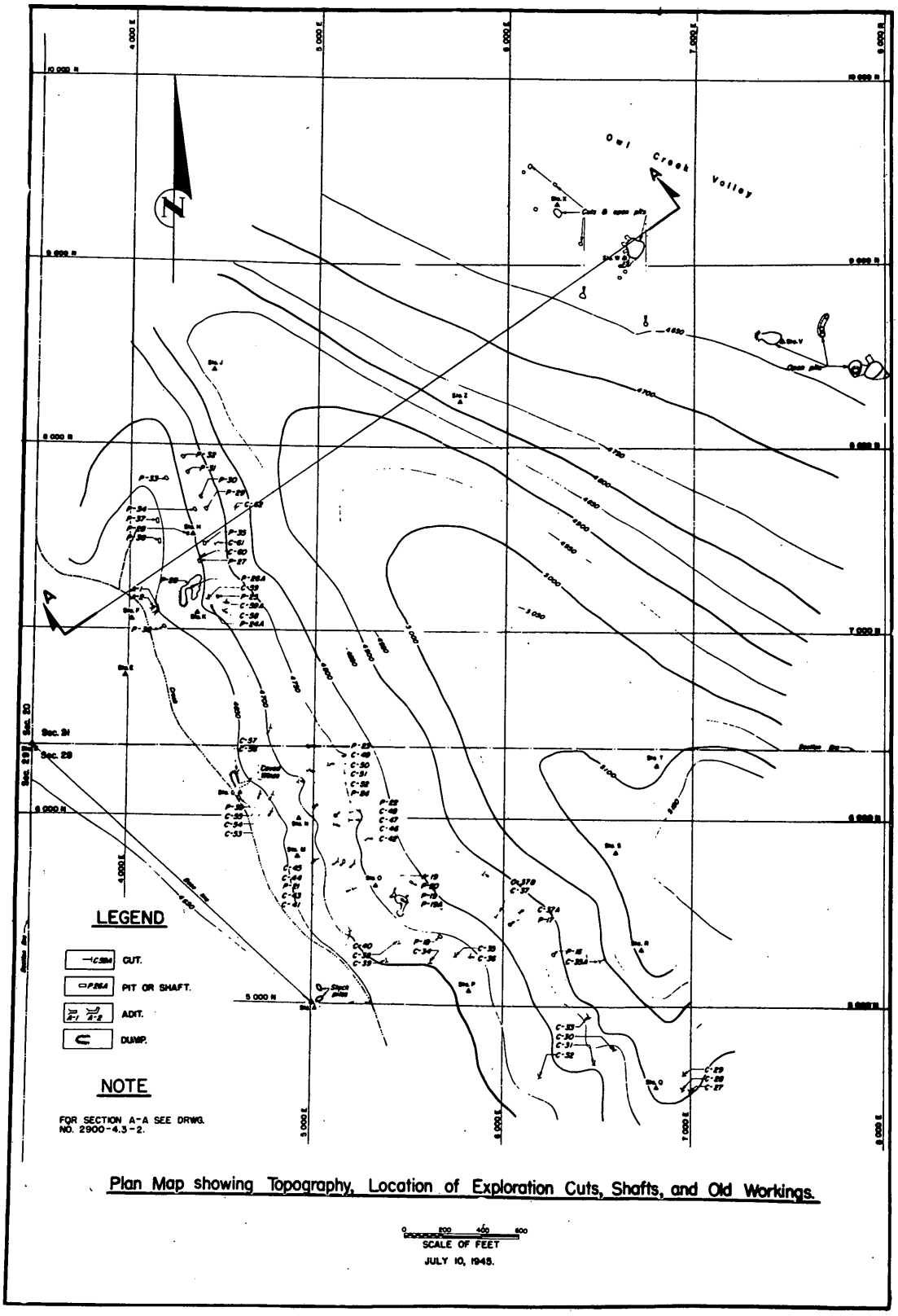
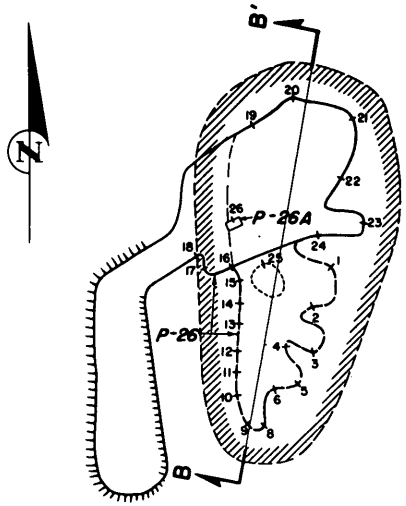
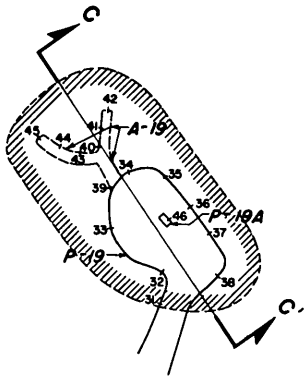


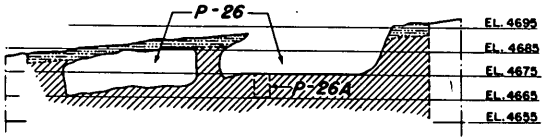
Figure 2. - Plan of Brutch Sulphur Property, near Thermopolis, Hot Springs Co., Wyoming.



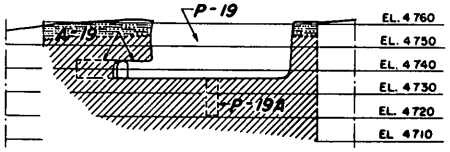
Plan of Pits showing Location of Assays



Plan of Pits & Adit showing Location of Assays



Section B - B'



Section C - C'

LEGEND

ALLUVIUM.

0 30 60 90
SCALE OF FEET

JULY 10, 1945.

ASSAYS OF PITS 26, & 26A					
NO.	WIDTH SAMP.	%S	NO.	WIDTH SAMP.	%S
1	11.0	23.1	17	6.0	28.6
2	12.6	30.9	18	4.0	27.1
3	7.0	32.5	19	8.5	27.7
4	14.8	33.2	20	17.0	10.3
5	5.0	42.6	21	19.0	23.2
6	13.0	36.6	22	18.0	24.2
8	13.6	24.8	23	8.7	34.3
9	13.0	24.1	24	17.0	43.0
10	10.0	27.4	25	10.0	46.7
11	10.0	30.0	26	8.0	27.6
12	8.0	14.7			
13	7.5	21.0			
14	7.0	18.1			
15	5.0	22.3			
16	10.0	32.3	Weighted Av.:		28.2%

ASSAYS OF PITS 19, 19A, & A19					
NO.	WIDTH SAMP.	%S	NO.	WIDTH SAMP.	%S
31	5.0	0.9	41	6.0	24.0
32	6.0	29.0	42	6.0	9.9
33	17.1	22.2	43	5.0	1.4
34	11.5	17.3	44	6.0	24.0
35	15.8	2.3	45	6.0	14.4
36	15.0	13.8	46	6.0	16.1
37	17.5	26.7			
38	7.5	35.1			
39	13.2	30.5			
40	5.5	31.5	Weighted Av.:	19.1	%S

Figure 3. - Plans, Sections, Assays, & Inferred Ore, Brutch Sulphur Property, near Thermopolis, Hot Springs Co., Wyoming.

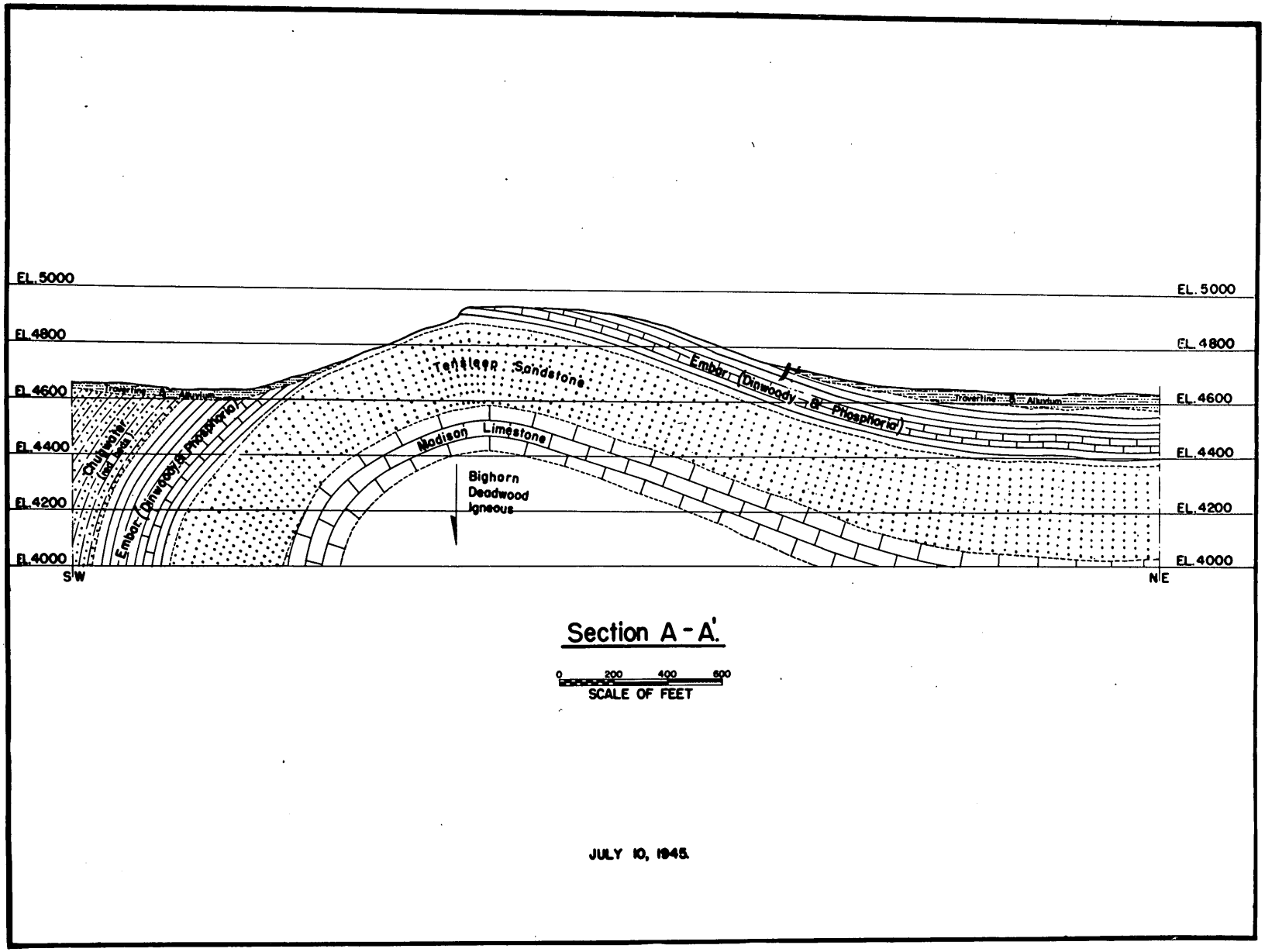
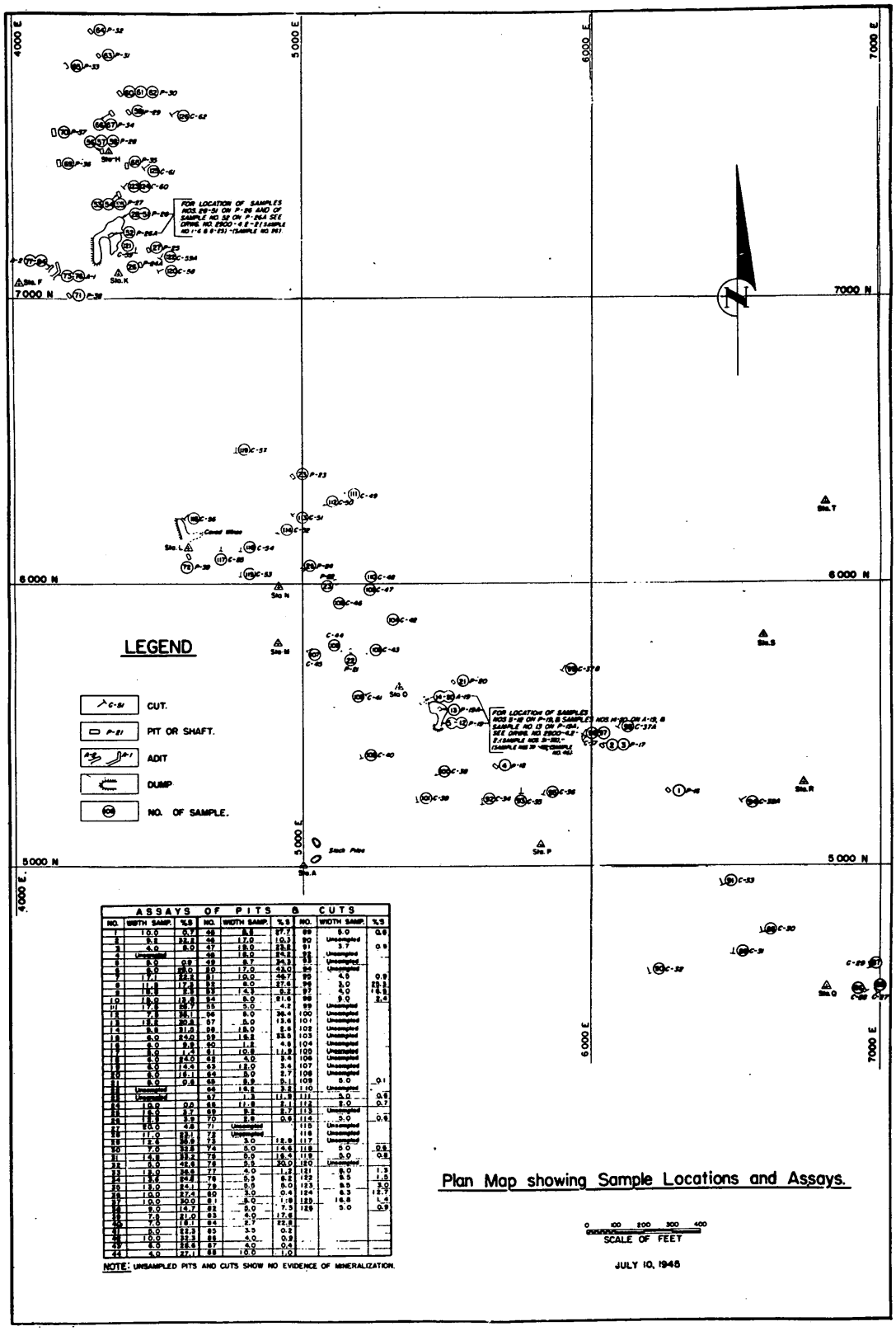


Figure 4. - Section A-A, Brutch Sulphur Property, near Thermopolis, Hot Springs Co., Wyoming.



ASSAYS OF PITS & CUTS								
NO.	WIDTH SAMP.	%S	NO.	WIDTH SAMP.	%S	NO.	WIDTH SAMP.	%S
1	10.0	0.7	46	8.8	27.7	89	5.0	0.6
2	9.2	32.2	46	17.0	10.3	90	Unsampled	
3	4.0	8.0	47	18.0	22.2	91	3.7	0.9
4	Unsampled		48	18.0	24.2	92	Unsampled	
5	8.0	0.9	49	8.7	34.3	93	Unsampled	
6	9.0	60.0	50	17.0	43.0	94	Unsampled	
7	17.1	22.2	51	10.0	46.7	95	4.0	0.9
8	11.8	17.8	52	8.0	27.6	96	3.0	22.3
9	16.8	2.3	53	14.1	5.2	97	4.0	16.8
10	18.0	12.8	54	5.0	21.6	98	9.0	3.4
11	17.5	55.7	55	5.0	4.2	99	Unsampled	
12	7.1	36.1	56	8.0	36.4	100	Unsampled	
13	16.2	30.2	57	5.0	13.6	101	Unsampled	
14	8.8	31.0	58	18.0	2.6	102	Unsampled	
15	8.0	24.0	59	18.2	23.0	103	Unsampled	
16	8.0	8.8	60	1.2	4.8	104	Unsampled	
17	8.0	1.0	61	10.0	11.2	105	Unsampled	
18	4.0	24.0	62	4.0	3.4	106	Unsampled	
19	6.0	14.4	63	12.0	3.4	107	Unsampled	
20	6.0	18.1	64	5.0	2.7	108	Unsampled	
21	6.0	9.8	65	8.9	5.1	109	5.0	0.1
22	Unsampled		66	14.2	3.2	110	Unsampled	
23	Unsampled		67	1.3	11.9	111	5.0	0.6
24	10.0	0.0	68	11.8	2.1	112	2.0	0.7
25	10.0	8.7	69	8.2	2.7	113	Unsampled	
26	12.8	5.9	70	2.0	0.9	114	5.0	0.6
27	20.0	4.8	71	Unsampled		115	Unsampled	
28	11.0	22.1	72	Unsampled		116	Unsampled	
29	12.4	38.8	73	5.0	12.9	117	Unsampled	
30	7.0	32.8	74	5.0	14.6	118	5.0	0.6
31	13.8	33.2	75	5.0	18.4	119	5.0	0.8
32	5.0	42.6	76	5.0	20.0	120	Unsampled	
33	18.0	34.0	77	4.0	1.2	121	6.0	1.3
34	13.8	24.8	78	5.0	6.1	122	5.5	1.0
35	13.0	25.1	79	5.0	5.0	123	6.5	3.0
36	10.0	27.5	80	3.0	0.4	124	6.3	12.7
37	10.0	30.9	81	5.0	1.0	125	16.8	1.4
38	5.0	14.7	82	5.0	7.3	126	5.0	0.9
39	7.8	21.0	83	4.0	17.6			
40	7.0	18.1	84	2.7	22.8			
41	5.0	22.3	85	3.5	0.2			
42	10.0	32.3	86	4.0	0.8			
43	4.0	26.4	87	4.0	0.4			
44	4.0	27.1	88	10.0	1.0			

NOTE: UNSAMPLED PITS AND CUTS SHOW NO EVIDENCE OF MINERALIZATION.

Figure 5. - Assay Map of Brutch Sulphur Property, near Thermopolis, Hot Springs Co., Wyoming.

incrustations along solution channels and dissemination of sulfur in limestone. Gypsum is associated with the deposits, probably as an alteration product.

Excavations in the sulfur areas have exposed sulfur to a depth of slightly more than 100 feet. These openings further demonstrate the erratic occurrence of the deposits, in which sulfur is abundantly exposed in one place and is entirely absent.

Abundant evidence of extinct hot springs in the area and the occurrence of hot water in one working indicate that hot water may have been an agent in the formation of the deposits.

THE ORE

Two forms of elemental sulfur are found on the property - the yellow crystalline variety and a massive brown to almost black sulfur that apparently is a replacement of limestone. Sulfur is associated with soluble salts of sodium, calcium, magnesium, and aluminum. Gypsum is also a common constituent in the travertine incrustations of the hot springs. Gangue rock consists of altered shale and limestone.

A chemical analysis of a sample from pit 19 follows:

Total S	Elemental S	Insol.	SiO_2	Fe	CaO	H_2O so Al_2O_3	H_2O sol. Al_2O_3
32.0	27.8	47.2	41.6	0.75	6.3	4.9	1.0

Sampling and Analyses

Samples were cut in all accessible old and new workings giving evidence of sulfur. 219 samples were cut and assayed. Weighted analyses of groups of samples were made for convenience in listing the samples. These combinations are shown later in this paper. The resultant weighted sulfur averages and sample widths are shown in the following table. Sample locations are shown on figure 5.

Sample	Width sampled, ft.	Percent sulfur	Sample	Width sampled, ft.	Percent sulfur
1	10.0	0.7	12	7.5	35.1
2	9.2	32.2	13	13.2	30.5
3	4.0	8.0	14	5.5	31.5
4	Unsampled		15	6.0	24.0
5	5.0	.9	16	6.0	9.9
6	6.0	29.0	17	5.0	1.4
7	17.1	22.2	18	6.0	24.0
8	11.5	17.3	19	6.0	14.4
9	15.8	2.3	20	6.0	16.1
10	15.0	13.8	21	5.0	.6
11	17.5	26.7	22	Unsampled	

Sample	Width sampled, ft.	Percent sulfur	Sample	Width sampled, ft.	Percent sulfur
23	Unsampled		71	Unsampled	
24	10.0	.5	72	Unsampled	
25	16.0	3.7	73	3.0	12.9
26	12.9	3.9	74	5.0	14.6
27	20.0	4.8	75	5.5	16.4
28	11.0	23.1	76	5.5	30.0
29	12.6	35.9	77	4.0	1.2
30	7.0	32.5	78	5.5	8.2
31	14.8	33.2	79	5.5	5.0
32	5.0	42.6	80	3.0	.4
33	13.0	36.6	81	5.0	1.8
34	13.6	24.8	82	5.0	7.3
35	13.0	24.1	83	4.0	17.6
36	10.0	27.4	84	2.7	22.8
37	10.0	30.0	85	3.5	.2
38	9.0	14.7	86	4.0	.9
39	7.5	21.0	87	4.0	.4
40	7.0	18.1	88	10.0	1.0
41	5.0	22.3	89	5.0	.8
42	10.0	32.3	90	Unsampled	
43	6.0	28.6	91	3.7	.9
44	4.0	27.1	92	Unsampled	
45	8.5	27.7	93	Unsampled	
46	17.0	10.3	94	Unsampled	
47	19.0	23.2	95	4.5	0.9
48	18.0	24.2	96	3.0	25.3
49	8.7	34.3	97	4.0	16.5
50	17.0	43.0	98	5.0	2.4
51	10.0	46.7	99	Unsampled	
52	8.0	27.6	100	Unsampled	
53	14.3	5.2	101	Unsampled	
54	5.0	21.6	102	Unsampled	
55	5.0	4.2	103	Unsampled	
56	5.0	36.4	104	Unsampled	
57	5.0	13.6	105	Unsampled	
58	15.0	2.6	106	Unsampled	
59	16.2	33.5	107	Unsampled	
60	1.2	4.6	108	Unsampled	
61	10.8	11.9	109	5.0	.1
62	4.0	3.4	110	Unsampled	
63	12.0	3.4	111	5.0	.6
64	5.0	2.7	112	2.0	.7
65	8.9	5.1	113	Unsampled	
66	16.2	3.2	114	5.0	.6
67	1.3	11.9	115	Unsampled	
68	11.8	2.1	116	Unsampled	
69	9.2	2.7	117	Unsampled	
70	2.8	.6	118	5.0	.6

Sample	Width sampled, ft.	Percent sulfur	Sample	Width sampled, ft.	Percent sulfur
119.....	5.0	.8	123.....	9.5	3.0
120.....	Unsampled		124.....	6.3	12.7
121.....	8.0	1.3	125.....	16.8	1.4
122.....	9.5	1.5	126.....	5.0	.9

MINE WORKINGS

The workings on the property consist of numerous open cuts, pits, shafts, and room-and-pillar stopes on both limbs of the anticline. Sulfur has been mined from pits slightly over 100 feet deep on the Owl Creek side of the anticline. These pits are now inaccessible.

WORK BY THE BUREAU OF MINES

The Bureau of Mines exploratory work on the Brutch sulfur property consisted of rehabilitation and sampling of old workings, sinking test pits or shafts, and trenching through surface alluvium. Accessible workings on both sides of the anticline were mapped, but sampling and exploratory work were confined to the southwest limb of the anticline. All new and old workings showing sulfur were sampled. A total of 523 vertical feet of test pits or shafts was sunk. These shafts range in depth from 5 to 33 feet. A total of 442 linear feet of trenching was completed, and 219 samples were cut and assayed. A total of 32 existing excavations was cleaned and sampled where there was evidence of sulfur.

All workings on both limbs of the anticline were surveyed by transit and mapped. Because of limited funds, exploration by the Bureau of Mines was confined to the more promising areas on the southwest limb of the anticline on property controlled by Lin I. Noble.

METALLURGICAL TESTS

A sample of sulfur ore from the Brutch property was submitted to the metallurgical laboratories for test. The sample assayed 27.8 percent elemental sulfur. By employing stage grinding and flotation, 50.5 percent of the sulfur was recovered from the ore at a grade of 88.0 percent sulfur. A total of 76.2 percent of the sulfur was recovered at a grade of 70.6 percent. The addition of scavenger concentrate floated from the rougher tailings increased the recovery to 83.4 percent at a grade of 66.7 percent sulfur. A grade of 56.3 percent sulfur was made with a recovery of 88.0 percent.

Standard fire-refining processes may be used to improve the grade of the flotation concentrate.

Following is a detailed account of the metallurgical tests:

A sample of sulfur ore from the Brutch property was submitted to the Bureau of Mines metallurgical laboratories for test. The sample assayed as follows:

Percent							
Tot. S	Ele. S	Insol.	SiO_2	Fe	CaO	Al_2O_3	H_2O soluble Al_2O_3
32.0	27.8	47.2	41.6	0.75	6.3	4.9	1.0

By stage grinding and stage flotation, 50.5 percent of the elemental sulfur was recovered at a grade of 88.0 percent, or 76.2 percent elemental sulfur was recovered at a grade of 70.6 percent. The addition of a scavenger concentrate floated from the rougher tailing increased the elemental-sulfur recovery to 83.4 percent at a 66.7 percent grade. With a drop in grade to 56.3 percent elemental sulfur, recovery may be increased to 88.0 percent. If a high-grade or pure sulfur product is desired, the flotation concentrates can be refined by customary pyrometallurgical methods.

As an alternative to flotation concentration, which necessitates some form of refining for the concentrates if pure sulfur is desired, it is suggested that direct liquation of the ore be considered.

Treatment. - Stage grinding and flotation. The sample was ground and floated. The rougher concentrate was stage-ground and cleaned. Rougher tailings were reground and scavenged.

Metallurgical data

Product	Wt.	Per-cent wt.	Elemental sulfur Per-cent	Elemental sulfur Cum. per-cent	Elemental sulfur Dist.	Elemental sulfur Cum. dist.	Total sulfur Per-cent	Total sulfur Cum. per-cent	Total sulfur Dist.	Total sulfur Cum. dist.
Cleaner conc. 1.....	155.0	17.4	88.0	88.0	50.5	50.5	88.0	88.0	47.0	47.0
Cleaner conc. 2.....	136.0	15.3	51.0	70.6	25.7	76.2	51.4	70.9	23.7	70.7
Scavenger conc. 1...	46.3	5.2	42.0	66.7	7.2	83.4	42.0	66.9	6.7	77.4
Scavenger conc. 2...	84.0	9.5	14.8	56.3	4.6	88.0	17.3	57.0	5.0	82.4
Cleaner tailing.....	164.0	18.4	12.5	44.1	7.6	95.6	13.9	68.2	7.8	90.2
Scavenger tailing...	303.7	34.2	3.9	30.3	4.4	100.0	9.4	32.8	9.8	100.0
Calculated head.....	889.0	100.0	30.3	-	100.0	-	32.8	-	100.0	-
Corrected for wt. lost in H_2O soluble salts (also SO_4)...	977.0	-	27.6	-	-	-	31.9	-	-	-

Remarks. - With fine grinding, most of elemental sulfur is free, but gangue is floated because of surface coatings of sulfur that cling tenaciously to silica. As is customary with flotation concentrates, grade probably can be increased further by pyrometallurgical methods.

Assay lab. No.	Location	Channel No.	Width of sample, feet	Sulfur, percent	Total width of channel, feet	Sulfur, percent wt. av.	Assay map No.	Remarks
1351	P-26	1	2.0	18.7				Pit 26 is a combination room and pillar stope and open pit. See fig. 5 for location of samples.
1352	P-26	1	4.0	34.6				
1353	P-26	1	5.0	15.7	11.0	23.1	28	
1354	P-26	2	5.0	36.3				
1355	P-26	2	4.0	39.9				
1356	P-26	2	3.6	30.9	12.6	35.9	29	
1357	P-26	3	3.0	32.7				
1358	P-26	3	4.0	32.3	7.0	32.5	30	
1359	P-26	4	1.5	16.2				
1360	P-26	4	3.3	24.6				
1361	P-26	4	5.0	40.4				
1362	P-26	4	5.0	36.9	14.8	33.2	31	
1363	P-26	5	5.0	42.6	5.0	42.6	32	
1364	P-26	6	4.0	27.5				
1365	P-26	6	4.0	28.8				
1366	P-26	6	5.0	50.0	13.0	36.6	33	
1367	P-26	8	4.0	24.9				
1368	P-26	8	3.6	24.6				
1369	P-26	8	3.0	17.5				
Re-sample 4712								
1370	P-26	8	3.0	32.1	13.6	24.8	34	
1371	P-26	9	4.0	10.7				
1372	P-26	9	4.0	33.0				
1373	P-26	9	5.0	27.7	13.0	24.1	35	
1374	P-26	10	5.0	33.1				
1375	P-26	10	5.0	21.8	10.0	27.4	36	
1376	P-26	11	5.0	25.2				
1377	P-26	11	5.0	34.9	10.0	30.0	37	
1378	P-26	12	4.0	10.6				
1379	P-26	12	2.0	27.1				
1380	P-26	12	3.0	12.0	9.0	14.7	38	
1381	P-26	13	1.5	38.8				
1382	P-26	13	3.0	16.9				
1383	P-26	13	3.0	16.1	7.5	21.0	39	
1384	P-26	14	3.0	14.6				
1385	P-26	14	4.0	20.8	7.0	18.1	40	
1386	P-26	15	5.0	22.3	5.0	22.3	41	
1387	P-26	16	5.0	24.4				
1388	P-26	16	5.0	40.2	10.0	32.3	42	
1389	P-26	17	4.0	27.3				
1390	P-26	17	2.0	31.2	6.0	28.6	43	
1391	P-26	18	4.0	27.1	4.0	27.1	44	
1392	P-26	19	3.0	40.8				
1393	P-26	19	3.0	16.0				

Assay lab. No.	Location	Channel No.	Width of sample, feet	Sulfur, percent	Total width of channel, feet	Sulfur, percent wt. av.	Assay map No.	Remarks
1394	P-26	19	2.5	26.1	8.5	27.7	45	
1395	P-26	20	4.5	6.8				
1396	P-26	20	4.5	2.6				
1397	P-26	20	3.5	18.3				
1398	P-26	20	5.0	15.5	17.0	10.3	46	
1399	P-26	21	4.0	37.1				
1400	P-26	21	5.0	34.5				
1401	P-26	21	5.0	15.3				
1402	P-26	21	5.0	8.7	19.0	23.2	47	
1403	P-26	22	2.0	34.5				
1404	P-26	22	5.0	29.3				
1405	P-26	22	3.0	28.3				
1406	P-26	22	4.0	22.6				
1407	P-26	22	4.0	11.1	18.0	24.2	48	
1408	P-26	23	5.0	27.7				
1409	P-26	23	3.7	43.2	8.7	34.3	49	
1410	P-26	24	5.0	49.0				
1411	P-26	24	3.0	49.8				
1412	P-26	24	4.0	41.8				
1413	P-26	24	5.0	34.0	17.0	43.0	50	
1414	P-26	25	5.0	50.8				
1415	P-26	25	5.0	42.7	10.0	46.7	51	
1467	P-19	1	5.0	.9	5.0	.9	5	Pit 19 is an open pit with adit, shown in figs. 3 and 5.
Re-sampled 4719								
1468	P-19	2	3.0	33.9				
1469	P-19	2	3.0	24.1	6.0	29.0	6	
1470	P-19	3	3.6	0.4				
1471	P-19	3	6.0	26.5				
1472	P-19	3	3.5	35.3				
1473	P-19	3	4.0	23.9	17.1	22.2	7	
1474	P-19	4	5.5	4.4				
1475	P-19	4	6.0	29.2	11.5	17.3	8	
1476	P-19	5	4.8	2.8				
1477	P-19	5	5.0	3.3				
1478	P-19	5	6.0	1.2	15.8	2.3	9	
1479	P-19	6	5.0	4.7				
1480	P-19	6	5.0	4.6				
1481	P-19	6	5.0	32.1	15.0	13.8	10	
1482	P-19	7	5.0	4.8				
1483	P-19	7	5.0	32.7				
1484	P-19	7	4.0	37.2				

Assay lab. No.	Location	Channel No.	Width of sample, feet	Sulfur, percent	Total width of channel, feet	Sulfur, percent wt. av.	Assay map No.	Remarks
1485	P-19	7	3.5	37.5	17.5	26.7	11	
1486	P-19	8	4.0	27.9				
1487	P-19	8	3.5	43.4	7.5	35.1	12	
				-				
4731	P-16	1	5.0	.5				Shaft 3 by 14 by 17 feet; 7 feet of alluvium.
4732	P-16	1	5.0	.9	10.0	.7	1	Sampled top to bottom.
				-				
1324	P-17	1	5.0	24.3				
1325	P-17	1	4.2	41.7	9.2	32.2	2	
1326	P-17	2	4.0	8.0	4.0	8.0	3	
				-				
	P-18						4	Shaft 3 by 7.5 by 8 feet. Barren shale, unsampled.
				-				
1488	P-19A	1	5.0	31.3				Shaft 4 by 6 by 15.3 feet in floor of pit 19.
1489	P-19A	1	5.0	32.2				Shown on fig. 3.
1490	P-19A	1	3.2	26.5	13.2	30.5	13	
				-				
1491	A-19	1	5.5	31.5	5.5	31.5	14	Adit driven from pit119. Shown on fig. 3.
492	A-19	2	6.0	24.0	6.0	24.0	15	
1493	A-19	3	6.0	9.9	6.0	9.9	16	
1494	A-19	4	5.0	1.4	5.0	1.4	17	
1495	A-19	5	6.0	24.0	6.0	24.0	18	
1496	A-19	6	6.0	14.4	6.0	14.4	19	
1497	A-19	7	6.0	16.1	6.0	16.1	20	
1498	A-19			38.3				Grab sample from stockpile pit 19.
1499	A-19			35.2				Grab sample from stockpile pit 19.
1329	P-20	1	5.0	0.6	5.0	0.6	21	Shaft 5 by 6 by 13 feet Sample from bottom 5 feet of shaft.
				-				
	P-21						22	Shaft 4.5 by 4 by 8.6 feet. Unsampled.
				-				
	P-22						23	Shaft 4 by 5.5 by 5 feet. Unsampled.
				-				
4723	P-23	1	5.0	5.8				Shaft 6 by 6 by 27 feet. 17 feet of alluvium. Sampled from bottom 10 feet.

Assay lab. No.	Location	Channel No.	Width of sample, feet	Sulfur, percent	Total width of channel, feet	Sulfur, percent wt. av.	Assay map No.	Remarks
4724	P-23	1	5.0	.2	10.0	0.5	24	
				-				
1447	P-24	1	5.0	6.5				Shaft 8 by 11 by 25.4
1448	P-24	1	4.4	3.7				feet. 5 feet of allu-
1449	P-24	1	3.5	2.3				vium. Samples points 5
1450	P-24	1	3.1	.9	16.0	3.7	25	to 21 feet in shaft.
				-				
1451	P-24A	1	5.0	4.1				Shaft 6 by 7 by 14 feet.
1452	P-24A	1	3.4	5.9				1 foot of alluvium.
1453	P-24A	1	4.5	2.1	12.9	3.9	26	Sampled top to bottom
				-				of shaft.
1443	P-25	1	5.0	2.7				Shaft 7.5 by 10 by 21.5
1444	P-25	1	5.0	2.6				feet. 1.5 feet of allu-
1445	P-25	1	5.0	6.8				vium. Sampled top to
1446	P-25	1	5.0	7.1	20.0	4.8	27	bottom of shaft.
				-				
4713	P-26A	1	2.8	3.1				4 by 6 by 10.5 feet.
4714	P-26A	1	5.2	40.8	8.0	27.6	52	Shaft in floor of pit
								26, shown in fig. 3.
								Sampled top to bottom
								of shaft. 2.5 feet de-
								bris in bottom of pit
								26.
				-				
1416	P-27	1	5.0	1.9				Shaft 6 by 8 by 24.3
1417	P-27	1	5.0	9.3				feet. Sectional sam-
1418	P-27	1	4.3	4.4	14.3	5.2	53	ples from top to bottom
1419	P-27	2	5.0	21.6	5.0	21.6	54	of shaft.
1420	P-27	3	5.0	4.2	5.0	4.2	55	
				-				
1422	P-28	1	5.0	36.4	5.0	36.4	56	Shaft 5 by 8 by 28 feet.
1423	P-28	2	5.0	13.6	5.0	13.6	57	Sectional samples top
1424	P-28	3	5.0	6.1				to bottom, 3 feet allu-
4715	P-28	3	5.0	.5				vium was not sampled.
4716	P-28	3	5.0	1.3	15.0	2.6	58	
				-				-
1426	P-29	1	2.0	22.8				Shaft 8 by 10 by 22 feet.
1427	P-29	1	5.2	46.4				Sectional samples top
1428	P-29	1	4.0	22.2				to bottom of shaft.
1429	P-29	1	4.1	37.6				
1337	P-29	1	.9	14.8	16.2	33.5	59	
				-				
1430	P-30	1	1.2	4.6	1.2	4.6	60	Shaft 8 by 8 by 17.5
1431	P-30	2	2.9	19.3				feet. 1.5 feet of allu-
1432	P-30	2	6.0	9.6				vium. Sectional samples
1433	P-30	2	2.0	8.7	10.8	11.9	61	from top to bottom of
1339	P-30	3	4.0	3.4	4.0	3.4	62	shaft.

Assay lab. No.	Location	Channel No.	Width of sample, feet	Sulfur, percent	Total width of channel, feet	Sulfur, percent wt. av.	Assay map No.	Remarks
1434	P-31	1	2.0	2.3				Shaft 4 by 6 by 12 feet.
1340	P-31	1	5.0	3.2				Sectional samples top to
1346	P-31	1	5.0	4.1	12.0	3.4	63	bottom of shaft.
				-				
1435	P-32	1	5.0	2.7	5.0	2.7	64	Shaft 6 by 6 by 6 feet. Old work. 1 foot of alluvium.
				-				
1335	P-33	1	2.7	6.1				Shaft 4 by 6 by 25.5
1336	P-33	1	6.1	4.7	8.8	5.1	65	feet. Soil and boulders 15 feet. Sampled top to bottom.
				-				
1348	P-34	1	2.2	2.9				Shaft 4 by 6 by 34.3
1349	P-34	1	5.0	1.2				feet. 15 feet of soil
1350	P-34	1	3.5	4.5				and boulders. Sampled
4702	P-34	1	5.5	4.4	16.2	3.2	66	top to bottom.
4703	P-34	2	1.3	11.9	1.3	11.9	67	
				-				
1341	P-35	1	5.0	2.7				Shaft 4 by 6 by 31 feet.
1342	P-35	1	5.0	2.0				16 feet of surface soil
1343	P-35	1	1.8	.5	7.8	2.1	68	and boulders. Sectional samples from 16 to 27.8 feet.
				-				
1344	P-36	1	5.0	2.5				Shaft 4 by 6 by 28 feet.
1345	P-36	1	4.2	2.9	9.2	2.7	69	Samples from points 17 feet to bottom of shaft. 17 feet of alluvium.
				-				
4718	P-37	1	2.8	.6	2.8	.6	70	Shaft 4 by 6 by 11 feet. 8 feet of alluvium. Sampled at bottom of shaft.
	P-37						71	Unsampled.
	P-37						72	Unsampled.
				-				
1463	A-1	1	3.0	12.9	3.0	12.9	73	Above portal of adit.
1464	A-1	1	5.0	14.6	5.0	14.6	74	3 feet from portal west side.
1465	A-1	1	5.5	16.4	5.5	16.4	75	9 feet from portal west side.
1466	A-1	1	5.5	30.0	5.5	30.0	76	Face of adit. 16 feet from portal
				-				
1454	A-2	1	4.0	1.2	4.0	1.2	77	Above portal on surface.
1455	A-2	2	5.5	8.2	5.5	8.2	78	10 feet from portal west side.

Assay lab. No.	Location	Channel No.	Width of sample, feet	Sulfur, percent	Total width of channel, feet	Sulfur, percent wt. av.	Assay map No.	Remarks
1456	A-2	3	5.5	5.0	5.5	5.0	79	20 feet from portal west side.
1457	A-2	4	3.0	.4	3.0	.4	80	29 feet from portal east face.
1459	A-2	5	5.0	1.8	5.0	1.8	81	39 feet from portal, back of drift.
1460	A-2	6	5.0	7.3	5.0	7.3	82	49 feet from portal, back of drift.
1461	A-2	7	4.0	17.6	4.0	17.6	83	59 feet from portal west side of drift.
1462	A-2	8	2.7	22.8	2.7	22.6	84	Face of drift.
4738	C-27	1	3.5	.2	3.5	.2	85	Cut 4 by 8.5 by 6 feet. 2.5 feet of alluvium. Sample from face.
4737	C-28	1	4.0	.9	4.0	.9	86	Cut 4 by 10 by 5 feet. 10 feet of alluvium. Sample from face.
4736	C-29	1	4.0	.4	4.0	.4	87	Cut 4 by 20 by 5 feet. 1.0 feet of alluvium. Sample from face.
4739	C-39	1	5.0	1.2				Cut 4 by 14.5 by 16 feet. 6.0 feet of soil and boulders.
4740	C-30	1	5.0	.9	10.0	1.0	88	
4741	C-31	1	5.0	.8	5.0	.8	89	Cut 6 by 31 by 10 feet. 5 feet of soil and boulders.
	C-32						90	Trench 7 by 16 by 12 feet. Barren shale. Unsampled.
4733	C-33	1	3.7	0.9	3.7	0.9	91	Cut 4.5 by 35 by 16 feet. 9.3 feet of limestone boulders and shale.
	C-34						92	Trench 4 by 16 by 12 feet. Barren shale. Unsampled.

Assay lab. No.	Location	Channel No.	Width of sample, feet	Sulfur, percent	Total width of channel, feet	Sulfur, percent wt. av.	Assay map No.	Remarks
	C-35			-			93	Pit 3 by 7 by 5 feet. Barren shale. Unsampled.
	C-35A			-			94	Cut 4 by 10 by 8 feet. Barren shale. Unsampled.
4734	C-36	1	4.5	.9	4.5	.9	95	Cut 6 by 10 by 7 feet. 25 feet of alluvium. Bottom 4.5 feet of cut sampled.
1327	C-37	1	3.0	25.3	3.0	25.3	96	Cut 6 by 11 by 8 feet. Bottom 7 feet of cut sampled.
1328	C-37	2	4.0	16.5	4.0	16.5	97	
1330	C-37A	1	5.0	2.4	5.0	2.4	98	Cut 4 by 10 by 7 feet. 2 feet alluvium. Sample from face of cut.
	C-37B			-			99	Cut 3 by 7 by 10.8 feet. Soil and boulders. Unsampled.
	C-38			-			100	Cut 4 by 11 by 10 feet. Barren alluvium. Unsampled.
	C-39			-			101	Trench 4 by 14 by 7 feet. Barren alluvium and boulder.
	C-40			-			102	Cut 4.5 by 18 by 12 feet. Barren alluvium and boulder. Unsampled.
	C-41			-			103	Cut 4.5 by 19 by 9 feet. Barren alluvium and boulders. Unsampled.
	C-42			-			104	Cut 5 by 11 by 5.5 feet. Barren shale. Unsampled.
	C-43			-			105	Cut 5 by 6.5 by 5 feet. Barren shale. Unsampled.
	C-44			-			106	Cut 5.5 by 7.5 by 4 feet. Barren shale. Unsampled.

Assay lab. No.	Location	Channel No.	Width of sample, feet	Sulfur, percent	Total width of channel, feet	Sulfur, percent wt. av.	Assay map No.	Remarks
	C-45			-			107	Cut 6 by 12 by 13 feet. Barren shale. Unsampled.
	C-46			-			108	Cut 4 by 7.5 by 4.5 feet. Barren shale. Unsampled.
4730	C-47	1	5.0	0.1	5.0	0.1	109	Cut 5.5 by 11 by 7.5 feet. 2.5 feet alluvium. Bottom 5.0 feet of limestone, sampled.
	C-48			-			110	Cut 4 by 10 by 7.5 feet. Barren shale. Unsampled.
4729	C-49	1	5.0	.6	5.0	.6	111	Trench 3 by 7 by 25 feet. 2 feet of alluvium. Bottom 5 feet of trench sampled.
4727	C-50	1	2.0	.7	2.0	.7	112	Cut 4 by 15 by 15 feet. Soil and shale. Sample from bottom 7 feet.
	C-51			-			113	Cut 5 by 10 by 5.5 feet. Gypsum and altered shale. Unsampled.
4726	C-52	1	5.0	0.6	5.0	0.6	114	5 feet cut at bottom of shale scarp.
	C-53			-			115	Cut 4 by 14 by 12 feet. Altered, barren shale. Unsampled.
	C-54			-			116	Cut 5 by 14 by 9 feet. Altered, barren shale. Unsampled.
	C-55			-			117	Cut 6 by 15 by 12 feet. Barren shale. Unsampled.
4725	C-56	1	5.0	.6	5.0	.6	118	Cut 4.5 by 8 by 10 feet. 5 feet of alluvium. 5 feet of shale. Sampled from face of cut.

Assay lab. No.	Location	Channel No.	Width of sample, feet	Sulfur, percent	Total width of channel, feet	Sulfur, percent wt. av.	Assay map No.	Remarks
4722	C-57	1	5.0	.8	5.0	.8	119	Cut 4 by 13 by 11 feet. 6 6 feet alluvium. Bottom 5 feet of shale sampled.
	C-58	1		-			120	Cut 4 by 10 by 8 feet. Barren alluvium and boulders. Unsampled.
1439	C-59	1	3.0	- .9				Cut 4 by 24.5 by 11 feet. 4 feet of alluvium. Samples from face of cut.
1440	C-59	1	5.0	1.6	8.0	1.3	121	Old work.
1441	C-59A	1	5.0	- 1.1				Cut 4 by 8.2 by 21.7 feet. 4 feet of alluvium. Samples from face of cut to 8 feet from floor.
1442	C-59A	1	4.5	2.0	9.5	1.5	122	
4706	C-60	1	5.0	- 2.1				Shaft 4 by 6 by 11 feet
4707	C-60	1	4.5	4.1	9.5	3.0	123	sunk from 9-foot cut. 2
4708	C-60	2	4.6	13.2				foot bed of magnesium
4709	C-60	2	1.7	11.2	6.3	12.7	124	and alluminum.
1437	C-61	1	4.0	- .9				Shaft 4 by 6 by 11.4
1438	C-61	1	4.0	1.1				feet sunk from 10 foot
4704	C-61	1	6.5	1.4				cut. 2 feet of alluvium.
4705	C-61	1	2.3	2.5	16.8	1.4	125	Samples taken from 2 feet from top of cut to 1.6 feet from bottom of shaft. 1.6 feet of barren shale in bottom.
1347	C-62	1	5.0	- .9	5.0	0.9	126	Cut 4 by 12 by 6 feet. 1 foot of alluvium.

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

224 New Customhouse
Denver 2, Colorado

October 27, 1954

Memorandum

To: Secretary to the Operating Committee

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No DMEA 1318X (Sulphur), Contract Idm-E124, Kenneth L. Porter, Hot Springs County, Wyoming. Final Payment.

Enclosed are two copies of the Operator's Monthly Progress Report, Form MF-104 and MF-104A, Operator's Narrative Report, Inspecting Engineer's Narrative Report, and other supporting data pertaining to work under the subject contract for the period October 24, 1951 to April 21, 1954.

Also enclosed are two copies of a memorandum to Mr. T. A. Christensen dated October 13 1954, relative to final payment under the terms of the subject contract.

Final payment to the Operator in the amount of $764.88 has now been made in conformance with the Report of Review by the Contract Administration and Audit Division, dated September 15, 1954.

W H King
W. H. King

Enclosures

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
REGION IV

Administrative Audit Difference Statement

Date: _____
Payee's
Reference: _____

PRIM. PAYMENT

Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Upon examination of the above Payee's reference a difference was found which made it necessary to suspend your account accordingly:

Amount Claimed	$ 3151.99
Difference	$ 1622.25
Amount Approved	$ 1529.74

The reason for the difference was due to:

Exceptions taken by Contract Administration and Audit Division:

Proceeds from property disposition	220.00
Items not supported	
Engineer's salary and expense	8.32
Repairs to core bits	157.29
Transportation	102.90
Credits for Returned Items	
1 - Inner tube clamp	28.00
1 - Inner tube hoist plug	30.00
4 - Core catchers	70.00
Sales tax	2.56
Diamond core bit salvage	119.24
Engineering services in excess of the amount allowed by the contract	598.13
Additional salvage on diamond bits	135.81

Any reclaim for deductions made above must be supported by the ORIGINAL of this form.

Storage from 8/1/53 - 5/31/54 at $35.00 per month. In excess of 90 days from date of termination of contract which is consider a reasonable length of time for disposal of equipment	150.00
	1,622.25
Plus mill Adjustment	.01

Very sincerely yours,

N.E.Stokes
Audit Section

R-IV-B & F Form No. 4
4-15-52 D

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

224 New Customhouse
Denver 2, Colorado

October 13, 1954

Memorandum

To: T. A. Christensen

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 1318X (Sulphur), Contract Idm-E124, Kenneth L. Porter, Hot Springs County, Wyoming - Operator's Monthly Progress Report and Voucher for the period October 24, 1951 to April 21, 1954 - FINAL PAYMENT

Enclosed are the original and four copies of Forms MF-104 and 104A for the above period, which constitutes the operator's final accounting report under the terms of the contract.

Work has been accomplished as authorized in the contract and the operator has complied with all requirements relative to closing the account.

Final payment is recommended as follows, which is in conformance with the Report of Review by the Contract Administration and Audit Division dated September 15, 1954, which was released to this office October 13, 1954:

Basis for final payment

Total Accepted Cost.....	$9,778.17
Government Participation at 50%..	4,889.09
Total prior payments.....	4,124.21
Balance due the Operator....$	764.88

JWT:jp

W. H. King

Encls.

cc Subject
Chron
Sec. to Op. Comm. (2)
SRWilson
JWTownsend

224 New Customhouse
Denver 2, Colorado

August 26, 1954

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Re: Docket DMEA 1318X (Sulphur)
Contract Idm-E124

Dear Mr. Porter:

Consistent with the authority delegated to this office under Order No. 2684 from the Office of the Secretary, Department of the Interior, the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration does hereby approve your bid and proposal dated April 21, 1954, in the amount of $220.00, in the disposal of the equipment and unexpended portion of materials and supplies acquired under Contract Idm-E124.

The sum of $220.00, reflecting both yours and the Government's interest in the property liquidation, will be deducted from the gross amount of claims by you held pending in this office for reimbursement under the terms of the contract, thereby automatically making a deduction in the amount of $110.00 due the Government in the transaction.

Very truly yours,

W H King

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

JWT:jp
cc Subject
Chron
SRWilson
AHKoschmann
MF-104 (5)
Chairman, Oper. Comm.
JWTownsend

April 21, 1954

Mr. J. H. East, Jr.
U. S. Bureau of Mines
224 New Customs House Building
Denver 2, Colorado.

Re: DMA Docket 1518X
Contract Idm-2124

Dear Mr. East:

In answer to your letter of March 22, 1954 I am submitting my final tabulation on forms MF-104 and MF-104A so that the above contract can be terminated.

I am attaching copies of two bids which I received on the coring equipment we have in storage at Thermopolis and you will note the highest bid is for $215.00 and therefor I will bid it in myself for $220.00 if this is satisfactory to the Government.

We had some salvage value on the diamond bit we purchased from Drilling & Service of Dallas, Texas and I requested payment for which they sent me a check on February 2, 1954 in the amount of $155.51

The only costs we have under the contract since the last MF-104 which submitted October 24, 1951 have been as follows:

1. A moving charge of $500.00 which is covered in the drilling contract and which has already been approved by you.

2. An unpaid balance on engineering incurred in making up reports to substantiate the work we did.

3. Warehouse charges incurred for storage of drilling equipment, samples,etc., from the time the project was closed down in October 1951 up to date in the amount of $370.00

4. The total of the three above items is $1465.15

I trust you will find everything in order and that the Contract can now be terminated without any further delay.

Very truly yours,

Kenneth L. Porter

Kenneth L. Porter

KLP:p
Enclosures

Form MF-121 (Rev.)
(April 1952)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1036.4
Approval expires 6-30-53.

OPERATOR'S MONTHLY REPORT AND VOUCHER

October 24, 1951

Month of to date - April 29 1954 Docket No. DMEA 1818X Contract No. Idm - 5124

Operator's Name Kenneth L. Porter Minerals Sulphur

Address 420 Lexington Avenue, New York 17, N. Y.

Contract Amount, $ 99,150.00 Government Participation: 50 % Amount, $ 11,400.42

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Contracts: [redacted]						
Drilling	500.00	5151.00	5651.00			
Bulldozing		1603.50	1603.50			
Crosscutting						
Drifting						
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services Eng.	598.13	1500.00	2098.13			
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Bbls. & Bits	1683.86	664.46	2348.32			
Other Supplies		168.38	168.38			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment Bits		157.29	157.29			
Sampling and Analysis		652.50			652.50	
Payroll Taxes						
Liability Insurance						
Accounting		145.00	145.00			
(8) Contingencies (specify):						
Transportation		276.50	276.50			
Warehouse Rental	570.00		570.00			
TOTALS	3151.99	8248.43	11400.42	3151.99	8248.43	11400.42

I certify that the above bill is correct and just and that payment therefor has not been received.

Date 4/21/54 *Payee Kenneth L. Porter

Per _____ Title _____

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—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.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$ 764.88

Signature Randel R. Cooper
(Authorized Certifying Officer)

Date 10/22/54 Vou. No. DMA-55-28

(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. ..... in accordance with the terms of the contract.

Signature ..... Title ..... Date .....

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature W. H. King Title Executive Officer Date OCT 13 1954

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

GPO 83-38476

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.1
Approval expires 6-30-53.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
[illegible] 1954

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of October 24, 1951 to date-April 29 195 4 Docket No. DMEA 1518X Contract No. Ida - 2124
Operator's Name Kenneth L. Porter Minerals Sulphur
Address 420 Lexington Avenue, New York 17, N. Y.

OPERATION	Unit	Costs This Month	Units This Month	Costs to Date	Units to Date	Unit Costs to Date	Authorized by Contract: Units	Authorized by Contract: Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Feet	500.00	None	3681.00	762	4.82		
Churn								
Auger								
Stripping								
Trenching								
Test Pits								
Roads and Trails	Feet			1503.500	2500	.60		
Technical Services		598.13		2098.13				
Total Distributed Costs		1098.13		7282.63				Total Costs Authorized by Contract
Operating Equipment Purchased		1683.86		2548.32				
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
Warehouse Rental & Misc.		370.00		1769.47				
Total Costs		3151.99		11400.42				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date April 21, 1954 Operator Kenneth L. Porter

Per _____ Title _____

Remarks: _____

→ NOTE.—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.

(Instructions on reverse)

(For Government use only)

INSTRUCTIONS

Preparation of Form MF-104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF-104A has been designed to tie in with Form MF-104 for both monthly and cumulative costs. The "Total Costs" on Form MF-104A for each month should equal the monthly "Total Costs" as reported on Form MF-104. This is also true of the "Total Costs To Date".

In preparing Form MF-104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

GPO 83-38475

CLAYTON T. McNEIL, E.M.
822 BANK OF AMERICA BUILDING
300 MONTGOMERY STREET
SAN FRANCISCO 4, CALIFORNIA

TELEPHONE GARFIELD 1-2948

DEPARTMENT OF THE INTERIOR
Bureau of Mines
RECEIVED
JAN 11 1954

January 7, 1954

Mr. Kenneth L. Porter
420 Lexington Avenue
New York City, 17, N. Y.

Dear Mr. Porter:

I wish to make a bid of Two Hundred Fifteen Dollars ($215.00) for all of the coring equipment as per the attached list.

Very truly yours,

Clayton T. McNeil
Mining Engineer

CTMcN/so

CORING EQUIPMENT FOR SALE

Qty.	Description	Original Cost	Bid
	Material Manufactured by Drilling & Service, Inc., Dallas, Texas		
1	4-1 Head	$ 96.50	
1	2-7/8 API Reg. X 2-3/8 3-thread sub	45.00	
1	4 X 12 ft. Core Barrel	425.00	
1	4-21 Bit Breaker	36.50	
1	4-23 Spanner Wrench	8.50	
1	4-26 Metal Parts Box	18.00	
1	4-27 Core Ketcher Sleeve Wrench	36.50	
2	2-7/8 API Reg. Pin X 2-3/8 In Failing 3-thread Box Sub	90.00	
2	4-1/4 X 3-1/16 In. Hard Surface Metal Bits	93.00	
4	4-14 Core Catcher	70.00	
1	25-50-25 Inner Tube Clamp to fit Core Barrel	28.00	
1	4-8 Outer Tube 3 ft. long	45.00	
1	4-7 Inner Tube for 3 ft. barrel	35.00	
	Rock Bits:		
2	Gruner 4-3/4 Rock Bits, used & in need of retipping	113.20	
1	Gruner 4-3/4 In. Rock Bit, slight used	56.60	
	Other Material		
80	Core Boxes for 2⅛ In. Cores manufactured by Love Box Company	56.00	
Total		$ 1252.80	

CORING EQUIPMENT FOR SALE

Qt.	Description	Original Cost	Bid
Material Manufactured by Drilling & Service, Inc., Dallas, Texas:			
1	4-1 Head	$ 96.50	10
1	2-7/8 API reg. X 2-3/8 3-thread sub	45.00	5
1	4 X 12 ft. core barrel	425.00	58
1	4-21 Bit Breaker	36.50	10
1	4-23 Spanner Wrench	8.50	2
1	4-26 Metal Parts Boxes	18.00	5
1	4-27 Core Catcher Sleeve Wrench	36.50	5
2	2-7/8 API Reg. Pin X 2-3/8 In. Failing 3-thread Box Sub	90.00	10
2	4-1/4 X 3-1/16 In. Hard Surface Metal Bits	93.00	10
4	4-14 Core Catcher	70.00	10
1	25-50-25 Inner Tube Clamp to fit Core Barrel	28.00	5
1	4-8 Outer Tube 3 ft. long	45.00	10
1	4-7 Inner Tube for 3 ft. barrel	35.00	10
Rock Bits:			
2	Grumer 4-3/4 Rock Bits, used & in need of retipping	113.20	10
1	Grumer 4-3/4 In. Rock Bit, slightly used	56.60	
Other Material:			
80	Core Boxes for 2½ In. Cores manufactured by Love Box Company	56.00	10
Total		$ 1252.80	$170.00 total

E. H. Greenwood
Midland Drilling Co.
Box 1037
Billings, Mont.

MF-104
(April 1951)

Budget Bureau No. 42-R1036.
Approval expires 6-30-51.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

E-124

STRATEGIC AND CRITICAL MINERAL EXPLORATION PROGRAM
OPERATOR'S MONTHLY PROGRESS REPORT

Operators are to submit monthly reports to the designated field representative of the Defense Minerals Administration. Reports are to be submitted in quadruplicate prior to the 15th day of the month following the reporting period.

Narrative.—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered is to be furnished.

Maps.—Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

Cost Accounts.—All applicable parts of this form are to be filled in. This report will form the basis for payments of the Government's participating share of expenses. Audits of accounts will be made from time to time.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 3 - 1952

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

(Name of Company)

By Kenneth L. Porter
(Signature of Authorized Official)

Dec. 21, 1951
(Date)

(Title)

NOTE.—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.

16—64068-1

MONTHLY SUMMARY COST STATEMENT

Name of operator: Kenneth L. Porter
Project No. DMA: Docket 1518X, Contract Idm-E-124
Total contract amount: $99,150.00
Government participation percent: Fifty (50)

Distribution of Expenditures for Month of Sept. 22 - Oct. 23, 1951

Item	Monthly Total	Totals Previously Reported	Totals to Date	For Government Use Only: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals to Date
Wages and salaries: Engineer, Salary & Exp.	1500.00	0	1500.00	1500.00		1500.00
Equipment purchase[1] Core Bbls	2348.32	0	2348.32	664.46		664.46
Equipment rental[2]						
Buildings						
Explosives						
Repair parts to Core bits	157.29	0	157.29	157.29		157.29
Other supplies	168.38	0	168.38	168.38		168.38
Power						
Transportation	276.30	0	276.30	276.30		276.30
Withholding taxes						
Compensation insurance						
Other insurance						
Contract work	4684.50	0	4684.50	4684.50		4684.50
Other (specify) Analyses	652.50	0	652.50	652.50		652.50
Office, Misc., etc.	197.00	0	197.00	145.00		145.00
Total	9984.29	0	9984.29	8248.43		8248.43
Totals previously reported	0	0	0			
Totals to date	9984.29	0	$9984.29	8248.43		

FOR GOVERNMENT USE ONLY

Checked by
Entered by
Approved by
Amount approved for payment
Remarks

[1] Enter total purchase price in month purchase is made.
[2] Payments for rental of equipment or prorated depreciation on equipment owned by contractor.

16—64068-1

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
REGION IV

Administrative Audit Difference Statement

Date: March 25, 1952
Payee's
Reference: Progress Report
September 1951

Kenneth L. Porter
420 Lexington Avenue
New York 17, N. Y.

Upon examination of the above Payee's Reference a difference was found which made it necessary to suspend your account accordingly:

Amount claimed $ 9,984.29

Difference $ -1,735.86

Amount Approved $ 8,248.43

The reason for the difference was due to:

Telephone is a general overhead expense and not allowable under paragraph 10 of the contract	$52.00
75% of cost of drilling supplies pending decision on "Stage B" work.	1,683.86
Total.....	$1,735.86

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 3 - 1952

Any reclaim for deductions made above must be supported by the ORIGINAL of this form.

Very sincerely yours,

R. E. Stokes
Audit Section

R-IV - B&F Form No. 4
5-1-51 - 1M

DISTRIBUTION OF WAGES AND SALARIES FOR MONTH OF .....

Name of operator .....
Project No. DMA .....
Total contract amount .....
Government participation percent .....

TYPE	NUMBER	MAN-SHIFTS	RATE	TOTAL
Miners			$	$
Muckers				
Trammers				
Timbermen				
Pumpmen				
Hoistmen				
Surface				
Samplers				
Assayers				
Shift bosses				
Mechanics				
Electricians				
Blacksmiths				
Carpenters				
Drill runners				
Drill helpers				
Teamsters				
Manager				
Superintendent				
Engineers				
Geologists				
Bookkeeper				
Foreman				
Clerks				
Stenographers				
Other				
TOTAL				

NOTE.—Show only that portion of supervisory, office, and engineering salaries that is chargeable to this project.

FOR GOVERNMENT USE ONLY

Checked by .....
Entered by .....
Approved by S R Wilson
Remarks .....

W. H. K.

16—64068-1

EXPLORATION UNIT COST AND PROGRESS REPORT FOR MONTH OF Sept. 22 - Oct. 23, 1951

Name of operator Kenneth L. Porter
Project No. DMA Docket 1318X, Contract Idm-E-124
Total contract amount $99,150.00
Government participation, percent Fifty (50)

Item	Costs					Progress				
	Wages [1] and salaries	Equipment [2] Contract	Supplies	Other [3]	Total	Unit	Units this month	Units previously reported	Units to date	Units authorized by contract
Drifting										
Crosscutting										
Raising										
Shafts										
Winzes										
Drill holes		3181.00	145.77		3326.77					
Overburden										
Rehabilitation and preparation										
Geology and geophysics					1500.00					
Trenching										
Sampling and assaying					652.00					
Roads and trails		1503.50			1503.50					
Test pits										
Other (specify) Misc. Expense, Transportation Supplies, Office, etc					653.20					
Core Barrels, Bits, etc (Purchased)					2348.32					
Totals		4684.50	145.77		9984.29					

[1] Prorate supervisory, engineering, and office salaries in proportion to man-shifts of direct labor.
[2] Prorate charges for equipment that is not exclusively for one type of job (such as compressors) against authorized units of work in each category.
[3] Where entries in the "Other" column (above) are more than 25 percent of the total expenditures, a breakdown of this item should be made.

16—64068-1 U. S. GOVERNMENT PRINTING OFFICE

FOR GOVERNMENT USE ONLY

Checked by
Entered by
Approved by
Remarks

ITEM 2 of Page 1 of Form NSRB-140 (OCT. 1950)
Give reasons why the facilities for which certification is sought are necessary for the interest of National Defense.

a) Materials required for National Defense. Calcium carbide is used by Naval shipyards, private shipyards, railroads, and all steel fabricators in the form of acetylene gas for cutting and welding steel. Large quantities are used to manufacture acetylene gas at U.S. Government acetylene plants in overseas locations. Carbide is also the basic raw material in the manufacture of many chemicals.

b) Shortage of facilities for production required for National Defense. Since July, 1950 the demand for calcium carbide in the United States has increased to the point where the supply is very inadequate. Our monthly demand has doubled. Our surveys indicate that almost all of this increased demand is due to the national defense program.

c) Economic Usefulness. The facility proposed is economically useful because, even at a reduced demand, it provides for a more flexible and more efficient operation.

d) Acquired facilities, replacements and land.

1. None of the facilities constitute the assets of a going concern.

2. None of the facilities are replacements of present facilities, except insofar as they may be called expansion of present facilities. Such expansion would not have been made except for the increased demand caused by the emergency.

3. The land acquired is for the production, storage and transportation of raw materials necessary in the interest of National Defense.

e) Other considerations.

1. This company is a small business, employing 40 persons.

2. Of the four calcium carbide companies in the United States, this is by far the smallest and the proposed facilities will enhance our competitive position.

3. The present officers of the company have been actively engaged in the production of calcium carbide at this location since 1940 and have been for many years engaged in the acetylene gas industry. The increased facilities can be effectively managed by the present executive personnel.

4. The location of the facilities in Portland, Oregon is probably much safer from attack than most other calcium carbide plants. The facility in Eastern Oregon is in a very safe location and can not be readily damaged.

Page 2 of ITEM 2 of Page 1 of Form NSRB-140 - Reasons why the facilities for which certification is sought are necessary for the interest of National Defense.

5. Very little additional manpower will be required by the new facilities and it is readily available at this time. Adequate housing, transportation, etc. are available.

6. The proposed facilities will be financed without any additional borrowing on the part of the taxpayer.

7. One of the principal reasons for the shortage of calcium carbide is the shortage of electric energy. The taxpayer has a firm contract for energy with the Bonneville Power Administration until 1960. This contract enables the taxpayer to purchase additional power during most of the year when it is available. The purpose of the proposed facility is to make use of this "interruptible" power although it would not be economical or feasible to build a whole new calcium carbide plant to operate only when excess power is available.

224 New Customhouse
Denver 2, Colorado

March 28, 1952

Memorandum

To: Secretary to the Operating Committee
Defense Minerals Exploration Administration

From: Executive Officer, Field Team, Region IV

Subject: Form MF-104, DMA Docket 1318X, Contract Idm-E124, Stage A, Kenneth L. Porter, Brutch Sulphur Deposits, Hot Springs County, Wyoming

Enclosed are the Operator's Monthly Progress Report Form MF-104, Operator's Narrative Report and Inspecting Engineer's Narrative Report, and other supporting data for the month of September 22 to October 23, 1951, pertaining to DMA Docket 1318X, Contract Idm-E124, Kenneth L. Porter.

W. H. King

W. H. King, for
J. H. East, Jr.

Enclosures

ld

cc: Contract, chron.
Koschmann
Wilson, w/1 copy of MF-104.

Letter to Porter from Administration
to Kung for transmittal.
Notify the Kungs letter of 1-21-53
The contract expires Aug 23, 1953.
Stage B is estimated require 11 months
No record of work since oct 23, 1951

Schedule DMA 52-37
Mar 27, 1952
$4124.21
3/28/52

Mining Division
Region IV

March 20, 1952

Memorandum

To: T. A. Christensen

From: Acting Chief, Mining Division, Region IV

Subject: IM^ Docket 1318X, Contract Idm-F124, Stage A., Kenneth L. Porter, Brutch Sulphur Deposits, Hot Springs County, Wyoming - Operator's Monthly Progress Report for the period of September 22 to October 23, 1951.

Enclosed are the original and three copies of Form MF-104, Narrative Report, and Engineer's Report for the above period, for work under Stage A.

Work accomplished is in accordance with the contract and payment is recommended as follows:

Total Reported MF-104		$9,984.29
Disallowed, Telephone Bill	$ 52.00	
Withheld, 75 percent of cost of drilling supplies	1,683.86*	
	$1,735.86	
Balance -		$8,248.43
Payment (50 percent Government participation)		$4,124.21

Note * - 75 percent of cost of drilling supplies as follows withheld pending a decision on accomplishing "Stage B" work or disposal of unexpended supplies if contract is terminated in present work status. Supplies: Rock bits - $56.10; Rock bits - $122.40; Rock bits - $139.30; Core barrels, bits, etc. - $1,927.34, totaling $2,245.14. The matter is handled in this manner to safeguard Government interests pending clarification of accounts and decisions concerning additional work.

This report was originally forwarded to you March 4, 1952 and subsequently returned to the operator for clarification of discrepancies on March 11, 1952.

The operator's letter of explanation is attached.

W. H. KING

W. H. King

Enclosures
JMT:fwo
cc: Sec. Oper. Comm, Wilson, Koschmann, Contract, Chron

COPY

KENNETH L. PORTER
Oil and Sulphur
420 Lexington Avenue
New York 17, New York

March 17, 1952

Mr. J. H. East, Jr.
U. S. Bureau of Mines
224 New Customs House Building
Denver 2, Colorado

Re: DMA Docket 1318X
Contract Idm-E124

Dear Mr. East:

I am in receipt of your letter of March 11, 1952, together with the forms MF-104 which you enclosed to be corrected.

I have made the corrections to the forms MF-104 and am herewith returning them to you with the following explanation:

1. The total MF-104 which shows $9,984.29 as listed is correct. In making out the MF-104 from the work sheet the item of $276.30 for transportation was inadvertently omitted. This correction has been made.

2. The total figure of $2,348.32 as listed is correct. You will note that the fourth item from the bottom is for two Gruner rock bits @ $60.00 each, therefor the extended total should be $120.00 instead of $60.00 I am enclosing corrected list together with the old list on which I have drawn a circle around the item in error.

3. The correct total of itemized schedule of purchases is $9,984.29. At the bottom of the schedule I have added the item of Cash purchases in the amount of $50.65 which was left off in error because originally the schedule was compiled from my cancelled checks.

The item of $52.00 phone bill was included because in my opinion this is a necessary adjunct to operating an office and the contract provides for office expense.

I trust the above straightens out all the discrepancies and the account can now be paid without further delay.

Very truly yours,

s/ Kenneth L. Porter

Kenneth L. Porter

KLP:k
Enclosures

COPY

224 New Customhouse
Denver 2, Colorado

March 11, 1952

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Re: DMA Docket 1318X
Contract Idm-E124

Dear Mr. Porter:

In my letter of March 10, 1952, the statement was made that the form MF-104 submitted by you had been passed for payment by our audit section. This statement was based on preliminary information that is generally sufficiently accurate to warrant such a statement. However, the detailed investigation by the auditor reveals that:

1. The total MF-104 shows $9,984.29, while listed amounts total $9,707.99 and the auditors have no way of knowing which account was in error.

2. The itemized list of core barrels, bits and other supplies totals $2,288.32, instead of $2,348.32 as shown. As in the first instance, our auditors have no way of locating the discrepancy.

3. The total itemized schedule of purchases amounts to $9,933.64, while the total shown on the MF-104 is $9,984.29.

In this connection, the item of $52.00 phone bill is an item of general overhead, and is not considered an allowable cost of the project.

The forms MF-104 must be corrected, and are therefore being returned herewith.

Very truly yours,

s/ J. H. East, Jr.

J. H. East, Jr.
Executive Officer
Field Team, Region IV

WHK:oc
cc: SRWilson
AHKoschmann
DMA Contract, Chron

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 1, UTAH

February 27, 1952

Memorandum

To: W. H. King, Acting Chief, Mining Division, Region IV

From: Chief, Utah-Wyoming Branch, Mining Division

Subject: DMA-1318X, Contract Idm-E124, Kenneth L. Porter, Brutch sulfur deposits, Hot Springs County, Wyo. Your memorandum of February 18, 1952.

The MF-104 forms and supporting data covering Stage A of the subject contract have been studied, with the method of repayment as outlined in your memorandum to T. A. Christensen. All information is enclosed.

The procedure appears to me to be logical, and I have signed the MF-104 forms. The contractor may object to the deletion of $681 excess over $2,500 authorized for drilling. He claims, according to conversations with Wideman, that verbal permission was obtained from Allsman to permit use of funds above those specifically authorized for drilling. The MF-104 forms show a total of 28 days drilling, 6 days more than the number shown in the agreement between Kenneth L. Porter and Fred E. Butler, the drilling contractor. The period of actual work under the DMA contract covered September 22 to October 19, both dates inclusive. Drilling was performed every day during this period, if 28 drill shifts were worked, as shown in the MF-104 forms.

I believe the locations of holes proposed in a letter from the Field Team to Kenneth L. Porter dated February 8, 1952, should be mutually agreed upon before the holes are drilled. It is believed that a smaller diameter core drill should be used in the drilling, probably NX in size. If possible, a representative of DMEA should be at the project site at the time of the drilling.

Stephen R. Wilson

Enclosure

S. R. Wilson

F. L. Wideman

Docket 1318X, Contract Idm-2124, Phase A, Kenneth L. Porter, Thermopolis, Wyoming.

The attached letter has been received from Mr. Kenneth L. Porter subsequent to a phone call he made to the office on January 16, 1952.

During the conversation, I told him that the itemized list of expenditures did not correspond with the totals shown on the TF-104 forms. I also requested that he break down the account of Drilling and Service, Inc., for $1,927.34 so that property purchased could be identified.

The total for bits, core barrels, etc., shown in the letter, does not correspond with the total for such items as shown in the itemized list of expenses.

F. Wideman

F. L. Wideman

S. R. Wilson January 2, 1952

F. L. Wideman

Docket 1318X, Contract Idm-E124, Stage A, Kenneth L. Porter, Brutch Sulfur Deposits, Hot Springs County, Wyoming.

The MF-104 forms dated December 24, 1951, and submitted for the period September 22 to October 23, 1951, cannot be approved for payment until corrections have been made.

1. The total expenditure shown on pages 2 and 4 of the forms is $9,984.29, but the total of the itemized schedule of purchases, etc., is $9,933.64. There is a discrepancy of $50.65 between the two totals.

2. Page 3 of the forms does not list wages to the sampler and salary to the engineer.

3. The distribution of costs of some items on pages 2 and 4 are difficult to follow. For example, on page 2, the engineer's salary and expenses are lumped together under wages and salaries. Nothing is shown for the sampler's wages. Further, it is impossible to arrive at a total cost of $1,500 for engineering from the itemized schedule, even though half the bill from the Rainbow Auto Court is applied to engineer's expense.

On page 2, equipment rental is shown as contract work.

On page 4, only totals are shown for the work items of geology, sampling, office, etc., and core barrels. There is no breakdown of the costs of these items.

On page 4, the core barrels, bits, etc., purchased should be charged against drilling.

There are no units of work completed shown on page 4 under drilling, roads and trails, or sampling and analyses.

The itemized schedule of purchases should show the address of the vendor and the date of the services. The latter is important in order to ascertain if expenditures were made prior to the signing of the contract. No units of services have been shown. For example, the item for John H. Banks Laboratories for $63.00 at $2.00 an assay calculates 31.5 assays.

The item W. T. Hardendorf for $250 for transportation should be explained, as should other transportation charges.

The item for Drilling and Service, Inc., for core barrels, bits, etc., should be itemized. An expensive diamond set core bit is included

in this purchase. The bit was damaged (see Mr. Porter's letter accompanying the MP-104 forms). No attempt has been made to obtain an adjustment for the salvage value of the bit. The salvage value of the bit, as well as that of core barrels and other equipment, should be taken into consideration if Stage B of the contract is not to be done.

This office does not have a copy of the contract between Mr. Porter and Mr. Fred E. Butler concerning rental of a core drill rig. The contract should be examined, as the MP-104 forms indicate an expenditure of $681.00 in excess of the $2,500 monthly rental set up in the contract between the Government and Mr. Porter. The drill actually operated less than one calendar month, September 22 to October 20.

There is an error in either the unit price or the total paid Drilling and Service, Inc. for core catchers.

F. L. Wideman

F. L. Wideman

S. R. Wilson October 29, 1951

Frank L. Widemann

Docket DMI-1313X, Contract Idm-E-124, Kenneth L. Porter.

The Brutch Sulfur property near Thermopolis, Hot Springs County, Wyoming, was visited on October 20, 1951. Exploration work has been done under the above contract on this property. The first stage of the contract was completed, with the exception of sulfur determinations, on October 20, 1951.

Sixteen holes were drilled, and approximately 3,000 feet of bulldozer trenching was completed during stage A of the contract. The depth of the holes varied from a few feet to 60 feet, the average being about 20 feet. The approximate location of the drill holes and bulldozer trenches is shown on the accompanying sketch.

All of the holes except 5A encountered some sulfur. The grade of the showings has not been determined, as the samples have not been analyzed.

The holes were drilled by a Sullivan Model 34 drill mounted on a Ford truck, the engine of which supplied motive power for the drill and pump. One diamond set bit was used for 84 feet of drilling when the inner ring of diamonds failed. Thereafter, tungsten carbide insert and oil well bits were used. The depth of the holes was governed by the penetration of the rock rather than by the sulfur showings at the bottom of the holes. None of the holes were cased and bran was used when water circulation was poor. Some difficulty was experienced because of caving. A ten-foot core barrel was used, and no attempt was made to pull the drill rod when different types of rock were encountered.

Sludge samples were taken in a small tank through which the drilling water was circulating, and, therefore, may not be representative samples. Core recovery was rather poor because of the use of the long core barrel and the practice of not pulling the rods when lithologic changes were encountered. Some of the cores show black irridescent material which the contractors call "black" sulfur. This material apparently is composed of specks of sulfur surrounded by hydrocarbon or stained shale.

Most of the drilling was done in lower members of the Phosphoria formation. It may be that hole 5A encountered the top of the Tensleep formation. This hole was drilled with an oil well

bit and no core is available for the identification of the formation.

The drilling supplies purchased under contract, and core and sludge samples have been stored in a warehouse in Thermopolis.

F. Widemann

F. L. Widemann

November 30, 1951

Mr. J. H. East, Jr.
U.S. Department of Interior
Defense Minerals Administration
224 New Custom House
Denver 2, Colorado

re: DMA Docket 1318X
Contract Idn E-124

Dear Mr. East:

In accordance with your instructions, I am submitting my form MF-104 together with the progress report and other pertinent information, to Mr. Stephen R. Wilson at Salt Lake City for his perusal and then transmittal to you.

In accordance with a letter received August 23, 1951 from Mr. C. O. Mittendorf, Director of Production & Expansion Division, I signed the copies of the contract and returned them to Washington. This put the contract in force, and subsequently, I placed orders for the special core barrel equipment, diamond bit, etc., in order to initiate the project at the earliest possible date. It was some time before this equipment was delivered, and during the interim, I entered into a drilling contract with Mr. Fred E. Butler of Casper, Wyoming, which also was submitted to you for your approval. I then instructed Mr. Harry J. Wolf, my consulting mining engineer, to meet me in Denver, and we then called at your office I believe on August 20, 1951 and had a preliminary conference with you prior to proceeding to Thermopolis to start the actual drilling of the property.

On Saturday, the 22nd, we set up the drilling rig and started on the first hole. Prior to this, some preliminary bull dozer work had been instituted to prepare drilling locations for the rig. During the ensuing month, we drilled sixteen (16) holes, which were mainly on the pattern of drilling which was submitted with the application for a lean. Some modifications were made to this layout in order to make it conform to the topography and to keep within the economical necessities of Stage A of this program. The area drilled covered a geometric shape roughly 1,100 feet in length, 500 feet on one end, and 200 feet on the other. The program proved continuity of sulphur over the entire area in varying concentration and depth (see attached copy and record of individual core holes detailed in Wolf report).

In addition to the drilling, a bull dozing program was carried on in which there was in excess of 2,500 feet of cuts made which uncovered both to the north and the south of the drilled area, sulphur bearing rock of the same type and variety which we drilled and which showed substantial sulphur deposits. Spot assays were made of some of these openings, which are also covered in the Wolf report.

It was found that the $2,500 allocated to drilling was insufficient to get the coverage we desired, and, therefore, we exceeded this estimate

after receiving permission from Mr. Allsman to do so. Also, the expenditure for core barrels, bits and drilling mud, etc., exceeded the $2,000 estimate, but, of course, we still have this equipment available for the second stage of the program.

We experienced a lot of difficulty with lost circulation which was not originally anticipated, and, of course, learned considerable about the local peculiarities which effect the recovery of proper samples from the drilling operations. We believe that on future drilling operations, we should plan on casing probably the top 20 feet of each hole, in order to eliminate the circulation troubles and considerably reduce the cost of drilling operations.

Among other things, we also made some improvement to the bits that were employed, and we feel that on the future program the bit cost will be considerably lower. We had unusually hard luck with the diamond bit, and I find that the experts who have looked at this bit claim it was damaged by scrap iron. I am completely at a loss to know where the scrap iron came from, but that is their claim at any rate. On the next stage of the drilling, this bit will have to be replaced, and, of course, the present one has some considerable salvage value.

We completed our sixteenth hole on October 19, and shut the drilling operation down pending your decision on the continuation of the program under Stage B.

I am advised by Mr. Parker, who did the assay work on the samples, that due to bad weather conditions and dampness of the samples, it took an unusually long time to get the analyses completed and that is the reason for delaying the submission of this report under this first stage. Mr. Wolf, my mining engineer, is submitting a very comprehensive and complete report of this initial stage of the operations which is attached hereto and a part of this progress report.

We feel that the operation has exceeded our expectations and we trust that you will find the results satisfactory and give us an early decision so that we can proceed with the second stage of this exploration program.

Thanking you for your prompt consideration, I am

Yours very truly,

Kenneth L. Porter

KENNETH L. PORTER

KLP:McC

enc.-

ITEMIZED SCHEDULE OF PURCHASES AND TRANSPORTATION MADE UNDER DOCKET 1318-X, CONTRACT Idm-E-124 AS PER REQUEST FROM MR. STEPHEN R. WILSON UNDER HIS LETTER OF NOVEMBER 2, 1951.

NAME	MATERIAL PURCHASE	UNIT PRICE	TOTAL
Fred E. Butler	22 days drilling	@ $113.63	$2,500.00
Fred E. Butler	6 days drilling	@ $113.50	681.00
Fred E. Butler	Sample Sacks	@ 4-1/2¢	3.60
Fred E. Butler	Rock Bit	@ $56.10	56.10
Fred E. Butler	Rock Bits	@ $61.20	122.40
W. T. Hardendorf	Dozing	@ $10.00	921.00
W. T. Hardendorf	Transportation		250.00
Cosmopolitan Hotel	Traveling Expenses		62.33
Harry J. Wolf	Consulting Services		1,000.00
Drilling & Service, Inc.	Core barrels, bits, etc.		1,927.34
Drilling & Service, Inc.	Core catchers	@ $18.19	54.49
Love Box Co.	Core Boxes	@ 70¢	70.00
General Feed Store	Bran	@ $3.60	64.60
Biltmore Travel Service	Transportation (Wolf)		217.35
Rainbow Court	Office & Wolf living quarters		366.00
Chas. M. Smith	Dozing	@ $10.00	582.50
George Reesy	Films & Supplies		22.61
Louis Doores	Sampling		250.00
S.R.S. Machinery & Supply	Supplies		23.06
J. & H. Service Co.	Bit retipping		83.50
Bethlehem	Sample Sacks	@ 4-1/2¢	11.36
Chas. O. Parker & Co.	Assays	@ $1.50	229.50
Mt. States Tel. & Tel. Co.	Phone Bill		52.00
The Texas Company	Gas & oil		52.41
Esso Standard Oil Co.	Gas & oil		47.42
Railway Express Agency	Express Charges		26.47
Chuck's Welding Shop	Rock bits	@ $69.65	139.30
Chuck's Welding Shop	Bit repairs		19.30
Stenographic Services			25.00
John H. Banks Laboratories	Assays	@ $2.00	10.00
John H. Banks Laboratories	Assays	@ $2.00	63.00
Cash Purchashes	Sundry Supplies, Misc., etc		50.65
	Total		$9,984.29

January 16, 1952

Mr. Frank L. Widsman
U.S. Bureau of Mines
1600 East First South Street
Salt Lake City, Utah.

Re: Docket No. DMA 1318X
Kenneth L. Porter
Exploration Contract Idm-2124

Dear Mr. Widsman:

Confirming our telephone conversation of this date I wish to advise that the itemized list of expenditures which I submitted attached to my Progress Report Form MF-104 represented payments by check or cash for which I have receipts or other written records. The difference between the total of the itemized expenditures and the total shown on the MF-104 Form represents miscellaneous cash expended for which I have no detailed information.

As per your request I am attaching to this letter a complete broken down itemized list of the bits, core barrels and accessories and sundry charges thereto which were purchased for this project.

Anything you can do to expedite the processing of this matter will be greatly appreciated as I cannot formulate any plans for further activities until I receive the decision of the Bureau of Mines on whether or not they are going to continue the Contract.

Thanking you for your continued cooperation, I remain,

Very truly yours,

Kenneth L. Porter

Kenneth L. Porter

KLP:p
Encl.

ITEMIZED LIST OF CORE BARRELS, BITS, ETC.,
PURCHASED UNDER DOCKET NO. DMA 1318X
EXPLORATION CONTRACT Idm-E124

QUANTITY	PART NO.	DESCRIPTION	UNIT PRICE	TOTAL
1	4-1	Head	$ 96.50	$ 96.50
2		2-7/8" API Reg. x 2-3/8" Thread Sub	45.00	90.00
1		4-1/4" x 2-11/16" Truco Diamond Core		
		Bit No. MD-7924H - 100.32 cts	551.76	
		Setting Charges	220.00	
		Express Charges Detroit to Dallas	4.86	776.62
		Sales Tax		18.27
		C.O.D. Express charges		50.95
1	4-21	Bit breaker	36.50	36.50
1		No. 4 x 12' Core barrel	425.00	425.00
1	4-23	Spanner wrench	8.50	8.50
1	4-25	Inner tube clamp	28.00	28.00
1	4-26	Metal parts box	18.00	18.00
1	4-27	Core catcher sleeve wrench	36.50	36.50
1	4-29	Inner tube hoist plug	30.00	30.00
2	4-15	4-1/4" x 3-1/16" Hard Surface Metal Bit	46.50	93.00
4	4-14	Core catcher	17.50	70.00
1	25-50-25	Inner tube clamp to fit core barrel	28.00	28.00
1	4-8	Outer tube 3' long	45.00	45.00
1	4-7	Inner tube for above barrel	35.00	35.00
		Sales tax		17.97
		C.O.D. Express charges		49.85
3	4-14	Core catcher	17.50	52.50
		Tax & C.O.D. charges		1.99
1		Globe rock bit $4\frac{1}{2}$"	80.00	80.00
1		Gruner rock bit $4\frac{1}{2}$"	55.00	55.00
		Tax & C.O.D. charges		7.37
1		Gruner rock bit $4\frac{1}{2}$"	55.00	55.00
2		Gruner rock bit 4-3/4"	60.00	120.00
		Tax		3.50
1		Special drag tooth bit	18.00	18.00
		Tax & C.O.D. charges		1.30

TOTAL - - - - - - - - - - - - - - $2,348.32

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C. 600

Project Summary Report

By: James Hopkins November 5, 1954

1. DMEA Docket No. 1318X - Sulphur
Contract No. Idm-E124
Brutch Sulphur Deposit
Hot Springs County, Wyoming

Operator: Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Operator's property rights: Lessee - Lease on four placer mining claims (520 acres) dated December 20, 1950, to A. J. Hardendorf and assigned to Operator January 2, 1951. Landlord's Subordination Agreement dated June 25, 1951.

Application dated May 28, 1951, requested assistance in amount of $100,000.00.

2. Contract - dated August 23, 1951 (Form MF-200, June 1951)

Work authorized:

Stage A

2,000 linear feet dozer trenches: 200 hours @ $12.50	$2,500.00
900 feet core drilling 1 mo. @ $2,500.00	2,500.00
Extra equipment - drill bits, core boxes and core barrels	2,000.00
Engineer and geologist	1,000.00
Engineer's traveling expenses	500.00
Sampler	360.00
Commercial assaying	500.00
Miscellaneous	640.00
Maximum total cost - Stage A	$10,000.00

Stage B

8,000 linear feet dozer trenches: 1,320 hours @ $12.50	$16,500.00
9,900 feet core drilling: 11 months @ $2,500/month	27,500.00
Purchase pickup truck	2,000.00
Core boxes	2,750.00
Drill bits, and core barrel replacements	2,750.00

Office and assay office building	$1,200.00
Assay office equipment	1,800.00
Consulting engineer: 20 days @ $50.00 (11 months)	11,000.00
Consulting engineer: travelling expenses	5,500.00
Assayer-chemist salary $450/month — 11 months	4,950.00
Assayer-chemist Helper @ $200/mo. -- 11 months	2,200.00
Miscellaneous expenses	11,000.00
Maximum total cost - Stage B	$89,150.00
Total cost of project Stages A and B	$99,150.00
Government participation @ 50%	$49,575.00

Amendments: No. 1, dated November 7, 1952. The word "maximum" on page 2 of the contract form is deleted and the word "estimated" is substituted.
Stage A funds may be augmented by a portion of Stage B funds for exploratory drilling if deemed necessary.

Work completed:

16 core drill holes - 795 feet @ $4.82/ft.	$4,621.90
Bulldozing - 3,000 ft. @ $1.72/ft.	5,156.27
Total cost of project	$9,778.17
Government participation @ 50%	$4,889.09

Project work began September 22, 1951, and Stage A was completed October 20, 1951. No work was done under the terms of Stage B. The mineralization encountered indicates deposits of below commercial grade and quantity, and no estimate of an ore reserve has been made.

Contract terminated by the Government for nonperformance April 30, 1953, because of Operator's failure to prosecute operations pursuant to the terms of the contract. Operator's final report dated December 20, 1951. Final Engineering Report by Bureau of Mines dated August 4, 1954.

3. Audit: Report of Review dated September 15, 1954.

Total cost as billed by contractor	$11,400.42
Proceeds from property disposition	220.00
	$11,180.42
Exceptions	1,402.25
Total accepted cost	$ 9,778.17
Government participation @ 50%	$ 4,889.09

4. Certification: No certification of discovery or development will be issued.

5. Comments:

How conducted: Work on the project was not in accordance with good drilling and sampling practice.

Operation: Operations were very poor. Operator would not cooperate with field team or comply with instructions and suggestions.

Engineering: The Operator did not furnish adequate and sound engineering practice and all reports were very inadequate.

Geological premise: The project was established to explore at depth for sulphur deposits similar to those found near the surface and which yielded considerable quantities of sulphur.

Geological criteria on which work was based:

1. The sulphur deposits are associated with alluvium, travertine, shales and limestone of the Phosphoria (Permian) formation.
2. Production of sulphur began in 1908.
3. The deposits appear to be formed around vents.
4. Two forms of sulphur are found, a yellow crystalline variety and a massive variety which is dark brown.
5. The yellow appears in cavities and crevices. The brown appears to replace limestone and to be associated with tarry oil residue in the Phosphoria formation.
6. Old workings indicated a few thousand tons of rock containing sufficient sulphur to permit use as soil conditioner.

Geological criteria developed during the project:
All drill holes but one encountered some sulphur mineralization, although four penetrated rock that contains less than 6% sulphur. The exploration did not disclose any mineralization considered economic, therefore, no estimate of reserves has been prepared.

Future possibilities: No further work is warranted.

Recommendations: The Nonmetallic Minerals Division concurs with the field team that no certificate of discovery be issued. The Geological Survey and the Bureau of Mines also concur.

Remarks:

Proceeds from the disposition of jointly owned property amounted to $220.00. Additional salvage on diamond bits for which Operator admitted receiving check was $135.81.

The exploratory project disclosed no sulphur of commercial importance. Therefore no certification of discovery was issued.

An elaborate final report prepared by Harry J. Wolf, Mining and Consulting Engineer, was submitted by the Operator. The writer concludes that the exploration work is incomplete in two respects. First, the depth of the sulphur-bearing material has not been determined; and second, a considerable area remains to be prospected, and this area is known to contain sulphur ore of equal or better quality than any found thus far in the area under recent investigation.

Reference is here made to a confidential memorandum from F. L. Wideman, dated April 27, 1953, regarding the reputation of the Operator in his dealings with the people of Thermopolis, Wyoming.

It is recommended that no closing letter be sent.

☒ Audited

☐ Certified

WORK ANALYSIS SHEET - DMEA PROJECT

Analysis as of 12-1-54
Incl. Voucher for 4-29-54

☒ Actual Cost

☐ Agreed Unit Costs

Name Kenneth L. Porter

Docket No. 1318x

State Wyoming

Commodity Sulphur

Idn-E No. 124

OPERATION	AUTHORIZED Units	AUTHORIZED Costs	COMPLETED Units	COMPLETED Costs	NET COST
Drifting & Crosscutting					
Raising					
Shafts					
Winzes					
Drilling (Specify) Core Diamond drilling	10800 ft	$52830.00	962 ft	$4730.06	4730 06
Surface Excavation		$33820.00		2552.56	2552 56
Underground Excavation					
Roads and Trails					
Operating Equipment Purchased		$11,300.00		$2348.32	$726 07
Surface Rehabilitation & Repairs					
Underground Rehabilitation					
New Building, Improvements, etc.		$1200.00			
Other (Specify) Raise		11640.00		$1769.48	1769 48
Totals		$99150.00		$11400.42	$9978.17

Prepared by Keating

COPY

March 4, 1955

Memorandum

To: Mr. Jay L. Chambers

From: Lawrence G. Houk (initialed) L. G. H.

Subject: Closing dockets

The Nonmetallic Minerals Division have reviewed the following contracts and do not intend to make certifications of discovery or development:

Idm-E52	DMEA-1212	Idm-E	DMEA-
40	1213	217	1969
13	1679	244	1955
73	519	253	2134
74	1390	257	2077
78	1664	272	2360
93	812B	288	2344
97	1224	324	2255
121	1517	344	2156
124	1318	373	2439
125	1720	411	2528
129	1665	430	2524
134	1732	433	2620
140	1813	444	2646
179	1122	450	2681
180	1250	480	2725
191	1914	497	2778
195	1812	507	2840
198	1929	518	2785
211	1721	524	2909
216	2104	543	2950
		565	3030

IN REPLY REFER TO:

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 8 - 1954

November 8, 1954

Memorandum

REVIEW OF FINAL REPORT DMEA-1318X (Sulphur)

To: L. G. Houk, Defense Minerals Exploration Administration

From: R. D. Trace, U. S. Geological Survey

Applicant's name and address: Kenneth L. Porter, 420 Lexington Ave., New York 17, N. Y.

Name of property: Brutch property

Location of property: Hot Springs County, Wyoming.

Recommendation of Field Team: No certification.

Comments: No economic deposits of sulphur found.

RECOMMENDATION: Follow Field Team recommendation.

Bob Trace
R. D. Trace

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

Department of the Interior
Defense Minerals Administration
RECEIVED
OCT 18 1954

224 New Customhouse
Denver 2, Colorado

October 14, 1954

Memorandum

To: Secretary to the Operating Committee, DMEA

From: DMEA Field Team, Region IV

Subject: Docket DMEA 1318X (Sulphur), Contract Idm-E124, Kenneth L. Porter, Brutch Sulphur Deposit, Hot Springs County, Wyoming

Enclosed are the following final reports pertaining to work completed under the subject contract:

1. Original and one copy of the operator's interim report at the end of Stage A, which in effect is the final report.

2. Original and three copies of the final engineering report by the U.S. Bureau of Mines.

Nothing of geologic interest or importance was involved in the project work, therefore no geologic report will be submitted.

Final payment to the operator was processed by this office October 13, 1954, in conformance with the final Report of Review by the Contract Administration and Audit Division dated September 15, 1954, which was released to this office October 13, 1954.

The exploration work consisted of drilling 16 drill holes totaling 795 feet and excavation of approximately 3000 feet of bulldozer trenches, at a total allowable cost of $9,778.17, in which the Government participated to the extent of 50% or an amount of $4,889.09.

The exploration work did not result in a discovery of economic importance, therefore no certification of discovery or development is recommended.

W H King
W. H. King

E. N. Hauchman
for A. H. Koschmann

Encls.

CABLE ADDRESS: MINEWOLF, NEW YORK
CODES: BEDFORD MCNEILL, BENTLEY
OR WESTERN UNION

TELEPHONES: PLAZA 9-1700
GREAT NECK 4-2423

HARRY J. WOLF
MINING AND CONSULTING ENGINEER
420 MADISON AVENUE
NEW YORK 17, N. Y.

Minerals
RECEIVED
DEC 18 1951

Dec. 20, 1951.

Mr. Kenneth L. Porter,
420 Lexington Avenue,
New York 17, N. Y.

Re: Sulphur Exploration.

Dear Mr. Porter:

Following is the report of operations under Stage A of the program for the exploration of the Brutch Sulphur Property near Thermopolis, Wyoming.

The completion of this report was delayed pending the receipt of the assays of samples of material from the exploratory drill holes, and the results of special tests to determine factors or ratios to be used in estimating the approximate sulphur content of the ground under investigation.

Yours very truly,

Harry J. Wolf

HJW:c

CONTENTS

		Page
1.	Summary and Conclusion	A
2.	Introduction	1 - 2
3.	Drilling Program	2
4.	Sketch 1 and Sketch 2 ..... Follows Page	2
5.	Explanation of New Grid	3
6.	Geology	3 - 5
7.	Mineralogy	5 - 9
8.	Bulldozer Operations	9 - 10
9.	Core-Dilling Operations	10 - 12
10.	Sampling Factors	12 - 14
11.	Estimation of Factors	14 - 15
12.	Tabulation of Assays and Factors	15
13.	Factor Curve ..... Follows Page	15
14.	Core-Drill Logs	16 - 31
15.	Resume of Drill Holes	32
16.	Appendix I	33
17.	Appendix II	34

SUMMARY AND CONCLUSION

The chief objective of Stage A of Exploration Contract Idm-E 124 was to secure as much significant information as possible regarding the economic possibilities of that portion of the Brutch Sulphur Property on the southwest slope of Cedar Mountain Dome, within a period of one month and at an expenditure of $10,000. This objective has been accomplished.

This objective involved two considerations, namely, an investigation of the lateral continuity of the sulphur-bearing Strata, and an investigation of the thickness of the sulphur deposits. Any special concentration on one of these considerations would involve neglect of the other, owing to the imposed limitations of time and money. Therefore, the problem to be solved required a compromise between these two considerations.

The two most obvious accomplishments of the preliminary exploration were the drilling of 16 core-drill holes, laid out in a pattern which appeared to be the most consistent and informative under the limitations imposed; and the making of over 2500 feet of bulldozer cuts, the latter being essential for the transportation of the drilling rig, and to provide drilling positions therefor.

These drill holes and bulldozer excavations served to establish the continuity of the sulphur-bearing strata over an area of 10 to 12 acres. The presence of sulphur-bearing material in at least 15 of the 16 holes was definitely established. However, the total thickness of the sulphur-bearing material was not determined because each hole was abandoned temporarily while still in sulphur. Therefore, in order to determine the thickness of the sulphur, it will be necessary to continue most of these holes eventually, to greater depth.

Inasmuch as the percentage of sulphur appeared to increase near the bottoms of the holes, it is reasonably probable that a better grade of sulphur ore is yet to be found at greater depth. It appears, that the exploration thus far accomplished is incomplete in two respects. First, the depth of the sulphur-bearing material has not been determined; and second, a considerable area remains to be prospected, and this area is known to contain sulphur ore of equal or better quality than any found thus far in the area under recent investigation.

In view of these facts, it appears that a further and more thorough investigation of the property is justified, and is in fact essential for the consistent evaluation of its economic possibilities.

HARRY J. WOLF

REPORT OF OPERATIONS UNDER STAGE A

RELATING TO EXPLORATION OF THE BRUTCH SULPHUR PROPERTY

NEAR THERMOPOLIS, WYOMING, SEPT.-OCT., 1951

INTRODUCTION

In accordance with an agreement designated as Exploration Contract Idm-X 124, entered into under date of August 23, 1951, between DEFENSE MINERALS ADMINISTRATION, Washington, D.C. and MR. KENNETH L. PORTER of 420 Lexington Avenue, New York 17, N.Y., certain methodical prospecting operations were to be conducted at the Brutch Sulphur Property, located within the boundaries of a lease held by Mr. Kenneth L. Porter.

A preliminary investigation, conducted in April, 1951, indicated the existence of sufficient sulphur to justify an exploration program, involving core-drilling, and bulldozer excavation, designed to demonstrate with a reasonable degree of assurance the extent and probable volume of the deposits of sulphur-bearing material on the property, more particularly along the south side of the anticline known as Cedar Mountain Dome.

In accordance with the desired purpose, a general exploration plan was outlined which was divided into two stages, namely:

STAGE A, involving preliminary exploration by means of core-drilling, and excavation by bulldozer. This Stage A was outlined in a memorandum, the substance of which was incorporated in the agreement entered into under date of August 23, 1951, and contemplated a series of pilot holes calculated to indicate the general nature of the sulphur deposits, and their probable extent along the south slope of Cedar Mountain Dome, in a direction approximately parallel to the longitudinal axis of the anticline, and to some degree in a direction perpendicular to this axis and in a vertical plane which would be substantially part of a cross-section of the dome.

With this purpose in view, a general plan was laid out to show a proposed orderly arrangement of pilot drill holes approximately at the corners of 400 ft. squares. This preliminary grid of pilot holes, together with the proposed location of bulldozer cuts, was submitted as a basis for discussion. The original plan or grid, contemplated about twelve holes, arranged in parallel rows 400 feet apart, two rows running approximately in a NE--SW direction across the anticline, and two rows running in a NW--SE direction, along the south slope of the mountain. It was understood that it might not be practicable to follow such a grid exactly, but that the ultimate location of the holes might have to be modified, with proper discretion, to conform to physical conditions on the surface. It was understood that these holes would be located in a

manner which would prove practicable, and calculated to accomplish their desired purpose at the lowest expense and in the shortest possible time. It was estimated that the expense would not exceed $10,000.00 and that the time involved would not exceed one calendar month.

STAGE B, involving a more extended and a more thorough sampling of the deposit, on which reasonable estimates of probable tonnage and average quality of material could be based, was to follow Stage A, provided the results of Stage A were found to be sufficiently encouraging to justify the favorable consideration of Stage B, and its approval by the officials delegated to make such decision. Such extended exploration would involve a more extensive and thorough drilling program, together with whatever bulldozing might become essential or desirable.

It should be pointed out that the bulldozer serves two purposes in the exploration program: (1) To cut through the overburden and surface soil, and into the sulphur-bearing material so as to expose it for examination, and (2) To provide a roadway whereby the drilling rig and supplementary equipment can be taken to the various desirable drilling locations.

DRILLING PROGRAM, STAGE A.

The theoretical grid proposed as a pattern for the first 12 drill holes was substantially the same as that referred to as "Stage A of Prospecting Program" in the memorandum submitted under date of August 23, 1951. This grid is illustrated in SKETCH NO. 1.

For reasons relating to the general nature of the occurrence of the sulphur ore deposits, it was found advisable, as explained hereunder, to modify this preliminary pattern, not in principle but in detail, so that it appeared as illustrated in SKETCH No. 2. This modification of the original tentative grid for the first 12 holes (later increased in number to 16) to be drilled during Stage A of the program was found advisable for the following reasons:

1. The original grid on 400 ft. squares covered too wide an area to permit 12 holes (or even 16 holes) to give truly useful and significant results, contemplated under Stage A. (See discussion of Geology hereunder).

2. Some of the holes on the 400 ft. grid would fall on ground that was practically inaccessible, or at positions that would require expenditure of time and money far beyond that available or reasonable under Stage A.

3. Some of the holes would fall at points already prospected under previous investigations, or where adequate preliminary information had been obtained, or was being disclosed by bulldozer cuts which were necessary for purposes of prospecting and which, incidentally, provided

drilling-rig positions for future drilling under Stage B.

In other words, the 12 holes considered possible under Stage A would be spread out too thin to secure the truly valuable and significant information contemplated under Stage A.

EXPLANATION OF THE NEW GRID

It will be observed that the original grid, showing the location of proposed pilot holes 400 feet apart, was based on unit distances of 200 feet; and that the holes arranged in vertical columns on the map (on lines bearing NE and SW) on Sketch No. 1 were numbered, and that the holes arranged in horizontal rows (on lines bearing NW and SE) on Sketch No. 1 were lettered, both with reference to the anchor hole, or first hole drilled (which happens to be 5-A). In other words, a column of holes beginning at the anchor hole 5-A, was laid out (from bottom to top of the sketch) at unit distances of 200 feet as follows: 5-A, 5-B, 5-C, 5-D, etc. Similarly, a horizontal line of holes beginning at the anchor hole 5-A, was laid out (from left to right on the sketch) at unit distances of 200 feet as follows: 5-A, 6-A, 7-A, 8-A, etc.

In the substitute grid shown in Sketch No. 2, additional hole locations are indicated at 100 ft. intervals by placing them midway between the others. In order to avoid misunderstanding or confusion, owing to the substitution of the new grid, all the medial holes in the horizontal lines bear the letter "x", and all the medial holes in the vertical columns bear the letter "y". Thus, a line of holes arranged 100 feet apart would be named in order as follows: 5-A, 5-AX, 6-A, 6-AX, 7-A, 7-AX, etc; and a column of holes arranged 100 feet apart would be named in order as follows: 5-A, 5-AY, 5-B, 5-BY, 5-C, 5-CY, etc.

The above explanation will serve to clarify the nomenclature as it appears on Sketch No. 2, whereon the grid points are named as above indicated. The holes actually drilled to date are indicated by small circles around the corresponding grid point, and the order of drilling is indicated by a number in a circle. For example, Hole 7-BX was the 8th hole drilled.

GEOLOGY

Certain geological features of the deposit have an influence on the program under consideration, and have had a direct influence on the exploratory work done during Stage A.

The general geology of the immediate region including Cedar Mountain Dome, and incidentally that relating to the south slope of the mountain, has been presented in:

HARRY J. WOLF

1. "Exploration of the Brutch Sulphur Deposits, Hot Springs County, Wyoming," by Forest H. Majors, U.S.B.M. R.I. 3964, Oct. 1946.

2. "Sulphur Deposits Near Thermopolis, Wyoming", by E. G. Woodruff, U.S.G.S. Bull. No. 380, 1908.

The geology was briefly reviewed in a report by the writer under date of May 25, 1951. More recently, the situation has received further detailed investigation, for the special purpose of locating to the best advantage the drill holes and the bulldozer cuts to be made under Stage A of this program of prospecting and exploration.

At the expense of some slight repetition, it is pointed out that the sulphur deposits in the region under immediate review occur in the Amber formation, which has been divided into two layers, the upper layer known as the Dinwoody, and the lower layer known as the Phosphoria. It appears that on the south side of the Cedar Mountain Dome, part or all of the Dinwoody has been eroded. So far as the area between grid points 5-A and 10-AX is concerned, the Dinwoody or upper layer seems to have been completely eroded. Hence, our program Stage A, between the points 5-A and 10-AX, relates entirely to the Phosphoria. To the NW and SE of the area mentioned, there may be some question as to whether all of the Dinwoody has been eroded.

In the neighborhood of the large West Pit and dump, east and northeast of grid hole 5-A, the sulphur-bearing layers have a dip of 21° to 25° to the SW, and extend along under the overburden which is of variable thickness, but with a tendency to become deeper as the dry creek is approached. Judging from exposures of overlying rock layers in the hill to the west of this locality, and in the hogbacks east of hole 10-AX, some of the sulphur-bearing layers appear to continue a uniform dip to the SW, while some of the underlying layers appear to increase their dip and virtually take a nose-dive towards the dry creek. Therefore, in some cases any drill holes close to the creek and SW or W of the large West Pit may have to go deeper to find sulphur, if it is found at all. The last remark carried the inference that even part of the Phosphoria, or lower layer of sulphur-bearing material may have been completely or partly eroded in this particular locality. This is not the case further east along the noses of a series of hogbacks, where surphur ore is found close to and north of the creek.

However, regardless of the condition above mentioned, it is probable that the sulphur-bearing stratum may not be uniform in thickness nor continuous in extent either laterally or transversely with respect to the axis of the anticline. It seems more probable that the layer of sulphur rock may be variable in thickness even if it is fairly continuous. The established facts indicate that the sulphur rock extends up and down the south side of the mountain, under an overburden of variable thickness. This thickness of overburden or surface soil may vary from nothing up to 30 feet or more at various points. The sulphur

rock itself probably varies in thickness, say from 10 feet to 50 feet or more, and the entire layer probably undulates both laterally, and to a lesser degree transversely, throughout its northwesterly and southwesterly extent of probably a mile or more.

The extent of the sulphur deposit along the hillside has been definitely established as far northwesterly as our present No. 5 line of transverse holes (i.e. holes 5-B, 5-C, 5-CY, and 5-D). In fact, during the last two days of our present operation under Stage A, crystalline sulphur was exposed by a bulldozer cut at a point 174 feet NW of hole 5-B, and the characteristic sulphur-bearing formation was opened at points still further to the NW. It has been demonstrated that the sulphur-bearing material extends from the No. 5 line of transverse holes southwesterly along the south slope of the anticline for a distance of over 1,000 feet, as evidenced by the disclosures of sulphur in the cores and cuttings obtained from the series of holes: 6-B, 6-BX, 7B, 7-BX, 8-B, 8-BX, 9-B, 9-BX, and 10-AX. Further southeasterly, the sulphur-bearing formation is exposed in a large open pit, referred to herein as the East Pit, and in its tributary shaft, and adits, which are between our projected Stage B holes 15-B and 16-B; thence still further southeasterly in a pit made by the U.S.B.M. near our projected Stage B hole 17-B. This pit was sufficiently deep to cut through the overburden and expose the sulphur-bearing layer. Furthermore, sulphur ore is definitely exposed in adits or entries near our projected Stage B holes 11-B and 11-BX.

In view of all the conditions above mentioned, more particularly the possible undulations and variations in thickness of the sulphur ore deposits, incident to its genesis as a result of rising and migrating sulphur-laden solutions and gases, through layers of rock having a varying degree of porosity, it was believed that more significant information regarding the nature of these deposits could be established within the limitations (only 12 to 16 holes, and within a period of only 30 days) of Stage A of the exploration program, by placing a limited number of holes 100 feet to 200 feet apart (thus feeling the way along in the sulphur formation and demonstrating its continuity) rather than scatter a limited number of holes over a 400 ft. spacing, and finding that some of the points would be on inaccessible ground, or at locations which would cost too much in both time and money to prepare for the drill rig.

MINERALOGY

Recent investigations and observations, especially some related to drill cores and cuttings, and to disclosures made by exploratory bulldozer cuts and other excavations, prompt the following comments concerning the rocks and various sulphur-bearing minerals found on the

property; to the related minerals; and to the various forms in which the sulphur occurs.

Rocks and Minerals prominent in the area under review include limestone, silicious limestone, shale, chert, clay, travertine, gypsum, quartz, and nodules of chalcedony in the lime and shale. Some of these rocks, more particularly the limestone and travertine, and sometimes the clay, are what might be called the host rocks for the sulphur. Occasionally, the sulphur occurs along with, or next to, or even in, the gypsum. These rocks, and their various relationships to the sulphur, may be itemized as follows:

1. Limestone capping usually free from sulphur. This applies more particularly to a considerable portion of the layer of limestone between the Dinwoody and the Phosphoria.

2. A silicious limestone usually free from sulphur. In this case, the presence of sulphur has not been observed with the aid of a 8-X magnifying glass, although it might be present in minute quantities.

3. Limestone containing a few tiny crystals or fragments of sulphur. In this case, the sulphur crystals vary in size up to 1/16" and are scattered irregularly throughout the mass.

4. Limestone heavily impregnated with sulphur which occurs in crystals and fragments up to 3/16" and sometimes larger, Frequently the rock is full of small vugs lined irregularly or solidly with sulphur crystals in various stages of development. These vugs usually vary in size from 1/8" to 3/8", but have been observed up to 3/4" in diameter. The crystals in these vugs vary in color from a bright yellow to those having a brownish tint. Occasionally, the crystals appear to be dark grey or almost a dull black, presumably due to a coating or film of some hydrocarbon substance.

5. Travertine free from visible sulphur. Some of this material, although highly cellular and spongy in appearance, shows fair rigidity and will withstand moderate pressure before collapsing. However, most of it is fragile and consists of a multiplicity of small cells, often completely lined with fine platy or needle-like crystals which are nearly transparent.

6. Travertine with a liberal scattering of small sulphur crystals, In this case, the sulphur crystals may vary from 1/32" to 1/8" in diameter.

7. Travertine heavily impregnated with sulphur crystals; sometimes streaks 4" to 6" long, of solid crystals 1/16" to 1/8" thick; sometimes a series of approximately parallel streaks or layers of small sulphur crystals, the streaks being from 1/4" to 1/2" apart.

8. A cellular or crumbly quartz, with or without small crystals of sulphur.

9. A highly silicious limestone, with or without cross stringers of quartz, the latter with or without crystals of sulphur.

10. In bulldozer cuts, lime and travertine filled with little vugs (1/4" to 2" in diameter), each containing solid layers of small crystals varying in size from 1/16" to 1/4" long, some showing perfect orthorhombic crystallization, long, round or flat and platy forms.

11. Limestone drill cores often with practically no crystals visible at the cylindrical surface (due to scouring action of core barrel), but showing little vugs exposed below the cylindrical surface, sometimes lined with tiny scattered crystals of sulphur, or sometimes completely lined with crusts or crystals of sulphur.

12. Streaks and bunches of gypsum crystals, varying in thickness from 1/16" up to 6", sometimes strung out over long distances without a break up to 5 or 6 feet; sometimes in bunches filling vugs in travertine. When first opened, these crystal clusters are arranged with the fibers, or bundles of needles, extending across from wall to wall of the space filled, and are translucent to nearly clear. However, they are apparently unstable, and on exposure to the atmosphere most of them lose their original appearance and turn milk-white, and then become crumbly and are easily reduced to powder. In rare cases, these crystals remain clear and firm, and remain fibrous masses. In most cases, the mineral is free from sulphur. In some instances, sulphur crystals occur along the edge of the gypsum layer, or are embedded in it. In the latter case, the gypsum appears much shattered, with fibers running in all directions.

Some of the above rocks, more particularly the travertine and shale, are so closely associated with the occurrences of sulphur, that they serve as indicators to a certain degree, of the probable presence of sulphur-bearing materials not far below. This relationship has been observed in several localities in the area under review, where the bulldozer cuts have intersected and disclosed flatly-arching formations of the layers of shattered shale, and especially where the shale overlies or contains extensive layers or lenses of gypsum and deposits of brownish to yellowish silicious sandstone. This combination of conditions has not been established as a positive indicator, but the relationship has been sufficiently frequent to attract attention, and to suggest that it may be significant.

Sulphur Forms: The sulphur itself occurs in various forms, sufficiently numerous to justify itemizing them briefly as follows:

1. Small individual crystals from 1/16" to 1/4" in diameter, occasionally 3/8" long. These are found in soft, disintegrating limestone. The crystals appear to offer greater resistance to weathering than the surrounding, cellular material, so they are released and roll about in the gravel. The crystal forms are often nearly perfect, with uncratched

faces and sharp edges. The heaviest occurrence of well-formed crystals near the surface was observed in pit dumps near the west end of the property, and near drill holes 5-CY and 5-D. In fact, crystals of this type and size have not yet been found in any other part of the property.

2. Crystalline sulphur in very small crystals, individually and in clusters within small vugs, and in extensive layers in thin cracks and crevices, sometimes 4" to 6" in extent, occurs over the entire property. Such crystals occur not only in the open pits and bulldozer cuts but also in the solid drill cores and in the drill cuttings, both while coring and when using the rock bit. Sometimes these crystals occur in incrustations of sulphur lining narrow crevices. In this case, part of the crystals protrude from the crust, the balance forming part of the crusty layer, and breaking into fragments when the crust is broken.

3. Irregular fragments of sulphur without apparent crystalline structure, but showing the characteristic conchoidal or irregular fracture, the surface of the break showing a high luster.

4. The commonest form of sulphur on the property is in irregular masses and blobs of brimstone, with little or no luster, which appear to have been melted down by hot water, hot gas, or simply heat in the rock to which the sulphur is attached. This form of sulphur is occasionally as thick as 1/2" to 1", and it may be in a multiplicity of layers, each from 1/16" to 1/8" thick, approximately parallel and 1/8" to 1/2" apart. Sometimes this sulphur occurs as a complex network or sponge, extending in all directions through the enclosing rock. In most cases the enclosing rock is a shattered limestone, with or without stringers of quartz. Sometimes these layers or veinlets of sulphur are near, adjacent to, or intruded into gypsum or travertine. However, the more crystalline gypsum is usually free from sulphur except along the edges.

5. In certain flat vugs or crevices, a layer of fiber-like sulphur about 1/8" thick with its free surface covered with clusters of acute pyramidal crystals, some almost needle-like, others in minute platy forms. Found only in one or two places: apparently rare.

6. A special form of crystalline sulphur occurs near the lowest exposure of sulphur on the property, just above the dry creek level and near the south end of the hogback in the upper west end of which hole 10-AX was drilled. The location is about 40 feet south of hole 10-BX. This sulphur occurs in radiated forms, starting at various centers 1/8" to 1" apart, the fibrous or needle-like forms fanning out from the center like radii of a sphere, and presenting various sizes of spherical sectors, the spherical surfaces of which have a rough botricidal appearance/or suggestive cauliflower forms. These radiated clusters themselves occur in clusters and groups, starting from a limey surface or from a layer of sulphur

which appears to have been melted by heat. The radial dimension varies from 1/8" to 3/4". Sometimes the fibrous formation extends from wall to wall of a flat cavity 1/2" to 1" wide and several inches laterally. A cross-section of one of these sectors suggests the appearance of an open fan. A few of the sectors extend over angles of 180° and up to 270° without a break. These forms may owe their growth to oxidizing sulphur-laden gases.

7. Small crystals and fragments of sulphur occur scattered throughout some of the drill cores from hard limestone. When the core is first extracted, it is frequently difficult to detect the sulphur on the cylindrical surface, owing to the grinding action of the bit, but when the core is split, both the appearance and the multiplicity of the sulphur particles become obvious.

8. Special mention should be made of a form of sulphur which appears frequently and persistently in the bulldozer cuts, drill cores, and drill cuttings, and which has been referred to locally as "black sulphur." This particular sulphur might be entirely overlooked if its detection depended on visual examination alone, for the particles embedded in the surrounding rock have somewhat the appearance of very dark gray or almost black shale, or dark silicious limestone. Examination under an 8-X lense shows a distinct irridescence. The dark color may be due to a covering or partial impregnation by some organic or hydro-carbon material. In any event, when these fragments are heated on a sheet of metal over a Bunsen burner, or heated directly in a flame, they burn with a blue flame and give off fumes of SO_2. Furthermore, many of them gradually turn yellow when slowly heated, and exhibit a distinct film or crust of sulphur. It is probable that the presence of sulphur in this form (or in this disguise) may account for assay results better than would be expected from a visual examination of the material. This form of sulphur occurs not only in the open pits and bulldozer cuts, but also in dark-colored drill cores wherein the occurence of sulphur is not apparent until the core is split open, or until fragments of the core have been heated over a Bunsen burner.

9. It is of interest to note the occurrence of pyrite in several of the drill holes. This mineral has been observed in the drill cuttings from several of the holes. It has been found in minute crystals, The tiny cubes vary in size from 1/32" to 3/32". In the larger sizes, the striations of the pentagonal dodecahedron are clearly visible under the lense.

BULLDOZER OPERATIONS

The bulldozer used during Stage A was a Caterpillar Diesel D-6 weighing 12½ tons. It is a powerful machine for its size, and capable of cutting a road out of a steep and rocky mountain side, tossing out boulders up to 6 feet in diameter. The cuts made by this machine served two purposes, both of importance. One purpose was to prospect for sulphur by cutting through the surface soil and overburden so as to expose the formations known to occur immediately above the sulphur-bearing strata, and in many cases the sulphur ore itself. A second and essential purpose was to cut out a roadway over which the drill rig could manoeuver, and level off positions whereon the drill rig could operate at selected sites.

The bulldozer cuts originally allocated to Stage A of the exploration program are listed as follows:

1. From a point below hole 7-B at large west pit to a point above 7-B at west end of upper SE bulldozer level..... 100 ft.

2. From west end of SE bulldozer level to east end of same level, beyond hole IO-AX..... 700 ft.

3. From hole 6-BX to a point NW of hole 5-D..... 500 ft.

4. From a point NW of hole 5-D to a point near hole 5-CXY..... 200 ft.

5. Cut to hole 5-CY..... 50 ft.

6. From hole 5-AY to hole 5-B..... 100 ft.

7. From hole 7-A to a point near hole IO-BX, at end of lower SE bulldozer level..... 850 ft.

Total 2,500 ft.

CORE-DRILLING OPERATIONS

The core-drilling equipment used during Stage A was a Sullivan Machinery Company, Class SKIS, Size No. 37 drill rig mounted on a Ford Truck, and equipped with a 26 foot mast, and a Gardner-Denver pump FXF17.

The following bits were used: Fish-tail bit, drag bit, steel core head, 3-cone rock bit, tungsten-carbide bit, and diamond bit. Considerable valuable information was secured as a result of the experience with these bits, and the observance of their performance under various conditions. For example, the diamond bit used in this case was a complete disappointment. This is attributed mostly to the fact that the bit was of doubtful quality, and was not properly designed for the work it was called upon to perform. In the first place, the material to be drilled varied greatly in composition and hardness, and consisted of irregular layers of material varying from soft clay to hard silicious limestone, with frequent chert nodules, and sometimes hard boulders resting at sharp angles to the line of the drill hole. This resulted in a wide variation in hardness, not only in a vertical direction, but also from side to side of the hole. Thus the drill was called upon for a performance which varied from a grinding action to one involving a virtual percussion or pounding action. This caused a rapid deterioration in the cutting action of the diamonds, and almost complete loss of gage. In this bit, the diamonds were set in a random pattern which seemed to be inefficient. It is believed that if the diamonds had been set in some form of echelon or spiral pattern, the results might have been better. However, the unsatisfactory performance of the diamond bit may have been due mostly to a general inferior quality.

In hard rock where coreing was possible at a reasonable speed, the tungsten-carbide bit gave best results. In future operations, it is proposed that a coring bit set with tungsten-carbide fragments is likely to give best results and offer definite advantages in the lower first cost of the bit. In hard rock where coring was too slow in view of the limited time available under Stage A, the core bit was replaced with a 3-cone rock bit which made reasonable speed in hard material. In this case, it was necessary, of course, to sacrifice core in favor of speed, and to be satisfied with drill cuttings in place of solid core. This procedure had a radical effect on the nature of the sample obtained. This effect will be discussed later under the caption "Sampling Factors."

In relatively soft material believed to contain little or no sulphur, such as surface soil or overburden, the fish-tail, drag, and rock bits gave satisfactory results.

The drilling equipment included two 18" core barrels and a 10-ft. core barrel. The short barrel was used in testing variable material, where it was desirable to obtain core if possible. Each of the short barrels was equipped with a different form of bit, so that a prompt choice or substitution could be made if desirable. The 10-ft. core barrel was generally unsatisfactory for the conditions under which it had to be used. It was found that frequently, within a range of 10 feet, a radical change in the material would take place. This required that the core barrel be withdrawn in favor of either a shorter barrel or a rock bit. An example will illustrate the reason for this. With the long barrel in use, it is possible to secure a reasonable amount of core provided the drill passes from soft to hard material, because the hard section of core can force the soft material up inside the barrel. However, if this condition is reversed, the soft material cannot force a section of hard core up inside the barrel, and the soft material is simply disintegrated and is forced up the hole by the circulation as cuttings, and consequently values are lost inasmuch as the softer material often contains most of the sulphur which is lost in the slimes. (See sampling factors). In this connection there was another difficulty in that the long core barrel introduced more friction to be overcome by the drill-rig engine, the power of which was sometimes inadequate.

The above remarks naturally lead to two recommendations in connection with proposed future operations under Stage B (if authorized), namely: The provision of a rig with greater power; and the provision of a 5 ft. core barrel. The shorter barrel offers advantages over both the 18" barrel and the 10 ft. barrel. It will increase efficiency where it is probable that a section of core longer than 18" may be obtained; and it will increase efficiency where there is a probability that the 10-ft. core barrel is too long. In the latter instance, it will serve to reduce the barrel friction 50%.

Owing to the limited time available for a satisfactory showing of sulphur-bearing material under Stage A, all of the holes drilled were discontinued while still in sulphur. It was considered more desirable to drill a limited number of holes, at least up to 16, to show continuity of sulphur ore, than to complete a hole to show the

extreme thickness of the sulphur at any one location. This decision was influenced by the fact that the coring operation is usually slower in showing up extent of tonnage, than could be accomplished by a new hole to demonstrate continuity 100 ft. or 200 ft. beyond a previous hole drilled. Holes which were abandoned while in sulphur, have been adequately marked and left in condition to resume drilling when desirable.

There is another point requiring comment as a result of Stage A operations. Several of the holes presented the problem of caving walls during the drilling of the first 10 or 15 feet. In one case, the hole had to be abandoned temporarily owing to this cause. In some of the others, considerable delay and difficulty was introduced on account of loss of circulation due to the development of early blindness of the hole. In almost all cases encountered, this difficulty could have been overcome by the use of casing if it had been available. Hence it is recommended that for future operations, at least two 10-ft. lengths of casing be provided.

It is of interest to report that most of the holes were drilled with a 4½ inch bit. For the use of the core barrel, it was found advantageous in several cases to use a 4-3/4" bit.

SAMPLING FACTORS

The materials representing the sample from the drill hole may be classified briefly as follows.

1. Solid Core. Usually the core which may be cut from hard limestone.

2. Broken Core. Core which is composed of hard and solid material, but which is crosses by fissures and crevices filled with relatively soft material, such as clay, gypsum, travertine, disintegrated limestone, etc., or which includes nodules, vugs, or small cavernous holes, so that it breaks up into short lengths, gravelly material, and sections of mud.

3. Travertine in layers of variable thickness, say from an inch to a foot along the core.

4. Gravel or completely disintegrated material, from which an accurate core of any appreciable length is impossible.

5. Clay, sometimes fairly solid and permitting an accurate core, sometimes very soft and pasty, or grading into thick mud.

The solid core recovered in Stage A operations, represented a core recovery ranging from 10% to 100% of the section of hole drilled. However, the continuously solid portions were seldom over a foot long; in rare cases two feet long without a break or parting due to a cross fissure. The assay of this solid core should be a true measure of the Quality of the material in the ground measured through a vertical distance equivalent to the piece of solid core recovered. However, this ideal condition occurs over very short distances in the type of material under

investigation. This material is highly irregular as to mineralogical composition and hardness, and its tendency to crack, shatter, disintegrate, or powder, under the drill, places a limit on accuracy of the sampling. In the case of a solid section of core containing numerous small crystals and fragments of sulphur it is theoretically probable that the assay value will be slightly under the true average value of the core. This is due to the fact that numerous crystals may be cut by the cylindrical surface of the core, and these crystals will be ground away and lost in the circulation. Likewise, the cylindrical surface of the core may cut through small vugs lined with crystals, in which event these crystals close to the intersection will be ground out and lost. This means that the assay could fall short of accuracy, and it would be theoretically possible for the error to be great as 5% or even 10%. From a practical standpoint, this line of argument may be regarded as quibbling, in view of two other errors which are likely to be much larger, namely: The error in determining the average value of the entire core or sample of the sulphur bed where the hole is drilled; and larger error involved in the assumption that the section of the sulphur bed between two holes 50 ft. or 100 ft. apart is to be accurately measured by the two holes used for such purpose.

If the line of core passes through solid rock which is cut frequently by cross stringers of softer material, the core will break up into relatively short lengths and the softer material at the points of breakage is likely to contain the material richest in sulphur which will be ground up and washed away in the circulation. If the drill passes from soft to hard material, the soft material will be pushed up the core barrel and can be recovered. However, if the drill passes from hard to soft material, the soft material constituting the theoretical cylinder of the core cannot push the solid part of the core up the barrel, but it is simply ground up and washed up with the cuttings and is lost. As the relatively soft and porous material is likely to contain the most sulphur, this better-grade material is that most easily lost. This indicates why the actual assay of soft core or cuttings is always lower than the actual value, sometimes very much lower.

The broken core comes out of the barrel in fragments, some of which may represent from 1" to 3" of cylindrical core. However, most of the fragments, ranging from 1/4" to 1" in size, do not reach across the width of the core. These small fragments can seldom be placed in the core box in the position corresponding exactly to their original position underground, although their original position is bound to be within the limits of the length of the section of the hole represented by the core secured in the unit withdrawal. To this extent they are truly representative of the material cored. Nevertheless, the important fact remains that the soft, or loose, or disintegrated material, which may represent a considerable proportion of the section of hole cored, is frequently entirely washed up in the circulation. Of this washed-up material, part is in the form of cuttings varying in size from 1/32" to 3/8" which is sampled in the pit sample box, and part is completely lost because it is virtually in the condition of a slime. Unfortunately, this

lost material is likely to contain most of the sulphur, which is fragile and easily ground to a powder before it comes out of the hole.

From the discussion thus far, it appears that over any measured distance, only the solid parts of the core offer an opportunity to secure "fair" samples. Where coring is impracticable, and where it is necessary to resort to the rock bit in order to make reasonable progress in the drilling of the hole, it is obvious that assays of samples taken will be below true value, because the softer parts which contain the sulphur are all washed out with the cuttings, and while the cuttings may be recovered, the slimes are lost. It has been observed at some of the holes that while the recoverable cuttings may assay from 5% to 10% sulphur, the scum or slimes coming out of the hole at the same time will assay 70% to 80% sulphur. Neither assay is representative of the average material in the hole. Any attempt to collect and sample everything that comes from the hole would introduce very difficult and expensive mechanical problems, and would preclude the use of anything but fresh water for purposes of circulation. Hence, the only practicable method of approaching what may be considered a "fair" sampling result, is to apply a factor or multiplier to the assay of the recoverable cuttings, where it is necessary to depend upon cuttings. It is probable that a single factor may not be suitable for all samples, but may vary somewhat with the average quality of the cuttings to which the factor is to be applied.

As an aid in attempting to determine or approximate such factors, experiments were conducted as follows: A 10-lb. sample of the sulphur-bearing material, similar to that which is being prospected, was used for testing. This material was crushed to pass a 10-mesh screen, and was sampled for assay. A duplicate sample was mixed with water, stirred actively, and all particles that could be kept in suspension were washed out. The residue was again sampled for assay. The ratio of the original assay to the assay of the residue was assumed to be the factor applicable in this case. Thus, if the original assay were 2% and the corresponding sludge assay were 1%, then the factor, or the multiplier to be applied to the sludge assay would be 1.66. At first glance, this seems like a large factor, and appears to reflect the probability of a wide error in the estimation of the actual value of the material sampled. However, such conditions do not seem to be out of line with the experiences of others in estimating the value of sulphur-bearing material under similar circumstances. The actual tests made on representative Brutch ore may be described as follows:

ESTIMATION OF FACTOR OR MULTIPLIER

This factor was developed for the purpose of showing the relationship between the quality of the samples secured during drilling operations, and the quality of the material in place before it is subjected to drilling and washing operations incident to its removal from its original position to the washed residue secured for sampling and assaying.

The following tabulation shows the percentage of sulphur in original sulphur-bearing material of various grades (Column 2) and the percentage of sulphur in the corresponding residues remaining after the original material has been subjected to a slushing and washing process which approaches as closely as possible the action of the drill and associated water circulating and pumping (Column 3). The factor obtained by dividing the figures in Column 2 by the figures in Column 3 are presented in Column 4. Thus, in order to get the true sulphur content of the material in the ground (Column 2), it is necessary to multiply the assay of the secured sample (Column 3) by the factor in Column 4.

TABULATION OF ASSAYS AND FACTORS

Sample	Original	Residue	Factor
1	2	3	4
Pure Sulphur	100.00%	100.00%	1.00
Sample A	33.96%	28.76%	1.18
Sample B	13.80%	9.90%	1.40
Sample C	6.74%	4.15%	1.62
Sample D	4.02%	2.14%	1.88

Note: The first theoretical sample "Pure Sulphur" is inserted in the tabulation to show that the factor in this case would be unity because the residue would always assay 100% regardless of the nature and amount of the grinding and washing to which the sample might be subjected. Hence, this factor constitutes an important point on the "curve of factors" shown in Graph No. 1.

The samples A, B, C, and D were of different grades of limestone containing sulphur, present either in the form of scattered crystals or in clusters of crystals occurring in small vugs or cracks in the limestone. The five factors thus obtained were placed on the graph in their relationship to the assays of the corresponding residues, and a smooth curve was plotted through them. This curve provided means for a quick approximation of a considerable range of grades of sulphur-bearing samples obtained by drilling operations. Such approximation is in all probability as accurate as would be obtainable from the results of the assaying of a great variety of samples of sulphur-bearing rock containing sulphur in various percentages, because such samples, regardless of their number, would be at best only approximations probably no closer to the truth than a point on the curve shown in Graph No. 1.

CORE-DRILL LOGS

The logs of the 16 core-drill holes are here presented in the order in which they were drilled. The locations of the holes are shown on Sketch No. 2, following page 2 of the text. Each log tabulation is followed by related notes and comments.

CORE DRILLING PROGRAM

FIRST HOLE DRILLED

Hole No. 5-A (4-1/4 in. Diam.)

1951 Date	Depth Ft. From	To	Lithe Units	% Core Recvd.	Formation	Bit Used	Sample No.	Assay Value Orig.	Prob.
9-22	0	6	6		Surface soil	Drag	(a)	(a)	(a)
	6	29	23		Light gravel	"			
	29	36.5	7.5		Yellow clay	"			
	36.5	42	5.5		Sandy quartz	Rock			
	42	68	26		Yellow clay	"			
	68	82	14		Blue shale	"			
	82	95	13		Light blue shale	"			
	95	100	5		Chert	"			
9-23	100	106	6		Hard chert	"			
	106	115	9		Hard sandy limestone	"			
9-24	115	135	20		" " "	"			
Total:	0	135	135						

Notes: At 135 ft., the gage was gone. Inasmuch as no apparent showing of sulphur was encountered, the hole was abandoned. The tentative conclusion was that either the sulphur-bearing stratum at this point (Phosphoria) dipped sharply NE of the hole, or had been completely eroded in this locality. The drill rig was moved to Hole No. 7-B.

A circumstance relating particularly to this hole (but noted in some of the other holes), and one which may have led to the erroneous assumption that the cuttings were not worth assaying, was the fact that the samples were saturated with petroleum, the presence of which disguised any sulphur which may have been present, and led to the premature conclusion, based on preliminary tests, that little or no sulphur was present. Further investigation will clarify this point.

(a) No samples were assayed.

SECOND HOLE DRILLED

Hole No. 7-B (4-1/4 inches Diam.)

1951 Date	Depth Ft. From	To	Litho Units	% Core Recvd.	Formation		Bit Used	Sample No.	Assay Value Orig.	Prob.
9-25	0	2.5	2.5		Heavy S & gypsum		Rock	1	6.94	10.25
	2.5	4	1.5		" " "		"	2	11.40	15.60
								A	15.46	20.05
	4	5.5	1.5		" " "		"	3	10.80	15.10
								A	15.46	20.05
	5.5	7	1.5		" " "		"	A	15.46	20.05
	7	8.5	1.5	80	Coring S.	(a)	Diam.	B	14.20	18.75
	8.5	11.5	3	80	" "		"	C	8.34	12.00
9-26	11.5	16.5	5	80	" " Cavity		"	5	4.94	7.80
	16.5	17.5	1	80	" " "		"	5	4.94	7.80
	17.5	26.	8.5	80	Coring light S in shale		"	8	11.80	15.90
	26	27.5	1.5	80	" " " in lime	(b)	"	8	11.80	15.90
	27.5	37.5	10	80	" " " " "		"	9	6.72	10.00
	37.5	39	1.5	80	" " " " "		"	10	8.78	12.50
9-27	39	45	6	100	Hard sandy limestone		"	10	8.78	12.50
	45	47	2	100	" brown shale		"	10	8.78	12.50
	47	56	9	100	" " "		"	11	14.26	18.50
	56	59	3	100	" " "	(c)	"	11	14.26	18.50
9-28	59	69	10	100	" " "	(d)	"			
Total:	0	69	69							

Notes:

(a) Pit leaking, and hole using water. In sulphur to here.

(b) Coring very slow from 26 ft. to 39 ft. Core recovery reduced to 80% due to hole cave-ins owing to cavities. No wear showing on bit.

(c) Drilling very slowly, and hole using water. Bit showing some wear. Used 1000 gal. water.

(d) Cutting about 14" per hr. Using considerable water. Abandoned hole at 69 ft. Bit showing considerable wear on inside gage. Used 1500 gal. of water. Hole in sulphur for 59 ft. Last 10 ft. doubtful, but might be underlying rock. Average sulphur content of 59 ft. of hole was probably 18.5%.

THIRD HOLE DRILLED

Hole No. 6-BX (4-1/2 inch. Diam.)

1951 Date	Depth, Ft. From	To	Litho. Units	% Core Recvd.	Formation			Bit Used.	Sample No.	Assay Value Orig.	Prob.
9-29	0	10	10		Conglomerate fill.		(1st Try)	Rock			
9-29	0	2.5	2.5		"	"	(2nd Try)	Rock	A	5.66	8.72
	2.5	5	2.5		"	"		"	B	2.52	4.64
	5	7.5	2.5		"	"		"	C	3.80	6.30
	7.5	10	2.5		"	"		"	D	3.28	5.64
Totals:	0	10	10								

Notes: On the 1st try, could not maintain circulation. Hole went blind at bottom of fill, at a depth of 10 feet. Used 200 lb. of bran without favorable result. Used 1000 gal. of water. Abandoned hole.

A 2nd try was made, with a redrill at a distance of 10 ft. from the first hole. The cuttings were sampled with results as above. Otherwise, the performance of the 1st hole was duplicated, and the hole was abandoned, as it was impossible to proceed without casing which was not immediately available.

The entire 10 ft. of this hole was in sulphur-bearing material, which had a probable average value of 6.32% sulphur. The bottom of the hole was in sulphur-bearing material.

FOURTH HOLE DRILLED

Hole No. 6-B (4-1/4 inch. Diam.)

1951 Date	Depth, Ft. From	To	Litho. Units.	% Core Recvd.	Formation		Bit Head	Sample No.	Assay Value Orig.	Prob.
9-29	0	4	4		Surface soil		Rock			
	4	10	6		Sand and boulders		"			
	10	13	3	90	Coring chert		Steel Core Head.			
9-30	13	17	4		Coring chert and gravel.	(a)	Rock			
	17	18	1		Sandy limestone		"			
	18	20	2		" "		"	1	2.62	4.75
	20	25.5	5.5		Caving chert and quartz		"	1	2.62	4.75
	25.5	28	2.5		" " " "		"	2	1.62	3.28
	28	30.5	2.5		" " " "		"	3	2.50	4.60
	30.5	33	2.5		" " " "	(b)	"	4	2.22	4.30
10-1	33	35.5	2.5		Chert and quartz boulders	(c)	"	5	2.68	4.85
	35.5	38	2.5		" " " "		"	6	4.22	6.90
	38	40.5	2.5		" " " "		"	7	2.76	5.00
	40.5	43	2.5		" " " "		"	8	3.96	6.50
Totals:	0	43	43							

Notes: (a) Had trouble with hole caving in. Very slow drilling. Impossible to core while hole caving. No casing available. Changed to rock bit.

(b) Tried coring at 33 ft., but hole entered chert again, so abandoned coring.

(c) Broke some off of rock bit and could not recover it. Bit ruined. Abandoned hole.

Of this hole, 25 ft. was in sulphur-bearing material, which had a probable average content of 4.97% sulphur. The last 5 ft. averaged probably 5.75% sulphur. The bottom of the hole was in sulphur-bearing material.

FIFTH HOLE DRILLED

Hole No. 5-D (4-1/4 inch. Diam.)

1951 Date	Depth. Ft. From	To	% Core Recvd.	Litho. Units.	Formation		Bit Used	Sample No.	Assay Value Orig.	Prob.
10-1	0	1		1	Sandy clay		Fish Tail			
	1	4		3	Shale and limestone	(a)	" "			
	4	7.5		3.5	Blue clay	(b)	" "			
10-2	7.5	10	0	2.5	Hard porous limestone		Diam.			
	10	12.5	40	2.5	Hard limestone and quartz	(c)	"	A	5.66	8.74
	12.5	15.5	40	3	" " " "		"	B	6.15	9.35
Total:	0	15.5		15.5						

Notes: (a) Hole went blind at 3 ft. Used bran, and drilled to 7.5 ft.

(b) Hole went blind again at 7.5 ft. Used considerable water and bran. Rock became very hard. Used 1500 gal. water.

(c) Rock very hard, but fissured. Used 200 lb. bran from 10 ft. to 13 ft. No improvement. At 15.5 feet, hole went completely blind. Unable to recover circulation. Total bran used, 300 lb. Total water used, 5,500 gal. No casing available. Used diamond bit in last 8 ft. Diamonds gone on inside gage. Abandoned hole.

Little sulphur obvious from visual observation of cuttings in first 10 ft., so no assays made, but assays of last 5.5 ft. indicated about 9% sulphur, with tendency to increase at bottom.

At bulldozer cut in bank opposite top of hole, a 6-in. layer of material assayed 49% sulphur.

SIXTH HOLE DRILLED

Hole No. 5-CY (4-1/4 inch. Diam.)

1951 Date	Depth, Ft. From	To	Litho. Units	% Core Record.	Formation		Bit Head	Sample No.	Assay Value Orig.	Prob.
10-3	0	10	1		Boulders and clay. Hole crooked.	(a)	Fish Tail			
	1	4	1		" " " " "		" "	1	1.92	3.72
	11	12.5	1.5		White clay		" "	1	1.92	3.72
	12.5	13.5	1		" "		" "	2	4.36	7.07
	13.5	15	1.5		" "		" "	2	4.36	7.07
	15	16.5	1.5	25	Coring sulphur and clay	(b)	Diam.	A	4.48	7.27
								3	3.42	5.82
	16.5	17.5	1	25	" " " "		"	A	4.48	7.27
								4	1.96	3.80
	17.5	18.5	1	25	" " " "		"	A	4.48	7.27
								5	3.20	5.57
	18.5	19.5	1	25	" " " "		"	B	8.06	11.70
								6	3.16	5.47
	19.5	22.5	3	25	" " " "		"	B	8.06	11.70
								7	3.22	5.57
	22.5	25.5	3	25	" " " gypsum		"	C	5.74	8.85
								8	8.40	12.10
	25.5	29	3.5	25	" " " "		"	D	18.84	23.80
								9	5.98	9.10
10-4	29	32	3	25	Sulphur and very hard limestone	(c)	"	E	12.82	17.20
10-5	32	33	1		Very hard limestone	(d)	Steel Core Head.			
Totals	0	33	33							

Notes:

(a) Hole became crooked owing to boulder not far below surface and lying at an angle with the hole, with no suitable rock bit available to cut it under these circumstances.

(b) Started coring at 15 ft. After coring from 15 ft. to 29 ft., the inside gage of the diamond bit was completely worn out. Used 1000 gal. water.

(c) Trouble all day with core barrel, partly due to hole being out of alignment, and partly to improper design of a new core-catcher sleeve which was too long, thus preventing proper circulation by setting down on stabilizer. Spring on inner barrel became loose and let inner barrel drop. Hole went blind at 30 ft. Improved by adding considerable bran, and recovered circulation. Tried coring with tungsten-carbide head without much success. Limestone too hard, and diamond bit worn out after drilling 6 in. Used steel head and tungsten-carbide bit in last 2.5 ft. Used 1500 gal. water.

(d) Ran long core barrel in hole with tungsten-carbide bit. Rock too hard for type of bit immediately available. Used 1400 gal. water and 100 lb. bran, but could not maintain adequate circulation. Core head showing heavy wear. Abandoned hole. The showing of sulphur in this hole appeared to be excellent, judging from appearance of core and cuttings.

The estimated average sulphur content of 23 feet of this hole was 9.63%. The last five feet indicated 16.7% sulphur.

HARRY J. WOLF

SEVENTH HOLE DRILLED

Hole No. 5-C (4-1/4 inch. Diam.)

1951 Date	Depth, Ft. From	To	Litho. Units	% Core Recvd.	Formation		Bit Used	Sample No.	Assay Value Orig.	Prob.
10-5	0	2	2		Surface soil		Rock			
	2	24	22		Clay and boulders		"			
	24	30	6	0	Limestone	(a)	core Head.			
10-6	30	32	2	0	Traces of Sulphur		" "			
	32	36	4	50	Coring sulphur and gypsum	(b)	" "	1	3.14	5.47
	36	38	2	50	" " " "		" "	2	8.00	11.60
	38	50	12		Sulphur in limestone	(c)	Rock			
10-7	50	60	10		" " "	(d)	"			
10-8	60	65	5		" " hard limestone		"			
	65	67.5	2.5		" " " "		"	3	8.42	12.00
	67.5	70	2.5		" " " "		"	4	6.36	9.55
	70	72.5	2.5		" " limestone and quartz	(e)	"	5	8.10	11.75
	72.5	75	2.5		" " " " "		"	6	6.34	9.51
Total	0	75	75							

Notes: (a) Used 1000 gal. of water and 100 lb. of bran in first 30 ft. of hole.

(b) Coring was too difficult for the tungsten-carbide bit, so put on a rock bit at a depth of 38 ft.

(c) Hole partly blind. Used 2000 gal. water and 100 lb. bran. Gage on rock bit shows wear.

(d) Tried coring, but bit was too dull and cored at rate of only 4 in. per hour. Changed to rock bit which cut at rate of 2 ft. per hr. Used 1500 gal. water. Rock bit practically worn out after drilling 10 ft.

(e) Rock bit badly worn, and cutting at rate of 4 in. per hr. Used 3000 gal. water. Hole still showing sulphur, but rock hard. Abandoned hole temporarily.

Total depth of sulphur in this hole 45 ft. Average sulphur content about 11.35%. Last 5 ft. about 10.63% sulphur.

EIGHTH HOLE DRILLED

Hole No. 7-8A (4-1/4 inch. Diam.)

1951 Date	Depth, Ft. From	To	Litho. Units	% Core Recvd.	Formation	Bit Used	Sample No.	Assay Value Orig.	Prob.
10-9	0	7.5	7.5		Shale	Rock			
	7.5	10	2.5		Blue clay	"			
	10	12.5	2.5		Red clay	"			
	12.5	17.5	5		Hard sandy limestone	"			
	17.5	19	1.5	100	Coring sulphur and sandy rock	(a) Core Head	6	2.30	4.46
							1	4.52	7.30
	19	20.5	1.5	100	" " " " "	" "	7	1.96	3.80
							2	3.74	6.30
	20.5	22	1.5	100	" " " " "	" "	8	8.04	11.65
							3	6.54	9.80
	22	23.5	1.5	100	" " " " "	" "	9	2.88	5.00
							4	5.54	8.60
	23.5	24.25	.75	100	" " " " "	" "	10	4.00	6.60
							5	5.72	8.80
✓ 10-10	24.25	25	.75		Sulphur in hard limestone	(b) Rock	11	6.86	10.20
	25	27.5	2.5		" " " "	"	12	8.20	11.90
	27.5	30	2.5		" " " "	"	13	8.98	12.80
	30	32.5	2.5		" " " "	"	14	9.76	13.65
	32.5	35	2.5		" " " "	"	15	12.04	16.25
Total	0	35	35						

Notes: (a) Used 1500 gal. water and 100 lb. bran to depth of 24.25 ft. Core head showing wear.

(b) Rock too hard for core head below 24.25 ft. Changed to rock bit. Total distance cored was 6.75 ft., using 18 in. core barrel. Ten ft. barrel too long. Used 500 gal. water.

Estimated average sulphur content of this hole, through a vertical depth of 17.5 ft. was 9.95%. The last five feet averaged about 14.95% sulphur.

TENTH HOLE DRILLED

Hole No.. 10-4X (4 1/4 in.Diam.)

1951 Date	Depth. Ft. From	to	Litho. Units	% Core Recvd.	Formation		Bit Used	Sample No.	Assay Value Orig.	Prob
10-10	0	2.5	2.5		Clay and light gravel		Rock			
	2.5	15	12.5		Red clay.		"			
	15	22.5	7.5		Blue and red clay		"			
	22.5	25	2.5		Sulphur in limestone		"	7	5.06	8.00
	25	27.5	2.5		Limestone ledge		"	8	10.14	14.20
	27.5	30	2.5		" "		"	9	13.82	18.40
	30	32.5	2.5		Blue clay	(a)	"	10	4.46	7.20
	32.5	35.5	3	90	" " H_2S gas		Core Head	1	5.02	7.94
								11	7.06	10.45
	35.5	38.5	3	90	" " "		"	2	6.04	9.18
								12	5.66	8.70
	38.5	41.5	3	90	" " "		"	3	9.94	13.90
								13	5.32	8.35
	41.5	42.5	1	90	Sulphur in limestone	(b)	"	4	5.80	8.82
								14	12.32	16.70
	42.5	44.5	2	90	" " "		"	4	5.80	8.82
								15	9.04	12.85
	44.5	46	1.5	90	" " "		"	5	8.10	11.75
								15	9.04	12.85
	46	49	3	90	" " "		"	6	7.06	10.45
								15	9.04	12.85
Total:	0	49	49							

Notes: (a) Tried coring at 25 ft., but limestone ledge too hard, hence drilled to 32.5 ft. with rock bit. Traces of sulphur obvious from 25 ft. to 32.5 ft. No wear on rock bit. Used 200 gal. water.

(b) Cored from 32.5 ft. to 40 ft. Recovery about 90%. Used three different core barrels. Hole making SO_2 gas. Total depth drilled through sulphur, 26.5 ft. Used 700 gal. water. From 32.5 ft. to 40 ft., used 2 3/8-in. I. D. core head. From 40 ft. to 49 ft. used 2 11/16-in. core head. Gage holding.

Estimated average sulphur content of this hole, over a vertical depth of 26.5 ft. of hole, is 12.7%. Last 5 ft. averaged about 12.85% sulphur.

TENTH HOLE DRILLED

Hole No. 9-B (4 3/4 in. Diam)

1951 Date	Depth Ft. From	To	Litho. Units	% Core Recvd.	Formation		Bit Used	Sample No.	Assay Value Orig.	Prob.
10-11	0	2	2		Red clay.		Rock			
	2	20	18		Shale rock.		"			
	20	22.5	2.5		Traces of sulphur in limestone.	(a)	"	3	3.66	5.86
10-12	22.5	25	2.5		Sulphur in limestone	(b)	"	4	4.72	7.55
	25	27.5	2.5		" " "		"	5	5.76	8.75
	27.5	31	3.5	30	Cavity. Heavy H_2S gas.		Core Head			
	31	33	2	30	Sulphur in limestone.		"			
	33	34	1	30	Cavities.		"			
	34	35	1	30	"		"	1	8.06	11.70
	35	37.5	2.5	30	"		"			
	37.5	41	3.5	30	Sulphur in limestone	(c)	"			
	41	42	1	30	" " "		"	2	6.54	9.80
Total:	0	42	42							

Notes: (a) Hole using water and caving on bit. Using 500 gal. water and 100 lb. bran. No wear on 4 3/4-in. rock bit.

(b) Hole went totally blind at 27 ft. Cored from 27 ft. to 42 ft. with 4 1/4-in. core head. Strong flow of H_2S. Drill rods turned black, and were covered with tiny crystals of sulphur. Used 3500 gal. water and 200 lb. bran.

(c) Lost 2.5 hours because angry rancher made helper empty water tank at point of shot gun. Water truck forced to go a mile further to river for water. Presence of sulphur well-established in this hole, especially in bottom. However, abandoned hole temporarily because efficient procedure would require casing not immediately available.

Estimated average sulphur content of this hole, over a vertical depth of 22 ft. of hole, is 8.75%. Last 5 ft. averaged about 10.75% sulphur.

LIST OF HOLE DRILLED

Hole No. 9-BI (4 3/4 in. Diam.)

1951 Date	Depth. From	Ft. To	Litho. Units	% Core Recvd.	Formation		Bit Used	Sample No.	Assay Value Orig.	Assay Value Prob.
10-13	0	12.5	12.5		Gray, medium hard, slaty rock.		Rock			
	12.5	15	2.5		Soft, gray clay.	(a)	"			
	15	20	5		Black, sandy limestone, medium.	(b)	"			
	20	22.5	2.5		" " " "		"	101	3.64	6.15
	22.5	25	2.5		Black sulphur limestone.	(c)	"	102	5.20	8.22
	25	42	17		Sulphur in limestone	(d)	"		(e)	9.10
Total:	0	42	42							

Notes: (a) Hole half blind. Using water and bran.

(b) Traces of sulphur appearing. Considerable H_2S gas.

(c) Hole half blind again went totally blind at 25' 10".

(d) Hole blind. Used 2500 gal. water and 400 lb. bran. Bit showing no wear. Abandoned hole temporarily. Last 17 ft. in sulphur bearing limestone.

Attempts, gas, hand tools and sample sacks stolen during night. Thief caught following day. Hole made considerable H_2S gas.

(e) Samples not assayed here, but estimated substantially over 6% sulphur.

Estimated average sulphur content of this hole, over a vertical depth of 22 ft. of hole, is 8.66%. Last 17 ft. averaged about 9.10% sulphur.

TABLE OF HOLES DRILLED

Hole No. B-[illegible] (4 3/4 in. Diam.)

1951 Date	Depth, Ft. From	To	Litho. Units	% Core Recvd.	Formation		Bit Used	Sample No.	Assay Value Orig.	Prob.
10-15	0	3	3		Soft, red surface soil		Rock			
	3	15	12		Gray shale ledges, caving.	(a)	"			
	15	20	5		Yellowish clay, soft.		"			
	20	22.5	2.5		Red clay, medium.	(b)	"			
	22.5	25	2.5		" " "		"	103	4.60	7.45
	25	27.5	2.5		Black S-bearing limestone, hard	(c)	"	104	7.58	11.30
	27.5	30	2.5		" " " "		"	105	6.50	9.75
	30	32.5	2.5		" " " "		"	106	6.76	10.10
	32.5	35	2.5		" " " "		"	107	7.44	10.95
	35	37.5	2.5		" " " "		"	108	7.30	10.75
	37.5	40	2.5		Cherty limestone, gray, hard	(d)	"	109	10.52	14.75
	40	42.5	2.5		Gray limestone and boulders.	(e)	"	110	14.38	19.10
	42.5	45	2.5		" " " "		"	110	14.38	19.10
Total:	0	45	45							

Notes: (a) Slow progress due to caving of hole. Also poor circulation.

(b) Tiny crystals of iron pyrite in cuttings.

(c) Sulphur, both black and yellow.

(d) Crystals of sulphur.

(e) Crystals of sulphur. Bit page starting to show wear. Hole struck chert and boulders. Abandoned to save time. To be sunk deeper, later.

Estimated average sulphur content of this hole, through a vertical depth of 20 ft., is 12.58%. Last 5 ft. averaged about 19.10% sulphur.

THIRTEENTH HOLE DRILLED

Hole No. 8-D (4 3/4 in. Diam.)

1951 Date	Depth. From	Ft. To	Litho. Units	% Core Recvd.	Formation		Bit Used	Sample No.	Assay Value Orig.	Assay Value Prob.
10-16	0	3	3		Red clay, soft.		Rock			
	3	15	12		Gray shale, medium.		"			
	15	17.5	2.5		Blue clay, shale & chert.	(a)	"			
	17.5	20	2.5		" " " "		"	111	7.42	10.90
	20	22.5	2.5	30	Sulphur in gray limestone,	(b)	Core head	112	7.72	11.30
	22.5	25	2.5		" " " "		Rock	113	6.48	8.73
	25	27.5	2.5		" " " "		"	114	8.24	11.85
	27.5	30	2.5		" " " "		"	115	7.08	10.50
	30	32.5	2.5		" " " "		"	116	9.68	13.70
	32.5	35	2.5		" " " "		"	117	11.72	16.20
10-17	35	37.5	2.5		Gray limestone & chert, hard	(c)	"	118	10.06	14.10
	37.5	39	1.5		" " " " "		"	119	11.28	15.56
	39	40	1		" " " " "	(d)	"	119	11.28	15.56
	40	42.5	2.5		" " " " "		"	120	10.00	14.00
	42.5	45	2.5		" " " " "		"	121	13.06	17.40
	45	47.5	2.5		" " " " "		"	122	9.72	13.70
	47.5	50	2.5		Red limestone & chert, hard	(e)	"	123	11.42	15.77
	50	52.5	2.5		" " " " "	"	"	124	7.96	11.55
Total:	0	52.5	52.5							

Notes: (a) Traces of sulphur in cuttings.

(b) Sulphur. Tried coring at 22.5 ft., but rock too hard for steel head; resumed drilling with rock bit. Hole caving. Used 1200 gal. water and 100 lb. bran to recover circulation. Rock bit needs retipping.

(c) Put on new rock bit. After 16.5 ft., hole caved badly. Used 600 gal. water. Circulation difficult.

(d) Crystals of sulphur in cuttings.

(e) Hole making considerable H_2S gas. New bit showing no wear.

Estimated average sulphur content of this hole, through a vertical depth of 35 ft. of hole, is 13.40%. Last 5 ft. averaged about 13.66% sulphur.

FOURTEENTH HOLE DRILLED

Hole No. 10-HX (4-3/4 inch. Diam.)

1951 Date	Depth. From	Ft. To	Litho Units	% Core Recvd.	Formation	Bit Used	Sample No.	Assay Value Orig.	Assay Value Prob.
10-17	0	5	5		Conglomerate fill. soft.	Rock Bit			
	5	17	12		Gray limestone & chert. Hard	(a) " "			
10-18	17	19½	2½		" " very hard	" "			
	19½	22½	3		Sulphur rock	" "	126	6.24	9.36
	22½	25	2½		" "	(b) " "	127	13.10	17.60
	25	25-1/4	1/4	90	Sulphur limestone very hard	steel)	130	16.80	21.80
	25¼	26½	1¼	90	Sulphur limestone very hard	head)	128	9.42	13.30
	26¼	28	1¾	90	" " " "	"	129	11.40	15.80
Total	0	28	28						

Notes: (a) At 15 ft. hole cored and used 900 gal. water. Mixed bentonite to heavy mud.

(b) Hole went blind at 25 ft. Used 200 lb. bran to recover circulation. Cored from 25 to 28 ft. Rock too hard for steel head. Abandoned hole at 28 ft. with bottom in sulphur, total depth of which was undetermined. Used 2000 gal. water.

Estimated average sulphur content of this hole through a vertical depth of 8.5 ft. of hole is 13.90%. Last 5 ft. averaged about 17.12% sulphur.

FIFTEENTH HOLE DRILLED

Hole No. 9-A (4-3/4 inch Diam.)

1951 Date	Depth From	Ft. To	Litho. Units	% Core Recvd.	Formation		Bit Used	Sample No.	Assay Value Orig.	Assay Value Prob.
10-18	0	2½	2½		Surface, soil, soft		Rock Bit			
	2½	17	14½		Mixed gravel, hard		" "			
10-19	17	20	3		Blue clay, soft, and sulphur	(a)	" "			
	20	22½	2½		" " " "		" "	133	6.14	9.35
	22½	25	2½		" " " "		" "	134	4.28	7.09
	25	27½	2½	100	Yellow shale, medium, sulphur		Core Head	135	5.68	8.80
	27½	30	2½	90	" " " "		" "	136	6.80	10.10
	30	32½	2½	90	Blue clay, medium, sulphur	(b)	" "	137	4.00	6.60
	32½	35	2½	90	" " " "		" "	138	4.76	7.65
	35	37½	2½	100	" " " "		" "	139	6.32	9.60
	37½	38½	1	100	Black limestone, hard and sulphur	(c)	Rock Bit	140	6.04	9.15
	38½	40	1½		" " " " "		" "	141	8.28	12.00
	40	42½	2½		" " " " "		" "	142	8.84	12.55
	42½	45	2½		" " " " "		" "	143	10.76	14.30
Total	0	45	45							

Notes:

(a) Used 4-3/4" rock bit from 0 to 25 ft. Gravel wall of hole caved. Mixed mud and bran to prevent hole going blind, and to raise cuttings. Used 500 gal. water and 100 lb. bran. Used some bentonite.

(b) Cored from 25 to 38½ ft. Pyrite in core and in samples of cuttings.

(c) Cut from 38½ to 45 with 4-3/4" rock bit. Sulphur from 20 to 45 ft. Bottom of sulphur not determined on account limited time available.

Casing would have been beneficial on this hole. Estimated average sulphur content of this hole, through a vertical depth of 25 ft. was 9.65%. Last 5 ft. averaged 13.42% sulphur.

SIXTEENTH HOLE DRILLED

Hole No. 5-B (4-3/4" Diameter)

1951 Date	Depth. Ft. From	To	Litho. Units	% Core Recvd.	Formation		Bit Used	Sample No.	Assay Value Orig.	Prob.
10-19	0	12½	12½		Blue sandy clay, soft		Rock Bit			
10-20	12½	20	7½		Gray clay, medium	(a)	" "			
	20	22½	2½		" " " & sulphur		" "	149	3.78	6.3
	22½	24	1½		" " " "		" "	150	2.64	4.85
	24	25	1		Yellow sulphur-bearing clay, medium		" "	150	2.64	4.85
	25	28	3	70	Yellow sulphur-bearing clay, medium		Core bit	151	4.74	7.58
	28	30½	2½	70	Yellow sulphur-bearing clay, medium			152	4.04	6.63
	30½	32	1½	70	Yellow sulphur-bearing clay, medium			153	4.22	6.85
	32	34½	2½	70	" " " " "			154	4.28	6.95
	34½	36	1½	70	" " " " "			155	3.20	5.57
	36	38	2	100	" " " " "			156	2.50	4.60
	38	40½	2½	100	Same, hard, heavy sulphur	(b)		157	10.46	14.50
	40½	43	2½	100	" " " "			158	9.30	13.20
Total:	0	43	43							

Notes: (a) From 0 to 25 ft. used 4-3/4" rock bit. Used same bran.

(b) From 25 to 43 ft. coring. Used very little water. Sulphur from 24 to 43 ft. Lost 5 ft. in hard clay. Extent of sulphur not determined. Time limit on drilling campaign expired.

Estimated average sulphur content of this hole, though a vertical depth of 23 ft., was 7.90%. Last 5 ft. averaged about 13.85% sulphur.

HARRY J. WOLF

RESUME OF DRILL HOLES

No.	Depth	Hole	Ft. in Sulphur	Range of Sulphur Values: Low %	High %	Average %	Last 5 ft. %
1	135 ft.	5-A	? (a)	?	?	?	?
2	69	7-B	59 ft.	5.65	20.05	13.85	18.50
3	10	6-BX	10	4.64	8.72	6.32	5.97
4	43	6-B	25	3.28	6.90	4.97	5.75
5	15.5	5-D	5.5	8.74	9.35	9.04	9.35
6	33	5-CY	23	3.72	23.80	9.63	16.70
7	75	5-C	45	5.47	12.00	11.35	10.63
8	35	7-BX	17.5	3.80	16.25	9.95	14.95
9	49	10-AX	26.5	7.20	18.40	12.70	12.85
10	42	9-B	22	5.86	11.70	8.75	10.75
11	42	9-BX	22	6.15	9.10	8.66	9.10
12	45	8-BX	20	7.45	19.10	12.58	19.10
13	52.5	8-B	35	8.73	16.20	13.40	13.66
14	28	-10-BX	8.5	9.36	21.80	13.90	17.12
15	45	9-A	25	7.03	14.30	9.65	13.42
16	43	5-B	23	4.60	14.50	7.90	13.85
Totals:	762		367				
Averages:	47.6		22.9			10.75	12.00

APPENDIX I

FACTOR OR MULTIPLIER

The observation that the assays of drill-hole cuttings for sulphur are usually, if not always, below the true sulphur content of the material in the ground, has been made by others. Their experience appears to indicate that the factor developed for use in estimating the probable sulphur content of the ground reviewed in this report are quite conservative.

The procedure in making such tests, and the results thereof, have been described as follows:

"We made several tests to find out as closely as possible the percentage of loss in our drilling when cores were not obtained. In two separate locations where there was no sulphur in the holes down to 35 feet, we crushed several hundred pounds of high-grade ore and poured it in the holes, then tamped it down as solidly as equipment permitted, then drilled it out again. The results were surprising. Ore put in the holes assayed 58.65% sulphur, and the cuttings assayed 24.0%. This indicates a loss of 59.1%. (Equivalent to a factor or multiplier of 2.42).

"The concentrates froth that floated on the tank was sampled, and assayed 87.3% sulphur.

"This concentrate floating on the sludge tank always ran about 80% sulphur."

"Cuttings were saved over footage recovered in cores and analyzed for comparison. The cuttings were often 40% to 55% lower than the split core analysis." (Equivalent to factors ranging from 1.66 to 2.22)

APPENDIX II

DRILLING EQUIPMENT

In the interest of general efficiency in future drilling operations on this property, consideration should be given to any or all of the following suggestions:

1. Provide a somewhat heavier and more powerful drilling rig.

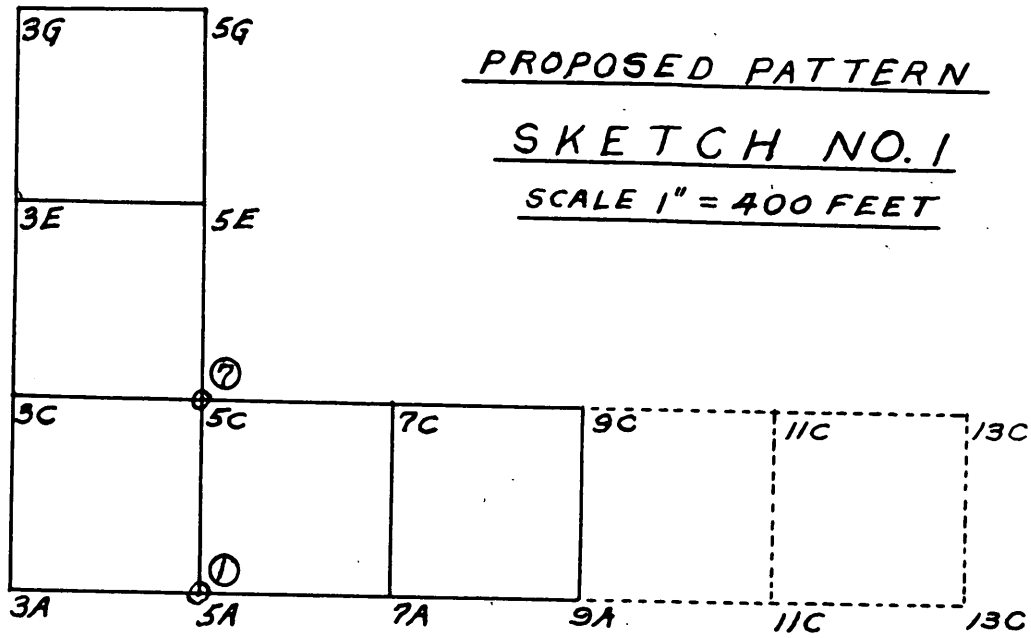
2. Provide a 5-foot core barrel, inasmuch as an 18-inch core barrel is often too short, and a 10-foot core barrel is often too long for the most efficient operation.

3. Provide a few lengths of casing to solve problems involving the drilling of ground which contains cavities or considerable porous material.

4. Provide a duplicate water truck which may replenish water supply while one water truck is in use, to conserve time under circumstances when circulation is lost or difficult to maintain.

5. Provide a better quality of diamond bit, or an efficiently designed tungsten-carbide inset bit, to insure more effective coring where coring is possible.

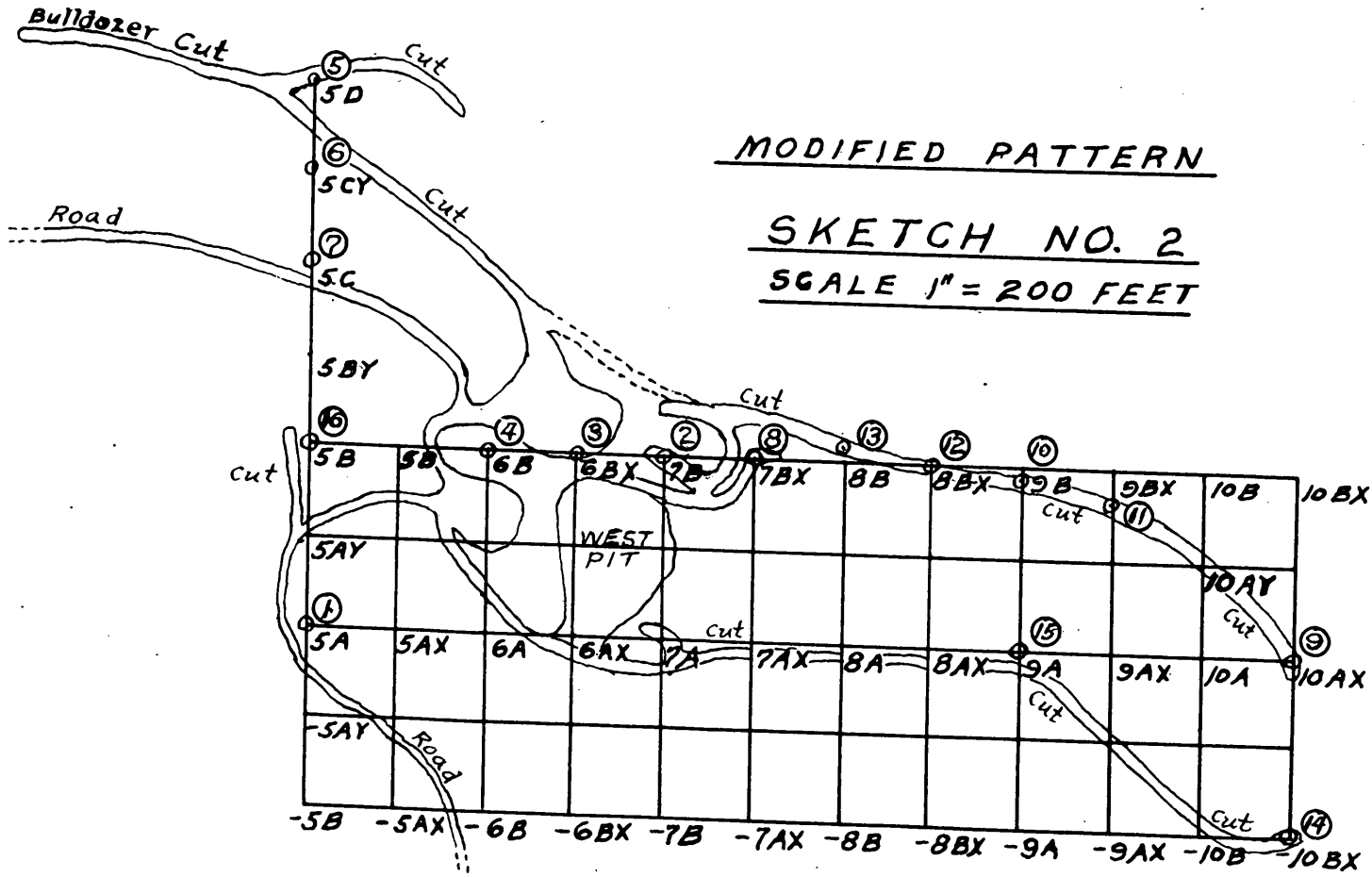
6. Provide a wider assortment of rock bits to take care of emergencies involving breakage or local changes in the hardness and texture of the material to be drilled.



PROPOSED PATTERN

SKETCH NO. 1

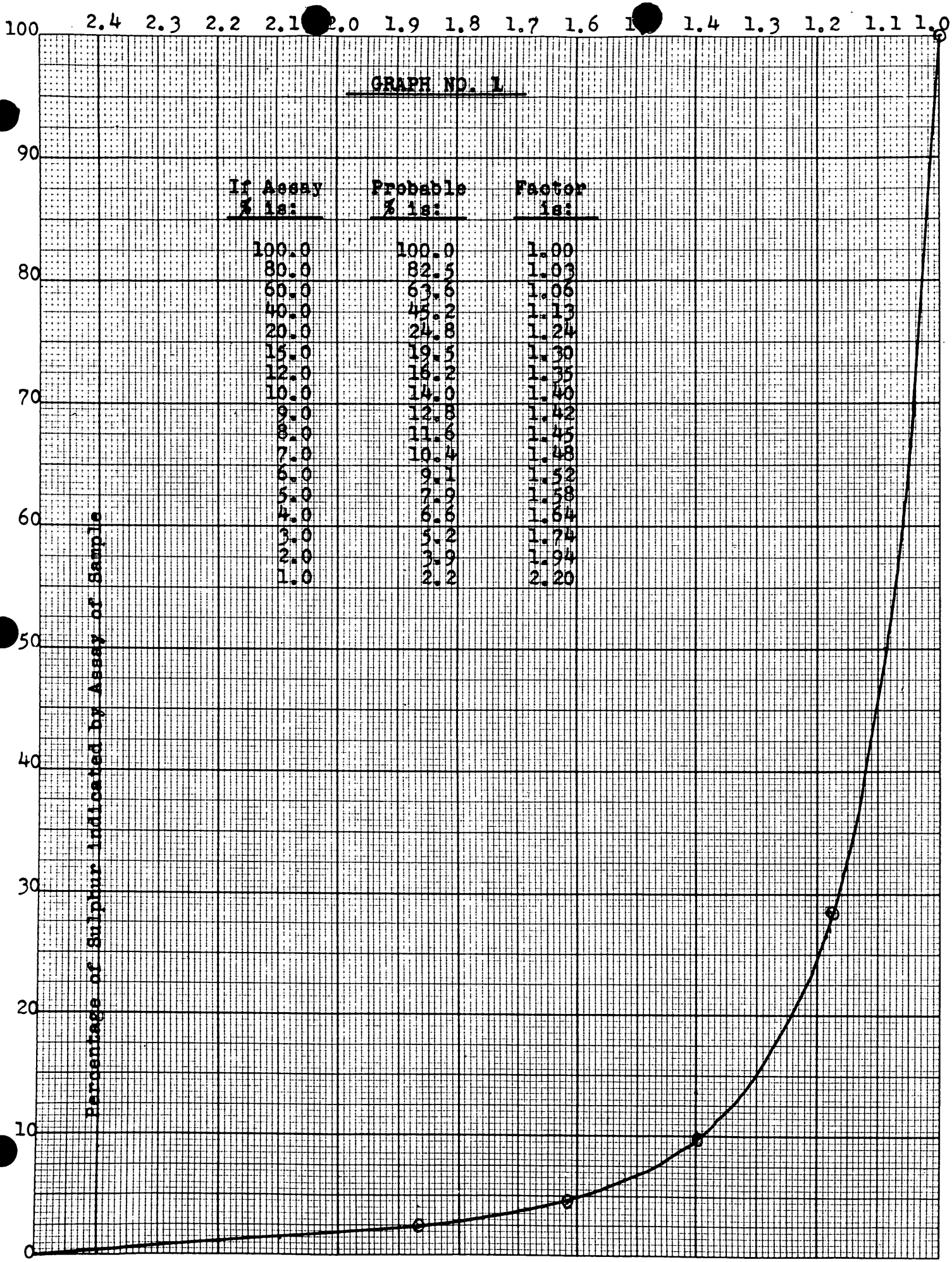
SCALE 1" = 400 FEET



MODIFIED PATTERN

SKETCH NO. 2

SCALE 1" = 200 FEET



If Assay % is:	Probable % is:	Factor is:
100.0	100.0	1.00
80.0	82.5	1.03
60.0	63.6	1.06
40.0	45.2	1.13
20.0	24.8	1.24
15.0	19.5	1.30
12.0	16.2	1.35
10.0	14.0	1.40
9.0	12.8	1.42
8.0	11.6	1.45
7.0	10.4	1.48
6.0	9.1	1.52
5.0	7.9	1.58
4.0	6.6	1.64
3.0	5.2	1.74
2.0	3.9	1.94
1.0	2.2	2.20

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
1600 EAST FIRST SOUTH STREET
SALT LAKE CITY 1, UTAH

Mining Division
Date Rec'd
AUG 6 - 1954
BUREAU OF MINES
Denver, Colorado

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
OCT 18 1954

August 4, 1954

Memorandum

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

From: Chief, Minerals Development Branch, Mining Division, Region IV

Subject: Docket No. DMA 1318X (Sulfur), Contract Idm-E124, Kenneth L. Porter, Hot Springs County, Wyoming

Enclosed are the original and eight copies of a final engineering report covering work under the subject contract. The report was prepared by F. L. Wideman.

The exploratory project disclosed no sulfur of commercial significance. No certification of discovery will be recommended.

Stephen R. Wilson

Stephen R. Wilson

Enclosure

Reviewed by
DMEA OPERATING COMMITTEE
10-22-54
(date)

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
OCT 18 1954

KENNETH L. PORTER
HOT SPRINGS COUNTY, WYOMING
DMA-1318X
Contract Idm-E124
Sulfur

Final Engineering Report

By F. L. Wideman
Mining Engineer
Bureau of Mines

Processed by
DMA CONTRACTS JOURNALS
10-22-54

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
OCT 18 1954

KENNETH L. PORTER
HOT SPRINGS COUNTY, WYOMING

CONTENTS

	Page
Final engineering report	
Summary and conclusions	2
Introduction	3
Location	3
Description of the deposits	4
History	5
Description of DMA project work	6
Ore reserves	7
Expenditures and royalties	8
Disposition of jointly owned property	8

ILLUSTRATIONS

Fig. 1 Location map, Brutch Sulphur Deposits, Hot Springs County, Wyoming
Fig. 2 Map of exploratory work under DMA contract

SUMMARY AND CONCLUSIONS

The Brutch sulfur deposits near Thermopolis, Hot Springs County, Wyoming, were explored under DMA contract during September and October 1951. The final audit of the account is pending and, therefore, the cost of the work is not available.

The Brutch property, consisting of four placer mining claims, is situated on Cedar Dome, approximately 4 miles northwest of Thermopolis.

Sulfur occurs in cavities and crevices in alluvium, travertine and limestone. The deposits are small in size and appear to be disconnected. Soluble salts of sodium, calcium and magnesium occur with the sulfur, and gypsum is an abundant mineral in the travertine, which, with shale and limestone, is a host rock for sulfur.

The DMA project work consisted of drilling 16 holes and excavating approximately 3,000 feet of bulldozer trenches. One drill hole did not encounter sulfur mineralization; four holes penetrated rock that contains less than 6 percent sulfur; and eleven holes cut thin deposits that contain from 6 to 18.40 percent sulfur. The slight indications of sulfur mineralization exposed by trenching were not sampled by the contractor.

The results of Stage A of the exploratory program did not justify work under Stage B.

The mineralization encountered indicates deposits of below commercial grade and quantity, and no estimate of an ore reserve has been made.

No further Government assistance in the exploration of the deposits appears warranted.

INTRODUCTION

The DMA contract between the Government and Kenneth L. Porter, 420 Lexington Avenue, New York 17, New York, was signed August 23, 1951. The contract pertains to exploration of sulfur deposits on the Brutch property near Thermopolis, Wyoming. The project is divided into Stage A and Stage B, the latter stage being contingent on the findings of Stage A. The maximum estimated cost of Stage A is specified by the contract as $10,000 and the maximum cost of Stage B, $89,150. Government participation is 50 percent of the allowable cost of the project.

The subordinated property consists of four placer mining claims, containing 520 acres, more or less, leased by Kenneth L. Porter.

Project work began September 22, 1951, and Stage A, with the exception of some of the analyses, was completed October 20, 1951. No work was done under the terms of Stage B.

LOCATION

The Brutch sulfur deposits are located 4 miles northwest of Thermopolis, Hot Springs County, Wyoming (fig. 1). The property on which they occur consists of four placer mining claims: Hope Placer Mining Claim, Brimstone No. 1 Placer Mining Claim, Brimstone No. 2 Placer Mining Claim, and Brimstone No. 3 Placer Mining Claim. The claims lie on the southwestern flank of Cedar Dome, a low ridge that

extends northwestward from Thermopolis, in sections 20, 21 and 28, T. 43 N., R. 95 W., 6th P. M.

Thermopolis is the principal town in the vicinity of the deposits. A branch line of the Chicago, Burlington and Quincy Railroad passes through Thermopolis. The deposits are about a quarter of a mile north of a hard-surfaced State highway.

Altitudes vary from 4,600 feet in the Owl Creek Valley to more than 5,100 feet along the crest of Cedar Dome. The slopes along the southwestern flank of the dome are rather steep and they terminate in bluffs of limestone at the crest of the dome. The slopes on the northwestern side are gentle dip slopes that merge into the Owl Creek Valley.

The climate in the vicinity of Thermopolis is arid. The summers are hot, with occasional showers of short duration; winters are cold, with considerable wind. Vegetation consists of a sparse growth of grasses, weeds and sagebrush. A few juniper trees grow on Cedar Dome, and cottonwood trees and willows are found along permanent streams.

DESCRIPTION OF THE DEPOSITS

About 20 miles south of the deposits, Paleozoic rocks outcrop along the summits of the Owl Creek Mountains. The rocks occupy the long, northern slopes of the range for considerable distance, then pass beneath early Mesozoic rocks and are again exposed on Cedar Dome. Here the rocks have been folded into an asymmetrical anticline, on the flanks of which are alluvium and the remnants of travertine deposits. Water

collects in porous rocks of certain Paleozoic formations, migrates down their dips and flows from hot springs at Thermopolis. The deposits on Cedar Dome evidently are the results of similar spring action.

The sulfur deposits are associated with alluvium, travertine and the Phosphoria formation (Permian). The Phosphoria formation is composed of carbonaceous, phosphatic shales, mudstones and impure limestones. The deposits appear to have been formed around vents and have been mined by open pits, with diameters varying from a few feet to approximately 150 feet. Most of the pits are shallow, but it is reported that good-grade sulfur ore was exposed at a depth of more than 100 feet in one pit.

Two forms of sulfur are found in the deposits, a yellow, crystalline variety and a massive variety that is dark brown to black in color. The yellow variety forms in cavities and crevices, while the brownish-colored sulfur appears to replace limestone and to be associated with tarry oil residue in the Phosphoria formation. Soluble salts of sodium, calcium and magnesium are associated with the sulfur. Gypsum is a common constituent of the travertine that, with limestone and shale, is a host rock for sulfur.

HISTORY

Production of sulfur from the vicinity of Thermopolis began in 1908, during which year a plant was built to treat ore mined from deposits on the northeast limit of the anticline. A plant, using a similar process of extraction, was built on the Brutch property in 1922 or 1923. Both plants used a thermal process of extraction, and

the sulfur content in the refuse piles indicates that the processes were not efficient. The operation of both plants was short lived.

In 1944, the Bureau of Mines rehabilitated and sampled old mine workings, and excavated test pits and trenches. Subsequently a few hundred tons of sulfur-bearing rock was shipped for use as a soil conditioner. There has been no production since 1947.

DESCRIPTION OF DMA PROJECT WORK

In 1950 and 1951, there was an apparent shortage of sulfur, and many possible sources of sulfur were investigated. The DMA exploratory contract was executed to explore the Brutch sulfur deposits by core drilling and surface trenching. Sixteen drill holes, totaling 795 feet in depth, were drilled as part of Stage A (fig. 2). The deepest hole is 135 feet deep and minimum depth of any hole is 15.5 feet. Approximately 3,000 feet of bulldozer trenches was excavated as part of Stage A. The results of Stage A were not encouraging and no work was done under Stage B.

All of the drill holes but one encountered some sulfur mineralization, although four of the holes penetrated rock that contains less than 6 percent sulfur. The following table gives the analyses of samples taken by the contractor and analyzed by commercial chemists. The data were supplied to the Bureau of Mines by the contractor.

Hole No.	Feet from	Feet to	Thickness, feet	Percent Sulfur
7B	2.5	8.5	6.0	11.40 - 15.46
	8.5	11.5	3.0	8.34
	11.5	17.5	6.0	No assay
	17.5	27.5	10.0	11.80
	27.5	47.0	19.5	7.91
	47.0	59.0	12.0	14.26
5CY	18.5	22.5	4.0	8.06
	22.5	25.5	3.0	5.74 - 8.40
	25.5	29.0	3.5	18.40
	29.0	32.0	3.0	5.98 - 12.82
5C	36.0	38.0	2.0	8.00
	65.0	75.0	10.0	7.31
7BX	20.5	22.0	1.5	8.04
	24.25	32.5	8.25	8.79
	32.5	35.0	2.5	12.04
10AX	25.0	30.0	5.0	11.98
	28.0	41.5	3.0	9.94
	41.5	42.5	1.0	12.32
	42.5	49.0	6.5	5.80 - 9.04
9B	34.0	35.0	1.0	8.06
8BX	25.0	40.0	15.0	7.12
	40.0	45.0	5.0	13.48
8B	20.0	52.5	32.5	9.42
10BX	22.5	28.0	5.5	11.97
9A-	27.5	30.0	2.5	6.80
	38.5	45.0	6.5	9.45
5B	38.0	43.0	5.0	9.88

ORE RESERVES

Before project work began, showings of sulfur-bearing rock in old mine workings indicated a reserve of a few thousand tons of rock containing

sufficient sulfur to permit its use as a soil conditioner. The exploration under the subject contract did not disclose any mineralization considered economic. Therefore, no estimate of ore reserves has been prepared and no recommendation has been made for a certification of discovery.

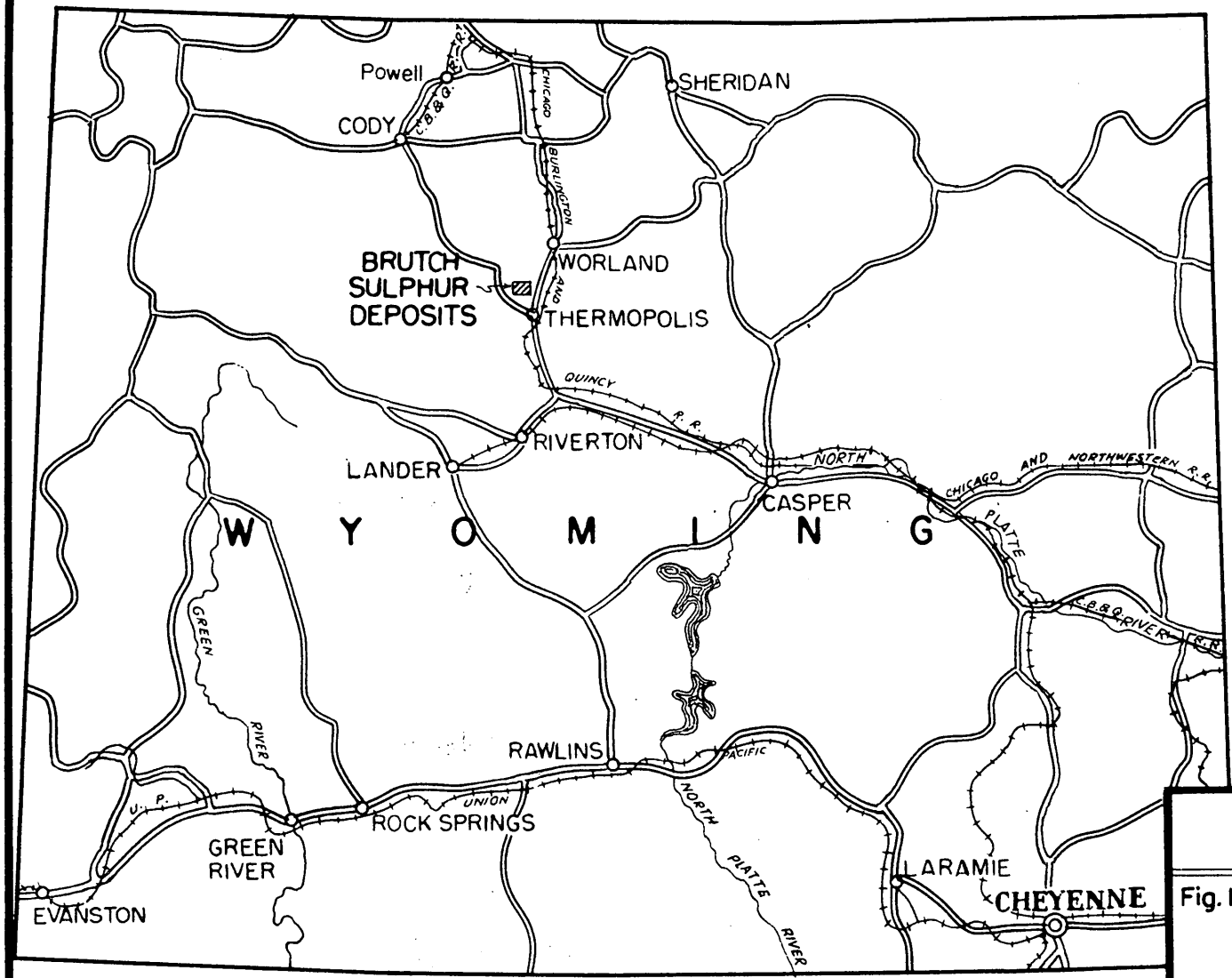
EXPENDITURES AND ROYALTIES

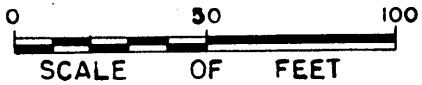
Final settlement of the account is pending and the cost of the project cannot be given until a certificate and report of audit is received.

No royalty has been paid and none is expected.

DISPOSITION OF JOINTLY OWNED PROPERTY

The disposition of some jointly owned property is pending as part of the final audit.





U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Fig. 1 DMA Docket 1318X

Location Map

BRUTCH SULPHUR DEPOSITS

HOT SPRINGS COUNTY, WYOMING

ENGINEER: F. L. WIDEMAN	DATE: AUG. 9, 1954
TRACED: AUG., 1954; A.P.T.S.	2900-55-E
CHECKED:	

Talbot

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

AIR MAIL

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

Re: Idm-E124, DMEA-1318X
Kenneth L. Porter

Dear Mr. Brading:

Returned herewith for necessary revision are the copies of the Report of Review recently submitted by you to cover the examination of the costs for the referenced project.

It is with regret that I find this necessary since the case has been a small "problem". However, your reason (A) is not a true statement since no Interim Audit Report and Certificate was issued. Mr. Brekhus performed a supposedly final audit on November 13, 1953, but found that the Operator planned to submit a claim for additional costs; therefore the writing of an Audit Report was held in abeyance. Our letter of November 17, 1953, however, informed you of the findings. Subsequently Mr. Brekhus left his audit working papers with you in order that you might "finalize" the case after the supplemental claim had been received and project property had been disposed of.

Accordingly, it appears that the reasons for the Report of Review may be stated as follows:

"(a) an audit of the Operator's records, covering the initial claim ($9,984.29), was made on November 13, 1954, by B. J. Brekhus, DMEA Auditor;

(b) a supplemental claim ($1,416.13) was supported by documentary proof of the costs incurred under the contract; and

(c) the administrative costs to the Government of a final audit would be excessive in relation to the estimated amount of possible further disallowances thereunder."

It will be necessary, also, to restate part of the factual portion of the Report of Review to read:

"Exceptions (schedule attached):

By DMEA Finance Officer	$	
Herewith	1,402.25	1,402.25"

Since there was no prior Audit Certificate, all of the audit and review exceptions must be considered as being made "herewith". The Schedule of Exceptions, as prepared by you, adequately shows the separation of the audit and review exceptions.

It is presumed that the Operator accepted the prior $52.00 disallowance of the Finance Officer and reduced his final claim by that amount.

Sincerely yours,

(Signed) E. D. Talbert

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

Enclosure

EDTalbert/wb
September 24, 1954

Copy to: Docket
Admr. Reading File
Mr. Chambers

224 New Customhouse
Denver 2, Colorado

August 26, 1954

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Re: Docket DMEA 1318X (Sulphur)
Contract Idm-E184

Dear Mr. Porter:

Enclosed is your copy of notification by the Government of approval of your bid and proposal dated April 21, 1954 in the liquidation of property acquired under the contract.

Final payment to you under the terms of the contract will be processed upon release to this office of a Certificate and Report of Audit by the Contract Administration and Audit Division.

Very truly yours,

W. H. KING

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

Enclosure

JWT:jp
cc Subject
Chron
AHKoschmann
SRWilson
Chairman, Oper. Comm.
JWTownsend

Docket Copy
Surname:
Houk
Martin
Martin
Johnson
Whitenden
Chambers

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C. 600

INTERIOR DEPT.
AUG 16 1954
SOLICITOR

AUG 23 1954

Mr. W. H. King
Executive Officer, DMEA
Field Team, Region IV
Bureau of Mines
224 New Customhouse Bldg.
Denver 2, Colorado

Subject: Docket No. DMEA-1318 - Sulphur
Kenneth L. Porter
Brutch Sulphur Deposits
Hot Springs County, Wyoming
Contract No. Idm-X124

Dear Mr. King:

Reference is made to your memorandum of August 5, 1954, on liquidation of the Government's interest in equipment purchased under the contract.

Your statement that "the Operator's bid of $220.00 for property costing $1,252.80 is too low for this office to accept without prior advice" from Washington is taken to indicate that you do not desire to make the decision there. Since the Operator has followed the requisite procedure for disposing of unused equipment, and in view of the limited market for this specialized equipment, it is recommended that the highest bid be accepted.

Sincerely yours,

W. S. Martin
ACTING Chairman, Operating Committee (24B)

Approved:

J. H. Hedges (24B)
Member, Bureau of Mines

D. M. Larrabee (24B)
Member, Geological Survey

LGHouk:gad 8/12/54
Copy to: Admr. R. File
Docket
Operating Committee
Mr. Hofflund, 7351
Mr. Chambers
Mr. Houk

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

August 5, 1954

Memorandum

To: Chairman, Operating Committee

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 1318X (Sulphur), Contract Idm-E124
Kenneth L. Porter, Hot Springs County, Wyoming

Enclosed is a copy of the following material submitted by the Operator as a requisite toward closing the subject account.

1. Letter from the Operator dated July 1, 1954, whereby he forwarded supporting data requested by our letter to him of June 21, 1954.

2. Letter from the Operator dated April 21, 1954, transmitting the following material:

a. Final accounting report, Forms MF-104 and MF-104A.

b. Bid from Clayton T. McNeil, EM, dated January 27, 1954, in the amount of $215.00 for the drilling equipment listed.

c. Listing of the unexpended portion of drilling equipment acquired under the contract.

d. Bid from E. W. Greenwood in the amount of $170.00 for the drilling equipment listed.

The Operator, in his letter of April 21, 1954, bids the amount of $220.00 for the material listed, of which the Government's interest would amount to $110.00 against an expenditure of $626.40. The cost value of the unexpended portion and unaccounted for drilling equipment acquired under the contract was determined by B. J. Brekhus, DMEA Auditor, to amount to $1,292.50, which is $39.70 above the cost listed by the Operator.

Before the account can be settled, it is necessary that a Certificate and Report of Audit by the Contract Administration and Audit Division be released to this office. Before they can complete their Audit Report, it is necessary that the Government approve the Operator's proposal for the liquidation of the Government's interest in the unexpended portion of property acquired under the contract.

The Operator's bid of $220.00 for property costing, according to his statement, $1,252.80 is too low for this office to accept without prior advice from you. The drilling equipment is of a special type not in use in this region. Therefore, we recommend that the Government not bid it in.

We are forwarding the material for your review and advice as to how we should proceed in the matter.

John F. Shaw
For W. H. King

Enclosures - to 600

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

JUL 2 0 1954

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

Re: Idm-124, DMA-1318X
Kenneth L. Porter
Hot Springs County, Wyo.

Dear Mr. Breding:

Reference is made to your letter of July 13, 1954 received in the Department of the Interior July 19, 1954, in regard to the audit of the above-cited project.

I am returning the working papers and other data submitted by you to this office for final audit. According to your working program this was scheduled for you to finish in June of this year. It appears, however, that sufficient information could not be obtained from the Operator to complete the audit. I am returning the papers for the following reasons: (1) the determination of settlement for jointly-owned equipment and supplies is the responsibility of the Field Team and not the Audit Division; (2) there are other determinations in regard to the acceptance of certain claims which apparently are the responsibility of the Field Team; and (3) Mr. Brekhus, who first reviewed the project account, is transferring to the Bureau of Reclamation, Interior Department.

I am in accord with Mr. King's view that the engineering services in the amount of $ 598.13 should not be allowed. Not only does this exceed the amount allotted for engineering services for Stage I but it is also beyond reason to think that it is necessary to have an engineer to do nothing more than make out the type of report which apparently was made. Personally, if I were auditing the project I would not allow any rental for warehousing beyond July 31, 1953. It is a case of pure negligence, it seems to me, that this project was not closed at an earlier time. In regard to accepting the bid for supplies and equipment left there is this question. Did the Government accept and pay for its share of this equipment, or was part of this included in the disallowances made by the certifying officer?

The documents are being returned intact as received from you.

Sincerely yours,

(Signed) J. L. Chambers
Jay L. Chambers, Chief
Contract Administration
and Audit Division

Enclosure

JLChambers/wb 7-20-54

Cc: Docket, Admr. Reading File
Mr. Chambers

R.C.B.

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

224 New Customhouse
Denver 2, Colorado

July 13, 1954

Mr. Jay L. Chambers, Chief
Contract Administration & Audit Div.
DMEA — Interior Building
Washington 25, D. C.

Re: Contract Idm-E124
Docket No. DMA 1318X
Kenneth L. Porter
Hot Springs County, Wyo.

Dear Mr. Chambers:

Complying with instructions in Mr. E. D. Talbert's letter of November 17, 1953, I am submitting the following documents relating to the subject contract:

Copy of letter dated April 21, 1954 — Kenneth L. Porter
" " final MF-104, amount claimed $11,400.42
" " bid, Clayton F. McNeil dated January 7, 1954
" " " E. W. Greenwood, undated
" " letter dated July 1, 1954 — Kenneth L. Porter
" " invoice, Harry J. Wolf dated July 15, 1952, $598.13
" " statement, S.R.S. Machine & Supply Co., May 31, 1954, $150.00
" " invoice " " " January 6, 1954, $90.00
" " " " " " August 12, 1953, $90.00
" " " " " " November 4, 1952, $120.00
" " Work order " " " January 29, 1952, (No.6145) $80.00

You will note the amounts claimed on the MF-104 do not tie in with the amount of $960.26 total in Mr. Talbert's letter of November 17, 1953. It is the opinion of Mr. W. H. King, Executive Officer, DMEA Field Team, Region IV, that while the charge is excessive the amount claimed for warehouse rental probably should be allowed. He is of the opinion that the amount of $598.13 for engineering services -- Harry J. Wolf, should not be allowed. The contract states that the total amount for engineering services and travel is $1500.00 for Stage I of the project. This amount has been previously allowed.

Also, I am attaching Mr. Brekhus' working papers covering prior audit, as it was felt these papers would expedite finalizing the report.

Inasmuch as the final audit will be handled in Washington approval for bids for disposition of property is also left to that office.

Yours very truly,

T. H. Brading

Thomas H. Brading,
Auditor

Enclosures

LExington 2-9570-1

KENNETH L. PORTER

Oil and Sulphur

420 LEXINGTON AVENUE
NEW YORK 17, NEW YORK

Mining Division
Date Rec'd
JUL 6 - 1954
BUREAU OF MINES
Denver, Colorado

July 1, 1954

Mr. W. H. King
U. S. Bureau of Mines
224 New Custom House building
Denver 2, Colorado.

Re: Docket DMA 1318X (Sulphur)
Contract Idm-E124

Dear Mr. King:

Your letter of June 21, 1954 received and wish to advise that your registered letter of May 21, 1954 was not received by me due to my absence from the city during the month of May and upon my return at the end of the month the Post Office had returned it on account of [illegible] and [illegible] delivery to the addressee since attempted by [illegible] the letter was [illegible] by registered mail [illegible] my return May 22, 1954.

[illegible] your letter I am supplying [illegible] the [illegible] Supervisor [illegible] your letter of [illegible] 21, 1954.

[illegible]

[illegible]

Very [illegible]

[illegible]

224 New Customhouse
Denver 2, Colorado

June 21, 1954

REGISTERED

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Re: Docket DMA 1518X (Sulphur)
Contract Idm-X124

Dear Mr. Porter:

Receipt is acknowledged of your letter of June 15, 1954, to Mr. J. H. East, Jr., which was forwarded to this office for reply.

In your letter of June 15 you state that under date of April 21, 1954 you submitted a final tabulation on Forms MF-104 and MF-104A so that the contract could be terminated, and that up to now you have heard nothing further from this office in regard to closing the contract account.

In regard to hearing from this office, we are enclosing a copy of a registered letter dated May 11, 1954 and a reproduction of the envelope in which it was mailed, showing its condition when it was returned to us unclaimed by you.

In our letter of May 11, 1954 we requested certain documentation of charges claimed on Form MF-104 submitted by you under date of April 21, 1954.

Final settlement of the account will be effected as soon as an auditor is available to complete the audit of the project accounts and upon release to this office of the certificate and report of audit, which is necessary before final settlement can be accomplished.

Very truly yours,

W. H. KING

W. H. King
Executive Officer, DMA
Field Team, Region IV

JWT:jr

Enclosures

cc Contract - Chron
Chairman, Over. Comm.
SRWilson w/copy incoming ltr 6/15/54
THBrading
AHKoschmann
JWTownsend

KENNETH L. PORTER
Oil and Sulphur
420 LEXINGTON AVENUE
NEW YORK 17, NEW YORK

June 25, 1954

Mr. J. E. East, Jr.
U. S. Bureau of Mines
224 New Customs House Building
Denver 2, Colorado.

Re: MSA Docket 1318X - Contract Idm-E124

Dear Mr. East:

Under date of April 21, 1954 I submitted a final tabulation on Forms MF-104 and MF-104A so that the contract could be terminated.

Up to now I have heard nothing from your office in regard to this termination and I would appreciate your looking into this matter and advising me accordingly as warehouse charges are still accruing and I am desirous of stopping this expense.

Trusting I will hear from you promptly, and thanking you, I remain,

Very truly yours,

Kenneth L. Porter

KLP/p

/17/54

Mr. Alfred

6/17/54

Mr. Harry J. Wolf, of NYC (in Washington today) phoned on behalf of Kenneth L. Porter, NYC.

Mr. Porter has written Mr. Mittendorf and submitted all the papers requested, but has not received the funds or a reply. He asked Mr. Wolf to call and ask if anything more is needed, and if he may have a reply to his letter?

(Mr. Wolf is returning right away to NYC. Says he is an engineer who has done some work for Mr. Porter. Has no connection with the application; merely called as a favor to Mr. Porter.)

fw

Dh 64-1318

Up [illegible]

132 [illegible]

[illegible]

( ) - 1

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

224 New Customhouse
Denver 2, Colorado

May 11, 1954

REGISTERED

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Re: Docket DMA 1318X (Sulphur)
Contract Idm-1124

Dear Mr. Porter:

Receipt is acknowledged of Form DE-104 Operator's Monthly Progress Report and Voucher for the period October 24, 1953 to April 29, 1954, dated April 21, 1954, wherein you make claim for certain additional costs of performing the exploration work.

Before we can process the DE-104 report the charge for Technical Services (Engineer) in the amount of $598.13, and Warehouse Rental in the amount of $370.00, must be supported by documentation of the charge; that is, the original or a certified copy of the billing for the Technical Services and Warehouse Rental.

Relative to the requirement of documentation of the charges you are referred to the paragraph following item (c) on the reverse side of Form DE-104.

Please supply the missing documentation at your earliest convenience. Otherwise, if we do not hear from you by June 1, 1954 we will process the Form DE-104 disallowing the above cited charges for lack of adequate documentation as we are desirous of closing this account at the earliest date possible.

Very truly yours,

W. H. KING

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

JWT:jp
cc Contract
Chron
Chairman, Oper. Comm.
THBrading
CLWilson
AHKoschmann
JWTownsend

LExington 2-9570-1

KENNETH L. PORTER

Oil and Sulphur

420 LEXINGTON AVENUE
NEW YORK 17, NEW YORK

April 21, 1954

Mr. J. H. East, Jr.
U. S. Bureau of Mines
224 New Customs House Building
Denver 2, Colorado.

Re: DMA Docket 1318X
Contract Idm-E124

Dear Mr. East:

In answer to your letter of March 22, 1954 I am submitting my final tabulation on forms MF-104 and MF-104A so that the above contract can be terminated.

I am attaching copies of two bids which I received on the coring equipment we have in storage at Thermopolis and you will note the highest bid is for $215.00 and therefor I will bid it in myself for $220.00 if this is satisfactory to the Government.

We had some salvage value on the diamond bit we purchased from Drilling & Service of Dallas, Texas and I requested payment for which they sent me a check on February 2, 1954 in the amount of $135.81

The only costs we have under the contract since the last MF-104 which submitted October 24, 1951 have been as follows:

1. A moving charge of $500.00 which is covered in the drilling contract and which has already been approved by you.

2. An unpaid balance on engineering incurred in making up reports to substantiate the work we did.

3. Warehouse charges incurred for storage of drilling equipment, samples, etc., from the time the project was closed down in October 1951 up to date in the amount of $370.00

4. The total of the three above items is $1468.13

I trust you will find everything in order and that the Contract can now be terminated without any further delay.

Very truly yours,

Kenneth L. Porter

Kenneth L. Porter

KLP:p
Enclosures

Form MM-01 Rev. 4-52

Budget Bureau No. 42-R1036.4
Approval expires 6-30-53.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S MONTHLY REPORT AND VOUCHER

October 24, 1951

Month of to date - April 29195 4 Docket No. DMEA 1318X Contract No. Idm - 3124

Operator's Name Kenneth L. Porter Minerals Sulphur

Address 420 Lexington Avenue, New York 17, N. Y.

Contract Amount, $ 99,150.00 Government Participation: 50 % Amount, $ 11,400.42

ITEMS OF COSTS	FOR OPERATOR'S USE: Monthly Total	Totals Previously Reported	Totals To Date	FOR GOVERNMENT USE ONLY: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent [redacted] Contracts:						
Drilling	500.00	3181.00	3681.00			
Bulldozing		1503.50	1503.50			
Crosscutting						
Drifting						
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services Eng.	598.13	1500.00	2098.13			
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Bbls. & Bits	1683.86	664.46	2348.32			
Other Supplies		168.38	168.38			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment Bits		157.29	157.29			
Sampling and Analysis						
Payroll Taxes						
Liability Insurance						
Accounting		145.00	145.00			
(8) Contingencies (specify):						
Transportation		276.30	276.30			
Warehouse Rental	370.00		370.00			
TOTALS	3151.99	8248.43	11400.42			

I certify that the above bill is correct and just and that payment therefor has not been received.

Date 4/21/54 *Payee [illegible]

Per _____ Title _____

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

NOTE.—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.

(Instructions on reverse)

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$_____

Signature _____
(Authorized Certifying Officer)

Date _____ Vou. No. _____
(See other side)

Form MF-104A
(April 1962)

Budget Bureau No. 42-R1151.1
Approval expires 6-30-53.

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of October 24, 1951 to date April 29 195 4 Docket No. DMEA 1318X Contract No. Idm - E124

Operator's Name Kenneth L. Porter Minerals Sulphur

Address 420 Lexington Avenue, New York 17, N. Y.

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT	
							Units	Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Feet	500.00	None	3681.00	762	4.82		
Churn								
Auger								
Stripping								
Trenching								
Test Pits								
Roads and Trails	Feet			1503.500	2500	.60		
Technical Services		598.13		2098.13				
TOTAL DISTRIBUTED COSTS		1098.13		7282.63				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased		1683.86		2348.32				
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
Warehouse Rental & Misc.		370.00		1769.47				
TOTAL COSTS		3151.99		11400.42				

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this report is correct and complete to the best of their knowledge and belief.

Date April 21, 1954 Operator [signature]

Per _____ Title _____

NOTE.—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.

REMARKS:

(Instructions on reverse)

(For Government use only)

CLAYTON T. McNEIL, E.M.
922 BANK OF AMERICA BUILDING
300 MONTGOMERY STREET
SAN FRANCISCO 4, CALIFORNIA
TELEPHONE GARFIELD 2948

January 7, 1954

Mr. Kenneth L. Porter
420 Lexington Avenue
New York City, 17, N. Y.

Dear Mr. Porter:

I wish to make a bid of Two Hundred Fifteen Dollars ($215.00) for all of the coring equipment as per the attached list.

Very truly yours,

Clayton T. McNeil
Mining Engineer

CTMcN/so

[illegible] EQUIPMENT FOR SALE

Qty	Description	Original Cost	To
	Material [illegible] Drilling [illegible], Inc., Dallas, Texas		
[illegible]	4-1 Head	$ 38.50	
1	3-7/8 API Reg. X 2-3/8 8-thread [illegible]	48.00	
1	4 X 12 ft. [illegible] Barrel	[illegible]	
1	4-21 Bit Breaker	38.50	
1	4-23 Spanner Wrench	[illegible].50	
1	4-26 Metal Parts Box	18.00	
1	4-27 Core Retener Sleeve Wrench	[illegible]	
2	2-7/8 API Reg. Pin X [illegible] Drilling 8-thread Box Sub	[illegible]	
2	4-1/4 X 3-1/16 In. Hard Surface Metal [illegible]	[illegible]	
4	4-14 Core Catcher	[illegible]	
1	25-[illegible] Inner Tube Clamp [illegible] Bit Core Barrel	[illegible]	
1	4-8 Outer Tube 3 ft. long	[illegible]	
1	4-7 Inner Tube for 3 ft. barrel	85.00	
Rock Bits:			
2	Gruner 4-3/4 Rock Bits, used & in need of retipping	118.20	
1	Gruner 4-3/4 In. Rock Bit, slight used	66.60	
Other Material			
80	Core Boxes for 2⅜ In. Cores manufactured by Love Box Company	56.00	
Total		$ 1252.80	

CORING EQUIPMENT FOR SALE

Qt.	Description	Original Cost	Bid
	Material Manufactured by Drilling & Service, Inc., Dallas, Texas:		
1	4-1 Head	$ 96.80	
1	2-7/8 API reg. X 2-3/8 3-thread sub	45.00	
1	4 X 12 ft. core barrel	425.00	
1	4-21 Bit Breaker	36.50	
1	4-23 Spanner Wrench	8.50	
1	4-26 Metal Parts Boxes	18.00	
1	4-27 Core Catcher Sleeve Wrench	36.50	
2	2-7/8 API Reg. Pin X 2-3/8 In. Failing 3-thread Box Sub	90.00	
2	4-1/4 X 5-1/16 In. Hard Surface Metal Bits	93.00	
4	4-14 Core Catcher	70.00	
1	25-50-25 Inner Tube Clamp to fit Core Barrel	28.00	
1	4-6 Outer Tube 3 ft. long	45.00	
1	4-7 Inner Tube for 3 ft. barrel	35.00	
	Rock Bits:		
2	Grumer 4-3/4 Rock Bits, used & in need of retipping	113.20	
1	Grumer 4-3/4 In. Rock Bit, slightly used	56.60	
	Other Material:		
80	Core Boxes for 2½ In. Cores manufactured by Love Box Company	56.00	
Total		$ 1252.80	$170.00 total

E. P. Greenwood
Williams Drilling Co.
For 1937

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 24 1954

224 New Customhouse
Denver 2, Colorado

March 22, 1954

REGISTERED

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Re: Docket DMA 1318X
Contract Idm-E124

Dear Mr. Porter:

On your most recent visit to this office several months ago you left the impression that you would immediately take steps relative to the rendering of your proposal in the disposition of jointly owned property acquired under the contract and render your final accounting report and final engineering and geologic report in order that we could effect closing of the account at an early date. However, since then we have heard nothing from you in the matter.

If we do not hear from you within 30 days from the date of this letter, or by April 22, 1954, we will take steps to close the account on the basis of the findings of an audit of your accounting records presently on file in this office.

The audit discloses that property costing $1,292.50 is subject to liquidation of the Government's interest before the accounts can be closed. If we do not hear from you within the time stipulated above we will deduct 75 percent of $1,292.50, or an amount of $969.38 reflecting the Government's interest in the jointly owned property, from monies which have been withheld by this office from reimbursement to you pending disposition of the jointly owned property.

Very truly yours,

W. H. KING

John F. Shaw
For W. H. King
Executive Officer, DMEA
Field Team, Region IV

JWT:jp
cc Contract
Chron
Chairman, Oper. Comm.
THBrading
SRWilson
AHKoschmann
JWTownsend

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

RECEIVED
19 1954

224 New Customhouse
Denver 2, Colorado

February 16, 1954

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 1318X (Sulphur), Contract Idm-E124, Kenneth L. Porter, Brutch Sulphur Deposit, Hot Springs County, Wyoming

Reference is made to your letter of February 11, 1954 by which you forwarded a letter from you to Mr. H. M. Oster answering his queries set forth in his letter to this office of January 7, which was forwarded to you for reply.

We have reviewed your letter to Mr. Oster, and your answers to his queries are accurate to the best of our knowledge. The letter has been forwarded to Mr. Oster and a copy forwarded to Mr. Porter as indicated.

Enclosed are six carbon copies of your letter to Mr. Oster which were indicated for Washington distribution.

Dist. made 2/19. Gray.

W. H. King

W. H. King

Enclosures

140

FILE COPY
SURNAME:

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

Feb. 16, 1954 ?

Hofflund
Hoch
King

Mr. H. M. Oster, Attorney
Oster, Kaufman & Lerner
Mercantile Securities Building
Dallas 1, Texas

Re: Docket No. DMEA-1318X (Sulphur)
Kenneth L. Porter
Brutch Sulphur Deposits
Hot Springs County, Wyoming
Contract No. Idm-K124

Dear Mr. Oster:

Reference is made to your letter of January 7 to Mr. W. H. King, Executive Officer, DMEA Field Team, Region IV; to the reply of Mr. J. L. Hofflund, Chief Counsel, to you dated January 26; and to your reply to the Chief Counsel dated February 1; all relating to your request for information regarding performance by Kenneth L. Porter under the subject contract.

You attached to your letter to the Chief Counsel copies of two contracts between you and Kenneth L. Porter, dated September 18, 1951, and July 15, 1953. These contracts seem to indicate at least a prima-facie interest in the subject Exploration Project Contract, and in my opinion is sufficient to justify the Government in providing you with factual information concerning performance under that contract. I will therefore answer the seven questions set forth in your letter of January 7, as follows:

1. Our records do not indicate that Stage A of the subject contract was completed.

2. Our records do not indicate that Stage A of the subject contract was ever approved by this agency as fully accomplished. One reason for this appears to be that work authorized by Amendment No. 1 was never initiated. Another reason appears to be that it is not generally the practice to approve work accomplished under each stage.

R.C.L.
2-19-54

3. Our records do not indicate that the commencement of work under Stage B was ever authorized; apparently because work under Stage A was not completed.

4. Our records do not indicate that any notice was given to Kenneth L. Porter, either verbal or written, to proceed with the performance of Stage B of the amended contract.

5. Various letters were written to Kenneth L. Porter relating to performance under the contract.

6. Written notice of termination of the contract was given to Mr. Porter under date of April 30, 1953. The reason stated in the notice was:

> "In the opinion of the Government, you have failed to prosecute operations pursuant to the terms of the contract."

7. The contract was terminated by notice dated April 30, 1953, and sulphur was removed from the list of minerals eligible for exploration assistance on May 15, 1953. You ask if it was possible on July 15, 1953, "for the said D. M. A. Contract to be reinstated and the contract fully performed?" Assuming that by "reinstated" you mean "put back into effect the same as if it had never been terminated," I can only say that no application to accomplish this has been made. I cannot answer the question without having before me such facts as might be alleged upon an application for this purpose.

The penultimate paragraph of your letter of January 7 to Mr. King states:

> "We have been making every effort to secure bids on equipment jointly owned under said contract, so that same may be taken into account in the final settlement of the Contract under Stage A thereof."

I am mystified by this paragraph, as I have nothing before me to indicate that Continental Sulphur and Phosphate Corporation has any interest in any equipment that may have been purchased under the Exploration Project Contract.

I am sending a copy of this letter to Mr. Kenneth L. Porter.

Sincerely yours,

C. O. Mittendorf

Administrator

JLHofflund/emd
2/11/54

Copy to: Docket
Adm. R. File
C. O. Mittendorf
Mr. K. L. Porter, 420 Lexington Ave., New York, N. Y.
Field Team, Reg. IV (2)
Operating Committee
L. G. Houk
J. L. Hofflund
chron.
pending

FILE COPY
SURNAME:

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

FEB 11 1954

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

Re: Docket No. DMEA-1318X (Sulphur)
Kenneth L. Porter
Brutch Sulphur Deposits
Hot Springs County, Wyoming
Contract No. Idm-E124

Dear Mr. King:

Enclosed herewith is a letter signed by me and addressed to Mr. H. M. Oster answering the queries set forth in his letter to you of January 7, which you forwarded to me for reply. Please check these answers carefully and see if they are accurate as well as you can determine.

If you feel that any changes should be made or that the questions should not be answered at all, please return the letter to me with your advice. If you approve of the letter, please forward to Mr. Oster.

In a broad way, I think that we should supply merely factual information concerning performance under a DMEA contract to anybody who has a legitimate interest therein. In this case, I gather that Mr. Kenneth L. Porter contests the interest of Continental Sulphur and Phosphate Corporation; but it is clear that Continental has at least a showing of some interest in the property, and I think this is sufficient to justify answering these questions which only inquire about the facts.

JLHofflund/emd 2/11/54
Copy to: Docket
Adm. R. File
C. O. Mittendorf
Op. Comm.
L. G. Houk

Sincerely yours,

C. O. Mittendorf

Administrator

Enclosures

J. L. Hofflund
chron.
pending

R.C.G. 2-11-54

FILE COPY
Surname: Davis

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

February 10, 1954

Memorandum

To: Chief Counsel

From: Chief, Nonmetallic Minerals Division

Subject: Docket No. DMEA-1318, Kenneth L. Porter, Brutch Sulphur Deposits, Hot Springs County, Wyoming, Contract No. Idm-E124 (Sulphur).

Reference is made to your memorandum of February 8, 1954, stating that in your opinion Continental Sulphur & Phosphate Corporation has a sufficient interest in the exploration project contract to entitle them to receive the information that their attorneys requested in their letter of January 7, 1954, to Mr. King.

Since the assignment agreement dated July 15, 1953, relates to an interest in the mining lease and not to an interest in the contract, and the assignment was executed subsequent to termination of the contract, I do not believe the attorneys for the Continental Sulphur & Phosphate Corporation are entitled to the information requested in their letter of January 7. However, you will find the engineering information necessary to draft the letter to the attorneys herein. It is believed that this letter should be sent to Mr. W. H. King, Executive Officer, DMEA Field Team, Region IV, for his approval before transmittal to the attorneys.

Question 1: Stage A of the amended DMEA contract was never completed according to our records.

Question 2: Stage A of the amended DMEA contract was not approved as fully accomplished as the work authorized in Amendment No. 1 was never initiated.

Question 3: Stage B of the amended DMEA contract was not authorized or approved because Stage A was never completed.

Question 4: A search of our files indicates that no communication neither verbal nor written was ever given to Kenneth L. Porter to proceed with Stage B of the amended contract.

Question 5: Numerous letter requests were made to Kenneth L. Porter to secure performance of the amended contract.

Question 6: Formal notice of termination of contract was made to Kenneth L. Porter on April 30, 1953. The reason being, "In the opinion of the Government, you have failed to prosecube operations pursuant to the terms of the contract".

Question 7: Inasmuch as the contract was terminated on April 30, 1953, and sulphur was removed from the list of minerals eligible for exploration assistance on May 15, 1953, it would not have been possible to reinstate and fully perform the contract. However, Mr. King, in a letter of November 19, 1952, indicated to Mr. Kenneth L. Porter that a new contract might be forthcoming when he was prepared to do additional drilling.

The question of disclosure of information gained during the prosecution of a contract is a policy determination. To my mind where a person contributes to the cost of an exploration project he is entitled to make the determination of whether the factual information gained is to be passed on to the general public or competitors.

LGHouk:gad 2/10/54

Copy to: Admr. R. File
Docket File
Mr. Houk

140

FILE COPY
SURNAME:

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

N.S. in R.R.

February 8, 1954

Memorandum

To: Chief, Nonmetallic Minerals Division

From: Chief Counsel

Subject: Docket No. DMEA-1318, Kenneth L. Porter
Contract Idm-E124 (Sulphur)

Reference is made to letter dated January 7 from Oster, Kaufman & Lerner, attorneys for Continental Sulphur & Phosphate Corporation, to the Executive Officer, Region IV; to the reply of the Chief Counsel dated January 26; and to a letter from the attorneys to the Chief Counsel dated February 1; all of which are attached hereto with the docket. With the last letter of the attorneys was enclosed copies of two agreements between Kenneth L. Porter and Continental Sulphur & Phosphate Corporation, dated September 18, 1951, and July 15, 1953, respectively, relating to the property which is the subject of the exploration project contract.

It is my opinion that Continental Sulphur & Phosphate Corporation has shown a sufficient interest in the exploration project contract and in the property to be entitled to receive the information its attorneys asked for in their letter of January 7 to Mr. King. I suggest, therefore, that a reply to this letter be drafted, I suppose for the Administrator's signature, answering the seven questions set forth in the letter of January 7. I will be glad to collaborate with you in framing the answers.

J. L. Hofflund

J. L. Hofflund
Chief Counsel

Attachments

JLHofflund/emd
Copy to: Docket
Adm. R. File
J. L. Hofflund
chron.

OSTER, KAUFMAN & LERNER
ATTORNEYS AND COUNSELORS
MERCANTILE SECURITIES BUILDING
DALLAS 1, TEXAS

HAROLD M. OSTER
STANLEY M. KAUFMAN
JULIAN A. LERNER

PROPERTY OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 8 1954

February 1, 1954

RECEIVED
FEB 8 - 1954
GENERAL COUNSEL
DEFENSE MINERALS
ADMINISTRATION

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

Attention: J. L. Hofflund, Chief Counsel

Re: Docket No. DMEA - 1318 X (Sulphur)
Kenneth L. Porter
Brutch Sulphur Deposits
Hot Springs County, Wyoming
Contract No. Idm-E124

Gentlemen:

This is to acknowledge receipt of your letter of January 26, 1954, with contents therein duly noted.

For your information, the D. M. A. Contract Number I-DMA-E28, dated June 27, 1951, is contract which was made directly between your Department and the said Continental Sulphur & Phosphate Corporation. You are correct in your presumption that the contract to which we refer is with Kenneth L. Porter, dated August 23, 1951, and docketed as above captioned.

We are herewith respectfully enclosing a copy of Option Contract given to Continental Sulphur & Phosphate Corporation by the said Kenneth L. Porter, as well as copy of a transfer and assignment of an undivided one-half interest from Kenneth L. Porter to said Continental Sulphur & Phosphate Corporation, which should be conclusive evidence of our interest in the property. The provisions of these agreements, with particular regard to this contract between the Government and Kenneth L. Porter, have been fully complied with by Continental Sulphur & Phosphate Corporation, and the information solicited is merely for the completion of our records.

Hoping that this answers your inquiry and will be sufficient to furnish information requested, and thanking you in advance for your cooperation, we beg to remain

Yours very truly,

OSTER, KAUFMAN & LERNER

By H. M. Oster
H. M. Oster

HMO:ecl

LExington 2-9570-1

KENNETH L. PORTER
Oil and Sulphur
420 LEXINGTON AVENUE
NEW YORK 17, NEW YORK

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 2 1954

February 1, 1954

Mr. J. L. Hofflund, Chief Counsel,
United States Department of the Interior,
Defense Minerals Exploration Administration,
Washington 25, D.C.

Re: Docket No. DMEA-1318X (Sulphur)
Kenneth L. Porter
Brutch Sulphur Deposits
Hot Springs County, Wyoming
Contract No. Idm-E124

Dear Mr. Hofflund:

Thanks very much for sending me copy of the letter which you wrote to Mr. Oster, attorney for the Continental Sulphur & Phosphate Corp., relative to his request for information regarding my DMEA contract.

The Continental Sulphur & Phosphate Corporation had an option from me for the purchase of one-half of the Thermopolis properties, however, they have defaulted under this option and therefore do not have any right to any information regarding this exploration project. I will appreciate it if you will refer any requests for information on this matter to me personally.

Thanking you, I am,

Sincerely yours,

Kenneth L. Porter

Kenneth L. Porter

KLP:wl

RECEIVED
FEB 5 - 1954
GENERAL COUNSEL
DEFENSE MINERALS
ADMINISTRATION

140

FILE COPY
SURNAME:

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

Rewritten by Wolfhendorf

Houk

January 26, 1954

Mr. H. M. Oster, Attorney
Oster, Kaufman & Lerner
Mercantile Securities Building
Dallas 1, Texas

Re: Docket No. DMEA-1318X (Sulfur)
Kenneth L. Porter
Brutch Sulphur Deposits
Hot Springs County, Wyoming
Contract No. Idm-E124

Dear Mr. Oster:

In your letter of January 7 to Mr. W. H. King, Executive Officer, DMEA Field Team, Region IV, you ask for information relating to performance under a contract which you refer to as "Contract between Kenneth L. Porter and D.M.A." You base your request for this information on the statement that your client, Continental Sulphur & Phosphate Corporation, ". . . are the owners of an undivided one-half interest in the sulphur properties at Thermopolis, the subject of the captioned D.M.A. Contract."

I presume that you refer to our contract with Kenneth L. Porter dated August 23, 1951, Docket No. DMA-1318X, Contract Idm-E124. I find that we also have a contract with Continental Sulphur & Phosphate Corporation dated June 27, 1951, Docket No. DMA-103X, Contract No. I-DMA-E28.

A casual examination of these files does not reveal that there is any relationship between the two contracts, or that Continental Sulphur & Phosphate Corporation has, as you state in your letter, any interest in the property which is the subject of the contract with Kenneth L. Porter.

All of the contract files of this agency are not necessarily confidential, yet we do not ordinarily give detailed information about the performance of a contract to a party who has no apparent interest therein. Under such circumstances, it would be preferable if you directed your inquiry to Mr. Kenneth L. Porter, or at least secured his consent to the giving of such information by this agency.

R.C.B.
1-27-54

If, on the other hand, your client has an interest in the matter which our files do not now seem to disclose, please state what it is and we will re-examine your request for information with respect to the propriety of answering it.

I am sending a copy of this letter to Mr. Kenneth L. Porter.

Sincerely yours,

J. L. Hofflund

J. L. Hofflund
Chief Counsel

LGHouk/JLHofflund/emd

Copy to: Docket
Adm. R. File
C. O. Mittendorf
Mr. K. L. Porter, 420 Lexington Ave., New York, N.Y.
Field Team, Reg. IV
Operating Committee
L. G. Houk
J. L. Hofflund
chron.

FILE COPY
SURNAME:

Houk

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C. 600

Rewritten
LH/end

Mr. Harold M. Oster
Merchantile Securities Building
Dallas 1, Texas

Re: Docket No. DMEA-1319 - Sulphur
Kenneth L. Porter
Brutch Sulphur Deposits
Hot Springs County, Wyoming
Contract No. Idm-E124

Dear Mr. Oster:

Your letter of January 7, 1954, addressed to Mr. W. H. King, Executive Officer, DMEA Field Team, Region IV, has been referred to this office for reply.

A search of our file fails to show that the Continental Sulphur & Phosphate Corporation are owners of an undivided one-half interest in the sulphur properties at Thermopolis. Inasmuch as the Corporation name does not appear on the Subordination Agreement, it is possible that you may have an undivided 50 percent interest in the leases that are assigned to Mr. Kenneth L. Porter. We, therefore, suggest that you contact Mr. Porter for the information you requested in your letter of January 7, 1954.

I regret that I am unable to help you in this instance and appreciate your efforts in endeavoring to dispose of the jointly owned equipment.

Sincerely yours,

Lawrence G. Houk, Chief
Nonmetallic Minerals Division

LGHouk:gad 1/25/54
Copy to: Admr. R. File
Docket File
Field Team, Region IV
Mr. Josephson, 3510
Mr. Larrabee, G-232 GSA Bldg.
Mr. Houk

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

Department of the Interior
Defense Minerals Administration
Denver
JAN 18 1954

224 New Customhouse
Denver 2, Colorado

January 15, 1954

Memorandum

To: C.O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMA 1318X (Sulphur), Contract Idm-E124, Kenneth L. Porter, Hot Springs County, Wyoming

Enclosed is a letter dated January 7, 1954 from H.M. Oster of Oster, Kaufman & Lerner, Attorneys and Counselors, wherein he requests information relative to the subject contract. We are in doubt as to the propriety of furnishing the attorney the information requested, therefore we are forwarding his letter to you for appropriate action.

Drilling operations under Stage A of the contract were started September 22, 1951, and completed October 20, 1951. However, the results of the work were not sufficiently conclusive to enable the Field Team, Region IV, to evaluate the work in conjunction with authorizing the performance of additional work under Stage B. By a letter to Mr. Porter from the Field Team, Region IV, dated February 8, 1952, Mr. Porter was instructed to drill three additional holes under Stage A before the Field Team would further consider authorizing work under Stage B. Amendment No. 1 dated November 7, 1952 was executed to authorize the use of a portion of Stage B funds to complete Stage A drilling to the satisfaction of the Government.

Enclosed for your information are copies of the following early correspondence in the matter:

1. Letter from the DMEA Field Team, Region IV, to Kenneth L. Porter dated June 4, 1952.

2. Letter from Kenneth L. Porter to J. H. East, Jr., dated May 29, 1952.

3. Letter from the DMEA Field Team, Region IV, to Kenneth L. Porter dated May 19, 1952.

4. Letter from Kenneth L. Porter to J. H. East, Jr., dated May 14, 1952.

Note (attachments sent to Code 600 only one set rec'd.)

5. Letter from J. H. East, Jr., Executive Officer, DMEA Field Team, Region IV, to Kenneth L. Porter dated April 22, 1952.

6. Letter from Kenneth L. Porter to J. H. East, Jr., dated April 16, 1952.

7. Letter from W. H. King, for J. H. East, Jr., Executive Officer, DMEA Field Team, Region IV, to Kenneth L. Porter dated April 7, 1952.

8. Letter from Kenneth L. Porter to J. H. East, Jr., dated March 28, 1952.

9. Memorandum report from F. L. Wideman of the Bureau of Mines to S. R. Wilson, dated March 6, 1952.

10. Memorandum from W. H. King to J. H. East, Jr., dated February 25, 1952.

11. Letter from Kenneth L. Porter to J. H. East, Jr., dated February 25, 1952.

12. Letter from J. H. East, Jr., Regional Director, to Kenneth L. Porter dated February 15, 1952.

13. Letter from Kenneth L. Porter to J. H. East, Jr., dated February 13, 1952.

14. Letter from the Field Team to Kenneth L. Porter, dated February 8, 1952.

Copies of four additional letters were forwarded to you by our memorandum of March 27, 1953, and the Washington office has been furnished with copies of subsequent correspondence in the matter. Additional information having a bearing on the matter is contained in the operator's and engineer's narrative reports attached to Form MF-104 Operator's Monthly Progress Report for the period of September 22, 1951 to October 23, 1951, which was forwarded to the Secretary to the Operating Committee by our memorandum of March 28, 1952.

We believe that the enclosed material, in conjunction with that on file in Washington, will give you the complete history of the case.

W H King

W. H. King

Enclosures

OSTER, KAUFMAN & LERNER
ATTORNEYS AND COUNSELORS
MERCANTILE SECURITIES BUILDING
DALLAS 1, TEXAS

HAROLD M. OSTER
STANLEY M. KAUFMAN
JULIAN A. LERNER

Mining Division
Date Rec'd
JAN 13 1954
BUREAU OF MINES
Denver, Colorado

DEPARTMENT OF THE INTERIOR
Bureau of Mines Administration
JAN 18 1954

January 7, 1954

U. S. Bureau of Mines
Denver, Colorado

Attention: Mr. King

In Re: Contract between Kenneth L. Porter and D. M. A.

Gentlemen:

You will recall that the writer was in your office last September, representing Continental Sulphur & Phosphate Corporation, who are the owners of an undivided one-half interest in the sulphur properties at Thermopolis, the subject of the captioned D. M. A. Contract.

At a recent meeting of the Board of Directors of said Continental Sulphur & Phosphate Corporation, the writer was instructed to secure from your office the answers to the following question for their file, to-wit:

1. Was Stage A of the D. M. A. Contract ever completed according to your records?

2. Was Stage A of the D. M. A. Contract ever approved by you as fully accomplished? If not, why not?

3. Was Stage B of the D. M. A. Contract ever authorized or approved by you under said D. M. A. Contract? If not, why not?

4. Was any communication, either verbal or written, given to Kenneth L. Porter to proceed with Stage B of said D. M. A. Contract?

5. Please state what efforts were made by your office to secure performance from Kenneth L. Porter under said D. M. A. Contract?

6. Please state the date upon which formal notice of termination of such D. M. A. Contract was given to Mr. Porter and the reasons therefor.

7. Please advise if it was possible on July 15, 1953 for the said D. M. A. Contract to be reinstated and the contract fully performed? You will recall you stated sulphur went off the critical list soon after termination, but we do not recall the date thereof.

We have been making every effort to secure bids on equipment jointly owned under said contract, so that same may be taken into account in the final settlement of the Contract under Stage A thereof.

Assuring you of my deep appreciation for your courtesy and cooperation in this matter and awaiting the answers to the questions above propounded by return mail, if possible, we beg to remain

Yours respectfully,

H. M. Oster

HMO:ecl

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

224 New Customhouse
Denver 2, Colorado

December 23, 1953

Mr. Jay L. Chambers, Chief
Contract Administration and Audit Division
Defense Minerals Exploration Administration
Interior Building
Washington 25, D. C.

Dear Mr. Chambers:

Enclosed are three copies of Report of Review pertaining to Exploration Contract No. Idm-E71, Docket No. DMA 739, Erickson and Baer, Dolores County, Colorado.

This is the last of the "bewhiskered" ones. Mr. Kenneth L. Porter was in the office last Friday and in the absence of Mr. King, he talked to Messrs. Shaw and Townsend regarding filing of his final MF-104 and the procedure to be followed in submitting the bids for equipment and materials on hand in which the Government has an equity.

Just as soon as this report is received in line with Mr. Talbert's instructions, I will advise you.

Yours very truly,

T. H. Brading
Auditor

Enclosures

[illegible]

[illegible]
[illegible]

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

Defense Minerals Administration
RECEIVED
NOV 27 1953

224 New Customhouse
Denver 2, Colorado

November 23, 1953

Mr. E. D. Talbert
Contract Administration & Audit Div.
Defense Minerals Exploration Adm.
Interior Building
Washington 25, D. C.

Re: Contract No. Idm-E124
Docket No. DMA-1318X
Kenneth L. Porter
Hot Springs County, Wyo.

Dear Mr. Talbert:

I have delayed answering your letter of November 17, regarding the subject contract, due to the absence of Mr. King, Executive Officer, Region IV, Denver, Colorado. He was in attendance at the Copper Conference at Tucson, Arizona all last week.

To date, the final MF-104 has not been received, and it is my understanding that at that time, a decision will be made regarding the additional charges of whether they are considered as reasonable and necessary costs of the project.

Sincerely yours,

T. H. Brading

T. H. Brading
DMEA Auditor

FILE COPY
SURNAME: BOC

Brekhus
Jackson

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

NOV 17 1953

Mr. Thomas W. Breding
DMA Auditor
224 New Customhouse Building
Denver 2, Colorado

Re: Contract No. Ida-1124
Docket No. DMA-1316I
Kenneth L. Porter
Hot Springs County, Wyo.

Dear Mr. Breding:

An audit of the above referenced contract was performed by H. J. Brekhus, DMA Auditor on November 13, 1953. This audit performed in the New York City office of the Operator disclosed pertinent information as follows:

Total amount billed by the Operator			$9,984.29
Amounts disallowed (unsupported):			
Engineer-Salary and expenses		$ 8.32	
Repairs to core bits		157.29	
Transportation		102.90	
		$268.51	
Disallowed by Certifying Officer:			
Telephone		52.00	
Credits for returned items:			
1 Inner tube clamp	$ 28.00		
1 Inner tube hoist plug	30.00		
4 Core catchers	70.00		
	$128.00		
Sales tax	2.56		
	$130.56		
Diamond Core Bit Salvage	119.24	249.80	
Total credits to date			570.31
Net costs billed and acceptable			$9,413.98

Additional costs unbilled at time of audit, for which Mr. Porter indicated he was submitting a supplemental DT-104, are as follows:

R.C.B.
11-17-53

Vendor	Item	Check No.	
Independent Record	Sample Bags	Cash	$ 2.44
" "	" Envelopes	"	.66
Various	Misc. Supplies	"	26.76
Signed Office Services	Typing 34 pages Progress report	31	79.50
Chas. M. Smith	Blasting for samples	32	15.90
SRS Machinery Company	Rent 4 months 10-29-51 to 2-29-52	33	80.00
" " "	Rent to 5-29-52	35	45.00
" " "	Rent to 1-29-53	36	120.00
" " "	Rent to 7-29-53	37	90.00
Fred E. Butler	Moving to and from project	563	500.00
Total unbilled costs			$960.26

It is suggested that you review these additional charges with the Executive Officer to determine whether he considers them reasonable and necessary costs of the project. This particularly applies to the charges for rent of storage space for the unexpended supplies and materials. Since the project was not formally terminated until April 30, 1953, and the Notice of Termination infers that the Government will share in the costs of preserving and disposing of project property to the cost of which the Government has contributed, it appears that these rental charges must be considered acceptable costs.

Mr. Kenneth L. Porter indicated that he would call on the Executive Officer of the DMPA Field Team in the near future to arrange settlement for materials and supplies remaining on hand, so that this project may be closed out.

When the supplemental MF-104 is received please advise whether the items claimed agree with the foregoing amounts and give us the recommendations of the Executive Officer in regard thereto. Also, when disposal has been made of the inventory on hand kindly forward information as to amounts recovered, as well as information about any other developments, in order that we may issue the necessary audit report at the earliest possible date.

Sincerely yours,

(Signed) E. D. Talbert

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

BJBrekhus/wb
November 17, 1953

cc: Docket
Admr. Reading File
Mr. Houk
Mr. Chambers
Mr. Brekhus

LExington 2-9570-1

KENNETH L. PORTER
Oil and Sulphur
420 LEXINGTON AVENUE
NEW YORK 17, NEW YORK

October 30, 1953

Mr. E. D. Talbert, Acting Chief,
Contract Administration & Audit Division,
Defense Minerals Exploration Administration,
U.S. Department of the Interior,
Washington 25, D.C.

Re: Docket No. DMEA-1318X
Contract No. Idm-E124

Dear Mr. Talbert:

With reference to your letter of October 27th, I wish to advise that there has been no performance under this contract since the latter part of 1951. All of the records and documents of costs incurred under this contract are at my office here in New York City and if your auditor representative so desires, he can check them here. However, I have a great many activities going on in the West, but as of this date I believe November 13th will be convenient for him to call, but it is possible that I may be called away before that time and if such a situation should arise I will endeavor to advise you in advance so that your man will not make an unnecessary call.

Sincerely yours,

Kenneth L. Porter

Kenneth L. Porter

KLP:wl

FILE COPY
SURNAME:

Talbert
Brophy

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

OCT 27 1953

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Re: Docket No. DMEA-1318X
Contract No. Ida-2124

Dear Mr. Porter:

Reference is made to the subject Exploration Project Contract dated August 23, 1951, which was terminated by the Government on April 30, 1953. Under the terms of this contract it is provided that you "keep suitable records and accounts of operations, which the Government may inspect and audit at any time."

This Division plans to have an auditor representative, Mr. B. J. Rushing, visit your office on or about November 13, 1953, for the purpose of auditing the pertinent payrolls, subcontracts, suppliers' invoices, receipts, paid checks, and other documentary evidence of costs incurred under this contract.

These plans are being made on the assumption that the records are located in your New York office. If this assumption is incorrect, please advise and give the present location of the records. Also, if for any reason the timing of this audit is inappropriate, please suggest a convenient date.

Sincerely yours,

(Signed) E. D. Talbert

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

EDTalbert/wb
October 27, 1953

Copy to: Docket
Admr. Reading File
Mr. Brading
Mr. Houk
Mr. Chambers

R.G.S. 10-27-53

FILE COPY
SURNAME:

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

600

Houk
Alexander
Butzin
Hoffman

SEP 21 1953

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Re: Docket No. DMEA-1318 - Sulphur
Brutch Sulphur Deposits
Hot Springs County, Wyoming
Contract No. Idm-8124

Dear Mr. Porter:

Reference is made to your letter of September 8, 1953, requesting procedure in disposition of jointly owned property held in storage in Thermopolis.

Please refer to a letter of April 30, 1953, from Mr. W. H. King, Executive Officer, Region IV, to you, a copy of which is enclosed.

If you prefer to send your check or post office money order, in lieu of showing a credit on your final MF-104, the check or money order should be made to the Treasurer of the United States, and mailed to Mr. W. H. King, Executive Officer, DMEA.

I hope this information answers your questions.

Sincerely yours,

Frank E. Johnson

ACTING Administrator (R. S. H.)

Enclosure

LGHouk:gad 9/16/53
Copy to: Admr. R. File
Docket File
Operating Committee
Mr. Josephson, 3510
Mr. Larrabee, G-232 GSA Bldg.
Mr. Houk
Field Team, Region IV

R.C.G.
9-21-53

C
O
P
Y

September 24, 1953

S. R. Wilson

F. L. Wideman

Docket No. DMA-1318X (Sulfur), Contract Idm-E124, Kenneth L. Porter, Hot Springs County, Wyoming

The Brutch sulfur deposits were inspected September 16, 1953. Some drilling equipment that was purchased under terms of the above-mentioned contract is stored in a warehouse in Thermopolis, Wyoming. The warehouse belongs to the S.R.S. Machine Shop, Thermopolis, Wyoming. Mr. Reed, the owner of the warehouse, told the engineer that Mr. Porter had paid rent on the space in May 1953.

The material in storage consists of one 10-foot core barrel, one five-foot core barrel, one adapter, one rock bit, and core boxes.

(signed) F. L. Wideman

LExington 2-9570-1

KENNETH L. PORTER
Oil and Sulphur
420 LEXINGTON AVENUE
NEW YORK 17, NEW YORK

DEPARTMENT OF THE ...
Defense Minerals Administration
SEP 10 1953

September 8, 1953

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

Attention: Mr. C. O. Mittendorf,
Administrator

Re: Docket No. DMEA-1318 - Sulphur
Brutch Sulphur Deposits,
Hot Springs County, Wyoming
Contract No. Idm-E124

Dear Mr. Mittendorf:

I have your recent letter regarding my contract with the Government as per above subject matter on the sulphur deposits in Wyoming. Will you kindly advise me what procedure I have to take in order to wind up this contract.

In regard to the material which the Government and I jointly own and which is in storage in Thermopolis, what is the usual procedure for holding a sale and liquidating this inventory. If you have any Government bulletins which cover this procedure, I would appreciate your sending them on to me. I too am anxious to close this matter up, but also I am very busy engineering a new process and plant for the production of sulphur from surface sulphur ores and would therefore like to work in the disposal of this material with my other program if possible.

I will appreciate anything you can do to help me work this matter out smoothly.

Sincerely yours,

Kenneth L. Porter

Kenneth L. Porter

KLP:wl

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

224 New Customhouse
Denver 2, Colorado

August 28, 1953

Mr. Jay L. Chambers, Chief
Contract Administration and Audit Division
Defense Minerals Exploration Administration
Interior Building
Washington 25, D. C.

Re: Contract Idm-E124
Docket No. DMA-1318X
Kenneth L. Porter

Dear Mr. Chambers:

In accordance with the instructions in your letter of August 18, 1953, I have reviewed the file on subject contract.

One MF-104 report was submitted covering the period September 22-October 23, 1951, in the amount of $9,984.24. The only documentation attached was a list of expenses incurred.

Please refer to correspondence from W. H. King to the Administrator dated April 30, 1953, and also letter dated August 14, 1953 from Mr. W. H. King to the Chairman of the Operating Committee together with letter from C. O. Mittendorf to Mr. King dated August 24, 1953.

Considering all the factors in the case, it is my opinion that an audit should be made. It will be necessary to determine the location of the books and records, and if they are in New York City, no doubt you would prefer to handle the audit from Washington. Will you please advise me in this regard.

Sincerely yours,

T. H. Brading

T. H. Brading
Auditor, Region IV

Rec'd ltr. to Brading dated Oct. 13, 1953

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

224 New Customhouse
Denver 2, Colorado

August 28, 1953

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA-1318 (Sulphur), Contract Idm-E124, Kenneth L. Porter

Reference is made to your letter, dated August 24, 1953, to which was attached a letter to Kenneth L. Porter.

We believe that this letter adequately covers the subject and have mailed the original to Mr. Porter.

W. H. King

W. H. King

FILE COPY
SURNAME:

UNITED STATES
DEPARTMENT OF THE INTERIOR
600
DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

AUG 24 1953

Robertson
Houk
Martin
Martin
Fargatz
Johnson
Selfridge

Mr. W. H. King
Executive Officer, DMEA
Field Team, Region IV
Bureau of Mines
224 New Customhouse Bldg.
Denver 2, Colorado

Subject: Docket No. DMEA-1318 - Sulphur
Kenneth L. Porter
Brutch Sulphur Deposits
Hot Springs County, Wyoming
Contract No. Idm-E124

Dear Mr. King:

Reference is made to your memorandum of August 14, 1953, to the Operating Committee, with respect to the final disposal of equipment and the final accounting of the subject terminated contract.

Enclosed find a letter which I have signed and addressed to the Operator. If this letter meets with your approval, please forward it to Mr. Porter. I hope we will be favored by a reply from him, but if he fails to answer within a reasonable time it will then be necessary to look to other means to close this case.

In the meantime, the pending audit review may offer some suggestion as procedure to follow in event the Operator fails in his responsibility to dispose of the equipment and to render his final accounting.

Sincerely yours,

C. O. Mitterdorf (for)

Administrator

JTRobertson:gad 8/20/53
Copy to: Admr. R. File
Docket File
Operating Committee
Mr. Josephson, 3510
Mr. Larrabee, G-232 GSA Bldg.
Mr. Houk

8-24-53

FILE COPY
SURNAME:

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
600
WASHINGTON 25, D. C.

Roberton
Houk
Chandler
Burton
Hoffland
Martin
Lazrabee
Johnson
Selfridge

AUG 24 1953
(To Reg. IV)

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Re: Docket No. DMEA-1318 - Sulphur
Brutch Sulphur Deposits
Hot Springs County, Wyoming
Contract No. Idm-E124

Dear Mr. Porter:

Reference is made to a letter dated April 30, 1953, sent to you by Mr. W. H. King, Executive Officer, DMEA Region IV, Denver, Colorado, in which you were advised of your responsibility with respect to the disposal of equipment, materials and supplies upon the termination of your exploration project contract.

Mr. King advised you that the Government had withheld from your voucher, for the period from September 22, 1951 to October 23, 1951, the amount of $1,683.86 pending the settlement of the Government's interest in the property purchased under the contract and until you have rendered your final report so that our final audit and settlement of the contract may be completed.

We wish to cooperate with you in the matter of allowing ample time. However, under the terms of the contract a final accounting and final report must be rendered by the Operator. It is in this matter that we ask your immediate cooperation. Otherwise, it may be necessary to retain the $1,683.86 and take such other steps as the Government may require to protect or liquidate its interests under the contract.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

JTRobertson:gad 8/20/53
Copy to: Admr. R. File
Docket File
Operating Committee
Field Team, Region IV
Mr. Josephson, 3510
Mr. Larrabee, G-232 GSA Bldg.
Mr. Houk

HHR 8-24-53 original sent to region

FILE COPY
SURNAME 600

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

AUG 1 8 1953

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

Re: Contract No. Idm-E124
Docket No. DMA-1318X
Kenneth L. Porter

Dear Mr. Brading:

Please refer to the above-cited contract and let me know whether or not an audit is necessary for this project. If not, will you please issue a Report of Review at a convenient time.

Sincerely yours,

(Signed) J. L. Chambers

Jay L. Chambers, Chief
Contract Administration
and Audit Division

JLChambers/wb
August 18, 1953

8-18-53

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

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 1 1953

224 New Customhouse
Denver 2, Colorado

August 14, 1953

Memorandum

To: Chairman of the Operating Committee
Defense Minerals Exploration Administration

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA 1318 -(Sulphur), Contract Idm-E124, Kenneth L. Porter

Reference is made to your letter dated August 10, 1953 regarding the termination of exploration project contract Idm-E124.

Mr. Porter has not answered our letter dated April 30, 1953. We have had no further correspondence with him.

Your attention is called to our memorandum to the Administrator dated April 30, 1953, in which we state that this office has withheld $1683.86 from the amount claimed by Mr. Porter on the last MF-104 submitted, in order to protect the Government's equity in items of equipment and unexpended supplies.

We do not seem to have any success in obtaining answers from our letters to Mr. Porter. Please advise if we should write Mr. Porter again, or if you would prefer to handle this matter in the Washington office.

W. H. King

W. H. King

FILE COPY

AUG 1 6

FILE COPY
SURNAME:

Robertson
Houk
Selfridge
Kinkel
Hedges

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

Mr. W. H. King
Executive Officer, DMA
Field Team, Region IV
Bureau of Mines
224 New Customhouse Bldg.
Denver 2, Colorado

Subject: Docket No. DMA-1318 - Sulphur
Kenneth L. Porter
Brutch Sulphur Deposits
Hot Springs County, Wyoming
Contract No. Idm-2124

Dear Mr. King:

Reference is made to the subject project which was terminated April 30, 1953, by Notice of Termination of Exploration Project Contract.

The last correspondence we received was dated April 30, 1953. We would like to be advised of the progress being made in the preparation of audit and final examination reports.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

Approved:

J. H. Hedges

Member, Bureau of Mines

A. R. Kinkel, Jr.

Member, Geological Survey

8-10-53

JTRobertson:gad 8/6/53
Copy to: Admr. R. File
Docket File
Operating Committee
Mr. Josephson, 3510
Mr. Larrabee, G-232 GSA Bldg.
Mr. Houk

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

224 New Customhouse
Denver 2, Colorado

April 30, 1953

Omea 1318

Memorandum

To: C. O. Mittendorf, Administrator
Defense Minerals Exploration Administration

From: Executive Officer, DMEA Field Team, Region IV

Subject: Termination of Contract Idm-E124, Kenneth L. Porter, Brutch Sulphur Deposits, Hot Springs County, Wyoming.

Enclosed are the original and two copies of Notice of Termination of Exploration Project Contract under the terms of the contract, before completion of the work. Copies of this notice have been sent to the operator, the Fiscal Officer, Region IV, and a copy has been retained for our files.

Also enclosed is a copy of a confidential memorandum from F. L. Wideman, Bureau of Mines engineer, containing information about Mr. Porter's activities which Mr. Wideman recently obtained in Thermopolis.

This office has withheld $1,683.86 from the amount claimed by Mr. Porter on the last MF-104 submitted. We believe that this will protect the Government's equity in items of equipment and unexpended supplies.

We are sending Mr. Porter a letter requesting him to submit bids on the items of equipment and unexpended supplies in which the Government has an equity under the terms of this contract.

W. H. King
W. H. King

Enclosures

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

Mr. Robertson

224 New Customhouse
Denver 2, Colorado

April 30, 1953

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Re: Docket No. DMA 1318X
Contract Idm-E124

Dear Mr. Porter:

By the terms of your exploration project contract with the Government, the Government acquires an interest in any property paid for or purchased with funds contributed jointly by the Operator and the Government. Such property includes: all facilities, buildings, fixtures, equipment, or other items costing more than $50 each; materials and supplies considered in groups or categories (such as pipe, or explosives, or rails, or drill steel), if the original cost of the remaining categories of materials or supplies exceeded $50; and equities in any installment-purchase contract or rental-purchase contract.

It is your responsibility to make the best possible disposition of the property for the benefit of the Government. Every reasonable effort must be made to realize its full value. By the terms of your contract, if it is necessary to accomplish such disposition of property, you are required to dismantle it, sever it from the land, and remove it for the purposes of sale. Reasonable efforts to accomplish the sale might include: (1) advertising in newspapers, periodicals, and posting notices in public places; (2) canvassing users or dealers in such property; and (3) negotiating with the original vendor for accepting the return of the property.

Should you wish to retain the property, or in effect sell it to yourself, you may do this only after having first made every reasonable effort to procure a price higher than you yourself are willing to pay. In the case of an incompleted installment-purchase or rental-purchase agreement, the contract itself is the property to be disposed of. You are not authorized to complete the purchase of the equipment covered by such incompleted contracts for your own account without reference to the Government's interest. Consultation should be had with the Government's agents with respect to the disposition of equities in any installment-purchase or rental-purchase contracts.

In a proper case the Government will approve of and join in the sale of property for the joint account of the Operator and

the Government. You are requested to advise this office in advance of the proposed disposition of any such property so that we may advise you if the Government will approve thereof.

Upon completion of the exploration project or any termination of the exploration project contract, your final report should include a detailed statement of the disposition you have made of property. Proceeds from sales of property, or credit for its value if you are allowed to retain it for your own account, should be indicated in your final monthly report, on Form MF-104, by the insertion of suitable credits in the "Monthly Total" column.

The Government has withheld from your voucher for the period from September 22, 1951 to October 23, 1951 the amount of $1683.86 pending the settlement of the Government's interest in property purchased under the contract and until you have rendered your final report, and the final audit and settlement of the contract has been made.

Very truly yours,

W. H. King

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

JWT:jp
cc Sec. Oper. Committee
Contract
Chron
SEWilson
AHKoschmann
JWTownsend

FILE COPY
SURNAME:

140

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

Ontin
Hedges
Johnson

Air Mail

Mr. W. H. King
Executive Officer, DMEA
Field Team, Region IV
Bureau of Mines
224 New Customhouse Building
Denver 2, Colorado

APR 2 7 1953

Re: Docket No. DMEA-1318 (Sulphur)
Kenneth L. Porter
Brutch Sulphur Deposits
Hot Springs County, Wyoming
Contract No. Idm-E124

Dear Mr. King:

J.C. 4/27/53

This supplements our telegram dated April 10 to you concerning the above-referenced project.

The contract is written on the old form, is dated August 23, 1951, and requires completion of the work within 2 years from that date. The work is described in 2 stages. It was estimated that Stage "A" would require 1 month to perform, and that Stage "B" would require 11 months to perform. The Operator has performed no work since October 1951.

With a letter dated July 18, 1952, you sent an Amendment No. 1 to the Operator for signature. The amendment authorized additional drilling under Stage "A." In a letter dated October 24, 1952, you requested the Operator to inform you of his plans for further work. With a letter dated November 6, 1952, the Operator returned the amendment executed as of November 7, 1952, but gave you no definite information for resuming work. In letters dated November 19, 1952, and January 21, 1953, you repeated your request to the Operator to inform you of his plans to resume work. The Operator has not responded to your last 2 letters to him and has presented no plan for additional work.

Under the old-form contract, the Operator is obligated to use proper means to bring the project to completion within the time fixed in the contract. Failure to use such means is a breach of the contract and, for such default, the Government may terminate the contract under the terms thereof (See DMEA Circular 22, Supplement No. 1, under heading "Old-Form Contract"; see also DMEA Memorandum No. 18).

In the case before us, the Operator has performed no work for more than 1 year and has presented you with no plan for performing any further work, although only 4 months remain for the completion of all work under the contract, Stage "B" of which is estimated to require 11 months to perform. In these circumstances, it is reasonable to conclude that the Operator has not used proper means to bring the project to completion within the time fixed in the contract and does not intend to do so, and that the Government is justified in terminating the contract.

The proper notice of termination to be used in this case is the form entitled "Notice of Termination of Exploration Project Contract, under the Terms of the Contract, before the Completion of the Work." Paragraphs (a) and (c) should be stricken from the form, as well as the lines for the signature of the Operator.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

HCRubin:ep

Copy to: Mails & Files
Admin. R. File
Docket File
Operating Committee
Mr. Mittendorf
Mr. Houk
Mr. Hofflund
Mr. Rubin
Chron.
Pending

CONFIDENTIAL

S. R. Wilson

April 27, 1953

F. L. Wideman

DMEA 1318X, Contract Idm-E124, Kenneth L. Porter, Brutch Sulfur Deposits, Hot Springs County, Wyoming.

The Brutch sulfur deposits near Thermopolis, Wyoming, were visited April 23, 1953, for two purposes: (1) To obtain data for a Bureau of Mines report, and (2) to obtain information concerning DMEA Contract E-124. This memo is written in a confidential nature concerning the DMEA contract.

Stage 1 of the contract was completed in October 1951. Since that time, there has been some correspondence from Mr. Porter indicating that he plans to continue exploring the deposits. When Stage 1 was completed, drilling supplies consisting of bits and core barrels were stored in a warehouse in Thermopolis. The revised MF-104 forms and supporting documents, as submitted by Mr. Porter, listed the purchase price of the supplies as $2,245.14. The MF-104 forms, as approved, withheld 75 percent of the cost of supplies, or $1,683.86.

Total payment for and disposition of the supplies was to be held in abeyance pending decision concerning continuing the contract.

The warehouse in which the supplies were stored belonged to Mr. George A. Sitton, Manhattan, Montana. It has been sold for taxes by Hot Springs County. The County Treasurer does not know what became of the supplies after the tax sale. Mrs. Lin I. Noble, who owns 30 percent of the Brutch property, also does not know where the supplies are.

Mrs. Noble stated that Mr. Porter is paying the lease fees, but she thinks someone else is supplying the money. She also thinks that whoever is paying the bills is trying to have Mr. Porter removed from his position.

It is reported in Thermopolis that Mr. Porter will return early in May to continue the exploration of the deposits. It is also reported that a loan of $85,000 has been granted recently to Mr. Porter by an agency of the Government for exploratory work.

Mr. Joe Cavalli, Cavalli and Noble, attorneys at law, Klink Building, Thermopolis, Wyoming, is the owner's representative. This information is submitted in case it should be necessary to correspond with the owners of the property.

According to some people in Thermopolis, Mr. Porter's dealings with them have been as unsatisfactory as his with the Bureau of Mines.

F L Wideman

F. L. Wideman

Mr. C. O. Mittendorf
4-27-53
7:45 AM

J.H.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 27 1953

BUR MINES DN 235 4-23- XXXXX 4-24-53 3-25 PM

C O MITTENDORF

REURTEL APRIL 10,1953, LETTER REGARDING TERMINATION OF CONTRACT IDAXXXX IDM-E124, DOCKET NO. DMEA 1318X, KENNETH L. PORTER, NOT RECEIVED.

W H KING

Denver, Colo.

APR 27 8 31 AM '53
BUREAU OF MINES
MAIL ROOM
WASHINGTON, D. C.

FILE COPY
SURNAME:

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

2971

14X3923.970 Working Fund, Interior, Defense Minerals Exploration Administration
April 10, 1953
2:00 P. M.

W. H. King, Executive Officer, DMEA Field Team, Region IV, Bureau of Mines
224 New Customhouse Bldg., Denver 2, Colorado
Contract Idm-E124, Docket No. DMEA-1318X, Kenneth L. Porter

Reurtel April 8 you may terminate Idm-E124, Kenneth L. Porter.

Instructing letter on method of termination follows.

C. O. Mittendorf

Administrator

Confirmation Copy (2)

LGHouk:gad 4/10/53

Copy to: Admr. R. File
Docket File
Mr. Houk

SENT
APR 10 1953
Clerical Service Section

Mr. C. O. Mittendorf
4-9-53
7:45 AM.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 9 1953

DN 235 BUREAU MINES 4-8-53 4-11 PM

C O MITTENDORF

REFERENCE IS MADE TO OUR MEMORANDUM DATED MARCH 27,1953 REGARDING TERMINATION OF CONTRACT IDM-E124, DOCKET NUMBER 1318X, KENNETH L. PORTER. PLEASE ADVISE IF THIS CONTRACT MAY BE TERMINATED.

W H KING

Denver, Colo.

APR 9 8 23 AM '53
BUREAU OF MINES
MAIL ROOM
WASHINGTON, D. C.

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Re: Docket No. [illegible]-1318 - Sulphur
Crutch Sulphur Deposits
Hot Springs County, Wyoming
Contract No. I[illegible]-2124

Dear Mr. Porter:

Reference is made to the subject contract and Mr. W. H. King's letter to you of January 21, 1953, regarding your plans relative to resumption of work on this project.

This project was designed to be completed by August 23, 1953, but Stage 3, which is estimated to require eleven months, has not yet been initiated. Therefore, it seems doubtful that you will be able to complete the work in the time specified.

This office has no record of any work being performed under the contract since October [illegible], 1951, and if a reply to Mr. King's letter outlining definite plans to resume work as soon as weather permits is not received, the Government will terminate your present contract and demand repayment of all monies advanced to you under the contract.

Sincerely yours,

Administrator

LGHouk:gd 4/3/53

Copy to: Admr. K. File
Docket File
Operating Committee
Field Team, Region IV
Mr. Houk

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

224 New Customhouse
Denver 2, Colorado

March 27, 1953.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 30 1953

Memorandum

To: Administrator, Defense Minerals Exploration Administration

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMA-1318X, Contract Idm-E124, Kenneth L. Porter.

In reply to your letter dated March 24, 1953 we are enclosing copies of the following correspondence:

Letter dated October 24, 1952 from the Executive Officer to Kenneth L. Porter.

Letter dated November 6, 1952 from Kenneth L. Porter to the Executive Officer.

Letter dated November 19, 1952 from the Executive Officer to Kenneth L. Porter.

Letter dated January 21, 1953 from the Executive Officer to Kenneth L. Porter.

W. H. King
W. H. King

Enclosures

FILE COPY
SURNAME:

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C. 600

Houk

MAR 24 1953

Mr. W. H. King
Executive Officer, DMEA
Field Team, Region IV
Bureau of Mines
224 New Customhouse Building
Denver 2, Colorado

Subject: Docket No. DMEA-1318 - Sulphur
Kenneth L. Porter
Hot Springs County, Wyoming
Contract No. Idm-K124

Dear Mr. King:

Reference is made to the subject contract and your telephone conversation of March 20, 1953, on the Operator's failure to answer your letters.

The last action of record in this office was receipt of Amendment No. 1, executed November 7, 1952, by Kenneth L. Porter and yourself. Since that time the only information received has been in the monthly reports and the semi-annual report. It is suggested that you supply us copies of your letters to the Operator to which you stated that you had received no replies, so that we may be of assistance to you in this matter.

Mr. Hofflund's statement that a letter was going out on this case was in error.

Sincerely yours,

G. D. Mittenden (fw)

Administrator

LGHouk:gad 3/23/53

Copy to: Admr. R. File
Docket File
Mr. Houk

3/24/53

COPY

224 New Customhouse
Denver 2, Colorado

January 21, 1953.

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Re: Docket DMA 1318X
Contract Idm-E124

Dear Mr. Porter:

Reference is made to our letter of November 19, 1952, relative to resumption of work under Contract Idm-E124, to which we have not received your reply.

We are interested in learning your plan relative to resumption of work and will appreciate such advice at your earliest convenience.

Very truly yours,

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

FILE COPY
SURNAME:

Hearne
Houk

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C. 600

November 26, 1952

Docket No. DMA-1318 - Sulphur
Kenneth L. Porter
Hot Springs County, Wyoming
Contract No. Idm-E124

Memorandum

To: Chairman, Operating Committee

From: Nonmetallic Minerals Division

Subject: Amendment No. 1 to subject contract, processed in Region IV

Recommendation: Approval

This amendment substitutes the word "estimated" for the word "maximum" in the last line of Exhibit "A", page 2, of the contract as originally executed, and additionally provides for augmentation of Stage A funds by a portion of Stage B funds for additional exploratory drilling, subject to written approval by the Executive Officer, DMEA Field Team, Region IV.

According to information available in this office, Stage A, comprising preliminary drilling and trenching has been completed, and decision concerning initiation of Stage B is pending but the operator has been requested to drill three holes through the sulphur zone before the decision is made.

This amendment is necessary in order to provide funds for the contemplated drilling.

Laurance F. Hearne
Nonmetallic Minerals Division

LFHearne:gad

Copy to: Admr. R. File
Docket File
Mr. Houk

Docket copy

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 1 7 1952

224 New Customhouse
Denver 2, Colorado

November 12, 1952

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Amendment No. 1 to Contract Idm-E124, Docket DMA 1318X, Kenneth L. Porter (Sulphur)

Enclosed are the original and two copies of Amendment No. 1 to Contract Idm-E124. Copies of this amendment have been given to the operator, the Fiscal Officer, Region IV, and a copy has been retained for our files.

W. H. King

W. H. King

Enclosures

RECEIVED
DEC 1 - 1952
GENERAL COUNSEL
DEFENSE MINERALS
ADMINISTRATION

cac
11-17

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

224 New Customhouse
Denver 2, Colorado

November 19, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
NOV 24 1952

Dmea 1318

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Dear Mr. Porter:

This will acknowledge receipt of your letter dated November 6, 1952 regarding your intention to do additional work under Contract Idm-E124. Your letter does not state when you plan to resume work. Several months have elapsed since any work has been done under the terms of this contract. Please inform us of the approximate date upon which you plan to resume work. If you do not plan to resume work in the near future, it might be advisable to cancel the present contract and consider a new contract when you are prepared to do the additional drilling.

Very truly yours,

W. H. King

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

cc: DMEA - Washington Office (2)
SRWilson

COPY

KENNETH L. PORTER
420 Lexington Avenue
New York 17, New York

November 6, 1952.

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

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

Dear Sir:

Exploration Project Contract Idm-E124

I am in receipt of your letter of October 24th and I am enclosing the six (6) copies properly signed, to your office. I assume that as soon as you receive these, you will execute some copies yourself and return them to me for my file.

This is to advise you that for the past several months we have been working on a solvent extraction process to treat these low grade surface sulphur ores and that the results of our development work have been very successful. As you know up to now nobody had had a beneficiation process that could economically extract sulphur from 15-20% ore, most of them requiring at least 35% or better in order to make it pay at all. Our process works more economically on 20% ore than it does on high grade ore and our pilot plant tests indicate that we can be assured that better than 95% recoveries can be obtained, and that the cost per ton of sulphur produced will be approximately $10 per ton. It therefore puts us in a position to compete with Gulf Coast sulphur prices with these so-called low grade ores that exist in Wyoming.

It is our present intention to do some additional drilling at Thermopolis but I will have to contact my drill contractors before I can tell you just when. In view of the results we have obtained with our process, it appears that the importance of the properties of Continental, Wyoming-Gulf Sulphur and Thermopolis have been considerably enhanced. As you know, there are vast tonnages that run around 20% in all of these properties.

I am planning a trip West very shortly and intend to stop in Denver at which time I will drop in to see you.

Very truly yours,

/s/ Kenneth L. Porter

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

COPY

October 24, 1952

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Dear Mr. Porter:

On July 18, 1952, we sent you six copies of Amendment No. 1 to Contract No. Idm-E124, and requested all six copies of this amendment be signed and returned to this office.

Will you please inform this office within the next thirty (30) days as to what you plan regarding Exploration Project Contract Idm-E124.

Very truly yours,

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

JFS:fwo
cc: Contract
Chron
Koschmann (2)

COPY

224 New Customhouse
Denver 2, Colorado

June 4, 1952

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Dear Mr. Porter:

Your letter of May 29, 1952, to Mr. J. H. East, Jr., concerning work under Docket DMA 1318X, Contract Idm-E124, has been referred to this office for consideration.

Since you are unable to obtain the services of a recognized core drilling organization, the requests contained in Mr. East's letter of April 22 will be modified. You are authorized to use the coring equipment mentioned in your letter of May 14.

The drill hole locations 8BX, 10BX and 5B have been chosen as indicative of the extent of the sulfur deposit. The first hole should be drilled from the surface in close proximity to one of the three holes listed above. If the results afford a reasonable check of the results obtained by the previous work, the other two holes need only be deepened. If the first hole does not check original results it will be necessary to drill all three holes from surface.

Core from the test holes must be kept in adequate core boxes, correctly labeled and in proper order. Sludge samples are to be retained in conjunction with core samples and labeled to conform with the core samples and at the same intervals. Adequate sludge settling facilities must be supplied in order that recirculated water will not contain sulfur that will "salt" subsequent sludge samples. The core will be split and one-half will be furnished the Government for assay purposes. The sludge samples will be dried, split and one-half furnished to the Government for assay purposes.

In case water circulation is lost, the hole should be cased, then flushed with clear water until clean, and coring resumed. In case the second and third holes are extended, casing should be set in solid formation and the hole flushed clean before coring is started.

A Bureau engineer will be present at all times when drilling is in progress. The engineer will contact this office

daily or more frequently if he considers it advisable. If in our opinion the work is not carried out in a satisfactory manner, he will be instructed that the Government's participation in the cost of the work will stop upon his verbal notice to your representative.

The Bureau engineer will maintain records of the Government's core and sludge samples and will deliver them to our laboratories for assay.

Our appraisal of the work and the deposit will depend entirely on the results of the sampling and the recommendations of the Bureau engineer.

The contract for drilling should be made on a per foot basis rather than the rate of $125.00 per day as stated in paragraph 3 of your letter of March 11, which is not acceptable. The core barrels, bits, casing and any other equipment that may be necessary, are to be a part of the per foot cost of the drilling.

Your section 6 can be eliminated because there should be no lost time for orders, materials, and making locations, as they should also be a part of the per foot cost of drilling.

We do not agree that $500.00 mentioned in section 2 of your March 11 letter for "moving in" expense is necessary. A contractor bases his price per foot to include moving.

Under section 1, you agree to pay $500.00 due under the contract of August 30, 1951, because 44 days of drilling were not completed. This is in agreement with our copy of the approved amendment dated August 30, 1951, and will be considered an allowable cost of the project.

These conditions will necessitate a different agreement with the drilling contractor and, when you have negotiated the new agreement, please submit it to this office for approval.

Very truly yours,

/s/ W.H.King

W.H. King
Executive Officer

/s/ A.H.Koschmann

A.H.Koschmann

Field Team
Defense Minerals Exploration Administration, Region IV

WHK:jp
cc AHKoschmann (2)
FEverett
SHWilson
Sub
Chron

COPY

KENNETH L. PORTER
Oil and Sulphur
420 Lexington Avenue
New York 17, New York

May 29, 1952

Mr. J. H. East, Jr.
U. S. Bureau of Mines
224 New Customs House Building
Denver 2, Colorado

Re: DMA Docket 1318X
Contract Idm-E124

Dear Mr. East:

I am in receipt of a letter dated May 19, which was in answer to my letter of May 14 signed by Mr. King and Mr. Keschmann, and in which they advised me that they do not think it advisable to revise the recommendations in your letter of April 16.

I have contacted the Diamond Drilling contractors which they referred me to, and find that none of them have equipment available to take on any drilling commitments in the immediate future. However, in this connection I wish to again reiterate that I have attempted to core sulphur with such equipment as you recommended and found that the results were not satisfactory; and in view of the results we obtained last fall with the coring equipment which we purchased specially for the job, that the equipment is much more practical and the results obtained more satisfactory than anything else I have seen to date.

Another thing, no drilling contractor wants to quote on any footage basis to only drill three holes with no assurance that any future drilling is going to be contemplated. However, the contractor whom I have been using, namely, Mr. Butler of Casper, is willing to deepen the three holes which you suggested on the gamble that future drilling will be done on the property and that the results obtained will be satisfactory to insure the future drilling. Also, Mr. Butler is familiar with the conditions, and with his prior experience on drilling this property, I feel that the results we will obtain by using him will be more satisfactory than anybody else we could get at this time.

I trust that in view of the above facts you can see your way clear to authorize a continuance of the program as outlined in my previous letter.

Very truly yours,
/s/ Kenneth L. Porter
Kenneth L. Porter

KLP:MCH

COPY

224 New Customhouse
Denver 2, Colorado

May 19, 1952

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Dear Mr. Porter:

This will acknowledge your letter of May 14 in reply to our letter of April 26 concerning Docket DMA 1313X, Contract Idm-E124.

Your letter has been carefully reviewed in this office and we do not believe it advisable to revise our recommendations concerning drilling practices.

There are several reliable diamond drilling contractors operating in this area. They are: Boyles Brothers Diamond Drilling Company, 1321 S. Main St., Salt Lake City, Utah; Sprague and Henwood, Inc., Diamond Drill Contractors, Scranton, Pa.; Mr. George Marshall, Idaho Springs, Colorado; Joy Manufacturing Co., 1626 Wazee St., Denver.

We believe that one or more of these contractors will submit bids and do the drilling discussed in our letter of April 26.

Very truly yours,

/s/ W. H. King

W. H. King
Executive Officer

/s/ A. H. Koschmann
A. H. Koschmann

Field Team
Defense Minerals Exploration
Administration
Region IV

cc: A. H. Koschmann (2)
S. R. Wilson
Sub
Chron

WHK:bb

COPY

KENNETH L. PORTER
Oil and Sulphur
420 Lexington Avenue
New York 17, New York

May 14, 1952.

Mr. J. H. East, Jr.,
U.S. Bureau of Mines
224 New Customs House Building
Denver 2, Colorado

Re: DMA Locket 1318X
Contract Idm-E124

Dear Mr. East:

I was in Denver on April 26th which unfortunately was a Saturday, and tried to contact you but your office stated that nobody was working on Saturday, and as a consequence I missed you. Upon my return to New York, I found your letter of April 22nd which I have very carefully read and analyzed.

I note that you recommend that instead of deepening the three drilling hole locations which I indicated, that you want to drill three entirely new holes in close proximity to these. This is duplication of expense which will produce no new information and take considerable more time. It seems to me that if we are going to drill three new holes from the surface down, that we may just as well start at some other location for them.

I have attempted to find a drilling contractor which has the coring equipment which you suggest using, and have not found any available. This type of hard rock diamond core drilling equipment appears to be all contracted for, primarily by government agencies and the Atomic Energy Commission. I also feel that standard core barrels suggested by you will not obtain as good recovery as the special equipment we have developed at Thermopolis. After all, we can use casing with our coring equipment wherever we encounter circulation troubles.

My drilling contractor, Mr. Butler, has no such equipment as you specify but indicated that he would quote us on a footage basis for the drilling if we use our coring equipment. When Mr. Wideman was in Thermopolis last fall checking our drilling operations, he seemed to feel that our coring equipment was excellent and that the results we were obtaining were adequate; and I also feel the same way.

As to your objection to the use of the graph which Mr. Wolf used in his evaluation of previous samples, if you will kindly refer to his report, you will note that parallel to the estimates based on the graph are also recorded the actual assay values; and therefore you have both an estimate based on the actual assays, and using the graph.

May 14, 1952.

Mr. J. H. East

I am primarily interested in getting this program under way at the earliest possible moment, and would therefore request that you revise your recommendations to fit the conditions as they exist so that we can proceed with the drilling and coring equipment which we have available.

Will you kindly let me have your recommendations at the earliest possible moment?

Very truly yours,

/s/ Kenneth L. Porter

Kenneth L. Porter

KLP:m

COPY

224 New Customhouse
Denver 2, Colorado

April 22, 1952

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Dear Mr. Porter:

This will acknowledge your letter of April 16 regarding proposed work in connection with Docket DMA 1318X, Contract Idm-E-124.

The choice of drill hole locations 8BX, 10BX and 5B should indicate the extent of the sulphur deposit, however, the holes should be drilled from the surface at locations in close proximity to these holes. The holes should be drilled with "NX" size core bit through overburden and "B" size casing installed in bedrock in such a manner that a tight water seal is effected. The hole beyond this point should be drilled with "BX" size core bit. Our experience indicates that a 5 foot core barrel should be used. The core from these test holes must be kept in adequate core boxes correctly labeled and in proper order. In case water circulation is lost the hole should be reamed and casing extended to solid formation. The hole should then be flushed with clear water until clean and core drilling resumed. In case it is not possible to extend the "B" size casing, "A" size casing can be installed where necessary and core drilling continued with "AX" size equipment. Nothing smaller than "AX" size core will be acceptable.

The sludge samples are to be retained in conjunction with the core samples and labeled to conform with the core samples and at same intervals. The core will be split and one-half will be furnished to the Government for assay purposes. The sludge samples will also be split and one-half furnished to the Government for assay purposes.

A Bureau engineer will be present at all times when drilling is in progress. The engineer will contact this office daily and if in our opinion the work is not progressing in a satisfactory manner, he will be instructed that the Government's participation in the cost of the work will stop upon his verbal notice to your representative.

The Bureau engineer will maintain records of the core and sludge samples and will deliver them to our laboratories for assay.

Our appraisal of the work and the deposit will depend entirely upon results of the core and sludge samples. We do not contemplate the use of a graph such as that used by your engineer in his evaluation of previous samples, shown in your report.

The contract drilling should be made on a per foot basis rather than the rate of $125.00 per day as stated in paragraph 3 of your letter of March 11, which is not acceptable. The core barrels, bits and casing are to be a part of the per foot cost of the drilling.

Your section 6 can be eliminated because there should be no lost time for orders, materials, and making locations as they should also be a part of the per foot cost of drilling.

We do not agree that $500.00 mentioned in section 2 of your March 11 letter for "moving in" expense is necessary. A contractor bases his price per foot to include moving.

Under section 1, you agree to pay $500.00 due under the contract of August 30, 1951 because 44 days of drilling were not completed. This is in agreement with our copy of the approved amendment dated August 30, 1951 and will be considered an allowable cost of the project. This will necessitate a differenc eagrement with the drilling contractor and when you have negotiated the new agreement, please submit it to this office for approval.

Very truly yours,

/s/ J.H. East, Jr.

J.H. East, Jr.
Executive Officer
Field Team, Region IV

cc: Koschmann (2)
S. R. Wilson
W. M. Traver, Jr.
Sub
Chron

MHK:b

COPY

KENNETH L. PORTER
Oil and Sulphur
420 Lexington Ave.
New York 17, New York

April 16, 1952

Mr. J. H. East, Jr.
U. S. Bureau of Mines
224 New Customs House Building
Denver 2, Colorado

Re: DMA Docket 1318X Contract Idm-E124

Dear Mr. East:

In answer to Mr. King's letter of April 7, regarding Docket DMA-1318X, Contract Idm-E124 I wish to advise that I plan to deepen holes designated as 8BX, 10BX, and 5B on the map.

We intend to core when the nature of the formation warrants the attempt, however we will get a cuttings sample for each 5 feet when coring and a cuttings sample each 2½ feet when using a rock bit. It is also planned to save sludge samples each 2½ or 5 feet depending on the nature of the drilling. The circulating water and sludge will be cleaned from the tank at each interval so that we will be sure to get a good average sample for the distance and also prevent any salting of the subsequent stage of drilling.

I trust you will give this matter your prompt approval as the season is getting pretty well advanced and we must get going if we want to accomplish anything of note this year.

Thanking you, I remain,

Very truly yours,

/s/ Kenneth L. Porter

Kenneth L. Porter

KLP:p

COPY

224 New Customhouse
Denver 2, Colorado

April 7, 1952

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Dear Mr. Porter:

This will acknowledge your letter of March 28, in Mr. East's absence, regarding Docket DMA-1318, Contract Idm-E124.

Will you please supply us with a detailed plan of sludge sampling and water circulation methods that you intend to use in drilling the three holes that were requested by the Field Team. Also please give us the locations of these three holes.

When Messrs. East and Koschmann return, they will give this matter consideration.

Very truly yours,

/s/ W.H. King

W.H. King, for
J.H. East, Jr.
Executive Officer
Field Team, Region IV

cc: Koschmann (2)
Wilson
Sub
Chron

WHK:bh

COPY

KENNETH L. PORTER
Oil and Sulphur
420 Lexington Avenue
New York 17, New York

March 28th, 1952

Mr. J.H. East, Jr.
U.S. Bureau of Mines
224 New Customs House Building
Denver 2, Colorado

Re: DMA Docket 1318X
Contract Idm-E124

Dear Mr. East:

In accordance with your request under date of February 8th, 1952, relative to the drilling of three of the holes through the mineralized zone, I wish to advise that I have tentative arrangements made to carry out this program.

In this connection, there will be certain expenses which are not specifically covered by the contract and therefore I am enclosing a copy of the arrangement I have made with my drilling contractor, Mr. Fred E. Butler, to do this work. I would like to have your approval on this arrangement before proceeding. It will be necessary to purchase carbide core bits which will cost about $300.00 for which I would like to have your approval. There will also be charges for sampling, assaying, drilling supplies, trucking and transportation, bit repairs and engineering expenses which I assume are covered by the contract; but if they are not, I would like to have your special approval.

Kindly let me have your decision in this matter as soon as possible as the drilling rig is now available and can therefore start the work promptly.

I would also appreciate your advice as to what is holding up the payment on my MF-104 which I corrected and sent to you under date of March 17th.

Trusting to hear from you promptly, I remain

Very truly yours,

/s/ Kenneth L. Porter

Kenneth L. Porter

KLP:M

OFFICE OF THE ADMINISTRATOR

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

224 New Customhouse
Denver 2, Colorado

March 28, 1952

Memorandum

To: Secretary to the Operating Committee
Defense Minerals Exploration Administration

From: Executive Officer, Field Team, Region IV

Subject: Form MF-104, DMA Docket 1318X, Contract Idm-E124, Stage A, Kenneth L. Porter, Brutch Sulphur Deposits, Hot Springs County, Wyoming

Enclosed are the Operator's Monthly Progress Report Form MF-104, Operator's Narrative Report and Inspecting Engineer's Narrative Report, and other supporting data for the month of September 22 to October 23, 1951, pertaining to DMA Docket 1318X, Contract Idm-E124, Kenneth L. Porter.

W. H. King

W. H. King, for
J. H. East, Jr.

Enclosures

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 3 - 1952

COPY

S. R. Wilson March 6, 1952

F. L. Wideman

Docket 1318X, Contract Idm-E124, Kenneth L. Porter, Thermopolis, Wyo.

The following comments are made on the work done under Stage A of the drilling program. Suggestions are made on the proposed work as outlined in a memorandum to Mr. Porter dated February 8, 1952.

I observed the last half day of drilling and sampling on October 20, 1951, and saw some things which did not appear to be in accordance with good drilling and sampling practice.

None of the holes were cased. Some holes were reported to have been abandoned because of caving. Water return was poor and bran was used to decrease water loss. Drilling water was circulated through a small sludge tank (4 feet long, 2½ feet wide and 1½ feet deep, as I remember it). Sludge was caught on a piece of window screen placed in front of the standpipe. At the end of a run, some of the sludge was transferred to a "pig trough" as a sample. Any sample taken under such conditions would not be representative. Samples containing elemental sulfur would be questionable because of the tendency of sulfur to slime, and float and be recirculated into the drill hole.

Mr. Porter explained that the holes were left "bottomed" in sulfur for two reasons:

1. That he wanted to show as much lateral extent of sulfur mineralization as possible within the time limits of Stage A.

2. That difficulties of rock penetration by drill bits resulted in stopping some of the holes.

In my opinion, the diameter of the core was larger than necessary to obtain good core recovery. The Bureau of Mines obtained an average core recovery of 77 percent in drilling 16 holes for a total of 1,588 feet in the Phosphoria formation near Lander, Wyoming. Of this footage, 299 feet was drilled with NX bits, 948 feet with BX bits, and 341 feet with AX bits. Much of the drilling with NX bits was undoubtedly through overburden where core recovery would be low.

In my opinion, the location of drilling the three holes proposed in the memorandum should be agreed upon by the government and Mr. Porter (to prevent drilling all the holes in the immediate vicinity of the two open pits). The holes should be drilled from the surface rather than attempting to deepen existing holes.

The diameter of the holes can be reduced to a size sufficient to obtain good core recovery without using a large drill rig. The holes should be cased when needed.

Sufficient sludge tanks should be used to insure proper settling of the drilling water.

Provisions should be made to take part of the drill cuttings all of the time for samples. This should not require too much equipment. If possible, pulls should be made according to lithologic changes rather than length of run. Every precaution possible should be taken to insure as good a sampling job as possible, even if it requires a representative of the Government to be present at all times when drilling is being done.

/s/ F.L. WIDEMAN

F. L. Wideman

COPY

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

224 New Customhouse
Denver 2, Colorado

February 25, 1952

Memorandum

To: J. H. East, Jr.

From: Acting Chief, Mining Division, Region IV

Subject: Brutch Sulfur, DMA 1318X, Contract Idm-E-124, Kenneth L. Porter

During your trip to Arizona, Mr. Harry J. Wold, consulting engineer for Kenneth L. Porter, holder of Contract Idm-E-124, DMA 1318X, Brutch Sulfur, called and discussed project work. The following day Mr. Porter came in and discussed the situation. In both cases, Mr. Koschmann came in and lead the way in the discussion of field work. During the course of the talks, some remarks were made of the manner in which sludge samples were taken. It was also intimated that the drill holes were not cased. Under these conditions it appears that the value of the sampling may be questionable.

If you have sufficient time during your trip to Salt Lake City, it might aid the Field Team in making their decisions if you discuss the matter with S. R. Wilson. The project was inspected by Wideman and he may have some suggestion or information to offer on the matter.

/s/ W.H. King

W.H. King

COPY

KENNETH L. PORTER
Oil and Sulphur
420 Lexington Avenue
New York 17, New York

February 25, 1952

Mr. J.H. East, Jr.
U.S. Bureau of Mines
224 New Customs House Bldg.
Denver, Colo.

Re: Docket No. DMA 1318X
Kenneth L. Porter - Exploration Contract Idm-E124

Dear Mr. East:

I am in receipt of your letter of February 15th in which you attach copy of letter of February 8th mailed to me at Rainbow Court, Thermopolis, Wyoming, together with copy of memorandum from Mr. Wilson and Mr. Wideman of the Salt Lake City office.

I note that Mr. Wilson's memorandum is dated January 2nd and subsequent to that date I talked with him a couple of times on the telephone and sent him under date of January 16th further information which covers some of the points brought up in his memorandum of January 2nd.

Also on my visit to your office February 21st I took up several of these points with Mr. King and Mr. Koschmann.

In connection with this contract, if there are any further items that are in controversy, I would appreciate your advice at once as I believe that I can satisfactorily explain them. I notice under item "L" of Mr. Wilson's memorandum that he notes a discrepancy between total expenditures shown on page 2 and 4. The discrepancy amounts to $50.65 which, as I explained to Mr. Wilson over the telephone, was for small cash expenditures for which I had no signed receipts. It appears to me that on a project of this kind $50.00 worth of miscellaneous and incidental expenses is nothing when the overall amount is taken into consideration. I can hardly believe that you would expect me to get a receipt from the post office for twelve cents worth of postage stamps, etc.

In regard to the carrying out of your suggestions made in your letter of February 8th, I have taken this matter up with Mr. King and Mr. Koschmann and as soon as I can get the necessary information together as to what the cost will be, I will submit the estimate

to you for approval as I gathered from talking with them that this would constitute an amendment to the original contract.

Trusting that you will be able to process my MF-104 promptly, I remain

Very truly yours,

/s/ Kenneth L. Porter

Kenneth L. Porter

KLP:nw

COPY

February 15, 1952

Mr. Kenneth L. Porter
420 Lexington Avenue
New York 17, New York

Dear Mr. Porter:

This will acknowledge receipt of your letter dated February 13, regarding your exploration contract Idm-E-124.

The Field Team mailed a letter dated February 8, addressed to you at the Rainbow Court, Thermopolis, Wyoming, and we attach a copy of this letter. I believe our letter of February 8 fully replies to your letter of February 13, regarding Stage B of your contract.

Form MF-104s have been delayed because of irregularities. We attach a copy of the report from the examining engineer, Mr. Wideman, to Mr. Wilson, dated January 2, regarding these irregularities. We will complete the audit of your MF-104s as promptly as possible and if payment can be made by deleting controversial items, we will do so.

Very truly yours,

/s/ J. H. East, Jr.

J. H. East, Jr.
Regional Director

Enclosures 2

JHE:ftm

DMA Files
Koschmann (2)

COPY

KENNETH L. PORTER
Oil and Sulphur
420 Lexington Avenue
New York 17, New York

February 13, 1952

Mr. J. H. East, Jr.
U. S. Bureau of Mines
224 New Customs House Bldg.
Denver, Colo.

Re: Docket No. DMA 1318X
Kenneth L. Porter - Exploration Contract Idm-E124

Dear Mr. East:

This will confirm the conversation I had with you on February 7th over the telephone from Dallas, Texas, at which time I advised you that two weeks prior to that the Salt Lake City office had advised me that my form MF-104 had been forwarded to your office.

As you may well understand, I am very anxious to get my check in this matter from the government and also I would like to have your decision as to whether or not the government is going to continue along with me under stage B as called for in the contract. I have, as you know, a number of intangible commitments on this situation which I am faced with if the government does not go along on this contract and the longer the decision is postponed the greater my liability my become. I therefore would appreciate anything you can do to expedite a decision in this matter.

If there is any further information you require from us, you may contact either me or Mr. Harry Wolf and we will be glad to furnish it promptly.

Thanking you for a prompt decision in this matter, I remain

Very truly yours,

/s/ Kenneth L. Porter

Kenneth L. Porter

KLP:nw

COPY

February 8, 1952

Mr. Kenneth L. Porter
Rainbow Court
Thermopolis, Wyoming

Dear Mr. Porter:

Referring to our telephone conversation of February 7, regarding your contract Idm-E-124, DMA Docket 1318X.

We have examined the report of your engineer Mr. Wolf and the report of the Bureau of Mines engineers, and we note that most of the holes are bottomed in sulfur. In other words, you do not know the thickness of your deposit. We also note that the assay value of the sulfur as determined by assay has been increased by a factor shown on the curve in Mr. Wolf's report.

Before the Field Team can authorize the second stage of your contract, we request that you select three holes and drill them through your mineralized zone, splitting the core and saving one-half for our analysis. If you do not obtain core ina reasonable amount, we would like to secure samples of your dried sludge.

The cost of doing this work will be credited to the portion of the expense allotted to the second stage of your contract. If you will advise us when your drilling is in progress we will try to have a representative present during part of the drilling operation.

Very truly yours,

/s/ J. H. East, Jr.

J. H. East, Jr.

/s/ A. H. Koschmann

A. H. Koschmann

JHE:ftm
cc Wilson 2-18-52
Koschmann

FILE COPY
SURNAME:

410

F L Knouse
Mittendorf

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

OCT 4 1951

Contract Service Section
General Accounting Office
4th Floor - New GAO Building
Washington 25, D. C.

Re: Docket No. DMA - 1318
Kenneth L. Porter and Fred E. Butler
Exploration Project Contract Idm-E124

Gentlemen:

Enclosed is an original, signed copy of an approval to the captioned Exploration Contract which should be attached to your copy of the contract.

Sincerely yours,

C. O. Mittendorf (J. F.)

C. O. Mittendorf, Director
Production Expansion Division

Enclosure

FLKnouse/meb
10/1/51
cc to: Admr's Reading Files
Reports & Records
Messrs. Mittendorf/Olund
Knouse
Docket

FILE COPY
SURNAME:

410

Mittendorf

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

October 1, 1951

Memorandum

TO: Reports and Records Section

FROM: Production Expansion Division

SUBJECT: Docket No. DMA - 1318
Kenneth L. Porter and Fred E. Butler
Exploration Project Contract Idm-E124

Attached is a copy of a memorandum dated September 24, 1951, from Mr. J. H. East, Jr., Executive Officer, Region IV, transmitting an Approval, which is also enclosed, to the captioned Exploration Contract. Please attach the approval to your copy of the contract.

C. O. Mittendorf

C. O. Mittendorf

S.A. 10-4

Enclosures

FEKnouse/meb
cc to: Admr's Reading Files
Reports & Records
Messrs.Mittendorf/Olund
Knouse
Docket

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

DEPARTMENT OF THE INTERIOR
RECEIVED
OCT 1 1951
Defense Minerals Administration,
Production Expansion Division.

224 New Customhouse
Denver 2, Colorado

September 24, 1951

Memorandum

To: C. O. Mittendorf, Director, Production Expansion Division
Defense Minerals Administration

From: Executive Officer, DMA Field Team, Region IV

Subjec t: DMA Docket 1318, Contract Idm-E124, Approval of Contract between Kenneth L. Porter and Fred E. Butler

Enclosed herewith are original and two copies of an approval of a contract between Kenneth L. Porter and Fred E. Butler.

J. H. East, Jr.

J. H. East, Jr.

Enclosures

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

FIL
SUR

FLKno
Mittendo

A.E.C.

SEP 1 0 1951

Contract Service Section
General Accounting Office
Washington 25, D. C.

Re: Docket No. DMA 1318X
Kenneth L. Porter
Exploration Contract Idm-K124

Gentlemen:

Enclosed for recording in your office is the original, signed copy of an Exploration Project Contract executed between the Operator named in the above reference and the Government of the United States.

Sincerely yours,

C. O. Mittendorf (MEH) BJ 9/10

C. O. Mittendorf, Director
Production Expansion Division

Enclosure

FLKnouse/meb
9/6/51
cc to: Admr's Reading File
Reports & Records
Messrs.Mittendorf/Olund
Mr. Knouse
Docket

FILE
SURN

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

F.L. Knouse
Mittendorf

SEP 7 1951

A.E.C.

Mr. J. H. East, Jr.
Executive Officer
Region IV
Bureau of Mines
234 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMA 1318X
Kenneth L. Porter
Exploration Contract Idm-E124

Dear Mr. East:

We are enclosing your copy of the Exploration Contract Idm-E124 together with the attached Appendix one, Exhibit "A" (5 pages), one map and three "Landlord's Subordination Agreements." A copy of this contract will be forwarded to the Regional Finance Officer by the Washington Finance Officer.

Sincerely yours,

C. O. Mittendorf M.E.H.

C. O. Mittendorf, Director
Production Expansion Division

JF9-7

Enclosures

FLKnouse/meb
9/6/51
cc to: Admr's Reading File
Reports & Records
Messrs. Mittendorf/Olund
Barr
Espenshade
Knouse
Docket

KENNETH L. PORTER
Oil and Sulphur
420 LEXINGTON AVENUE
NEW YORK 17, NEW YORK

August 31, 1951.

C. O. Mittendorf, Director,
Production Expansion Division,
Department of the Interior
Defense Minerals Administration,
Washington 25, D. C.

DEPARTMENT OF THE INTERIOR
RECEIVED
SEP 4 1951
Defense Minerals Administration,
Production Expansion Division,

Re: Docket No. DMA 1318X
Kenneth L. Porter
Exploration Contract Idm-E124

Dear Mr. Mittendorf:

This will acknowledge yours of the 23d in which you enclose the original and five copies of the above subject contract signed by you, together with the attached appendix one, the Exhibit "A" (5pages), one map and three "Landlord's Subordination Agreements."

It has taken me sometime to get the date changes in the subordination agreements initialed due to the fact that one of the parties was out of town on a trip.

I am enclosing the original and four copies of the above subject contract with the date changes properly initialed and signed by me. This, I assume, puts the contract in full force and effect and I am proceeding forthwith to start the exploration work.

I have attempted to contact Mr. J. H. East, Jr., in Denver, and am advised that he is in California but will be in his office the first of the week, at which time, I will again try to contact him.

Thanking you for your cooperation in this matter,
I am

Sincerely yours,

Kenneth L. Porter

Kenneth L. Porter

KLP:r
encls.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 2 8 1951

FILE COPY
SURNAME:

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

Hardendorf

A. E. C.

AUG 23 1951

Mr. Kenneth L. Porter
430 Lexington Avenue
New York 17, New York

Re: Docket No. DMA 1318X
Kenneth L. Porter
Exploration Contract Idm-E124

Dear Mr. Porter:

We are enclosing the original and five copies of the above subject contract, signed by me, together with attached Appendix I, Exhibit "A" (5 pages), one map and three "Landlord's Subordination Agreements."

If the terms and conditions of this contract meet with your approval, please sign all six copies, retain one copy, and return the original and four copies to this office. If this contract is signed by you, it will be your authority to proceed with the work on this project. If any part of this contract does not have your approval, the original and all copies of the contract are to be returned to this office, together with your proposed changes for consideration.

Enclosed also are a set of Progress Report Forms (MF-104), and Int. 3337, "Questions and Answers on the Mineral Exploration Program", for use in making your first report. Additional Forms MF-104 may be obtained by writing to Mr. J. H. East, Jr., Executive Officer, Region IV, 224 New Customhouse Building, Denver 2, Colorado.

This Progress Report should be submitted in quadruplet to Mr. East, prior to the 15th of the month following the reporting period. They will be used as the vouchers on which the Government's share of the cost of the project will be paid monthly.

The Landlord's Subordination Agreements of Mr. Jack W. Perry and Mr. A. J. Hardendorf state in page 1, paragraph 1 of the agreements: "described in a certain Exploration Project Contract, dated May 29, 1951." In order to complete this contract this date must be changed to August 23, 1951, and initialed by the parties concerned.

In accordance with Article 4 of your contract, the contract for core drilling as outlined in this contract is subject to the approval of the Government Field Engineers.

If you have any questions in connection with the project, it is suggested that you contact Mr. East.

Sincerely yours,

C. O. Mittendorf (F.H.) B 8/23

C. O. Mittendorf, Director
Production Expansion Division

Enclosures

8/23/51
FLKnouse/meb
cc to: Admr's Reading File
Reports & Records
Mittendorf/Olund
Field Team, Reg IV (2)
Barr
Espenshade
Knouse
Docket

LExington 2-9570-1

KENNETH L. PORTER
Oil and Sulphur
420 LEXINGTON AVENUE
NEW YORK 17, NEW YORK

Mr. Knouse

August 20, 1951

S. L. Knouse,
Defense Minerals Administration,
U. S. Department of Interior,
Washington, D. C.

Reference No. D. M. A. 1318 X

Dear Sir:

In accordance with the instructions from you relayed to me by Mr. Harry J. Wolf, I obtained the enclosed subordination agreements from Mr. A. J. Hardendorf and Jack Perry respectively.

I am sending these to you, personally, as that was Mr. Wolf's instructions and I trust that with these two final documents you will be able to process my application at once.

Thanking you for your cooperation in this matter, I remain

Sincerely yours,

Kenneth L. Porter

Kenneth L. Porter

KLP:RH
enc. 14 copies

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 22 1951

FILE COPY
SURNAME:

140
DMA-1318

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

August 15, 1951

Memorandum

To: Director, Production Expansion Division

From: General Counsel

Subject: Kenneth L. Porter, exploration contract DMA-1318

This contract, redrafted in the light of the objection stated in my memorandum of August 1, is now approved as to legal form and sufficiency subject to the following:

1. Correction of typographical errors in lines 11 and 12 of Exhibit "A".

2. Proper signature by the prospective operator.

3. Dating as of the day of delivery to the prospective operator.

4. The obtaining of subordination agreements from the owners of the second parcel of land, Jack W. Perry and A. J. Hardendorf.

In my memorandum to you of August 10 on the subject "Exploration projects for lodes within placer claims," I gave it as my opinion that a mere unpatented placer claim does not create any interest in lode deposits in the land covered by the placer claim, and that the Government therefore should not participate in exploration projects for lode deposits in reliance upon a placer claim, In the subject case, however, I understand from Mr. Knouse that it cannot be known in advance whether the deposits which are being sought will be mined by placer or lode-mining methods, and that a substantial part of the exploration work will be aimed at the discovery of placer deposits. In these circumstances, and in view of the fact that the Government participates only to the extent of 50 per cent in exploration for sulfur, and that we may assume that the Operator will protect his property rights and interests, I raise no question in this case with respect to reliance upon the unpatented placer claims.

RRGuthrie/JLHofflund/em
Copy to: Reports & Records
J.L. Hofflund
R. R. Guthrie

J. L. Hofflund

J. L. Hofflund
General Counsel

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

August 10, 1951

Memorandum

To: Director, Production Expansion Division

From: General Counsel

Subject: Exploration projects for lodes within placer claims

Mr. Knouse of your office asked me whether a placer claim would give sufficient title to its holder to enable the Government to participate in an exploration project for a sulfur lode in the land included in the placer claim.

It is my opinion that a mere unpatented placer claim does not create any interest in lode deposits in the land covered by the placer claim. Therefore, the Government should not participate in exploration projects for lode deposits in reliance upon a placer claim.

J. L. Hofflund

J. L. Hofflund
General Counsel

WCJones/bjl

Copy to: W. C. Jones
J. L. Hofflund
F. L. Knouse
Chron.
Reports & Records br.

(1.)

RECEIVED
AUG 7
GENERAL COUNSEL
DEFENSE MINERALS
ADMINISTRATION

Memorandum

D.M.A. 1318X
Kenneth R. Porter. Sulphur

Answers to Mr Hoffland's memo of August 1, '51 concerning the above contract are as follows:-

Paragraph 1.

The underlined phrase referred to, which is, "in preparation for mining [redacted] operations" can be taken out as it is misleading. The bulldozer work is principally to prepare places for drill set ups and not for mining. How can it be known where to mine, when the object of the contract is to find out just that point?

Paragraph 2.

Possibly ~~the~~ a simple statement ~~that~~ in concise form would be more intelligent. Might try something like this:

"It is proposed that a trenching and core drilling operation, limited to an expenditure of $10,000 be undertaken to determine the presence of sulphur in ~~the~~ commercial quantities.

This preliminary operation called stage A ~~will~~ can be broken down approximately

~~as follows:~~

~~approximately 1500' to 2000' of Bulldozer trenches at a total cost of $2500 —~~

~~approximately 500' to 600' of core drilling at a total cost of $2500 —~~

~~as follows:~~

~~Bull dozer trenching approximately 2000' @ $1.00 a foot $2500.00~~

~~Core Drilling~~

as follows:

Bulldozer Trenching

Approximately 2000 ft @ $1.00/ft 2500 —

Core Drilling

Approximately 750 ft @ $3.25/ft. 2500 —

Drilling Supplies

Bits and Cores Barrels 2000 —

Miscellaneous supplies, truck rent, etc. 1000 —

Supervisor + Labor

Engineer-Geologist in charge 1000 —

Commercial Assayer 500 —

Traveling expenses 500 —

$10,000 —

Any remark that establishes a definite cut off between Stage A and the remaining part of the work should be acceptable.

Paragraph 3

The question about whether or not an assay office is a fixture or a piece of equipment or a supply is purely academic. The two answers would call for a complete design and set of specifications so that each item in the expenditure could be classified. This is a foolish and needless expense. In any case the details could be taken care of by the suggested addition to Exhibit B clipped to the sheet.

Paragraph 4

The use of the bulldozer during the first month will be greater than during subsequent months hence the charge of $2500 — for the first month and of $1500 — for the second month.

The question of sub-contract for the bulldozer might be resolved by saying that $2500 — for 25 days is $100 - a day or $12.50 per hour, which is a reasonable wage for a bulldozer operator who furnishes the machine, supplies and labor.

The items trucking and mine for stage A is an approximate figure

that for only a month it would be difficult to itemize. After Stage A more data will be available and if the suggestion clipped to the bottom of this sheet is accepted this item will not appear ~~in~~ in subsequent months except in a form acceptable to the D.M.A. Field Team.

Paragraph 5

The sheet containing Exhibit D was left out of the data presented to the Legal Division by an oversight and the slip of paper marked "Exhibit D" should be simply a reference to the resume.

Paragraph 6

The suggestion to designate all the figures as approximations is good and could no doubt be accomplished by mentioning this fact in a general way under Exhibit A.

Paragraph 7

Mr Porter must be requested to furnish this subordinate agreement.

Paragraph 8

All holes spotted on first page of land. see map

CABLE ADDRESS: MINEWOLF, NEW YORK
CODES: BEDFORD MCNEILL, BENTLEY
OR WESTERN UNION

TELEPHONES: PLAZA 9-1700
GREAT NECK 4-2423

HARRY J. WOLF
MINING AND CONSULTING ENGINEER
420 MADISON AVENUE
NEW YORK 17, N. Y.

400

Aug. 4, 1951.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 7 1951
LANDON F. STROBEL
Executive Secretary

Col. James Boyd, Director,
United States Bureau of Mines,
Interior Building,
Washington 25, D. C.

Dear Jim:

Since I spoke to you over the telephone about ten days ago, I have been up in northern New York investigating some talc mining operations and have just returned. I find, to my amazement and disgust, that nothing definite has been done about the application of Mr. K. L. Porter who was led to believe that the Government would advance half the money required to prospect and develop a sulphur deposit near Thermopolis, Wyoming.

When I called you on the phone, I had been advised by Pi Warren, who processed the papers, that the matter had passed out of his hands and had been passed along to the attorneys who passed on the legality of the transaction and authorized the loan. This should not take ten days. It should not take over twenty-four hours. These men who dillydally with such matters do not realize that both time and money are being wasted by the the man who is waiting for a decision. They forget that the Government has given out the impression that a product (in this case sulphur) is in short supply, and that they, as instruments of the Government, are not raising a finger to help the citizen who is willing to risk his money and effort to help solve the problem.

The applicant for a loan, at the almost urgent request of the Government, would in the first place like to have a YES or NO, so that he will know where he stands; next, after he has complied with the red tape, he has a right to expect prompt action, so that he will not lose the best part of the season in getting his operations under way. If the applicant is not going to get help, he should be so informed in the first place, and not be "strung along" for a while, and then find that he will have to go it alone on a slower schedule of operations, after a good-weather period has passed by.

What I have said above is not aimed at you personally, as you must know, but is in criticism of some of the incompetents in Washington who are unfortunately appointed to do work for which they are not fitted. I hope something can be done to expedite Mr. Porter's application. It may be that this letter will cross the necessary papers in the mail. I hope so. If not, then I trust there may be some way of informing the laggards that their salaries are being paid out of taxes from the pockets of citizens who have the right to expect reasonable and businesslike consideration.

With kindest personal regards and all good wishes, I remain

Yours very truly,

Harry J. Wolf

HJW:dl

RECEIVED
AUG 7 1951
BUREAU OF MINES
OFFICE OF DIRECTOR

AUG 6 3 57 PM '51
BUREAU OF MINES
MAIL ROOM
WASHINGTON, D.C.

FILE COPY
SURNAME:

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

August 1, 1951

Memorandum

To: Director, Production Expansion Division

From: General Counsel

Subject: Kenneth L. Porter -- Docket No. DMA-1318X

We are unable to obtain from the exhibits attached to the contract in the captioned case, any clear picture of the character of the expenses to be incurred. For that reason and for the following more specific reasons we must withhold approval of the contract.

1. The fourth paragraph of Exhibit A indicates that the project is to include the cutting of benches in the sulphur ore <u>in preparation for mining operations</u>. To the extent that this work is conducted primarily for the purpose underlined it is not the eligible subject of an exploration contract according to MO-5.

2. Exhibit A does not specify the operations to be carried on at the cost of the initial $10,000. Inasmuch as the purpose of the first phase is to obtain data upon which approval of continuance of the work will be predicated the agreement should contain a statement in some detail as to the work to be performed during the first phase. Moreover, a more positive statement as to the continuance of the work beyond Phase A should be made, e.g. "It is understood that no work other than that included in Phase A shall be undertaken under this contract without the prior approval of the Government."

3. We question whether the assay outfit is a fixture. If it is not it should probably be listed in Exhibit C rather than Exhibit B.

Reports and Record Unit

4. In Exhibit C the bulldozer rental is shown as $2500 during the first month and only $1500 during the second month, a situation which appears inconsistent but may have an explanation. The size of this item raises the question as to whether this is a case of the rental of equipment at all, or in reality a subcontract for the bulldozing work. Trucking and miscellaneous expense should not be included in this exhibit as operating equipment.

5. There is no Exhibit D as called for by the contract form. The slip of paper marked "Exhibit D" and attached to the Resume of Cost Estimates appears to be no more than a footnote to the Resume.

6. The figures throughout the exhibits should be presented as estimates to avoid any inference that they are binding exactly as stated.

7. The subordination agreement which has been obtained on the first parcel of land seems to have a superfluous signature, that of C. W. Axtell. If, however, Axtell does have some interest in the property his interest should be explained. Subordination covering this parcel should also be obtained from Jack W. Perry, the assignor and A. J. Hardendorf, the recipient of a royalty under the assignment.

8. A subordination agreement should of course be obtained from the owners of the second parcel of land.

Your file is returned herewith.

J. L. Hofflund

Not stripped here

J. L. Hofflund
General Counsel

Attachment

RRGuthrie/ema

Copy to: R. R. Guthrie
J. L. Hofflund } del'd by hand
Chron.
~~Files~~ Reports & Record Unit

FILE COPY
SURNAME:

SP Warren
Mittendorf

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

July 24, 1951

Memorandum

TO: J. L. Hofflund

FROM: C. O. Mittendorf

SUBJECT: Docket No. DMA 1318X
Sulphur, Wyoming
Kenneth L. Porter

The accompanying Exploration Project Contract with captioned applicant is sent to your division for consideration and possible approval. This contract is set up in two sections namely, a starting period called Stage A and a continuing period called Stage B.

The operation of core drilling in this sulphur-bearing rock is new and drilling contractors do not care to enter into contracts based upon the number of feet drilled in a given time because of the small amount of experience anyone has had from which to tell what can be done.

In order to specifically limit the work to this Stage A, an amount of $10,000.00 has been set and permission to continue into Stage B is to be given only after inspection, review, and approval has been made by the Executive Officer, DMA Region IV, and his staff.

The paragraphs to be added to the Exhibits submitted by the applicant have not been typed onto the sheet but are typed on separate pieces of paper and clipped to the full sheets. This is done in order to allow a place for suggestions as to the proper language to be used.

The approach outlined by this contract has been taken principally because Sulphur is in short supply and immediate action is advisable, but also because it is recognised that coredrilling in the type of rock that will be encountered in this work has not been done a sufficient number of times to allow a core drill operator enough data from which to estimate a per-foot cost.

May we have your comments?

SPWarren/bjs
cc to: Hofflund
Reports and Records
Mr. Mittendorf, Mr. Olund
Mr. Warren
Chron. copy

LExington 2-9570-1

KENNETH L. PORTER
Oil and Sulphur
420 LEXINGTON AVENUE
NEW YORK 17, NEW YORK

July 18, 1951.

Defense Minerals Administration,
U. S. Department of Interior,
Washington 25, D. C.

Attention: Mr. S. P. Warren

Reference No. D.M.A. 1318 X

Gentlemen:

After my conference with you on Monday and upon my return to New York yesterday, I conferred with Mr. Harry Wolf, and we have prepared, for attachment to the exploration project contract, exhibits A. B. C. and D, which are enclosed with this letter in quadruplicate.

You will note that after stage "A" has been completed that the figures are set up on a monthly basis which, outside of the second month, will run at a fixed figure. In the second month the cost will be higher, as we contemplate purchasing certain equipment and adding certain facilities to the property.

The cost per foot of the drilling will run somewhere between $3.25 and $5.00, depending on whether or not you add in the cost of assaying the samples and the handling of same. Not clear enough

As I have previously stated, the bulldozer work is estimated to cost approximately $1.00 per foot.

I am enclosing a resume of the cost estimates of the various exhibits which shows the over-all total of $101,350.00, providing the full twelve months program is carried out. We feel that these estimates are the best that can be submitted, as there is no prior experience on these properties to go by.

I also left with you, while I was there on Monday, a contract filled in in pencil covering that portion of it which I could supply, and also the maps which I referred to in exhibit "A" were submitted with my letter of July 6.

After examination of this data, should there be anything further that you require, kindly advise immediately as I am very anxious to get this project under way.

Trusting that you now have available all of the pertinent information necessary to bring this contract to a quick conclusion, I remain

Sincerely yours,

Kenneth L. Porter

Kenneth L. Porter

KLP:AAW
ENCL.

FILE COPY
SURNAME:

Barr
ABP

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

July 11, 1951

Memorandum

To: Chief, Industrial Minerals Branch, DMA

From: Chief, Programming and Planning, DMA

Subject: Docket DMA-1318X
Kenneth L. Porter
420 Lexington Avenue, New York, N.Y.
Commodity: Sulphur
Amount: Approved $97,800 - 50% Participation

The prospective available sup ly of sulphur is far short of meeting defense requirements. Consequently, it is highly desirable that exploration for new domestic deposits be stimulated by any reasonable Government assistance to private interests. Any exploration project that holds promise of finding significant new reserves, merits consideration by the Defense Minerals Administration.

A. B. Parsons

A. B. Parsons

RWASKEY:mp
cc: Mr. Barr
Mr. Parsons
Mr. Norton
Mr. Mittendorf
Reports and Records
DMA Files

KENNETH L. PORTER
Oil and Sulphur
420 LEXINGTON AVENUE
NEW YORK 17, NEW YORK

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 9 - 1951
LAWSON F. STROBEL
Executive Secretary

July 6, 1951.

Defense Minerals Administration,
U. S. Department of Interior,
Washington, D. C.

Attention: Mr. James Barr.

Gentlemen: Reference No. D M A 1318 X

With reference to our several telephone conversations concerning my application for aid for an exploration project, it is perfectly satisfactory with me to have the loan granted on a three-stage basis - Stage "A" to consist of a $10,000.00 expenditure; Stages "B" and "C" to be determined later after the exploration of Stage "A" expires.

Stage "A" will take from a month to six weeks to complete, and will consist of a core drilling program to be carried out in accordance with the plans shown on maps which are attached to this letter, which shows in detail the locations of the holes. The total footage will be approximately 900'. It is planned to drill these holes on 400' centers, with the idea that the in-between holes could be drilled under Stage "B".

In addition to the drilling program, it is planned to cut about 2500' of bulldozer cuts for the dual purpose of stripping the overburden down to the sulphur rock, and also provide drilling locations for the core drilling rig.

It is planned that all the work will be done by outside contractors, the core driller being Mr. Fred Butler of Casper, Wyoming. I attach photostats of correspondence with Mr. Butler, which shows the contractural arrangements.

The bulldozer work will be done by a local contractor, and it is estimated that the cost will run about $1.00 per running foot of bulldozer cut.

The supervision will be in charge of Mr. Harry J. Wolf, well known consulting mining engineer.

The assaying of the cores will be done either in Denver or at the University of Wyoming, depending upon which place we can make the best arrangements to have the work done.

Defense Minerals Administration - Cont. - July 6, 1951.

Following is a schedule of the estimated expense for the 30 day program under Stage "A":

Drilling Contract		$ 2500.00
Bulldozer work on Contract	2500 feet	2500.00
Bits & Core Barrels		2000.00
Supervision		1500.00
Assays		500.00
Supplies, trucking and Miscellaneous expense		1000.00

Trusting that this is the information needed to get this project approved, I remain

Very truly yours,

Kenneth L. Porter

Kenneth L. Porter

KLP:AAW
Encls.

May 14, 1951

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 9 - 1951
LANDON F. STROBEL
Executive Secretary

Mr. Fred E. Butler
1013 South Cedar Street
Casper, Wyoming

Dear Mr. Butler:

Confirming the conversation I had with you May 4 in Casper, relative to the possibility of obtaining your services for doing some core drilling on my sulphur property at Thermopolis, Wyoming, I wish to review the proposition which you presented me.

It is my understanding that if you moved your drilling rig on to my property, you would want a guarantee of 60 days of work which would be a minimum of 44 days of drilling; that your charges are $2,500 a month, which would cover a minimum of 22 days of 8 hours of drilling; that your average footage of core per day would be a minimum of 40 feet; and that the recovery is better than 95%, or 9-1/2 feet of core out of a 10-foot core barrel. I also understand that your equipment cuts a 3-7/8s inch hole and that the diameter of the core recovered is 2-11/16s inches. The rig which you propose to use on this job will cut a hole to a depth of 1,000 feet.

In addition to the monthly charge for the drilling rig, I understand that your estimate for bits and core barrels, which would be furnished by me, is from $2,000 to $2,500. You also advised me that it would be at least a month before you could possibly move a rig in there, which was satisfactory to me. It now appears that I will be ready to commence drilling operations immediately after June 16, and I would appreciate receiving your advices as to how soon you can move in after this date.

I subsequently proceeded to Cody and Mr. Marquette took me out to your rig and I saw it in operation and examined the cores you were recovering. From the results I witnessed, it appears that you have developed a method of satisfactorily coring sulphur formations. I trust that you will have equally satisfactory results with my deposit.

Thanking you for the courtesies extended and assuring you that I enjoyed meeting you very much, I remain,

Sincerely yours,

KLP:MCH

Kenneth L. Porter

LExington 2-9570-1

KENNETH L. PORTER
Oil and Sulphur
420 LEXINGTON AVENUE
NEW YORK 17, NEW YORK

June 25, 1951

U.S. Department of Interior
Defense Minerals Administration
Washington 25, D.C.

Attention: Administrator Boyd

Reference: Docket No. - D.M.A. 1318X

Gentlemen:

Enclosed are Landlord's Subordination Agreements necessary to meet the requirements of my application for aid for an Exploration Project pursuant to Mineral Order 5, under Defense Production Act of 1950.

Very truly yours,

Kenneth L. Porter

Kenneth L. Porter

FILE COPY
SURNAME:

Barr

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

June 5, 1951

Mr. Harry J. Wolf
Mining and Consulting Engineer
420 Madison Avenue
New York 17, N.Y.

Dear Mr. Wolf:

Docket DMA-1318X

Regarding your application for aid for an Exploration Project on sulphur deposits located in Hot Springs County, Wyoming, and docketed as DMA-1318X, it is necessary that we be supplied a Landlords Subordination Agreement, form MT-202, executed in triplicate, in order to proceed with consideration of the proposal.

We understand that you are representing the applicant, Mr. Kenneth L. Porter.

Sincerely yours,

James Barr

James A. Barr, Jr., Chief
Industrial Minerals Branch

Enclosure

KWASKNY:mp
cc: Mr. Strobel
Mr. Barr
DMA Files

Barr 1318

May 21, 1951

Mr. Kenneth L. Porter
[redacted]
New York 17, New York

Dear Mr. Porter:

Complying with the request contained in your letter of May 14, 1951, there are enclosed five copies of Form MS-103 and a copy of the regulations pertaining thereto. Applications should be filed in quadruplicate; one copy may be retained for your file. Also enclosed for your information is a press release dated April 11, 1951.

Should you have further questions with respect to this program, you may contact this office and we shall be glad to furnish any information available.

Sincerely,

LANDON F. STROBEL

LANDON F. STROBEL
Executive Secretary

Enclosures 7

LFSTROBEL:hb

Copy to: Administrator's Reading File
L. F. Strobel
Files

C
O
P
Y

May 14, 1951

Mr. Fred E. Butler
1013 South Cedar Street
Casper, Wyoming

Dear Mr. Butler:

Confirming the conversation I had with you May 4 in Casper, relative to the possibility of obtaining your services for doing some core drilling on my sulphur property at Thermopolis, Wyoming, I wish to review the proposition which you presented me.

It is my understanding that if you moved your drilling rig on to my property, you would want a guarantee of 60 days of work which would be a minimum of 44 days of drilling; that your charges are $2,500 a month, which would cover a minimum of 22 days of 8 hours of drilling; that your average footage of core per day would be a minimum of 40 feet; and that the recovery is better than 95%, or 9-1/2 feet of core out of a 10-foot core barrel. I also understand that your equipment cuts a 3-7/8s inch hole and that the diameter of the core recovered is 2-11/16s inches. The rig which you propose to use on this job will cut a hole to a depth of 1,000 feet.

In addition to the monthly charge for the drilling rig, I understand that you estimate for bits and core barrels, which would be furnished by me, is from $2,000 to $2,500. You also advised me that it would be at least a month before you could possibly move a rig in there, which was satisfactory to me. It now appears that I will be ready to commence drilling operations immediately after June 16, and I would appreciate receiving your advices as to how soon you can move in after this date.

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Thanking you for the courtesies extended and assuring you that I enjoyed meeting you very much, I remain,

Sincerely yours,

Kenneth L. Porter

KLP:MCH

C O P Y

MEMORANDUM:

To: Director, Production Expansion Division
Defense Minerals Administration

From: Director, Supply Division
Defense Minerals Administration

Subject: Recommendation for Contract Approval

Name of Applicant: Kenneth L. Porter
420 Lexington Avenue, Suite 1905
New York 17, N. Y.

DMA No. 1318X

Commodity: Sulfur

Amount Requested: $100,000.00

Amount Approved: $ 97,800.00

Government Participation: 50 % $48,900.00

Tom Lyon

Tom Lyon

Recommendations.

1. That an Exploration Aid Contract be granted in the amount of $97,800, Government participation 50%, in accordance with attached exhibits.

2. That expenditure of above amount be authorized in 3 stages, each succeding stage to be authorized subject to satisfactory completion of preceeding stage and recommendation by Field Team that additional work is justified.

3. That first stage of work program (stage "A") be limited to $10,000, (Stage "B") to $40,500, and (Stage "C") to $47,300. Allowable time for stage "A" to be 2 months, for stage "B" - 7 months and for stage "C" - 8 months.

Recapitulation of Work

Stage "A"	900' Core drilling and testing	$ 7,500.00
	Bulldozing	2,500.00
Stage "B"	4500' Core drilling & testing	28,000.00
	Bulldozing	12,500.00
Stage "C"	5400' Core drilling & testing	32,300.00
	Bulldozing	15,000.00
	Total	$ 97,800.00

EXHIBIT "A"

Work will consist of bulldozer trenching with subsequent sampling and analysis of sulphur bearing material exposed, and of vertical core drilling and core analysis.

The approximate locations of drill holes and bulldozer cuts are shown on map attached. Depths of bulldozer cuts will depend on conditions encountered as the work progresses; it is expected that they will be comparatively shallow, from 5' to 10'. Core drill holes will vary in depth from 50' to 300' depending on condition encountered.

Core drilling and bulldozer trenching will be done by contract.

Samples from bulldozer cuts and cores from drilling accomplished under stage "A", will be analyzed by a custom assayer.

Should the work proceed beyond state "A", a field laboratory will be erected and an assayer-engineer will be hired to do core analysis, etc.

EXHIBIT "B"

Stage "A" - Not applicable.

Stage "B" - Field laboratory to consist of a building adequate to house complete core and sample handling equipment and the necessary equipment for core and sample analysis; will include crusher and grinder, balances, chemical analytical equipment, etc., - $2,500.00.

Stage "C" - Not applicable.

Docket DMA-1318X

EXHIBIT "C"

Stage "A"

Drilling by contract - 22 eight hour days	$2,500.00
Bulldozing by contract - 22 eight hour days	2,500.00
Purchase of special bits and core barrells	2,000.00
Trucking, shipment of cores & samples, supplies, etc.	1,000.00
Assays	500.00
	$ 8,500.00

Stage "B"

Drilling by contract - 5 months (22 days of 8 hours)	$12,500.00
Bulldozing by contract-5 months (22 days of 8 hours)	12,500.00
Replacement of bits and core barrels	1,000.00
Core boxes, sample handling, laboratory supplies	500.00
	$ 26,500.00

Stage "C"

Drilling by contract - 6 months (22 days of 8 hrs)	15,000.00
Bulldozing by contract-6 months (22 days of 8 hrs)	15,000.00
Replacement of bits and core barrels	1,500.00
Core boxes, sample handling, laboratory supplies	600.00
	$ 32,100.00

Docket DMA-1318X

EXHIBIT "D"

Stage "A"

Consulting Engineer - 20 days @ $50.00	$ 1,000.00
Transportation for engineer, New York and return, expenses on job, etc.	500.00
	$ 1,500.00

Stage "B"

Consulting Engineer-15 days per month, @ $50. day-5 months	$ 3,750.00
Assayer-engineer, 5 months @ $450.00	2,250.00
Transportation and expenses - consulting engineer and assayer-engineer @ $500 month - 5 months	2,500.00
Contigencies	3,000.00
	$11,500.00

Stage "C"

(6 mos.)	
Consulting engineer - 15 days per mo. @ $50.00day	$4,500.00
Assayer-engineer - 6 months @ $450.00 mo.	2,700.00
Transportation and expenses of consulting engineer, and assayer-engineer @ $500.00 month	3,000.00
Contingencies	5,000.00
	$ 15,200.00

EXHIBIT "E"

Not applicable

APPENDIX I

DMA 1318-X

The property consists of two parcels, one on which a Landlord's Subordination Agreement has been furnished an a second on which the Subordination Agreement will be furnished before any Government funds will be available for payment for work done.

The first parcel is described as follows:

Hope Placer Mining Claim comprising the SE¼NE¼ Section 20.

Brimstone No. 1 Placer Mining Claim comprising the N½N½, Section 28.

Brimstone No. 2 Placer Mining Claim comprising the N½NE¼SW¼, S½NE¼SW¼, SE¼SW¼ and the W½SW¼ of Section 21.

Brimstone No. 3 Placer Mining Claim comprising the SE¼NW¼, S½NE¼, and the NE¼SE¼ of Section 28.

All the above in Township 43 North of Range 95 West of the 6th P.M. Wyoming consisting of 520 acres more or less.

The second parcel having no Landlord's Subordination Agreement at the date of contract is described as follows:

Section 20, Lot 3.

Section 21, Lots 3, 4, 5 and 6, S½NE¼, N½SE¼, N½S½SE¼, SE¼NW¼.

Section 28, S½E½, SE¼NW¼.

All in Township 43 North, Range 95 West, 6th P.M., Wyoming, including a certain pile or dump of worked-over sulfur ore lying [illegible] either on or near the premises above described.

* * * * *

6/5/51

Defense Minerals Administration

Review of Application for Exploration Assistance

Docket No. 1318 X

Commodity Sulphur

Total Amount 100,000

Govt. Participation 50%

1. Name and Address of Applicant Kenneth L. Porter
420 Lexington Ave, Suite 1405, New York 17, N.Y.

2. Location of Property 3½ miles NW Thermopolis, Wyo
Hot Springs County

3. Mineral or metal Sulphur Is it listed in Section 9 of MO-5? Yes

If not, application will be rejected.

4. Geologic probability of discovery—based on data in application (question #16, 17, 18, 20 and 22)*

Mines or Survey reports, etc., do you rate chances:

a) Good See attached report

b) Poor by G. Espenshade, U.S.G.S.

c) None

d) Don't know—needs field examination Yes

e) Is there an alternative and favorable project? (If so, attach an explanation)

5. Is the applicant's right to the property clearly stated? Yes, Lessee (question 5, 6, 7)*

6. If applicant is a lessee, is a copy of the lease attached? Yes

Does the lease have sufficient time to run to cover a future productive period? Yes

*question numbers are those of MF-103

DMA-1318X - Brutch Sulfur mine, Hot Springs Co., Wyo.
K. L. Porter, Lessee
$100,000 exploration project for sulfur

Attachment to answer question 17

17. Government aid to exploration project may be justified, but not for amount requested by applicant. Mining experience and geologic information all indicate that deposits are shallow and very irregular in size and distribution, and it appears that they are restricted to the lower slopes of both flanks of the anticlinal hill. Applicant recognizes their irregularity, but seems to base exploration program on hopes that sulfur mineralization is continuous between the known deposits on either flank of the anticline. It would be better to begin with a modest exploration program (by drilling, test-pitting, or trenching by bull-dozer) in the known mineralized areas, and then to explore the large intervening areas if results justify. A geologic field examination is needed to determine if project is justified, and the scope of the program.

7-12-51
Three stage project without further preliminary field examination is agreeable for this proposal. In telephone conversation today Mr. Espenshade was also in accord. G. H. Josephson

7. Are subordination agreements necessary? Yes

a) MF-201? Not Needed

b) MF-202 Furnished & on File

8. From the data presented, does the proposed project appear feasible from the point of view of:

a) Available manpower Yes

b) Equipment and supplies Yes
(Question 14 plus general knowledge of availability)*

c) Accessibility (question 12)* Yes

d) Water (question 13)* Yes

e) Power (question 13)* Yes

Is a field check needed on any of these points? NO

9. Does the experience of the applicant appear to be adequate to assure that he can properly conduct the proposed project? (question 4)* Yes

Is a field check needed on this point? NO

10. Exhibit A. (questions 21 and 22)*

a) Is the project adequately described? Yes

If not, are there sufficient data given so that you can describe the project? _____ If so, attach a draft.

b) Is there an adequate map or sketch of the proposed work? Yes

c) Is the proposed work "exploration" under the definition of Section 8, MO-5? Apparently Yes-RW

If not, what part of it is? _____

Is this part a worthwhile exploration project?_____

d) Are the cost estimates detailed? Not very well

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data?_____ If so, attach a draft.

e) Are the cost estimates reasonable? Yes

f) Should more information be requested from applicant? Yes

g) Is a field examination necessary to complete Exhibit A? NO

11. Exhibit B (question 23-d)*

a) Is it applicable? NO

b) If so, are sufficient data furnished?_____ If so, attach a draft.

c) Is a field check needed? NO

12. Exhibit C (question 23-e, f and g)*

a) Is it applicable? Yes

b) Sufficient data? Yes If so, attach a draft.

c) Are rents and charges reasonable? Yes

d) Is a field check needed? NO

13. Exhibit D (question 23-a, b)*

a) Are there sufficient data? NO

b) Is the schedule adequate for the work proposed? Insufficient data

c) Is the schedule excessive for the work proposed? ✓ ✓

d) Are the proposed wages and salaries reasonable? ✓ ✓

e) Is a field check needed? Yes - But might be able get this data by phone from Porter

14. Exhibit E (question 23-c)*

a) Is it applicable? Not Applicable

b) Sufficient data?

c) Reasonable?

d) Field check needed?

15. In your judgment, can the proposed work be done in the proposed time? Yes

(All exploration must be completed within two years)

16. If field examination is not needed, attach your recommendation.

17. If field examination is needed, do you have any special instructions for the field team not indicated by your answers to the foregoing question? Is program as proposed justified or could it be revised downward? How about setting up program in 2 or 3 stages, authorizing say 1000' of drilling, then additional drilling if this shows satisfactory results?

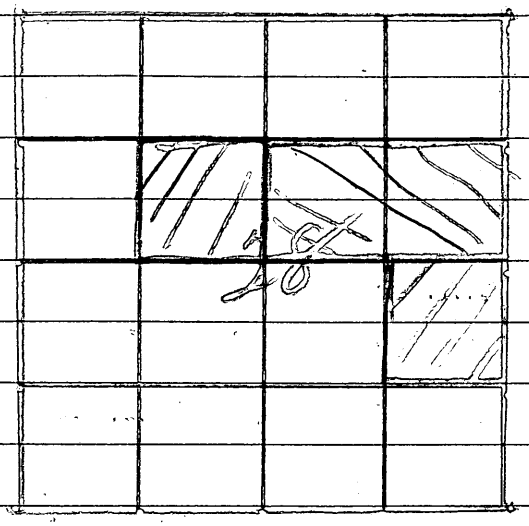
7/2/51

Reviewed by: G. Cornwall 6/28/51 (Geologist)

Date

97692

N



W

E

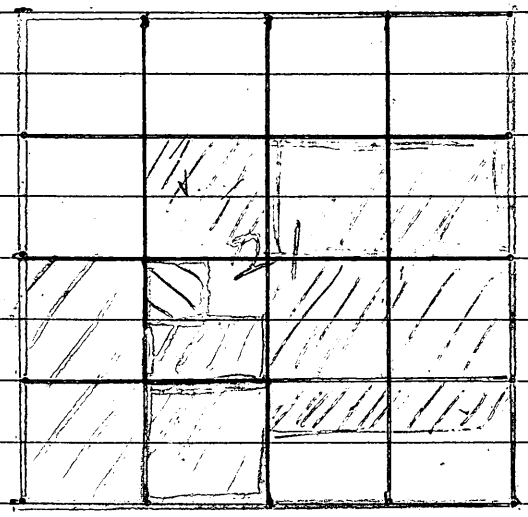
S

SE 1/4 NW 1/4

S 1/2 NE 1/4

NE 1/4 SE 1/4

N



W E

S

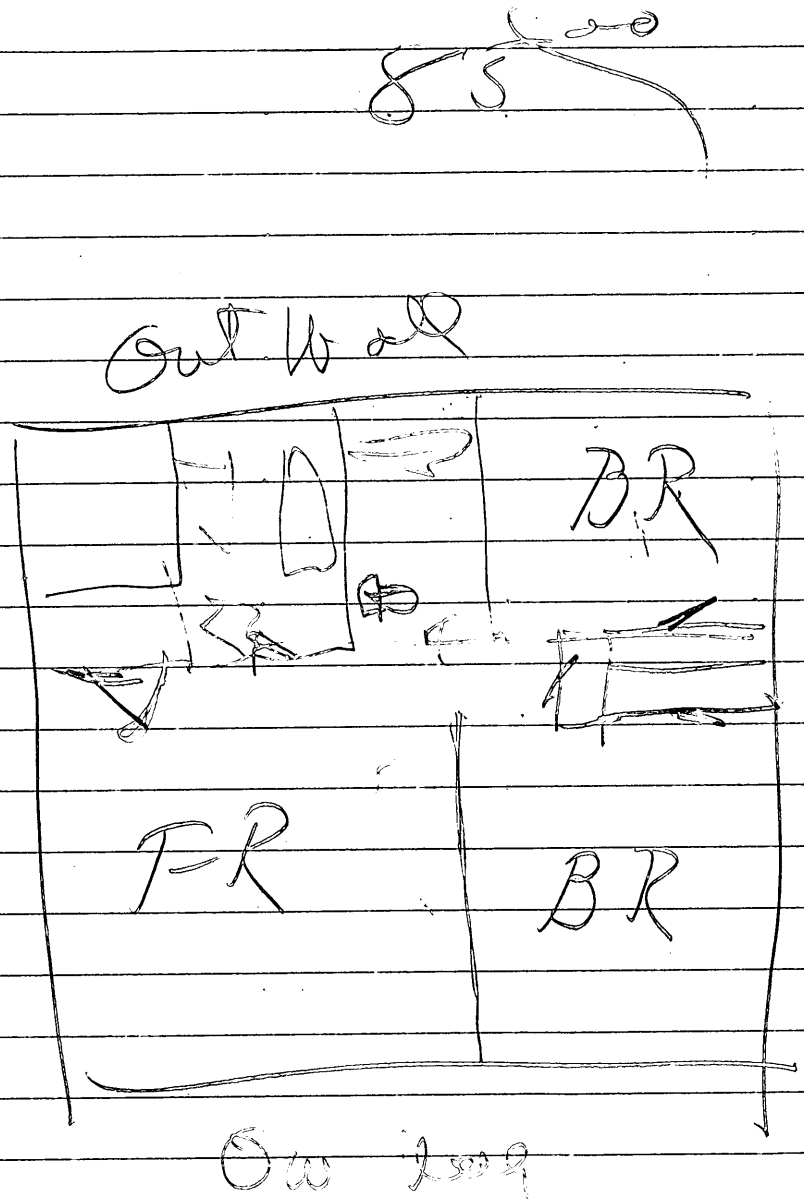
NW 1/4 NE 1/4 SW 1/4

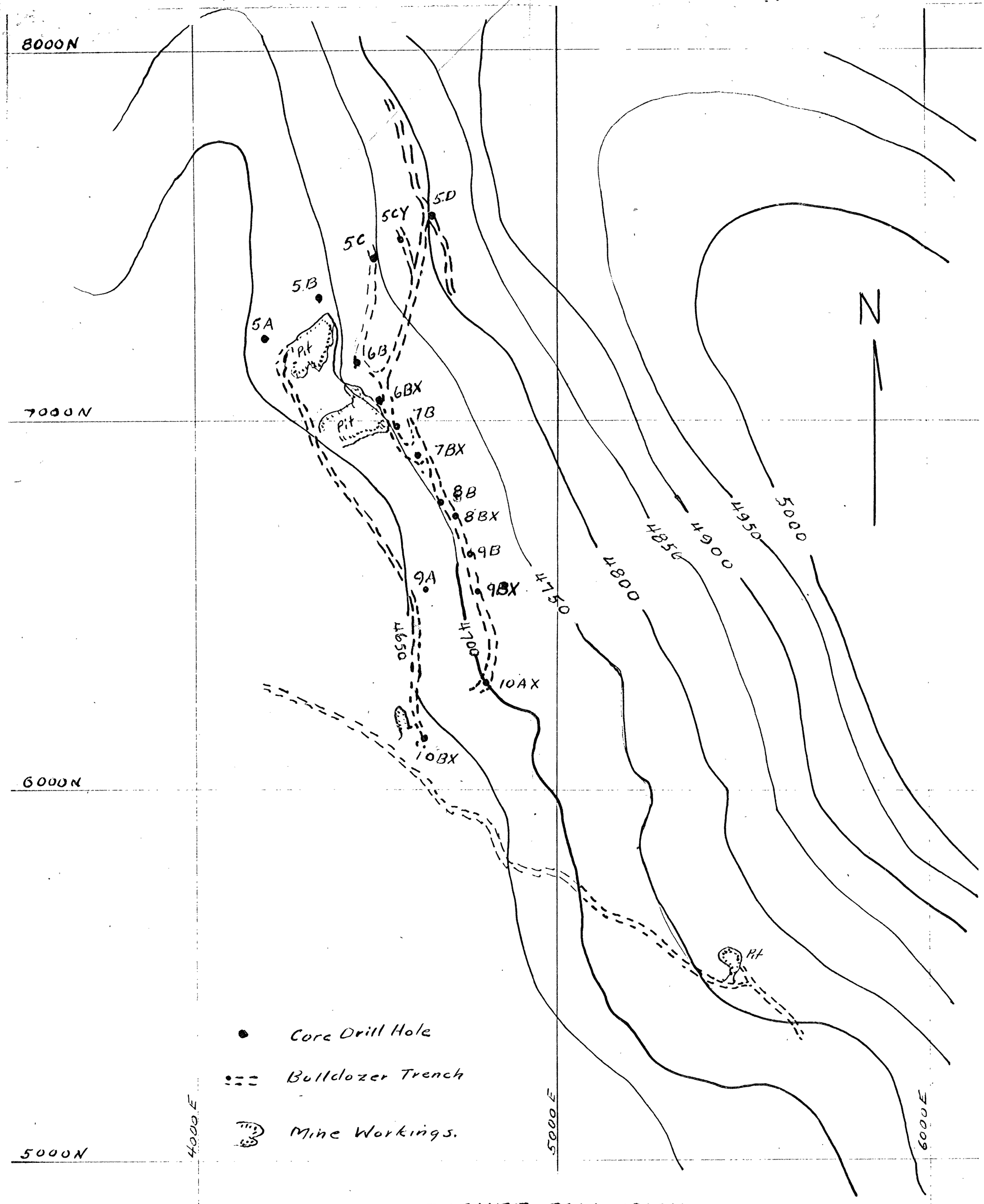
S 1/2 NE 1/4 SW 1/4

SE 1/4 SW 1/4

N 1/2 SW 1/4

(4)





DOCKET-DMA-1318X

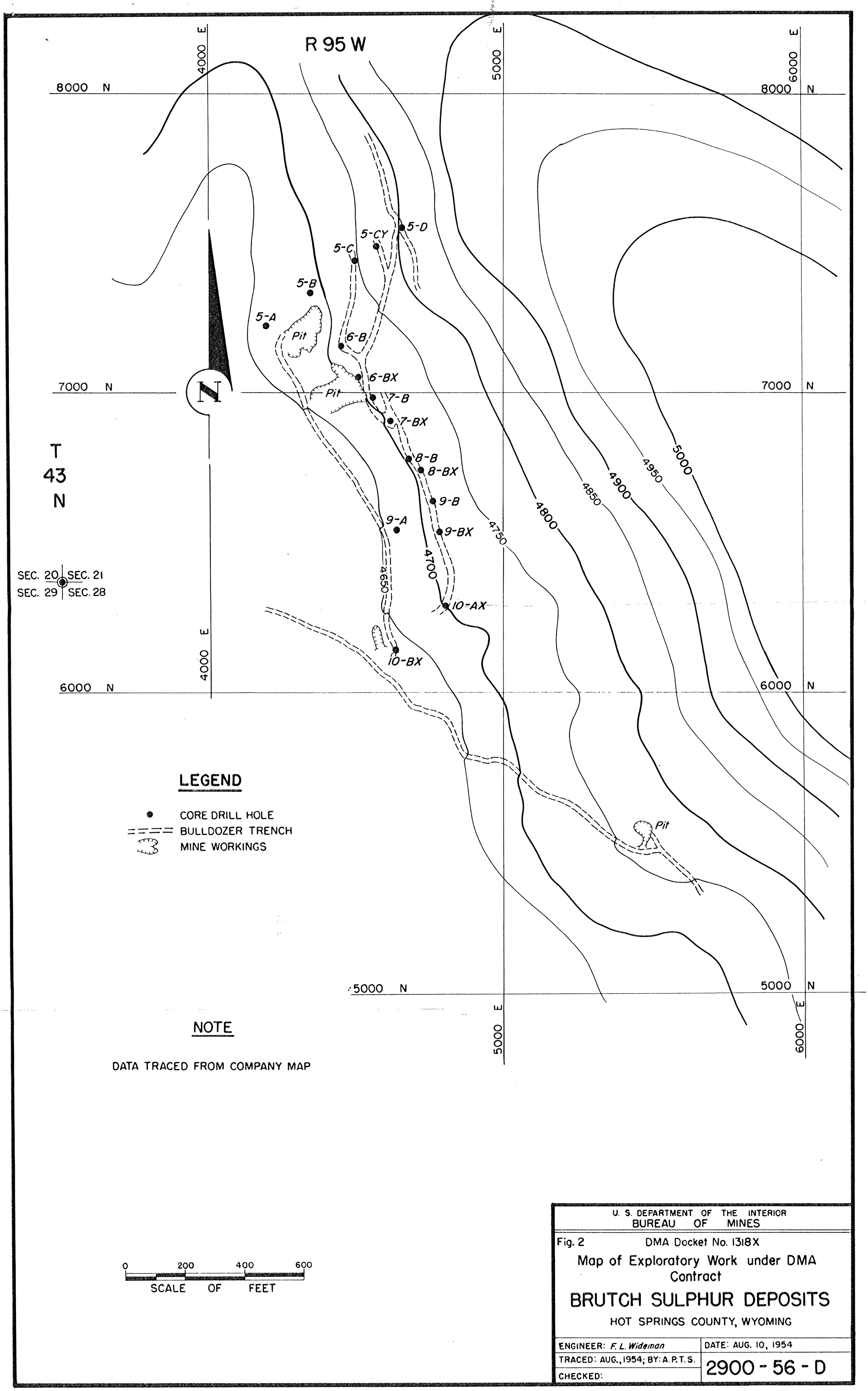
BRUTCH SULPHUR PROPERTY

HOT SPRINGS CO. WYOMING

SCALE 1" = 200'

OCT. 20, 1951

2700-A1-D



U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

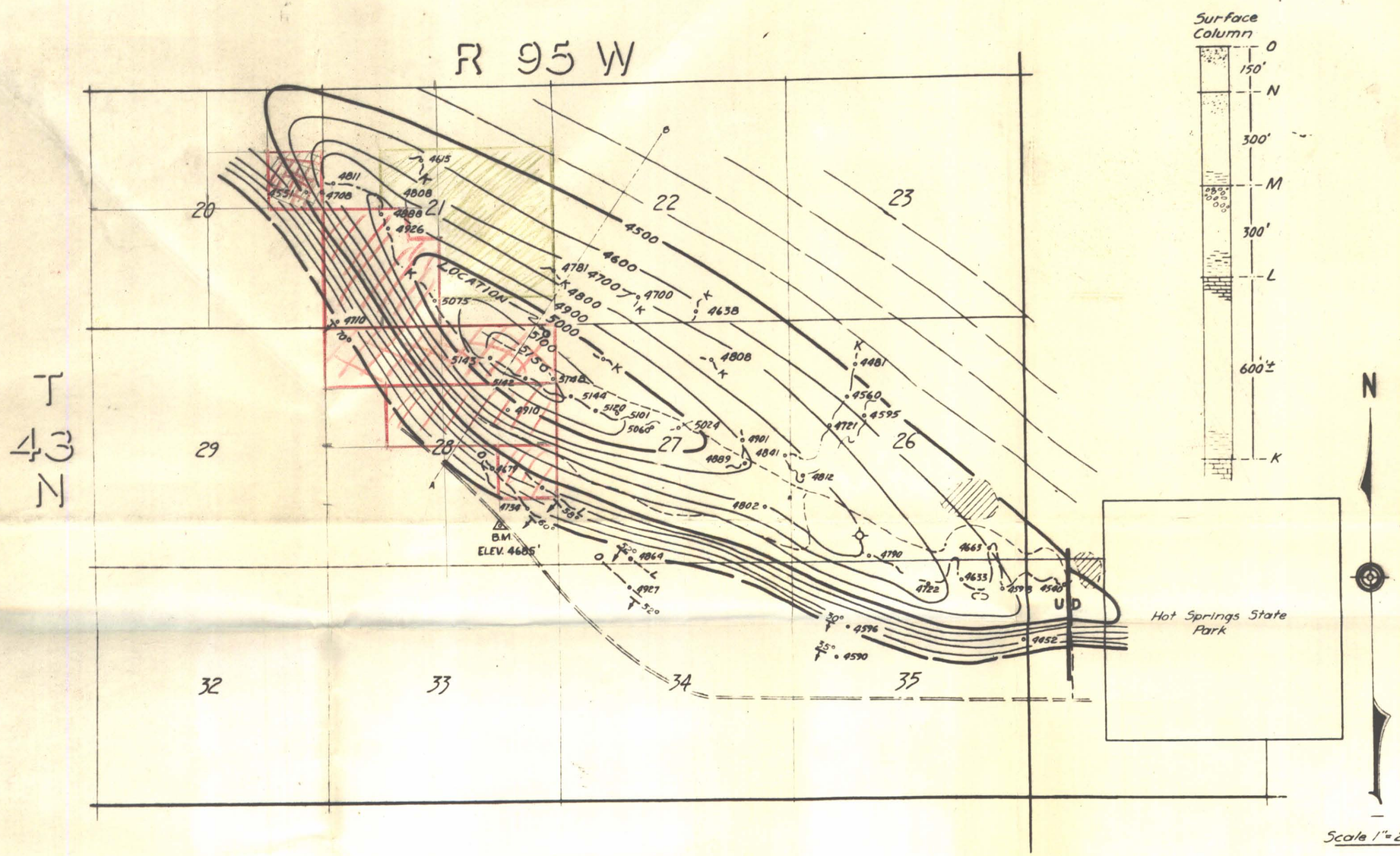
Fig. 2 DMA Docket No. 1318X

Map of Exploratory Work under DMA Contract

BRUTCH SULPHUR DEPOSITS

HOT SPRINGS COUNTY, WYOMING

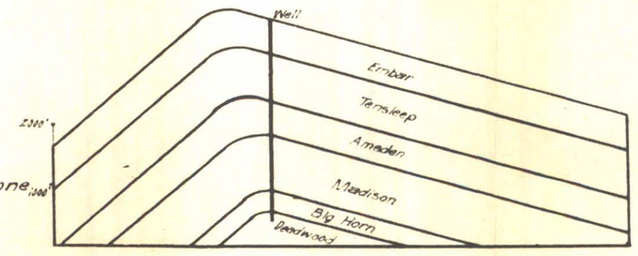
ENGINEER: *F. L. Wideman*	DATE: AUG. 10, 1954
TRACED: AUG., 1954; BY: A.P.T.S.	2900 - 56 - D
CHECKED:	



LEGEND

- Travertine
- County Road
- State Highway
- Station
- Dry hole, no record
- Outcrop

Contours drawn on Embar limestone.
Contour interval 100'
Datum: Sea level

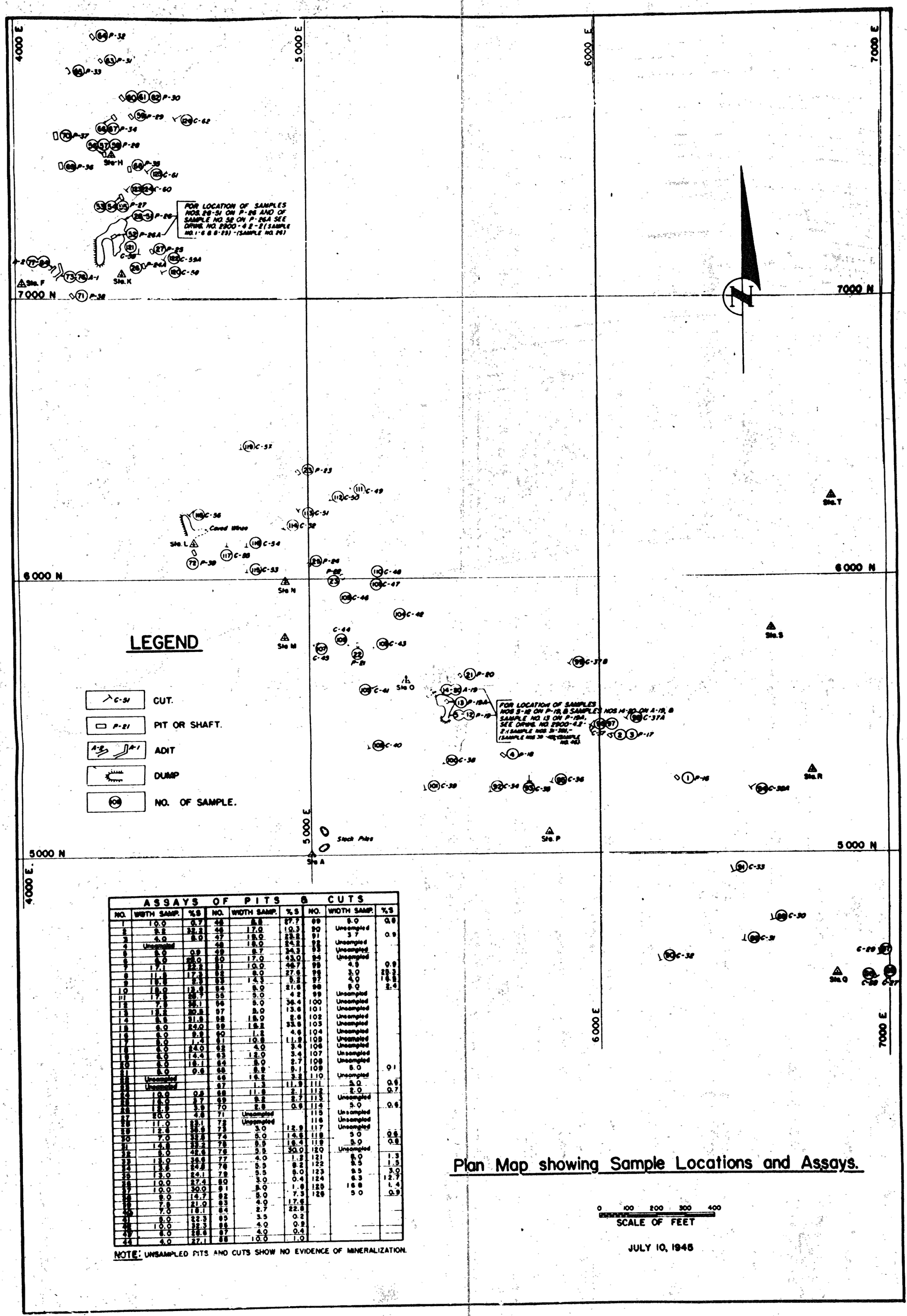


Section A-B

SURFACE STRUCTURE MAP
OF
CEDAR MOUNTAIN DOME
HOT SPRINGS COUNTY, WYOMING.

PREPARED FOR
HUSKY REFINING COMPANY
CODY, WYOMING

Geology by: Thos S Cox
May 1944



ASSAYS OF PITS & CUTS

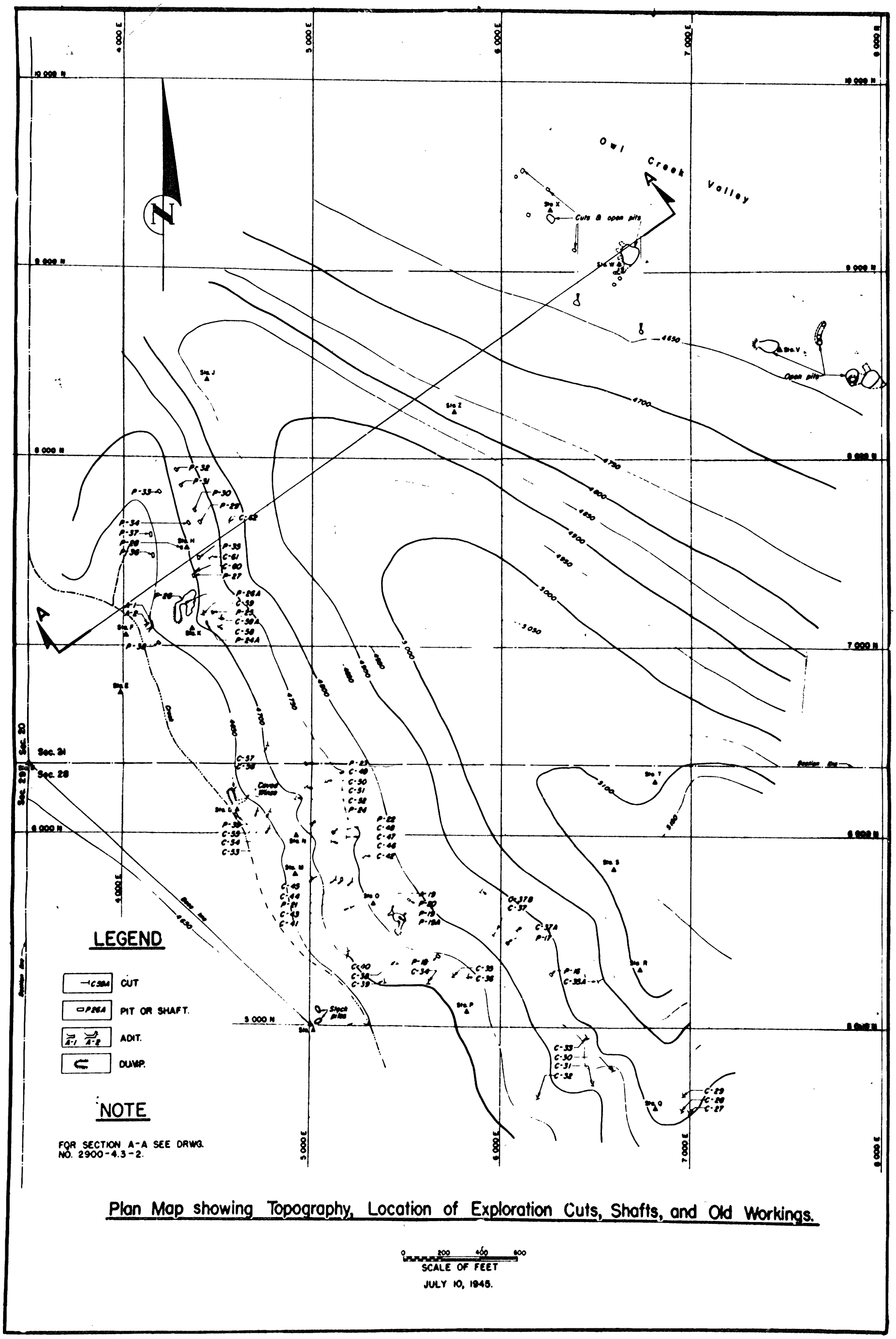
NO.	WIDTH SAMP.	%S	NO.	WIDTH SAMP.	%S	NO.	WIDTH SAMP.	%S
1	10.0	0.7	46	8.8	27.7	89	5.0	0.8
2	9.2	32.2	46	17.0	10.3	90	Unsampled	
3	4.0	8.0	47	18.0	23.2	91	3.7	0.9
4	Unsampled		48	18.0	24.2	92	Unsampled	
5	5.0	0.9	49	8.7	34.3	93	Unsampled	
6	6.0	28.0	50	17.0	43.0	94	Unsampled	
7	17.1	22.2	51	10.0	46.7	95	4.0	0.9
8	11.8	17.3	52	8.0	27.6	96	3.0	20.3
9	16.0	6.3	53	14.3	5.2	97	4.0	16.8
10	18.0	13.0	54	5.0	21.6	98	5.0	2.4
11	17.5	28.7	55	5.0	4.2	99	Unsampled	
12	7.0	38.1	56	5.0	36.4	100	Unsampled	
13	13.2	30.8	57	5.0	13.6	101	Unsampled	
14	6.0	31.8	58	18.0	2.6	102	Unsampled	
15	6.0	24.0	59	18.2	33.6	103	Unsampled	
16	6.0	9.9	60	1.2	4.6	104	Unsampled	
17	5.0	1.4	61	10.8	11.9	105	Unsampled	
18	6.0	24.0	62	4.0	3.4	106	Unsampled	
19	6.0	14.4	63	12.0	3.4	107	Unsampled	
20	6.0	18.1	64	5.0	2.7	108	Unsampled	
21	6.0	9.6	65	5.0	5.1	109	5.0	0.1
22	Unsampled		66	16.2	3.2	110	Unsampled	
23	Unsampled		67	1.3	11.9	111	5.0	0.6
24	10.0	0.8	68	11.8	2.1	112	2.0	0.7
25	16.0	3.7	69	5.2	2.7	113	Unsampled	
26	11.8	3.9	70	2.8	0.6	114	5.0	0.6
27	20.0	4.8	71	Unsampled		115	Unsampled	
28	11.0	23.1	72	Unsampled		116	Unsampled	
29	12.6	30.9	73	3.0	12.9	117	Unsampled	
30	7.0	32.8	74	5.0	14.6	118	5.0	0.6
31	14.8	33.2	75	5.5	18.4	119	5.0	0.6
32	5.0	42.6	76	5.5	30.0	120	Unsampled	
33	13.0	30.6	77	4.0	1.2	121	5.0	1.3
34	13.6	24.8	78	5.5	0.2	122	5.5	1.5
35	13.0	24.1	79	5.5	0.0	123	5.5	3.0
36	10.0	27.4	80	3.0	0.4	124	6.3	12.7
37	10.0	30.0	81	5.0	1.0	125	16.8	1.4
38	9.0	14.7	82	5.0	7.3	126	5.0	0.9
39	7.8	21.0	83	4.0	17.6			
40	7.0	18.1	84	2.7	22.8			
41	8.0	22.3	85	3.5	0.2			
42	10.0	32.3	86	4.0	0.9			
43	6.0	28.6	87	4.0	0.4			
44	4.0	27.1	88	10.0	1.0			

NOTE: UNSAMPLED PITS AND CUTS SHOW NO EVIDENCE OF MINERALIZATION.

Plan Map showing Sample Locations and Assays.

Figure 5. - Assay Map of Brutch Sulphur Property, near Thermopolis, Hot Springs Co., Wyoming.

D



Plan Map showing Topography, Location of Exploration Cuts, Shafts, and Old Workings.

Figure 2. - Plan of Brutch Sulphur Property, near Thermopolis, Hot Springs Co., Wyoming.

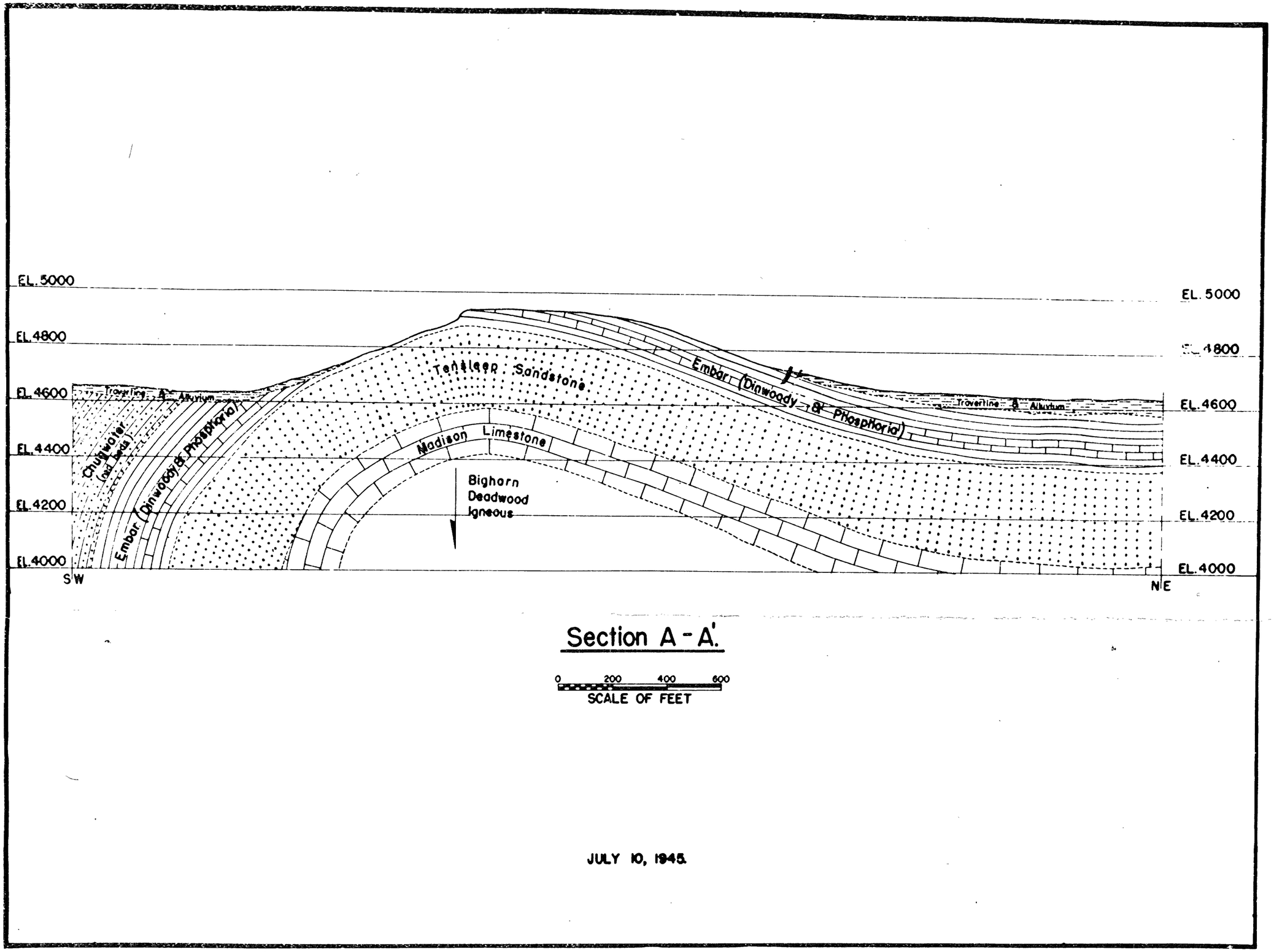


Figure 4. - Section A-A, Brutch Sulphur Property, near Thermopolis, Hot Springs Co., Wyoming.