UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE

Terminated (or cancelled) without certification. DMEA No. 1118

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 _____

WMC ✓
Reviewer's Initials

7973

DEFENSE MINERALS EXPLORATION ADMINISTRATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF REVIEW

I have reviewed the Monthly Reports of:

Bostaan and Boswell Mining Company
P.O.Box 104
Lebanon, Missouri

pertaining to Exploration Project Contract No. Idma-245, Docket No. DMA 1118, for the months of July to September, 1951.

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

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

(a) the administrative cost to the Government of an audit would be excessive in relation to value of the contract or the estimated amount of possible disallowance thereunder; and
(b) the major portion ($3,435.62) of the accepted costs covered churn drilling at footage rates under a sub-contract.

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

Total cost as billed by Contractor		$ 4,235.25
Exceptions:		
By DMEA Finance Officer	$ -0-	
Herewith	-0-	-0-
Total Accepted Cost		$ 4,235.25

The contract calls for a 50 per cent participation of exploration expenses by the United States Government. Therefore, payment to the contractor by the Government in the amount of Two thousand one hundred seventeen and 63/100 Dollars.

-$2,117.63-

is considered valid and proper.

Date: AUG 19 1952

Auditor

MF-200
(April 1951)

Indexed
No. Card
Card
Reviewed
AUG 17 1951
G.A.O.

Docket No. DMA 1118
Commodity Lead
I-DMA-E45

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

EXPLORATION PROJECT CONTRACT [1]

It is agreed this 30th day of June, 1951, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration, hereinafter called the "Government," and [2]
Bootman and Boswell Mining Company
P.O. Box 104
Lebanon, Missouri

AUG 24 1951
RECEIVED

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 Missouri, County of Lawrence described as follows: [3] Parts of Sections 26, 27, and 35, T28N., R28W., and delineated on lease block map 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 thirty (30) days from the date of this contract shall commence work on a project of exploration for [5] lead-zinc ores; 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] four (4) months 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 $4,934.40, which is 50 percent of the agreed estimated total cost of this project, $9,868.80.

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~~ sextuplet the day and year first above written.

Bartman & Bonwell Mining Co
(Operator)

By C M Bartman

THE UNITED STATES OF AMERICA

By [signature]

Administrator, Defense Minerals Administration

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

EXHIBIT A

The project to consist of continuing a drilling program on the property specified in exploration for lead and zinc ores.

The project now in progress was estimated as of June 1, 1951 to require, for completion, the following work and cost:

Drill 21 churn drill holes averaging 225 feet in depth, 4725 feet @ $1.75	$8,268.00
Salary and expenses of supervisor, 4 months @ $400.00 per month	1,600.00
	$9,868.00

The above cost will be decreased by any costs for work performed prior to effective date of this contract as specified in "Allowable Costs of the Project" (Section 10) of this contract.

EXHIBIT B - Fixtures and Improvements

No additional fixtures, facilities or buildings are required and costs of this nature are, therefore, not allowed under this contract.

EXHIBIT C - Operating Equipment

The drilling is being done on contract basis at a price of $1.75 per foot which includes all equipment and costs of this nature are, therefore, not allowed under this contract.

EXHIBIT D - Labor and Supervision

The salary and expense of a project supervisor is allowed to a maximum of $400.00 per month for the 4 months estimated to complete the drilling project.

All other costs are included in the contract price of $1.75 per foot.

EXHIBIT E - Rehabilitation and Repair

No rehabilitation or repair of existing facilities is required and costs of this nature are, therefore, not allowed under this contract.

MF-202

LANDLORD'S SUBORDINATION AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner in fee simple of that certain parcel of ground in the county of Lawrence, State of Wyoming, described in a certain Exploration Project Contract dated June 30, 1951, between Bow Creek and Boswell Wyoming Co, the Lessee of said property, and the United States of America;

NOW, THEREFORE, the undersigned, as Lessor of said property under lease dated Feb. 22, 1951, 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 30 day of June, 1951

H. Holston

U. S. GOVERNMENT PRINTING OFFICE 16—64582-1

MF-202

LANDLORD'S SUBORDINATION AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner in fee simple of that certain parcel of ground in the county of Lawrence, State of Mississippi, described in a certain Exploration Project Contract dated June 30, 1951, between Bottman and Boswell Mining Co., the Lessee of said property, and the United States of America;

NOW, THEREFORE, the undersigned, as Lessor of said property under lease dated Dec. 30, 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 30 day of June, 1951

Paul Leiker

U. S. GOVERNMENT PRINTING OFFICE 940768

MF-202

LANDLORD'S SUBORDINATION AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner in fee simple of that certain parcel of ground in the county of Lawrence, State of Mississippi, described in a certain Exploration Project Contract dated June 30, 1951, between Bowman and Barnett Mining Co., the Lessee of said property, and the United States of America;

NOW, THEREFORE, the undersigned, as Lessor of said property under lease dated Feb. 28, 1951, 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 30 day of June, 1951

D. H. Gerhardt

U. S. GOVERNMENT PRINTING OFFICE 940768

MF-202

LANDLORD'S SUBORDINATION AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner in fee simple of that certain parcel of ground in the county of Lincoln, State of Wyoming, described in a certain Exploration Project Contract dated June 30, 1951, between Bethman & Boone Oil Mining Co., the Lessee of said property, and the United States of America;

NOW, THEREFORE, the undersigned, as Lessor of said property under lease dated July 28, 1951, 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 30 day of June, 1951.

Frank W. Jones

U. S. GOVERNMENT PRINTING OFFICE 16—64582-1

MF-202

LANDLORD'S SUBORDINATION AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner in fee simple of that certain parcel of ground in the county of Lawrence, State of Missouri, described in a certain Exploration Project Contract dated June 30, 1951, between Bostman and Boswell Mining Co., the Lessee of said property, and the United States of America;

NOW, THEREFORE, the undersigned, as Lessor of said property under lease dated Dec. 30, 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 30 day of June, 1951

Ross P. Fowler

U. S. GOVERNMENT PRINTING OFFICE 940768

MF-202

LANDLORD'S SUBORDINATION AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner in fee simple of that certain parcel of ground in the county of Lawrence, State of Wyoming, described in a certain Exploration Project Contract dated June 30, 1951, between Bordeaux and Board of Wyoming Co., the Lessee of said property, and the United States of America;

NOW, THEREFORE, the undersigned, as Lessor of said property under lease dated March 28, 1951, 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

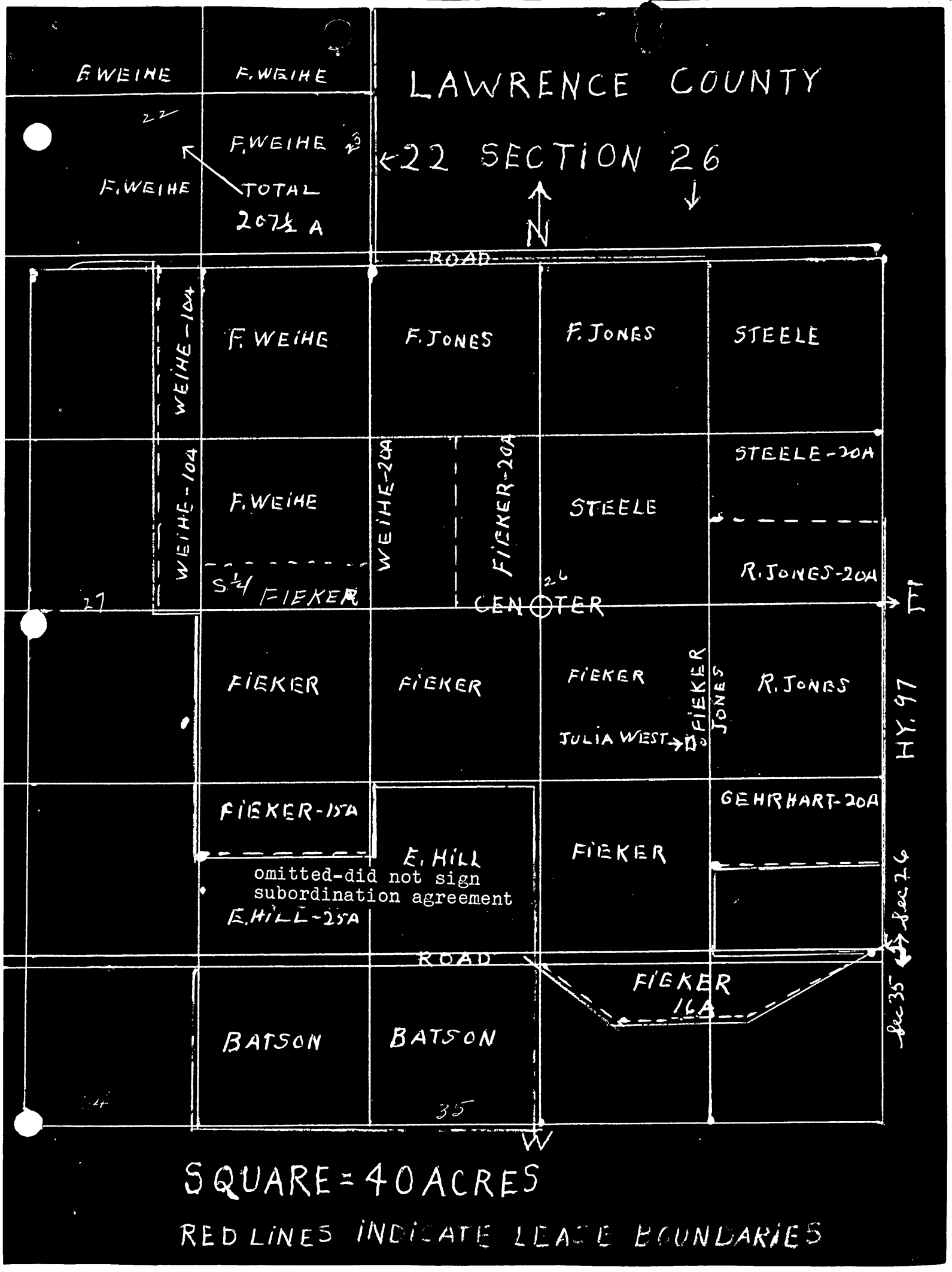
The undersigned agrees to commit no act, nor assert any claim under judicial process or otherwise that may contravene or conflict with the prior lien and claim of the United States of America under the provisions of said Exploration Project Contract.

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

Dated this 30 day of June, 1951

Fred L Weake

U. S. GOVERNMENT PRINTING OFFICE 16—64582-1


LAWRENCE COUNTY
SECTION 26
22
23
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F. JONES
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STEELE
WEIHE-104
F.WEIHE
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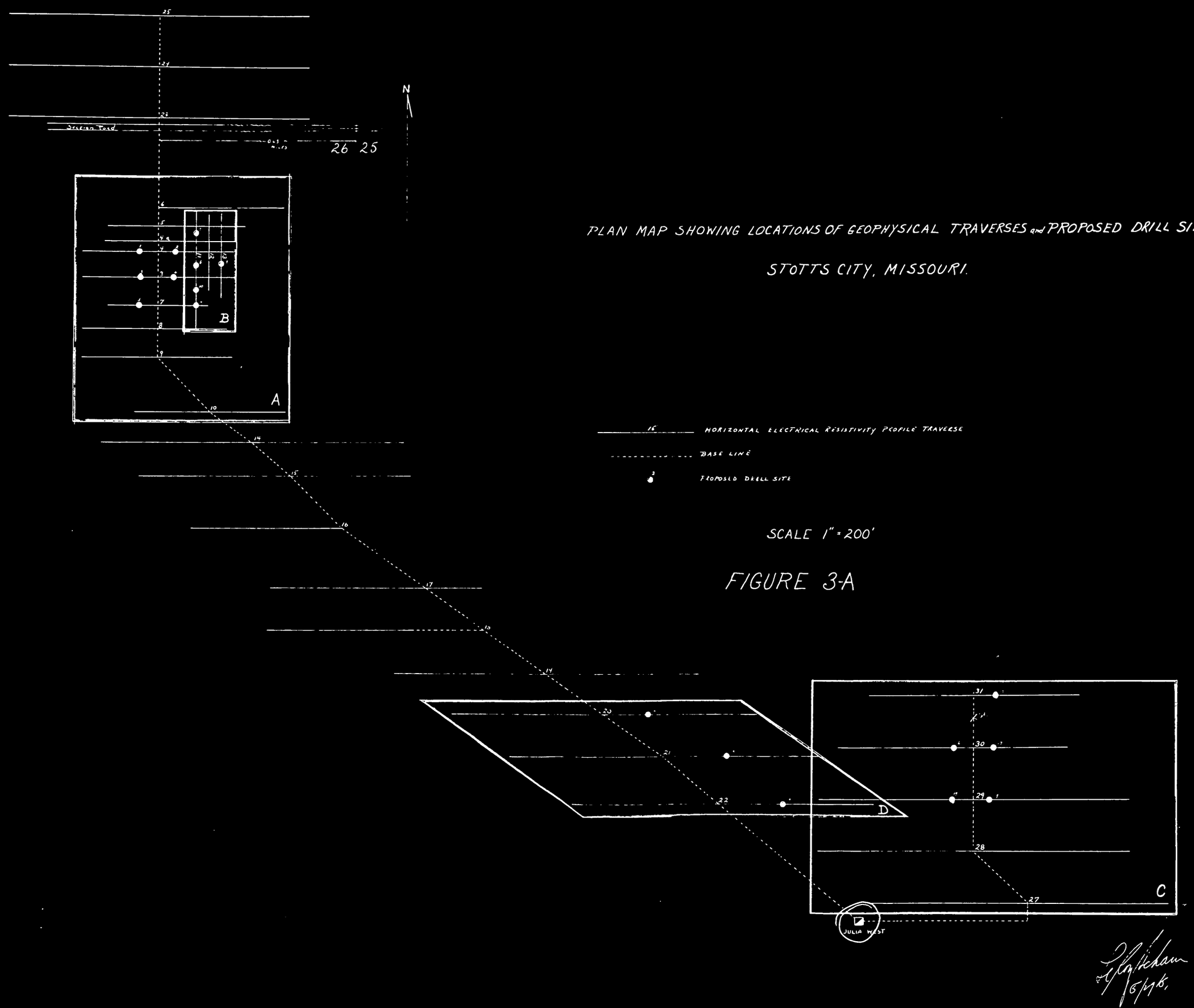
FIEKER-20A
STEELE
STEELE-20A
S½ FIEKER
CENTER
26
R. JONES-20A
27
E
FIEKER
FIEKER
FIEKER
FIEKER
JULIA WEST
FIEKER
JONES
R. JONES
HY. 97
FIEKER-15A
E. HILL
omitted-did not sign
subordination agreement
E.HILL-25A
FIEKER
GEHRHART-20A
Sec 26
ROAD
FIEKER
16A
Sec 35
BATSON
BATSON
34
35
W
SQUARE=40 ACRES
RED LINES INDICATE LEASE BOUNDARIES



PLAN MAP SHOWING LOCATIONS OF GEOPHYSICAL TRAVERSES and PROPOSED DRILL SITES

STOTTS CITY, MISSOURI.

16 HORIZONTAL ELECTRICAL RESISTIVITY PROFILE TRAVERSE

BASE LINE

PROPOSED DRILL SITE

SCALE 1" = 200'

FIGURE 3-A

6/1/16

Recorder
County

All of the North 15 acres of the SW$\frac{1}{4}$ of the SW$\frac{1}{4}$ and all of the N$\frac{1}{2}$ of the SW$\frac{1}{4}$ and all of the W$\frac{1}{2}$ of the SE$\frac{1}{4}$ and all of the E$\frac{1}{2}$ of the SE$\frac{1}{4}$ of the NW$\frac{1}{4}$ and all of the South 10 acres of the SW$\frac{1}{4}$ of the NW$\frac{1}{4}$ all in Section 26, Township 28, Range 28. And also Beginning 16 Rods North of the Southwest corner of the N$\frac{1}{2}$ of the NE$\frac{1}{4}$ of Section 35, Township 28, Range 28, thence East 8 rods, thence Northeasterly to a point 11 Rods 23$\frac{1}{2}$ Links West of the Northeast corner of aforesaid N$\frac{1}{2}$ of the NE$\frac{1}{4}$, thence West to the Northwest corner of the N$\frac{1}{2}$, of the NE$\frac{1}{4}$, thence South to the point of beginning,consisting of 223 acres, more or less.

dma - 1118X

MINING LEASE

This agreement, made and entered into this 30th day of December 1950 by and between Paul Fieker, a single man, of Lawrence County, Missouri Party of the first part, hereinafter called Lessor (whether one or more) and C. M. Bootman Party of the second part, hereinafter called Lessee.

Witnesseth. That the said Lessor, for and in consideration of One dollars ($ 1.00), cash in hand paid, receipt of which is hereby acknowledged, and of the covenants and agreements hereinafter contained on the part of the Lessee, to be paid-kept and performed; has granted, demised, leased and let and by these presents does grant, demise, lease and let unto the said Lessee, exclusively, for the sole and only purpose of entering on and prospecting and mining for lead, zinc, copper, silver and/or all other MINERALS or buried treasure, whether or not of the same kind or character or classification as the MINERALS above enumerated; and whether or not metallic or non-metallic. And these MINERALS shall hereinafter be referred to as MINERALS. Lessee shall have the exclusive right and authority of ingress and egress and regress, on the land described herein, for the sole and only purpose of prospecting and mining for MINERALS and for operating on the land for the purpose of screening, washing, condensing, precipitating, dressing or milling such MINERALS as are discovered and recovered. Lessee may erect such buildings as are necessary for these operations--may lay pipe lines (below plowing level) for carrying water or fuel and do such things, on said property as are necessary for the prospecting, mining, quarry, dressing, saving and preparing for market of such MINERALS as are produced; all on that certain tract of land, situated in the County of Lawrence State of Missouri; which is described as follows, to-wit:

for a period of five years (5) and for so long a period thereafter as MINERALS are produced in commercial quantities from said land by Lessee, his heirs or assigns.

In consideration of the premises the Lessee convenants and agrees:

First To pay to Lessor or duly authorized agent, a royalty of ten (10) per-cent of the total or gross amount of all moneys received for all of the MINERALS mined, produced, saved and sold from said property. Payment to be made on or before the fifteenth (15th) day of each month for all MINERALS mined or produced, saved and sold during the preceeding month.

Second That if prospecting for or mining or processing operations for the production of MINERALS is not commenced and had within six months from the date hereof, Lessee shall pay to Lessor the sum of Two hundred dollars ($ 200) at the place designated for the payment of royalty, and such payment shall extend the date for beginning the prospecting for or mining for MINERALS, for a period of one year from the date of such payment. In like manner and upon like payments the commencement of prospecting or mining or other production methods, may be further deferred for periods of the same number of months, successively. But if no mining or other production method for the production of MINERALS is commenced prior to five years from the date hereof, then this lease shall be absolutely void and of no effect.

All rental royalties shall be considered as advance royalty and shall be credited on and deducted from earned royalty as the same becomes due and payable.

Third Lessee agrees to keep such books and records as will disclose the amount of MINERALS mined, produced, saved and sold from said land and the total or gross amount of money received for them and the names and addresses of all buyers of said MINERALS. Lessor or their duly authorized agent have full right to examine such sales records at any reasonable time or place.

Fourth To not disturb growing crops more than is absolutely necessary and in the event that crops are damaged to pay the reasonable value thereof. In case of dispute as to value, or in case of dispute as to rights by either party under this agreement, settlement shall be by arbitration. Lessor and Lessee shall each name one arbitrator, and these two shall name a third, and the decision of the majority thereof shall be binding on both parties.

Fifth That if a severance tax or any tax imposed by law upon the removal of MINERALS, be levied, that Lessee shall pay same and save and hold Lessor harmless from the payment of such severance tax or taxes levied upon the removal of MINERALS from the land.

Sixth Lessee agrees to carry on mining operations on said premises in a good and workmanlike manner and in accordance with the laws of the State where land is located and of the national laws pertaining thereto. All mining, processing and beneficiating of MINERALS shall be by any method determined by Lessee to be most advantageous.

Seventh That if mining or processing operations, having once begun, cease for a period longer than six (6) successive months, save and except for shutdowns due to floods, strikes, or other conditions or acts of God, beyond the control of the Lessee, this lease shall terminate, unless the Lessee shall, commencing at the end of six successive months of shutdown, pay rentals at the rate hereinbefore provided.

Eighth Lessee may at any and all times during the term of this lease erect on the premises any and all structures, machinery and equipment deemed necessary or convenient for the prospecting, mining, production and processing of MINERALS of the premises, and at the end of the term hereof, or at any other time, may remove all property placed on the land by the lessee. Should this lease be terminated as herein provided, Lessee agrees to remove all property placed thereon by himself within ninety (90) days after such termination.

Ninth Lessor agrees that Lessee may use water from the premises--excepting such water as may be necessary to Lessor for household purposes or for use by livestock on the premises. Water from the above described land may not only be used in the ordinary process of mining but also for condensation and precipitation of any MINERAL it may contain.

Tenth It is mutually understood and agreed that Lessee may assign his interest herein, in whole or in part.

Eleventh Lessor hereby warrants and agrees to defend the title to the lands herein described.

IN WITNESS WHEREOF, the Lessors have caused this instrument to be executed. All done this 30 day of Dec. 1950.

Paul Fieker Seal.

Seal.

Seal.

True copy of original lease.

STATE OF Missouri
County of Lawrence } ss.

Be it remembered, that on this 30th day of December 19 50, before me, the undersigned, a Notary Public in and for said County and State, came Paul Fieker (single)

who is personally known to me to be the same person who executed the foregoing instrument, and acknowledged the execution of the same.

IN WITNESS WHEREOF, I hereunto subscribed my name and affixed my Notary seal on the day month and year last above written.

J. K. Jones

My commission expires 6-19-1954 Notary Public

STATE OF _____
County of _____ } ss. On this _____ day of _____ 19__,
before me appeared _____
to me personally known, who, being by me duly sworn, did say that he is the _____ of _____
a Corporation of the State of _____, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation, by authority of its Board of Directors; and said _____ acknowledged said instrument to be the free act and deed of said corporation.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in _____ the day and year first above written

My commission as Notary Public will expire on the _____ day of _____ 19__.

_____ Notary Public

MINING LEASE

FROM

TO

Filed for record this _____ day of _____ A.D. 19 _____ at _____ o'clock _____ minutes _____ M.

Recorder-

Deputy.

Recorder's Fee - - - - - - - $ _____

STATE OF Missouri
County of Lawrence } ss.

IN THE RECORDER'S OFFICE

I, Harley B. Cox Recorder of Deeds in and for said County, do hereby certify that the within instrument of writing was, on the 19th day of April A.D. 19 51, at 2 o'clock 10 minutes P. M., duly filed for record, and is Recorded in the Records of this office, in Book 219, at Page 135.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal at _____
Mt. Vernon this 19th day of April A.D. 19 51

Harley B. Cox
Recorder.

Katheryn Young
Deputy.

Dma - 1118X

MINING LEASE

This agreement, made and entered into this 30th day of December 1950, by and between Ross Jones, a single man, of Stotts City, Missouri Party of the first part, hereinafter called Lessor (whether one or more) and C. M. Bootman Party of the second part, hereinafter called Lessee.

Witnesseth. That the said Lessor, for and in consideration of One dollars ($1.00), cash in hand paid, receipt of which is hereby acknowledged, and of the covenants and agreements hereinafter contained on the part of the Lessee, to be paid-kept and performed; has granted, demised, leased and let and by these presents does grant, demise, lease and let unto the said Lessee, exclusively, for the sole and only purpose of entering on and prospecting and mining for lead, zinc, copper, silver and/or all other MINERALS or buried treasure, whether or not of the same kind or character or classification as the MINERALS above enumerated; and whether or not metallic or non-metallic. And these MINERALS shall hereinafter be referred to as MINERALS. Lessee shall have the exclusive right and authority of ingress and egress and regress, on the land described herein, for the sole and only purpose of prospecting and mining for MINERALS and for operating on the land for the purpose of screening, washing, condensing, precipitating, dressing or milling such MINERALS as are discovered and recovered. Lessee may erect such buildings as are necessary for these operations--may lay pipe lines (below plowing level) for carrying water or fuel and do such things, on said property as are necessary for the prospecting, mining, recovery, dressing, saving and preparing for market of such MINERALS as are produced; all on that certain tract of land, situated in the County of Lawrence State of Missouri; which is described as follows, to-wit:
South Half of South East of North East Section 26, Township 28, Range 28, and the North East of South East Section 26, Township 28, Range 28, consisting of a total of 60 acres, more or less.

for a period of five years (5) and for so long a period thereafter as MINERALS are produced in commercial quantities from said land by Lessee, his heirs or assigns.

In consideration of the premises the Lessee convenants and agrees:

First To pay to Lessor or duly authorized agent, a royalty of ten (10) per-cent of the total or gross amount of all moneys received for all of the MINERALS mined, produced, saved and sold from said property. Payment to be made on or before the fifteenth (15th) day of each month for all MINERALS mined or produced, saved and sold during the preceeding month.

Second That if prospecting for or mining or processing operations for the production of MINERALS is not commenced and had within six months from the date hereof, Lessee shall pay to Lessor the sum of sixty dollars dollars ($60.00) at the place designated for the payment of royalty, and such payment shall extend the date for beginning the prospecting for or mining for MINERALS, for a period of one year from the date of such payment. In like manner and upon like payments the commencement of prospecting or mining or other production methods, may be further deferred for periods of the same number of months, successively. But if no mining or other production method for the production of MINERALS is commenced prior to five years from the date hereof, then this lease shall be absolutely void and of no effect.

All rental royalties shall be considered as advance royalty and shall be credited on and deducted from earned royalty as the same becomes due and payable.

Third Lessee agrees to keep such books and records as will disclose the amount of MINERALS mined, produced, saved and sold from said land and the total or gross amount of money received for them and the names and addresses of all buyers of said MINERALS. Lessor or their duly authorized agent have full right to examine such sales records at any reasonable time or place.

Fourth To not disturb growing crops more than is absolutely necessary and in the event that crops are damaged to pay the reasonable value thereof. In case of dispute as to value, or in case of dispute as to rights by either party under this agreement, settlement shall be by arbitration. Lessor and Lessee shall each name one arbitrator, and these two shall name a third, and the decision of the majority thereof shall be binding on both parties.

Fifth That if a severance tax or any tax imposed by law upon the removal of MINERALS, be levied, that Lessee shall pay same and save and hold Lessor harmless from the payment of such severance tax or taxes levied upon the removal of MINERALS from the land.

Sixth Lessee agrees to carry on mining operations on said premises in a good and workmanlike manner and in accordance with the laws of the State where land is located and of the national laws pertaining thereto. All mining, processing and beneficiating of MINERALS shall be by any method determined by Lessee to be most advantageous.

Seventh That if mining or processing operations, having once begun, cease for a period longer than six (6) successive months, save and except for shutdowns due to floods, strikes, or other conditions or acts of God, beyond the control of the Lessee, this lease shall terminate, unless the Lessee shall, commencing at the end of six successive months of shutdown, pay rentals at the rate hereinbefore provided.

Eighth Lessee may at any and all times during the term of this lease erect on the premises any and all structures, machinery and equipment deemed necessary or convenient for the prospecting, mining, production and processing of MINERALS of the premises, and at the end of the term hereof, or at any other time, may remove all property placed on the land by the lessee. Should this lease be terminated as herein provided, Lessee agrees to remove all property placed thereon by himself within ninety (90) days after such termination.

Ninth Lessor agrees that Lessee may use water from the premises--excepting such water as may be necessary to Lessor for household purposes or for use by livestock on the premises. Water from the above described land may not only be used in the ordinary process of mining but also for condensation and precipitation of any MINERAL it may contain.

Tenth It is mutually understood and agreed that Lessee may assign his interest herein, in whole or in part.

Eleventh Lessor hereby warrants and agrees to defend the title to the lands herein described.

Lessee agrees to pay any incured expenses in clearing title on above described land if no ores are found thereon.

IN WITNESS WHEREOF, the Lessors have caused this instrument to be executed. All done this 30 day of Dec. 1950

Ross Jones Seal.

Seal.

Seal.

True copy of the original lease.

STATE OF Missouri
County of Lawrence } ss.

Be it remembered, that on this 30th day of December 1950, before me, the undersigned, a Notary Public in and for said County and State, came Ross Jones (single)

who is personally known to me to be the same person who executed the foregoing instrument, and acknowledged the execution of the same.

IN WITNESS WHEREOF, I hereunto subscribed my name and affixed my Notary seal on the day month and year last above written.

J. K. Jones
Notary Public

My commission expires 6-19-1954

STATE OF _____
County of _____ } ss. On this _____ day of _____ 19__,
before me appeared _____
to me personally known, who, being by me duly sworn, did say that he is the _____ of _____
a Corporation of the State of _____, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation, by authority of its Board of Directors; and said _____ acknowledged said instrument to be the free act and deed of said corporation.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in _____ the day and year first above written

My commission as Notary Public will expire on the _____ day of _____ 19__.

_____ Notary Public

MINING LEASE

FROM

TO

Filed for record this _____ day of _____ A.D. 19__ at _____ o'clock _____ minutes _____ M.

Recorder-

Deputy.

Recorder's Fee - - - - - - $ _____

STATE OF Missouri
County of Lawrence } ss.

IN THE RECORDER'S OFFICE

I, Harley B. Cox Recorder of Deeds in and for said County, do hereby certify that the within instrument of writing was, on the 19th day of April A.D. 19 51, at 2 o'clock 35 minutes P.M., duly filed for record, and is Recorded in the Records of this office, in Book 219, at Page 146.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal at _____
Mt. Vernon this 19th day of April A.D. 19 51

Harley B. Cox
Katheryn Young Recorder.

Deputy.

Dwa - 1118 X

MINING LEASE

This agreement, made and entered into this 2nd day of April 19 51 by and between Emery Hill and Kittybell Hill Party of the first part, hereinafter called Lessor (whether one or more) and C. M. Bootman Party of the second part, hereinafter called Lessee.

Witnesseth. That the said Lessor, for and in consideration of One dollars ($ 1.00), cash in hand paid, receipt of which is hereby acknowledged, and of the covenants and agreements hereinafter contained on the part of the Lessee, to be paid-kept and performed; has granted, demised, leased and let and by these presents does grant, demise, lease and let unto the said Lessee, exclusively, for the sole and only purpose of entering on and prospecting and mining for lead, zinc, copper, silver and/or all other MINERALS or buried treasure, whether or not of the same kind or character or classification as the MINERALS above enumerated; and whether or not metallic or non-metallic. And these MINERALS shall hereinafter be referred to as MINERALS. Lessee shall have the exclusive right and authority of ingress and egress and regress, on the land described herein, for the sole and only purpose of prospecting and mining for MINERALS and for operating on the land for the purpose of screening, washing, condensing, precipitating, dressing or milling such MINERALS as are discovered and recovered. Lessee may erect such buildings as are necessary for these operations--may lay pipe lines (below plowing level) for carrying water or fuel and do such things, on said property as are necessary for the prospecting, mining, recovery, dressing, saving and preparing for market of such MINERALS as are produced; all on that certain tract of land, situated in the County of Lawrence State of Missouri ; which is described as follows, to-wit:

The South Twenty five acres of the Southwest Quarter of the Southwest Quarter and the Southeast Quarter of the Southwest Quarter of Section 26, Township 28, Range 28, and containing 65 acres, more or less.

for a period of one years (1) and for so long a period thereafter as MINERALS are produced in commercial quantities from said land by Lessee, his heirs or assigns.

In consideration of the premises the Lessee convenants and agrees:

First To pay to Lessor or duly authorized agent, a royalty of ten (10) per-cent of the total or gross amount of all moneys received for all of the MINERALS mined, produced, saved and sold from said property. Payment to be made on or before the fifteenth (15th) day of each month for all MINERALS mined or produced, saved and sold during the preceeding month.

Second That if prospecting for or mining or processing operations for the production of MINERALS is not commenced and had within six months from the date hereof, Lessee shall pay to Lessor the sum of twenty-five dollars ($ 25) at the place designated for the payment of royalty, and such payment shall extend the date for beginning the prospecting for or mining for MINERALS, for a period of one year from the date of such payment. In like manner and upon like payments the commencement of prospecting or mining or other production methods, may be further deferred for periods of the same number of months, successively. But if no mining or other production method for the production of MINERALS is commenced prior to one years from the date hereof, then this lease shall be absolutely void and of no effect.

All rental royalties shall be considered as advance royalty and shall be credited on and deducted from earned royalty as the same becomes due and payable.

Third Lessee agrees to keep such books and records as will disclose the amount of MINERALS mined, produced, saved and sold from said land and the total or gross amount of money received for them and the names and addresses of all buyers of said MINERALS. Lessor or their duly authorized agent have full right to examine such sales records at any reasonable time or place.

Fourth To not disturb growing crops more than is absolutely necessary and in the event that crops are damaged to pay the reasonable value thereof. In case of dispute as to value, or in case of dispute as to rights by either party under this agreement, settlement shall be by arbitration. Lessor and Lessee shall each name one arbitrator, and these two shall name a third, and the decision of the majority thereof shall be binding on both parties.

Fifth That if a severance tax or any tax imposed by law upon the removal of MINERALS, be levied, that Lessee shall pay same and save and hold Lessor harmless from the payment of such severance tax or taxes levied upon the removal of MINERALS from the land.

Sixth Lessee agrees to carry on mining operations on said premises in a good and workmanlike manner and in accordance with the laws of the State where land is located and of the national laws pertaining thereto. All mining, processing and beneficiating of MINERALS shall be by any method determined by Lessee to be most advantageous.

Seventh That if mining or processing operations, having once begun, cease for a period longer than six (6) successive months, save and except for shutdowns due to floods, strikes, or other conditions or acts of God, beyond the control of the Lessee, this lease shall terminate, unless the Lessee shall, commencing at the end of six successive months of shutdown, pay rentals at the rate hereinbefore provided.

Eighth Lessee may at any and all times during the term of this lease erect on the premises any and all structures, machinery and equipment deemed necessary or convenient for the prospecting, mining, production and processing of MINERALS of the premises, and at the end of the term hereof, or at any other time, may remove all property placed on the land by the lessee. Should this lease be terminated as herein provided, Lessee agrees to remove all property placed thereon by himself within ninety (90) days after such termination.

Ninth Lessor agrees that Lessee may use water from the premises--excepting such water as may be necessary to Lessor for household purposes or for use by livestock on the premises. Water from the above described land may not only be used in the ordinary process of mining but also for condensation and precipitation of any MINERAL it may contain.

Tenth It is mutually understood and agreed that Lessee may assign his interest herein, in whole or in part.

Eleventh Lessor hereby warrants and agrees to defend the title to the lands herein described.

IN WITNESS WHEREOF, the Lessors have caused this instrument to be executed. All done this 2nd day of April 19 51

Emery Hill ~~XXXXXX~~ Seal.

Kittybell Hill Seal.

Seal.

True copy of the original lease.

STATE OF Missouri
County of Jackson } ss.

Be it remembered, that on this 2nd day of April 19 51, before me, the undersigned, a Notary Public in and for said County and State, came Emery Hill and Kittybell Hill

who are personally known to me to be the same person who executed the foregoing instrument, and acknowledged the execution of the same.

IN WITNESS WHEREOF, I hereunto subscribed my name and affixed my Notary seal on the day month and year last above written.

Carl T. Veat

My commission expires April 24, 1954

STATE OF _____
County of _____ } ss. On this _____ day of _____ 19__,
before me appeared _____
to me personally known, who, being by me duly sworn, did say that he is the _____ of _____
a Corporation of the State of _____, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation, by authority of its Board of Directors; and said _____ acknowledged said instrument to be the free act and deed of said corporation.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in _____ the day and year first above written

My commission as Notary Public will expire on the _____ day of _____ 19__.

_____ Notary Public

MINING LEASE

FROM

TO

Filed for record this _____ day of _____ A.D. 19 _____ at _____ o'clock _____ minutes _____ M.

Recorder-

Deputy.

Recorder's Fee - - - - - - $ _____

STATE OF Missouri
County of Lawrence } ss.

IN THE RECORDER'S OFFICE

I, Harley B. Cox Recorder of Deeds in and for said County, do hereby certify that the within instrument of writing was, on the 2nd day of April A.D. 19 51, at 2 o'clock 30 minutes P. M., duly filed for record, and is Recorded in the Records of this office, in Book 219, at Page 143.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal at _____
Mt. Vernon this 19th day of April A.D. 1951

Harley B. Cox
Recorder.

_____
Deputy.

True copy of the original lease.

Dma-1118 X

MINING LEASE

This agreement, made and entered into this 28th day of March 1951, by and between Fred L. Weihe and Erna E. Weihe, his wife Party of the first part, hereinafter called Lessor (whether one or more) and C. M. Bootman Party of the second part, hereinafter called Lessee.

Witnesseth. That the said Lessor, for and in consideration of One dollars ($ 1.00), cash in hand paid, receipt of which is hereby acknowledged, and of the covenants and agreements hereinafter contained on the part of the Lessee, to be paid-kept and performed; has granted, demised, leased and let and by these presents does grant, demise, lease and let unto the said Lessee, exclusively, for the sole and only purpose of entering on and prospecting and mining for lead, zinc, copper, silver and/or all other MINERALS or buried treasure, whether or not of the same kind or character or classification as the MINERALS above enumerated; and whether or not metallic or non-metallic. And these MINERALS shall hereinafter be referred to as MINERALS. Lessee shall have the exclusive right and authority of ingress and egress and regress, on the land described herein, for the sole and only purpose of prospecting and mining for MINERALS and for operating on the land for the purpose of screening, washing, condensing, precipitating, dressing or milling such MINERALS as are discovered and recovered. Lessee may erect such buildings as are necessary for these operations--may lay pipe lines (below plowing level) for carrying water or fuel and do such things, on said property as are necessary for the prospecting, mining, recovery, dressing, saving and preparing for market of such MINERALS as are produced; all on that certain tract of land, situated in the County of Lawrence State of Missouri; which is described as follows, to-wit:

The E½ of the NE¼ (Except 2½ acres in the Southeast corner thereof) and also the NW¼ of the NE¼ of Section 27, Township 28, Range 28, consisting of 120 acres, more or less.

for a period of five years (5) and for so long a period thereafter as MINERALS are produced in commercial quantities from said land by Lessee, his heirs or assigns.

In consideration of the premises the Lessee convenants and agrees:

First To pay to Lessor or duly authorized agent, a royalty of Ten (10) per-cent of the total or gross amount of all moneys received for all of the MINERALS mined, produced, saved and sold from said property. Payment to be made on or before the fifteenth (15th) day of each month for all MINERALS mined or produced, saved and sold during the preceeding month.

Second That if prospecting for or mining or processing operations for the production of MINERALS is not commenced and had within six months from the date hereof, Lessee shall pay to Lessor the sum of One hundred twenty dollars ($ 120) at the place designated for the payment of royalty, and such payment shall extend the date for beginning the prospecting for or mining for MINERALS, for a period of one year from the date of such payment. In like manner and upon like payments the commencement of prospecting or mining or other production methods, may be further deferred for periods of the same number of months, successively. But if no mining or other production method for the production of MINERALS is commenced prior to five years from the date hereof, then this lease shall be absolutely void and of no effect.

All rental royalties shall be considered as advance royalty and shall be credited on and deducted from earned royalty as the same becomes due and payable.

Third Lessee agrees to keep such books and records as will disclose the amount of MINERALS mined, produced, saved and sold from said land and the total or gross amount of money received for them and the names and addresses of all buyers of said MINERALS. Lessor or their duly authorized agent have full right to examine such sales records at any reasonable time or place.

Fourth To not disturb growing crops more than is absolutely necessary and in the event that crops are damaged to pay the reasonable value thereof. In case of dispute as to value, or in case of dispute as to rights by either party under this agreement, settlement shall be by arbitration. Lessor and Lessee shall each name one arbitrator, and these two shall name a third, and the decision of the majority thereof shall be binding on both parties., including any improvements on said lease.

Fifth That if a severance tax or any tax imposed by law upon the removal of MINERALS, be levied, that Lessee shall pay same and save and hold Lessor harmless from the payment of such severance tax or taxes levied upon the removal of MINERALS from the land.

Sixth Lessee agrees to carry on mining operations on said premises in a good and workmanlike manner and in accordance with the laws of the State where land is located and of the national laws pertaining thereto. All mining, processing and beneficiating of MINERALS shall be by any method determined by Lessee to be most advantageous.

Seventh That if mining or processing operations, having once begun, cease for a period longer than six (6) successive months, save and except for shutdowns due to floods, strikes, or other conditions or acts of God, beyond the control of the Lessee, this lease shall terminate, unless the Lessee shall, commencing at the end of six successive months of shutdown, pay rentals at the rate hereinbefore provided.

Eighth Lessee may at any and all times during the term of this lease erect on the premises any and all structures, machinery and equipment deemed necessary or convenient for the prospecting, mining, production and processing of MINERALS of the premises, and at the end of the term hereof, or at any other time, may remove all property placed on the land by the lessee. Should this lease be terminated as herein provided, Lessee agrees to remove all property placed thereon by himself within ninety (90) days after such termination.

Ninth Lessor agrees that Lessee may use water from the premises--excepting such water as may be necessary to Lessor for household purposes or for use by livestock on the premises. Water from the above described land may not only be used in the ordinary process of mining but also for condensation and precipitation of any MINERAL it may contain.

Tenth It is mutually understood and agreed that Lessee may assign his interest herein, in whole or in part.

Eleventh Lessor hereby warrants and agrees to defend the title to the lands herein described.

IN WITNESS WHEREOF, the Lessors have caused this instrument to be executed. All done this 28th day of March 1951.

Fred L. Weihe Seal.

Erna E. Weihe Seal.

Seal.

True copy of the original lease.

STATE OF Missouri
County of Lawrence } ss.

Be it remembered, that on this 28th day of March 19 51, before me, the undersigned, a Notary Public and in and for said County and State, came Fred L. Weihe and Erna E. Weihe, his wife

who are personally known to me to be the same person who executed the foregoing instrument, and acknowledged the execution of the same.

IN WITNESS WHEREOF, I hereunto subscribed my name and affixed my Notary seal on the day month and year last above written.

J. K. Jones
Notary Public

My commission expires 6-19-1954

STATE OF
County of } ss. On this day of 19 ,
before me appeared
to me personally known, who, being by me duly sworn, did say that he is the of
a Corporation of the State of , and that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation, by authority of its Board of Directors; and said acknowledged said instrument to be the free act and deed of said corporation.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in the day and year first above written

My commission as Notary Public will expire on the day of 19 .

Notary Public

MINING LEASE

FROM

TO

Filed for record this day of A.D. 19 at o'clock minutes M.

Recorder-

Deputy.

Recorder's Fee - - - - - - - $

STATE OF Missouri
County of Lawrence } ss.

IN THE RECORDER'S OFFICE

I, Harley B. Cox Recorder of Deeds in and for said County, do hereby certify that the within instrument of writing was, on the 19th day of April A.D. 19 51, at 2 o'clock - minutes P. M., duly filed for record, and is Recorded in the Records of this office, in Book 219, at Page 131.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal at Mt. Vernon this 19th day of April A.D. 19 51

Harley B. Cox
Recorder.

Katheryn Young
Deputy.

Lma - 1118 X

MINING LEASE

This agreement, made and entered into this 28th day of March 19 51 by and between Fred L. Weihe and Erna E. Weihe, his wife Party of the first part, hereinafter called Lessor (whether one or more) and C. M. Bootman Party of the second part, hereinafter called Lessee.

Witnesseth. That the said Lessor, for and in consideration of One dollars ($ 1.00), cash in hand paid, receipt of which is hereby acknowledged, and of the covenants and agreements hereinafter contained on the part of the Lessee, to be paid-kept and performed; has granted, demised, leased and let and by these presents does grant, demise, lease and let unto the said Lessee, exclusively, for the sole and only purpose of entering on and prospecting and mining for lead, zinc, copper, silver and/or all other MINERALS or buried treasure, whether or not of the same kind or character or classification as the MINERALS above enumerated; and whether or not metallic or non-metallic. And these MINERALS shall hereinafter be referred to as MINERALS. Lessee shall have the exclusive right and authority of ingress and egress and regress, on the land described herein, for the sole and only purpose of prospecting and mining for MINERALS and for operating on the land for the purpose of screening, washing, condensing, precipitating, dressing or milling such MINERALS as are discovered and recovered. Lessee may erect such buildings as are necessary for these operations--may lay pipe lines (below plowing level) for carrying water or fuel and do such things, on said property as are necessary for the prospecting, mining, recovery, dressing, saving and preparing for market of such MINERALS as are produced; all on that certain tract of land, situated in the County of Lawrence State of Missouri ; which is described as follows, to-wit:

The North 7/8 of the W½ of the NW¼ and the W½ of the SE¼ of the NW¼ of Section 26, Township 28, Range 28, consisting of 207 acres, more or less.

for a period of five years (5) and for so long a period thereafter as MINERALS are produced in commercial quantities from said land by Lessee, his heirs or assigns.

In consideration of the premises the Lessee convenants and agrees:

First To pay to Lessor or duly authorized agent, a royalty of ten (10 per-cent of the total or gross amount of all moneys received for all of the MINERALS mined, produced, saved and sold from said property. Payment to be made on or before the fifteenth (15th) day of each month for all MINERALS mined or produced, saved and sold during the preceeding month.

Second That if prospecting for or mining or processing operations for the production of MINERALS is not commenced and had within six monthe from the date hereof, Lessee shall pay to Lessor the sum of two hundred seven 50/100 dollars ($207.50) at the place designated for the payment of royalty, and such payment shall extend the date for beginning the prospecting for or mining for MINERALS, for a period of one year from the date of such payment. In like manner and upon like payments the commencement of prospecting or mining or other production methods, may be further deferred for periods of the same number of months, successively. But if no mining or other production method for the production of MINERALS is commenced prior to five years from the date hereof, then this lease shall be absolutely void and of no effect.

All rental royalties shall be considered as advance royalty and shall be credited on and deducted from earned royalty as the same becomes due and payable.

Third Lessee agrees to keep such books and records as will disclose the amount of MINERALS mined, produced, saved and sold from said land and the total or gross amount of money received for them and the names and addresses of all buyers of said MINERALS. Lessor or their duly authorized agent have full right to examine such sales records at any reasonable time or place.

Fourth To not disturb growing crops more than is absolutely necessary and in the event that crops are damaged to pay the reasonable value thereof. In case of dispute as to value, or in case of dispute as to rights by either party under this agreement, settlement shall be by arbitration. Lessor and Lessee shall each name one arbitrator, and these two shall name a third, and the decision of the majority thereof shall be binding on both parties., including any improvements on said lease.

Fifth That if a severance tax or any tax imposed by law upon the removal of MINERALS, be levied, that Lessee shall pay same and save and hold Lessor harmless from the payment of such severance tax or taxes levied upon the removal of MINERALS from the land.

Sixth Lessee agrees to carry on mining operations on said premises in a good and workmanlike manner and in accordance with the laws of the State where land is located and of the national laws pertaining thereto. All mining, processing and beneficiating of MINERALS shall be by any method determined by Lessee to be most advantageous.

Seventh That if mining or processing operations, having once begun, cease for a period longer than six (6) successive months, save and except for shutdowns due to floods, strikes, or other conditions or acts of God, beyond the control of the Lessee, this lease shall terminate, unless the Lessee shall, commencing at the end of six successive months of shutdown, pay rentals at the rate hereinbefore provided.

Eighth Lessee may at any and all times during the term of this lease erect on the premises any and all structures, machinery and equipment deemed necessary or convenient for the prospecting, mining, production and processing of MINERALS of the premises, and at the end of the term hereof, or at any other time, may remove all property placed on the land by the lessee. Should this lease be terminated as herein provided, Lessee agrees to remove all property placed thereon by himself within ninety (90) days after such termination.

Ninth Lessor agrees that Lessee may use water from the premises--excepting such water as may be necessary to Lessor for household purposes or for use by livestock on the premises. Water from the above described land may not only be used in the ordinary process of mining but also for condensation and precipitation of any MINERAL it may contain.

Tenth It is mutually understood and agreed that Lessee may assign his interest herein, in whole or in part.

Eleventh Lessor hereby warrants and agrees to defend the title to the lands herein described.

IN WITNESS WHEREOF, the Lessors have caused this instrument to be executed. All done this 28th day of March 19 51

Fred L. Weihe

Seal.

Erna E. Weihe

Seal.

Seal.

True copy of the original lease.

STATE OF Missouri
County of Lawrence } ss.

Be it remembered, that on this 28th day of March 19 51, before me, the undersigned, a Notary Public in and for said County and State, came Fred L. Weihe and Erna E. Weihe, his wife

who are personally known to me to be the same person who executed the foregoing instrument, and acknowledged the execution of the same.

IN WITNESS WHEREOF, I hereunto subscribed my name and affixed my Notary seal on the day month and year last above written.

J. K. Jones
Notary Public

My commission expires 6-19-1954

STATE OF _____
County of _____ } ss. On this _____ day of _____ 19__,
before me appeared _____
to me personally known, who, being by me duly sworn, did say that he is the _____ of _____
a Corporation of the State of _____, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation, by authority of its Board of Directors; and said _____ acknowledged said instrument to be the free act and deed of said corporation.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in _____ the day and year first above written

My commission as Notary Public will expire on the _____ day of _____ 19__.

_____ Notary Public

MINING LEASE

FROM

TO

Filed for record this _____ day of _____ A.D. 19__ at _____ o'clock _____ minutes _____ M.

Recorder-

Deputy.

Recorder's Fee - - - - - - - $ _____

STATE OF Missouri
County of Lawrence } ss.

IN THE RECORDER'S OFFICE

I, Harley B. Cox Recorder of Deeds in and for said County, do hereby certify that the within instrument of writing was, on the 19th day of April A.D. 1951, at 2 o'clock 05 minutes P. M., duly filed for record, and is Recorded in the Records of this office, in Book 219, at Page 133.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal at _____
Mt. Vernon this 19th day of April A.D. 1951

Harley B. Cox
Katheryn Young Recorder.

_____ Deputy.

True copy of the original lease.

Dma-1118X

MINING LEASE

This agreement, made and entered into this 28th day of February 1951, by and between D. H. Gerhardt and Lela Gerhardt, his wife

Party of the first part, hereinafter called Lessor (whether one or more) and C. M. Bootman Party of the second part, hereinafter called Lessee.

Witnesseth. That the said Lessor, for and in consideration of One dollars ($1.00), cash in hand paid, receipt of which is hereby acknowledged, and of the covenants and agreements hereinafter contained on the part of the Lessee, to be paid-kept and performed; has granted, demised, leased and let and by these presents does grant, demise, lease and let unto the said Lessee, exclusively, for the sole and only purpose of entering on and prospecting and mining for lead, zinc, copper, silver and/or all other MINERALS or buried treasure, whether or not of the same kind or character or classification as the MINERALS above enumerated; and whether or not metallic or non-metallic. And these MINERALS shall hereinafter be referred to as MINERALS. Lessee shall have the exclusive right and authority of ingress and egress and regress, on the land described herein, for the sole and only purpose of prospecting and mining for MINERALS and for operating on the land for the purpose of screening, washing, condensing, precipitating, dressing or milling such MINERALS as are discovered and recovered. Lessee may erect such buildings as are necessary for these operations--may lay pipe lines (below plowing level) for carrying water or fuel and do such things, on said property as are necessary for the prospecting, mining, recovery, dressing, saving and preparing for market of such MINERALS as are produced; all on that certain tract of land, situated in the County of Lawrence State of Missouri; which is described as follows, to-wit:

The North one-half of the SE¼ of the SE¼ of Section 26, Twnship 28, Range 28, consisting of 20 acres, more or less.

for a period of five years (5) and for so long a period thereafter as MINERALS are produced in commercial quantities from said land by Lessee, his heirs or assigns.

In consideration of the premises the Lessee convenants and agrees:

First To pay to Lessor or duly authorized agent, a royalty of ten (10) per-cent of the total or gross amount of all moneys received for all of the MINERALS mined, produced, saved and sold from said property. Payment to be made on or before the fifteenth (15th) day of each month for all MINERALS mined or produced, saved and sold during the preceeding month.

Second That if prospecting for or mining or processing operations for the production of MINERALS is not commenced and had within six months from the date hereof, Lessee shall pay to Lessor the sum of Fifty dollars ($50) at the place designated for the payment of royalty, and such payment shall extend the date for beginning the prospecting for or mining for MINERALS, for a period of one year from the date of such payment. In like manner and upon like payments the commencement of prospecting or mining or other production methods, may be further deferred for periods of the same number of months, successively. But if no mining or other production method for the production of MINERALS is commenced prior to five years from the date hereof, then this lease shall be absolutely void and of no effect.

All rental royalties shall be considered as advance royalty and shall be credited on and deducted from earned royalty as the same becomes due and payable.

Third Lessee agrees to keep such books and records as will disclose the amount of MINERALS mined, produced, saved and sold from said land and the total or gross amount of money received for them and the names and addresses of all buyers of said MINERALS. Lessor or their duly authorized agent have full right to examine such sales records at any reasonable time or place.

Fourth To not disturb growing crops more than is absolutely necessary and in the event that crops are damaged to pay the reasonable value thereof. In case of dispute as to value, or in case of dispute as to rights by either party under this agreement, settlement shall be by arbitration. Lessor and Lessee shall each name one arbitrator, and these two shall name a third, and the decision of the majority thereof shall be binding on both parties.

Fifth That if a severance tax or any tax imposed by law upon the removal of MINERALS, be levied, that Lessee shall pay same and save and hold Lessor harmless from the payment of such severance tax or taxes levied upon the removal of MINERALS from the land.

Sixth Lessee agrees to carry on mining operations on said premises in a good and workmanlike manner and in accordance with the laws of the State where land is located and of the national laws pertaining thereto. All mining, processing and beneficiating of MINERALS shall be by any method determined by Lessee to be most advantageous.

Seventh That if mining or processing operations, having once begun, cease for a period longer than six (6) successive months, save and except for shutdowns due to floods, strikes, or other conditions or acts of God, beyond the control of the Lessee, this lease shall terminate, unless the Lessee shall, commencing at the end of six successive months of shutdown, pay rentals at the rate hereinbefore provided.

Eighth Lessee may at any and all times during the term of this lease erect on the premises any and all structures, machinery and equipment deemed necessary or convenient for the prospecting, mining, production and processing of MINERALS of the premises, and at the end of the term hereof, or at any other time, may remove all property placed on the land by the lessee. Should this lease be terminated as herein provided, Lessee agrees to remove all property placed thereon by himself within ninety (90) days after such termination.

Ninth Lessor agrees that Lessee may use water from the premises--excepting such water as may be necessary to Lessor for household purposes or for use by livestock on the premises. Water from the above described land may not only be used in the ordinary process of mining but also for condensation and precipitation of any MINERAL it may contain.

Tenth It is mutually understood and agreed that Lessee may assign his interest herein, in whole or in part.

Eleventh Lessor hereby warrants and agrees to defend the title to the lands herein described.

Lessee agrees to release said lease and pay any expense incured if no ore is found after survey is made. If ore is found, said lease to remain in full effect.

IN WITNESS WHEREOF, the Lessors have caused this instrument to be executed. All done this _____ day of _____ 19___.

D. H. Gerhardt
Seal.

Lela Gerhardt
Seal.

Seal.

True copy of original lease.

STATE OF Missouri
County of Lawrence } ss.

Be it remembered, that on this 28th day of February 19 51, before me, the undersigned, a Notary Public in and for said County and State, came D. H. Gerhardt and Lela Gerhardt, his wife

who are personally known to me to be the same person who executed the foregoing instrument, and acknowledged the execution of the same.

IN WITNESS WHEREOF, I hereunto subscribed my name and affixed my Notary seal on the day month and year last above written.

J. K. Jones
Notary Public

My commission expires 6-19-1954

STATE OF
County of } ss. On this day of 19 ,
before me appeared
to me personally known, who, being by me duly sworn, did say that he is the
of
a Corporation of the State of , and that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation, by authority of its Board of Directors; and said
acknowledged said instrument to be the free act and deed of said corporation.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in the day and year first above written

My commission as Notary Public will expire on the day of 19 .

Notary Public

MINING LEASE

FROM

TO

Filed for record this day of A.D. 19 at o'clock minutes M.

Recorder-

Deputy.

Recorder's Fee - - - - - - - $

STATE OF Missouri
County of Lawrence } ss.

IN THE RECORDER'S OFFICE

I, ~~Harley B. Cox~~ Recorder of Deeds in and for said County, do hereby certify that the within instrument of writing was, on the 19th day of April A.D. 19 51, at 2 o'clock 15 minutes P. M., duly filed for record, and is Recorded in the Records of this office, in Book 219, at Page 137.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal at
Mt. Vernon this 19th day of April A.D. 19 51

Harley B. Cox
Katheryn Young
Recorder.

Deputy.

Dma-1118X

MINING LEASE

This agreement, made and entered into this 28th day of February 1951, by and between Frank W. Jones and Pearl Jones, his wife Party of the first part, hereinafter called Lessor (whether one or more) and C. M. Bootman Party of the second part, hereinafter called Lessee.

Witnesseth. That the said Lessor, for and in consideration of One dollars ($1.00), cash in hand paid, receipt of which is hereby acknowledged, and of the covenants and agreements hereinafter contained on the part of the Lessee, to be paid-kept and performed; has granted, demised, leased and let and by these presents does grant, demise, lease and let unto the said Lessee, exclusively, for the sole and only purpose of entering on and prospecting and mining for lead, zinc, copper, silver and/or all other MINERALS or buried treasure, whether or not of the same kind or character or classification as the MINERALS above enumerated; and whether or not metallic or non-metallic. And these MINERALS shall hereinafter be referred to as MINERALS. Lessee shall have the exclusive right and authority of ingress and egress and regress, on the land described herein, for the sole and only purpose of prospecting and mining for MINERALS and for operating on the land for the purpose of screening, washing, condensing, precipitating, dressing or milling such MINERALS as are discovered and recovered. Lessee may erect such buildings as are necessary for these operations--may lay pipe lines (below plowing level) for carrying water or fuel and do such things, on said property as are necessary for the prospecting, mining, recovery, dressing, saving and preparing for market of such MINERALS as are produced; all on that certain tract of land, situated in the County of Lawrence State of Missouri; which is described as follows, to-wit:

NW¼ of the NE¼ and NE¼ of the NW¼ of Section 26, Township 28, Range 28, containing 80 acres, more or less.

for a period of five years (5) and for so long a period thereafter as MINERALS are produced in commercial quantities from said land by Lessee, his heirs or assigns.

In consideration of the premises the Lessee convenants and agrees:

First To pay to Lessor or duly authorized agent, a royalty of ten (10) per-cent of the total or gross amount of all moneys received for all of the MINERALS mined, produced, saved and sold from said property. Payment to be made on or before the fifteenth (15th) day of each month for all MINERALS mined or produced, saved and sold during the preceeding month.

Second That if prospecting for or mining or processing operations for the production of MINERALS is not commenced and had within six months from the date hereof, Lessee shall pay to Lessor the sum of Eighty dollars ($80) at the place designated for the payment of royalty, and such payment shall extend the date for beginning the prospecting for or mining for MINERALS, for a period of one year from the date of such payment. In like manner and upon like payments the commencement of prospecting or mining or other production methods, may be further deferred for periods of the same number of months, successively. But if no mining or other production method for the production of MINERALS is commenced prior to five years from the date hereof, then this lease shall be absolutely void and of no effect.

All rental royalties shall be considered as advance royalty and shall be credited on and deducted from earned royalty as the same becomes due and payable.

Third Lessee agrees to keep such books and records as will disclose the amount of MINERALS mined, produced, saved and sold from said land and the total or gross amount of money received for them and the names and addresses of all buyers of said MINERALS. Lessor or their duly authorized agent have full right to examine such sales records at any reasonable time or place.

Fourth To not disturb growing crops more than is absolutely necessary and in the event that crops are damaged to pay the reasonable value thereof. In case of dispute as to value, or in case of dispute as to rights by either party under this agreement, settlement shall be by arbitration. Lessor and Lessee shall each name one arbitrator, and these two shall name a third, and the decision of the majority thereof shall be binding on both parties.

Fifth That if a severance tax or any tax imposed by law upon the removal of MINERALS, be levied, that Lessee shall pay same and save and hold Lessor harmless from the payment of such severance tax or taxes levied upon the removal of MINERALS from the land.

Sixth Lessee agrees to carry on mining operations on said premises in a good and workmanlike manner and in accordance with the laws of the State where land is located and of the national laws pertaining thereto. All mining, processing and beneficiating of MINERALS shall be by any method determined by Lessee to be most advantageous.

Seventh That if mining or processing operations, having once begun, cease for a period longer than six (6) successive months, save and except for shutdowns due to floods, strikes, or other conditions or acts of God, beyond the control of the Lessee, this lease shall terminate, unless the Lessee shall, commencing at the end of six successive months of shutdown, pay rentals at the rate hereinbefore provided.

Eighth Lessee may at any and all times during the term of this lease erect on the premises any and all structures, machinery and equipment deemed necessary or convenient for the prospecting, mining, production and processing of MINERALS of the premises, and at the end of the term hereof, or at any other time, may remove all property placed on the land by the lessee. Should this lease be terminated as herein provided, Lessee agrees to remove all property placed thereon by himself within ninety (90) days after such termination.

Ninth Lessor agrees that Lessee may use water from the premises--excepting such water as may be necessary to Lessor for household purposes or for use by livestock on the premises. Water from the above described land may not only be used in the ordinary process of mining but also for condensation and precipitation of any MINERAL it may contain.

Tenth It is mutually understood and agreed that Lessee may assign his interest herein, in whole or in part.

Eleventh Lessor hereby warrants and agrees to defend the title to the lands herein described.

IN WITNESS WHEREOF, the Lessors have caused this instrument to be executed. All done this 28th day of Feb. 1951.

Frank W. Jones Seal.

Pearl Jones Seal.

Seal.

True copy of original lease.

STATE OF Missouri
County of Lawrence } ss.

Be it remembered, that on this 28th day of Beb. 19 51, before me, the undersigned, a Notary Public in and for said County and State, came Frank W. Jones and Pearl Jones, his wife.

who are personally known to me to be the same person who executed the foregoing instrument, and acknowledged the execution of the same.

IN WITNESS WHEREOF, I hereunto subscribed my name and affixed my Notary seal on the day month and year last above written.

J. K. Jones
Notary Public

My commission expires 6-19-1954

STATE OF _____
County of _____ } ss. On this _____ day of _____ 19__,
before me appeared _____
to me personally known, who, being by me duly sworn, did say that he is the _____ of _____
a Corporation of the State of _____, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation, by authority of its Board of Directors; and said _____ acknowledged said instrument to be the free act and deed of said corporation.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in _____ the day and year first above written

My commission as Notary Public will expire on the _____ day of _____ 19__.

_____ Notary Public

MINING LEASE

FROM

TO

Filed for record this _____ day of _____ A.D. 19__ at ____ o'clock ____ minutes ____ M.

Recorder-

Deputy.

Recorder's Fee - - - - - - - $ _____

STATE OF Missouri
County of Lawrence } ss.

IN THE RECORDER'S OFFICE

I, Harley B. Cox Recorder of Deeds in and for said County, do hereby certify that the within instrument of writing was, on the 19th day of April A.D. 19 51, at 2 o'clock 25 minutes P. M., duly filed for record, and is Recorded in the Records of this office, in Book 219, at Page 141.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal at _____
Mt. Vernon this 19th day of April A.D. 19 51

Harley B. Cox
Katheryn Young Recorder.

_____ Deputy.

Lma-1118X

MINING LEASE

This agreement, made and entered into this 28th day of February 1951 by and between H. O. Batson and Iola Batson, his wife Party of the first part, hereinafter called Lessor (whether one or more) and C. M. Bootman Party of the second part, hereinafter called Lessee.

Witnesseth. That the said Lessor, for and in consideration of One dollars ($1.00), cash in hand paid, receipt of which is hereby acknowledged, and of the covenants and agreements hereinafter contained on the part of the Lessee, to be paid-kept and performed; has granted, demised, leased and let and by these presents does grant, demise, lease and let unto the said Lessee, exclusively, for the sole and only purpose of entering on and prospecting and mining for lead, zinc, copper, silver and/or all other MINERALS or buried treasure, whether or not of the same kind or character or classification as the MINERALS above enumerated; and whether or not metallic or non-metallic. And these MINERALS shall hereinafter be referred to as MINERALS. Lessee shall have the exclusive right and authority of ingress and egress and regress, on the land described herein, for the sole and only purpose of prospecting and mining for MINERALS and for operating on the land for the purpose of screening, washing, condensing, precipitating, dressing or milling such MINERALS as are discovered and recovered. Lessee may erect such buildings as are necessary for these operations--may lay pipe lines (below plowing level) for carrying water or fuel and do such things, on said property as are necessary for the prospecting, mining, recovery, dressing, saving and preparing for market of such MINERALS as are produced; all on that certain tract of land, situated in the County of Lawrence State of Missouri; which is described as follows, to-wit:

North half NW Section 35, Township 28, Range 28, consisting of 80 acres, more or less.

for a period of five years (5) and for so long a period thereafter as MINERALS are produced in commercial quantities from said land by Lessee, his heirs or assigns.

In consideration of the premises the Lessee convenants and agrees:

First To pay to Lessor or duly authorized agent, a royalty of ten (10) per-cent of the total or gross amount of all moneys received for all of the MINERALS mined, produced, saved and sold from said property. Payment to be made on or before the fifteenth (15th) day of each month for all MINERALS mined or produced, saved and sold during the preceeding month.

Second That if prospecting for or mining or processing operations for the production of MINERALS is not commenced and had within six months from the date hereof, Lessee shall pay to Lessor the sum of Eighty dollars ($80) at the place designated for the payment of royalty, and such payment shall extend the date for beginning the prospecting for or mining for MINERALS, for a period of one year from the date of such payment. In like manner and upon like payments the commencement of prospecting or mining or other production methods, may be further deferred for periods of the same number of months, successively. But if no mining or other production method for the production of MINERALS is commenced prior to five years from the date hereof, then this lease shall be absolutely void and of no effect.

All rental royalties shall be considered as advance royalty and shall be credited on and deducted from earned royalty as the same becomes due and payable.

Third Lessee agrees to keep such books and records as will disclose the amount of MINERALS mined, produced, saved and sold from said land and the total or gross amount of money received for them and the names and addresses of all buyers of said MINERALS. Lessor or their duly authorized agent have full right to examine such sales records at any reasonable time or place.

Fourth To not disturb growing crops more than is absolutely necessary and in the event that crops are damaged to pay the reasonable value thereof. In case of dispute as to value, or in case of dispute as to rights by either party under this agreement, settlement shall be by arbitration. Lessor and Lessee shall each name one arbitrator, and these two shall name a third, and the decision of the majority thereof shall be binding on both parties.

Fifth That if a severance tax or any tax imposed by law upon the removal of MINERALS, be levied, that Lessee shall pay same and save and hold Lessor harmless from the payment of such severance tax or taxes levied upon the removal of MINERALS from the land.

Sixth Lessee agrees to carry on mining operations on said premises in a good and workmanlike manner and in accordance with the laws of the State where land is located and of the national laws pertaining thereto. All mining, processing and beneficiating of MINERALS shall be by any method determined by Lessee to be most advantageous.

Seventh That if mining or processing operations, having once begun, cease for a period longer than six (6) successive months, save and except for shutdowns due to floods, strikes, or other conditions or acts of God, beyond the control of the Lessee, this lease shall terminate, unless the Lessee shall, commencing at the end of six successive months of shutdown, pay rentals at the rate hereinbefore provided.

Eighth Lessee may at any and all times during the term of this lease erect on the premises any and all structures, machinery and equipment deemed necessary or convenient for the prospecting, mining, production and processing of MINERALS of the premises, and at the end of the term hereof, or at any other time, may remove all property placed on the land by the lessee. Should this lease be terminated as herein provided, Lessee agrees to remove all property placed thereon by himself within ninety (90) days after such termination.

Ninth Lessor agrees that Lessee may use water from the premises--excepting such water as may be necessary to Lessor for household purposes or for use by livestock on the premises. Water from the above described land may not only be used in the ordinary process of mining but also for condensation and precipitation of any MINERAL it may contain.

Tenth It is mutually understood and agreed that Lessee may assign his interest herein, in whole or in part.

Eleventh Lessor hereby warrants and agrees to defend the title to the lands herein described.

IN WITNESS WHEREOF, the Lessors have caused this instrument to be executed. All done this _____ day of _____ 19__.

H. O. Batson Seal.

Iola Batson Seal.

_____ Seal.

True copy of original lease.

STATE OF Missouri
County of Lawrence } ss.

Be it remembered, that on this 28th day of February 19 51, before me, the undersigned, a Notary Public in and for said County and State, came H. O. Batson and Iola Batson, his wife

who are personally known to me to be the same person who executed the foregoing instrument, and acknowledged the execution of the same.

IN WITNESS WHEREOF, I hereunto subscribed my name and affixed my Notary seal on the day month and year last above written.

J. K. Jones
Notary Public

My commission expires 6-19-1954

STATE OF
County of } ss. On this day of 19 ,
before me appeared
to me personally known, who, being by me duly sworn, did say that he is the
of
a Corporation of the State of , and that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation, by authority of its Board of Directors; and said
acknowledged said instrument to be the free act and deed of said corporation.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in the day and year first above written

My commission as Notary Public will expire on the day of 19 .

Notary Public

MINING LEASE

FROM

TO

Filed for record this day of A.D. 19 at o'clock minutes M.

Recorder-

Deputy.

Recorder's Fee - - - - - - - $

STATE OF Missouri
County of Lawrence } ss.

IN THE RECORDER'S OFFICE

I, Harley B. Cox Recorder of Deeds in and for said County, do hereby certify that the within instrument of writing was, on the 19th day of April A.D. 19 51, at 2 o'clock 20 minutes P.M., duly filed for record, and is Recorded in the Records of this office, in Book 219, at Page 139.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal at
Mt. Vernon this 19th day of April A.D. 19 51

Harley B. Cox
Katherym Young
Recorder.

Deputy.

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-1118X

Date received 5/7/51

Participation

Bootman and Boswell Mining Co.
P. O. Box 104
Lebanon, Missouri

Name and address of applicant

Date April 30, 1951

FILL IN THIS BLOCK

Date of application April 30, 1951

Estimated cost $15,000.00

Mineral or metal Lead & Zinc

Percentage of Government participation 50%

Location of mine Scotts City area

Lawrence County, Mo.

Date of filing MF-100 April 30, 1951

DMA Docket Number, if available Dma-1118X

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?
*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.

Bootman & Boswell Mining Co. (Name of company)

By C M Bortman (Signature of authorized official)

April 30, 1951 (Date)

Manager (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

Form MF-100
(March 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Form approved.
Budget Bureau No. 42-R1026.

GENERAL TECHNICAL DATA
FOR USE UNDER THE
DEFENSE PRODUCTION ACT OF 1950

NOT TO BE FILLED IN BY APPLICANT

Docket No. Oma-1118X

Date received 5/7/51

Bootman & Boswell Mining Co.
P. O. B ox 104
Lebanon, Missouri

Name and address of applicant

Date April 30, 1951

INSTRUCTIONS

This form is to be filed with Defense Minerals Administration, Department of the Interior, Washington 25, D. C. It should be accompanied by appropriate application form when a specific type of Government assistance is requested, in the form of (1) loan, (2) purchase contract, (3) Government guarantee of a private loan, (4) Necessity Certificate pursuant to the provisions of Sec. 124–A (Amortization Deduction) of Internal Revenue Code, 1950, (5) priorities or allocation of mining equipment, and maintenance, repair and operating supplies, and (6) other forms of Government assistance that might arise under the Act. Submit four (4) signed copies of the form and accompanying papers. Name and address should be stamped or typed on each sheet of this form and all accompanying papers. *When a question is inapplicable it should be so stated on the form.* Additional sheets may be attached in answering any questions or in supplying additional information. (IF YOU CANNOT ANSWER A QUESTION, SO STATE.) If a question is answered elsewhere indicate where answered. It is not necessary to answer it again.

GENERAL TECHNICAL DATA

Supply the following information on separate sheets, arranged, numbered, and lettered as indicated:

1. Materials produced:
   (*a*) What are the chief mine, mill, or smelter products?
   (*b*) What are the byproducts, if any?
2. Name(s) and type(s) of mine(s), mill(s), smelter(s), refinery(ies), pit(s), quarry (ies), drilling operation(s). Include old names of property, if any. Show extent of workings, including the following:
   (*a*) Linear feet of shafts.
   (*b*) Linear feet of drifts and crosscuts.
   (*c*) Linear feet of tunnels or adits.
   (*d*) Linear feet of other mine openings (explain briefly).

   Indicate whether mine is flooded or not. Describe any pumping problems. Give size or productive capacity.
3. For each operation listed above supply the following:
   (*a*) Distance and direction from nearest town and shipping point.
   (*b*) Mining district.
   (*c*) Township, Section, Range.
   (*d*) County, State.
4. (*a*) State whether or not property is now in operation, and if in operation, by whom operated.
   (*b*) Are you operating this property as:
   - ☐ Owner.
   - ☐ Lessee.
   - ☐ Contractor.
5. Number of years in production _____

   If not in production or operation, estimated date when production will begin _____
6. Experience of operators:

   Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who manage the project.
7. History:
   (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for suspension of operation.
   (*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.

8. Names and addresses of Officers, Directors, or Partners, and in addition thereto, the five largest stockholders if applicant is a corporation.

Name and Address (a)	Official Title (If officer is also director indicate by "D") (b)	Total of Annual Salary, Commissions, Bonuses, Etc., Received From Applicant and Affiliates During Last Fiscal Year (c)	Estimated Net Worth Outside of Interest in Applicant (d)	Number of Shares Held in Applicant Corporation: Common (e)	Number of Shares Held in Applicant Corporation: Preferred (f)	Life Insurance Carried for Benefit of Applicant: Amount (g)	Life Insurance Carried for Benefit of Applicant: Net Cash Surrender Value After Loans (h)
C. M. Bootman 4933 Chippewa, St. Louis	Manager	$75 wk. & exp.	$8,000.00	partnership		50%	
James E. Boswell Lebanon, Missouri	Sec.-Treas.	none	$500,000 app.			50%	
	Total		x x x x x			x x x x x	x x x x x

If more lines are needed continue on separate sheet.

9. Capital Stock Issues:

For Corporate Applicants

Item	Authorized (a)	Outstanding (b)	Par Value (c)	Number of Shares Outstanding (d)	Dividend Rate Last Paid* (e)
Common stock	Not incorporated	$	$		
Preferred stock	$	$	$		

*Indicate period covered.

10. Production:

Item	Kind of Product (a)	1948 Total (b)	1949 Total (c)	1950 Total (d)	Present Average Monthly (e)
1. Quantity of product mined or quarried (Short, long, metric tons; barrels; pounds; etc.)	In exploratory stage only				
2. Quantity of product processed (specify unit of measure and type of process)					
3. Quantity and grade of product sold or shipped (specify units of measure)					

11. Do you contemplate a change in the present average monthly rate of production? If so, state estimated maximum monthly production and basis of change.

12. Ore or Mineral Reserves:

(a) Describe the ore or mineral deposit briefly. Accompany the application by any available report on the geology and ore reserves.

Form MF*100
(March 1951)

U. S. Department of the Interior
Defense Minerals Administration

GENERAL TECHNICAL DATA

FOR USE UNDER THE

DEFENSE PRODUCTION ACT OF 1950

Bootman & Boswell
P. O. Box 104
Lebanon, Missouri

Date----April 30, 1951

In submitting our report for a government subsidy loan, we are disregarding answering questions on form MF-103 as per the enclosed instructions, and instead are trying to give you complete answers relating to form MF-100.

GENERAL TECHNICAL DATA

1. Materials produced:
   (a) Our exploration will cover principally lead & zinc ores.
   (b) No byproducts.
2. Doing exploration work only at present. This area is situated in the Scotts City mining district and is located in the western part of Lawrence County, Missouri, just a few hundred feet west of Scotts City proper and running both north and south from the city limits. This district is known geogically as the Spring River Watershed, and is in the northeast District of the Joplin or Tri-State Lead and Zinc Belt, in which the same Spring River Watershed continues.

   Enclosed is a photostat map of the mining district of the Scotts City area. In the past there were altogether 10 good producing mines that produced an estimated $10,000,000.00 worth of ore. During the last war the government drilled south of this area looking for more prospects, but none was found. I have since found out the ore runs north from this old district instead of south. There are two runs of ore in this area, one running at eleven o'clock and the other at two O'clock.

   The enclosed strip map, marked Exhibit B, lists the names of most of the better mines of the Scotts City area, and also shows a few new locations to be prospected out.
   (a) Does not apply.
   (b) " " "
   (c) " " "
   (d) " " "
3. (a) The nearest shipping point by rail is about 1½ miles. The block of leases we hold lays against paved highway #97, which forms a junction with #166 to Duenweg, where the nearest mill is located, which is approximately 38 miles away.
   (b) The Scotts City mining district is considered as part of the Joplin Ore Tri-State Mining area.
   (c) The majority of leases in this block are in Section 26, Township 28, Range 28. I have practically the entire of Section 26 leased up, except for the Steel lease, which you can locate on the plot map enclosed as Exhibit A.

I will also have the Steele lease in the next few days, which will give me all of Section 26, excepting 20 acres in the south-east corner, which is of no value, and also 80 acres in Section 35, and 120 acres in Section 27. The plot map is correct exdepting for the location of the F. Weihe property, which is in Section 27, instead of Section 22.

(d) All leases situated in Lawrence County, Missouri

4. (a) The property is not now in operation. The old mines in this district have not operated for several years, due to running out of ore.

(b) Property will be operated as lessee.

5. Property not at present in production. Our block of leases lays mostly north of the old mining property where we expect to locate new bodies of ore.

6. I have had several years experience in both mining and oil drilling. I own my own geo-physical equipment, and will do my own field survey work before drilling is commenced. I use the Fisher Inductive Method of geoexploration, which has a depth range of approximately 450 feet. However, there is no ore in this district below the Reed Springs limestone, which is never more than 225 feet deep. If my method of geo-survey is not too successful in this none conductive zinc field, I expect to have Dr. Leroy Sharon of Washington University to use his Gish-Rooney Resitivity outfit in this area before drilling is started.

7. (a) The mines in the Scotts City area were discovered some 55 or 60 years ago, and some of them have been mined up until 8 or 10 years ago. Everybody there seemed to think the mining district would work south and much drilling and exploration work has been done south of this district with no new ore bodies found. Many of these old mines were mined out, while others were defeated by excess water, which would be no problem today with the modern pumps.

(b) The ten principal mines in this district that were the good producers in the past were the Small Hope, The Keystone, The Three C, The Spring River, The Mt. Vernon, The Illinois, The B oston Loy, and The Julia West. These mines combined produced a total of approximately $10,000,000.00 in ores.

(c) Please refer to strip map, Exhibit B, and note the little circle about 100 feet north by east of the Illinois mine. This circle represents a hole drilled by Mr. Ed Fieker about 28 years ago, and the cutting showed a vein of practically solid zinc 30 feet deep, and running about 65% in quality. This body of ore was imbedded in limestone and chert about 90 feet deep. This vein of ore is supposed to run at a two O'clock angle, and has never been mined. Fieker buried the cuttings and never told anyone about this discovery until he told me. The reason it has never been mined Fieker was unable to obtain a lease just a few feet east of where the drill hole was located.

The way I got interested in this property originally was through a friend of mine who drilled test holes for the lead companies in the Tri-State area most of his life. This gave him a wide acquaintance with a great number of miners in the Tri-State district.

About 25 years ago a good friend of his, Sam Abbott by name told him if he could ever lease the Sam Jones property which was only about 150 feet from the shaft of the Julia West mine on the Fieker land, he would have his fortune made.

Abbott told Wallace there was a vein of free lead and sheet zinc that ran about 2 o'clock angle under Jones ground that was 12 to 15 feet wide and 14 feet deep. The ore was about 90 feet down. He said he worked for the company that sunk the shaft and located the Julia West mine and saw the ore himself. The mine owners tried to lease Jones' land and he wouldn't lease so they offered him a large price but he wouldn't sell. They would not let Jones in the mine so he was going to get a court order to see where they were working, and the mine owners quit and closed the shaft by filling it with dirt and dynamiting it in.

Findings of my investigation:

Roy Wallace being an old friend of mine told me the story a few months ago. He said he was not able to do anything, and inasmuch as lead and zinc is vitally needed now, he would let me in on it if I would give him a small share of stock.

I have made two trips of several days duration each first checking the story and past history and securing leases.

Sam Jones had died about 10 years ago but his son Ross Jones who is about 45 now, but was a small boy when the Julia West was discovered inherited the property. He told me the same story that the miner told Wallace, and he said his father told him never to sell the place because there was lead on it. Ross Jones told me about 20 years ago Dr. Beuhler, Head of the Missouri Geoditic Survey said there was good possibilities for 2 offset break ore runs on the west side and 3 on the east side of the Julia West.

The test drill hole about 3 feet from Jones' ground on the Fieker land further verifies my findings.

I have found further evidence on the F. Jones property where another hole was drilled and evidently a good body of zinc ore was found, as a shaft was started immediately thereafter. Said shaft was only sunk about 12 feet deep when the miner died and no further investigation has ever been made.

Summing this area up I have what I believe to be a very good district for further exploration inasmuch as the geologic surveys made in the past were good and the extremely high quality of zinc ore which runs from 63 to 65% average is considered the best grade zinc ever located in the state of Missouri. The Galena found on top of the zinc beds is also of a good quality. Most of the mines in this district have been principally producers of zinc, excepting the Julia West which is the furthermost mine north. This mine produced almost 1/3 Galena. As mentioned before there are two runs of ore in this area and I have been unable to locate any mining that has been done on the 2 O'clock runs.

T herefore I believe with a proper geo-physical survey there is good possibilities to locate new runs in the old mining district, but I expect to find the best possibilities in the area north of the Julia West.

8. See MF-100.

9. " "

10. " "

11. Does not apply.

12. " " " . In exploratory stage.

13. The entire area leased in the Scotts City block is bounded on the east by Missouri State Highway #97, which is black-top pavement. A mile and a half north on this road intersects the Missouri-Pacific Railroad, and two miles south intersects U. S. Highway #166, which is of concrete variety. As I stated before it is only 38 miles by highway to the nearest mill and smelter. However, I think the ores we will locate in this block will be more than sufficient to advocate the erecting of at least a hundred-ton mill.

14. The water supply in the Scotts City area is more than adequate, for all seasons of the year. The city of Scotts City could supply all water needed, however the water to be pumped during mining operations would adequately take care of all normal mining processing. The water is typical high grade sweet water in the Ozarks area.

15. Either electric or diesel power could be used in the Scotts City mining area. There is a power line that runs along the east side of the entire block of leases on Highway #97. Electric current can be had for power rates as low as 1.25 cents per kilowatt hour.

16. The labor situation will be favorable for opening up mines in the above mentioned area. I have made an extensive survey of the entire Scotts City district and find it will be no trouble to obtain all the experienced miners and millmen that will ever be needed.

17. No equipment. In exploratory stage.

18. There are no particular conditions or circumstances affecting the operations that are not described above.

(*b*) If deposit is other than placer:

(1) Submit assay plans and/or sections showing location and size of proved (measured) and probable (indicated) ore or mineral reserve.

(2) State the tonnage (indicate type of ton) and grade of each class of ore reserve, as above, and show how computed. Tabulated total ore reserve as follows:

TOTAL ORE OR MINERAL RESERVES

Ore or Mineral Reserve	Estimated Tons (a)	Metal or Mineral Content Per Ton (Grade) (b)	Gross Value Per Ton (c)	Recoverable Unit Value Per Ton (d)	Estimated Cost of Production Per Ton (e)
Measured (proved)					
Indicated (probable)					

(*c*) If placer:

(1) Give estimated total yardage and average marketable mineral content of each deposit.

(2) Submit map showing location of placer deposit and surrounding area, with all test holes or pits. Submit logs of each hole and test pit with depth and average value of each.

(3) Describe gravel, stating whether fine, medium or coarse; loose, tight, cemented, or frozen, and whether it contains stumps or boulders more than 1 foot in diameter; if so, how large, and in what proportion.

(4) Describe bedrock, giving type (granite, sandstone, shale, etc.) and state whether it is hard or soft, smooth, uneven or rough.

(5) Describe overburden, stating whether loose, tight, or cemented; fine or coarse textured; furnish estimate of average thickness and total amount.

(6) Tabulate the reserves using the form outlined above for ore or mineral reserves.

13. Access Roads:

Give road distances to shipping, supply and residence points, stating kind and condition of roads.

14. Water Supply:

State source and quantity of water available for operations and whether sufficient for all seasons of year.

15. Power:

State amount of power used, rate per hour, and source thereof.

16. Labor:

State number and classes (miners, muckers, millmen, etc.) of men employed during a recent representative payroll period.

17. Equipment and Facilities:

Describe present equipment on the property, including buildings. (State condition.) List major pieces of equipment now owned or controlled and in serviceable condition available for this operation.

18. Are there any particular conditions or circumstances affecting your operations that are not described above? If so, explain.

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.

Bootman & Boswell
(Name of company)

By C M Bootman
(Signature of authorized official)

April 30, 1951
(Date)

Manager
(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.

U. S. GOVERNMENT PRINTING OFFICE 16—63792-1

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
Defense Minerals Administration

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

Bootman & Boswell Mining Co.
P. O. Box 104
Lebanon, Missouri

date April 30, 1951

In answering questions on form MF-103, we have deleted all questions with the asterisk in front of them, as per your instructions. You will find these questions fully answered attached to from MF-100.

6. I am not an owner, but as lessee I have had Mr. Hugh Johnson abstractorlocated at Mt. Vernon in Lawrence County, Missouri check all the titles and leases I hold in this block that will be exploited for lead and zinc metals. The abstract company certified all titles and leases to be in good order.

7. Please find copies of all leases attached to the original copy of form MF-100. All leases are in good standing. There is no claimants, lienors, or encumbrances against any of the leased property described in the copies of leases attached to original MF-100.

8. Inasmuch as this is exploratory work only we have no financial statement to make as we are just starting this mining company.

9. We are prepared to invest $7,500.00 in the proposed exploration work on the enclosed described leases.
This together with the 50% government loan will be sufficient to do the full exploration project as detailed in question 23 of this application form in accordance with the regulations of government participation (Section 9 of Mineral Order 5). The $7,500.00 will be fully sufficient to pay our part of the cost of the project.

10. (a) The property to be prospected on for lead and zinc minerals lays due west and north of the city limits of Scotts City, Missouri, which lays in the Spring River Watershed and is in the east belt of the Joplin or Tri-State mining area. The principal properties that will be explored in this area lay in Section 26, Township 28, Range 28. However there are adjoining properties in both Section 27 and 35. The total acreage we now hold in this block totals 855 acres, however there is one more lease that is 100 acres which will be delivered us soon and will give us the entire Section 26, exception 20 acres on the south end which is of no value. Please refer to plot map marked exhibit A attached to original of form MF-100. The Illinois mine, which was one of the old big producers, was on the Gehrhart 20 acres. The Boston Loy and Julia West mines were located on the Fieker farm. There was also a hole drilled and shaft started on the F. Jones farm, but the miner died before the shaft was completed.

10. (b) The legal descriptions of the properties in this block of leases are as follows:

Paul Fieker, a single man
All of the north 15 acres of the SW¼ of the SW¼ and all of the N½ of the SW¼ and all of the W½ of the SE¼ and all of the E½ of the SE¼ of the NW¼ and all of the South 10 acres of the SW¼ of the NW¼ all in Section 26, Township 28, Range 28. And also beginning 16 Rods North of the Southwest corner of the N½ of the NE¼ of Section 35, Township 28, Range 28, thence East 8 rods, thence Northeasterly to a point 11 Rods 23½ Links West of the Northeast corner of aforesaid N½ of the NE¼, thence West to the Northwest corner of the N½, of the NE¼, thence South to the point of beginning, consisting of 223 acres, more or less.

Ross Jones, a single man
South Half of South East of North East Section 26, Township 28, Range 28, and the North East of South East Section 26, Township 28, Range 28, consisting of a total of 60 acres, more or less.

Emery Hill and Kittybell Hill
The South Twenty five acres of the Southwest Quarter of the Southwest Quarter and the Southeast Quarter of the Southwest Quarter of Section 26, Township 28, Range 28, and containing 65 acres, more or less.

Fred L. Weihe and Erna E. Weihe, his wife
The E½ of the NE¼ (Except 2½ acres in the Southeast corner thereof) and also the NW¼ of the NE¼ of Section 27, Township 28, Range 28, consisting of 120 acres, more or less.

Fred L. Weihe and Erna E. Weihe, his wife
The North 7/8 of the W½ of the NW¼ and the W½ of the SE¼ of the NW¼ of Section 26, Township 28, Range 28 consisting of 207 acres, more or less.

D. H. Gerhardt and Lela Gerhardt, his wife
The North one-half of the SE¼ of the SE¼ of Section 26, Township 28, Range 28, consisting of 20 acres, more or less.

H. O. Batson and Iola Batson his wife
North half NW Section 35, Township 28, Range 28, consisting of 80 acres, more or less.

Frank W. Jones and Pearl Jones, his wife
NW¼ of the NE¼ of the NW¼ of Section 26, Township 28, Range 28, containing 80 acres, more or less.

15. Any ore developed and later mined in this area could be shipped either by Missouri Pacific Railroad, which is only 1½ Miles due north on paved highway 97. It could also be shipped by truck to Duenweg Missouri at which place a large custom mill operates. The distance from this mine site to Duenweg is about 38 miles all on paved highway.

19. The questions answered on form MF-103 and MF-100 are sufficiently answered to cover this form.

20. The explorations will be conducted in this area for lead and zinc. The minerals and ores in this district lay in the form of veins, the lead laying on top of the zinc. Most of the old mines in this district produced considerably more zinc than lead, but the Julia West mine which lays furtherest north produced about 1/3 lead to 2/3 zinc.

21. The proposed work of e#xploration only will be completed in about 90 days. First will be a geo-physical survey which will be completed in about 3 weeks. As soon as the good prospective area is located we will start drilling, and if the drill hole shows good prospects we will start another drill rig following up the vein of ore. In other words we will be doing geo-physical survey work and drilling both at the same time to hasten exploration in this field.

22. Enclosed attached to form MF-100 is photostat map, showing the old mines and workings in the Scotts City mining area. I have also outlined on this map proposed new prospective areas for further finds of lead and zinc minerals. The new areas to be exploited are partly from the files of Dr. Buehler, former state geologist of Missouri, and now deceased. I am also enclosing a U.S.G.S. topographical map of this area, showing the locations of the old mines and red lines indicating the areas of the leases we hold in this block. I also know of another drill hole that was made back in 1940 about 3/4 mile east of the Julia West mine and evidently a good vein of ore was struck because a shaft was started, but was only sunk about about12 feet deep when the miner died, and it has never been investigated since.

The ores in this district lay in two veins, running approximately 11 o'clock and 2 o'clock, and are found in both the Jefferson City and Reed Springs limestones. The ores lay at a depth of an average of 90 feet to a maximum of 225 feet deep. The bottom of the Reed Springs lime lays approximately at the 225 foot depth, and no ores or minerals have ever been found below the Reed Springs. Therefore the drilling would not have to be over 225 feet deep at any time to give full exploration to the area drilled.

The lead in this district that has been mined in the past is of a good grade variety of Galena. The zinc found in this same district is of Spahrlite or Rosin Jack and has an average of 64 to 65% zinc, which is an unusually high grade of ore for which a bonus is paid on ores running over 60% at the mill.

23. (a) Labor: two men clearing brush in front of geo-physical survey crews @ $1.00 hr. Total weekly wage--$40.00 per man Total time --- 30 days $ 320.00

(b) Supervisor 1: $75.00 week, plus $25.00 week expense account. For 90 days 1200.00

Salary for geo-physical crew: $100.00 day Total of 15 days 1500.00

Drilling: 30 holes to a depth of 225 ft. each at $1.75 a foot 11812.50

Incidentals 167.50

$ 15000.00

(c) Does not apply. Exploration work only

(d) " " "

(e) " " "

(f) " " "

(g) " " "

(h) " " "

(i) " " "

24. We are starting advanced exploratory operations May 1, 1951. We realize this is in advance of the Defense Minerals Administration approving this project, however, we feel that we will be able to locate some good ore bodies in the above desdribed field and due to the emergency existing for strategic minerals at this time, we feel justified in going ahead with our project. As stated in question #23 we expedt to complete the exploratory work within 3 months which would be completion date of about August 1, 1951. We sincerely hope this project will be approved by the Defense Minerals Administration, as our investigation causes us to believe there are good possibilities of a good lead and zinc field being discovered north of the old Scotts City lead and zinc district.

GEOPHYSICAL EXPLORATION

in

VICINITY OF STOTTS CITY, MISSOURI.

H. LeRoy Scharon
Consulting Geophysicist

May 15, 1951

567 Brookhaven court
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GEOPHYSICAL EXPLORATION IN VICINITY OF STOTTS CITY, MISSOURI
SUPPLEMENT NUMBER I.

INTRODUCTION

Field work in the form of electrical resistivity horizontal profiling using Gish-Rooney type field equipment and the Wenner electrode configuration was carried on in the Stotts City area, Lawrence County, Missouri from May 23 to 26 inclusive, 1951. This work supplements that data reported on in a report carrying the same title but dated May 15, 1951.

SUMMARY

A summary of the field work carried out in this new interim is found in Table I-a, where the traverse number, location, direction measured, length and constant depth interval measured are tabulated.

CONCLUSIONS

These additional data outlined areas similar to those in the original field work. These area are considered worthy of further testing, especially by drilling.

RECOMMENDATIONS

On the basis of the electrical resistivity results obtained in the entire area, it is recommended that drilling be carried on where indicated on Figure 3-a. These drill locations are tabulated in Table II.

DISCUSSION OF RESULTS

Most of the measured profiles are plotted and appear as horizontal resistivity profiles in Figures 2-a-1, 2-a-2, 2-a-3, 2-b, 2-c and 2-d. All data observed in the field is attached as part of the general report.

The profiles in the 2-a figure series, include results over traverses 14 through 19. These results do not indicate favorable zones for test drilling. Data for traverses 23 through 25 have not been plotted. The remaining profiles are confined to areas B, C and D as shown on Figure 3-A.

AREA A

A discussion of Area A appears in the original report. It was recommended however that additional measurements be made in this area. These observations were carried out during the recent field work. Five (5) drill

TABLE I-a SUMMARY OF FIELD DATA

TRAVERSE	LOCATION AND DIRECTION		LENGTH	"a"
11	150' N of No. 4	N-S	300S - 160N	150
12	250' N of No. 4	N-S	180S - 150N	140
13	200' N of No. 4	N-S	150S - 150N	140
14	206' S35°E of No.10	E-W	600W - 600E	150
15	200' S40oE of No.14	E-W	600W - 480E	150
4a	40' N of No. 4	E-W	210W - 300E	150, 90
16	287' S45E of No.15	E-W	600W - 0	150
17	407' S35E of No.16	E-W	615W - 225W	150
18	285' S35E of No.17	E-W	225W - 815W	150
19	300' S35E of No.18	E-W	600W - 600E	150
20	274' S35E of No.19	E-W	600W - 600E	150
21	285' S35E of No.20	E-W	600W - 600E	150
22	286' S40E of No.21	W-E	570W - 600E	150
23	37.5' north of road	E-W	600W - 600E	150
24	200' north of No.23	E-W	600W - 600E	150
25	200' north of No.24	E-W	600W - 600E	150
26	Test traverse			
27	70'N - 6458E Julia West shaft	E-W	600W - 540E	150
28	210'W-200'N of No.27	E-W	600W - 600E	150
29	200'N of No.28	E-W	600W - 600E	150
30	200'N of No.29	E-W	525W - 360E	150
31	200' N of No.30	W-E	405W - 405E	150

TABLE II* DRILL LOCATIONS

DRILL HOLE NUMBER	LOCATION
1	75'W on Traverse 4
2	70'E on Traverse 4
3	70'W on Traverse 3
4	60'E on Traverse 3
5	75'W on Traverse 7
7	70'N on Traverse 11
8	50'S on Traverse 11
9	50'S on Traverse 13
10	150'S on Traverse 11
11	210'S on Traverse 11
12	175'E on Traverse 20
13	250'E on Traverse 21
14	250'E on Traverse 22
15	85'E on Traverse 31
16	75'W on Traverse 30
17	75'E on Traverse 30
18	80'W on Traverse 29
19	60'E on Traverse 29

holes were recommended in the area.

Area B

Detailed measurements were made along three north south traverse with Traverse no.4 serving as the zero position. Some rather strong anomalies are indicated as shown in Figure 2-b. On the basis of the anomalies as shown five (5) drill holes (7-11) have been recommended.

This area is represented by extremely high and low apparent resistivities. They suggest highly broken ground which in some cases may be bearers of mineralized subsurface waters or possibly sinc and/or galena mineralization.

The general anomalous area may be too small in extent to be considered of economic importance.

Area C

This anomalous area is in the vicinity of the Julia West shaft (Figure 3-A) and has been tested by traverses 27 through 31. The horizontal resistivity profiles, measured at a depth of 150 feet, are shown in Figure 2-c. Rather large electrical resistivity anomalies have been measured. They suggest a limited amount of test drilling. Again 5(five) holes (15-19) have been recommended. Their locations are shown the figure 3-A.

It is not certain just what influence, if any, the old workings around the Julia West shaft have had on producing the anomalies observed.

Area D.

Of the various traverses measured between Area A and C only three (20,21, and 22) give anomalies that are suggestive. These may be tested. The electrical profiles suggest three possible test holes and are shown located on Figure 3-A.

May 29, 1951

LeRoy Scharon
Geophysicist

GEOPHYSICAL EXPLORATION IN VICINITY OF STOTTS CITY, MISSOURI.

INTRODUCTION

The area in which the electrical resistivity geophysical method of exploration was carried on is located in Section 26, T28N, R28W in Lawrence County, southwest Missouri (Figure 1). The nearest town is Stotts City. Considerable land and zinc have been mined from the general area.

The geophysical investigations were made for the purpose of exploring and outlining favorable zones in the form of fissures or broken ground for the possible occurrences of galena and/or sphalerite mineralization. Such metal occurrences have been explored and mined in the past in the general vicinity of the present operations.

Electrical resistivity horizontal profiling was carried on in the field using the Wenner electrode configuration observing apparent resistivities at constant depths of 100,140 and 180 feet. Such profiling readily outlines anomalous zones, such as fissure veins, cavernous conditions and sink hole area, in the bedrock that may exist in the sphere of measurement. These mapped areas become the loci for exploratory drilling.

SUMMARY AND CONCLUSIONS

In a period of three days, May 11, 12 and 13, 1951, ten (10) traverses were occupied and measured at 10 foot intervals by the electrical resistivity method to various depths.

It is concluded that the method can be used to advantage in outlining zones that reflect broken ground or fissure veins in which galena and/or sphalerite may be present. The actual presence of these minerals can only be determined by the drilling of the mapped electrical anomalies.

RECOMMENDATIONS

On the basis of the electrical results obtained over the ten traverses it is recommended that drilling be confined to traverse 4,3 and 7 as shown on the plan map, Figure 3.

It is further recommended that intermediate traverses be observed between 4, 3 and 7 to ascertain further details of the anomalous area and to outline more detailed drilling.

A final recommendation is that this type of field exploration continue southward to the original mine shafts located in section 26.

GEOLOGY

Prevailing formations in the area are Palezoic in age and have been mapped as Mississippian. A generalized column of the area is as follows:

Age	Group	Formation	Thickness
Quaternary		Alluvium	0 - 30'
Mississippian	Osage	Warsaw	100'
		Short Creek	2 - 4'
		Keokuk	100'
		Grand Falls	20 - 60'
		Reed Springs	90'
	Kinderhook	Chouteau	35'

Bedrock in the area is the Osage group with the Reed Springs (host rock for mineralization) at a reported depth of 90 feet. All the Mississippian rocks are limestones which are relatively flat lying showing in part effects of solution activity.

Residual ores in the form of galena and sphalerite appear with the material filling old fissure "veins" and other openings in the limestones. These fissures have trends about west of north or, in the words of the local inhatitants show "11:00 oclock runs". These runs may be several hundred feet in length, varing in width from 25 to 50 feet and in depth from 150 to 200 feet.

In the immediate area several shafts have been sunk(see figurel). These shafts lie along a trend of about N 30°W. Comsiderable ore has been reported as mined from these old workings.

GEOPHYSICS

FIELD WORK

The electrical resistivity method of geophysical exploration using the Wenner electrode configuration was employed. The spacing of the electrodes were held constant and moved along the traverses with the apparent resistivity determined at intervals of 10 feet for the various constant depths measured. For a summary of the traverses, showing their direction and location, distance measured and constant measured depths see Table 1 on page 4.

RESULTS

After computing the apparent resistivities they have been presented as a series of profiles where the resistivities for the various depths measured have been plotted as a function of distance along each individual traverse. Data for traverses 3 through 10 are presented in Figure 2. The results for traverses 1 and 2 are not presented as part of this report.

From the standpoint of further exploration, specifically by drilling, traverses 6, 5, 9 and lo have no positive significance. Observation of the results over these traverses (Figure 2) show a fairly constant apparent resistivity at the various depths observed. Such results do not indicate the presence of openings in the form of fissure veins or broken ground in which mineralization may occur. There are rises in the apparent resistivities to the east on traverses 9 and 10 but it is believed that such rises do not indicate fissure veins or other forms of openings in the prevailing rocks.

Of major interest and of direct bearing on a plan of drilling are the results obtained over Traverses 4, 3 and 7. As May

be seen in Figure 2, they exhibit rather strong electrical anomalies which are interpreted as refelcting fissure veins or other forms of openings that may be filled with

TABLE I - SUMMARY OF FIELD DATA

TRAVERSE	LOCATION AND DIRECTION	LENGTH	"a"
1	279' N15°E of Julia west shaft; EW	50W - 280E	100'
1-a	279' N15°E of Julia west shaft; S45°E	0 - 500'	100'
2	200' N15°E of Number 1; EW	50E - 270W 480E - 250W	100 180
3	100' South of Number 4; EW	300W - 300E 70E - 300W	100 140
4	100' North of Number 3; EW	300E - 300W	140
5	100' North of Number 4; EW	200E - 200W 200W - 350E	140 100
6	70' North of Number 5; EW	0 - 500E	140
7	112' South of Number 3; EW	200E - 200W	100, 140
8	90' South of Number 7; EW	300W - 280E	140
9	110' South of Number 8; EW	300W - 300E	100,140,180
10	300' S45°E of Number 9; EW	300W - 300E	100,140

high resistant materials with the exception of traverse 4 where, at 75 feet west a resistivity low is shown suggesting a highly conductive material.

It is on the basis of these anomalies that specific drilling locations have been chosen and recommended for further exploration. On traverse 4, two sites have been picked; 75 feet west and 70 feet east. These two anomalies which have controlled the drilling sites suggest possibly two parallel veins. On traverse 3 a drill location has been picked at 70 feet west with another possibility at 60 feet east (this latter hole should be drilled only after electrical data has been extended durther east on this traverse at a constant depth of 140 feet). Traverse 7 suggests a drill location at 75 feet west. These drill locations are shown on a plan may, Figure 3.

May 15, 1951.

LeRoy Scharon
Geophysicist. (signed)
(Seal)

Geophysics on the Pennsylvania Turnpike

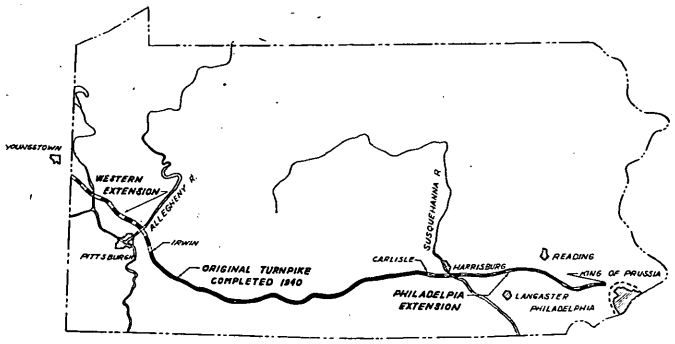

Fig. 1—Pennsylvania Turnpike system, Pennsylvania.

by H. LeRoy Scharon and A. B. Cleaves

The electrical resistivity method was utilized at 245 road cuts and structure sites over the 166 miles of the Philadelphia and Western Extensions of the Pennsylvania Turnpike System. Varying geologic structures and rock types afforded an excellent academic study of the method as well as a practical application to modern highway engineering.

THE application of geophysical techniques in the engineering surveys of the Philadelphia and Western Extensions of the Pennsylvania Turnpike System is unique inasmuch as this is the first time, (to the authors' knowledge), that such studies have been employed on a large scale on a major highway system.

These investigations were confined to specific areas along the center line of the proposed Philadelphia Extension between Carlisle and King of Prussia, and the Western Extension between Irwin and the State line near Youngstown, Ohio, as shown in Fig. 1.

Along the 100 miles of the Philadelphia Extension, the geophysical surveys were confined to 137 individual cuts and comprised a total length of 37.4 miles of line. The Western Extension, 66 miles in length, has 108 individual cuts. The accumulated length covered by electrical resistivity studies was 17.3 miles. The depth of the cuts varied from a minimum of 10 ft to a maximum of 62 ft.

The geophysical investigations were made for the purpose of determining depths to bedrock in the 245 proposed cuts and at the sites of various structures. The data also served as a basis for geological interpretations of the condition of bedrock, contact zones, rock types, water table, and other factors significant in highway construction.

The geophysical method of investigation employed the use of the electrical resistivity principle using the Gish-Rooney type electrical resistivity meter and the Wenner electrode configuration.* Apparent resistivities were determined for constant intervals to various depths and were correlated with surface geological observations and subsurface geological conditions revealed by key diamond drill holes situated within a given cut interval. From these correlations, depths to bedrock were postulated with notations on other geological features that might be pertinent to modern highway construction.

Geology

The bedrock underlying the areas of the extensions of the Turnpike afford an excellent academic study of the electrical resistivity depth method as well as a practical application to modern highway engineering.

The rocks encountered on the Philadelphia Extension vary in age from pre-Cambrian to Triassic and Quaternary, whereas in the Western Extension, bedrock is confined to relatively flat-lying strata in the Allegheny, Conemaugh, and Monongahela formations of the Upper Paleozoic, Pennsylvanian. Glacial and Recent stream, valley, and terrace deposits are common.

Philadelphia Extension

The oldest bedrock encountered in this extension are igneous and metamorphic. These, encountered chiefly in Chester County, consist of the strongly

* F. Wenner, A Method of Measuring Earth Resistivity. U. S. Bureau of Standards *Scientific Paper* 258 (1915).

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contorted, banded Pickering gneiss which is in part graphitic and is locally injected by granite, quartz monzonite, diorite, gabbro and serpentine. Inclusions of the Franklin limestone are present. In general, the regolith is well developed over these rocks and swampy ground conditions are present in the area underlain by them.

The CambrianChickies quartzite is a ridge builder in this area. Along the Susquehanna River, downstream from Middletown, this very resistant rock stands as a cliff. However, in other areas, the cementing material between the individual sand grains has been removed by deep weathering. Consequently, although the topographic expression of a resistant ridge-building rock remains, solid rock in the true sense is lacking.

Cambrian and Ordovician limestones occur in Berks and Chester County near the eastern end of the extension and in Cumberland County near Middlesex. These limestones are strongly folded and fractured. Individual strata in the limestones vary greatly in solubility so that in a sequence of nearly vertical beds one stratum may crop at the surface of the ground whereas an adjacent stratum may be buried 30 or 40 ft in its own residium. Sinkholes in these strata are common and usually follow beds of high solubility.

Ordovician shales, Martinsburg in Cumberland County, and Cocalico in Lancaster County, show as brownish weathered, thin-bedded and strongly fractured and folded beds with a thin cover.

The most abundant rock throughout the Philadelphia Extension belong in the Triassic and consist of red clay-shales and interbedded, poorly cemented and arkosic-like sandstones and fine-grained conglomerates.

Diabasic sills in the Triassic vary considerably in grain size, and weathering characteristics: Diabase may outcrop in one spot and be weathered to great depths a few feet away. Where deeply weathered, the diabase may be said to be a relic soil. Where the sills are multiple and vary in grain size, one part of the sill may have a high moisture content and that part immediately adjacent may have a low moisture content. Commonly, within these relic soils unreduced remnants may remain as reasonably fresh rock.

Occasionally, along the northern boundary of the Triassic red sediments, faults between the Triassic and Paleozoic (Cambro-Ordovician) rock are encountered. Some have extensive development of gouge whereas others do not. The fault contacts were never observed in exposed sections but were drilled through on several occasions.

Western Extension

The rock strata in the area of this extension are of Pennsylvanian age and are relatively flat-lying. Except in glacial areas and along major stream courses the overburden is thin. The strata consist chiefly of micaceous sandstones, argillaceous sandstones, arenaceous shales, clay-shales, thin limestones, clays and coal beds. It is common to encounter firm sandstone layers underlain by clay-shales so weathered as to be essentially clays. In many sections the strata overlying mined-out areas have suffered subsidence with consequent fracturing and other disturbances.

Glacial outwash, terrace gravels, and recent sands occur along the margins of the Allegheny and Beaver Rivers and choke the valleys west of the Beaver River. The Allegheny River valley is filled with silt, sand and gravels up to 80 ft thick. On one island in the river on the proposed centerline, 66 ft of sands, gravels, silts and clays rest on a shale bedrock.

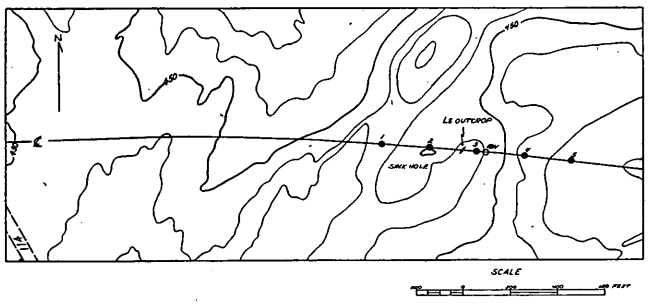
Examples of the application of the electrical resistivity measurements under these varying geological conditions consist of three on the Philadelphia extension and two on the Western Extension. These are: 1—Ordovician limestones, 2—Upper Triassic shales and sandstones, 3—Upper Triassic igneous rocks, 4—Pennsylvanian sandstones and shales, and 5—recent gravels and Pennsylvanian shale.

Geophysics

The Gish-Rooney type electrical resistivity meter and the Wenner configuration of electrode spacings were used in the determination of apparent resistivities to various depths at the sites of 245 proposed cuts and structures.

In the proposed cuts a total of 2347 separate station centers were located at intervals of 100 or 200 ft along the centerline and measured to depths varying from 18 to 180 ft. The measuring intervals varied from 1½ to 3 to 6 ft. The accuracy of interpretation is a function of the measuring interval. As nearly as possible, the line of electrode configuration was parallel to the centerline.

It is impracticable to discuss the results in all of the cuts; therefore, selected examples have been



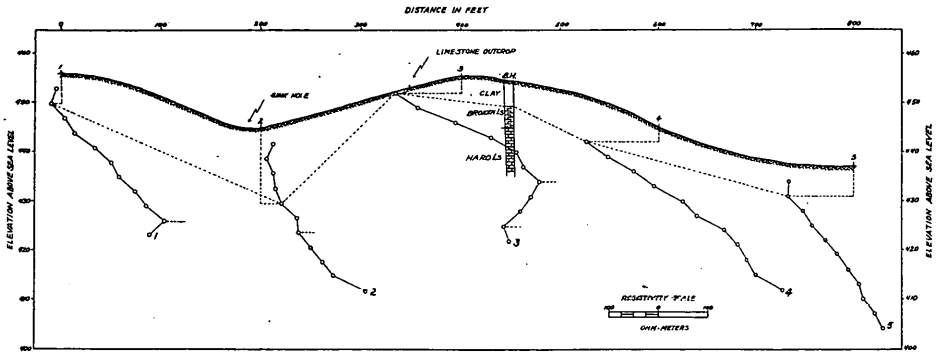


Fig. 2—Cut near Mechanicsburg, Cumberland County, Philadelphia Extension, Pennsylvania Turnpike.

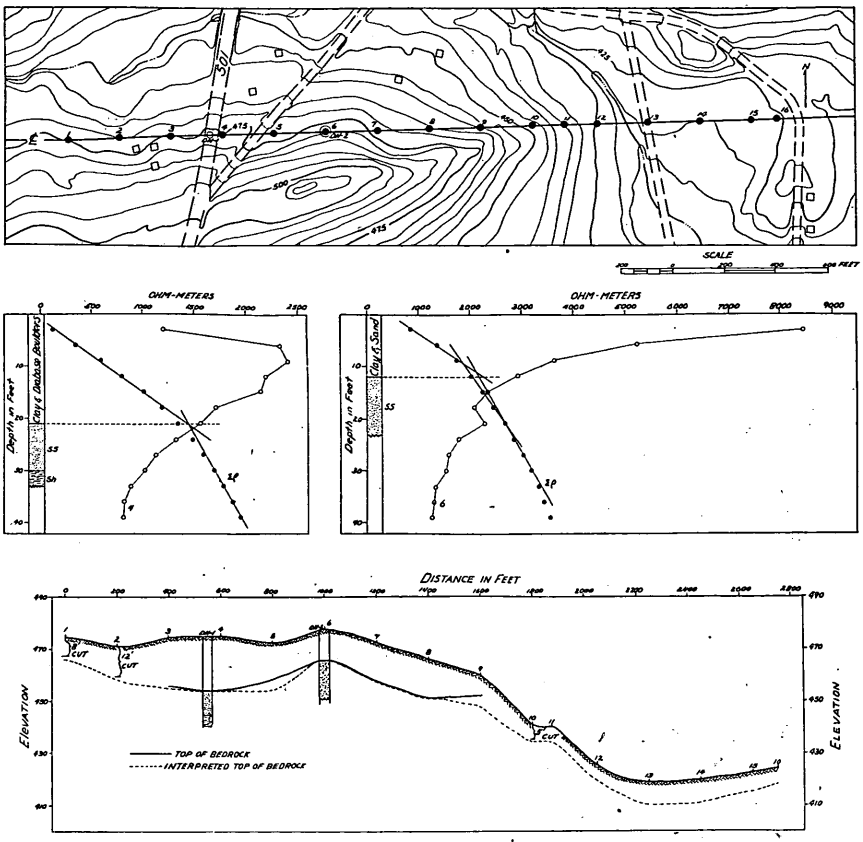


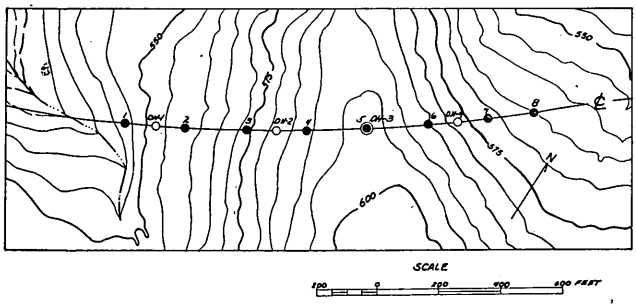
Fig. 3—Cut in vicinity of Route 501, Lancaster County, Philadelphia Extension, Pennsylvania Turnpike.

chosen, each representing different geological conditions and rock types to demonstrate the applications and results that may be expected under similar conditions.

Cambro-Ordovician Limestone

In a proposed cut near Mechanicsburg, Cumberland County, Philadelphia Extension, limestone outcrops and sinkholes occur in a matter of tens of feet from each other along the centerline, as shown in Fig. 2. These limestones are Cambro-Ordovician in age. The strata strike N45E, witnessed by trend of topography just west of station 1, and dip 29° to 50° southeast. In this particular cut-area, no ground water was reported.

Bedrock was determined in one borehole at a depth of 5 ft with sound rock at 9½ ft. An outcrop was recorded 100 ft west of the borehole and a sinkhole 150 ft further west. Five electrical resistivity stations were established at 200-ft intervals. Station 3, 50 ft west of the borehole, indicates bedrock depth at less than 3 ft (close to outcrop) whereas at stations 4 and 5 bedrock occurs at depths of 3 and 6 ft respectively. The tendency for the three curves to show a uniform increase in resistivity with depth indicate a fairly sound rock in the area east of the borehole. Station 2 was located at the sinkhole with bedrock interpreted at a depth of 15 ft but possibly at a depth of 21 ft. Station 1 indicated bedrock at 6 ft. The profiles for stations 1 and 3 show a sudden change in apparent resistivity trends at depths of



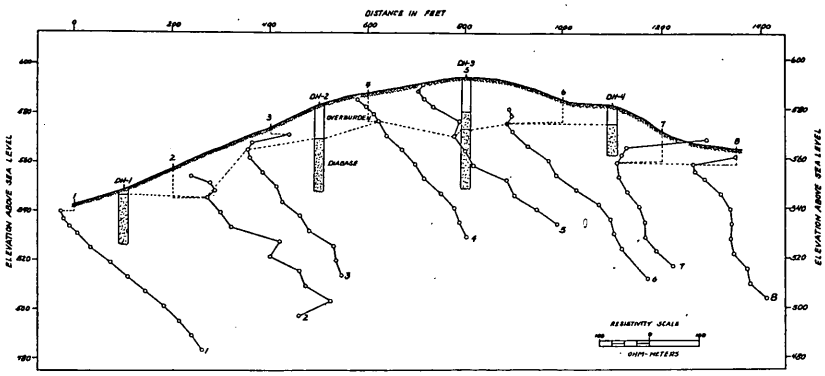


Fig. 4—Cut south of Lawn, Lancaster County, Philadelphia Extension, Pennsylvania Turnpike.

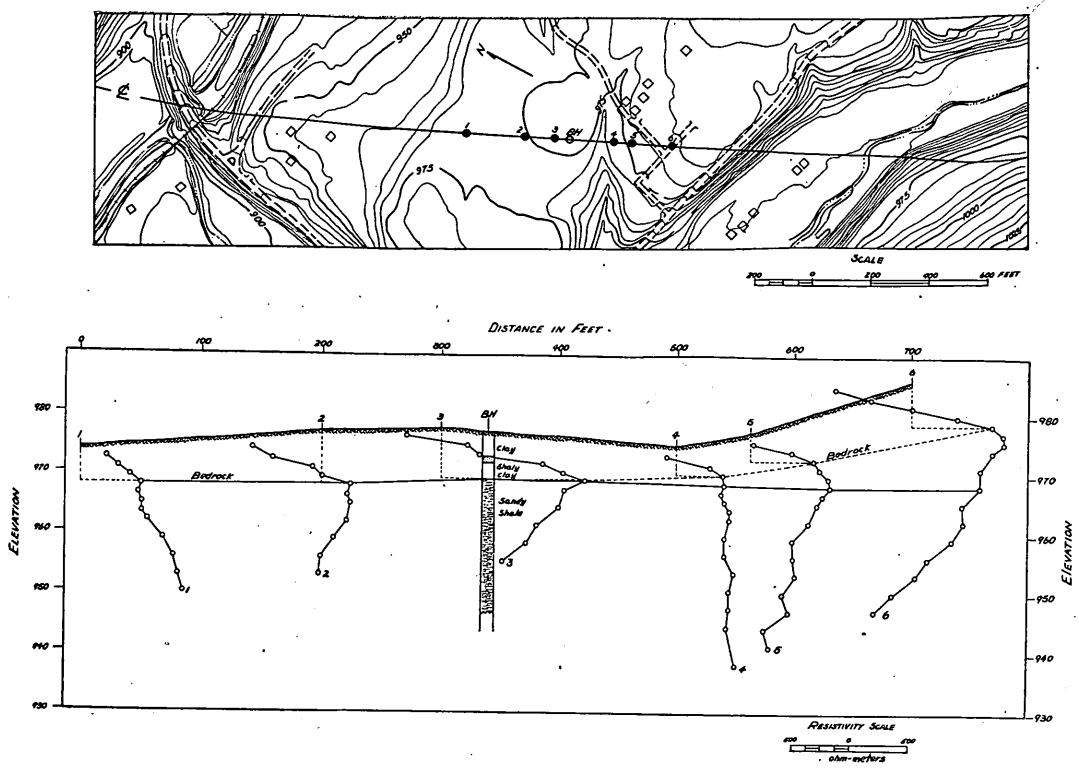


Fig. 5—Cut near Unity, Allegheny County, Western Extension, Pennsylvania Turnpike.

30 and 21 ft respectively. These breaks may reflect cavernous conditions in the limestone at these depths but most likely reflect the sinkhole area in the vicinity of station 2.

Similar analyses have been used in other limestone cuts along the centerline proving beneficial to preliminary investigations prior to actual excavation.

Upper Triassic Shales and Sandstones

In a cut adjacent to Furnace Run in the vicinity of Route 501 and west of Hopeland, Lancaster County, shales and sandstones of the New Oxford formation occur, see Fig. 3.

Two holes were drilled in this cut, recording an overburden of sandy and silty clay with occasional rock fragments and stray diabase boulders. Bedrock is sandstone at depths of 22 and 12 ft respectively.

The apparent and summation apparent resistivities for stations 4 and 6 were computed and correlated against the two drill holes as shown. Breaks on the apparent resistivity curves are not evident; however, breaks on the summation resistivities can be correlated against the drill results. These summation profiles were used principally as a means of interpretation of the 16 different points of observation.

A generalized cross-section indicating depth to bedrock is shown. From stations 1 to 10 the cut has been opened, and correlation between the actual and interpreted depths to bedrock was found to be remarkably in agreement within the measuring interval, here 3 ft. The stations 11 through 16 are in a fill area rather than a cut. Usually in areas of sandstones, the break between overburden and bedrock is sharp.

Table I. Reliability of Geophysical Method

Cut	Length, Ft	Geophysical Report, Ft	Actual Depth to Rock, Ft
A[a]	1500	10 to 13	8 to 9
B	200	No rock above grade	No rock
C[a]	300	9 to 10.5	No rock, 8 to 10 cut
D	700	8 (avg)	No sound rock. Compact shale and rotten sandstone varying in depth from 3 to 12.
E[a]	500	3 to 9	3 to 8
F[a]	550	9 to 17.5	10 to 13 (?)
G	1600	No rock	No rock
H	2900	12 to 18 (15 avg)	7.5 to 22.5 (15 avg)
J	1400	No rock	13 to 15 (?) Probably very little rock in cut.
K[a]	1600	No rock	No rock
L[a]	1525	7.5 to 21.0 (16.5 avg)	Shovel removing rock at average depth of 7 to 8

[a] These cuts investigated by electrical resistivity method without the aid of borehole data.

Upper Triassic Igneous Rocks

The highway centerline just south of Lawn, Lancaster County, crossed a zone of diabase intruded in the form of a sill into Triassic shales and sandstones parallel to the original bedding. All of the strata strike apparently N45E and dip between 40° and 45° northwest. The centerline over this rock roughly parallels the strike, as shown in Fig. 4.

An observation of the eight electrical resistivity profiles in this diabase area show changing resistivity characteristics from profile to profile. This was considered at first as reflecting strong jointing and fracturing. Interpreted depths to bedrock varied from station to station. Later, when the cut was excavated, it was found that depth to sound rock varied considerably and for the most part was much deeper than that recorded by the electrical measurements. The diabase, where deeply weathered, leaves a relic soil with extreme variations in moisture content. Within these relic soils unweathered, isolated remnants and "cupolas" remain as reasonably fresh rock. The drilling encountered these rather than the average depth level of solid rock. The excavation did confirm the resistivity results as to the thickness of the clay overburden and the contact of the diabasic

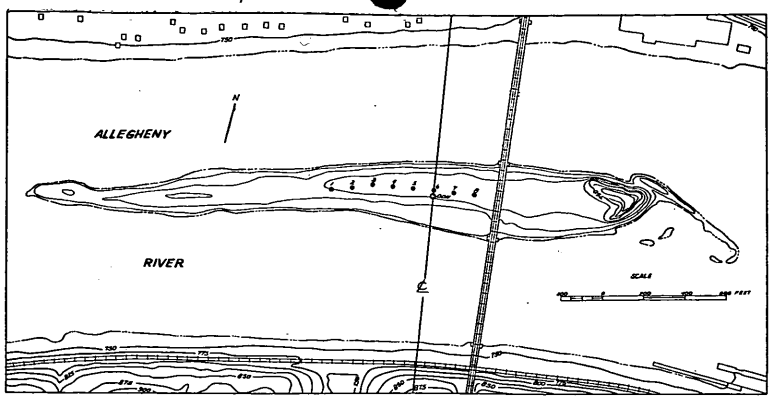
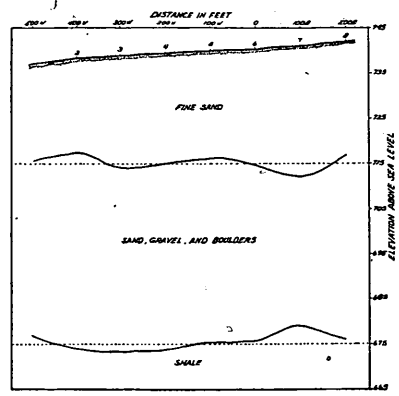
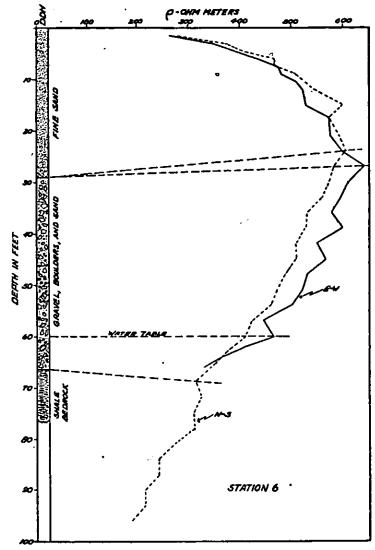


Fig. 6—14 Mile Island Bridge site, Allegheny River.





relic soil. However, the electrical work from a practical point of view was not helpful. It would be impossible to distinguish these fresh remnants in the relic soil by electrical measurements.

Even though the results were negative from a practical point of view, it did lead to a more detailed drilling program and critical review of other diabase areas.

Pennsylvanian Shales—Conemaugh Formation

A small proposed cut involving nearly horizontal strata of sandstones and shales in the Conemaugh formation was investigated near Unity, Allegheny County, see Fig. 5. Drilling of a borehole revealed a bed of sandstone underlain by a layer of shaly clay which was succeeded by a thick column of sound rock starting at a depth of 8 ft.

Six electrical resistivity stations were occupied with the resultant apparent resistivity profiles as shown. The depth to the top of the sandy shale formation was correlated with a down break in the resistivity profile at station 3. This type of break was correlated on the other profiles; however, it is believed that the sandy shale does not constitute bedrock throughout the entire cut. From stations 4 through 6, the depth to bedrock decreases, as witnessed by the correlation of the point shown by the broken line. In this interval, the sand horizon becomes thicker and the shaly clay pinches out, which is a common occurrence in these formations.

This cut has not been excavated to date; however, in areas of flat-lying rocks without the influence of pronounced structural features, it is reasonable to assume that the correlation of major resistivity "breaks" with stratigraphic units shown by core boring data are fairly accurate. A few of the cuts near Irwin have been opened with a remarkable agreement, within the measuring interval, between actual and interpreted depths to bedrock (about 1½ to 3 ft).

Recent Gravels and Pennsylvanian Shales

The centerline of the Western Extension crosses the Allegheny River at 14 Mile Island, as shown in Fig. 6. A high bridge crosses the river above this island, hence, knowledge of the depth of bedrock was essential.

A drill hole was drilled on the centerline with the log showing one horizon of fine sand succeeded in depth by a thick section of gravel, sand, and boulders with shale bedrock at a depth of 66 ft.

Eight resistivity station centers were located with the electrode configuration extending in east-west and north-south directions so that at each station two resistivity profiles were obtained. The profiles at station 6 are shown correlated with the drill log. Very definite breaks on the resistivity profiles correlated precisely with horizons in the drill log. On the basis of these characteristic trends, a vertical geological section was made along the line of resistivity stations showing the distribution of these sands, gravels, boulders, and depths to bedrock.

Reliability of Geophysical Method

Over Upper Triassic shales and sandstones, 11 cuts have been opened. A careful analysis has been made of the actual geological conditions and those reported on the basis of the electrical work. Table I illustrates the reliability of the geophysical work. It demonstrates that most of the interpreted depths were within the limit of error, which was 3 and 6 ft.

Caution is advised in acceptance of the electrical resistivity method as a complete tool by itself. The importance of basic geologic field work and corroborative core-borings is essential in such geophysical programs when applied to highway construction.

The accuracy of the electrical resistivity method in determining overburden thickness in the extensions of the Pennsylvania Turnpike System, as demonstrated in 104 cut sections (some excavated and all checked by core-boring data), is approximately 1.88 ft. This accuracy, in effect, takes the gamble out of bidding on "common" excavation for the contractor and is reflected in a low bid price with consequent saving to the owner.

Development of the South American Coal Industry

by Thomas Fraser

There are large coal reserves in Argentina, Brazil, Chile, Colombia, Peru and Venezuela, and growing productive industries in Brazil, Chile, Peru and Colombia. The paper describes current activities in these coal fields, and improvement programs that are in progress, or are planned. Special emphasis is placed on improvements in mining and preparation practice, and expansion of production that have been accomplished by American equipment and technical assistance.

UP to the present, there has been no large coal-producing industry in any of the South American countries. Since colonial times, the great mineral and agricultural wealth of that continent has led the people to activities other than the development of manufacturing industries based on coal; and climatic conditions are such that there has been very little demand for solid domestic fuel. However, there are extensive and widely distributed reserves of coal in South America that would make the development of a modern coal industry feasible. That factor is of the utmost significance now, when it is believed that the South American countries are entering the pioneer phase of a broad industrial development.

Coal Fields

Great areas of coal-bearing formations of Cretaceous and Tertiary ages occur generally throughout the Andean uplift and extend into the coastal range of the Caribbean region far east of Caracas. Thus the west coast countries have adequate reserves of coal, which include a wide range of types and classes.

In the eastern part of South America, east of the Cordillera, as in North America, the coal measures are of Carboniferous and Permocarboniferous ages. The principal known deposits in this area are in the southern States of Brazil. Permocarboniferous coals ranging in rank from lignitic to anthracitic are found in the States of Rio Grande do Sul, Santa Catarina, Parana and Sao Paulo. In the great interior plateau of Brazil, south of the Amazon River, are extensive areas of Carboniferous strata that may contain coal deposits. There are widely scattered reports of findings of coal in wells and stream beds in northern Piaui and Goias. In the Rio Fresco Valley, explorers have observed outcrops of two beds of anthracite and have brought to Rio de Janeiro samples from these beds. The Fresco is a tributary of the Xingu River that enters the Amazon from the south, but coal could not be shipped by water since the Rio Fresco area is in the upper part of the Xingu Valley, and there is a formidable series of rapids between that area and the lower level of the Amazon River basin. It is doubtful if coal deposits in this general area will be of economic importance for many years to come.

Fig. 1 shows the general location of known coal fields of South America that have been explored sufficiently to indicate the presence of workable reserves.

The coal deposits of the Andean region are similar in occurrence and general characteristics, as well as in age, to the coals of the Rocky Mountain region of North America. Although the coal fields obviously

THOMAS FRASER, Member AIME, is Supervising Engineer, Coal Preparation Section, Fuels and Explosives Div., U. S. Bureau of Mines, Washington.

Discussion on this paper, TP 3041F, may be sent to AIME by May 31, 1951. Manuscript, May 9, 1950. New York Meeting, February 1950.

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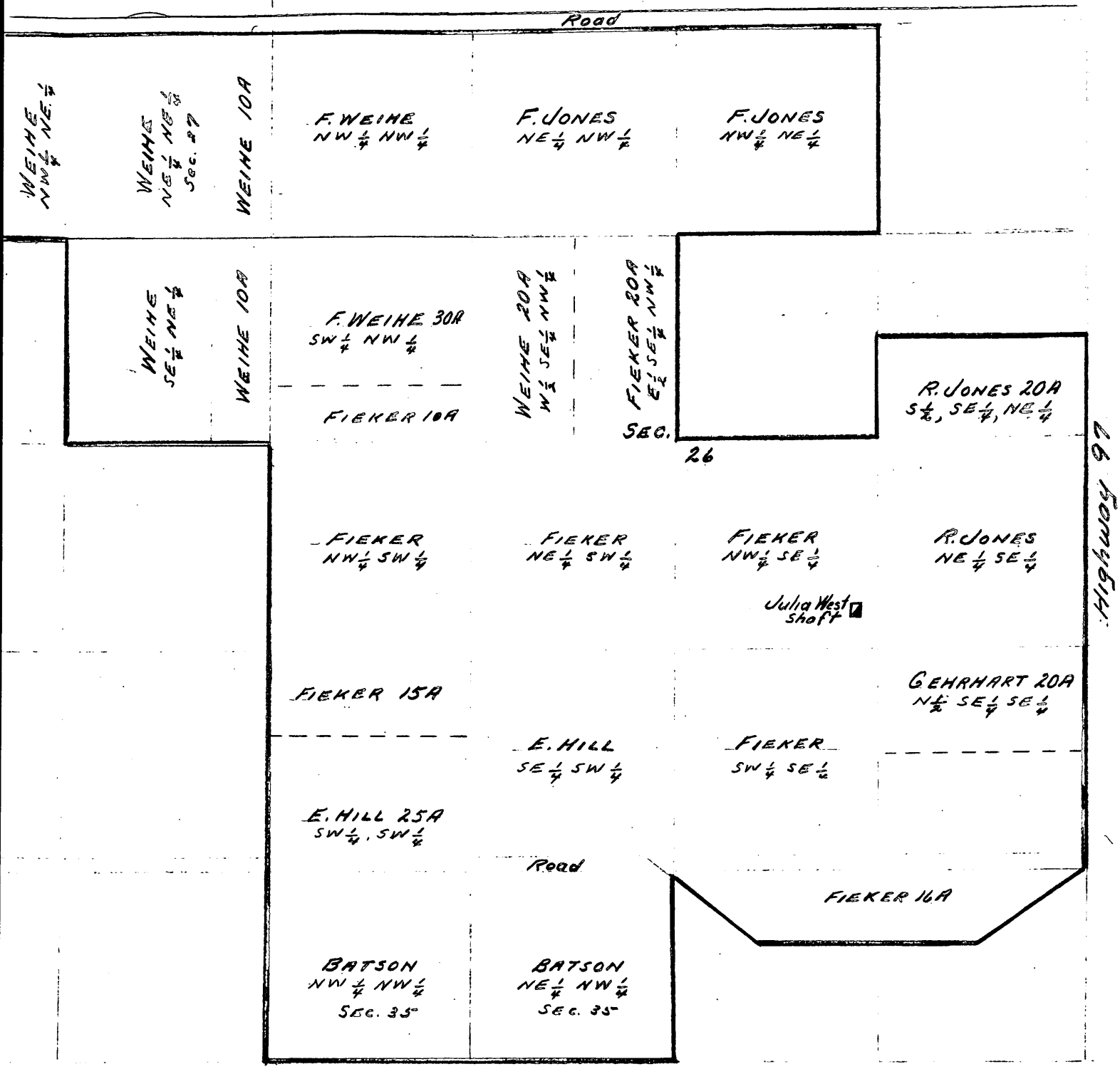
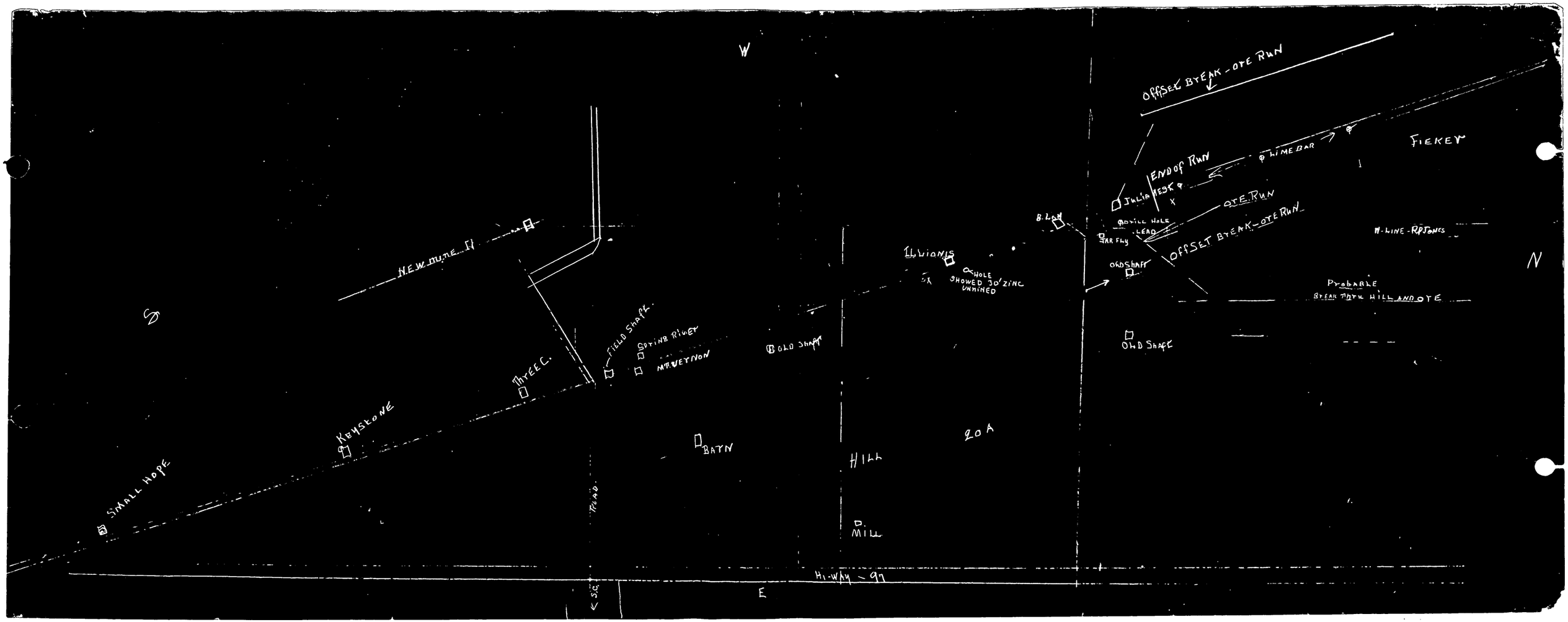
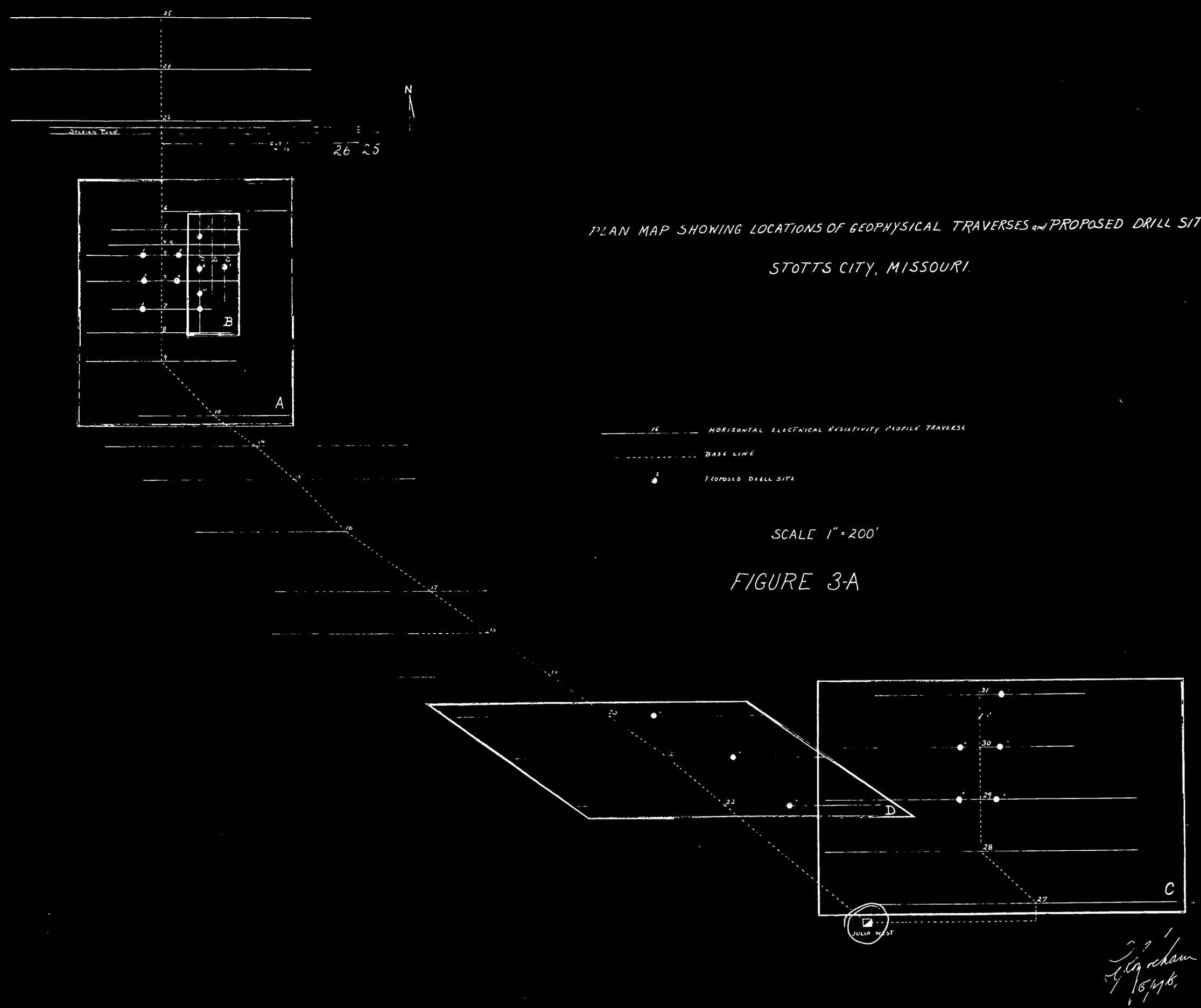


DOCKET DMA 1118
Bootman & Boswell Mining Co.
Lease Block Shown By Heavy Line.
Square = 40 Acres

SECTION 26 AND PART
SECTION 27 & 35
TOWNSHIP 28
RANGE 28
LAWRENCE COUNTY
MISSOURI


W
N
S
E
OFFSET BREAK - OTE RUN
END OF RUN
LIME BAR
FIEKER
JULIA
WEST
OTE RUN
OFFSET BREAK-OTE RUN
BILL HOLE
LEAD
BAR FLY
OLD SHAFT
B. LAW
ILLIONIS
HOLE
SHOWED 30' ZINC
UNMINED
W-LINE - R.P. JONES
Probable
BREAK TOTH HILL AND OTE
OLD SHAFT
OLD SHAFT
NEW MINE
FIELD SHAFT
SPRING RIVER
MT. VERNON
THREE C.
KEYSTONE
SMALL HOPE
BATN
HILL
20 A
MILL
ROAD
HI-WAY - 97
SC



PLAN MAP SHOWING LOCATIONS OF GEOPHYSICAL TRAVERSES and PROPOSED DRILL SITES

STOTTS CITY, MISSOURI.

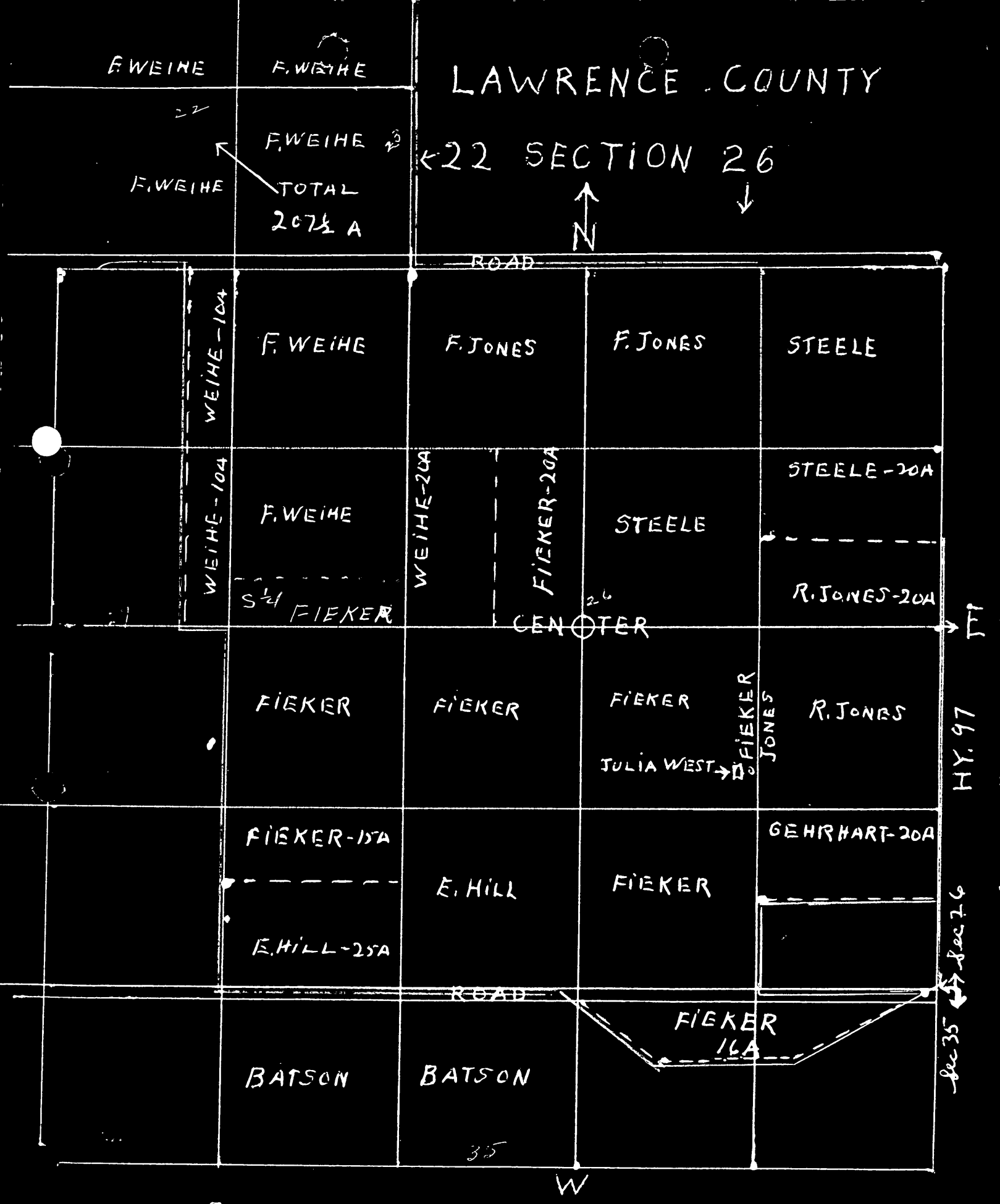
16 HORIZONTAL ELECTRICAL RESISTIVITY PROFILE TRAVERSE

BASE LINE

PROPOSED DRILL SITE

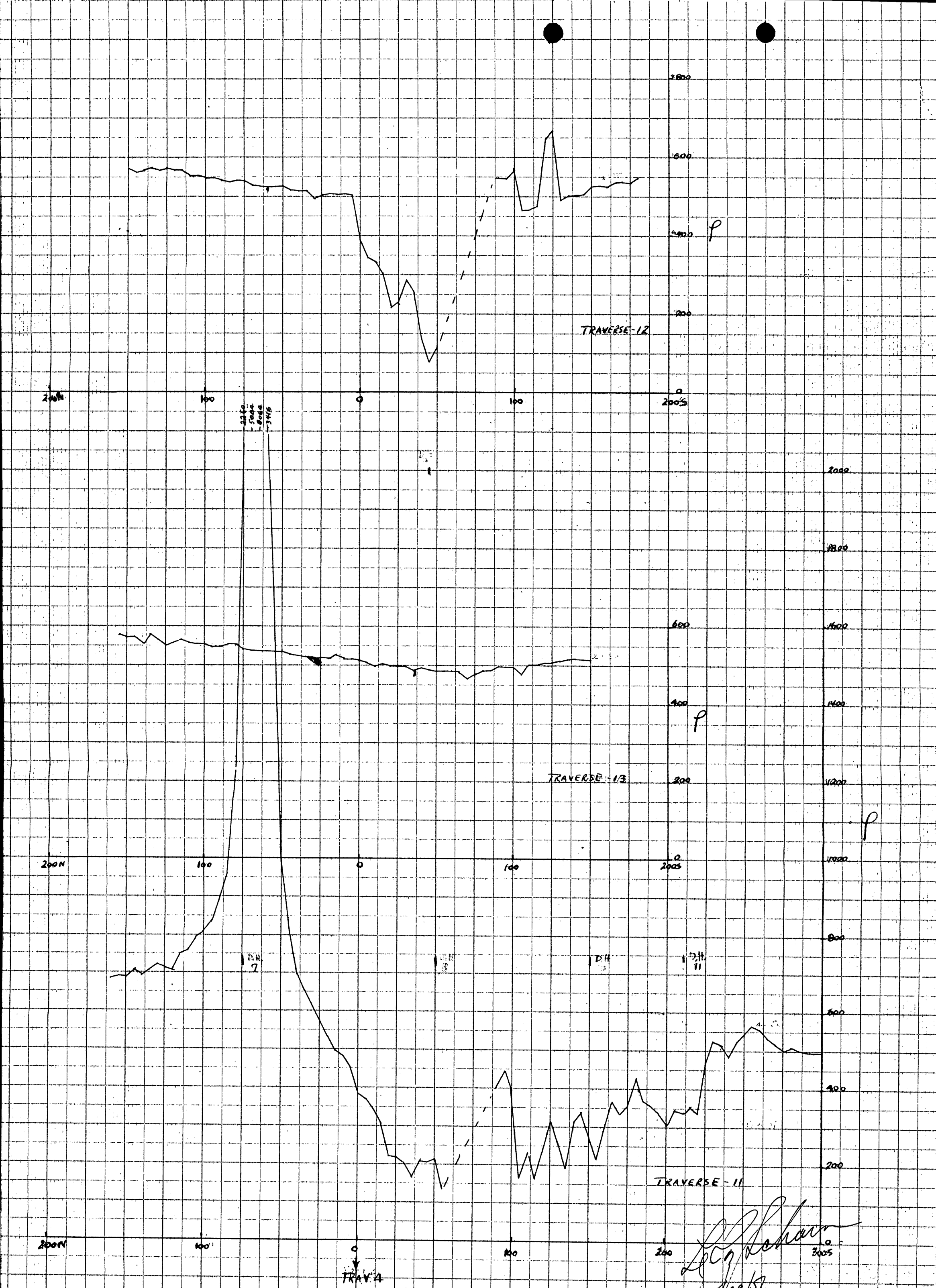
SCALE 1" = 200'

FIGURE 3-A



SQUARE = 40 ACRES

RED LINES INDICATE LEASE BOUNDARIES



HORIZONTAL RESISTIVITY PROFILES "a" = 150' AREA B
STOTTS CITY, MISSOURI

FIGURE- 2-b

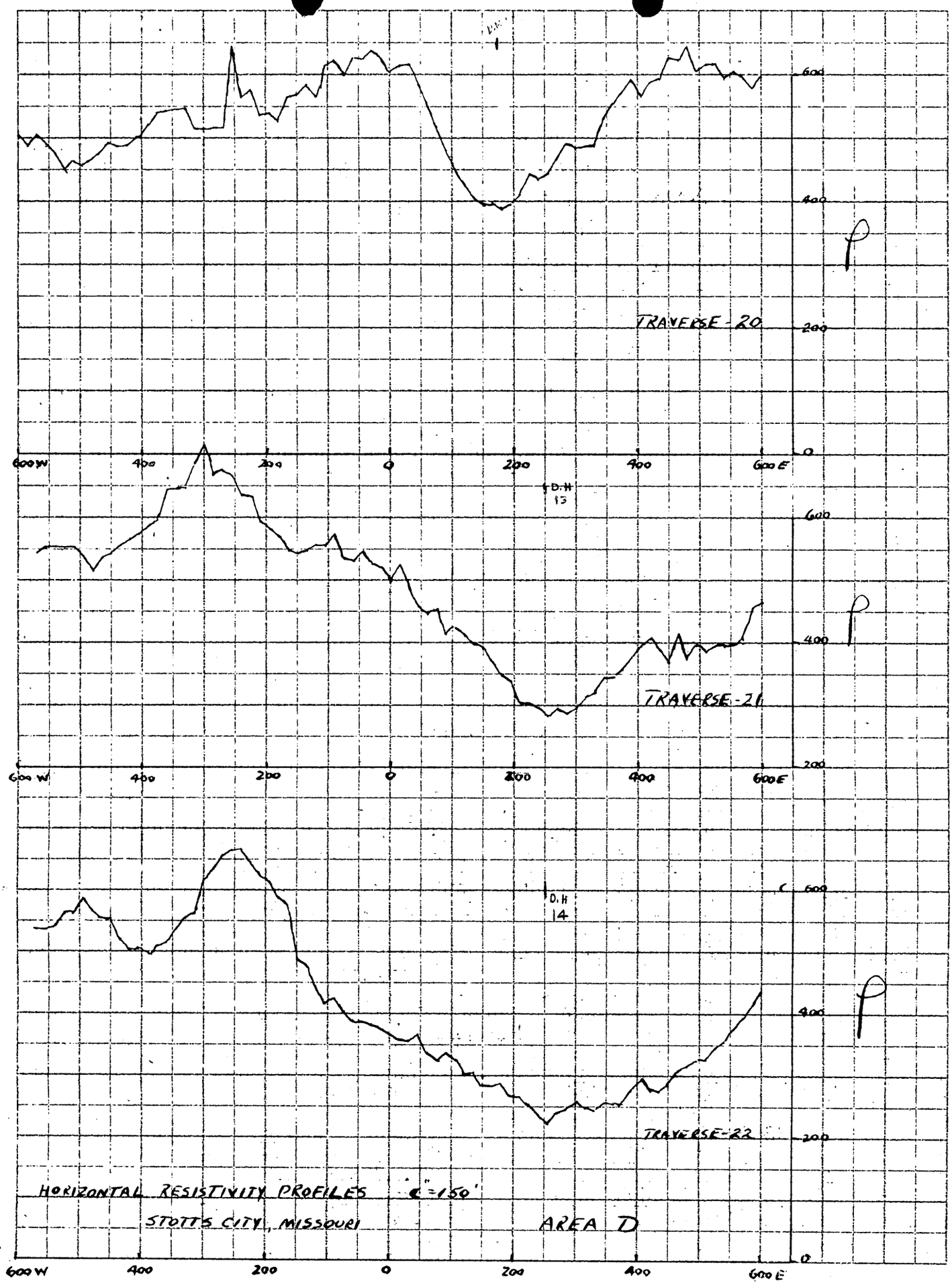


FIGURE 2-d.

LeRoy Lehman 5/29/51

KEUFFEL & ESSER CO. N.Y.

MF-104
(April 1951)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

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.

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.

Bootman & Boswell Mining Co.
(Name of Company)

By C M Bootman
(Signature of Authorized Official)

October 1, 1951
(Date)

Manager
(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 the United States as to any matter within its jurisdiction.

MONTHLY SUMMARY COST STATEMENT

Name of operator: Bootman & Boswell Mining Co.
Project No. DMA: I-DMA-E45 (Docket No. DMA 1118)
Total contract amount: $9,868.60
Government participation percent: 50%

Distribution of Expenditures for Month of September 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	None	800.00	800.00			
Equipment purchase [1]						
Equipment rental [2]						
Buildings						
Explosives						
Repair parts						
Other supplies						
Power						
Transportation						
Withholding taxes						
Compensation insurance						
Other insurance						
Contract work Drilling	None	3435.25	3435.25			
Other (specify)						
Total	None		4235.25 ~~3435.25~~	C.C.K.		
Totals previously reported	4235.25 ~~3435.25~~	C.C.K.				
Totals to date	4235.25 ~~3435.25~~	C.C.K.				

FOR GOVERNMENT USE ONLY

Checked by Clinton C. Knorp
Entered by
Approved by David Gallagher
Amount approved for payment None
Remarks

4234.25
2117.63
2117.63

[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

xxxxxxxxxxxxxxx
Joplin, Missouri

October 8, 1951

Mr. C. M. Bootman, Manager
Bootman & Boswell Mining Company
1405 W. Walnut Street
Springfield, Missouri

Subject: Contract No. Idm-E45
Docket No. DMA 1118
Mine-Lead, Stotts City, Mo.

Dear Mr. Bootman:

I am herewith returning your copy of Dr. N. LeRoy Scharon's geophysical report and maps on your property, and your drillers log books for holes No. B-8 through B-16, which you so kindly loaned me.

We have typed four copies of each of them and your letter received here October 2, 1951 to include with the four copies of Form 104 which you had filled out and have submitted all as your final project report to Defense Minerals Administration.

Sincerely yours,

C. C. K.

Clinton C. Knox
For L. T. McIlvenny
Acting Executive
DMA Field Team, Region VI

Copy

THE BRUCE WILLIAMS LABORATORIES
Joplin, Missouri

Bootman & Boswell
Box 1104
Lebanon, Missouri
8-25-51

Our No.	Mark	Description	Zinc
593998	Drill Hole #10	145-150	3.20
999		150-155	2.76

HOLE No. B-1

Location: NE$\frac{1}{4}$ NW$\frac{1}{4}$ Sec. 26, T 28N., R. 28 W., Lawrence County

Property: L. W. Jones

Started: May 24, 1951

Completed: June 5, 1951

Struck Water: 70'

Water Stands:

Driller: Wade Johnson

Helper:

NE cor. Sec. 26 = 0-0

COORDINATE LOCATION: S-485; W-3500

Collar Elevation: 1160'

8$\frac{1}{4}$ Casing: 25'

6$\frac{1}{4}$ Casing: 25'

Cased: No

Feet From	Feet To	Description
0	25	Soil
25	37	Hard gray lime
37	40	Opening
40	50	Lime boulders
50	60	Clay-mud
60	65	Flint and mud
65	70	Hard gray lime
70	100	Hard gray-blue flint and lime
100	110	Hard gray lime and white flint
110	120	Hard blue, brown & white lime & flint
120	130	Soft gray-blue flint & lime
130	135	Hard gray-blue flint & lime
135	140	Hard brown lime some flint
140	145	Hard brown-blue flint & lime
145	150	Hard gray-blue lime & flint
150	160	Soft gray-blue lime & flint
160	165	Shelly gray-blue lime & flint
165	170	Hard brown-blue lime & flint
170	181	Hard dark lime &flint
181	185	Hard dark flint & lime
185	190	Fair dark lime

Assay: None

HOLE No. B-2

Location: NE$\frac{1}{4}$ NW$\frac{1}{4}$ Sec. 26, T. 28 N., R. 28 W, Lawrence County

Property: L. W. Jones

Started: June 6, 1951 — NE cor. Sec. 26 = 0-0

Completed: June 25, 1951 — Coordinate Location: S 490; W 3360

Struck Water: 75 feet — Collar Elevation: 1165

Water Stands: 60 feet — 8$\frac{1}{4}$ Casing: 70 ft.

Driller: Wade Johnson — 6$\frac{1}{4}$ Casing: 70 ft.

Helper: — Cased: No

Feet From	Feet To	Description
0	5	Soil
5	20	Clay
20	35	Mud & lime boulders
35	40	Hard gray lime
40	45	Gray lime boulders
45	65	Open ground
65	75	Gray-white lime & flint
75	90	Hard blue-gray-white lime & flint
90	125	Hard light lime & flint
125	130	Hard brown lime & blue flint
130	135	Soft blue-brown lime & flint
135	140	Soft blue flint & gray lime
140	145	Hard gray lime, some blue flint
145	150	Hard dark gray lime, some flint
150	155	Hard gray-blue lime & flint
155	166	Soft gray-blue flint & lime

ASSAY: None

HOLE No. B-3

Location: NE$\frac{1}{4}$ SE$\frac{1}{4}$ sec. 26, T. 28 N., R. 28 W., Lawrence County

Property: Ross Jones

Started: June 13, 1951 NE cor. sec. 26 = 0-0

Completed: June 25, 1951 Coordinate Location: S-3395; W-1110

Struck Water: 90' 8$\frac{1}{4}$ Casing: 35'

Water Stands: 75' 6$\frac{1}{4}$ Casing: 35'

Driller: Clayton Wallace Collar Elevation: 1160

Helper: Cased: Yes

Feet From	Feet To	Description
0	30	Soft red clay, some flint
30	60	Medium gray lime, some white chert
60	65	Hard gray & white chert, some gray lime
65	80	Medium gray lime, some chert
80	90	Medium gray lime & chert, some water
90	95	Hard dark gray lime & chert, white chert
95	100	Hard gray & white lime & chert
100	105	Hard gray & white lime & chert
105	110	Hard gray lime
110	115	Hard gray & white lime, LEAD SHINES
115	117$\frac{1}{2}$	Hard dark gray lime
117$\frac{1}{2}$	120	Hard gray chert & lime
120	125	Hard gray lime, some white chert
125	130	Medium gray lime & chert, white & blue chert
130	135	Medium dark gray lime & white & blue chert
135	140	Hard dark gray lime & white & blue chert
140	145	Hard dark gray lime & light blue chert
145	150	Hard gray lime & white & blue chert
150	170	Hard light gray lime & light blue chert
170	175	Hard gray lime & light blue chert
175	180	Hard gray lime & dark blue chert
180	185	Hard gray chert & gray lime
185	195	Hard gray lime & blue chert
195	200	Hard gray lime & some blue chert

ASSAY: None

HOLE No. B-4

Location:	NE¼ SE¼ sec. 26, T. 28 N., R. 28 W., Lawrence County		
Property:	Lawrence County		
Started:	June 25, 1951	NE cor. sec. 26 = 0-0	
Completed:	July 11, 1951	Coordinate Location:	S-3195; W-950
Struck Water:	75'	Collar Elevation:	1160
Water Stands:	49'	8¼ Casing:	24'
Driller:	Clayton Wallace	6¼ Casing:	24'
Helper:		Cased:	Yes

Feet From	Feet To	Description
0	10	Soft, red clay, flint boulders
10	25	Soft, red clay, lime boulders
25	30	Medium, gray lime
30	35	Medium, gray lime, clay seams
35	65	Hard, gray lime, white chert
65	75	Medium, dark gray lime & chert, some water
75	85	Hard, dark gray lime & white chert
85	100	Hard, light gray lime & white chert
100	105	Hard, light gray lime
105	110	Hard, dark gray lime & chert
110	115	Hard, gray & white lime
115	135	Medium, gray lime & blue & white chert
135	165	Hard, gray lime & blue & white chert
165	175	Hard, dark gray lime & some blue chert
175	180	Hard, gray & blue lime & chert

ASSAY: None

HOLE No. B-5

Location: NE$\frac{1}{4}$ NW$\frac{1}{4}$ sec. 26, T. 28 N., R. 28 W., Lawrence County

Property: L. W. Jones

Started: June 26, 1951 — NE cor. sec. 26 = 0-0

Completed: July 11, 1951 — Coordinate Location: S-585; W-3490

Struck Water: 76' — Collar Elevation: 1170

Water Stands: — 8$\frac{1}{4}$ Casing: 70'

Driller: Wade Johnson — 6$\frac{1}{4}$ Casing: 70'

Helper: — Cased: No

Feet From	To	Description
0	40	Soft, red clay
40	70	Hard, gray lime boulders, open ground
70	80	Hard, gray & blue lime & flint, open ground
80	85	Hard, gray & white lime & flint
85	90	Hard, dark blue lime & flint
90	95	Soft, brown lime
95	100	Hard, gray & blue lime & flint
100	105	Hard, light lime & white flint
105	120	Hard, gray lime & white flint
120	130	Hard, gray lime & blue flint
130	135	Soft, blue flint
135	140	Hard, white & blue flint & gray lime
140	155	Hard, blue flint & gray lime
155	160	Soft, blue flint & gray lime
160	165	Hard, blue flint & some gray lime
165	180	Hard, blue flint & gray lime
180	195	Hard, gray blue lime

ASSAY: None

HOLE No. B-6

Location:	NW¼ SE¼ sec. 26, T. 28 N., R. 28 W., Lawrence County		
Property:	Paul Fieker		
Started:	July 17, 1951	NE Cor. sec. 26 = 0-0	
Completed:	July 25, 1951	Coordinate Location:	S-3070; W-2285
Struck Water:	50'	Collar Elevation:	1140
Water Stand:	35'	8¼ Casing:	43'
Driller:	Clayton Wallace	6¼ Casing:	43'
Helper:		Cased:	No

Feet From	To	Description
0	20	Soft, red clay, flint boulders
20	43	Soft, clay & lime asgray lime boulders
43	45	Hard, gray lime & white chert
45	50	Medium, lime & white chert, small mud seams
50	60	Medium, gray lime, some white chert
60	65	Hard, light gray lime, some white chert
65	70	Hard, light gray lime, some white chert
70	75	Hard, white chert, some gray lime
75	85	Hard, gray lime
85	90	Hard, gray lime, some white chert
90	100	Hard, gray lime, white & blue chert
100	115	Medium, dark gray lime, white & blue chert
115	125	Hard, gray lime, white & blue chert
125	135	Medium, gray lime, white & blue chert
135	140	Medium, gray lime, blue chert
140	150	Hard, gray lime, blue chert
150	155	Medium, dark gray lime, dark blue chert
155	165	Hard, dark gray lime, some blue chert
165	178	Hard, gray lime, some blue chert

HOLE No. B-7

Location: NW$\frac{1}{4}$ SE$\frac{1}{4}$ sec. 26, T. 28 N., R. 28 W., Lawrence County

Property: Paul Fieker

Started: July 19, 1951 — NE cor. sec. 26 = 0-0

Completed: July 31, 1951 — Coordinate Location: S-3410; W-1755

Struck Water: 70'-110' — Collar Elevation: 1150

Water Stands: 50' — 8$\frac{1}{4}$ Casing: 70'

Driller: Wade Johnson — 6$\frac{1}{4}$ Casing: 70'

Helper: — Cased: No

Feet From	To	Description
0	22	Soft, red clay
22	60	Medium, clay, lime boulders
60	65	Soft, white & blue flint
65	75	Soft, light lime
75	80	Soft, light lime, some blue flint
80	105	Hard, light lime, white flint
105	110	Hard, gray lime, blue flint
110	120	Soft, gray lime, blue flint
120	140	Hard, gray lime, blue flint
140	145	Soft, light gray lime, blue flint
145	150	Hard, blue flint, some brown lime
150	155	Hard, blue flint, dark lime
155	160	Hard, blue flint, gray lime
160	181	Hard, blue flint, brown lime
181	190	Hard, gray lime, blue flint

ASSAY: None

HOLE No. B-8

Location: SW¼ SE¼ sec. 26, T. 28 N., R. 28 W., Lawrence County

Property: Paul Fieker

Started: July 25, 1951 — NE cor. sec. 26 = 0-0

Completed: August 2, 1951 — Coordinate Location: S-5055; W-2360

Struck Water: 57' — Collar Elevation: 1148

Water Stands: 15' — 8¼ Casing: 26'

Driller: Frank Simmons — 6¼ Casing: 26'

Helper: — Cased: No

Feet From	Feet To	Description
0	10	Soft, brown mud
10	15	Soft, red clay
15	20	Soft, red clay & flint
20	25	Soft, red clay & flint, 5' surface water
25	30	Average, gray lime, casing shut off, water at 25'
30	40	Average, gray lime & white flint, dry hole
40	50	Hard, gray lime & white flint, dry hole
50	60	Average, blue lime & flint, hit crevice at 57'
60	65	Soft, blue flint & little lime, lots of water
65	75	Soft, blue flint & little lime, good prospects for ore
75	85	Average (slightly harder), blue flint & lime
85	90	Average (softer), blue flint & lime
90	100	Average (harder), blue flint & lime
100	110	Average (softer), blue flint & lime
110	115	Average (softer), gray lime
115	120	Average, dark lime, hit 4" crevice at 116'
120	125	Average, gray lime
125	150	Average, gray lime & blue flint

ASSAY: None

HOLE No. B-9

Location: NW$\frac{1}{4}$ SE$\frac{1}{4}$ sec. 26, T. 28 N., R. 28 W., Lawrence County

Property: Paul Fieker

Started:	July 26, 1951	NE cor. sec. 26 = 0-0	
Completed:	August 3, 1951	Coordinate Location:	S-3065; W-2330
Struck Water:	70'	Collar Elevation:	1140
Water Stands:	25'	8$\frac{1}{4}$ Casing:	51'
Driller:	Clayton Wallace	6$\frac{1}{4}$ Casing:	51'
Helper:		Cased:	No

Feet From	Feet To	Description
0	40	Soft, red clay & flint
40	50	Medium, red clay & flint boulders
50	60	Hard, gray & white lime & blue & white chert
60	70	Hard, gray lime, white chert, small clay seams
70	85	Hard, dark gray lime, blue & white chert
85	90	Hard, dark gray lime, some white chert
90	95	Hard, white chert, some gray lime
95	110	Medium, gray lime, blue chert
110	130	Medium, dark gray lime, blue & white chert
130	140	Medium, dark gray lime, blue chert
140	145	Medium, blue chert, some gray lime
145	150	Medium, dark gray lime, little blue chert
150	180	Medium, gray lime, blue chert
180	190	Medium, gray lime

ASSAY: None

HOLE NO. B-10

Location: NW¼ SE¼ sec. 26, T. 28 N., R. 28 W., Lawrence County

Property: Paul Fieker

Started: Aug. 2, 1951

Completed: Aug. 8, 1951

Struck Water: 70' & 105'

Water Stands: 50'

Driller: Wade Johnson

Helper:

NE cor. sec. 26 = 0 - 0

Coordinate Location: S-3405: W-1900

Collar Elevation: 1146

8¼ Casing: 54'

6¼ Casing 54'

Cased: No

Feet From	To	Description
0	55	Soft, red clay, flint
55	60	Soft, white flint
60	65	Clay, boulders, open ground
65	70	Soft, light lime, white flint
70	80	Hard, white flint, some light lime
80	85	Hard, white flint, some gray lime
85	95	Hard, white flint, light lime
95	100	Hard, gray lime
100	105	Hard, blue flint, gray lime, boulders
105	115	Soft, blue flint, brown lime
115	120	Hard, blue flint, brown lime
120	140	Hard, blue flint, gray lime

ASSAY: None

HOLE No. B-11

Location: SW¼ SE¼ sec. 26, T. 28 N., R. 28 W., Lawrence County

Property: Paul Fieker Property

Started: Aug. 2, 1951 NE cor. sec. 26 = 0-0

Completed: Aug. 8, 1951 Coordinate Location: S-5135 W-2440

Struck Water: 52' Collar Elevation: 1148

Water Stands: 18' 8¼ Casing: 25'

Driller: Frank Simmons 6¼ Casing: 25'

Helper:

Feet From	To	Description
0	10	Soft, brown soil & subsoil
10	20	Soft, red clay
20	25	Soft, red clay & flint, hit rock at 25'
25	50	Hard, white lime & flint
50	65	Soft, blue flint & lime, 3" crevice at 52', lots of water
65	80	Average, gray lime
80	90	Soft, gray lime
90	110	Soft, blue lime & flint
110	120	Soft, gray lime

ASSAY: None

HOLE No. B-12

Location: SW$\frac{1}{4}$ SE$\frac{1}{4}$ sec. 26, T. 28 N., R. 28 W., Lawrence Co.

Property: Paul Fieker

Started: August 4, 1951 — NE cor. sec. 26 = 0-0

Completed: August 10, 1951 — Coordinate Location: S-5085; W-2400

Struck Water: — Collar Elevation: 1148

Water Stands: 18' — 8$\frac{1}{4}$ Casing: 25'

Driller: Clayton Wallace — 6$\frac{1}{4}$ Casing: 24'

Helper: — Cased: No

Feet From	To	Description
0	10	Soft, red clay
10	24	Medium, red clay, flint boulders
24	40	Medium, gray lime, white chert
40	50	Hard, gray lime
50	55	Hard, gray lime, crevice & water
55	60	Medium, blue chert, some lime
60	65	Medium, blue chert
65	70	Medium blue & white chert, some gray lime
70	75	Hard, gray lime, blue-white chert
75	85	Hard, gray lime, blue chert
85	100	Hard, gray lime, blue & white chert
100	150	Hard, dark gray lime, blue chert

ASSAY: None

HOLE No. b-13

Location: SW$\frac{1}{4}$ SE$\frac{1}{4}$ sec. 26, T. 28 N., R. 28 W., Lawrence County

Property: Paul Fieker

Started: August 9, 1951 — NE cor. sec. 26 = 0-0

Completed: August 16, 1951 — Coordinate Location: S-5050; W-2330

Struck Water: 65' — Collar Elevation: 1148

Water Stands: 25' — 8$\frac{1}{4}$ Casing: 25'

Driller: Grant Hart — 6$\frac{1}{4}$ Casing: 25'

Helper: — Cased: No

Feet From	To	Description
0	10	Soft, brown dirt
10	25	Soft, red clay & flint
25	55	Hard, white lime & flint, hit rock at 25'
55	60	Soft, gray lime, blue flint, 4" mud opening at 59', lots of water.
60	80	Soft, blue lime & flint
80	85	Soft, gray lime
85	95	Hard, gray lime
95	100	Average gray lime, blue flint
100	115	Average blue lime & flint
115	125	Average, gray lime
125	140	Average, blue lime & flint, 2" crevice at 127', 1" at 135', 1" at 139'
140	150	Average, blue lime & flint conglomerate, few zinc shines at 145', 1" crevice at 142'

ASSAY: None

HOLE No. B-14

Location: SW$\frac{1}{4}$ SW$\frac{1}{4}$ sec. 26, T. 28 N., R. 28 W.

Property: Paul Fieker

Started: August 11, 1951 — NE cor. sec. 26 = 0-0

Completed: August 23, 1951 — Coordinate Location: S-4435; W-4185

Struck Water: 100' (small amt.) — Collar Elevation: 1192

Water Stands: 100' — 8$\frac{1}{4}$ Casing: 41'

Driller: Clayton Wallace — 6$\frac{1}{4}$ Casing: 41'

Helper: — Cased: No

Feet From	To	Description
0	5	Hard, hardpan
5	.20	Hard, red clay, layers of flint
20	41	Soft, red clay
41	45	Hard, gray lime, some white chert
45	60	Hard, light gray lime, some white chert
60	75	Hard, light gray lime, white chert
75	80	Hard, gray lime, white & blue chert
80	95	Hard, gray lime, white chert
95	120	Medium, gray lime, white chert
120	130	Medium, gray lime, white & blue chert
130	140	Medium, white & dark gray lime, blue chert
140	145	Medium, blue chert
145	155	Medium, blue & gray lime & chert, JACK SHINES
155	160	Mecium, gray lime & chert, very little water

ASSAYS: Yes

Depth	Zinc	Lead
145-150	3.20	-
150-155	2.76	-

HOLE No. B-15

Location: NW$\frac{1}{4}$ SE$\frac{1}{4}$ sec. 26, T. 28 N., R. 28 W., Lawrence County

Property: Paul Fieker

Started: August 9, 1951 — NE cor. sec. 26 = 0-0

Completed: August 22, 1951 — Coordinate Location: S-3445 W-2240

Struck Water: 40' — Collar Elevation: 1138

Water Stands: — 8$\frac{1}{4}$ Casing: 41'

Driller: Wade Johnson — 6$\frac{1}{4}$ Casing: 45'

Helper: — Cased: No

Feet From	To	Description
0	30	Soft, brown river gravel
30	40	Soft, white flint
40	45	Soft, blue lime, white flint, water
45	50	Hard, dark lime, blue-white flint
50	60	Hard, gray lime, white flint
60	65	Hard, gray lime, some flint
65	70	Hard, white flint, some gray lime
70	85	Hard, gray lime, white flint more water at 85'
85	90	Hard, brown lime, white flint
90	105	Hard, gray lime, blue flint
105	120	Hard, gray lime, blue flint
120	125	Soft, gray lime, blue flint
125	140	Hard, gray lime, flint
140	145	Hard, blue flint
145	150	Hard, blue lime

ASSAY: None

HOLE No. B-16

Location: SW$\frac{1}{4}$ SE$\frac{1}{4}$ sec. 26, T. 28 N., R. 28 W., Lawrence County

Property: Paul Fieker

Started: August 17, 1951 NE cor. sec. 26 = 0-0

Completed: August 24, 1951 Coordinate Location: S-5015 W-2290

Struck Water: 60' Collar Elevation: 1148

Water Stands: 30' 8$\frac{1}{4}$ Casing: 25'

Driller: Grant Hart 6$\frac{1}{4}$ Casing: 25'

Helper: Cased: No

Feet From	To	Description
0	10	Soft, brown dirt
10	25	Soft, red clay & flint rocks, hit rock at 25'
25	55	Hard, white lime & flint, small crevice 35'-40' with white clay.
55	60	Hard, gray lime, red mud in hole at 59'
60	80	Soft, blue lime & flint, lots of water
80	85	Hard, gray lime
85	115	Average, gray lime & flint
115	125	Soft, dark lime & flint, black lime some blue flint, some ZINC SHINES at 122'-125'
125	137	Average, dark lime & flint, no shines

ASSAY: None

DISTRIBUTION OF WAGES AND SALARIES FOR MONTH OF September 1951

Name of operator Bootman & Boswell Mining Co.
Project No. DMA I-DMA-E45-(Docket No. DMA 1118)
Total contract amount $9,868.60
Government participation percent 50%

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 No work in September	None	None	None	None
Superintendent				
Engineers				
Geologists				
Bookkeeper				
Foreman				
Clerks				
Stenographers				
Other				
Total	None	None	None	None

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

FOR GOVERNMENT USE ONLY

Checked by Clinton C. Knox
Entered by
Approved by David Gallagher
Remarks

16—64068-1

EXPLORATION UNIT COST AND PROGRESS REPORT FOR MONTH OF September 1951

Name of operator Bootman & Boswell Mining Co.
Project No. DMA I-DMA-E45 (Docket No. DMA 1118)
Total contract amount $9,868.60
Government participation, percent 50%

Item	Costs					Progress				
	Wages [1] and salaries	Equipment [2]	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				None	None	Feet	None	1963	1963	4,725
Overburden										
Rehabilitation and preparation										
Geology and geophysics										
Trenching										
Sampling and assaying										
Roads and trails										
Test pits										
Other (specify) Manager	None									
Totals	None			None	None	Feet	None	1963	1963	4,725

[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 Clinton C. Knox
Entered by
Approved by David Gallagher
Remarks

Copy

(1)

~~$1,225.55~~
$1,175.63

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

DMA-6,-6
1118

POSTED
SEP 24 1951
By

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.

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.

Bootman & Boswell Mining Co.
(Name of Company)

By C M Bootman
(Signature of Authorized Official)

September 1, 1951
(Date)

Manager
(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: Bootman & Boswell Mining Co.
Project No. DMA: I-DMA-E45 (Docket No. DMA 1118)
Total contract amount: $9,868.80
Government participation percent: 50%

Distribution of Expenditures for Month of August 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	$400.00	$400.00	$800.00			
Equipment purchase [1]						
Equipment rental [2]						
Buildings						
Explosives						
Repair parts						
Other supplies						
Power						
Transportation						
Withholding taxes						
Compensation insurance						
Other insurance						
Contract work Drilling	1,951.25	1,484.00	3,435.25			
Other (specify) ~~Engineering Fee~~	~~107.84~~ C.C.K.	None	~~107.84~~ C.C.K.			
Total	2,351.25 C.C.K. ~~$2,459.09~~	1,884.00	4,235.25 C.C.K. ~~4,343.09~~			
Totals previously reported	$1,884.00					
Totals to date	4235.25 C.C.K. ~~$4,343.09~~					

FOR GOVERNMENT USE ONLY

Checked by Edwin J. Perkins
Entered by
Approved by Clinton C. Knox ~~acting for~~ L. J. McElvenny acting executive member DMA field team, Region III
Amount approved for payment ~~$4,229.55~~ $1,175.63
Remarks Eng. Fee deleted by Clinton C. Knox 9/18/51 as per Exhibit "A" contract I-DMA-E45

[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

MF-10
April 19

DISTRIBUTION OF WAGES AND SALARIES FOR MONTH OF August

Name of operator Bootman & Boswell Mining Co.
Project No. DMA I-DMA-245 (Docket No. DMA 1118)
Total contract amount $9,868.60
Government participation percent 50%

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	1	31	$400.00	$400.00
Superintendent				
Engineers				
Geologists				
Bookkeeper				
Foreman				
Clerks				
Stenographers				
Other				
Total	1	31	$400.00	$400.00

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

FOR GOVERNMENT USE ONLY

Checked by Edwin T. Pickens
Entered by
Approved by Clinton C. Knox - acting for L. J. McElvenny acting executive member DMA Field Team, Region VII
Remarks

16—64068-1

EXPLORATION UNIT COST AND PROGRESS REPORT FOR MONTH OF August

Name of operator: Bootman & Boswell Mining Co.
Project No. DMA: I-DMA-E45 (Docket No. DMA 1118)
Total contract amount: $9,868.80
Government participation, percent: 50%

Item	Costs					Progress				
	Wages [1] and salaries	Equipment [2]	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 by contract				1,951.25	1,951.25	Feet	1,115	848	1,963	4,725
Overburden										
Rehabilitation and preparation										
Geology and geophysics										
Trenching										
Sampling and assaying										
Roads and trails										
Test pits										
Other (specify) Manager	$400.00				400.00					
~~Engineering Fee~~				~~107.84~~ ccK	~~107.84~~ ccK					
Totals	$400.00			1951.25 ccK ~~2,059.09~~	2,351.25 ccK ~~2,459.09~~	Feet	1,115	848	1,963	4,725

[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: Edwin T. Perkins
Entered by:
Approved by: Clinton C. Kurz - acting for L. J. McElvenny acting executive member DMA Field Team, Region III
Remarks:

xxxxxxxxxxxxxx
Joplin, Missouri

September 18, 1951

Dmc
2

SEP 20 1951

Bootman & Boswell Mining Company
1405 W. Walnut Street
Springfield, Missouri

Subject: Bootman & Boswell Mining Co.
Monthly Progress Report
Docket No. DMA 1118
Contract No. I-DMA-245
Stotts City, Missouri

Dear Sirs:

Your monthly progress report for August, 1951 was returned to this office for deletion of the $107.84 item for engineering fees. That item is deleted in compliance with your Exhibit "A" in the above subject contract. Therefore, the total on the August, 1951 monthly summary cost statement is now $2,351.25 instead of the $2,459.09 you reported.

Since you verbally agreed with this office to recess the project work at the close of the above-mentioned cost period, you must have prior written approval before resuming that exploratory work under the above subject contract, and it appears unlikely now that you will prepare a cost report for September, 1951.

Very truly yours,

Clinton C. Knox
For L. T. McElvenny,
Acting Executive,
DMA Field Team, Region VI.

LOG OF WELLS DRILLED BY BOOTHAM & BOSWELL MINING COMPANY IN AUGUST 1961

Drill Hole	Driller	Feet	Amount	Location
B9	Clayton Wallace	105 *	$ 183.75	Trave. 20-N12A
B10	Wade Johnson	140	245.00	Trave. 22-N14A
B11	Grant Hart	120	210.00	S.E.-S.E. Sec. 26
B12	Clayton Wallace	150	262.50	S.E.-S.E. Sec. 26
B13	Grant Hart	155	271.25	" " " "
B14	Clayton Wallace	160	280.00	S.W.-S.W. Sec. 26
B15	Wade Johnson	150	262.50	Trave. 22-S.W.-S.E.
B16	Grant Hart	135	236.25	S.E.-S.E. Sec. 26
Total		1115	$1,951.25	

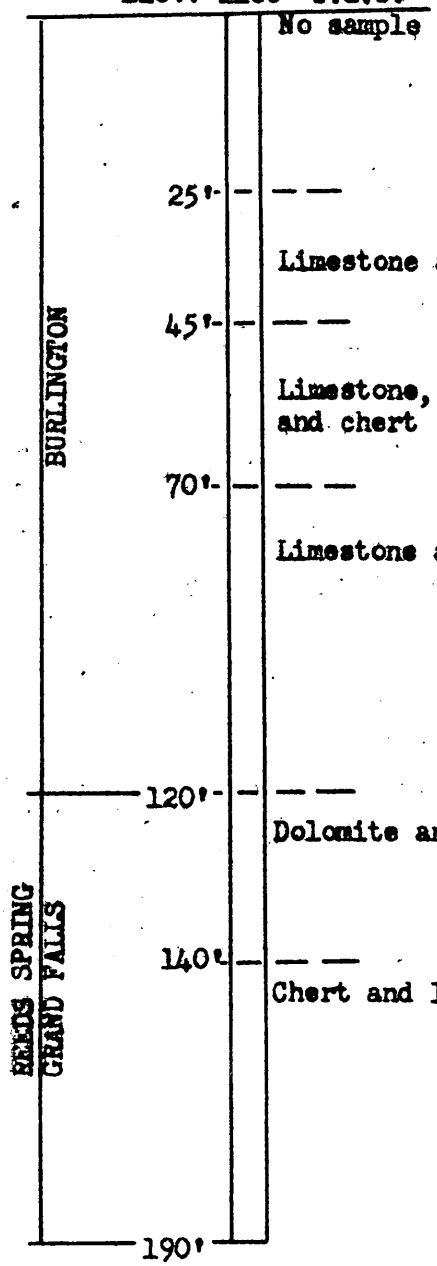
* This Well was started the latter part of July and drilled to a depth of 85 ft. and paid for in July.

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-1

Elev. 1160' f.a.s.

L. W. Jones Land - NE¼ NW¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri



REMARKS - None

No assays

VERTICAL SCALE 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-2

Elev. 1165' f.a.s.

BURLINGTON		No sample
	35'	
	40'	Limestone & chert
		No sample
	60'	
		Chert & limestone
	80'	
	85'	No sample
		Limestone & chert
	95'	
	100'	Chert, limestone & dolomite
		Limestone & chert
	125'	
		Dolomite & chert
REEDS SPRING / FERN GLEN	140'	
		Dolomite, limestone
	150'	& chert
	155'	Limestone and chert
		Dolomite, limestone & chert
	166'	

L. W. Jones Land - NE¼ NW¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Struck water at 75 feet

Started: June 6, 1951
Completed: June 25, 1951

REMARKS: 70' of 6¼" casing and
96' of 6¼" hole

NO ASSAYS.

VERTICAL SCALE 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-3

Elev. 1160' f.a.s.

Ross Jones Land - S½ SW¼ NE¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Date started: June 13, 1951
Date completed: June 25, 1951

REMARKS: 35' of 6¼" casing and
155' of 6¼" hole

Casing left in hole

NO ASSAYS

BURLINGTON		Chert and red shale
	30'	Limestone and chert
	40'	Limestone, chert & red shale
	45'	
		Limestone and chert
	65'	
		Limestone, red shale and chert
	90'	
		Limestone and chert
	117½	
REEDS SPRING GRAND FALLS		Chert and dolomite
	140'	
		Limestone, chert and dolomite
	150'	
		Limestone and chert
	160'	
	165'	Chert, limestone & dolomite
		Limestone & chert
	190'	

VERTICAL SCALE - 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-4

Elev. 1160' f.a.s.

BURLINGTON		Red shale & chert
	20'	
		Red shale, chert and limestone
	30'	
		Limestone and chert
	60'	
		Limestone, red shale and chert
	85'	
	90'	Dolomite, red shale & chert
		Limestone and chert
	110'	
REEDS SPRING GRAND FALLS		Dolomite and chert
	135'	
		Limestone, chert and clay
	150'	
	155'	Dolomite, chert & clay
		Chert, limestone, dolomite & clay
	165'	
		Limestone, chert & clay
	180'	

Ross Jones Land - S½ SE¼ NE¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Date started: June 25, 1951
Date completed: July 11, 1951

REMARKS: 24' of 6¼" casing and
156' of 6¼" hole

Casing left in hole

NO ASSAYS.

VERTICAL SCALE 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-5

Elev. 1170' f.a.s.

L. W. Jones Land - NE¼ NW¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Date started: June 26, 1951
Date completed: July 11, 1951

REMARKS: 70' of 8¼" casing
70' of 6¼" casing and
125' of 6¼" hole

BURLINGTON		No sample
	25'	
		Limestone and chert
	45'	
		No sample
	55'	
		Limestone & chert
	125'	
REEDS SPRING GRAND FALLS		Dolomite & chert
	140'	
	145'	Limestone & chert
	150'	Dolomite, limestone & chert
	160'	Dolomite and chert
		Limestone & chert
	195'	

NO ASSAYS

VERTICAL SCALE - 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-6

Elev. 1140' f.a.a.

BURLINGTON		Red shale and chert
	20'	
		Red shale, chert and limestone
	45'	
		Limestone & chert
	60'	
	65'	Limestone, red shale & chert
		Limestone and chert
	95'	
REEDS SPRING GRAND FALLS		Dolomite and chert
	115'	
		Limestone and chert
	125'	
	130'	Dolomite, limestone & chert
	135'	Dolomite and chert
	140'	Chert & dolomitic limestone
		Limestone and chert
	178'	

Paul Fieker Land - NW¼ SE¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Kansas

Struck water at 50'

Date started: July 17, 1951
Date completed: July 25, 1951

REMARKS: 43' of 8¼" hole,
43' of 6¼" casing and
135' of 6¼" hole

NO ASSAYS

Vertical scale 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-7

Elev. 1150' f.a.s.

Paul Fieker Land - NW¼ SE¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Struck water at 70 & 110'

Date started: July 19, 1951
Date completed: July 23, 1951

REMARKS: 70' of 8¼" hole
70' of 6¼" casing and
111' of 6¼" hole

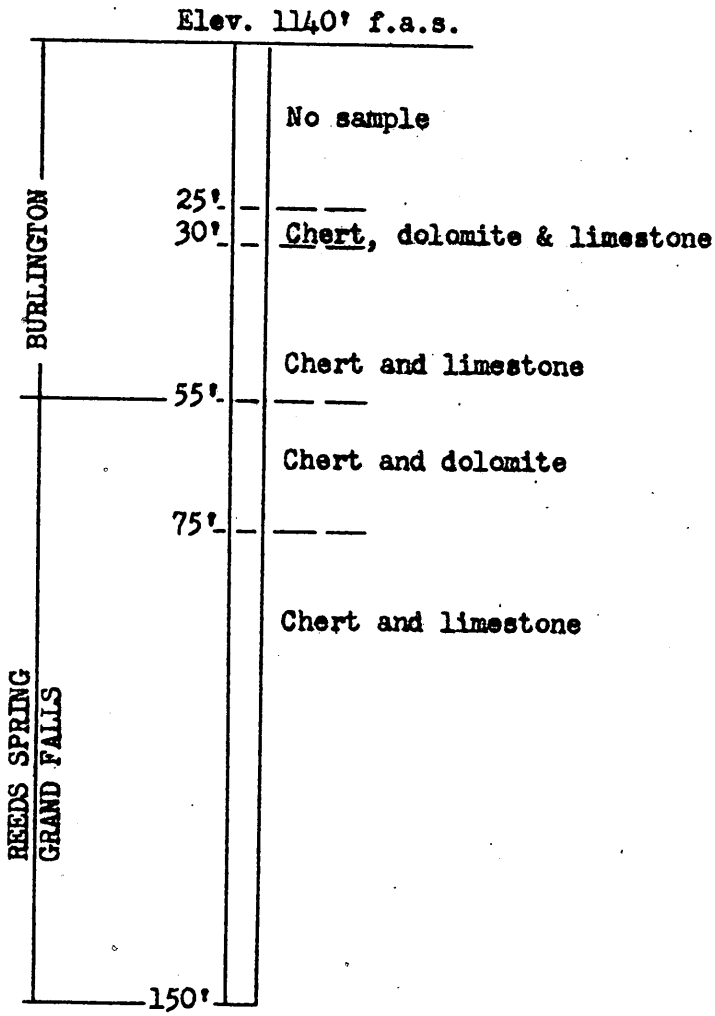
NO ASSAYS

Vertical scale 1" = 30'

BURLINGTON		No sample
	60'	
	65'	Chert and dolomite
		Limestone and chert
	110'	
REEDS SPRING GRAND FALLS		Dolomite & chert
	120'	
	125'	Chert, dolomite & limestone
		Limestone and chert
	135'	
	140'	Dolomite & chert
		Limestone & chert
	181'	

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-8



Paul Fieker Land - SW¼ SE¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Struck water at 57 feet

Started: July 25, 1951
Completed: Aug. 2, 1951

REMARKS: 26' of 8¼" hole and
124' of 6¼" hole

NO ASSAYS

Vertical scale 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-9

Elev. 1140' f.a.s.

BURLINGTON		Red shale and chert
	40'	
		Chert, red shale and limestone
	50'	
		Chert and limestone
	60'	
	65'	Chert and dolomite
		Chert and limestone
	95'	
REEDS SPRING GRAND PALIS		Chert and dolomite
	110'	
		Limestone & chert
	120'	
	125'	Dolomite & chert
	135'	Limestone, dolomite & chert
		Limestone & chert
	190'	

Paul Fieker Land - NW¼ SE¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Struck water at 70 feet

Date started: July 26, 1951
Date completed: Aug. 3, 1951

REMARKS: 51' of 8¼" hole
51' of 6¼" casing and
139' of 6¼" hole

NO ASSAYS

Vertical scale 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-10

ELEV. 1146' f.a.s.

BURLINGTON		No sample
	50'	
	55'	Chert
		Chert and limestone
	75'	
	80'	Chert, dolomite & limestone
		Chert and limestone
	105'	
REEDS SPRING		Chert and dolomite
GRAND FALLS	120'	
		Chert and limestone
	140'	

Paul Fieker Land - NW¼ SE¼
Sec. 26, T. 28 N., R. 28 W

Struck water at 50'

Date started: Aug. 2, 1951
Date completed: Aug. 8, 1951

REMARKS: 54' of 8¼" hole
54' of 6¼" casing &
86' of 6¼" hole

NO ASSAYS

Vertical scale 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-11

Elev. 1148' f.a.s.

BURLINGTON		No sample
	25'	
	30'	Chert & dolomite
	35'	Chert, limestone & dolomite
		Chert and limestone
	55'	
REEDS SPRING / GRAND FALLS		Chert and dolomite
	70'	
	75'	Limestone, chert & dolomite
	80'	Limestone and chert
	85'	No sample
	90'	Limestone & chert
	95'	dolomite and chert
	100'	Chert, limestone & dolomite
		Limestone and chert
	120'	

Paul Fieker Land - SW¼ SE¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Struck water at 52'

Date started: Aug. 2, 1951
Date completed: Aug. 7, 1951

NO ASSAYS

Vertical scale - 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-12

Elev. 1148' f.a.s.

RESIDUUM	5'	Brown shale
		Brown shale and chert
	25'	
BURLINGTON	30'	Limestone, dolomite & chert
		Limestone and chert
	55'	
REEDS SPRING GRAND FALLS		Chert and dolomite
	75'	
		Limestone and chert
	85'	
		Limestone, dolomite & chert
	105'	
		Limestone and chert
	150'	

Paul Fieker Land - SW¼ SE¼
Sec. 26, T. 28 N., R. 28 W
Lawrence County, Missouri

Date started: Aug. 4, 1951
Date completed: Aug. 10, 1951

NO ASSAYS

Vertical scale 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-13

Elev. 1148' f.a.s.

Paul Fieker Land - SW¼ SE¼
Sec. 26, T. 28N., R. 28 W.,
Lawrence County, Missouri

BURLINGTON		No sample
	25'	
	30'	Dolomite & chert
		Chert and limestone
	55'	
REEDS SPRING GRAND FALLS		Dolomite and chert
	75'	
	80'	Dolomite, limestone & chert
		Limestone and chert
	90'	
	95'	Dolomite and chert
		Dolomite, limestone & chert
	105'	
		Limestone and chert
	155'	

Struck water at 65'

Date started: Aug. 9, 1951
Date completed: Aug. 16, 1951

REMARKS: 25' of 8¼" hole,
25' of 6¼" casing, and
130' of 6¼" hole

NO ASSAYS

Vertical scale 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-14

Elev. 1192' f.a.s.

RESIDUUM		Brown shale and chert
	30'	
	40'	Brown shale, chert and limestone
BURLINGTON		Limestone and chert
	75'	
GRAND FALLS	80'	Dolomite, limestone and chert
	95'	
BURLINGTON	100'	Limestone & chert
	105'	Dolomitic limestone & chert
	115'	Limestone & chert
	125'	Dolomite and chert
	140'	Chert and limestone
GRAND FALLS	160'	

Paul Fieker Land - North 15 acres SW¼ SW¼ Sec. 26, T. 28 N., R. 28 W., Lawrence County, Mo.

Struck water at 100'

Date started: Aug. 11, 1951
Date completed: Aug. 23, 1951

REMARKS: 41' of 8¼" hole,
41' of 6¼" casing, and
119' of 6¼" hole

NOTE: Samples are mixed or cross a fault

NO ASSAYS

Vertical scale 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-15

Elev. 1138' f.a.s.

RESIDUUM	10'	No sample
		Brown shale and chert
	35'	
BURLINGTON		Chert and limestone
	90'	
REEDS SPRING GRAND FALLS		Chert and dolomite
	110'	
		Limestone and chert
	120'	
	125'	Dolomite and chert
		Chert and limestone
	150'	

Paul Fieker Land - NW¼ SE¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Struck water at 45 & 85'

Date started: Aug. 9, 1951
Date completed: Aug. 22, 1951

REMARKS: 41' of 8¼" hole
41' of 6¼" casing, and
109' of 6¼ hole

NO ASSAYS

Vertical scale 1" - 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-16

Elev. 1148' f.a.s.

Paul Fieker Land - SW¼ SE¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

BURLINGTON		No sample
	25'	
	30'	Chert and dolomite
		Chert and limestone
	60'	
REEDS SPRINGS / GRAND FALLS		Dolomite and chert
	75'	
	80'	Limestone, chert & dolomite
		Limestone and chert
	95'	
	100'	Chert and dolomite
		Limestone and chert
	136'	

Struck water at 60'

Date started: Aug. 17, 1951
Date completed: Aug. 24, 1951

REMARKS: 25' of 8¼" hole
25' of 6¼" casing, and
112' of 6¼" hole

NO ASSAYS

Vertical scale 1" - 30'

MF-104
(April 1951)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

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.

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.

Bootman & Boswell Mining Co.
(Name of Company)

By C M B Crutcher
(Signature of Authorized Official)

August 1, 1951
(Date)

Manager
(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 Bootman & Boswell Mining Co.
Project No. DMA I-DMA-E45 (Docket No. DMA 1118)
Total contract amount $9,868.60
Government participation percent 50%

Distribution of Expenditures for Month of July 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	$1,884.00	None	$1,884.00			
Equipment purchase [1]						
Equipment rental [2]						
Buildings						
Explosives						
Repair parts						
Other supplies						
Power						
Transportation						
Withholding taxes	40.08		40.08			
Compensation insurance						
Other insurance						
Contract work						
Other (specify)						
Total	$1,884.00		$1,884.00			
Totals previously reported	$ NONE		NONE			
Totals to date	$1,884.00		$1,884.00			

E.J.P.

FOR GOVERNMENT USE ONLY

Checked by Edwin T. Perkins JR
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

DISTRIBUTION OF WAGES AND SALARIES FOR MONTH OF July

Name of operator Bootman & Boswell Mining Co.
Project No. DMA I-DMA-E45 (Docket No. DMA 1118)
Total contract amount $9,868.60
Government participation percent 50%

Type	Number	Man-Shifts	Rate	Total
Miners			$	$
Muckers				
Trammers				
Timbermen				
Pumpmen				
Hoistmen				
Surface				
Samplers				
Assayers				
Shift bosses				
Mechanics				
Electricians				
Blacksmiths				
Carpenters				
Drill runners by Contract	3	1	$1.75 Per Ft.	$1,484.00
Drill helpers				
Teamsters				
Manager	1	1	$300.00 Mo. Plus $100.00	$400.00 Expenses
Superintendent				
Engineers				
Geologists				
Bookkeeper				
Foreman				
Clerks				
Stenographers				
Other				
Total	4	~~3~~ 2		$1,884.00

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

FOR GOVERNMENT USE ONLY

Checked by Edwin T. Perkins
Entered by
Approved by
Remarks

16—64068-1

EXPLORATION UNIT COST AND PROGRESS REPORT FOR MONTH OF July

Name of operator Bootman & Boswell Mining Co.
Project No. DMA I-DMA-E45 (Docket No. DMA1118)
Total contract amount $9,868.60
Government participation, percent 50%

Item	Costs					Progress				
	Wages [1] and salaries	Equipment [2]	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	$1,484.00				$1,484.00	$1.75 perFt.	848Ft.	None	848 Ft.	4,725 Ft.
Overburden										
Rehabilitation and preparation										
Geology and geophysics										
Trenching										
Sampling and assaying										
Roads and trails										
Test pits										
Other (specify)										
Totals	$1,484.00				$1,484.00	$1.75	848Ft	None	848 Ft.	4,725 Ft.

[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 Edwin J. Perkins, Jr.
Entered by
Approved by
Remarks

LOG OF WELLS DRILLED BY BOOTMAN & BOSWELL MINING COMPANY IN JULY 1951

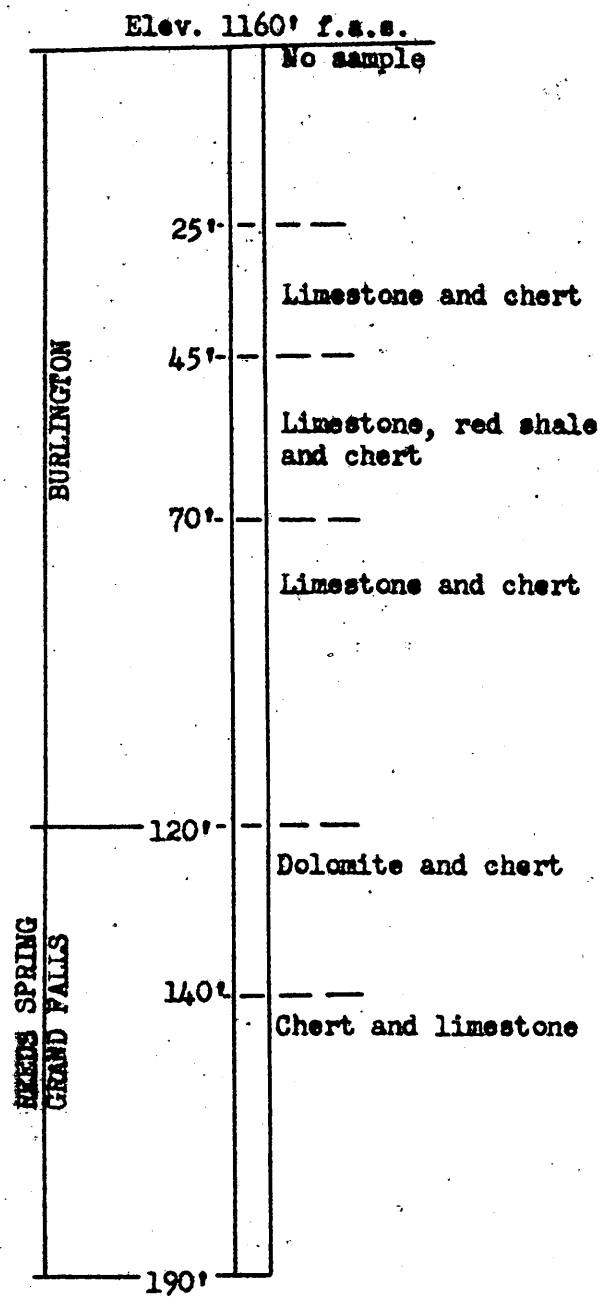
Drill Hole	Driller	Feet	Amount	Location
B4	Clayton Wallace	115 *	$ 201.25	Traverse 30, Well 17
B5	Wade Johnson	130 *	227.50	Traverse 3, Well 3
B6	Clayton Wallace	178	311.50	Traverse 20, Well 12
B7	Wade Johnson	190	332.50	Traverse 22, Well 14
B8	Grant Hart	150	262.50	SE-SE Sec. 26 Well 48
B9	Clayton Wallace	85 **	148.75	Traverse 20, Well 12A
		848	$1,484.00	

Note: Well designated as 12A offsets Well on Traverse 20, 40 Ft. West.

* Hole started in June and drilled to a depth of 65 feet
** Hole unfinished at the end of July

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHUEN DRILL HOLE #B-1



L. W. Jones Land - NE¼ NW¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

REMARKS - None

No assays

VERTICAL SCALE 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-2

Elev. 1165' f.a.s.

BURLINGTON		No sample
	35'	
	40'	Limestone & chert
		No sample
	60'	
		Chert & limestone
	80'	
	85'	No sample
		Limestone & chert
	95'	
	100'	Chert, limestone & dolomite
		Limestone & chert
	125'	
		Dolomite & chert
REEDS SPRING	140'	
FERN GLEN		Dolomite, limestone
	150'	& chert
	155'	Limestone and chert
		Dolomite, limestone
	166'	& chert

L. W. Jones Land - NE¼ NW¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Struck water at 75 feet

Started: June 6, 1951
Completed: June 25, 1951

REMARKS: 70' of 6¼" casing and
96' of 6¼" hole

NO ASSAYS.

VERTICAL SCALE 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-3

Elev. 1160' f.a.s.

Ross Jones Land - S½ SW¼ NE¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Date started: June 13, 1951
Date completed: June 25, 1951

REMARKS: 35' of 6¼" casing and
155' of 6¼" hole

Casing left in hole

NO ASSAYS

BURLINGTON		Chert and red shale
	30'	Limestone and chert
	40'	Limestone, chert & red shale
	45'	
		Limestone and chert
	65'	
		Limestone, red shale and chert
	90'	
		Limestone and chert
	117½	
		Chert and dolomite
REEDS SPRING GRAND FALLS	140'	
		Limestone, chert and dolomite
	150'	
		Limestone and chert
	160'	
	165'	Chert, limestone & dolomite
		Limestone & chert
	190'	

VERTICAL SCALE - 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-4

Elev. 1160' f.a.s.

Ross Jones Land - S½ SE¼ NE¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Date started: June 25, 1951
Date completed: July 11, 1951

REMARKS: 24' of 6¼" casing and
156' of 6¼" hole

Casing left in hole

NO ASSAYS.

VERTICAL SCALE 1" = 30'

BURLINGTON		Red shale & chert
	20'	
		Red shale, chert and limestone
	30'	
		Limestone and chert
	60'	
		Limestone, red shale and chert
	85'	
	90'	Dolomite, red shale & chert
		Limestone and chert
	110'	
REEDS SPRING / GRAND FALLS		Dolomite and chert
	135'	
		Limestone, chert and clay
	150'	
	155'	Dolomite, chert & clay
		Chert, limestone, dolomite & clay
	165'	
		Limestone, chert & clay
	180'	

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-5

Elev. 1170' f.a.s.

L. W. Jones Land - NE¼ NW¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Date started: June 26, 1951
Date completed: July 11, 1951

REMARKS: 70' of 8¼" casing
70' of 6¼" casing and
125' of 6¼" hole

BURLINGTON		No sample
	25'	
		Limestone and chert
	45'	
		No sample
	55'	
		Limestone & chert
	125'	
NEEDS SPRING GRAND FALLS		Dolomite & chert
	140'	
	145'	Limestone & chert
	150'	Dolomite, limestone & chert
	160'	Dolomite and chert
		Limestone & chert
	195'	

NO ASSAYS

VERTICAL SCALE - 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-6

Elev. 1140' f.a.a.

BURLINGTON		Red shale and chert
	20'	
		Red shale, chert and limestone
	45'	
		Limestone & chert
	60'	
	65'	Limestone, red shale & chert
		Limestone and chert
	95'	
REEDS SPRING GRAND FALLS		Dolomite and chert
	115'	
		Limestone and chert
	125'	
	130'	Dolomite, limestone & chert
	135'	Dolomite and chert
	140'	Chert & dolomitic limestone
		Limestone and chert
	178'	

Paul Fieker Land - NW¼ SE¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Kansas

Struck water at 50'

Date started: July 17, 1951
Date completed: July 25, 1951

REMARKS: 43' of 8¼" hole,
43' of 6¼" casing and
135' of 6¼" hole

NO ASSAYS

Vertical scale 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-7

Elev. 1150' f.a.s.

Paul Fieker Land - NW¼ SE¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Struck water at 70 & 110'.

Date started: July 19, 1951
Date completed: July 23, 1951

REMARKS: 70' of 8¼" hole
70' of 6¼" casing and
111' of 6¼" hole

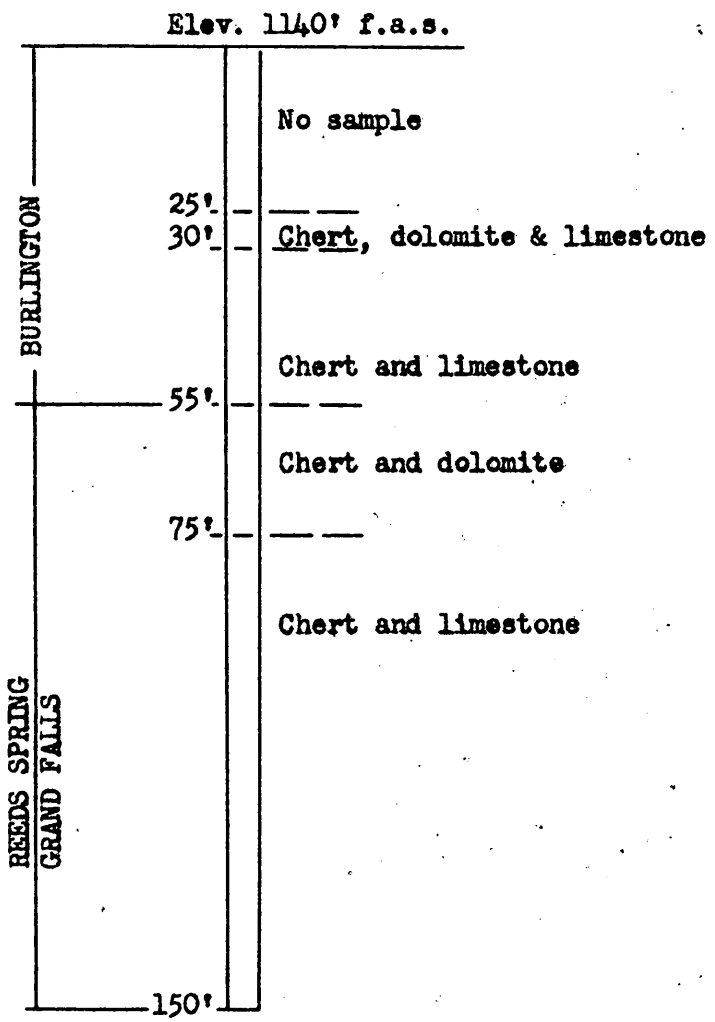
NO ASSAYS

BURLINGTON		No sample
	60'	
	65'	Chert and dolomite
		Limestone and chert
	110'	
REEDS SPRING		Dolomite & chert
	120'	
	125'	Chert, dolomite & limestone
		Limestone and chert
	135'	
GRAND FALLS	140'	Dolomite & chert
		Limestone & chert
	181'	

Vertical scale 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-8



Paul Fieker Land - SW¼ SE¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Struck water at 57 feet

Started: July 25, 1951
Completed: Aug. 2, 1951

REMARKS: 26' of 8¼" hole and
124' of 6¼" hole

NO ASSAYS

Vertical scale 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-9

Elev. 1140' f.a.s.

BURLINGTON		Red shale and chert
	40'	
		Chert, red shale and limestone
	50'	
		Chert and limestone
	60'	
	65'	Chert and dolomite
		Chert and limestone
	95'	
REEDS SPRING		Chert and dolomite
	110'	
		Limestone & chert
	120'	
	125'	Dolomite & chert
	135'	Limestone, dolomite & chert
GRAND FALLS		Limestone & chert
	190'	

Paul Fieker Land - NW¼ SE¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Struck water at 70 feet

Date started: July 26, 1951
Date completed: Aug. 3, 1951

REMARKS: 51' of 8¼" hole
51' of 6¼" casing and
139' of 6¼" hole

NO ASSAYS

Vertical scale 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-10

ELEV. 1146' f.a.s.

BURLINGTON		No sample
	50'	
	55'	Chert
		Chert and limestone
	75'	
	80'	Chert, dolomite & limestone
		Chert and limestone
	105'	
REEDS SPRING		Chert and dolomite
GRAND FALLS	120'	
		Chert and limestone
	140'	

Paul Fieker Land - NW¼ SE¼
Sec. 26, T. 28 N., R. 28 W

Struck water at 50'

Date started: Aug. 2, 1951
Date completed: Aug. 8, 1951

REMARKS: 54' of 8¼" hole
54' of 6¼" casing &
86' of 6¼" hole

NO ASSAYS

Vertical scale 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-11

Elev. 1148' f.a.s.

Paul Fieker Land - SW¼ SE¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Struck water at 52'

Date started: Aug. 2, 1951
Date completed: Aug. 7, 1951

BURLINGTON		No sample
	25'	
	30'	Chert & dolomite
	35'	Chert, limestone & dolomite
		Chert and limestone
	55'	
REEDS SPRING / GRAND FALLS		Chert and dolomite
	70'	
	75'	Limestone, chert & dolomite
	80'	Limestone and chert
	85'	No sample
	90'	Limestone & chert
	95'	dolomite and chert
	100'	Chert, limestone & dolomite
		Limestone and chert
	120'	

NO ASSAYS

Vertical scale - 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-12

Elev. 1148' f.a.s.

RESIDUUM	5'	Brown shale
		Brown shale and chert
	25'	
BURLINGTON	30'	Limestone, dolomite & chert
		Limestone and chert
	55'	
REEDS SPRING GRAND FALLS		Chert and dolomite
	75'	
		Limestone and chert
	85'	
		Limestone, dolomite & chert
	105'	
		Limestone and chert
	150'	

Paul Fieker Land - SW¼ SE¼
Sec. 26, T. 28 N., R. 28 W
Lawrence County, Missouri

Date started: Aug. 4, 1951
Date completed: Aug. 10, 1951

NO ASSAYS

Vertical scale 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-13

Elev. 1148' f.a.s.

BURLINGTON		No sample
	25'	
	30'	Dolomite & chert
		Chert and limestone
	55'	
REEDS SPRING GRAND FALLS		Dolomite and chert
	75'	
	80'	Dolomite, limestone & chert
		Limestone and chert
	90'	
	95'	Dolomite and chert
		Dolomite, limestone & chert
	105'	
		Limestone and chert
	155'	

Paul Fieker Land - SW¼ SE¼
Sec. 26, T. 28N., R. 28 W.,
Lawrence County, Missouri

Struck water at 65'

Date started: Aug. 9, 1951
Date completed: Aug. 16, 1951

REMARKS: 25' of 8¼" hole,
25' of 6¼" casing, and
130' of 6¼" hole

NO ASSAYS

Vertical scale 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-14

Elev. 1192' f.a.s.

RESIDUUM		Brown shale and chert
	30'	
	40'	Brown shale, chert and limestone
BURLINGTON		Limestone and chert
	75'	
GRAND FALLS	80'	Dolomite, limestone and chert
	95'	
BURLINGTON	100'	Limestone & chert
	105'	Dolomitic limestone & chert
	115'	Limestone & chert
	125'	Dolomite and chert
GRAND FALLS	140'	Chert and limestone
	160'	

Paul Fieker Land - North 15 acres SW¼ SW¼ Sec. 26, T. 28 N., R. 28 W., Lawrence County, Mo.

Struck water at 100'

Date started: Aug. 11, 1951
Date completed: Aug. 23, 1951

REMARKS: 41' of 8¼" hole,
41' of 6¼" casing, and
119' of 6¼" hole

NOTE: Samples are mixed or cross a fault

NO ASSAYS

Vertical scale 1" = 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-15

Elev. 1138' f.a.s.

RESIDUUM	10'	No sample
		Brown shale and chert
	35'	
BURLINGTON		Chert and limestone
	90'	
REEDS SPRING GRAND FALLS		Chert and dolomite
	110'	
		Limestone and chert
	120'	
	125'	Dolomite and chert
		Chert and limestone
	150'	

Paul Fieker Land - NW¼ SE¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Struck water at 45 & 85'

Date started: Aug. 9, 1951
Date completed: Aug. 22, 1951

REMARKS: 41' of 8¼" hole
41' of 6¼" casing, and
109' of 6¼ hole

NO ASSAYS

Vertical scale 1" - 30'

BOOTMAN & BOSWELL
STOTTS CITY, MISSOURI

SECTION OF CHURN DRILL HOLE #B-16

Elev. 1148' f.a.s.

BURLINGTON		No sample
	25'	
	30'	Chert and dolomite
		Chert and limestone
	60'	
REEDS SPRINGS, GRAND FALLS		Dolomite and chert
	75'	
	80'	Limestone, chert & dolomite
		Limestone and chert
	95'	
	100'	Chert and dolomite
		Limestone and chert
	135'	

Paul Fieker Land - SW¼ SE¼
Sec. 26, T. 28 N., R. 28 W.,
Lawrence County, Missouri

Struck water at 60'

Date started: Aug. 17, 1951
Date completed: Aug. 24, 1951

REMARKS: 25' of 8¼" hole
25' of 6¼" casing, and
112' of 6¼" hole

NO ASSAYS

Vertical scale 1" - 30'

500

FILE COPY
SURNAME:

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

Mis. M.R.R.

December 8, 1953

Project Summary Report

1. DMA 1118 (Lead)
   Contract No. Idm-E45
   Lawrence County, Missouri

   Operator: Bootman and Boswell Mining Co.
   Lebanon, Missouri

   Operator's property rights: Leases on parcels of land as shown in the contract. Six Landlord's subordination agreements dated June 30, 1951.

2. Contract dated June 30, 1951 Completion date: October 30, 1951.

   Work authorized

21 churn drill holes, averaging 275 feet in depth - 4725 ft. total @ $1.75	$ 8,268.00
Supervision 4 months @ $400	1,600.00
	$ 9,868.00

   Work completed

1936 ft. of churn drilling @ $2.18 (16 holes)	$ 4,235.25
Government's participation	2,117.63

   Work completed in August 1951.

3. Audit certificate issued August 19, 1952.

Comments:

The 16 drill holes (with one exception) did not indicate any mineralization sufficient to warrant assaying. One hole, which was drilled a quarter of a mile away from the project area, without Government permission, showed ten feet of 2.98 per cent zinc.

Due to the improbability of making a commercial ore discovery, and the failure of the Operator to prosecute operations pursuant to the terms of the contract, the Field Team terminated the contract before completion of the project.

The general purpose of the project was to explore for replacement deposits of lead ores in a series of limestone rocks, with inter-bedded cherts.

Since the results were negative, the properties covered by the drilling would be of no further interest.

/s/

W. R. Griswold

No Field Team final report, Letter, April 12, 1954, Reporting depot [illegible]
No Certificate of Accuracy issued.

☒ Audited

☐ Certified

WORK ANALYSIS SHEET - DMEA PROJECT

Analysis as of 12/2/54.
Incl. Voucher for Aug. 1951.

☒ Actual Cost

☐ Agreed Unit Costs

Name Bostman and Boswell Mining Co.

Docket No. DMA-1118

State Missouri

Commodity Lead.

Idn-E No. 45

OPERATION	AUTHORIZED Units	AUTHORIZED Costs	COMPLETED Units	COMPLETED Costs	NET COST
Drifting & Crosscutting					
Raising					
Shafts					
Winzes					
Drilling (Specify) Churn	4,725'	$8,268.00	1,936'	$4,235.25	$4,235.25
Surface Excavation					
Underground Excavation					
Roads and Trails					
Operating Equipment Purchased					
Surface Rehabilitation & Repairs					
Underground Rehabilitation					
New Building, Improvements, etc.					
Other (Specify) Supervision		1,600.00		800.00	
Totals		$9,868.00		$4,235.25	$4,235.25

Prepared by A. P. Klugeschied.

UNITED STATES
DEPARTMENT OF THE INTERIOR 500
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

January 20, 1955

Memorandum

To: Chief, Contract Administration & Audit Division

From: Chief, Base Metals Division

Subject: Contracts for which no closing letters will be prepared.

The following is a list of contracts for which no closing letters will be prepared, due to the fact that they are cases which have been either terminated or completed before December 1952. This cut-off date was established in accordance with instructions contained in the Administrator's memorandum to Division Chiefs dated February 18, 1953.

Docket No.	Contract No.	Operator
1145	E- 11	Dodgeville Mining Company
344	20	Ike W. Kunisto
1118	45	Bootman and Boswell Mining Company
789	71	Erickson and Baer
32	75	Lee S. Meller
1654	85	The Goldfield Consolidated Mines Co.
1425	128	Pittsburg Silver Mining Company
1397	158	American Zinc, Lead & Smelting
1132	166	Albert Dance and Jewell Dance
2108	327	Amadee A. Peugnet
2333	341	Carr Mining Company, Inc.

W. R. Griswold
W. R. Griswold

WRG/er
Copy to: Docket (11)
Base Metals (11)
Chron.

C

500

FILE COPY
SURNAME

Griswold
Selfridge
Hedges
Larrabee

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

APR 12 1954

Mr. Clinton C. Knox, Executive Officer
DMEA Field Team, Region VI
P. O. Box 431
Joplin, Missouri

Re: Pending final Field Team reports

Dear Mr. Knox:

We note that no final field team reports have been received for the projects listed below, though they have been concluded for a considerable period of time. When convenient, will you let us have such reports so that the dockets may be closed.

Docket No. DMA-1118, Bostman & Boswell, Contract No. Idm-E45
Docket No. DMA-1630, American Zinc, Lead & Smelting Company, Contract No. Idm-E182
Docket No. DMA-2037, Amedee A. Peugnet, Contract No. Idm-E159
Docket No. DMA-2108, Amedee A. Peugnet, Contract No. Idm-E327

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee (SLB)

WRGriswold/bjl (4/7/54)

APPROVED:

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

D. M. Larrabee
Member, Geological Survey (SLB)

Copy to: Docket (4)
Admr. R. File
Op. Committee
Base Metals (4)
Mr. Kinkel
Mr. Bishop
Chron.

R.C.B.

FILE COPY
SURNAME:
400

Moulds

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

November 1, 1951

not stripped in R. & R.

MEMORANDUM

To: Frank E. Johnson, Acting Director
Production Expansion Division

From: D. E. Moulds

Subject: Docket No. DMA 11182, I-DMA-E45
Bootman and Boswell Mining Company
Lebanon, Missouri

The subject contract executed under date of June 30, 1951 has been recommended for termination by the Region VI Field Office under date of October 8, 1951.

The contract specified a maximum amount of $9,868.80 at 50% Government participation or $4,934.40. Proposed work consisted of churn drilling 21 holes averaging 225 feet in depth, or 4,725 feet, at a cost of $1.75 per foot and allowed, in addition, $1,600 for supervision expense.

Work on the project was prosecuted during the months of July and August, and resulted in completion of 16 holes totaling 1,963 feet and a total amount of $4,235.25 was approved as allowable costs.

The drill holes, with one exception, have not indicated mineralization worthy of assaying, and the one hole showed an average assay of 2.98 zinc over 10 feet. This assay has been questioned both as to accuracy and location and is said to be from a wildcat hole drilled approximately ¼ mile from the exploration area proposed in the application.

In view of the above indication of improbability of making a commercial ore discovery, failure to prosecute operations pursuant to the terms of the contract and incompetence of supervision, the Region VI Office advised the Operator by letter, under date of September 28, 1951, that the contract was terminated.

It is recommended that this Administration concur with the Region VI Office in this action and that the remaining funds allocated under Contract I-DMA-E45 be made available for re-allocation.

D. E. Moulds

DEMoulds/meh
cc to: Reports and Records
Mr. Moulds
Docket

DEPARTMENT OF THE INTERIOR
RECEIVED
OCT 29 1951
Defense Minerals Administration,
Production Expansion Division.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON 25, D.C.~~
Joplin, Missouri

October 8, 1951

2 816.77

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
OCT 29 1951

Memorandum

To: C. O. Mittendorf, Director
Production Expansion Division

From: Clinton C. Knox, for L. T. McElvenny,
Acting Executive, DMA Field Team, Region VI.

Subject: Termination and final report; Docket No. DMA-1118X, Exploration Project Contract I-DMA-E45, Zinc-Lead, $9,868.00, Bootman and Boswell Mining Company, Lebanon, Missouri.

Transmitted herewith are two copies each for the above subject project of: 1) the final cost summary report (Form MF-104), 2) my letter dated September 28, 1951 to the owner giving official written notice of termination of Government participation in the project as of September 30, 1951, 3) the driller's logs of the 16 holes, totaling 1963 feet of churn drilling, which was completed prior to a recess in the work from August 24, 1951 to the termination, 4) a questionable assay certificate (D. H. #10) which was belatedly submitted to this office on September 25, 1951, and 5) an undated letter from Mr. C. M. Bootman, Manager for the owner, which was received in this office October 2, 1951, all of which copies we have typed and I have accepted in lieu of "a comprehensive geologic and engineering report, including an estimate of ore reserves, to the best of his ability" as per contract I-DMA-E45.

Referring to Article 14 of the above subject contract, it is my opinion that a discovery or development has not resulted from the project work from which a commercial production of ore may be made. It is, however, barely possible to infer that an old rumored discovery of a zinc mineralized zone on the adjacent Hill farm has been extended northward through hole No. B-14 onto the above subject project.

Besides the reasons given in my termination letter to the Bootman & Boswell Mining Company on September 28, 1951, my decision regarding the incompetent supervision of the project was crystallized by Mr. Bootman's honest verbal admission that he could not certify how the samples had been taken on which the enclosed questionable assay

certificate was based, since he was watching the other drill rigs at that time and therefore could not be sure that the cutting samples had not been "washed" or otherwise concentrated. I had verbally indicated such a possible action in an interview with him August 24, 1951 when I first was assigned to this office and had checked his first monthly progress report. At that time I granted his request to recess the project and cautioned him to write for approval well before making preparations to resume the work. After a study of all the data submitted by Mr. Bootman in a visit to this office on September 25, 1951, I informed him by telephone on September 28 of my decision to terminate the project.

In his interview with me, Dr. Ed Clark, Missouri State Geologist indicated that he had personally examined the small cutting samples in question, transmitted to his staff for stratigraphic logging in the Rolla laboratories of the Missouri Geological Survey. It is customary to wash and dry such samples before mailing them to him in the tiny cloth bags with which he provides all drillers in Missouri. Dr. Clark mentioned, however, having to reprimand one of his staff members for writing the words "ZnS ore at 150-155" at the top of the original rough draft of their strip log. That had been written upon the strength of Mr. Bootman's statement when the samples were transmitted, but Dr. Clark only saw traces of sphalerite in the concentrated cuttings from those drill hole horizons and the copy of the strip log which was given to this DMA office therefore merely mentioned ZnS mineralization.

I believe it only fair to admit that the DMA should shoulder some of the blame for not having received comprehensive progress reports from Mr. Bootman, probably due to a laxness and inexperience in administration, in giving him specific instructions and not strictly enforcing the articles of the above subject project contract.

Very respectfully submitted,

Clinton C. Knox

Clinton C. Knox
for L. T. McElvenny
Acting Executive
DMA Field Team, Region VI

Bootman & Boswell Mining Company
P.O. Box 104
Lebanon, Missouri

C
O
P
Y

10/2/51

Defense Minerals Administration
Joplin,
Missouri

Subject: Contract No. Idm-E45
Docket No. DMA-1118
Zinc and Lead
Stotts City, Missouri

OPERATOR'S FINAL REPORT

Att'n Mr. Clinton C. Knox:

I received your letter making it official the cancellation of the contract No. and Docket No. as stated above.

In making this final report as of to date we have drilled 16 holes of which I have furnished you the logs as compiled by the Missouri Geological Survey. I have also mailed you the original drillers logs which should be in your possession by this time. All logs are true to my best knowledge and belief, and I kept a very close check on all cuttings as they were bailed from the wells. The only hole that showed any promise is now what is numbered B-14 which you claimed was a wild cat hole in as much as it was about a quarter of a mile west of the mineralized zone. To be exact it was about 1700 feet West. The reason I drilled in that area was because about 30 years ago Grant Hart drilled a well on The Emery Hill Farm about 300 feet south and about 30 degrees east. At the time we drilled the well 14 we did not know the exact location of the well Grant Hart drilled, and set our transit on a location about where he thought it was and run a course North 25 degrees West which is about the run of the old mines. Later after drilling this well (14) we found the old Grant Hart well with the aid of an A-scope. Upon finding the well we found we off the 25 degree run about 32 feet west. I checked every bunch of cuttings from the above well 14 and there is no question but what we are in a fault. The only reason I did not drill closer to the well Grant Hart drilled was due to the fact Hill did not sign the landlords subordination agreement so I drilled just as close to this old well on the Fieker property as I could in as much as they had signed the agreement. This particular well that Grant Hart drilled on the Hill Farm showed fairly rich jack from 60 to 70 feet and I talked to several people in the Stotts City area which saw these cuttings and varified them. So I don't consider well 14 such a wild cat hole as you do. To be frank about it I am going to run a resitivity survey in that area and follow with some more drilling, as I think there are very good possibilities for a new third run of ore there.

I might ad at this time that well 14 which showed a small amount of zinc ore is confusing to you in as much as you claimed the assays certificate shows the ore to come from well B-10. When I first started numbering the wells I started numbering the wells from No. 1 on each farm which made the well in

controversy the 10th well I drilled on Fieker. Then Mr. Perkins wanted the wells to be numbered starting from the first well I drilled on L. W. Jones Farm before the DMA contract was signed to be number I and each well numbered there after according to date started. This was not done until after I had turned in the logs and assay on well 14 which should clear up the confusion on this particular well.

As to the Geophysical survey made by Leroy Scharon I drilled enough holes on the survey run as you can see on the map to prove the area was of no value. We hit a lot of broken ground on every hole on the resitivity survey and that was all we did hit. I agree with you the engineer evidently made some mistake on the map he made, but the holes I drilled were accurate as we staked and numbered each traverse base and I ran accurate measurements from each base we drilled from.

I am also enclosing the copys of Form MF-104 as per your request for September. I believe Mr. Knox this final report fulfills my contract with the Government so I am ready to start on my own now.

Yours very truly,

BOOTMAN & BOSWELL MINING CO.

/s/ C. M. Bootman

C. M. Bootman
Manager

xxxxxxxxxxxxxx
Joplin, Missouri

September 28, 1951

Mr. C. H. Bootman, Supervisor
Bootman & Boswell Mining Company
1405 W. Walnut Street
Springfield, Missouri

Subject: Contract No. Idm-245
Docket No. DMA-1118
Zinc and Lead
Stotts City, Missouri

Dear Mr. Bootman:

In response to my letter of September 18, 1951, I appreciated your visit to this office on the afternoon of September 25, 1951 to discuss your tentative plans to resume exploratory drilling on the above subject project in October, 1951, following the recess since August 24, 1951 necessitated by the regrettable illness and death in your family.

Since your visit, I have made a carefull study of the additional information you presented then: 1) the electrical resistivity map, profiles and narrative report by Dr. Leroy Sharon, Consulting Geophysicist; 2) the assay certificate showing marginal zinc mineralization, which you stated was on a sample taken from hole B-14 (the assays certificate states hole B-10, however); and 3) the strip log of all the holes by the Missouri Geological Survey made upon the small cutting samples that you presented to them.

Fortunately for me, Dr. Leroy Sharon, from Washington University of St. Louis, happened to visit this office the following morning, September 26th, and Dr. E. L. Clark, State Geologist, Missouri Geological Survey, Rolla, Missouri, was here yesterday morning, September 27th.

As you know, the proposed drill hole locations on Dr. Sharon's geophysical map do not all coincide with your map showing the locations of holes you have drilled due to some unaccountable difference in the land surveying. I am reasonably well assured, however, that you actually drilled on Sharon's location stakes, or in acceptable vicinity locations, except for the last hole, B-14, completed on August 24, 1951. It was virtually a 'wild cat' location which is almost ½-mile west of the zone I believe you inferred to drill in your application proposal incorporated in the above subject docket.

TERMINATION

Circulate to Staff

10/2/51

~~Mr. Robertson~~ R
~~Mr. Blakemore~~
~~Mr. Ellis~~ EWE
~~Mr. Moulds~~
~~Mr. Selfridge~~
Mr. Feitler - if here
~~Mr. Johnson~~
~~Mr. Knouse~~
~~Mr. Alt~~
Mr. Galiher - for PED files

Needless to say, I was astonished upon not finding any substantiating mention of zinc mineralization in the drill hole logs you submitted with your August Monthly Progress Report. Bruce Williams Laboratories, Joplin, should have been instructed to mail a copy to Defense Minerals Administration. Instead you brought in the questionable assay certificate a month later, on September 25, showing marginal zinc mineralization. This averaged only 2.98 percent zinc for a thickness from 145 to 155 feet in depth in hole B-10, but you stated that these samples actually came from hole B-14.

Dr. E. L. Clark stated he had personally viewed a trace of zinc in the small cutting samples from Hole B-14, which you submitted to the Missouri State Geological Survey, but certainly could not verify the amount of mineralization or the report section reported in that stratigraphic column since these small samples could not have been representative and were selected by you and transmitted to his office in Rolla.

In view of the above reasons, I sincerely believe it is my regrettable duty to make the following decision: Referring to your Exploration Project Contract dated June 30, 1951, Docket No. DMA 11165, you are hereby notified that effective September 30, 1951 said contract (No. L-DMA-245) is hereby terminated because in the opinion of the Government, you have failed to prosecute operations pursuant to the terms of the contract, and in the opinion of the Government, operations up to the time of this notice have not indicated the probability of making a worthwhile discovery, and in the opinion of the Government further operations are not justified.

It is also my duty to point out that under Articles 13 and 16 of said contract you shall provide the Government with a comprehensive geologic and engineering report, including copies of all the drillers logs. Also include a full and final accounting of your operations and expenditures under the contract for which five more copies of Form MF-104 is enclosed.

Very respectfully yours,

Clinton C. Knox
For L. T. McElvenny
Acting Executive
DMA Field Team, Region VI

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON 25, D.C.~~
Joplin, Missouri

September 10, 1951

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

Subject: Bootman & Boswell Mining Co.
Docket No. DMA 1118
Contract No. I-DMA-E45

Dear Sirs:

Transmitted herewith is one copy of the monthly report for the subject Exploration Project for August on Form MF-104, with appropriate attachments, as required by the Washington office of the Defense Minerals Administration.

The original and one copy have been forwarded on this date to the office of the U. S. Bureau of Mines, Amarillo, Texas, and one copy is retained in the Joplin file.

Sincerely yours,

Clinton C. Knox

Clinton C. Knox
Acting for:
L. T. McElvenny,
Acting Executive,
DMA Field Team,
Region VI.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Joplin, Missouri
September 6, 1951

Mr. Ray C. Jonas
U. S. Bureau of Mines
Room 814 Barfield Building
Amarillo, Texas

Re: Bootman & Boswell Mng. Co.
I-DMA-E45 (Docket No. DMA 1118)

Dear Mr. Jonas:

We are again returning monthly progress report for June, 1951 on the above subject contract.

We had intended to also submit the August report, but found that it had to be returned to Bootman & Boswell for correction, so only have this to submit at this time.

Very respectfully yours,

Clinton C. Knox
L. T. McElvenny, Acting Executive Officer, Region VI, DMA Field Team

CCK/jd

Enclosure

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON 25, D.C.~~
Joplin, Missouri
August 17, 1951

Memorandum

To: C. O. Mittendorf through Coordinating Committee

From: David Gallagher

Subject: Exploration Contract Monthly Reports

Transmitted herewith for your Washington file are copies of monthly reports submitted by operators of exploration in Region VI, as follows:

197	Westmoreland Manganese Corporation,	June report
	" " "	July "
1118	Bootman & Boswell Mining Company	" "

David Gallagher

Enclosures

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 20 1951

FILE COPY
SURNAME:

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

Mr. David Gallagher
Executive Officer,
Region VI
Defense Minerals Administration
P.O.Box 431
Joplin, Missouri

AUG 8 1951

Re: Docket No. DMA 1118
Bootman and Boswell Mining Co.

Dear Mr. Gallagher:

Please find enclosed three copies of Landlord's Subordination Agreement executed by Fred L. Weihe for subject exploration contract.

The three contracts returned had a copy of subordination from the six property owners within the lease plus the duplicates above; we presume that the copies are either extras or should be attached to the three copies which were not returned to this office.

The returned copies, if they are to be attached, and all subordination agreements attached to the three copies not returned to this office should be dated June 30, 1951, the same as the contract, in the appropriate space in the agreement.

Sincerely yours,

C. O. Mittendorf

C. O. Mittendorf, Director
Production Expansion Division

Enclosures-3

DEMoulds/bjs
8/7/51
cc to: Adm. Reading File
Reports and Records
Region VI
Mr. Mittendorf, Mr. Olund
Mr. Moulds
Docket copy
Dhron. copy

FILE COPY
SURNAME:

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

August 6, 1951

Q.E.C

Contract Service Section
General Accounting Office
Washington 25, D.C.

Re: Docket DMA-1118
Exploration Project Contract
Idm-E45
Bootman and Boswell Mining Company
Lebanon, Missouri

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,

BJ 8.16

C. O. Mittendorf (JW.)

C. O. Mittendorf, Director
Production Expansion Division

Enclosure - 1

DEMoulds/jem

cc to: Adm. Reading File
Field Team, Region.VI (2)
Messrs. Mittendorf-Olund
McKnight
Billings
Moulds
Reports & Records
Docket

LOG OF WELLS DRILLED BY BOOTMAN & BOSWELL MINING COMPANY IN AUGUST 1951

Drill Hole	Driller	Feet	Amount	Location
H9	Clayton Wallace	105 *	$ 183.75	Trave. 20-W12A
H10	Wade Johnson	140	245.00	Trave. 22-W14A
H11	Grant Hart	120	210.00	S.E.-S.E. Sec. 26
H12	Clayton Wallace	150	262.50	S.E.-S.E. Sec. 26
H13	Grant Hart	155	271.25	" " " "
H14	Clayton Wallace	160	280.00	S.W.-S.W. Sec. 26
H15	Wade Johnson	150	262.50	Trave. 22-N.W.-S.E.
H16	Grant Hart	135	236.25	S.E.-S.E. Sec. 26
Total		1115	$1,951.25	

* This Well was started the latter part of July and drilled to a depth of 85 ft. and paid for in July.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON, D.C.~~
Joplin, Missouri
July 26, 1951

Defense Minerals Administration
Department of Interior
Washington 25, D. C.

Dear Sirs:

Attached hereto is the original and two copies of the Bootman and Boswell Mining Company Contract I-DMA-E45 (Docket No. DMA 1118) completed and signed as directed in the letter of July 3, 1951 from C. O. Mittendorf.

After unsuccessful efforts extending over several days, it was concluded that E. Hill would not sign the Landowner's Subordination Agreement. Accordingly, it was agreed between this office and Mr. Bootman that the 60 acres involved would be omitted from the land upon which exploration would be authorized under the terms of the contract. Accordingly, copies of the amended map showing the lands upon which drilling would be authorized under the contract were substituted for the copies of the original map enclosed with the MF-103 application.

As this change involves a deletion rather than an addition and is deemed by us and by Bootman to be inconsequential because of the small size and marginal character of the land involved, and because drilling upon this land is not necessary to carry out the intent or objective of the contract or the exploration, the responsibility for this change was assumed at the field level.

The necessary copies of all other Landowner's Subordination Agreements were obtained and are attached as requested.

Sincerely yours,

David Gallagher

David Gallagher
Chairman,
DMA Field Team, Region 6

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 30 1951
LAWSON E. GROBEL
Executive Secretary

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
WASHINGTON 25, D. C.

My dear Congressman Short:

I am pleased to report to you that the Defense Minerals Administration of this Department has recently entered into a contract with the Hoothan & Boswell Mining Company operating in your district for the exploration of possible sources of strategic metals and minerals.

The contract provides that the Government will participate in the expense of this work in accordance with assistance provided under Section 303 of the Defense Production Act.

The Defense Minerals Administration will be glad to furnish you any further details you may desire regarding this matter.

Sincerely yours,

Secretary of the Interior

Honorable Dewey Short
House of Representatives
Washington 25, D. C.

JWFeiss/af

Copy to: Files
Adm. Reading File
Mr. Strobel (2)
Secretary's Reading Copy

FILE COPY
SURNAME:

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

JUL 3 1951

Mr. David Gallagher
Executive Officer
Region VI
Defense Minerals Administration
P. O. Box 431
Joplin, Missouri

Re: Docket No. DMA 1118
Bootman and Boswell Mining Co.
P. O. Box 104
Lebanon, Missouri

Dear Mr. Gallagher:

Please find herewith six (6) copies of contract for subject exploration project. This contract has been signed by Mr. James Boyd, Administrator, with exploration number and effective date as shown.

To complete the contract, Landlord's Subordination Agreements, Form ME-202 are required from the property owners of the various areas on which the drilling is to be done. A copy of each agreement is to be attached to each contract. The contract is to be signed by the duly authorized official of the company in the presence of yourself or member of the DMA staff without any changes to its contents. If any provisions are unsatisfactory to the operator, the contract must be returned to this office for re-execution.

After signing of the contract, one copy is to be given to the Contractor, and two copies retained by your office; one for your files and one for the finance section. The remaining copies, including the original, are to be sent to this office as soon as possible.

Sincerely yours,

C. O. Mittendorf

C. O. Mittendorf, Director
Production Expansion Division

Enclosures 6

APPROVED:

Tom Lyon

Chairman, Coordinating Committee

Lowell B. Moon

Member, Bureau of Mines

Member, Geological Survey

DEMoulds/meh
cc: Adm. Reading File
Mr. Strobel
Mr. Moon
Messrs. Mittendorf, Olund
Mr. Moulds
Mr. Herres
Mr. McKnight
Region VI (2)
FILES
Chron. Copy

FILE COPY
SURNAME:

Guthrie

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

June 29, 1951

Memorandum

To: C. O. Mittendorf

From: J. L. Hofflund

Subject: Bootman and Boswell Mining Company exploration contract -- Docket No. DMA-1118

This office finds the contract in the subject case satisfactory for execution by the Government subject to:

1. Approval by the Government of the subcontract under which the drilling is to be done.

2. Proper execution by the applicant.

At the time of execution by the Government the effective date should be inserted.

Your file is returned herewith.

J. L. Hofflund

J. L. Hofflund
General Counsel

Attachments

RRGuthrie/ema

Copy to: L. F. Strobel
R. R. Guthrie
J. L. Hofflund
Chron.
Files

FILE COPY
SURNAME:

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

Fy on Parkins for McKnight Herres

June 21, 1951

Re: Docket DMA-1118

Bootman and Boswell Mining Company
P. O. Box 104
Lebanon, Missouri

Gentlemen:

Before final action can be taken on your application (DMA-1118) it will be necessary to submit to us Form MF-202, "Landlord's Subordination Agreement", in quadruplicate for each of the properties you are leasing. The necessary forms are enclosed.

According to the final paragraph of Section 13, Form MO-5, a copy of which was sent you, no credit can be given for work performed or costs incurred before the date of the contract. Therefore, if your application is approved, no credit can be allowed for the $2,130.00 which you have spent or for any other expenditures you might make up to the date of the contract.

Very truly yours,

Otto Herres

Otto Herres, Chief
Lead-Zinc Branch

Enclosures 40

EJLyons:emp
G 6/21/51

Copies to: David Gallagher Region VI (2)
Chief, Lead-Zinc Br.
E. T. McKnight 4204 GSA
R. H. Mote
L. F. Strobel
Directors r. file 4214 GSA
Br. r. file 4214 GSA
Files

DMA 1118

To Production-Expansion Div.

Brought for McKnight Herrod 6/5/51

Defense Minerals Administration

Review of Application for Exploration Assistance

Docket No. DMA-1118

Commodity Lead-zinc

Total Amount $ 9,868.75

Govt. Participation 50%

1. Name and Address of Applicant Bootman and Boswell Mining Company, P. O. Box 104, Lebanon, Missouri

2. Location of Property Parts of secs. 26, 27, and 35. T. 28 N., K 28 W., Lawrence County, Missouri. See Form MF-103, Item 10(b) for legal descriptions of specific properties.

3. Mineral or metal Lead-zinc 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 draft

b) Poor

c) None

d) Don't know—needs field examination

e) Is there an alternative and favorable project? No
(If so, attach an explanation)

5. Is the applicant's right to the property clearly stated? Yes
(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

4. (a) In the Stotts City area, Lawrence County, Missouri the bedrock is covered by residium 23 to 60 ft. thick. Underlying this residium is the Burlington-Keokuk limestone and chert 10 to 49 feet thick which in turn is underlain by the Reed's Spring limestone and chert 52 to 130 ft. thick.

Ore, when present, is found in the limestone beds above and below the top of the Reed's Spring. The deposits occur along zones of intense fracturing, referred to as runs, which have more or less definite trends, one of which is a little west of north. The property which the applicant proposes to explore is northwest of and on the extension of one such run which has been mined.

The locations of the holes which the applicant proposes to drill are based on geophysical work which was done by LeRoy Schaun who is a competent geophysicist. The electrical resistivity method used by Mr. Schaun indicated zones of fracturing in the underlying rocks and it is in these fractured areas where the ore is most likely to occur. Geophysical work of this type is considered reliable.

It is concluded, therefore, that there is a good possibility of ore being present in the area which the applicant proposes to drill.

7. Are subordination agreements necessary? Yes

a) MF-201? Not required

b) MF-202 Has been requested of applicants

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? Yes

If not, what part of it is? _____

Is this part a worthwhile exploration project?_____

d) Are the cost estimates detailed? Yes

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data? Yes If so, attach a draft.

e) Are the cost estimates reasonable? Yes

f) Should more information be requested from applicant? No

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?_____

12. Exhibit C (question 23-e, f and g)*

a) Is it applicable? No

b) Sufficient data?_____ If so, attach a draft.

c) Are rents and charges reasonable?_____

d) Is a field check needed?_____

13. Exhibit D (question 23-a, b)*

a) Are there sufficient data? Yes

b) Is the schedule adequate for the work proposed? Yes

c) Is the schedule excessive for the work proposed? No

d) Are the proposed wages and salaries reasonable? Yes

e) Is a field check needed? Yes

10.	(d)	Salary of supervisor for 4 months.....	$ 1,200.00
		Expenses of supervisor for 4 months.....	400.00
		21 drill holes, average 225 ft. at $1.75 per ft. (contract).....	8,268.75
			$ 9,868.75

NOTE: The applicant has estimated the total cost of the project as $11,998.75. However, the applicant has spent $2,130.00 to date for which no credit can be given. The remainder, $9,868.75 has been used as the total cost of the project, but because the applicant is continuing the work at present, this amount will have to be modified in accordance with the work done. The final total cost of the project will have to be determined at the time of negotiation of the contract.

14. Exhibit E (question 23-c)*

a) Is it applicable? No

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.
Recommended for approval

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?

Reviewed by: Erwin J. Lyon - GS

G. A. Apell - BM

Date 6/21/51

97692

tman and Boswell Mining Co.
Box 104
Lebanon, Missouri
June 2, 1951

U.S. DEPT OF INTERIOR
Defense Mineral Adm.
Washington 25, D.C.

Docket D.M. A. -1118
Re; Exploratory Loan $7,500.00

Att: Mr. Otto Herres
Chief Lead-Zinc Branch

Dear Mr. Herres:

In answer to your request for definent drill locations in the Stotts City Mining area, I am sending you a correlated resitivity Map compiled by Dr. Leroy Sharon who is head of the Geophysical Dept. of Washington University and also chief Geophysical for the National Lead Company. I am also enclosing a reprint from the April issue of Mining Engineering by Dr. Leroy Sharon which will give you a little of his background.

I am thouroughly sold on resitivity surveys for Lead and Zinc in this district due to the fact that the ores are always found in anamalous or broken ground and the resitivity survey will definately locate the anamalies where ores are found. However I fully understand that very often broken ground is found where no ores are located, but still in all it does take the guess work out of a large percentage of the dry holes.

As I explained in my application before, the drilling we intend to do lays mostly north of the Julia West Mine and to give you an idea of the way our drill holes will be located I am referring to map Feg. 3A. I am also enclosing a map taken from booklet R.I. 4318 published by the United States Dept. of Interior of July 1948. I had this Map blown up to a scale of 1 in. equals 200 feet, being the same scale as the map figure 3A. I have made a red pencil mark around the Julia West Mine on each Map so you can get a good clear picture of our drill locations in refernece to the old mines. The above mentioned booklet covers the history of this mining district, and is what I consider a very complete report.

In giving further information on the drill locations on Map 3A, A and B drill locations on said map are on the Frank and Pearl Jones farm, and D location is on the Paul Fieker Farm. C location is in the Ross Jones Farm. All legal discriptions of said properties are contained in the infromation you now have on file.

We have already started drilling on the No. 1 hole on map 3A and are down to a depth of 140 feet and we have been hitting ideal formations for lead and zinc, but we do not expect to strike ore until we reach a depth of 165 feet. I firmly believe Mr. Herres that in this district we have an excellent chance to strike some good ores. I am enclosing an ammendment for drilling costs as per your request, however there is two other good locations on the leases we hold in this area that should be prospected and I would like to have seen them carried throught providing we can obtain the money from your office. Please note I have marked two checked for additional drill holes on fig. 3A in drawing C. This is due to the fact Dr. Sharon did not have time to complete the resitivity survey in this area and we will have to do more drilling to finish the test in this area.

Hoping we will receive a favorable reply from you soon so that we may be able to carry out the exploration program of the Stotts City District.

Yours very truly,

C M Bottman

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 4 - 1951
LANDON F. STROBEL
Executive Secretary

FILE COPY
SURNAME:

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

Lyons
McKnight
Herres

May 17, 1951

Re: Docket DMA-1118

Mr. J. E. Boswell, Manager
Independent Stave Company, Inc.
1000 South Jefferson
Lebanon, Missouri

Dear Mr. Boswell:

The Lead-Zinc Branch has reviewed the application (DMA-1118) which you submitted in behalf of the Bootman and Boswell Mining Company for a loan to explore their properties in Lawrence County, Missouri.

Although experimental work now being done shows promise, at the present we do not feel that the results obtained by geophysical methods applied to deposits such as those of the area in which your properties are located are of great enough significance to warrant our participation in that part of the program you propose. We would be pleased, however, to consider a modified program to include only the drilling. We suggest, therefore, that you submit to us such a program with a revised cost estimate and with maps showing the areas and locations of the holes to be drilled.

Very truly yours,

Otto Herres

Otto Herres, Chief
Lead-Zinc Branch

EJLyons:emp
G 5/17/51
Copies to: David Gallagher Region VI (2)
Chief, Lead-Zinc Br.
E. T. McKnight 4204 GSA
L. B. Moon
R. H. Mote
L. F. Strobel
Tom Lyon
Directors file 4214 GSA
Br. reading file 4214 GSA
Files

Form F. F. 103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
Defense Minerals Administration

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

Bootman & Boswell Minong Co.,
P. O. Box 104
Lebanon, Missouri. date June 2, 1951

Amendment to 23

(A) Money spent on lbaor to date:

Geophycical to Sharon	$700.00
Geophysical to Field Operator	140.00
Transportation - two trips	80.00
Stake and cable crew - 5 man	255.00
Brush clearing crew	210.00
Salary of Supervisor, C. M. Bootman, 5 weeks	375.00
Expenses of Supervisor, C, M. Bootman, 5 weeks	125.00
Drilling 140 feet to date @ $1.75 per ft	245.00
Total money spent to date - - - - - - - - -	$ 2,130.00

(B)

Salary of Supervisor for 4 months - - - - - - - - - -	1,200.00
Expenses of Supervisor - 4 months	400.00
Deilling 21 holes to a depth of 225 feet 4,275 ft 4,725 @ $1.75 per foot total	8,268.75
Total of moneys to be needed and spent for present exploratory program	$ 11,999.75

$1,318.75 (6.)

Herres

P. O. BOX
104

PHONE
212-W

INDEPENDENT STAVE COMPANY, Inc.

A. D. & L. WHITE OAK STAVES AND SQUARE HEADING
K. G. J. & B. STAVES AND CIRCLED HEADING
PARQUETRY AND BLOCK FLOORING--GLUED UP FURNITURE DIMENSION
1000 SOUTH JEFFERSON
LEBANON, MISSOURI

May 28, 1951

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 31 1951
LANDON F. S L
Executive Secretary

U. S. Department of Interior
Defense Minerals Administration
Washington 25, D. C.

Attn: Mr. Otto Herres
Chief Lead-Zinc Branch
Re: Docket DMA-1118

Dear Mr. Herres:

Additional maps with drill locations are now being complied and will be forwarded to you this week.

The expenses of this exploration work is becoming heavy and we will soon need the help of your agency to continue.

The purpose of the Geophysical survey was to determine areas of broken formations where ore would most likely be found. In these areas the most likely spots are plotted where holes will be drilled. We believe this is the more practical method of exploration than drilling at random. The Geophysical survey is merely a preliminary to drilling and is for the purpose of determining where best to drill.

Please bear with us. We need your help and we believe we will find ore.

Yours very truly,

INDEPENDENT STAVE CO.

J. E. Boswell
Manager

JEB:mp

cc: C. M. Bootman, McCray's Tourist Court, Mt. Vernon, Missouri

PRICES SUBJECT TO CHANGE WITHOUT NOTICE. ORDERS ACCEPTED CONTINGENT UPON STRIKES, ACCIDENTS, DELAYS BY CARRIERS OR OTHER CAUSES BEYOND OUR CONTROL
ALL STAVE ORDERS ARE TAKEN ON A MUTUALLY AGREED INSPECTION. ANY CLAIM TO BE CONSIDERED MUST BE FILED WITHIN 5 DAYS AFTER RECEIPT OF GOODS.

JUN

5

P. O. BOX
104

PHONE
212-W

INDEPENDENT STAVE COMPANY, Inc.

A. D. & L. WHITE OAK STAVES AND SQUARE HEADING
~~A. D. & L. BUTT STAVES AND CIRCLED HEADING~~
PARQUETRY AND BLOCK FLOORING--GLUED UP FURNITURE DIMENSION
1000 SOUTH JEFFERSON
LEBANON, MISSOURI

May 23, 1951

U. S. Department of Interior
Defense Minerals Administration
Washington 25, D. C.

Subject: DMA-1118
Re: Exploration Loan-$15,000.

Attention: Mr. Otto Herres

Dear Mr. Herres:

Refer your letter of May 17, pertaining to above loan.

The purpose of the Geophysical Survey was and is to determine the best place to drill. One phase of the survey has been completed and sites for drilling have been selected. The drilling was to start this week, but due to excessive rainfall may be delayed.

Mr. C. M. Bootman is conducting the field work with the aid of H. L. Scharon and associates, and contract drillers. As soon as Mr. Bootman can be contacted, the location of drill holes and additional information you desire will be forwarded.

The first phase of the Geophysical Survey showed several locations where further exploration by drilling was recommended.

Yours sincerely,

INDEPENDENT STAVE CO

J. E. Boswell
Manager

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 28 1951
LANDON F. STROBEL
Executive Secretary

JEB:mp

cc: C. M. Bootman

P.S. We want financial assistance for this deal.

PRICES SUBJECT TO CHANGE WITHOUT NOTICE. ORDERS ACCEPTED CONTINGENT UPON STRIKES, ACCIDENTS, DELAYS BY CARRIERS OR OTHER CAUSES BEYOND OUR CONTROL
ALL STAVE ORDERS ARE TAKEN ON A MUTUALLY AGREED INSPECTION. ANY CLAIM TO BE CONSIDERED MUST BE FILED WITHIN 5 DAYS AFTER RECEIPT OF GOODS.

5

May 23, 1951

Mr. C. M. Bootman
P.O. Box 2273, Gardner Station
St. Louis 9, Missouri

Dear Mr. Bootman:

Enclosed is copy of letter from Defense Mineral Administration pertaining to assistance for prospecting for lead and zinc in the Stotts City area.

Since drilling is starting in accordance with locations recommended by the Geophysical Survey, I would like to give the Defense Mineral Administration the additional information they desire, promptly.

If I am not in the office when you are here, Mary Price will do your typing.

Good luck.

Yours very truly,

INDEPENDENT STAVE CO.

J. E. Boswell
Manager

JEB:mp

cc: Defense Mineral Administration, Washington, D. C.

P. O. BOX
104

PHONE
212-W

INDEPENDENT STAVE COMPANY, Inc.

A. D. & L. WHITE OAK STAVES AND SQUARE HEADING
K. D. J. & B. STAVES AND CIRCLED HEADING
PARQUETRY AND BLOCK FLOORING--GLUED UP FURNITURE DIMENSION
1000 SOUTH JEFFERSON
LEBANON, MISSOURI

May 12, 1951

U.S. Department of Interior
Defense Minerals Administration
Washington 25, D.C.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 1 51951
LANDON F. STROBEL
Executive Secretary

Attention: Mr. Otto Herres
Subject: DMA - 1118X
Reference: Exploration loan
Docket: #1118X

Dear Mr. Herres:

Refer letter of May 9th acknowledging receipt of our application for loan for exploration for minerals.

We are proceeding with Geophysical survey of our leases. Drilling will soon start in most promising locations. When drilling starts our available funds will soon be depleted. Your prompt processing of this application will be greatly appreciated.

We tried to make application for this aid last winter but blanks were not available. The letter from Department of Interior attached to the application will verify this.

Thank you most kindly.

Yours very truly,

INDEPENDENT STAVE CO.

J. E. Boswell

J. E. Boswell
Manager

JEB:mp

PRICES SUBJECT TO CHANGE WITHOUT NOTICE, ORDERS ACCEPTED CONTINGENT UPON STRIKES, ACCIDENTS, DELAYS BY CARRIERS OR OTHER CAUSES BEYOND OUR CONTROL
ALL STAVE ORDERS ARE TAKEN ON A MUTUALLY AGREED INSPECTION. ANY CLAIM TO BE CONSIDERED MUST BE FILED WITHIN 5 DAYS AFTER RECEIPT OF GOODS.

MAY 15 1951

FILE COPY
SURNAME:

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

May 9, 1951

Mr. C. M. Bootman, Manager
Bootman and Boswell Mining Company
P. O. Box 104
Lebanon, Missouri

Subject: DMA-1118 X
Re: Exploration Loan - $15,000

My dear Mr. Bootman:

Receipt is acknowledged of your application and attachments of April 30, 1951 from the BOOTMAN AND BOSWELL MINING COMPANY for a Government loan under the Defense Production Act of 1950.

The application was assigned Docket Number 1118 X and referred to Mr. Otto Herres, Chief, Lead-Zinc Branch, on May 8, 1951.

In any future correspondence relating to your application, kindly refer to DMA-1118 X.

Sincerely yours,

LANDON F. STROBEL

L. F. S.

Landon F. Strobel
Executive Secretary

LFSTROBEL:aec
copies to Strobel-2
Files
Mr. Herres
Mr. Lyon

Dma-1118 X
Mr. Heness

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

April 17, 1951

Mr. J. E. Boswell, Manager
Independent Stave Co., Inc.
1000 South Jefferson
Lebanon, Missouri

Dear Sir:

This is in response to your letter of February 27, which was held pending authorization of the Defense Minerals Administration Exploration Program. Enclosed is a copy of pertinent regulations Form MO-5, also five copies each of Form MF-100 (General Technical Data) and Form MF-103 (Application for Aid for an Exploration Project).

Very truly yours,

Tom Lyon ad

Tom Lyon, Director
Supply Division

Enclosure

MAY 8 1951

April 16, 1951

Mr. J. E. Boswell
Manager
Independent Stave Company, Inc.
P. O. Box 164
Lebanon, Missouri

Dear Mr. Boswell:

In accordance with your request of April 12 I am pleased to enclose forms and information concerning the mineral exploration program.

In case I can be of further assistance, please let me know.

Yours very truly,

Otto Herres

OTTO HERRES, Chief
Lead-Zinc Branch

Enclosure

OHERRES:ks

cc: Mr. Strobel
Mr. Nute
Mr. McKnight
Mr. Herres
Files

P. O. BOX
104

~~LANDON F. STROBEL~~

PHONE
212-W

DMA - file

INDEPENDENT STAVE COMPANY, Inc.

A. D. & L. WHITE OAK STAVES AND SQUARE HEADING
K. D. J. & B. STAVES AND CIRCLED HEADING
PARQUETRY AND BLOCK FLOORING--GLUED UP FURNITURE DIMENSION
1000 SOUTH JEFFERSON
LEBANON, MISSOURI

April 12, 1951

Defense Mineral Administration
Department of Interior
Washington, D.C.

Gentlemen:

We would like immediately, blanks for making application (forms MF-103) for financial aid for prospecting for Zinc.

Yours very truly

INDEPENDENT STAVE CO.,

J.E. Boswell

J.E. Boswell
Manager

lc

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 16 1951

LANDON F. STROBEL
Executive Secretary

APR 1[illegible] 1951

PRICES SUBJECT TO CHANGE WITHOUT NOTICE, ORDERS ACCEPTED CONTINGENT UPON STRIKES, ACCIDENTS, DELAYS BY CARRIERS OR OTHER CAUSES BEYOND OUR CONTROL
ALL STAVE ORDERS ARE TAKEN ON A MUTUALLY AGREED INSPECTION. ANY CLAIM TO BE CONSIDERED MUST BE FILED WITHIN 5 DAYS AFTER RECEIPT OF GOODS.

BUREAU OF MINES
WASHINGTON, D. C.

APR 16 8 46 AM '51

P O BOX
104

INDEPENDENT STAVE COMPANY, Inc.

WHITE OAK STAVES AND SQUARE HEADING
K D J. & B STAVES AND CIRCLED HEADING
PARQUETRY AND BLOCK FLOORING—GLUED UP FURNITURE DIMENSION
1000 SOUTH JEFFERSON
LEBANON, MISSOURI

February 27, 1951

INTERIOR DEPT.
SECRETARY'S
MAIL CENTER
MAR - 2 1951

BUREAU OF MINES
WASHINGTON, D.C.
210 M

3/6/51
Lyons
reply

Secretary of Interior
Washington, D.C.

Gentlemen:

We would like the necessary blanks for making application for government participation or assistance in prospecting for zinc.

We understand that monies are available for this purpose as part of an agreement between the Defense Production Administration and the Department of the Interior under authority granted by Sec. 303, Title III of the Defense production act of 1950.

We have been prospecting in Arkansas with core drill rig and wish to resume drilling in New Mexico when weather gets warmer.

Yours very truly

INDEPENDENT STAVE CO.,

J.E. Boswell

J.E. Boswell
Manager

lc

PRICES SUBJECT TO CHANGE WITHOUT NOTICE, ORDERS ACCEPTED UPON STANDARD ACCEPTANCE, ALL STAVE ORDERS ARE TAKEN ON A BUYER'S RISK, ANY CLAIM TO BE CONSIDERED MUST BE FILED WITHIN 10 DAYS

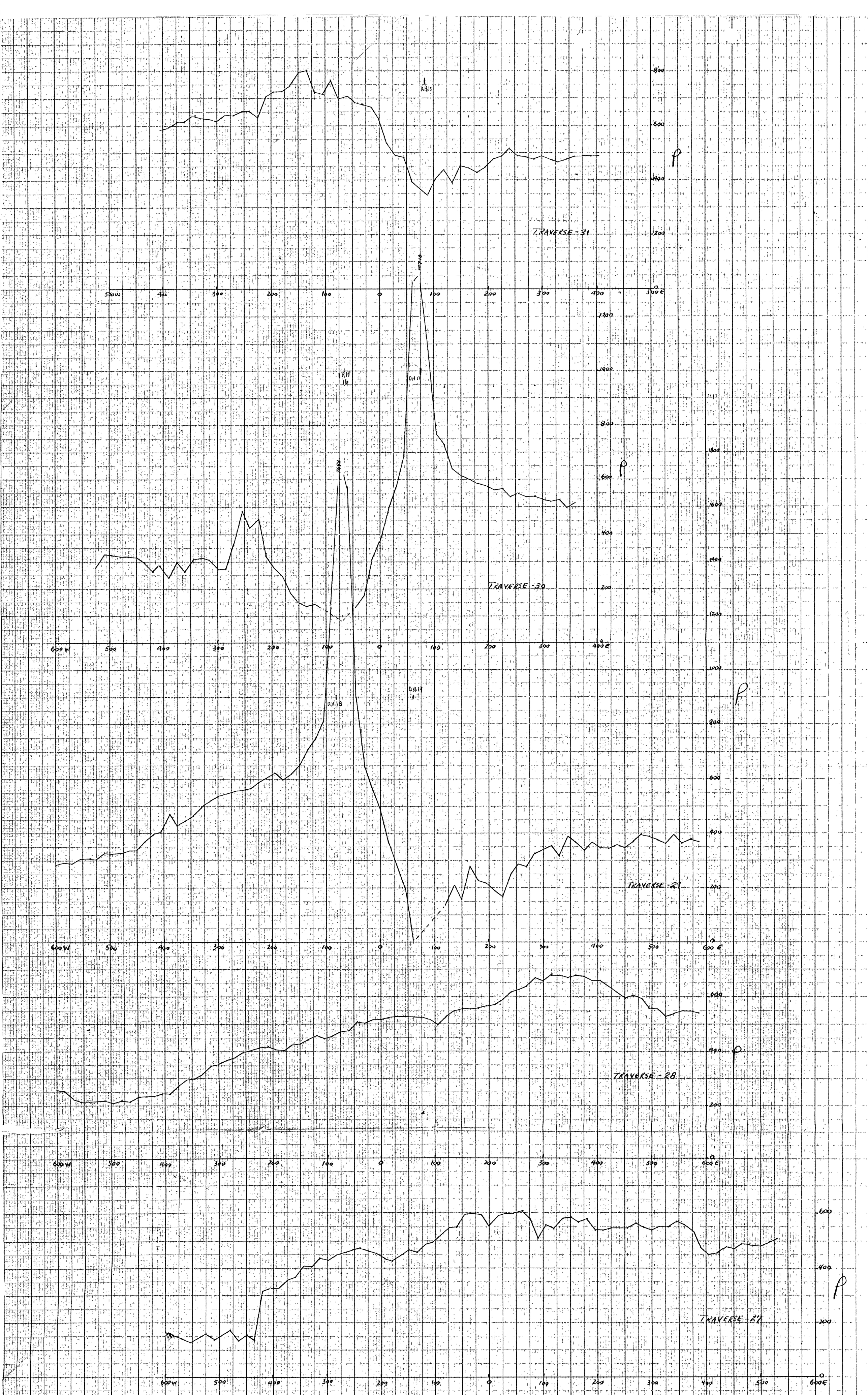
BOOTMAN AND BOSWELL

STOTTS CITY, MISSOURI

T28N, R28W, LAWRENCE COUNTY, Mo.

DATE: 5 Sept 51

JOE CRAIG — JOPLIN, MISSOURI



HORIZONTAL RESISTIVITY PROFILES "a" = 150'

STOTT'S CITY, MISSOURI

AREA C

5/9/81

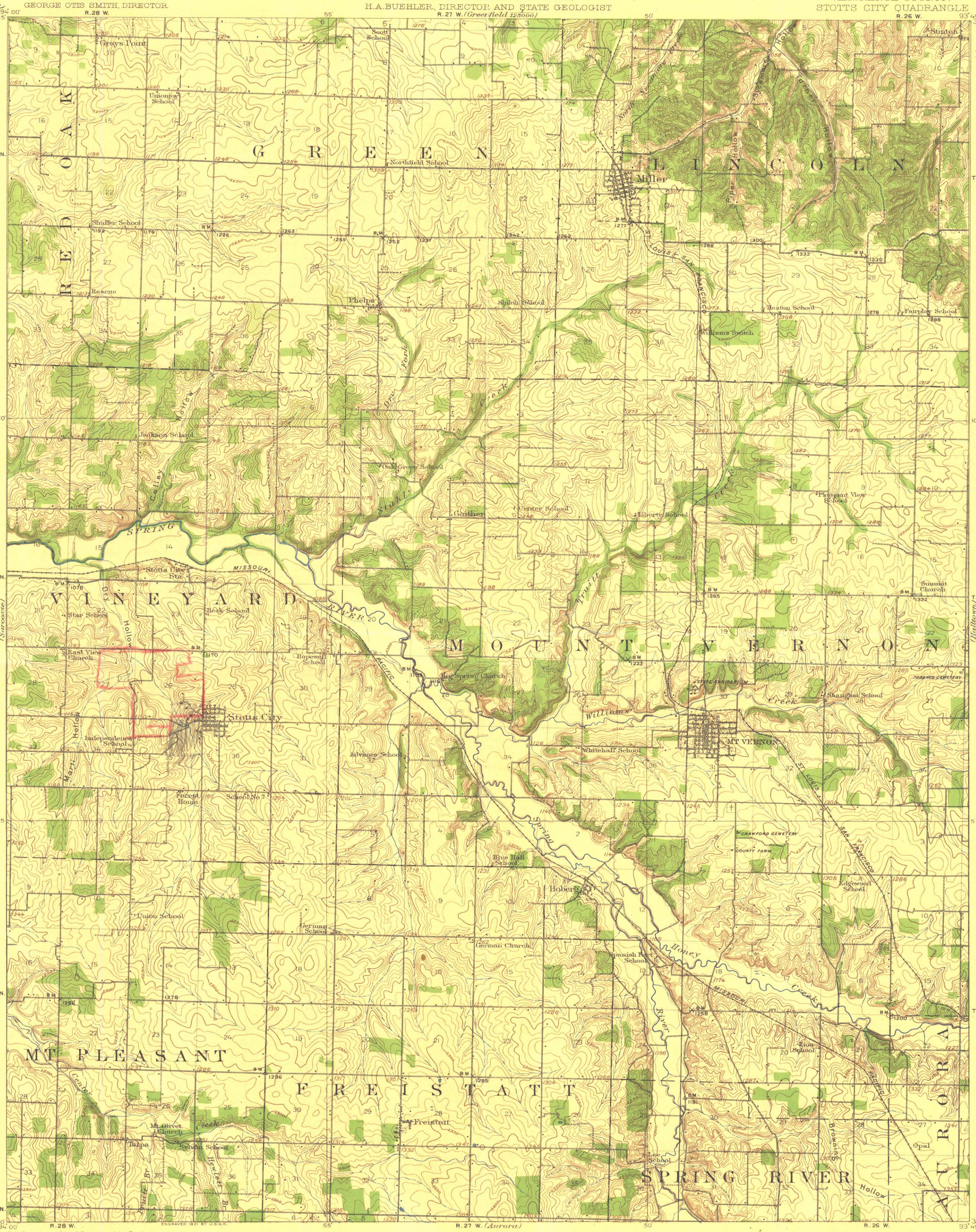
FIGURE 2-C

DEPARTMENT OF THE INTERIOR
ALBERT B. FALL, SECRETARY
U.S. GEOLOGICAL SURVEY
GEORGE OTIS SMITH, DIRECTOR

TOPOGRAPHY

STATE OF MISSOURI
BUREAU OF GEOLOGY AND MINES
H.A. BUEHLER, DIRECTOR AND STATE GEOLOGIST

MISSOURI
(LAWRENCE COUNTY)
STOTTS CITY QUADRANGLE



C.H. Birdseye, Chief Topographic Engineer.
W.H. Herron, Geographer in charge.
Topography by R.L. Harrison, F.W. Hughes, J.M. Rawls, and F.L. Whaley.
South half from map of Aurora quadrangle.
Control by J.R. Ellis, J.H. Wilson, F.L. Whaley, and G.P. Featherstun.
Surveyed in 1919, Aurora portion in 1910.

SURVEYED IN COOPERATION WITH THE STATE OF MISSOURI.

ENGRAVED 1921 BY U.S.G.S.

Scale $\frac{1}{62500}$

1 ½ 0 1 2 3 4 Miles

1 ½ 0 1 2 3 4 5 Kilometers

Contour interval 10 feet.
Datum is mean sea level.

TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1919

Polyconic projection, North American datum.

STOTTS CITY
Edition of 1921.

THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a standard topographic atlas of the United States. This work has been in progress since 1882, and its results consist of published maps of more than 40 per cent of the country, exclusive of outlying possessions.

This topographic atlas is published in the form of maps or atlas sheets measuring about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for any quadrangle depending on its nature and its probable future development, and consequently though the standard atlas sheets are of nearly uniform size they represent areas of different sizes. On the lower margin of each sheet are printed graphic scales showing distances in feet, meters, and miles. In addition, the scale of the map is shown by a representative fraction expressing a fixed ratio between linear measurements on the map and corresponding distances on the ground. For example, the scale $\frac{1}{62,500}$ means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 similar units on the earth's surface.

The standard scales used on these maps are multiples of the fraction $\frac{1}{1,000,000}$. Quadrangles in thickly settled or industrially important regions are mapped on a scale of $\frac{1}{62,500}$, or about 1 mile to an inch, and cover areas measuring 15′ in latitude and longitude. Quadrangles in less thickly settled or industrially less important districts are mapped on a scale of $\frac{1}{125,000}$, or about 2 miles to an inch, and cover areas measuring 30′ in latitude and longitude. Reconnaissance maps of desert or sparsely inhabited regions have been made on a scale of $\frac{1}{250,000}$, or about 4 miles to an inch, covering areas measuring 1° in latitude and longitude. Maps for special purposes are made on scales larger than $\frac{1}{62,500}$.

A topographic survey of Alaska has been in progress since 1898, and nearly 35 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of $\frac{1}{625,000}$, or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of $\frac{1}{250,000}$, but about 3,500 square miles has been mapped on a scale of $\frac{1}{62,500}$.

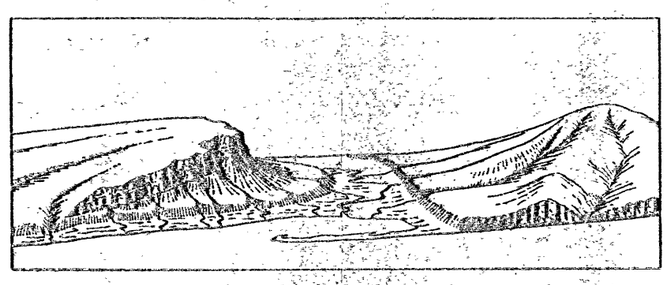
A large part of the Hawaiian Islands has been surveyed, and the resulting maps are published on a scale of $\frac{1}{62,500}$.

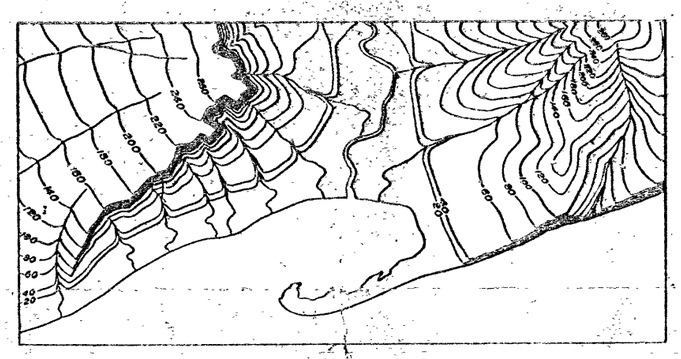
The features shown on these maps may be arranged in three groups—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture (works of man), such as towns, cities, roads, railroads, and boundaries. The conventional signs used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams, the lakes, and the sea by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in mapping only the contours at certain regular intervals of altitude are shown. The line of the seacoast itself is a contour, the datum or zero of altitude being mean sea level. The 20-foot contour, for example, would be the shore line if the sea should rise 20 feet. Contour lines show the shapes of the hills, mountains, and valleys, as well as their altitudes. Successive contour lines that are far apart on the map indicate a gentle slope; lines that are close together indicate a steep slope; and lines that run together indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.





The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly inclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping spurs separated by ravines. The spurs are truncated at their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a steep scarp, from which it slopes gradually away and forms an inclined table-land that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped; in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. Certain contour lines, every fourth or fifth one, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road corners, summits, surfaces of lakes, and bench marks—are also given on the map in figures, which show altitudes to the nearest foot only. More exact altitudes—those of bench marks—as well as the geodetic coordinates of triangulation stations, are published in bulletins that are issued free by the Geological Survey.

The lettering and works of man are shown in black. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Metaled roads are shown by double lines, one of which is accentuated. Other public roads are shown by fine double lines, private and poor roads by dashed double lines, trails by dashed single lines.

Each quadrangle is designated by the name of the principal city, town, or natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. Over 2,800 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

The topographic map is the base on which the geology and mineral resources of a quadrangle are represented, and the maps showing these features are bound together with a descriptive text to form a folio of the Geologic Atlas of the United States.

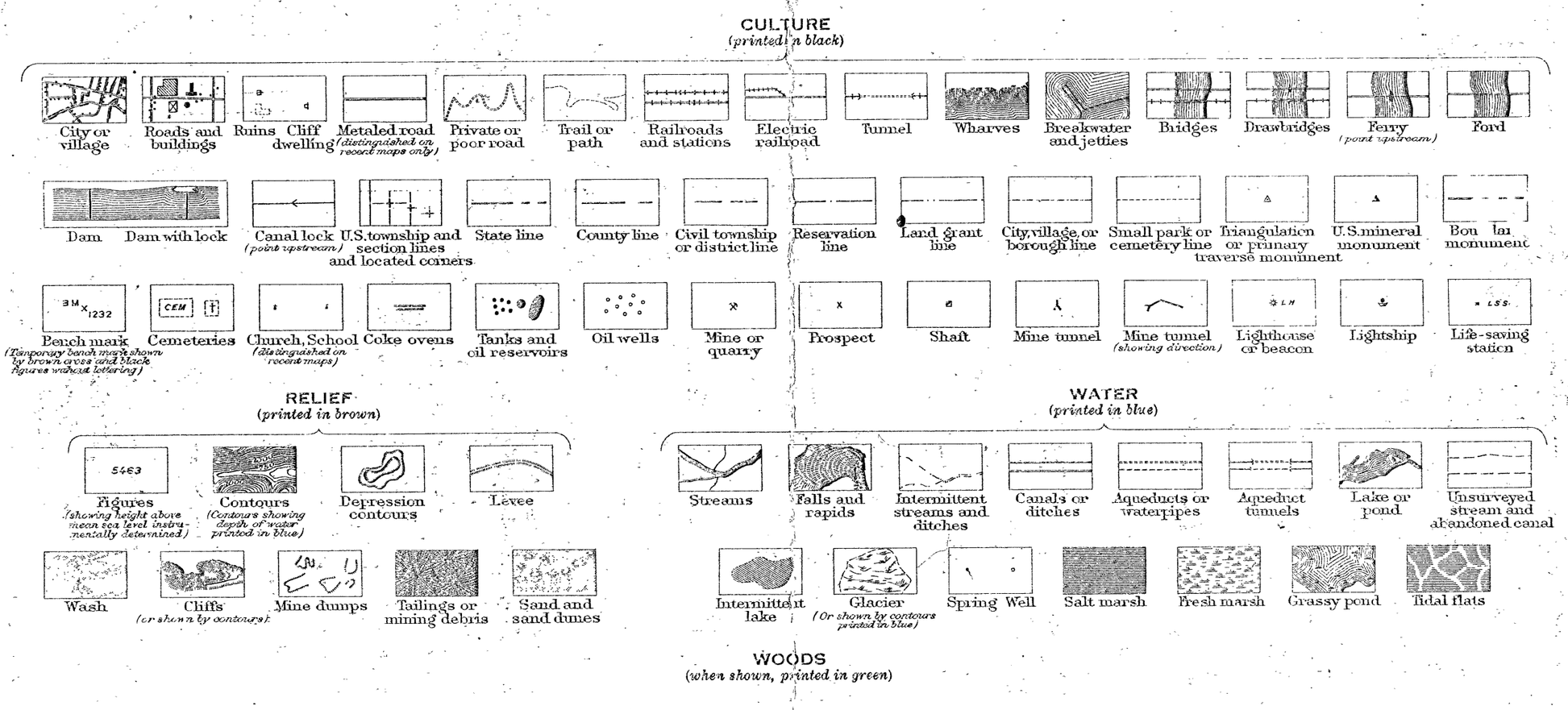
Index maps of each State showing the topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the topographic maps may be obtained for 10 cents each, or in lots of 50 or more, either of the same or of different quadrangles, for 6 cents each. The geologic folios are sold for 25 cents or more each, the price depending on the size of the folio. A circular describing the folios will be sent on request.

Applications for maps or folios should be accompanied by cash, draft, or money order (not postage stamps) and should be addressed to

THE DIRECTOR,
United States Geological Survey,
Washington, D. C.

November, 1919.

CONVENTIONAL SIGNS



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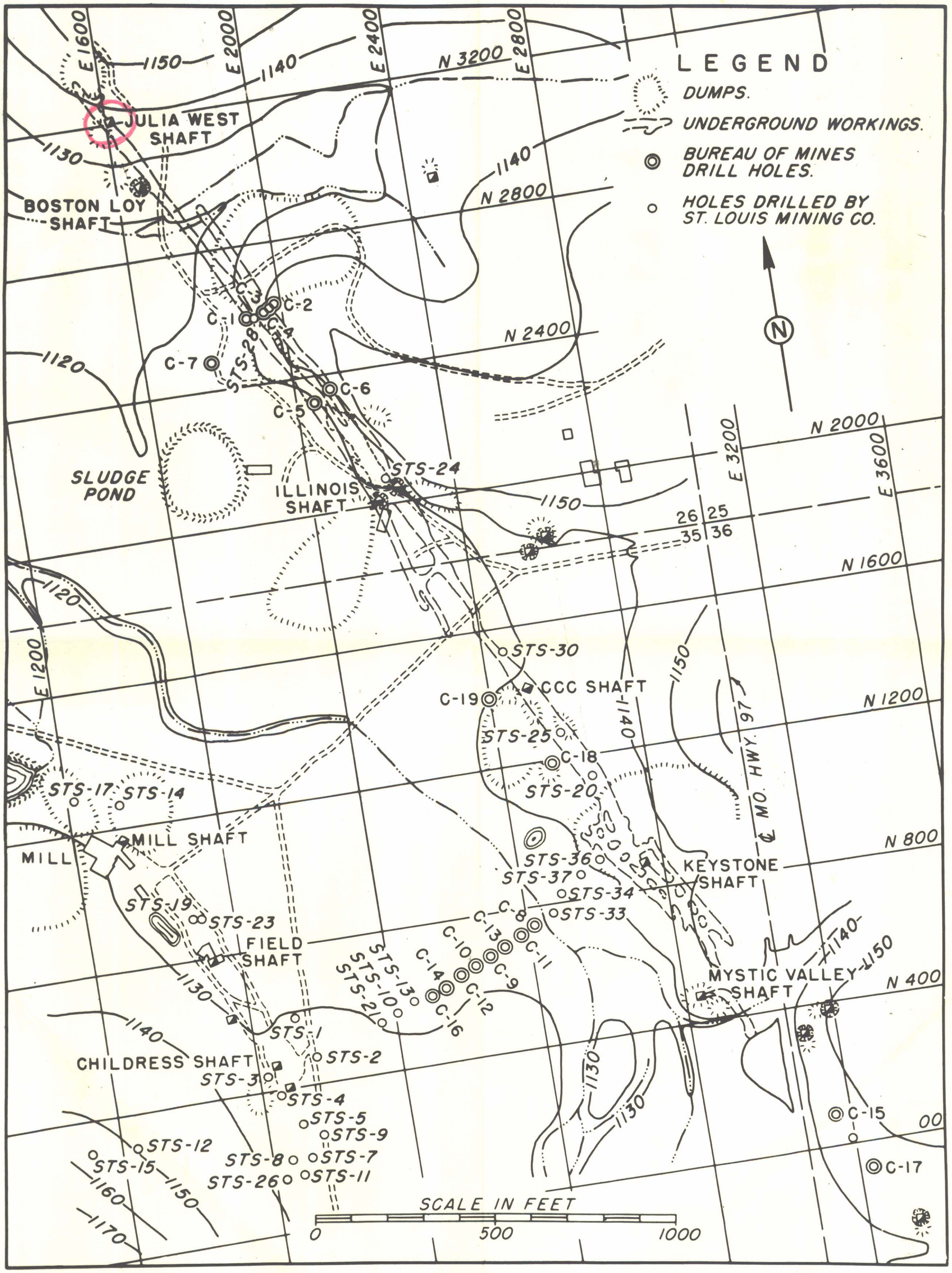

Figure 3. - Drilling on Capital Mining Co. leases.