DMA Form 2

DEFENSE MINERALS ADMINISTRATION
Status Change Notice

DMA Docket No. 1747-X

To: Reports and Records Branch

From: LEAD ZINC BRANCH Old Dominion Mining Co.

Date: JUL 6 1951

The following action has been taken this date on the above Controlled Document.

Forwarded to

Type of request changed to:

Denied ☐ Withdrawn ☐

Approved in amount of $

Other action, specify:

On hand - to be cancelled

Interior—Duplicating Section, Washington, D. C. 98869

140 acres

Docket 500
FILE COPY
SURNAME:

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

Moulds

Mr. H. D. Waterhouse
Route 2, Box 183
Vienna, Virginia

APR 22 1952

Re: Docket No. DMA 1747I
Old Dominion Mining Co.
Seneca, Missouri
Lead-Zinc

Dear Mr. Waterhouse:

Confirming our discussion of the subject application on April 21, 1952; we are closing your application dated June 25, 1951 covering exploration in Newton County, Missouri.

In view of the indefinite status of your lease, inability to furnish Landlord's Subordination and other factors, it appears that processing of a contract will be indefinitely delayed. In event you are able to fulfill the requirement of exploration project assistance in the future, the project will, also, differ from this application and will, therefore, require filing of a new application.

We will be pleased to consider such an application for exploration assistance when presented and appreciate the opportunity to review the subject docket.

Sincerely yours,

E.L.

D. E. Moulds

CC 4/22

D. E. Moulds, Chief
Base Metals Division
Defense Minerals Exploration Administration

DEMoulds/hmj
4-21-52
CC to: Adm. Reading File
Docket File Copy
Mr. Bishop
Mr. McKnight
Region VI
Mr. Moulds

FILE COPY
SURNAME:

400

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

OCT 12 1951

a.e.c.

Mr. H. D. Waterhouse
Route 2, Box 183
Vienna, Virginia

Re: Docket DMA 1747X, Lead
Old Dominion Mining Company
Seneca, Missouri

Dear Mr. Waterhouse:

Confirming your conversation of October 10, 1951 with Mr. Blakemore in regard to the subject application, you were advised that it will be necessary for you to obtain a Landlord's Subordination or in lieu thereof, a guarantee of repayment to the Government, supported by satisfactory evidence of financial responsibility and ability to repay.

On receipt of either of these, further consideration will be given to your application.

Sincerely yours,

C. O. Mittendorf

C. O. Mittendorf, Director
Production Expansion Division

PBBlakemore/meh 10/11/51
cc to: Adm. ReadingFile
Reports and Records
Docket
Messrs. Mittendorf, Olund
Mr. Blakemore

gf 10/12

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

October 10, 1951

Memorandum

To: Director, Production Expansion Division

From: General Counsel

Subject: Old Dominion Mining Company exploration project contract — Docket No. DMA-1747

Reference is made to your undated memorandum on the above subject in which it appears that the applicant for an exploration contract is a partnership, a member of which is an employee of the Defense Minerals Administration. You request to be informed whether an employee of this Administration is eligible for participation in the Exploration Project Program.

Due to the complexity of the problem we asked the Solicitor of the Department for an opinion in the matter. Attached is a copy of the Solicitor's opinion in which it is stated that there is no statutory objection to an employee receiving assistance under the defense programs administered by this Administration providing such employee makes no recommendation or takes any action with respect to an application in which he is personally interested.

Should the application appear favorable in all respects, prior to your final approval, the views of the Secretary of the Department as to departmental policy should be ascertained as suggested in the last paragraph of the Solicitor's opinion.

Your file in this case is returned.

J. L. Hoffmund
General Counsel

Attachment

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

September 11, 1951

M-36067

Memorandum

To: Acting Administrator, DMA

From: The Solicitor

Subject: Applications from employees of the Department of the Interior for assistance under the Defense Production Act

My opinion has been requested as to whether an employee of the Defense Minerals Administration or of any other agency of the Department of the Interior is precluded from applying for or receiving assistance under the Defense Production Act of 1950 (50 U.S.C.A. App., secs. 2061-2166) with respect to any of the defense activities under the jurisdiction of the Defense Minerals Administration.

Neither the Defense Production Act of 1950 nor the Defense Production Act Amendments of 1951 (Public Law 96, 82nd Cong.) specifically prohibits employees of the United States, either generally or by reason of employment in a particular agency, from taking advantage of loans, commitments, purchase contracts, exploration agreements, or other forms of assistance authorized by Congress in connection with defense activities.

This being the case, the question whether an employee of the Department is eligible for assistance under the Defense Production Act depends upon whether the receipt of such assistance is elsewhere prohibited by the laws of the United States or the regulations of the Department.

It is clear that an employee of the Government would be prohibited by the provisions of 18 U.S.C., sec. 434 from acting "as an officer or agent of the United States for the transaction of business" with any business entity in which he has either a direct or indirect interest. In determining the scope of section 434, Executive Order 10182, as amended (15 F. R. 8013; 16 F. R. 419), must be considered. That order exempts persons employed without compensation under subsection (b) of section 710 of the Defense Production Act of 1950 from the operations of "sections 281, 283, 284, 434 and 1914 of Title 18, United States Code, and section 190 of the Revised Statutes (5 U.S.C. 99)", except that:

"(a) Exemption hereunder shall not extend to the negotiation or execution, by an appointee under this order, of Government contracts with the private employer of such appointee or with any corporation, joint stock company, association, firm, partnership, or other entity in the pecuniary profits or contracts of which the appointee has any direct or indirect interest.

"(b) Exemption hereunder shall not extend to making any recommendation or taking any action with respect to individual applications to the Government for relief or assistance, on appeal or otherwise, under the provisions of the Act made by the private employer of the appointee or by any corporation, joint stock company, association, firm, partnership, or other entity in the pecuniary profits or contracts of which the appointee has any direct or indirect interest."

The limitation placed by paragraph (b) quoted above on the exemption granted from the operations of section 434 of Title 18 of the United States Code clearly reflects the view that this section forbids any employee of the Government to make any recommendation or take any action with respect to any transaction in which he has a direct or indirect interest.

Accordingly, employees of the Defense Minerals Administration should not make any recommendations or take any action with respect to applications for assistance under the Defense Production Act of 1950 in which they are personally interested. Where no such recommendation or action is involved, however, an employee of the Defense Minerals Administration is not prohibited by statute from receiving assistance under the defense programs administered by the Defense Minerals Administration.

Section 434 of Title 18 of the United States Code would have no application to employees of departmental agencies other than the Defense Minerals Administration in connection with applications for assistance filed with that Administration, inasmuch as these persons would have no official responsibility for recommending or taking action respecting such applications. It follows that there is no statutory prohibition against an employee of another agency in the Department applying for and receiving from the Defense Minerals Administration any assistance which the Defense Minerals Administration can confer or with respect to which it may make recommendations under the Defense Production Act.

"(a) Exemption hereunder shall not extend to the negotiation or execution, by an applicant under this order, of Government contracts with the private employer of such applicant or with any corporation, joint stock company, association, firm, partnership, or other entity in the pecuniary profits or contracts of which the applicant has any direct or indirect interest.

"(b) Exemption hereunder shall not extend to making any recommendation or taking any action with respect to individual applications to the Government for relief or assistance, on appeal or otherwise, under the provisions of the act made by the private employer of the applicant or by any corporation, joint stock company, association, firm, partnership, or other entity in the pecuniary profits or contracts of which the applicant has any direct or indirect interest."

The limitation placed by paragraph (b) quoted above on the exemption granted from the operations of section 434 of Title 18 of the United States Code clearly reflects the view that this section forbids any employee of the Government to make any recommendation or take any action with respect to any transaction in which he has a direct or indirect interest.

Accordingly, employees of the Defense Minerals Administration should not make any recommendations or take any action with respect to applications for assistance under the Defense Production Act of 1950 in which they are personally interested. There no such recommendation or action is involved, however, an employee of the Defense Minerals Administration is not prohibited by statute from receiving assistance under the defense programs administered by the Defense Minerals Administration.

Section 434 of Title 18 of the United States Code would have no application to employees of departmental agencies other than the Defense Minerals Administration in connection with applications for assistance filed with that Administration, inasmuch as these persons would have no official responsibility for recommending or taking action respecting such application. It follows that there is no statutory prohibition against an employee of another agency in the Department applying for and receiving from the Defense Minerals Administration any assistance which the Defense Minerals Administration can render or with respect to which it may make recommendations under the Defense Production Act.

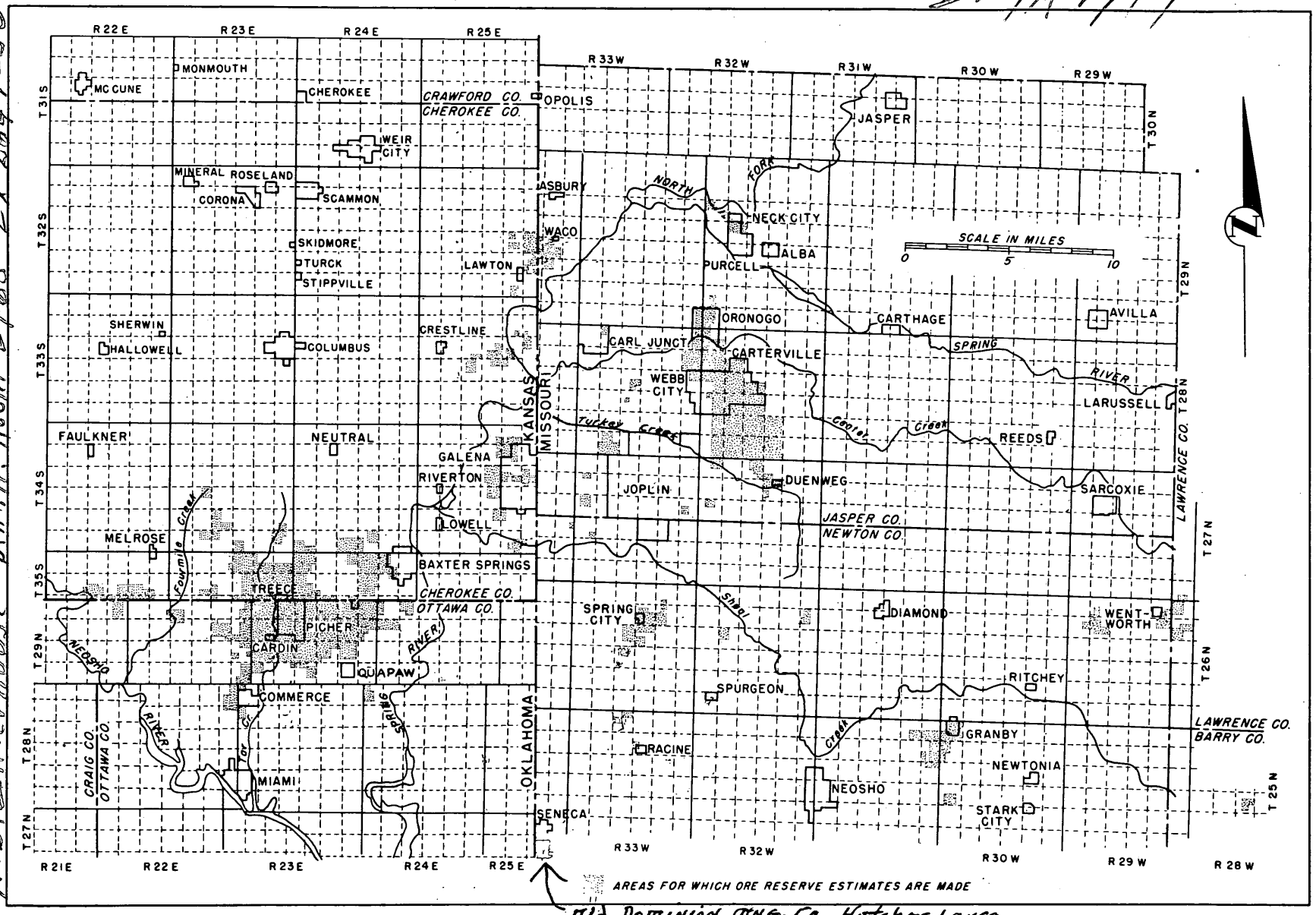
There appears to be no departmental regulation bearing directly on the point discussed in this memorandum. However, the Secretary of the Interior has prohibited employees of the Department from directly or indirectly purchasing any of the public lands of the United States (43 CFR, Part 7). It seems to me that the Secretary might feel that the policy adopted with respect to the public lands should be applied, so far as the employees of the Department are concerned, to those situations in which the Secretary is empowered to grant (rather than merely to recommend) assistance under the Defense Production Act of 1950. I suggest, therefore, that no exploration contract be made under MO-5 with an employee of any agency of the Department until the Secretary's views have been ascertained.

/s/ Mastin G. White

Mastin G. White
Solicitor

DNIA 1747

H.D. Waterhouse - D.M.A. Room 2463 - EX 2649-50



Old Dominion Min. Co. Hatcher Lease

Figure 1. - Area map of tri-state mining district.

From R.I. 4490 July 1949. Zinc-Lead Ore Reserves of the Tri-State District MO-KAN-OKLA.

FILE COPY
140 SURNAME:

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

October 10, 1951

not stripped in PKR

Memorandum

To: Director, Production Expansion Division

From: General Counsel

Subject: Old Dominion Mining Company exploration project contract — Docket No. DMA-1747

Reference is made to your undated memorandum on the above subject in which it appears that the applicant for an exploration contract is a partnership, a member of which is an employee of the Defense Minerals Administration. You request to be informed whether an employee of this Administration is eligible for participation in the Exploration Project Program.

Due to the complexity of the problem we asked the Solicitor of the Department for an opinion in the matter. Attached is a copy of the Solicitor's opinion in which it is stated that there is no statutory objection to an employee receiving assistance under the defense programs administered by this Administration providing such employee makes no recommendation or takes any action with respect to an application in which he is personally interested.

Should the application appear favorable in all respects, prior to your final approval, the views of the Secretary of the Department as to departmental policy should be ascertained as suggested in the last paragraph of the Solicitor's opinion.

Your file in this case is returned.

J. L. Hofflund

J. L. Hofflund
General Counsel

Attachment
CJKoontz/bjl
Copy to: Repts. & Records
C. J. Koontz
R. R. Guthrie
J. L. Hofflund
Chron.

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

September 11, 1951

M-36067

Memorandum

To: Acting Administrator, DMA

From: The Solicitor

Subject: Applications from employees of the Department of the Interior for assistance under the Defense Production Act

My opinion has been requested as to whether an employee of the Defense Minerals Administration or of any other agency of the Department of the Interior is precluded from applying for or receiving assistance under the Defense Production Act of 1950 (50 U.S.C.A. App., secs. 2061-2166) with respect to any of the defense activities under the jurisdiction of the Defense Minerals Administration.

Neither the Defense Production Act of 1950 nor the Defense Production Act Amendments of 1951 (Public Law 96, 82nd Cong.) specifically prohibits employees of the United States, either generally or by reason of employment in a particular agency, from taking advantage of loans, commitments, purchase contracts, exploration agreements, or other forms of assistance authorized by Congress in connection with defense activities.

This being the case, the question whether an employee of the Department is eligible for assistance under the Defense Production Act depends upon whether the receipt of such assistance is elsewhere prohibited by the laws of the United States or the regulations of the Department.

It is clear that an employee of the Government would be prohibited by the provisions of 18 U.S.C., sec. 434 from acting "as an officer or agent of the United States for the transaction of business" with any business entity in which he has either a direct or indirect interest. In determining the scope of section 434, Executive Order 10182, as amended (15 F. R. 8013; 16 F. R. 419), must be considered. That order exempts persons employed without compensation under subsection (b) of section 710 of the Defense Production Act of 1950 from the operations of "sections 281, 283, 284, 434 and 1914 of Title 18, United States Code, and section 190 of the Revised Statutes (5 U.S.C. 99)", except that:

"(a) Exemption hereunder shall not extend to the negotiation or execution, by an appointee under this order, of Government contracts with the private employer of such appointee or with any corporation, joint stock company, association, firm, partnership, or other entity in the pecuniary profits or contracts of which the appointee has any direct or indirect interest.

"(b) Exemption hereunder shall not extend to making any recommendation or taking any action with respect to individual applications to the Government for relief or assistance, on appeal or otherwise, under the provisions of the Act made by the private employer of the appointee or by any corporation, joint stock company, association, firm, partnership, or other entity in the pecuniary profits or contracts of which the appointee has any direct or indirect interest."

The limitation placed by paragraph (b) quoted above on the exemption granted from the operations of section 434 of Title 18 of the United States Code clearly reflects the view that this section forbids any employee of the Government to make any recommendation or take any action with respect to any transaction in which he has a direct or indirect interest.

Accordingly, employees of the Defense Minerals Administration should not make any recommendations or take any action with respect to applications for assistance under the Defense Production Act of 1950 in which they are personally interested. Where no such recommendation or action is involved, however, an employee of the Defense Minerals Administration is not prohibited by statute from receiving assistance under the defense programs administered by the Defense Minerals Administration.

Section 434 of Title 18 of the United States Code would have no application to employees of departmental agencies other than the Defense Minerals Administration in connection with applications for assistance filed with that Administration, inasmuch as these persons would have no official responsibility for recommending or taking action respecting such applications. It follows that there is no statutory prohibition against an employee of another agency in the Department applying for and receiving from the Defense Minerals Administration any assistance which the Defense Minerals Administration can confer or with respect to which it may make recommendations under the Defense Production Act.

There appears to be no departmental regulation bearing directly on the point discussed in this memorandum. However, the Secretary of the Interior has prohibited employees of the Department from directly or indirectly purchasing any of the public lands of the United States (43 CFR, Part 7). It seems to me that the Secretary might feel that the policy adopted with respect to the public lands should be applied, so far as the employees of the Department are concerned, to those situations in which the Secretary is empowered to grant (rather than merely to recommend) assistance under the Defense Production Act of 1950. I suggest, therefore, that no exploration contract be made under MO-5 with an employee of any agency of the Department until the Secretary's views have been ascertained.

/s/ Mastin G. White

Mastin G. White
Solicitor

FILE COPY
SURNAME:

Blakemore

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

8-29

Memorandum

TO: General Counsel, DMA

FROM: Director, PED of DMA

SUBJECT: Docket No. DMA-1747
Lead-Zinc, (Missouri)
Old Dominion Mining Company
Route 2 Box 183, Vienna, Virginia

Attached hereto is the application by Mr. Waterhouse an employee of D.M.A. Room 2465, Ext. 2649, this building, covering a small exploration program of drilling on 70 acres of leased land located near Seneca, Missouri.

The applicant stated verbally that he was unable to obtain a landlord's subordination agreement.

Your advice is requested on two points.

(a) Is an employee of DMA eligible for Exploration Contracts?

(b) If the applicant is eligible, and if it is proper to do so in this instance, please prepare an appropriate waiver of the landlord's subordination agreement for attachment to the exploration contract when prepared.

Attachment

C. O. Mittendorf

PBBlakemore/jem
8-29-51

cc to: Adm. Reading File
Reports & Records
Mr. Mittendorf-Mr. Olund
Mr. Blakemore
Docket

Not stripped in R. + R.

FILE COPY
SURNAME:

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

June 29, 1951

Mr. H. D. Waterhouse
Partner & Manager
Route 2 Box 183
Vienna, Virginia

Subject: DMA-1747X
Re: Exploration Loan -
Hatcher Land

My dear Mr. Waterhouse:

Receipt is acknowledged of your application and attachments of June 25, 1951 for an exploration loan under the Defense Production Act of 1950.

The application was assigned Docket Number DMA-1747X and referred to Mr. Otto Herres, Chief, Lead-Zinc Branch on June 28, 1951.

In any future correspondence relating to your application, kindly refer to DMA-1747X.

Sincerely yours,

LANDON F. STROBEL

Landon F. Strobel jc
Executive Secretary

L. F. Strobel:jc
cc: Strobel
✓File
Herres
Lyon

DMA 1747

858

2649

McKnight (Bernard C. Johnson) 6/5/51

Defense Minerals Administration AUG 28 1951

Review of Application for Exploration Assistance

To: Production Expansion Division

From: Director, Supply Division

Docket No. 1747X

Commodity Lead-zinc

Total Amount $6,000

Govt. Participation $3,000

1. Name and Address of Applicant Old Dominion Mining Company, Route 2, Box 183 Vienna, Va.

2. Location of Property 1/2 mile S of Seneca, Missouri, S½ of SE fractional 1/4, Sec. 8, T. 24 N. R. 34 W.

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 comment

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) The property lies in a northeast trending mineralized zone localized by the Seneca fault. The ore deposits are in typical Tri-State runs in nearby horizontal limestone beds of the Boone formation near the fault. There has already been considerable mining from this general area in part by the applicant, the ore having come from a depth of 40-100 feet. Applicant proposes to churn drill in the neighborhood of former workings, now caved to the surface, on which mining of a good run of lead ore was terminated by litigation in 1892. His proposal is to drill ahead of and in the trend of these old workings to try and locate the ore run that was being followed.

As Tri-State drilling goes, this proposal seems to have a better than average chance of finding ore in that mineralization, is known to be present on the tract and the previous mining may give an indication of the best areas to prospect for continuation of an ore run.

7. Are subordination agreements necessary? Yes

a) MF-201? _____

b) MF-202 Yes - requested of applicant

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? See comment

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? _____

_____

_____

_____

10. (a) The proposal is to churn drill near old unmapped and caved workings. A rough sketch of the caved ground is given to show the general trend of the ore runs, and the approximate location of the first six holes is shown. Later holes will be spotted in relation to what the earlier ones have shown. The depth of holes will be mostly under 100 feet, but depending upon what kind of ground is shown by the drilling, some holes will be deeper than this.

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. See answer to question 23

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? No

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? No

13. Exhibit D (question 23-a, b)*

a) Are there sufficient data? Not applicable - contract churn drilling

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? Not applicable

e) Is a field check needed? No

14. Exhibit E (question 23-c)*

a) Is it applicable? No

b) Sufficient data?

c) Reasonable?

d) Field check needed? No

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, on basis of geology and past history

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: E. T. McKnight ~~8-10-51~~

Date 8-23-51

approved
Tom Lyon

INT.-DUP. SEC., WASH., D.C. 99009

Copy of

MINING LEASE

THIS INDENTURE, Made this 7th day of September, 1950, by and between

Anna B. Hatcher

hereinafter (whether one or more) referred to as Lessor, and Harold D. Waterhouse, Roy Card, and Roy Thomas hereinafter referred to as Lessee.

WITNESSETH, 1. That in consideration of the covenants and agreements hereinafter set out, to be kept and performed by Lessee, Lessor does hereby lease unto Lessee for prospecting and mining for lead and zinc ores, for ten years from the date hereof, the following described land (for the purposes hereof considered as one parcel) situated in Newton County County, State of Missouri

South Half ($S\frac{1}{2}$) of Southeast Fractional Quarter (SE Fr. $\frac{1}{4}$) of Section Eight (8), Township Twenty-four (24), Range Thirty-four (34), containing 69.97 acres more or less.

of Section _____ Township _____ Range _____, and containing _____ acres, more or less.

2. The Lessor hereby gives and grants unto Lessee, for said term, the exclusive right and license to prospect and mine said land for lead and zinc ores, together with the right and license to prepare for market on said premises and remove and sell all lead and zinc concentrates produced from said ores, with the right to construct buildings or other structures and to make excavations, openings, stockpiles, dumps, ditches, drains, roads,

4. Lessor agrees to pay Lessor's proportionate part of any taxes assessed or levied by the State in which said lands are located or any subdivision thereof, or by the Federal Government against the ores and/or concentrates produced from the lands covered hereby.

5. The Lessee will keep accurate books showing quantities and kinds of concentrates produced from said lands, and sold or consumed, when and to whom sold, and the money received from sales and such books of account shall be open to inspection by Lessor at all reasonable hours.

6. All mining operations shall be carried on in a miner-like and workman-like manner and may be conducted by shaft and underground tunnels or excavating in the manner known as strip or open-pit mining, and in the event of any strip or open-pit mining Lessee shall not be liable for damages done to the surface of said lands on account of such mining.

7. It is further understood and agreed that all ores mined from the lands covered hereby may be cleaned and prepared for market on this or other lands within or without the local area within which the lands covered hereby are located, as may be deemed desirable by Lessee, as an independent operation, or in a mill or mills in which other ores are being treated, commonly referred to as a central concentrating plant and that such plant or plants may be located on these lands, with the right to treat ores from other lands therein. If said central concentrating plant shall be equipped with automatic weighing and sampling devices, then such ores shall be weighed, assayed, treated, handled and concentrates determined, sold and accounted for in the manner which is now or may hereafter be established as standard method and practice thereat. If said central plant shall not be equipped with automatic weighing and sampling devices, then the ores mined from the lands covered hereby shall not be commingled with ores from other lands before or during milling, nor shall any concentrates recovered therefrom be commingled with the concentrates recovered from ores from other lands, and said concentrates shall be sold and accounted for separately from any other concentrates.

[illegible] hereby are milled on other lands

Copy of

MINING LEASE

THIS INDENTURE, Made this 7th day of September, 1950, by and between

Anna B. Hatcher

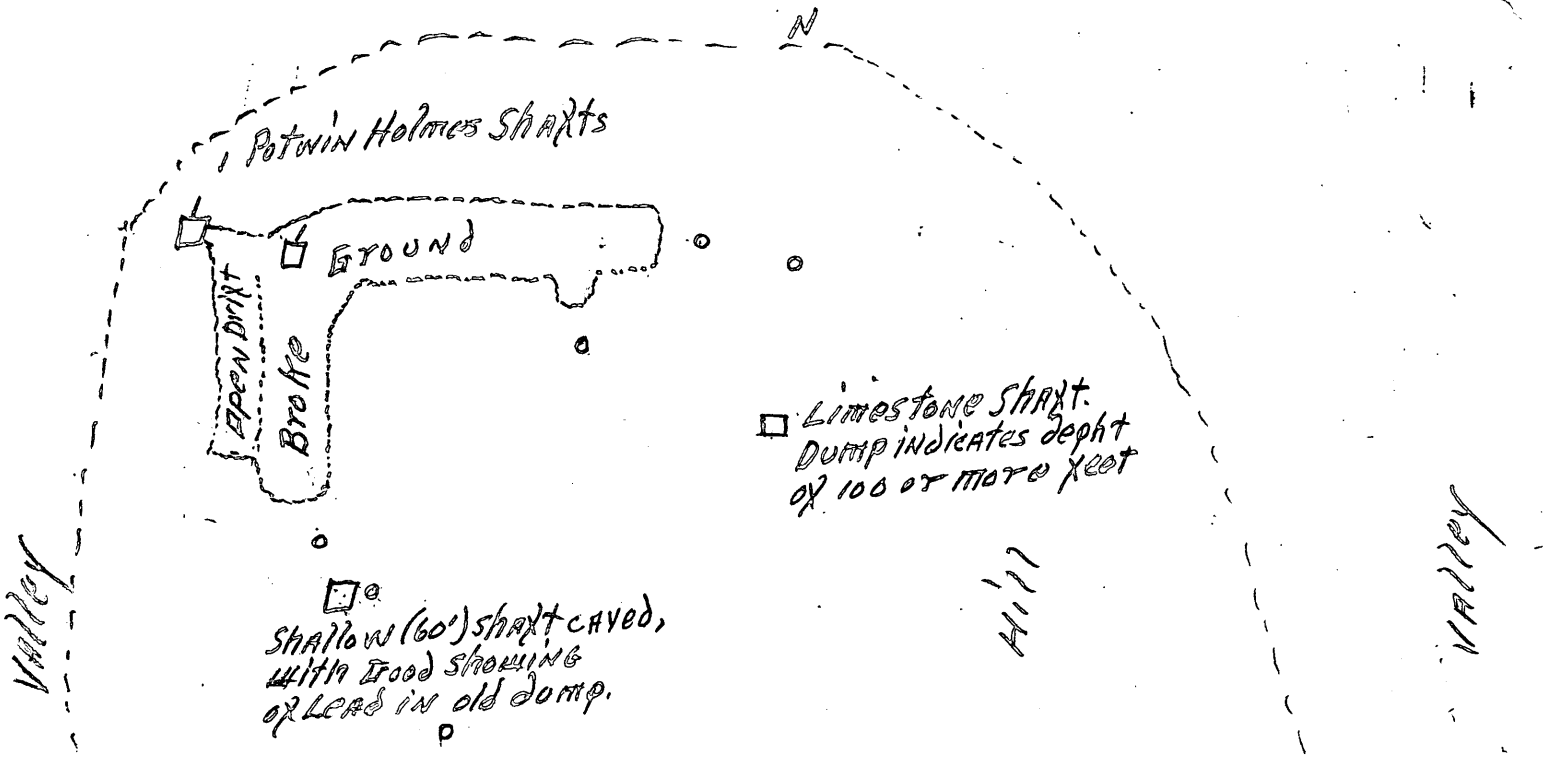
hereinafter (whether one or more) referred to as Lessor, and Harold D. Waterhouse, Roy Card, and Roy Thomas hereinafter referred to as Lessee.

WITNESSETH, 1. That in consideration of the covenants and agreements hereinafter set out, to be kept and performed by Lessee, Lessor does hereby lease unto Lessee for prospecting and mining for lead and zinc ores, for ten years from the date thereof, the following described land (for the purposes hereof considered as one parcel) situated in Newton County County, State of Missouri

South Half (S½) of Southeast Fractional Quarter (SE Fr. ¼) of Section Eight (8), Township Twenty-four (24), Range Thirty-four (34), containing 69.97 acres more or less.

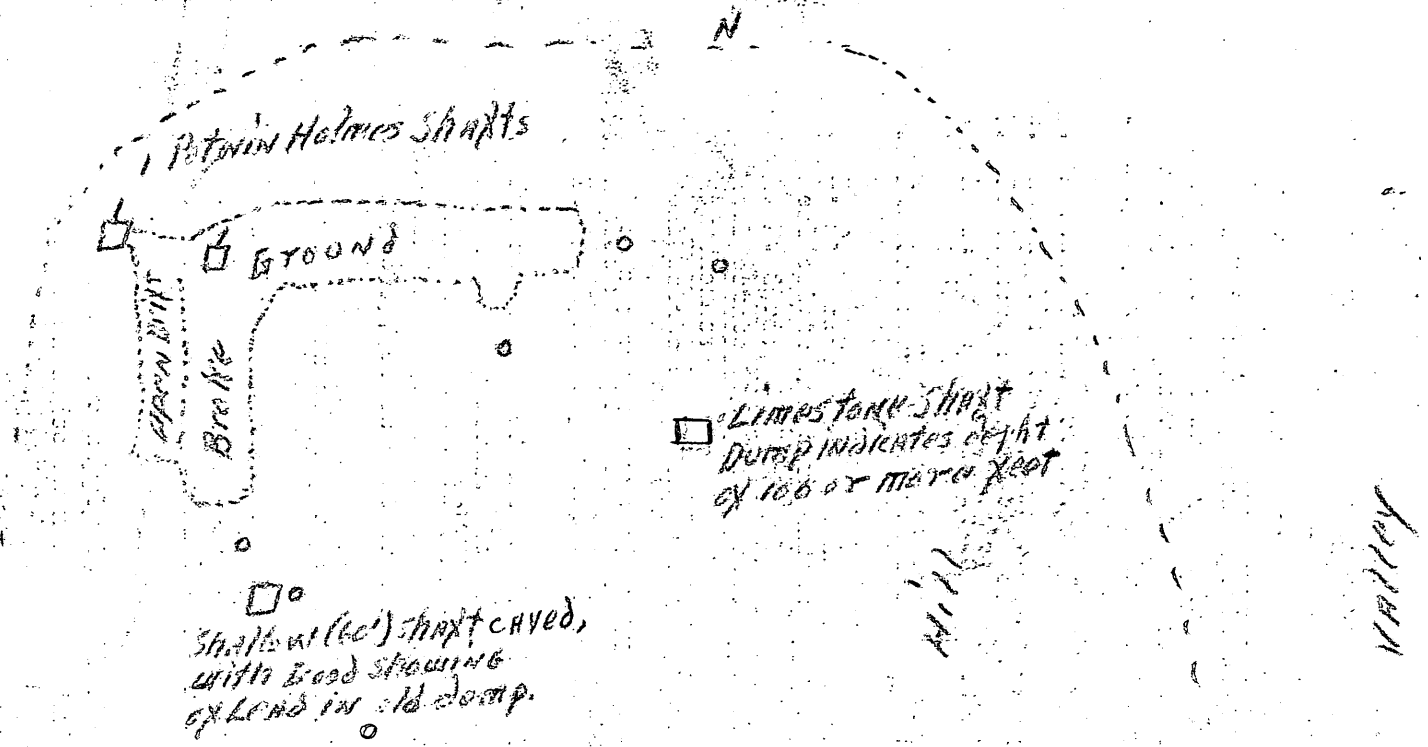
of Section _____ Township _____ Range _____, and containing _____ acres, more or less.

2. The Lessor hereby gives and grants unto Lessee, for said term, the exclusive right and license to prospect and mine said land for lead and zinc ores, together with the right and license to prepare for market on said premises and remove and sell all lead and zinc concentrates produced from said ores, with the right to construct buildings or other structures and to make excavations, openings, stockpiles, dumps, ditches, drains, roads, [illegible] and other improvements upon said premises, including the use of water in said [illegible] may deem necessary for



- Initial holes to try to pick up run of Lead Potwin Holmes worked. Run was from 40 to 50' in depth. Broken ground is about 40' wide and 150 to 200' in length. Expect to drill some holes 100' or deeper depending on formation.
The valleys look Good for some holes in the event the initial holes around the Potwin workings does not develop Good ore.

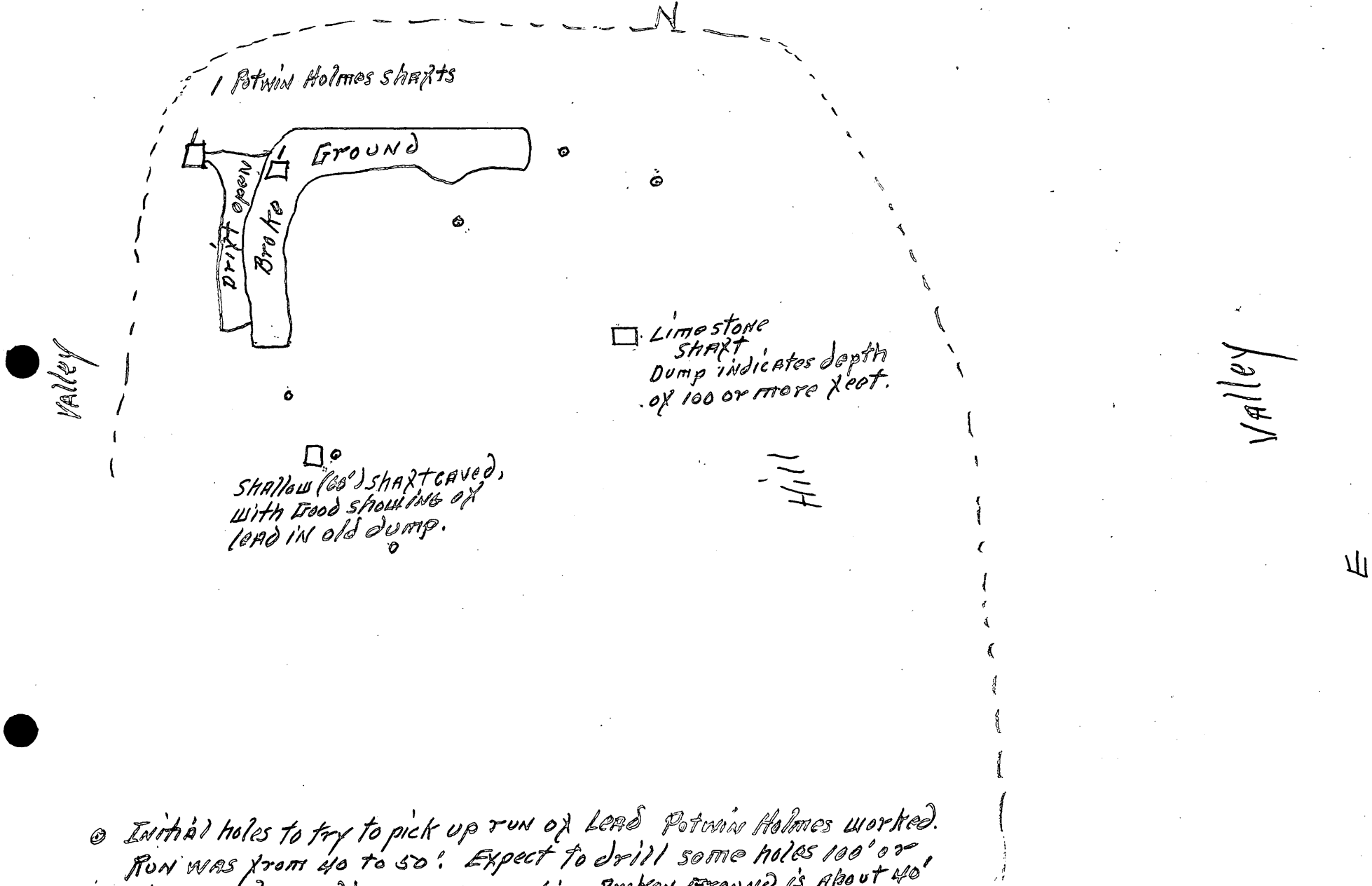
Old Dominion Mining Co.,
Hatcher Lease, Seneca, Mo.



- Initial holes to try to pick up run of lead Potwin Holmes worked. Run was from 40 to 50' in depth. Broken ground is about 40' wide and 150 to 200' in length. Expect to drill some holes 100' or deeper depending on formation.

The valleys look good for some holes in the event the initial holes around the Potwin workings does not develop good ore.

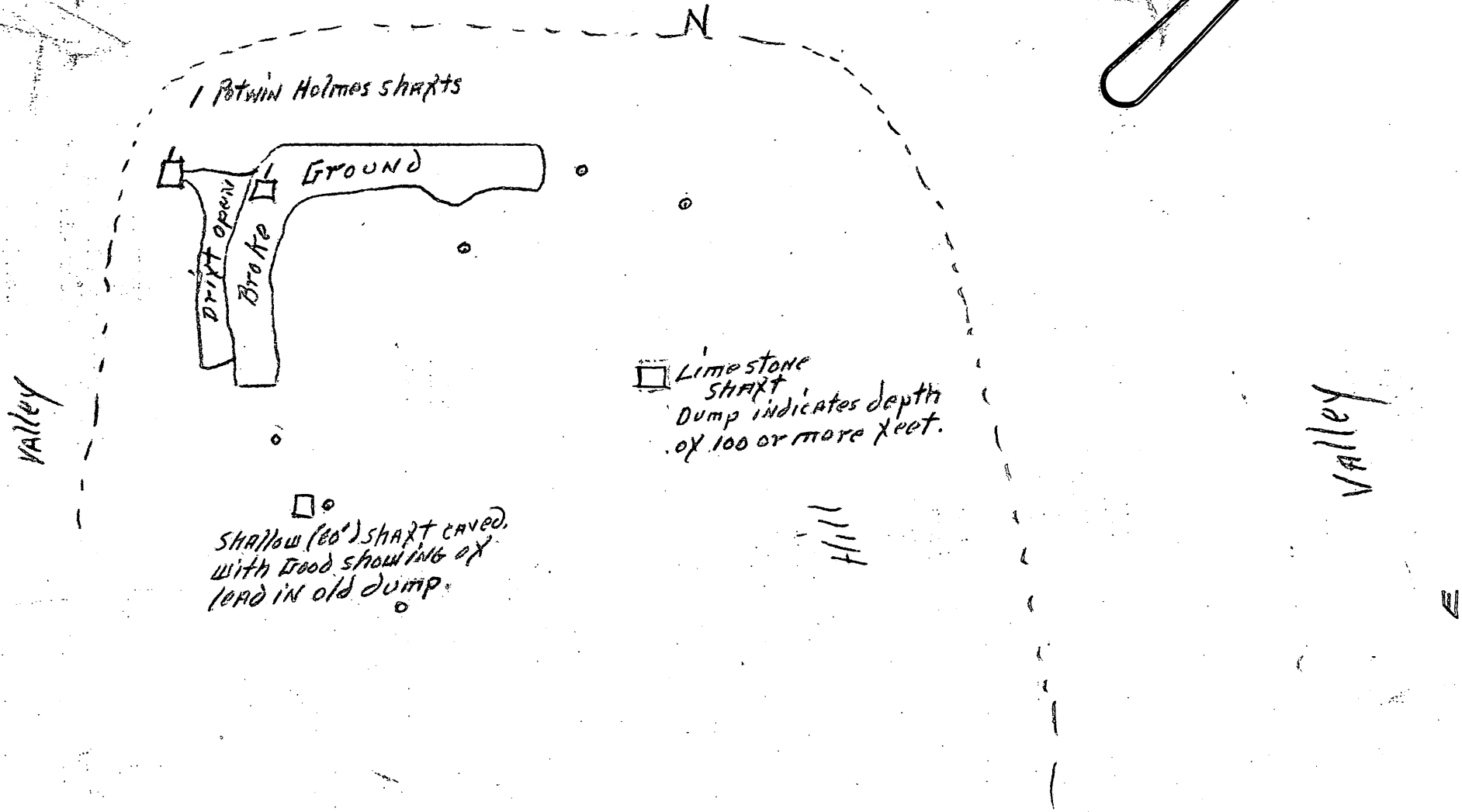
Old Dominion Mining Co.
Hatcher Lease, Seneca, Mo.



⊙ Initial holes to try to pick up run of lead Potwin Holmes worked. Run was from 40 to 50'. Expect to drill some holes 100' or deeper depending on formation. Broken ground is about 40' wide and 150 to 200' in length.
The valleys look good for some holes in the event the initial holes around the Potwin workings does not develop good ore.

Old Dominion Mining Co.
Hatcher-Lease, Seneca, Mo.

S



⊙ Initial holes to try to pick up run of lead Potwin Holmes worked. Run was from 40 to 50'. Expect to drill some holes 100' or deeper depending on formation. Broken ground is about 40' wide and 150 to 200' in length.
The valleys look good for some holes in the event the initial holes around the Potwin workings does not develop good ore.

Old Dominion Mining Co.
Hatcher-Lease, Seneca, Mo.

S

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-1747X

Date received 6/28/51

Participation

Old Dominion Mining Co.
Rt. 2, Box 183
Vienna, Virginia

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 28 1951
LANDON F. STROBEL
Executive Secretary

Name and address of applicant

Date June 25, 1951

FILL IN THIS BLOCK

Date of application June 25, 1951

Estimated cost $6000.00

Mineral or metal Lead and Zinc

Percentage of Government participation 50%

Location of mine 1/2 mi. due South of Seneca, Mo., in Newton County

Date of filing MF-100 None

DMA Docket Number, if available None

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

See Addendum sheets.

*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.

Old Dominion Mining Co.
(Name of company)

By H. D. Waterhouse
(Signature of authorized official)

June 25, 1951
(Date)

Partner & 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

Sheet #1. SUPPLEMENTAL TO FORM MF-103.

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

OLD DOMINION MINING COMPANY,
RT. 2, BOX 183,
VIENNA, VIRGINIA.

June 25, 1951.

1. The applicant is a partnership.

2. Names and addresses of partners.

R. M. Card,	H. D. Waterhouse,	Roy Thomas,
Rt. 2, Box 185,	Rt. 2, Box 183,	1302 W. Daugherty St.,
Vienna, Va.	Vienna, Va.	Webb City, Missouri.

3. Not applicable

4. Mining and general business experience of applicant:

H. D. Waterhouse:

Worked for the Eagle-Picher Lead Co. for ten years . One and one-half years in Joplin, Missouri lead smelter keeping ~~lead~~ production records of entire plant, making payrolls, purchasing ore, etc. Three years managing Minneappolis, Minn. branch warehouse. This branch handled some 200 items of lead and zinc products manufactured by the company for the wholesale paint and plumbing trade. Ordered stock, acted as shipping clerk, kept inventory records, routed shipments, and various other duties connected with the position. Five and one-half years in the mining division at Picher, Okla. Mine office clerk, ordering mine supplies, keeping production records, preparing payrolls, acting as paymaster. Worked in ore buyers office keeping accounts of office and prepared checks in payment for ore purchases. Worked in main office as accountant, keeping journal and ledger for eighteen operating plants. Prepared payment checks for all purchases of machinery, mine supplies, powder, coal, power bills, and other items.

Worked for two years for the Kansas Explorations, Inc., a subsidiary of The St. Joe Lead Co., in the Picher, Okla. field. This work was very similar to that for the Eagle-Picher Co. in the mining field. On this job a great deal of cost accounting was done on mine machinery and supplies.

Mined for self for five years. Had a small zinc mine on the Joplin Consolidated Mining Co. land north of Joplin during World War I. Also a lead mine east of Joplin on Turkey Creek. Operated a lead and zinc mine on the Hatcher-Koch land South of Seneca, Mo., in 1925 and again in 1931 to 1934. Was interested in several other drilling and prospecting projects in the district.

Roy Thomas:

Has had forty years experience in mining and operating drill rigs in the Tri-State district. This partner is in Webb City, Missouri and I do not have a detailed account of his experience. He is now working for Brown & Root at the Quick Seven lease in Neck City, Mo.

Sheet #2. SUPPLEMENTAL TO FORM MF-103.

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

OLD DOMINION MINING COMPANY,
RT. 2, BOX 183,
VIENNA, VIRGINIA.

June 25, 1951.

4. Mining and General Experience of applicant:

R. M. Card:

Has had thirty years experience in saw mill and timber business. Furnished steel mills with their timber requirements for many years. Operated large general merchandise store several years. Late years has been operating saw mill and trucking business.

5. Lessee of the property.
6. Not applicable.
7. If lessee, attach a copy of the lease and state if it is in good standing. Lease attached. It is in good standing.

8. Furnish current financial statement:

H. D. Waterhouse:
Real estate and cash assets approximately $50,000.
R. M. Card:
Real estate and Cash assets approximately $20,000.
Roy Thomas:
Real estate and cash assets approximately $20,000.

9. Applicant is prepared to invest $3,000.00 in the proposed project. It is ample to pay the applicants part of the cost of the project.

10. The south half of the Hatcher land in Newton County, Missouri comprising about seventy acres. No mining has been done on this parcel. Legal description is: South Half (S½) of Southeast Fractional Quarter (SE Fr. ¼) of Section Eight (8) Township Twenty-Four (24), Range Thirty-four (34) Obtaining 69.97 acres more or less.

11. Former names of property: Potwin Mines, Cape & Holmes, Hatcher-Koch.

12. Lease is about one half mile due south of Seneca, Missouri. Good State road runs thru property. Frisco RR runs thru Seneca which would be shipping point to Eagle-Picher Central mill about ten miles over in Okla.

13. Abundant water supply is available from old shaft on north part of land or on lease when shaft is sunk to seventy feet.

14. No existing usable facilities on lease.

15. The ore could be shipped from Seneca, Missouri, a distance of about one mile to RR. to the Eagle-Picher Central Mill in Okla., a distance of about ten miles. Eagle Picher has a railroad which makes connection with the Frisco.

Sheet #3. SUPPLEMENTAL TO FORM MF-103.

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

OLD DOMINION MINING COMPANY,
RT. 2, BOX 183,
VIENNA, VIRGINIA. June 25, 1951.

16. History:

(a) In 1890 a party named Potwin discovered an outcropping of lead carbonate on property. He contacted the owner who lived in Bloomington, Ill. and purchased 30 acres of the 140 acre tract. He sunk a shaft and developed a very rich lead mine between 40 and fifty (50) feet in depth which he worked for over two years. At that time the owner of the remaining 110 acres leased it to a mining company. When they surveyed it they found that Mr. Potwin was mining on their lease. Mr. Potwin then checked the description in his deed and found that it was for another parcel instead of the land he wanted and had been mining. He then tried to get the owner to correct the deed but she refused and he then sued her. The verdict was in favor of the party selling to him and he was forced to vacate. I have been told by old timers that Mr. Potwin shot the ground in and no one ever worked it afterward. The ground is caved to the surface where he mined. There were other operations on the north 70 acres of the tract, and at one time a large mill. There was a group of business men in Seneca leased the land about 1923 and drilled three holes which hit vefy rich lead ore from 80 to 100 feet. They cleaned out an old shaft and cut to these holes. They put in a small mill and cut until they broke into the old ground of the former large mill. The former company had worked from 60 to 80 feet. The lead ore was getting thin and zinc ore was coming in. The two partners were not miners and hired all their labor. The roof was high and dangerous so they started cutting a drift to reach the heading from another angle. Before this was accomplished they became financially embarrassed and shut down. After some months I purchased the lease and their equipment. I ran it for several months but did not have the finances to develop it. I mined some lead from the old Potwin shaft but never was able to get to the headings of any of the old drifts. It is my belief that churn drilling ahead of those old workings will locate the ore bodies which they were cutting on. There has been very little work done on the south 70 acres other than the Potwin mine. There are several areas which look promising for churn drilling.

(b) There are no adjoining properties which have been mined.

(c) There are no reports or results of mine examinations for this property available.

17. Mine is not in production.

18. No mineral reserves blocked out. It is our desire to attempt to locate an ore body by churn drilling.

19. No conditions or circumstances known which have not been answered.

20. The exploration will be conducted by churn drilling for lead and zinc ores which lay in horizontal beds in that area.

21. It is proposed to prospect by churn drilling and try to develop an ore body that would pay to mine. It is estimated that three months time would be required to do this.

Sheet #4. SUPPLEMENTAL TO FORM MF-103.

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

OLD DOMINION MINING COMPANY,
RT. 2, BOX 183,
VIENNA, VIRGINIA.

June 25, 1951.

22. The Seneca Fault runs near this lease, and the fact that rich ore has been mined from a small area on the tract indicates that by churn drilling it may be possible to follow out the ore body mined on in 1890 or locate other bodies of commercial quantity. I have been unable to obtain any geological maps but attach a topographical map which shows the location in relation to the well known Tri-State district of Missouri-Kansas-Oklahoma.

23.

a	Labor: Contract driller, 2700 feet @ $2.00	$5400.00
b.	1 Supervisor watching drilling, 75 days @ $8.00	600.00
	Total	$6000.00
c.	Not applicable	
d.	" "	
e.	" "	
f.	" "	
g/	" "	
h.	" "	
i.	" "	

24. Time Schedule: The drilling should be accomplished at the rate of 30 feet or more per day. It is believed the project could be completed within three months after being approved. It would require approximately $1800.00 per month if conditions permitted the drill to operate full time.

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.

OLD DOMINION MINING COMPANY
June 25, 1951.

By A B Waterhouse.

Partner & Manager

Form MF-103
(April 1951)

U. 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-1747X

Date received 6/28/51

Participation

Old Dominion Mining Co.
Rt. 2, Box 183
Vienna, Virginia

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 28 1951
LANDON F. STEEDEL
Executive Secretary

Name and address of applicant

Date June 25, 1951

FILL IN THIS BLOCK

Date of application June 25, 1951

Estimated cost $6000.00

Mineral or metal Lead and Zinc

Percentage of Government participation 50%

Location of mine 1/2 mi. due South of Seneca, Mo., in Newton County

Date of filing MF-100 None

DMA Docket Number, if available None

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

See Addendum sheets.

*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.

Old Dominion Mining Co.
(Name of company)

By H. D. Waterhouse
(Signature of authorized official)

June 25, 1951
(Date)

Partner & 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

Sheet #1. SUPPLEMENTAL TO FORM DF-103.

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

OLD DOMINION MINING COMPANY,
RT. 2, BOX 183,
VIENNA, VIRGINIA.

June 25, 1951.

1. The applicant is a partnership.

2. Names and addresses of partners.

R. M. Card,	H. D. Waterhouse,	Roy Thomas,
Rt. 2, Box 185,	Rt. 2, Box 183,	1302 W. Daugherty St.,
Vienna, Va.	Vienna, Va.	Webb City, Missouri.

3. Not applicable

4. Mining and general business experience of applicant:

H. D. Waterhouse:

Worked for the Eagle-Picher Lead Co. for ten years . One and one-half years in Joplin, Missouri lead smelter keeping ~~kmk~~ production records of entire plant, making payrolls, purchasing ore, etc. Three years managing Minneappolis, Minn. branch warehouse. This branch handled some 200 items of lead and zinc products manufactured by the company for the wholesale paint and plumbing trade. Ordered stock, acted as shipping clerk, kept inventory records, routed shipments, and various other duties connected with the position. Five and one-half years in the mining division at Picher, Okla. Mine office clerk, ordering mine supplies, keeping production records, preparing payrolls, acting as paymaster. Worked in ore buyers office keeping accounts of office and prepared checks in payment for ore purchases. Worked in main office as accountant, keeping journal and ledger for eighteen operating plants. Prepared payment checks for all purchases of machinery, mine supplies, powder, coal, power bills, and other items.

Worked for two years for the Kansas Explorations, Inc., a subsidiary of The St. Joe Lead Co., in the Picher, Okla. field. This work was very similar to that for the Eagle-Picher Co. in the mining field. On this job a great deal of cost accounting was done on mine machinery and supplies.

Mined for self for five years. Had a small zinc mine on the Joplin Consolidated Mining Co. land north of Joplin during World War I. Also a lead mine east of Joplin on Turkey Creek. Operated a lead and zinc mine on the Hatcher-Koch land South of Seneca, Mo., in 1925 and again in 1931 to 1934. Was interested in several other drilling and prospecting projects in the district.

Roy Thomas:

Has had forty years experience in mining and operating drill rigs in the Tri-State district. This partner is in Webb City, Missouri and I do not have a detailed account of his experience. He is now working for Brown & Root at the Quick Seven lease in Neck City, Mo.

Sheet #2. SUPPLEMENTAL TO FORM MF-103.

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

OLD DOMINION MINING COMPANY,
RT. 2, BOX 183,
VIENNA, VIRGINIA. June 25, 1951.

4. Mining and General Experience of applicant:

R. M. Card:

Has had thirty years experience in saw mill and timber business. Furnished steel mills with their timber requirements for many years. Operated large general merchandise store several years. Late years has been operating saw mill and trucking business.

5. Lessee of the property.
6. Not applicable.
7. If lessee, attach a copy of the lease and state if it is in good standing. Lease attached. It is in good standing.

8. Furnish current financial statement:

H. D. Waterhouse:
Real estate and cash assets approximately $50,000.
R. M. Card:
Real estate and Cash assets approximately $20,000.
Roy Thomas:
Real estate and cash assets approximately $20,000.

9. Applicant is prepared to invest $3,000.00 in the proposed project. It is ample to pay the applicants part of the cost of the project.

10. The south half of the Hatcher land in Newton County, Missouri comprising about seventy acres. No mining has been done on this parcel. Legal description is: South Half (S½) of Southeast Fractional Quarter (SE Fr. ¼) of Section Eight (8) Township Twenty-Four (24), Range Thirty-four (34) Obtaining 69.97 acres more or less.

11. Former names of property: Potwin Mines, Cape & Holmes, Hatcher-Koch.

12. Lease is about one half mile due south of Seneca, Missouri. Good State road runs thru property. Frisco RR runs thru Seneca which would be shipping point to Eagle-Picher Central mill about ten miles over in Okla.

13. Abundant water supply is available from old shaft on north part of land or on lease when shaft is sunk to seventy feet.

14. No existing usable facilities on lease.

15. The ore could be shipped from Seneca, Missouri, a distance of about one mile to RR. to the Eagle-Picher Central Mill in Okla., a distance of about ten miles. Eagle Picher has a railroad which makes connection with the Frisco.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO SECTION SECTION 5, UNDER STRATEGIC PRODUCTION ACT OF 1950.

OLD POSTWICH MINING COMPANY,
DM. 2, DOR 109,
VIENNA, VIRGINIA. June 25, 1951.

16. History:

(a) In 1890 a party named Potwin discovered an outcropping of lead carbonate on property. He contacted the owner who lived in Bloomington, Ill. and purchased 30 acres of the 140 acre tract. He sunk a shaft and developed a very rich lead mine between 40 and fifty (50) feet in depth which he worked for over two years. At that time the owner of the remaining 110 acres leased it to a mining company. When they surveyed it they found that Mr. Potwin was mining on their lease. Mr. Potwin then checked the description in his deed and found that it was for another parcel instead of the land he wanted and had been mining. He then tried to get the owner to correct the deed but she refused and he then sued her. The verdict was in favor of the party selling to him and he was forced to vacate. I have been told by old timers that Mr. Potwin shot the ground in and no one ever worked it afterward. The ground is caved to the surface where he mined. There were other operations on the north 70 acres of the tract, and at one time a large mill. There was a group of business men in Sonora leased the land about 1929 and drilled three holes which hit very rich lead ore from 80 to 100 feet. They cleaned out an old shaft and cut to these holes. They put in a small mill and cut until they broke into the old ground of the former large mill. The former company had worked from 60 to 80 feet. The lead ore was getting thin and zinc ore was coming in. The two partners were not miners and hired all their labor. The roof was high and dangerous so they started cutting a drift to reach the heading from another angle. Before this was accomplished they became financially embarrassed and shut down. After some months I purchased the lease and their equipment. I ran it for several months but did not have the financed to develop it. I sized some lead from the old Potwin shaft but never was able to get to the headings of any of the old drifts. It is my belief that churn drilling ahead of these old workings will locate the ore bodies which they were cutting on. There has been very little work done on the north 70 acres other than the Potwin mine. There are several areas which look promising for churn drilling.

(b) There are no adjoining properties which have been mined.

(c) There are no reports or results of mine examinations for this property available.

17. Mine is not in production.

18. No mineral reserves blocked out. It is our desire to attempt to locate an ore body by churn drilling.

19. No conditions or circumstances known which have not been answered.

20. The exploration will be conducted by churn drilling for lead and zinc ores which lay in horizontal beds in that area.

21. It is proposed to prospect by churn drilling and try to develop an ore body that would ore to mine. It is estimated that three months time would be required to do this.

Sheet #4. SUPPLEMENTAL TO FORM MP-103.

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

OLD DOMINION MINING COMPANY,
Rt. 2, BOX 103,
VIENNA, VIRGINIA. June 25, 1951.

22. The Seneca Fault runs near this lease, and the fact that rich ore has been mined from a small area on the tract indicates that by more drilling it may be possible to follow out the ore body mined on in 1890 or locate other bodies of commercial quantity. I have been unable to obtain any geological maps but attach a topographical map which shows the location in relation to the well known Tri-State district of Missouri-Kansas-Oklahoma.

23.

a	Labor: Contract driller, 3700 feet @ $2.00	$5400.00
b.	1 Supervisor watching drilling, 75 days @ $8.00	600.00
	Total	$6000.00
c.	Not applicable	
d.	" "	
e.	" "	
f.	" "	
g.	" "	
h.	" "	
i.	" "	

24. Time Schedule: The drilling should be accomplished at the rate of 30 feet or more per day. It is believed the project could be completed within three months after being approved. It would require approximately $1800.00 per month if conditions permitted the drill to operate full time.

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.

OLD DOMINION MINING COMPANY
June 25, 1951.

By H. B. Waterhouse
President & Manager

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-1747X

Date received 6/28/51

Participation

Old Dominion Mining Co.
Rt. 2, Box 183
Vienna, Virginia

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 28 1951
LANDON F. STROBEL
Executive Secretary

Name and address of applicant

Date June 25, 1951

FILL IN THIS BLOCK

Date of application June 25, 1951

Estimated cost $6000.00

Mineral or metal Lead and Zinc

Percentage of Government participation 50%

Location of mine 1/2 mi. due South of Seneca, Mo., in Newton County

Date of filing MF-100 None

DMA Docket Number, if available None

INSTRUCTIONS

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

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation? See Addendum sheets.
*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

JUN 28 1951

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.

Old Dominion Mining Co.
(Name of company)

By H. D. Waterhouse
(Signature of authorized official)

June 25, 1951
(Date)

Partner & 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

Sheet #1. SUPPLEMENTAL TO FORM DF-103.

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

OLD DOMINION MINING COMPANY,
Rt. 2, Box 183,
VIENNA, VIRGINIA. June 25, 1951.

1. The applicant is a partnership.

2. Names and addresses of partners.

R. M. Card,	H. D. Waterhouse,	Roy Thomas,
Rt. 2, Box 185,	Rt. 2, Box 183,	1302 N. Dougherty St.,
Vienna, Va.	Vienna, Va.	Webb City, Missouri.

3. Not applicable

4. Mining and general business experience of applicants:

H. D. Waterhouse:

Worked for the Eagle-Picher Lead Co. for ten years. One and one-half years in Joplin, Missouri lead smelter keeping ~~hand~~ production records of entire plant, making payrolls, purchasing ore, etc. Three years managing Minneapolis, Minn. branch warehouse. This branch handled some 200 items of lead and zinc products manufactured by the company for the wholesale paint and plumbing trade. Ordered stock, acted as shipping clerk, kept inventory records, routed shipments, and various other duties connected with the position. Five and one-half years in the mining division at Picher, Okla. Mine office clerk, ordering mine supplies, keeping production records, preparing payrolls, acting as paymaster. Worked in ore buyers office keeping accounts of office and prepared checks in payment for ore purchases. Worked in main office as accountant, keeping journal and ledger for eighteen operating plants. Prepared payment checks for all purchases of machinery, mine supplies, powder, coal, power bills, and other items.

Worked for two years for the Kansas Explorations, Inc., a subsidiary of the St. Joe Lead Co., in the Picher, Okla. field. This work was very similar to that for the Eagle-Picher Co. in the mining field. On this job a great deal of cost accounting was done on mine machinery and supplies.

Mined for self for five years. Had a small zinc mine on the Joplin Consolidated Mining Co. land north of Joplin during World War I. Also a lead mine east of Joplin on Turkey Creek. Operated a lead and zinc mine on the Hatcher-Koch land south of Seneca, Mo., in 1929 and again in 1931 to 1934. Was interested in several other drilling and prospecting projects in the district.

Roy Thomas:

Has had forty years experience in mining and operating drill rigs in the Tri-state district. This partner is in Webb City, Missouri and I do not have a detailed account of his experience. He is now working for Brown Drilling at the Quick Seven lease in Rock City, Mo.

APPLICATION FOR PERMIT TO EXPLORATION FOR OR PROSPECT
TO MINERAL UNDER 5, NEW DEFENSE PRODUCTION ACT OF 1950.

OLD DOMINION MINING COMPANY,
RT. 2, BOX 183,
VIENNA, VIRGINIA.

June 25, 1951.

4. Mining and General Experience of applicant:

N. M. Card:

Has had thirty years experience in saw mill and timber business. Furnished steel mills with their timber requirements for many years. Operated large general merchandise store several years. Late years has been operating saw mill and trucking business.

5. Lessee of the property.
6. Not applicable.
7. If lessee, attach a copy of the lease and state if it is in good standing. Lease attached. It is in good standing.

8. Furnish current financial statement:

R. D. Waterhouse:
Real estate and cash assets approximately $50,000.
N. M. Card:
Real estate and Cash assets approximately $20,000.
Roy Thomas:
Real estate and cash assets approximately $20,000.

9. Applicant is prepared to invest $3,000.00 in the proposed project. It is ample to pay the applicants part of the cost of the project.

10. The south half of the Hatcher land in Newton County, Missouri comprising about seventy acres. No mining has been done on this parcel. Legal description is: South Half (S½) of Southeast Fractional Quarter (SE Fr. ¼) of Section Eight (8) Township Twenty-Four (24), Range Thirty-four (34) Obtaining 69.97 acres more or less.

11. Former names of property: Petwin Mines, Cape & Holmes, Hatcher-Kook.

12. Lease is about one half mile due south of Seneca, Missouri. Good State road runs thru property. Frisco RR runs thru Seneca which would be shipping point to Eagle-Picher Central mill about ten miles over in Okla.

13. Abundant water supply is available from old shaft on north part of land or on lease when shaft is sunk to seventy feet.

14. No existing usable facilities on lease.

15. The ore could be shipped from Seneca, Missouri, a distance of about one mile to RR. to the Eagle-Picher Central Mill in Okla., a distance of about ten miles. Eagle Picher has a railroad which makes connection with the Frisco.

Sheet 4. SUPPLEMENTAL TO FORM [illegible].

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO GENERAL ORDER 3, UNDER DEFENSE PRODUCTION ACT OF 1950.

[illegible] MINING COMPANY,
[illegible]
[illegible]

June [illegible], 1951.

18. The [illegible] mine near this lease, and the fact that [illegible] ore has been mined from a small area on the [illegible] indicates that by [illegible] drilling it may be possible to follow out the ore body mined on in [illegible] or locate other bodies of commercial quantity. I have been unable to obtain any geological maps but attach a topographical map which shows the location in relation to the well known Tri-State district of Missouri-Kansas-Oklahoma.

19.
a. Labor: Contract driller, [illegible] feet @ [illegible] — [illegible]
b. 1 supervisor watching drilling, 75 days @ [illegible] — [illegible]
Total — [illegible]
c. Not applicable
d. " "
e. " "
f. " "
g. " "
h. " "
i. " "

20. Time schedule: The drilling should be accomplished at the rate of 20 feet or more per day. It is believed the project could be completed within three months after being approved. It would require approximately [illegible] per month if conditions permitted the drill to operate full time.

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.

[illegible] MINING COMPANY
June 25, 1951.

by ______________________

[illegible]

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R2035.
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-1747X

Date received 6/28/51

Participation

Old Dominion Mining Co.
Rt. 2, Box 183
Vienna, Virginia

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 28 1951
LANDON F. STROBEL
Executive Secretary

Date June 25, 1951

Name and address of applicant

FILL IN THIS BLOCK

Date of application June 25, 1951

Estimated cost $6000.00

Mineral or metal Lead and Zinc

Percentage of Government participation 50%

Location of mine 1/2 mi. due South of Seneca, Mo., in Newton County

Date of filing MF-100 None

DMA Docket Number, if available None

INSTRUCTIONS

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

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation? See Addendum sheets.
*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.

Old Dominion Mining Co.
(Name of company)

By A. D. Waterhouse
(Signature of authorized official)

June 25, 1951
(Date)

Partner & 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

Sheet #1. SUPPLEMENTAL TO FORM DP-103.

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

OLD DOMINION MINING COMPANY,
RT. 2, BOX 183,
VIENNA, VIRGINIA.

June 25, 1951.

1. The applicant is a partnership.

2. Names and addresses of partners.

R. M. Card,	H. D. Waterhouse,	Roy Thomas,
Rt. 2, Box 185,	Rt. 2, Box 183,	1302 N. Daugherty St.,
Vienna, Va.	Vienna, Va.	Webb City, Missouri.

3. Not applicable

4. Mining and general business experience of applicant:

H. D. Waterhouse:

Worked for the Eagle-Picher Lead Co. for ten years. One and one-half years in Joplin, Missouri lead smelter keeping ~~kmk~~ production records of entire plant, making payrolls, purchasing ore, etc. Three years managing Minneapolis, Minn. branch warehouse. This branch handled some 200 items of lead and zinc products manufactured by the company for the wholesale paint and plumbing trade. Ordered stock, acted as shipping clerk, kept inventory records, routed shipments, and various other duties connected with the position. Five and one-half years in the mining division at Picher, Okla. Mine office clerk, ordering mine supplies, keeping production records, preparing payrolls, acting as paymaster. Worked in ore buyers office keeping accounts of office and prepared checks in payment for ore purchases. Worked in main office as accountant, keeping journal and ledger for eighteen operating plants. Prepared payment checks for all purchases of machinery, mine supplies, powder, coal, power bills, and other items.

Worked for two years for the Kansas Explorations, Inc., a subsidiary of The St. Joe Lead Co., in the Picher, Okla. field. This work was very similar to that for the Eagle-Picher Co. in the mining field. On this job a great deal of cost accounting was done on mine machinery and supplies.

Mined for self for five years. Had a small zinc mine on the Joplin Consolidated Mining Co. land north of Joplin during World War I. Also a lead mine east of Joplin on Turkey Creek. Operated a lead and zinc mine on the Hatcher-Koch land South of Seneca, Mo., in 1925 and again in 1931 to 1934. Was interested in several other drilling and prospecting projects in the district.

Roy Thomas:

Has had forty years experience in mining and operating drill rigs in the Tri-State district. This partner is in Webb City, Missouri and I do not have a detailed account of his experience. He is now working for Brown & Root at the Quick Seven lease in Neck City, Mo.

Sheet #2. SUPPLEMENTAL TO FORM MP-103.

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

OLD DOMINION MINING COMPANY,
RT. 2, BOX 189.
VIENNA, VIRGINIA. June 25, 1951.

4. Mining and General Experience of applicant:

R. M. Card:

Has had thirty years experience in saw mill and timber business. Furnished steel mills with their timber requirements for many years. Operated large general merchandise store several years. Late years has been operating saw mill and trucking business.

5. Lessee of the property.
6. Not applicable.
7. If lessee, attach a copy of the lease and state if it is in good standing. Lease attached. It is in good standing.

8. Furnish current financial statement:

H. D. Waterhouse:
Real estate and cash assets approximately $50,000.
R. M. Card:
Real estate and Cash assets approximately $20,000.
Roy Thomas:
Real estate and cash assets approximately $20,000.

9. Applicant is prepared to invest $3,000.00 in the proposed project. It is ample to pay the applicants part of the cost of the project.

10. The south half of the Hatcher land in Newton County, Missouri comprising about seventy acres. No mining has been done on this parcel. Legal description is: South Half (S½) of Southeast Fractional Quarter (SE Fr. ¼) of Section Eight (8) Township Twenty-Four (24), Range Thirty-four (34) Obtaining 69.97 acres more or less.

11. Former names of property: Potwin Mines, Cape & Holmes, Hatcher-Kooh.

12. Lease is about one half mile due south of Seneca, Missouri. Good State road runs thru property. Frisco RR runs thru Seneca which would be shipping point to Eagle-Picher Central mill about ten miles over in Okla.

13. Abundant water supply is available from old shaft on north part of land or on lease when shaft is sunk to seventy feet.

14. No existing usable facilities on lease.

15. The ore could be shipped from Seneca, Missouri, a distance of about one mile to RR. to the Eagle-Picher Central Mill in Okla., a distance of about ten miles. Eagle Picher has a railroad which makes connection with the Frisco.

[illegible] for [illegible] [illegible] [illegible]
to [illegible] [illegible] [illegible] [illegible] [illegible] 1950.

The [illegible] [illegible] Company,
Box 2, [illegible] 200,
[illegible], [illegible]. June 23, 1951.

16. History:

(a) In 1930 a party named Potwin discovered an outcropping of lead carbonate on property. He contacted the owner who lived in Bloomington, Ill. and purchased 80 acres of the 160 acre tract. He sunk a shaft and developed a very rich lead mine between 40 and fifty (50) feet in depth which he worked for over two years. At that time the owner of the remaining 120 acres leased it to a mining company. When they surveyed it they found that Mr. Potwin was mining on their lease. Mr. Potwin then checked the description in his deed and found that it was for another parcel instead of the land he worked and had been mining. He then tried to get the owner to correct the deed but the refused and he then sued her. The verdict was in favor of the party suing to him and he was forced to vacate. I have been told by old timers that Mr. Potwin shot the ground in and no one ever worked it afterward. The ground is owned by the surface where he mined. There were other operations on the north 80 acres of the tract, and at one time a large mill. There was a group of business men in Kansas leased the land circa 1929 and drilled three holes which hit very rich lead ore from 50 to 100 feet. They cleaned out an old shaft and out to these holes. They put in a small mill and ran until they broke into the old pound of the former large mill. The Kansas company had worked from 60 to 80 feet. The lead ore was getting thin and also ore was coming in. The two partners were not miners and hired all their labor. The roof was high and dangerous so they started cutting a drift to reach the holding from another angle. Before this was accomplished they became financially embarrassed and shut down. After a time another I purchased the lease and their equipment. I ran it for several months but did not have the finances to develop it. I mined more lead from the old Potwin shaft but never was able to get to the holdings of any of the old drifts. It is my belief that when drilling ahead of these old workings will locate the ore bodies which they were working on. There has been very little work done on the north 80 acres other than the Potwin mine. There are several areas which look promising for churn drilling.

(b) There are no adjoining properties which have been mined.

(c) There are no reports or results of mine examinations for this property available.

17. This is not in production.
18. No mineral reserves blocked out. It is our desire to attempt to locate an ore body by churn drilling.
19. No conditions or circumstances have which have not been mentioned.
20. The exploration will be conducted by churn drilling for lead and also ores which lay in horizontal bats in this area.
21. It is proposed to prospect by churn drilling and try to develop an ore body that would pay to mine. It is estimated that three months time would be required to do this.

Exhibit A. SUPPLEMENTAL TO FORM 17-103.

APPLICATION FOR AND USE OF EXPLORATION PERMIT PURSUANT TO SECTION SEVEN 5, UNITED STATES PETROLEUM ACT OF 1920.

OIL DEVELOPMENT SERVICE CORPORATION,
Rt. 2, Box 209,
Vienna, Virginia. June 28, 1951.

22. The Lenoxville Pool zone this lease, and the fact that this one has been placed from a small area on the west indicates that by close drilling it may be possible to follow out the one body placed on in 1920 or locate other bodies of commercial quality. I have been unable to obtain any geological map but attach a topographical map which shows the location in relation to the well known Tri-State district of Missouri-Kansas-Oklahoma.

23.
a. Labor: Contract drilling, 2700 feet @ $2.00 — $5400.00
b. 1 supervisor including drilling, 75 days @ 10.00 — 750.00
Total — $6150.00
c. Not applicable
d. " "
e. " "
f. " "
g. " "
h. " "
i. " "

24. Time schedule: The drilling should be accomplished at the rate of 30 feet or more per day. It is believed the project could be completed within three months after being approved. It would require approximately $1000.00 per month if conditions permitted the drill to operate full time.

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.

OIL DEVELOPMENT SERVICE CORPORATION
June 28, 1951.

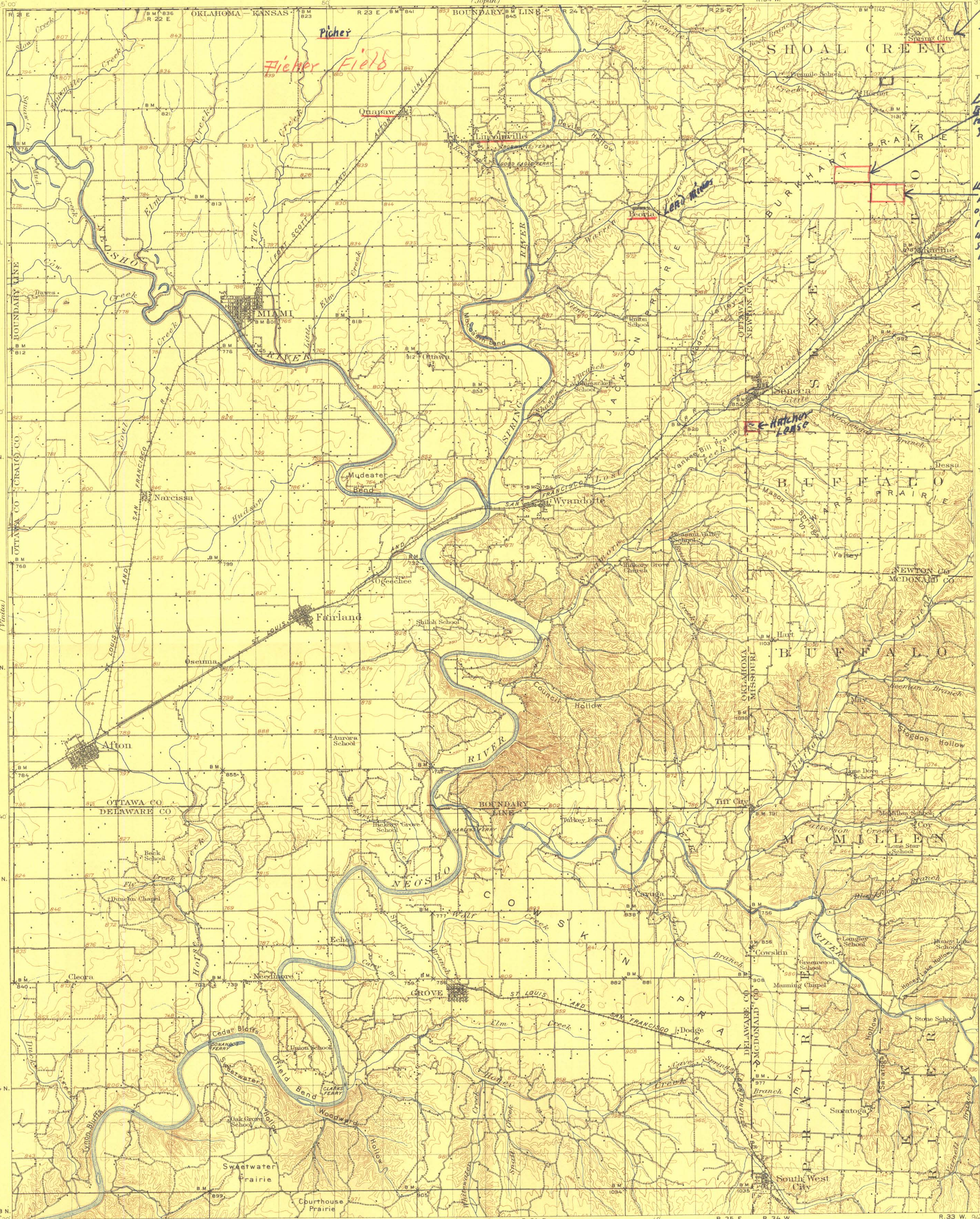
By H. D. Waterhouse
President & Director

Old Dominion Mining Co.
Rt. 2, Box 183,
Vienna, Va.

DEPARTMENT OF THE INTERIOR
ALBERT B. FALL, SECRETARY
U.S. GEOLOGICAL SURVEY
GEORGE OTIS SMITH, DIRECTOR

TOPOGRAPHY

OKLAHOMA – MISSOURI – KANSAS
WYANDOTTE QUADRANGLE



Was rich Lead + Zinc field for several yrs.

Crawford land Good Lead mine here for many years.

Winchester where Bureau of Mines drilled 17 holes in 1947 with good showing. No blank holes

→ To Granby Lead + Zinc field

ENGRAVED DEC. 1908 BY U.S.G.S.

W. H. Herron, Geographer in charge.
Topography by C. G. Anderson and J. A. Duck.
Control by Geo. T. Hawkins.
Surveyed in 1906-1907.

TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION 1907.

Scale $\frac{1}{125000}$

1 ½ 0 1 2 3 4 5 Miles

1 ½ 0 1 2 3 4 5 Kilometers

Contour interval 50 feet.
Datum is mean sea level.

DIAGRAM OF TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Edition of Feb. 1909, reprinted 1921.

WYANDOTTE, OKLA.

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 $\frac{1}{62,500}$.

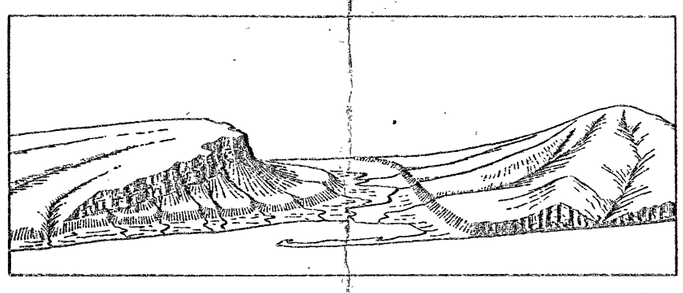
A large part of the Hawaiian Islands has been surveyed, and the resulting maps are published on a scale of $\frac{1}{62,500}$.

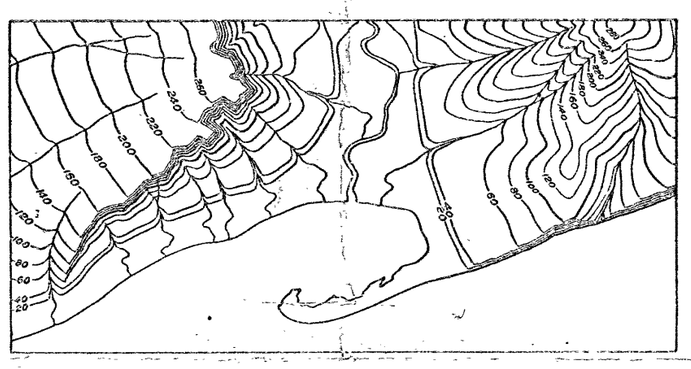
The features shown on these maps may be arranged in three groups—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture (works of man), such as towns, cities, roads, railroads, 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

CULTURE
(printed in black)

City or village; Roads and buildings; Ruins; Cliff dwelling; Metaled road *(distinguished on recent maps only)*; Private or poor road; Trail or path; Railroads and stations; Electric railroad; Tunnel; Wharves; Breakwater and jetties; Bridges; Drawbridges; Ferry *(point upstream)*; Ford

Dam; Dam with lock; Canal lock *(point upstream)*; U.S. township and section lines and located corners; State line; County line; Civil township or district line; Reservation line; Land grant line; City, village, or borough line; Small park or cemetery line; Triangulation or primary traverse monument; U.S. mineral monument; Boundary monument

Bench mark *(Temporary bench mark shown by brown cross and black figures without lettering)*; Cemeteries; Church, School *(distinguished on recent maps)*; Coke ovens; Tanks and oil reservoirs; Oil wells; Mine or quarry; Prospect; Shaft; Mine tunnel; Mine tunnel *(showing direction)*; Lighthouse or beacon; Lightship; Life-saving station

RELIEF
(printed in brown)

Figures *(showing height above mean sea level instrumentally determined)*; Contours *(Contours showing depth of water printed in blue)*; Depression contours; Levee

Wash; Cliffs *(or shown by contours)*; Mine dumps; Tailings or mining debris; Sand and sand dunes

WATER
(printed in blue)

Streams; Falls and rapids; Intermittent streams and ditches; Canals or ditches; Aqueducts or waterpipes; Aqueduct tunnels; Lake or pond; Unsurveyed stream and abandoned canal

Intermittent lake; Glacier *(Or shown by contours printed in blue)*; Spring; Well; Salt marsh; Fresh marsh; Grassy pond; Tidal flats

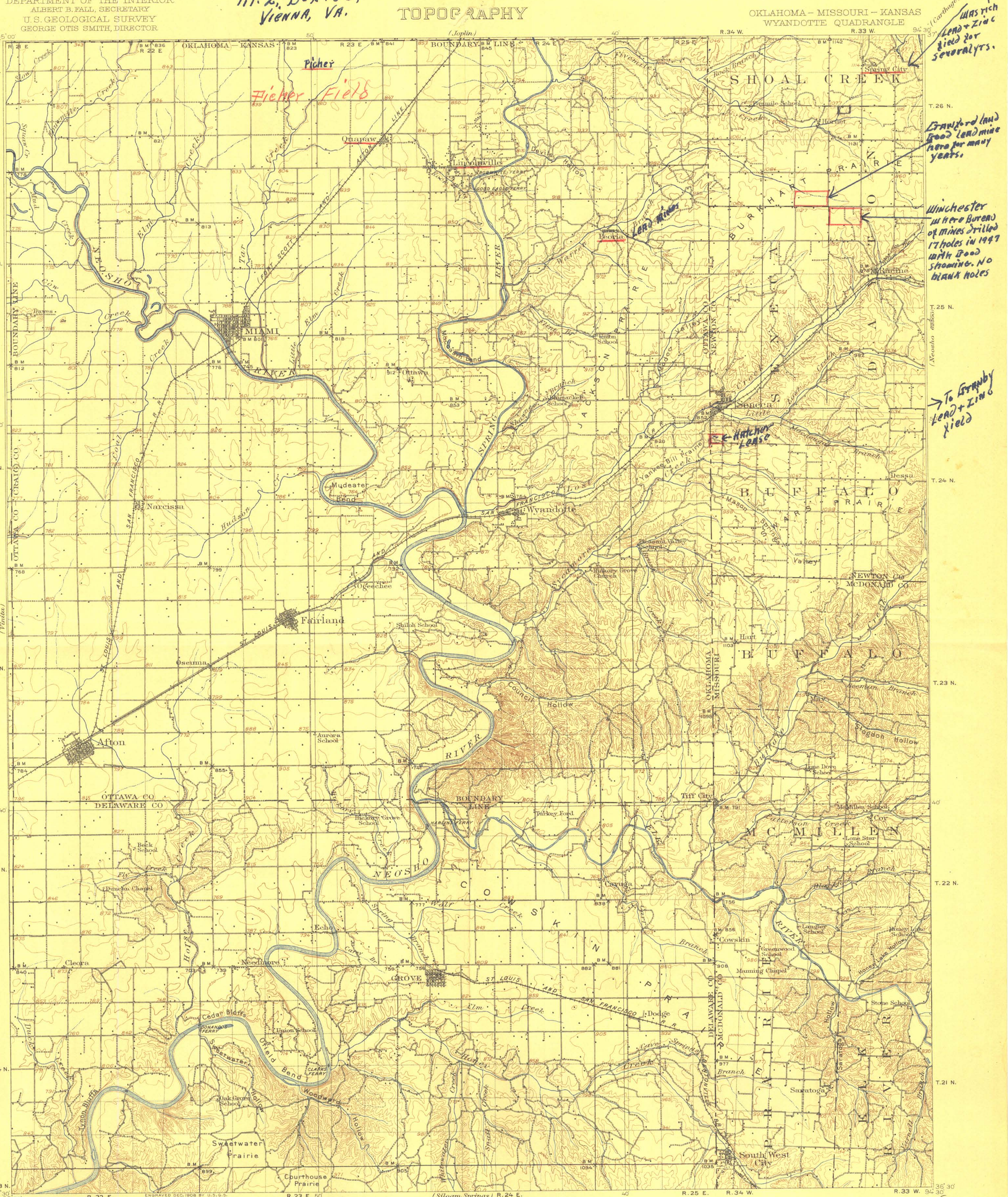
WOODS
(when shown, printed in green)

Old Dominion Mining Co.
Rt. 2, Box 183,
Vienna, VA.

DEPARTMENT OF THE INTERIOR
ALBERT B. FALL, SECRETARY
U.S. GEOLOGICAL SURVEY
GEORGE OTIS SMITH, DIRECTOR

TOPOGRAPHY

OKLAHOMA – MISSOURI – KANSAS
WYANDOTTE QUADRANGLE



W. H. Herron, Geographer in charge.
Topography by C.G. Anderson and J.A. Duck.
Control by Geo. T. Hawkins.
Surveyed in 1906-1907.

ENGRAVED DEC. 1908 BY U.S.G.S.

APPROXIMATE MEAN DECLINATION 1907.

Scale $\frac{1}{125000}$

Contour interval 50 feet.
Datum is mean sea level.

DIAGRAM OF TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Edition of Feb. 1909, reprinted 1921.

WYANDOTTE, OKLA.

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 $\frac{1}{62,500}$.

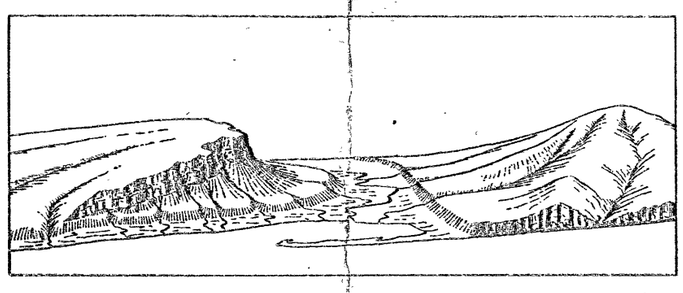
A large part of the Hawaiian Islands has been surveyed, and the resulting maps are published on a scale of $\frac{1}{62,500}$.

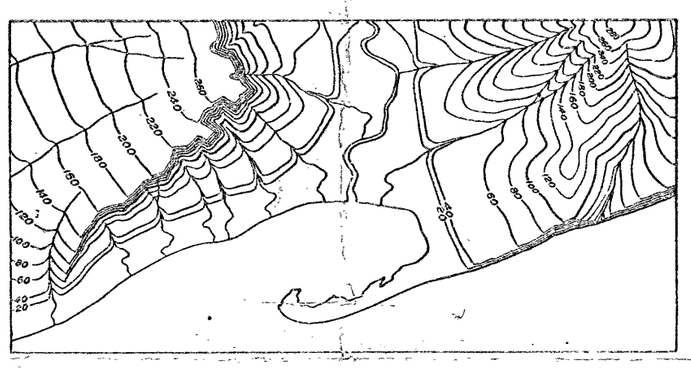
The features shown on these maps may be arranged in three groups—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture (works of man), such as towns, cities, roads, railroads, 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

CULTURE
(printed in black)

City or village; Roads and buildings; Ruins; Cliff dwelling; Metaled road *(distinguished on recent maps only)*; Private or poor road; Trail or path; Railroads and stations; Electric railroad; Tunnel; Wharves; Breakwater and jetties; Bridges; Drawbridges; Ferry *(point upstream)*; Ford

Dam; Dam with lock; Canal lock *(point upstream)*; U.S. township and section lines and located corners; State line; County line; Civil township or district line; Reservation line; Land grant line; City, village, or borough line; Small park or cemetery line; Triangulation or primary traverse monument; U.S. mineral monument; Boundary monument

Bench mark *(Temporary bench mark shown by brown cross and black figures without lettering)*; Cemeteries; Church, School *(distinguished on recent maps)*; Coke ovens; Tanks and oil reservoirs; Oil wells; Mine or quarry; Prospect; Shaft; Mine tunnel; Mine tunnel *(showing direction)*; Lighthouse or beacon; Lightship; Life-saving station

RELIEF
(printed in brown)

Figures *(showing height above mean sea level instrumentally determined)*; Contours *(Contours showing depth of water printed in blue)*; Depression contours; Levee

Wash; Cliffs *(or shown by contours)*; Mine dumps; Tailings or mining debris; Sand and sand dunes

WATER
(printed in blue)

Streams; Falls and rapids; Intermittent streams and ditches; Canals or ditches; Aqueducts or waterpipes; Aqueduct tunnels; Lake or pond; Unsurveyed stream and abandoned canal

Intermittent lake; Glacier *(Or shown by contours printed in blue)*; Spring; Well; Salt marsh; Fresh marsh; Grassy pond; Tidal flats

WOODS
(when shown, printed in green)