UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE

Terminated (or cancelled) without certification. DMEA No. 1630

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

Left Side

Certificate of Audit (Final).

Interim Audit(s).

✓ Report of Review.

Termination Notice or Agreement.

Recision Notice.

Assignment of Contract.

✓ Contract Amendments (latest on top).

✓ Contract with all exhibits and annexes.

Owner's Consent to Lien.

✓ Subordination Agreement.

Leases and assignments of leases.

✓ Application and attachments.

Schedule of Collections.

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

Right Side

✓ Project summary.

✓ Work completed analysis.

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

✓ Final Field Team Report. (Tab)

✓ Operator's Final Report.

✓ Interim Reports.

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

Settlement Sheets.

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

Maps in folder number _____

Operator's Monthly Reports in folder number _____

C

L. Z. M.
Reviewer's Initials

7973

DEFENSE MINERALS EXPLORATION ADMINISTRATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF REVIEW

I have reviewed the Monthly Report of:

American Zinc, Lead, and Smelting Company
1600 Paul Brown Building
St. Louis 1, Missouri

pertaining to Exploration Project Contract No. Idm-E 182, Docket No. DMA-1630X, including Amendments Nos. 1, 2, 3 and 4, for the period of February to July, 1952.

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

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

(a) the administrative cost to the Government of an audit would be excessive in relation to the estimated amount of possible disallowances thereunder;
(b) the Monthly Reports were supported by documentary proof of the costs incurred under the contract; and
(c) the major portion ($11,605.56) of the costs covered drilling and related work at footage and other rates as established by approved sub-contracts.

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

Total cost as billed by Contractor		$12,756.46
Exceptions:		
By DMEA Finance Officer	$ -0-	
Herewith	-0-	-0-
Total Accepted Cost		$12,756.46

The contract calls for a 50 per cent participation of exploration expenses by the United States Government. Therefore, payment to the contractor by the Government in the amount of Six thousand three hundred seventy-eight and 23/100 dollars.

-$6,378.23 -

is considered valid and proper.

Date: AUG 19 1952

Auditor

Government Copy
Lead, Zinc

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

Exploration Project Contract Idm-E182
(Docket DMA-1630X)

Amendent #4

Contract Idm-E182 (Docket DMA-1630X), dated October 15, 1951, between the United States of America and the American Zinc, Lead and Smelting Company, a corporation, is hereby amended as follows: W.P.W

In Exhibit "A" under "Estimated Cost of Exploration" the item "Part Time Engineering supervision @ yearly rate of $3,000" is deleted and in its place is substituted "Part time supervising engineer's salary, his transportation, and expenses not to exceed a yearly rate of $3,000.00.

This amendment is effective as of February 15, 1952.

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may be obligated to pay, or the percentage of the costs which the Government may be obligated to pay, under the provisions of Article 13 of the Contract Idm-E182.

Witness the following signatures this 8th day of May, 1952.

United States of America

By David Gallagher
David Gallagher, Executive Officer
Defense Minerals Exploration
Administration

American Zinc, Lead and Smelting Company

By Rayamy

Government's Copy

MAR 17 1952

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

Exploration Project Contract Idm-E182
(Docket DMA-1630 X)

Amendment #3

Contract Idm-E182 (Docket DMA-1630X), dated October 15, 1951 between the United States of America and American Zinc, Lead and Smelting Company, a corporation, is hereby amended as follows:

Exhibit "A" is changed as follows:

Under "Exploration Project" paragraph one

Delete the second sentence which reads: "This work will be done in the areas of intersection of zones (3a) and (4a) with zones (5b), (6b), and (7b), see Fig. 3."

Substitute therefore the sentence: "This work will be done within the lands specified in Article 2 of the Contract Idm-E182 (form MF-200)."

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 18 1952

This amendment is effective as of February 10, 1952.

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

Witness the following signatures this Seventeenth day of March, 1952.

United States of America

By David Gallagher
David Gallagher, Executive Officer
Defense Minerals Administration

American Zinc, Lead and Smelting Company

By W. F. Matthews Jr.
SECRETARY & TREASURER.

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

Exploration Project Contract Idm-E182
(Docket DMA-1630X)

Amendment #2

Contract Idm-E182 (Docket DMA-1630X), dated October 15, 1951, between the United States of America and American Zinc, Lead and Smelting Company, a corporation, is hereby amended as follows:

Exhibit "A" is changed as follows:

Under "Exploration Project"

Delete the first sentence of paragraph 1 which reads "This project consists of churn and diamond drilling through the Eminence formation and exploring for Zinc and Lead ores".

Substitute therefor the sentence, "This project consists of churn and diamond drilling to explore for zinc, lead, or other ores".

Under "Estimated Cost of Exploration"

Delete the first two lines representing a sum of $50,000 which read as follows:

"Diamond drilling, 3200 feet @ $4.00 per foot ...$12,800
Churn drilling, 18,600 feet @ $2.00 per foot .... 37,200."

Substitute therefor the item:

"Combination diamond and churn drilling, about 16,000 feet at about $3.00 per foot, but not to exceed .....$50,000."

Exploration Project Contract Idm-E182
(Docket DMA-1630X)

Amendment #2 (Cont.)

This amendment is effective as of December 1, 1951.

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

Witness the following signatures this 28th day of December, 1951.

United States of America

By David Gallagher
David Gallagher, Executive Officer
Defense Minerals Administration

American Zinc, Lead and Smelting Company

By John Inman
John Inman, District Manager

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

Exploration Project Contract Idm-E182
(Docket DMA-1630X)

Amendment #1

Contract Idm-E182 (Docket DMA-1630X), dated October 15, 1951, between the United States of America and American Zinc, Lead and Smelting Company, a corporation, is hereby amended as follows:

Article 3, line 1 is changed as follows:

Delete "Sixty (60)"

Substitute therefor "One hundred and twenty (120)"

This amendment is effective as of December 1, 1951.

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

Witness the following signatures this 28th day of December, 1951.

United States of America

By David Gallagher
David Gallagher, Executive Officer
Defense Minerals Administration

American Zinc, Lead and Smelting Company

By John Inman
John Inman, District Manager

MF-200
(June 1951)

Original

Docket No. DMA 1630X
Commodity Zinc-Lead
Idm-E182

Contract & Audit Div.

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

EXPLORATION PROJECT CONTRACT[1]

It is agreed this 15th day of October, 1951, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration, hereinafter called the "Government," and[2] American Zinc, Lead and Smelting Co., a Corporation
1600 Paul Brown Bldg.
St. Louis 1, Missouri

hereinafter called the "Operator," as follows:

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

2. *Operator's property rights.* The exploration project shall be conducted on that certain property situated in the State of Missouri, County of Franklin described as follows:[3] E½ of NE¼ and E½ of SE¼ Sec. 31, and W½ Sec. 32 T.42N., R.1W. of 5th Principal Meridian. Also SE¼ of SW¼ and SW¼ of SE¼ Sec. 30, T.42N., R.1W. of 5th Principal Meridian.
4 miles west of St. Clair, Franklin County, Missouri.

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

(*a*) That he is the sole owner, in possession and entitled to possession, and that the property is subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder is attached: No encumbrances.

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

3. *Exploration project.* The Operator, within Sixty (60) days from the date of this contract shall commence work on a project of exploration for[5] Zinc-Lead; shall prosecute the work efficiently, expertly, in a workmanlike manner, in accordance with good mining standards, with suitable and adequate equipment, materials, and labor, all properly designed to bring the project to completion within a period of[6] 12 months from the date of this contract. The exploration project and the work to be performed are more fully described on Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, is made a part of this contract.

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

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

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

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

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

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

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

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

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

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

13. *Payment to the Operator.* The monthly progress report (invoice), to the extent approved by the Government, shall be processed for payment by the Government. Payment shall be made in the amount of 50 percent of the approved costs incurred; *Provided,* That the aggregate total of all sums paid by the Government under this agreement shall not exceed $32,500.00, which is 50 percent of the agreed estimated total cost of this project, $65,000.00.

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

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

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

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

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

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

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

Executed in sextuplicate the day and year first above written.

AMERIDAN ZINC, LEAD AND SMELTING CO.
(Operator)

By Ray [illegible]
Vice President

THE UNITED STATES OF AMERICA

By C D Mitchenor
Director, Production Expansion Division
Defense Minerals Administration

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

American Zinc, Lead and Smelting Co.

Exploration Contract

Exhibit "A"

Exploration Project.

This project consists of churn and diamond drilling through the Eminence formation and exploring for Zinc and Lead ores. This work will be done in the areas of intersection of zones (3a) and (4a) with zones (5b), (6b) and (7b), see Fig. 3.

The distribution and location of the drill holes is to be mutually agreeable to the Applicant and the Government Field Team and as drilling past and current indicate the most promising locations.

Estimated Cost of Exploration.

Diamond drilling, 3200 feet @ $4.00 per foot	$12,800.
Churn drilling, 18,600 feet @ $2.00 per foot	37,200.
Supervision, engineer-geologist @ yearly rate of	5,000.
Part Time Engineering supervision @ yearly rate of	3,000.
Clearing between drill sites	2,000.

Estimated Cost of Equipment to be Purchased.

1 - Pump, gasoline engine driven	$1,000.

Equipment to be Rented.

None

Estimated Cost of Miscellaneous Supplies.

Total	$ 4,000.
Total Cost Project	$65,000.

Estimated Cost of Labor and Supervision.

Churn Drilling
1 driller, 1 helper under contract @ $2.00 per foot
Diamond Drilling
1 foreman, 1 driller, 1 helper; under contract @ approximately $4.00 per foot
1 Supervisor as mining engineer-geologist @ rate of $5,000. per year.
1 Engineer, part time @ rate of 3,000. per year.

Rehabilitation and Repair

None

MF-202

~~LANDLORD'S~~ SUBORDINATION AGREEMENT
OF OWNER OF REVERSIONARY INTEREST

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner of a reversionary interest in fee simple of that certain parcel of ground in the county of Franklin, State of Missouri, described in a certain Exploration Project Contract dated October 15, 1951, between American Zinc, Lead and Smelting Company, the owner of mineral rights in said property subject to the above reversionary interest in fee simple, and the United States of America;

NOW, THEREFORE, the undersigned owner of reversionary interest in fee simple of said property under contract dated June 27, 1950, does by these presents subordinate all of its right, title, and interest under the provisions of said contract to the right, title, and interest of the United States of America under the provisions of said Exploration Project Contract, and agrees that the lien and claim of the United States of America under the provisions of said contract shall be prior to the undersigned's rights to property payments under the terms of said contract; and

The undersigned further agrees that if said reversionary interest should be surrendered or if said contract should terminate at any time prior to the expiration of the rights of the United States of America under said Exploration Project Contract, the undersigned shall assume and does hereby assume all of the obligations of the A.Z.L.&S.Co. under said Exploration Project Contract to make repayment to the United States of America according to the terms of said contract; and

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

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

Dated this 29th day of September, 1951.

ATTEST:

Secretary

MINERAL HILLS REALTY COMPANY

By Joseph C. Maken

President

(Seal)

MINERAL HILLS REALTY SEAL UNIVERSITY CITY, MO.

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

RESOLVED, That the Directors of Mineral Hills Realty Company, a corporation, hereby authorize and approve the execution by Mineral Hills Realty Company, a corporation of a Subordination Agreement of Reversionary Interest, in favor of the United States of America, a copy of which is attached and made a part of this resolution.

Joseph C. Maher

Carrie J. Maher

Al J. LeBegue

Blanche LeBegue

Directors

I, Al J. LeBegue, Secretary of the Mineral Hills Realty Company, a corporation, hereby certify that the above is a true and correct copy of a resolution which was unanimously adopted by all of the directors of the corporation at a regularly called directors meeting of the corporation on the 29th. day of September, 1951.

Al J. LeBegue

Secretary

MINERAL HILLS REALTY CO.
SEAL
UNIVERSITY CITY, MO.

RESOLVED, That the execution of the original and five copies of a Subordination Agreement of Reversionary Interest of Mineral Hills Realty Company, a corporation, in favor of the United States of America, by Joseph C. Mahen, President, and Al J. LeBegue, Secretary, of the Corporation, a copy of which is attached and made a part of this resolution, be and the same is hereby unanimously authorized and approved by all of the stockholders of the Mineral Hills Realty Company, a corporation.

Joseph C. Mahen

Carrine J. Mahen

Al J. LeBegue

Blanche LeBegue

Stockholders

I, Al J. LeBegue, Secretary of the Mineral Hills Realty Company, a corporation, hereby certify that the above is a true and correct copy of a resolution which was unanimously adopted by all of the stockholders of the corporation at a regularly called stockholders meeting of the corporation on the 29th day of September, 1951.

Al J. LeBegue

Secretary

MINERAL HILLS REALTY CO. SEAL UNIVERSITY CITY, MO.

MF-200
(June 1951)

Docket No. DMA 1630X
Commodity Zinc, Lead
Idm-E182

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

EXPLORATION PROJECT CONTRACT[1]

It is agreed this 15th day of October, 1951, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration, hereinafter called the "Government," and[2] American Zinc, Lead and Smelting Co., a Corporation
1600 Paul Brown Bldg.
St. Louis 1, Missouri

hereinafter called the "Operator," as follows:

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

2. *Operator's property rights.* The exploration project shall be conducted on that certain property situated in the State of Missouri, County of Franklin described as follows:[3]
E½ of NE¼ and E½ of SE¼ Sec. 31, and W½ Sec. 32
T42N., R1W. at 5 P.M. - Also SE¼ of SW¼ and SW¼ of SE¼
Sec. 30, T42N, R1W at 5 P.M. of 5th Principal Meridian
4 miles west of St. Clair, Franklin County, Missouri.

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

(*a*) That he is the sole owner, in possession and entitled to possession, and that the property is subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder is attached: No encumbrances.
~~Deed and Contract to mineral rights attached~~

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

3. *Exploration project.* The Operator, within Thirty (30) days from the date of this contract shall commence work on a project of exploration for[5] Zinc, Lead; shall prosecute the work efficiently, expertly, in a workmanlike manner, in accordance with good mining standards, with suitable and adequate equipment, materials, and labor, all properly designed to bring the project to completion within a period of[6] 12 months from the date of this contract. The exploration project and the work to be performed are more fully described on Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, is made a part of this contract.

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

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

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

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

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

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

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

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

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

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

13. *Payment to the Operator.* The monthly progress report (invoice), to the extent approved by the Government, shall be processed for payment by the Government. Payment shall be made in the amount of 50 percent of the approved costs incurred; *Provided,* That the aggregate total of all sums paid by the Government under this agreement shall not exceed $32,500.00, which is 50 percent of the agreed estimated total cost of this project, $65,000.00.

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

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

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

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

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

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

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

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

AMERICAN ZINC, LEAD AND SMELTING CO.
(Operator)

By _____

By _____
Director, Production Expansion Division
Defense Minerals Administration

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

MF-200
(June 1951)

Docket No. DMA 1630X
Commodity Zinc, Lead

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

EXPLORATION PROJECT CONTRACT [1]

It is agreed this _____ day of _____, 195__, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration, hereinafter called the "Government," and [2] American Zinc, Lead and Smelting Co., a Corporation
1600 Paul Brown Bldg.
St. Louis 1, Missouri

hereinafter called the "Operator," as follows:

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

2. *Operator's property rights.* The exploration project shall be conducted on that certain property situated in the State of Missouri, County of Franklin described as follows: [3]
E½ of NE¼ and E½ of SE¼ Sec. 31, and W½ Sec. 32
T42N., R1W. at 5 P.M. - Also SE¼ of SW¼ and SW¼ of SE¼
Sec. 30, T42N. R1W at 5 P.M.
4 miles west of St. Clair, Franklin County, Missouri.

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

(*a*) That he is the sole owner, in possession and entitled to possession, and that the property is subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder is attached: No encumbrances.
Deed and Contract to mineral rights attached

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

3. *Exploration project.* The Operator, within Thirty (30) days from the date of this contract shall commence work on a project of exploration for [5] Zinc, Lead; shall prosecute the work efficiently, expertly, in a workmanlike manner, in accordance with good mining standards, with suitable and adequate equipment, materials, and labor, all properly designed to bring the project to completion within a period of [6] 12 months from the date of this contract. The exploration project and the work to be performed are more fully described on Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, is made a part of this contract.

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

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

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

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

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

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

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

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

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

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

13. *Payment to the Operator.* The monthly progress report (invoice), to the extent approved by the Government, shall be processed for payment by the Government. Payment shall be made in the amount of 50 percent of the approved costs incurred; *Provided,* That the aggregate total of all sums paid by the Government under this agreement shall not exceed $32,500.00, which is 50 percent of the agreed estimated total cost of this project, $65,000.00.

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

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

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

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

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

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

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

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

AMERICAN ZINC, LEAD AND SMELTING CO.
(Operator)

By _____

By _____
Director, Production Expansion Division
Defense Minerals Administration

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

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-1630 X

Date received 6/5/51

Participation

American Zinc, Lead and Smelting Company (Tri-State Operations)
1600 Paul Brown Building
St. Louis 1, Missouri

Name and address of applicant

Date May 29, 1951

FILL IN THIS BLOCK

Date of application May 29, 1951

Estimated cost $175,000.00

Mineral or metal Zinc and Lead

Percentage of Government participation 50%

Location of mine Township 42 North, Range 1 West, 5th Principal Meridian, near St. Clair, Missouri

Date of filing MF-100 May 21, 1951

DMA Docket Number, if available

INSTRUCTIONS

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

See attached information sheets where answers to all questions are shown in numerical order.

THE APPLICANT

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

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

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

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

16—64067-1

THE PROPERTY

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

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

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

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

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

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

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

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

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

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

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

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

THE EXPLORATION

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

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

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

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

THE REQUIREMENTS AND COSTS

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

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

CERTIFICATION

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

American Zinc, Lead and Smelting Company By [signature]
(Name of company) (Signature of authorized official)

May 29, 1951 President
(Date) (Title)

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

*Same as footnote on page 1.

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

Addenda to Form MF-103, Page 1
American Zinc, Lead and Smelting Company
1600 Paul Brown Building
St. Louis 1, Missouri

DEPARTMENT OF THE INTERIOR
Defense Mineral Administration
Published 5/31/51
JUN 5 - 1951
Executive Secretary

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

American Zinc, Lead and Smelting Company

Home Office:	1600 Paul Brown Building, St.Louis 1, Missouri
Project Location:	Vicinity of St. Clair, Missouri
Address:	Same as above
Date of Application:	May 29, 1951
Mineral or Metal:	Zinc-lead sulphide mineralization, primarily zinc sulphide
Location of Property:	Township 42 North, Range 1 West, 5th Principal Meridian
Estimated Cost:	$175,000
Percentage of Government Participation:	50%

INSTRUCTIONS

Date of Filing MF-100	May 21, 1951
DMA Docket Number if available	Not Available

THE APPLICANT

1.	See MF-100 American Zinc, Lead and Smelting Company - Tri-State Operations
2.	" " " " "
3.	" " " " "
4.	" " " " "
5.	" " " " "
6.	Owner of mineral rights described herein in Question 10, subject to partial payments of $833.33 per month beginning at a date six months after mill is in operation and continuing until a total of $100,000 is paid, contract cancellable on thirty days' written notice.
7.	Not a lease -- copy of mineral deed attached. See Exhibit "A".
8.	See MF-100 American Zinc, Lead and Smelting Company - Tri-State operations.
9.	American Zinc, Lead and Smelting Company is prepared to invest $87,500 in the proposed project.

15. Ore that may be discovered or mined on this Mineral Hills Tract could be transported by truck or other means to concentrating mill to be located at some point to be selected, and concentrates produced by such a mill could be trucked or sent by railroad freight to East St. Louis smelters.

16. History

a. Various old workings, consisting of cuts, pits, and shafts, are shown on Figure 2, Exhibit "C", which give evidence of past shipments of sorted material bearing lead, zinc and barite in small quantities. There have not been any extensive mining operations on this area in the past, but the evidence of mineralization near the surface is shown by these numerous diggings. No complete statement can be given on production since this production must have been from small scale operators throughout the entire area embodying Sections 31 and 32 of Township 42 North, Range 1 West, and Sections 35 and 36 of Township 42 North, Range 2 West. The American Zinc, Lead and Smelting Company followed up a discovery of zinc made in the well drilled on Mineral Hills Subdivision area (see Figure 3, Exhibit "D" in pocket) in Section 32 in July of 1950. Random drilling then followed, consisting of 22 churn drill holes and 2 diamond drill holes in this area in Section 32. These are all indicated on Figure 3, Exhibit "B". All holes have shown some zinc mineralization as indicated on the assay legend on Figure 3.

With this encouragement, and the discovery of the fact that a portion of the Eminence formation appears to have the possibilities of a "host" rock for the formation of replacement zinc sulphide orebodies, the entire area was submitted to study which evolved the fracture systems along which the old workings had been placed. The fracture systems, as worked out, are shown on a small scale on Figure 2 and consist of one system running east and west, indicated by zones 1(a) to 7(a), and another system of fissures trending north 25° east and indicated as zones 1(b) to 8(b). These fissure systems have been noted in the outcrops as more or less persistent even though they grade down to a knife-edge thickness in many instances. It will be noted, however, that in practically every instance, the old and existent surface workings are located at intersections of this fissuring (at the crossing of the "(a)" zones with the "(b)".

Exhibit "D", Figure 3, shows more detail of portions of Sections 31 and 32, Township 42 North, Range 1 West, and consists of that area shown on Exhibit "B", Figure 2, as indicated by the double outline and so designated. With the evidence in

hand, two apparent slump structures have been indicated; one of them in the vicinity of intersection of zones 1(a) and 4(b); the other at the intersection of zones 5(b) and 3(a).

With this geology, as worked out, there is every possibility that mineralizing solutions, existent on the surface as high up in the geologic section as the Gascondate formation, which actually produced some lead and some zinc, both in sulphide and oxide forms, the chance of replacement ore at depth seems to be indicated, especially due to the fact that some of the Eminence formation is rock of the type which might be susceptible for the formation of replacement deposits. This formation exists between 250 and 400 feet below the present surface and no prospecting, as far as known, has ever reached this depth in this area, with the exception of the drill holes drilled by American Zinc, Lead and Smelting Company along zones 7(b) and 1(a), Figure 3.

b. The history and production of adjoining and neighboring properties has not been available to us, and the only properties which exist within a reasonable area give indication of having produced but a limited tonnage from the upper formation. However, it is evident that the production which was made at these locations has been made at points of intersection of the two general fissure systems.

c. Attached hereto, as Exhibit "E", is a copy of a report by a geologist of the American Zinc, Lead and Smelting Company, who was responsible for the working out of the two fissure systems and the plotting of the workings on Exhibits "C" and "D". It is appended herewith.

17. <u>Production</u>

a. There is no mine in production.
(1) As above
(2) " "
(3) " "

18. <u>Ore or Mineral Reserves</u>

a. In drilling to date, the mineral deposits encountered, which showed assays more than 1% or 2%, seemed to have indicated only small fissure veins in the Eminence formation. However, the drilling to date has not been on the more persistent and more evident fissures as indicated on Exhibits "B" and "C". Zinc mineralization encountered, as well as the lead mineralization encountered in a few of the drilled holes indicates

that the minerals will be existent in the Eminence formation as zinc and lead sulphide.

b. Available maps and assay data are indicated on Exhibits "B", "C", and "D".

c. No estimated tonnage and grade of ore can be stated at this time for this is simply a prospect and no ore to date has been discovered.

19. The appended report, "Exhibit E", explains conditions and circumstances not sufficiently brought out in the foregoing questions.

EXPLORATION

20. This exploration is based on the possibility of the discovery of lead and zinc sulphide.

21. The work contemplated consists of a series of churn and diamond drill holes to be placed at the intersections of the main zones of fissuring, such zones being indicated as the intersections of zones 5(b), 6(b) and 7(b) with zones 3(a) and 4(a). It is also contemplated, as leases are effected in areas now out of our control, that prospecting at depth with churn or diamond drill holes will be made on the intersections of zones 3(b), 3(a) and zones 4(b) and 1(a). These zones are indicated on Exhibit "C". The estimate also includes sufficient funds to sink an exploratory shaft provided the results of drilling are encouraging. The estimated time for this work to be completed is one year.

22. See Exhibit "E" and accompaning maps mentioned in 3(a) and 3(b) above.

REQUIREMENTS AND COSTS

23. a. Labor: Churn Drilling - 1 driller and 1 helper. Under contract for $2.00 per foot. Diamond Drilling - 1 foreman, 1 driller and 1 helper, under contract, approximate price $4.00 per foot.

b. 1 supervisor as a mining engineer-geologist. Approximate salary $5,000 per year. Other engineering, part time, one or two men - $3,000.

c. None required for first year.

d. None for first year except possibility of new water pump, estimated cost $1,000.

e. No equipment necessary during drilling program.

f. Possible necessity to rent bulldozer for aiding in the construction of drill roads not to exceed $2,000. Labor to be contracted for job if needed.

g. None during first year.

h. Nothing over $50.00.

i. Power for drillers to be provided by gasoline motors integral with drills. If shaft is sunk, supplementary estimate will have to be made for type of hoist required.

24. It is expected that this drilling project can be completed in about nine months, and possibly an exploratory shaft could reach the Eminence formation in an additional three months. The expected cost of the project is as follows:

Drilling	$ 50,000	
Shaft sinking (if drilling is successful)	75,000	To be detailed before expenditure, if made
Underground cross-cutting (if drilling is successful)	35,000	To be detailed before expenditure, if made
Supervision	5,000	
Engineering	3,000	
Roads, if needed	2,000	
New equipment, pump and gas motor, if needed	1,000	
Miscellaneous supplies, etc.	4,000	
Total	$175,000	

COPY

EXHIBIT "A"

EXHIBIT HA

DEED AND CONTRACT

THIS INDENTURE, Made this 27th day of June, 1950, by and between Mineral Hills Realty Company, a Missouri Corporation, (hereinafter referred to as Mineral Hills), and American Zinc, Lead and Smelting Company, a Maine Corporation, (hereinafter referred to as American):

WITNESSETH that Mineral Hills in consideration of the sum of ten dollars ($10) to Mineral Hills paid by American the receipt of which is hereby acknowledged and the performance of the agreements herein contained does by these presents grant, bargain and sell, convey, and confirm unto American, its successors and assigns, all of the minerals now, or at any time hereafter, lying in or under the following described tract of land (or any part thereof), situated in the County of Franklin, State of Missouri, described as follows, to-wit:

> The East half (½) of the Northeast quarter (¼) and the East half (½) of the Southeast quarter (¼) of Section 31, and the West half (½) of Section 32, Township 42 North, Range 1 West of 5th P.M., containing five hundred forty-four and eight one-hundredths (544.08) acres according to survey made by Charles L. Moore, County Surveyor, dated February 1900, of record in Surveyor's Record 7, Page 3, Recorder's Office, Franklin County, Missouri. Excepting the right of way easements granted Wesley Armistead and wife by instrument of record in Vol. 138, Page 450 and to Claire Grus by instrument of record in Vol. 138, Page 156. Subject to legal highways.
>
> All that part of the Southeast quarter (¼) of the Southwest quarter (¼) and of the Southwest quarter (¼) of the Southeast quarter (¼) of Section 30, Township 42 North, Range 1 West of 5th P.M. that lies South of the centerline of the Bourbeuse River and East of the centerline of Hamilton Creek, as surveyed By Geo. H. Vossbrink, County Surveyor, on January 10, 1939, of record in Surveyor's Record 10, Page 300, containing eighty-three (83) acres, more or less,

and also the right, privilege and easement of entering upon said lands and searching for, drilling wells, sinking shafts, mining, digging, extracting, taking and carrying away all of the minerals in or under said lands or that may be found therein or thereunder, and to make excavations, openings, stock piles, dumps, ditches, drains, roads, tracks, electric and power lines, and other improvements on said premises including the use of water in said operations, and to place such machinery thereon as American may deem necessary for sufficiently prospecting and mining said property and treating the ores or minerals mined therefrom, and also the right in American to possession and use of so much of said premises at

all times that may be necessary to the practical carrying out of the purposes and provisions of this grant.

TO HAVE AND TO HOLD the premises aforesaid, with all and singular the rights, privileges, appurtenances, and immunities thereto belonging or in any wise appertaining unto the said American, and unto its successors and assigns forever; the said Mineral Hills hereby covenants that it is lawfully seised of an indefeasible estate in fee in the premises herein conveyed; that it has good right to convey the same; that the said premises are free and clear of any incumbrances done or suffered by it or those under whom it claims; and that it will warrant and defend the title to the said premises unto the said American, and unto its successors and assigns forever, against the lawful claims and demands of all persons whomsoever;

And it is hereby further expressly declared that it is the true intent and purpose of this conveyance to pass to and vest in the said American all the mineral and mineral rights in the land first described herein, and that at any time may be found therein or thereunder, and all Mineral Hills rights to operate for said minerals, and deal and contract with regard thereto, including the leasing thereof, as fully to all intent and purpose as if the said American was the absolute owner of the entire title and estate in said lands.

1. American agrees within thirty days of the execution hereof to enter upon the premises and drill four test holes at locations to be determined by American starting the first hole within said thirty day period and continuing to drill with due diligence until the four holes have penetrated the expected zinc bearing horizon at approximately four hundred (400) feet beneath the surface of the premises. Should American then determine not to proceed with the development of the mineral interests hereby conveyed after the completion of the four test holes American agrees to reconvey the mineral interests hereby conveyed and surrender the rights, privileges and easements herein granted, in which event there shall be no further liability on the part of American or Mineral Hills hereunder.

2. Upon the completion of the four test holes should American determine to further explore the property American agrees to proceed diligently with the exploration of the property by additional drilling until it is satisfied that a mineral deposit of economic worth exists or does not exist, and if it does not exist American shall thereupon reconvey the mineral interests hereby conveyed and surrender the rights, privileges and easements herein granted, in which event there shall be no further liability on the part of American or Mineral Hills hereunder.

Should American determine at its own discretion that a mineral deposit of economic worth exists it will then diligently develop and exploit said mineral deposit and will within six months of such determination commence the construction of a mill for the beneficiation of

said minerals, said mill to be constructed and operated on as much land as is deemed necessary by American. Said land shall be designated and purchased by American from Mineral Hills upon the following basis:

a. Any property adjoining the county road on either side thereof to a distance of four hundred thirty-five (435) feet from said road, at the rate of $1,000 per acre. In the selection of such land the boundaries thereof shall conform to the boundary of lots in the Mineral Hills Subdivision.

b. Any property not included in the above area, at the rate of $200 per acre.

American shall also designate and purchase from Mineral Hills and pay for so much land as American shall deem necessary for shafts, other surface structures, dumps and stock piles upon the same basis.

Whenever American shall designate land necessary for the construction and operation of the mill and other purposes Mineral Hills agrees to convey good fee simple title upon payment of the purchase price.

3. American agrees to pay Mineral Hills the sum of $833.33 per month payable on the first of the month at Bank of Overland ~~BANK~~, at Overland 14, State of Missouri, the first of such payments to be made upon the first day of the sixth month after the month in which the construction of said mill is completed and such payments to continue until a total purchase price of $100,000 has been paid by American to Mineral Hills or until American reconveys to Mineral Hills the mineral interests hereby conveyed, surrenders the rights, privileges and easements herein granted and reconveys the property purchased under Paragraph 2 hereof.

If at any time it shall in the opinion of American be unprofitable to conduct mining operations upon the premises American may suspend such operations and during such suspension shall not be liable for the payment of $833.33 per month as hereinabove provided, but during such period shall pay Mineral Hills $250 per month which shall be applied against the total of $100,000 in like manner as the payments of $833.33.

Mineral Hills agrees that American shall have the right to reconvey the mineral interests herein conveyed, surrender the rights, privileges and easements herein granted and reconvey the property purchased under Paragraph 2 hereunder at any time upon the first day of any month upon thirty days notice and the payment of the monthly payment due on the first day of that month in which event all liability of American to make further payments hereunder shall cease and there shall be no further liability on the part of American or Mineral Hills hereunder and American shall have the right within one year from the first day of such month

to remove all property which it has placed on the premises but shall not be required to do so.

4. Should the mining operations of American materially affect the supply of water from the present well on Lot No. 5 of the Mineral Hills Subdivision during the time the title to the Mineral Hills property conveyed hereunder is in American, American will deepen and case said well to a reasonable horizon below the level of the mining operations. The cost of deepening, casing and altering any of the pump machinery now installed on this well shall be paid by American.

Should Mineral Hills desire to use any of the prospecting holes as a water well, Mineral Hills has the right to deepen any said hole and case same if it so desires but such cost of deepening and casing will be paid for by Mineral Hills. Any casing left in any hole at the request of Mineral Hills will be paid for by Mineral Hills.

5. There shall be sufficient delivery of all notices and other instruments hereunder if mailed by United States Mail, postage prepaid, to Mineral Hills Realty Company at 2558 Woodson Road, Overland 14, _____, Missouri, and to American at Room 1600, Paul Brown Building, St. Louis 1, Missouri.

Company Seal

Attest:

(Signed) Al J. LeBegue
Secretary

MINERAL HILLS REALTY COMPANY, A Corporation

By:

(Signed) Joseph C. Mahen
President

Company Seal

Attest:

(Signed) Ralph C. Perkins
Ass't Secretary

AMERICAN ZINC, LEAD AND SMELTING COMPANY, A Corporation

By:

(Signed) H. I. Young
President

STATE OF MISSOURI)
COUNTY OF) SS

On this 26th day of June, 1950, before me appeared Joseph C. Mahen, to me personally known, who being by me duly sworn did say that he is the President of the Mineral Hills Realty Company, a corporation, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation by authority of its Board of Directors, and said Joseph C. Mahen acknowledged said instrument to be the free act and deed of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal in said county and state the day and year last above written. My commission expires the 23rd day of March, 19 53.

(Signed) Irvin F. Jordan
Notary Public

STATE OF MISSOURI)
CITY OF ST. LOUIS) SS

On this 27th day of June, 1950, before me appeared H. I. Young, to me personally known, who being by me duly sworn did say that he is the President of the American Zinc, Lead and Smelting Company, a corporation, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation by authority of its Board of Directors, and said H. I. Young acknowledged said instrument to be the free act and deed of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal in said city and state the day and year last above written. My commission expires the 18th day of March, 1953.

(Signed) Leona S. Jones
Notary Public

My Commission Expires March 18, 1953

Figure 1 - Exhibit "B"

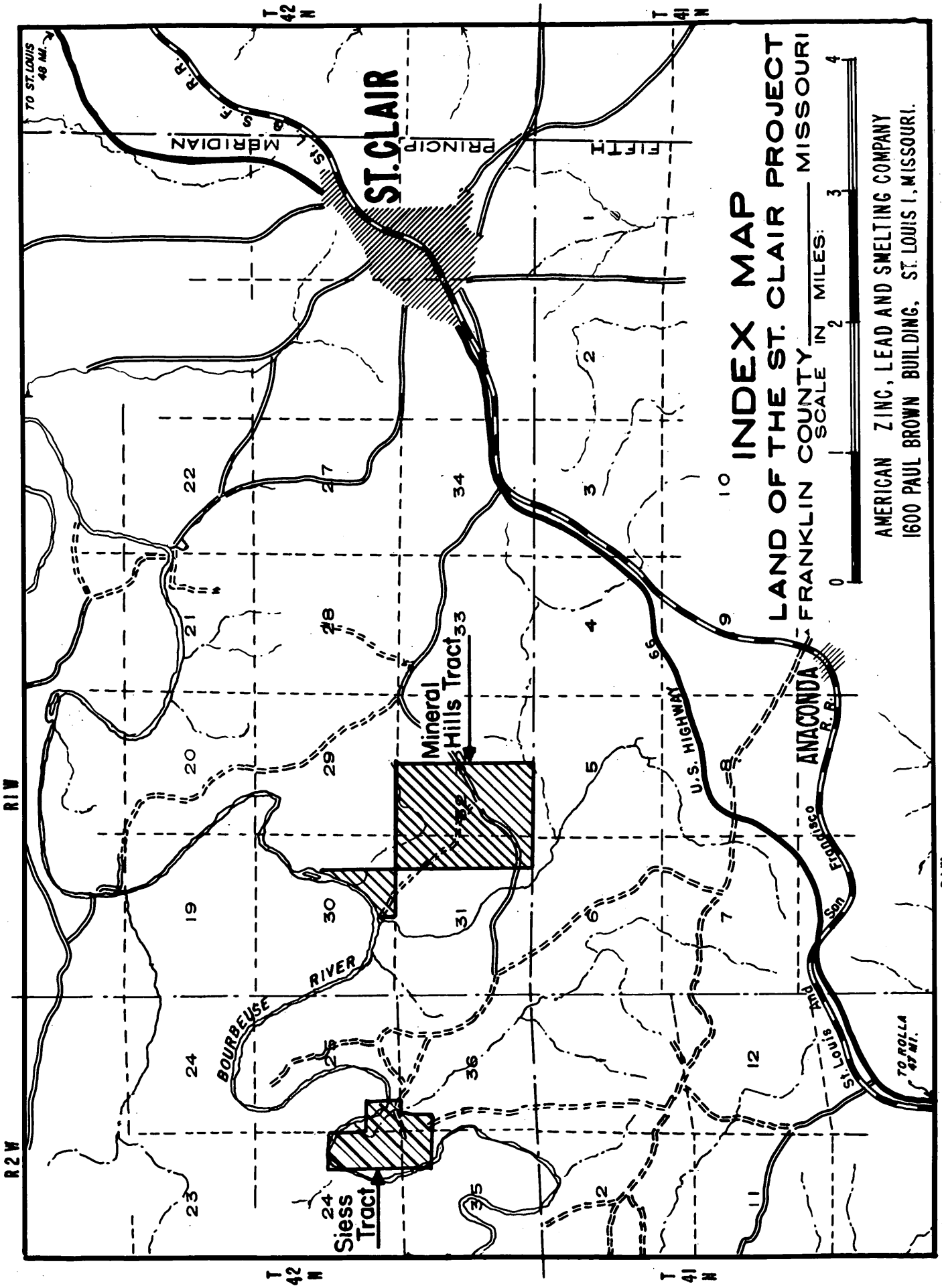

EXHIBIT "B"

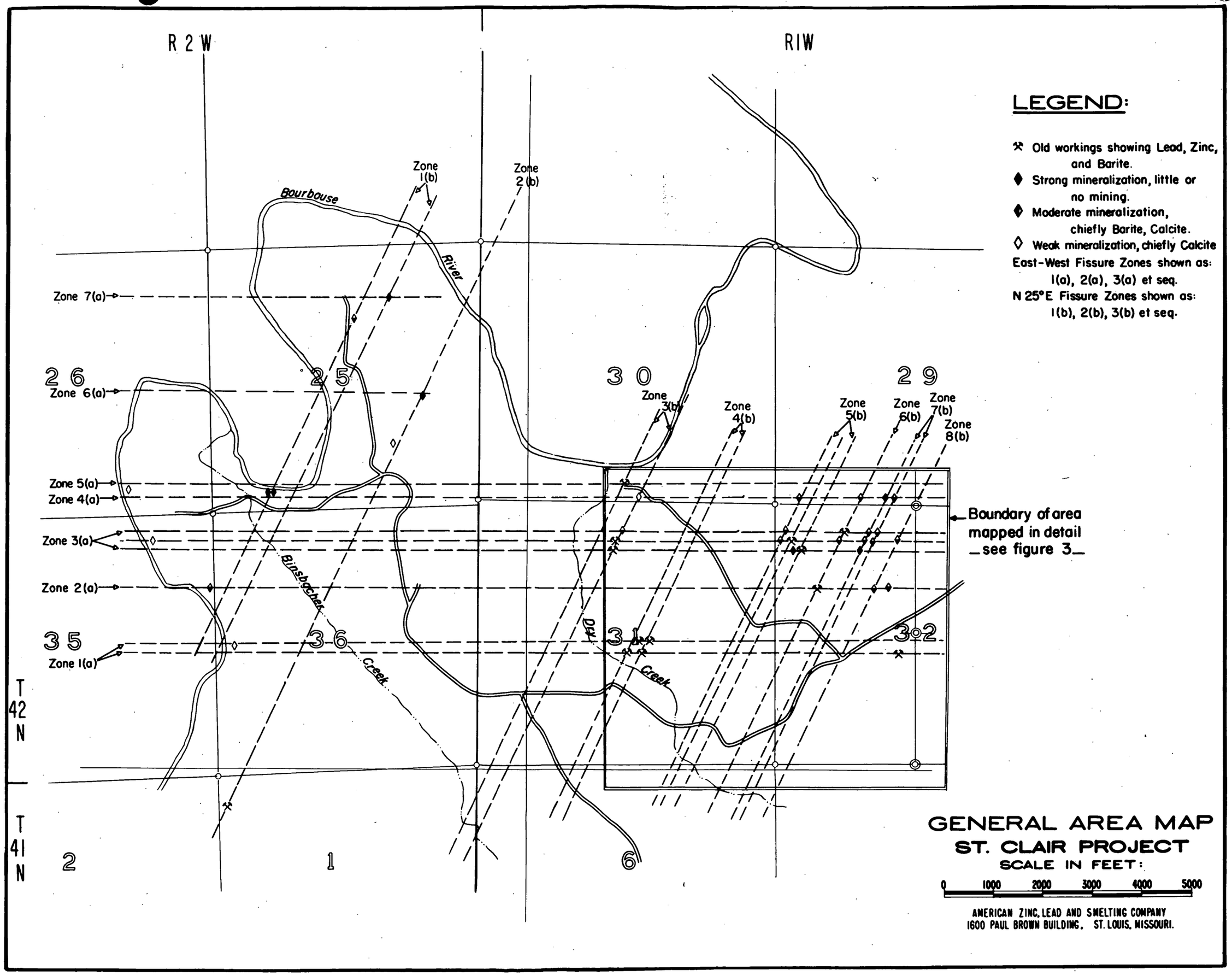
R 2 W
R1W
LEGEND:
Old workings showing Lead, Zinc, and Barite.
Strong mineralization, little or no mining.
Moderate mineralization, chiefly Barite, Calcite.
Weak mineralization, chiefly Calcite
East-West Fissure Zones shown as: 1(a), 2(a), 3(a) et seq.
N 25°E Fissure Zones shown as: 1(b), 2(b), 3(b) et seq.
Zone 1(b)
Zone 2(b)
Zone 3(b)
Zone 4(b)
Zone 5(b)
Zone 6(b)
Zone 7(b)
Zone 8(b)
Zone 7(a)
Zone 6(a)
Zone 5(a)
Zone 4(a)
Zone 3(a)
Zone 2(a)
Zone 1(a)
Bourbouse
River
Binsbacher
Creek
Dry
Creek
26
25
30
29
35
36
31
32
T 42 N
T 41 N
2
1
6
Boundary of area mapped in detail _see figure 3_
GENERAL AREA MAP
ST. CLAIR PROJECT
SCALE IN FEET:
0 1000 2000 3000 4000 5000
AMERICAN ZINC, LEAD AND SMELTING COMPANY
1600 PAUL BROWN BUILDING, ST. LOUIS, MISSOURI.

FIGURE 3 - EXHIBIT "D" in Pocket

EXHIBIT "D"

EXHIBIT "E"

GENERAL AREA OF THE ST. CLAIR PROJECT
FRANKLIN COUNTY, MISSOURI

BY JAMES W. ODELL

INTRODUCTION

The Mineral Hills area, illustrated by the accompanying figures 2 and 3, is located approximately four miles west of St.Clair, Franklin County, Missouri, and it is situated on the southern slopes of the Bourbeuse water-shed, bordering on the north with the Bourbeuse River.

The Gasconade formation and a few isolated remnants of the overlying Roubidoux sandstone, both of lower Ordovician age; are the outcrop rocks throughout the area covered by the maps. All of the numerous occurrences of mineralization in the Gasconade that could be found in this locality have been plotted on Figures 2 and 3. (Exhibits "C" and "D").

The maps show the structural features that at least in large part have controlled the localization of ores in the Gasconade formation, and in all probability, the same structures have also guided mineralization in the underlying Eminence dolomite, in which the zinc mineralization has been found by the recent drilling on the Mineral Hills lease and in the water well on the Siess tract. Compilation of the mineral occurrences in the Gasconade and their structural association should then serve as a useful guide in exploration for ore in the Eminence dolomite.

STRATIGRAPHY

The recent drilling on the Mineral Hills tract, Section 32, makes possible a reasonably accurate construction of the stratigraphic section that is representative of the entire Mineral Hills area.

The sequence of stratigraphy is approximately as follows:

	Recent	Soil, alluvium, residuum	20 to 100 ft. thickness
Ordovician	Roubidoux	Brown sandstone	0 to 15 ft. thickness
	Gasconade	Yellow, tan and brown, cherty dolomite	175 to 200 ft. thickness
	Gunter Member	Gray sandy dolomite	0 to 5 ft. thickness

Unconformity

Cambrian	Eminence	Light to dark gray, locally cherty, dolomite	130 to 150 ft. thickness
	Potosi	Yellow and tan dolomite, chalcedony lining vugs	300 ft. ?

CAMBRIAN SYSTEM

POTOSI FORMATION

A maximum of about 40 feet of the Potosi, of upper Cambrian age, has been cut in the bottoms of drill holes on the Mineral Hills tract. Although the thickness of the Potosi is unknown in this area, it is probably about 300 feet, assuming some uniformity of thickness from measured sections elsewhere in the Ozarks. Similar to exposures of this formation everywhere in the region, the Potosi is here characterized by numerous, irregular cavities lined by delicately banded chalcedony and is a gray to tan and brown, crystalline dolomite.

The top 5 to 10 feet of the Potosi is usually mineralized with traces of lead and zinc sulphide, wherever an overlying 40 or 50 feet of mineralization occurs in the Eminence formation.

EMINENCE FORMATION

The Eminence formation is conformable with the underlying Potosi, and it is about 150 feet in thickness, but locally may be reduced to 125 or 130 feet. It is typically a light to dark gray, coarsely crystalline dolomite with some finer grained beds, and cherts generally most numerous

in the upper one-third of the formation. A fine grained, sandy dolomite bed is locally present near the top.

The encouraging zinc mineralization found in this formation by the recent drilling on the Mineral Hills tract, is usually confined to the basal fifty feet, but a few traces of zinc sulphide have been found throughout almost the entire thickness of the Eminence dolomite.

ORDOVICIAN SYSTEM

GASCONADE FORMATION

In the Mineral Hills area there is no clear-cut evidence of an unconformable relation between the Gasconade and underlying Eminence dolomite. However, a few drill holes have shown the Gunter sand, at the base of the Gasconade, to be locally represented by 5 feet of fine grained sandy dolomite.

The thickness of the Gasconade may only be surmised, as erosion has removed the upper strata from the formation throughout most of the area. From the data obtained in the drill holes on the Mineral Hills tract, the thickness of the Gasconade is tentatively placed at about 200 feet.

The Gasconade formation is a yellow to tan and brown crystalline dolomite that varies in texture from coarse to fine. Chert, in great abundance, occurs throughout the formation, and ranges from small isolated nodules to clusters and irregular masses as much as 3 and 4 feet thick.

Figures 2 and 3 show the mineralized localities in the Gasconade, of which more than 150 feet thickness has been mineralized.

ROUBIDOUX FORMATION

The Roubidoux sandstone has been found in rare and isolated outcrops in localities where either a sink structure is known, or evidence strongly suggests it to exist. The sink structures in which the Roubidoux has been found are shown in Figures 2 and 3. In these examples, the thickness of the sandstone is estimated to be 15 feet.

RECENT

Most of the Mineral Hills area is covered by a mantle of residuum consisting of clay derived from weathering of dolomite, and containing suspended fragments of chert and blocks of Roubidoux sandstone.

GENERAL STRUCTURE

The Mineral Hills area is situated on a broad, northwestward-plunging anticlinal nose, approximately 10 miles wide, that is the northwestward continuation of the buried St. Francois Mountains. In consequence of the size of this structure, only very gentle dips have been produced on the flanks and nose of the anticline..

STRUCTURE AS RELATED TO MINERALIZATION

Most of the east-west striking fissure zones, indicated on the maps as 1(a), 2(a), etc., and the north 25 degrees east striking fissure zones, indicated as 1(b), 2(b), etc., represent composites of two or more closely spaced systems of parallel fissure zones. Individual fissure zones usually do not exceed a width of 15 or 20 feet, but in areas of intersection of the east-west and north 25 feet east fissures, the fracturing and accompanying mineralization may extend for 100 feet or more in width, so that at intersections, the composite zone represents the extent of intensive fissuring.

Some features of collapse, or sink structures, such as are found elsewhere throughout the north-central Ozark plateau, are locally developed on the intersection zones of the fissure systems. The collapse structures are evidenced by the presence of Roubidoux sandstone, in which nearly horizontal bedding is sharply truncated by bedding with dips varying from 50 to 85 degrees. Examples of collapse structure may be seen near the intersection of east-west zone 1(a) with northeast zone 4(b), at east-west zone 3(a) with northeast zone 5(b) and at the old mine on the southwest projection of zone 2(b), a heavily mineralized northeast fissure, in Section 1, Township 41 North, Range 2 West. (Figures 2 and 3)

Individual fissures within the zones may persist for no more than a few feet and may vary from knife-edge seams to fissures 3 or 4 inches in width. The fractures occur in swarms, and usually exhibit a step-like or en echelon pattern.

The unvarying persistence of the fissure zones for great distances along the strike suggests that they are not related to minor or local solution features, but that they are tensional openings related to the much broader structure of the large northwestward plunging anticline described under General Structure.

In a number of the mineralized localities the surficial debris obscures the relation of the mineralization to the fissure zones, and the presence of the fissure zones in these localities must, therefore, be inferred. However, in practically all of these examples, the mineralization proves to be on either the projection of an east-west or

on a north 25° east system, or as is more frequently the case, on an intersection of the two systems.

All of the more substantial mineralization occurs at the intersections of the east-west and north 25° east fissure zones. This feature is probably the most significant factor regarding localization of the ores. In general, the strong mineralization seems to extend for greater distance on the east-west fissure systems away from the intersections than it does on the north 25° east zones.

The mineralogy of the ores is quite simple, consisting of lead and zinc sulphide with a calcite and barite gangue, although the relative abundance of the different minerals varies tremendously over as little distance as 100 feet in the same fissure zone. Calcite may be considered to be a "far traveler" of the mineral group, as it extends laterally on bedding for scores of feet away from the fissure zones, whereas the lead-zinc barite mineralization tends to be more restricted to the fissured areas. In localities where the mineralization appears to be fading out, calcite is the only mineral present and is usually found on or very near the fissure zones.

CONSIDERATION OF FISSURE ZONE INTERSECTIONS AND SUGGESTED PROSPECT POSSIBILITIES

Figures 2 and 3 illustrate the importance of the zone intersections and show the mineralized occurrences found on many of them. A large number of the projected zone intersections are concealed by deep residuum and heavy vegetation and, therefore, no data on these is available.

The best tests to establish the validity of the assumption that the structural features that have controlled localization or ores in the Gasconade also localized ore in the Eminence dolomite, would be to explore one of the largest and most extensively mineralized zone intersections. If these tests yielded favorable results then all of the indicated zone intersections should be explored.

The best locality for these preliminary tests would be on the intersection of east-west zone 3(a) with north 25° east zones 5(b), 6(b) and 7(b). This is the most intensely mineralized locality in the area, both in horizontal and vertical extent, as over 150 feet thickness of the Gasconade has been mineralized at these intersections. There is, therefore, in this vicinity, a suggested possibility of more or less continuous mineralization through the Gasconade into the Eminence dolomite.

South of the east-west zone 1(a) there is surface evidence of rapid weakening of mineralization, and in fissures south of this zone, only calcite and traces of barite were observed in a few, sparse showings

(Fig. 3-200 scale). For this reason, the extent of zinc mineralization found in the Eminence dolomite by the drill holes on the Mineral Hills tract seem remarkable, and if the concentration of mineralization in the Gasconade is the reflection of concentration in the underlying Eminence, then the possibilities for extensive zinc mineralization in the Eminence dolomite at the fissure zone intersections seem particularly attractive.

Respectfully submitted,

James E. Cobell

THE PROPERTY

10.

a. The East half (½) of the Northeast quarter (¼) and the East half (½) of the Southeast quarter (¼) of Section 31, and the West half (½) of Section 32, Township 42 North, Range 1 West of 5th P.M., containing five hundred forty-four and eight one-hundredths (544.08) acres according to survey made by Charles L. Moore, County Surveyor, dated February 1900, of record in Surveyor's Record 7, Page 3, Recorder's Office, Franklin County, Missouri. Excepting the right of way easements granted Wesley Armistead and wife by instrument of record in Vol. 138, Page 450 and to Claire Grus by instrument of record in Vol. 138, Page 156. Subject to legal highways.

All that part of the Southeast quarter (¼) of the Southwest quarter (¼) and of the Southwest quarter (¼) of the Southeast quarter (¼) of Section 30, Township 42 North, Range 1 West of 5th P.M. that lies South of the centerline of the Bourbeuse River and East of the centerline of Hamilton Creek, as surveyed by Geo. H. Vossbrink, County Surveyor, on January 10, 1939, of record in Surveyor's Record 10, Page 300, containing eighty-three (83) acres, more or less.

b. Same as 10-a

11. Property formerly known as Mineral Hills Tract and surface is owned by Mineral Hills Realty Company, but American Zinc, Lead and Smelting Company has an option to purchase needed areas as required and selected at stipulated price. See Agreement - Exhibit "A".

12. The property is located four miles ~~east~~ west of the Town of St. Clair, Franklin County, Missouri, and is part of Township 42 North, Range 1 West, 5th P.M. The St. Louis & San Francisco Railroad main line from St. Louis is located from two to two and one-half miles south of the property. The nearest shipping point would probably be St. Clair, Missouri, since surfaced highways and macadam roads traverse the property and connect with the main highway, U. S. Highway 66, 1-1/2 miles east of St.Clair. The attached index map, Figure 1, submitted as Exhibit "B", gives the relative location of the Mineral Hills Tract described herein.

13. Same as MF-100 for American Zinc, Lead and Smelting Company-Tri-State operations.

14. There are no usable facilities, equipment, buildings or structures now on the property.

EXHIBIT "D" - FIGURE 3
(In Pocket)

Form MF-100
(March 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Form approved.
Budget Bureau No. 42-R1026.

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

NOT TO BE FILLED IN BY APPLICANT

Docket No. dma 1630X

Date received MS- 2273

01692

American Zinc, Lead and Smelting Company
Mt. Tate Position
Iron and Iron Counties
St. Louis 2, Missouri

Osborn operations of American Zinc, Lead and Smelting Company and wholly-owned subsidiaries, American Zinc Company of Illinois and American Zinc Company of Illinois in the Tri-State District, Missouri, Kansas and Oklahoma, by St. Joe

Name and address of applicant

Date

INSTRUCTIONS

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

5 GENERAL TECHNICAL DATA

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

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

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

   If not in production or operation, estimated date when production will begin _____
6. Experience of operators:
   Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who manage the project.
7. History:
   (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for suspension of operation.
   (*b*) State briefly the known history and production of adjoining and neighboring properties.
   (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

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

Name and Address (a)	Official Title (If officer is also director indicate by "D") (b)	Total of Annual Salary, Commissions, Bonuses, Etc., Received From Applicant and Affiliates During Last Fiscal Year (c)	Estimated Net Worth Outside of Interest in Applicant (d)	Number of Shares Held in Applicant Corporation		Life Insurance Carried for Benefit of Applicant	
				Common (e)	Preferred (f)	Amount (g)	Net Cash Surrender Value After Loans (h)
	Total		x x x x x			x x x x x	x x x x x

If more lines are needed continue on separate sheet.

9. Capital Stock Issues:

For Corporate Applicants

Item	Authorized (a)	Outstanding (b)	Par Value (c)	Number of Shares Outstanding (d)	Dividend Rate Last Paid* (e)
Common stock	$	$	$		
Preferred stock	$	$	$		

*Indicate period covered.

10. Production:

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

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

12. Ore or Mineral Reserves:

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

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

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

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

TOTAL ORE OR MINERAL RESERVES

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

(*c*) If placer:

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

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

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

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

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

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

13. Access Roads:

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

14. Water Supply:

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

15. Power:

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

16. Labor:

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

17. Equipment and Facilities:

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

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

CERTIFICATION

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

[illegible] (Name of company)

By [illegible] (Signature of authorized official)

[illegible] (Date)

President (Title)

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

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

American Zinc, Lead and Smelting Company
1600 Paul Brown Building
St. Louis 1, Missouri

INFORMATION DATA FOR FORM MF-100,
ENTITLED "GENERAL TECHNICAL DATA FOR USE
UNDER DEFENSE PRODUCTION ACT OF 1950".

The Applicant

Tri-State District Operations:
American Zinc, Lead and Smelting Company
American Zinc Company of Oklahoma
American Zinc Company of Arkansas
116½ West Fifth Street, Joplin, Missouri.

General Technical Data
Experience and History of Operations

The American Zinc, Lead and Smelting Company, together with its subsidiaries, the American Zinc Company of Oklahoma, and the American Zinc Company of Arkansas, with district offices located at 116½ West Fifth Street, Joplin, Missouri, have been substantial producers of zinc and lead ores in the Mississippi Valley Region for more than fifty years. At the present time the company is not actively engaged in mining operations in the Tri-State District, however, the parent company owns the fee and mineral rights to approximately 2,200 acres of land, portions of which contain large tonnages of marginal ore reserves. The present activities of the company consist of: (1) the direction of exploratory prospecting programs for the search of new zinc and lead ore deposits in Murray County, Oklahoma, Cherokee County, Kansas, Franklin and Jasper County, Missouri, (2) the purchase and shipment of zinc and lead concentrates to company smelters and (3) sale of mine tailings.

Mining operations by the American Zinc, Lead and Smelting Company commenced in the Carterville portion of the Duenweg-Oronogo mining area about the turn of the century and were largely centered around the Davey mine, which was one of the more important sheet ground producers of the district. This property was operated on four units each equipped with a concentrating plant. The total production from the Davey mines was 7,257,369 rock tons having a recoverable grade of 1.72% (60% Zn Conc.) 0.73% (80%) Pb. Conc.). In addition to the Davey mine other properties which were operated by the company during this time were (1) the Richland, (2) the Cornfield, (3) Vogey, and (4) the Concord.

In 1916 the company purchased the Granby Mining and Smelting Company and as a result of this acquisition, mining operations were extended to include properties in the Granby, Joplin, and Oronogo areas. At Granby the mines operated consisted of (1) the Klondike No. 1, and No. 2, (2) the Mascot, and (3) the Golden Rule. In the Joplin area the B. and H. property at Chitwood was mined, and at Oronogo, the Oronogo Circle property.

Because of adverse market conditions, mining activity in the Missouri portion of the Tri-State District began to decline following World War I, and by the end of 1920 all of the company's mining operations in Missouri were either closed or leased to smaller operators. However, exploration and development projects were continued, with prospect drilling being conducted in several areas of the district.

The company's activities in the Picher, Oklahoma area of the district began with exploratory drilling in 1916, but actual mining operations did not commence until 1923 when the Douthit mine was acquired. In 1925 the Oklahoma operations were extended to include the Big Chief mine. Also, shortly prior to this time the company had entered the Waco field by obtaining the High Five mine in 1922. All of these properties were important producers and were operated until 1931 when the general business depression forced their closing.

During the depression a property at Diamond, Missouri was leased, and after further drilling, mining operations were commenced in 1934. This operation was continued until 1935 when exhaustion of the ore body forced its abandonment. In 1936 the company acquired the Robinson mine in the Picher field which was operated for two years, closing down in 1938.

For the next five years no mining activity was carried on, however, intermittent exploration and examination work was continued, and in 1943, two mines, the Henckle-Smith mine, southeast of Duenweg, and the Hunter mine at Aurora, were developed and placed in operation. These properties were both of moderate size and mining was carried on until the exhaustion of the deposits, the Henckle-Smith mine was closed in 1944, and the Hunter mine was closed in 1946.

In 1945 the company acquired from the Evans-Wallower Company, a 200-acre lease in the heart of the Picher field which included the No. 3, No. 7, and No. 8 mines of the former Golden Rod Company, the Laclede mine, and forty acres of the old Dorothy Bell property. The ores mined from these tracts were treated in the company owned concentrating plant located on the Golden Rod No. 7 forty. This property was operated for three years, with mining being suspended in 1948 due to the loss of the concentrating plant by fire. Ore reserves did not warrant the construction of a new mill, and the property was sold to the Eagle-Picher Company who were able to treat the ore mined in their central concentrating plant at Cardin, Oklahoma.

Production

The production statistics of the more recent operations of the American Zinc, Lead and Smelting Company and the American Zinc Company of Oklahoma are as follows:

Mine	Dates	Area	Company	Tons Milled	Concentrates %Zn.	%Pb.
Henckle	1943-44	S.E.Duenweg	AZL&S Co.	115,663	4.48	----
Smith	1943-44	S.E.Duenweg	AZL&S Co.	47,115	3.32	----
Hunter	1943-46	Aurora	AZL&S Co.	273,635	4.57	0.05
No. 7	1945-48	Picher	AZ of Okla.	335,785	2.63	0.23

Experience of Personnel

The personnel of Joplin offic of the American Zinc, Lead and Smelting Company and its subsidiary companies, the American Zinc Company of Oklahoma, and the American Zinc Company of Arkansas is as follows:

Name	Title	Address
J. J. Inman	District Manager	Joplin, Missouri
D. R. Stewart	Exploration Engineer	Joplin, Missouri
W. F. Netzeband	Mining Engineer	Joplin, Missouri
J. W. Hook	Field Geologist	Davis, Oklahoma

The above staff has been employed on various company operations, and exploratory programs for periods ranging from four to thirty years.

Exploration and Development

Throughout the greater portion of the last fifty years the company has maintained a staff of engineers and geologists in the Tri-State district office for mine examinations and exploratory drilling programs. This type of work has been carried on almost continuously during past years and is being pursued at present with the aid of geophysical techniques. The search for new deposits of zinc and lead ores is becoming increasingly more difficult, and all areas where mineralization is believed possible are being studied. At the present time geological and geophysical investigations are in progress in Jasper County, Missouri, and in the Arbuckle Mountain portion of Murray County, Oklahoma.

The use of geophysics as an aid in the search for buried ore deposits in the Mid-Continent region was pioneered by the company. This work was started in 1929 and has been carried on more or less continuously with large acreages being surveyed by electrical, magnetic, and gravitational methods. The results of the this work, while not revealing actual mineralization, has been extemely successful in mapping subsurface lithology, which in turn has eliminated much unnecessary drilling. The company presently maintains its own geophysical equipment for magnetic and electrical resistivity surveys.

Company Holdings

Although the company is presently inactive as far as actual mining operations are concerned, it owns the fee and mineral rights to approximately 2,200 acres of land, portions of which contain large tonnages of marginal ore reserves. These reserves include 500,000 tons blocked ore at the Oronogo Circle open pit. In addition to property owned, approximately 6,095 acres are held under mining leases for exploratory drilling. A summary of the company's land holdings is as follows:

Area	Status	Acres	Ore Reserves Tons	Grade 50%Zn	Grade 80%Pb	Remarks
Oronogo	Fee & Mineral	1188	500,000	3.00	----	Innudated(1)
Carterville	"	225	(?)(2)	1.72	0.73	" (1)
Joplin	Fee	640	(?)	(Small Scattered Deposits)		
Duenweg	Lease	620	--			Wildcat Area
Neck City	"	159	--			" "
Alba	"	749	--			" "
Davis, Okla.	"	4295	--			" "

Notes:

1. The underground workings of the Oronogo-Webb City-Carterville mineralized belt are presently under water. The recovery of these reserves will necessitate the drainage of this entire field. The total ore reserves of the area have been estimated by the Bureau of Mines to be 20,647,800 rock tons.

2. The tonnage of the reserves are not presently known, however, a drilling program to block the mineralization is now in progress. The grade expressed represents the actual recovery from this area when last mined.

ST. CLAIR, MISSOURI AREA

For the past year, the company has been drilling both churn and diamond drill holes in an area near St. Clair, Missouri, where zinc mineralization and some lead mineralization has been encountered and verified over some three square miles in area.

The company feels that certain geological conditions exist here, including a horizon which gives indication that it might be susceptible to have been a host for a replacement mineral deposit.

Small, near surface, mining operations have been carried on in past years by others, but the drilling over the past year by this company has penetrated to a depth of some 400 feet, which is considerably deeper than any of the past work. This drilling has entered the porous Proctor member of the Eminence formation. This member is some 50 feet in thickness, is of vuggy, dark gray, medium to coarsely grained, crystalline dolomite, and it is felt that further drilling is warranted where this particular formation is traversed by structural lines of weakness where mineralizing solutions would have had a chance to cut through this favorable formation so that possible orebodies may have been formed.

The area concerned involves Sections 30, 31, and 32 of Township 42 North, Range 1 West; portions of Sections 24, 25, 35, and Section 36 of Township 42 North, Range 2 West, 5th Principal Meridian, in the State of Missouri. Further studies by the geological staff of this company may vary these specific areas to a degree and preliminary examination has been made in portions of Township 41 North, Range 2 West, 5th Principal Meridian, which may add to this contemplated area. This study is in progress at the present time.

Lands held in this area by a deed to mineral rights are specifically in portions of Section 30, 31, and 32 of Township 42 North, Range 1 West, and mineral leases are in progress, or have been effected, on portions of Sections 24, 25, 35, and 36 of Township 42 North, Range 1 West, 5th Principal Meridian.

To date, the company has expended some $20,000 in preliminary drilling and geological study of these areas and feels that the area in general warrants an additional expenditure to prove or disprove the existence of an economic deposit.

The widespread mineralization apparent here may be centered to areas of economic importance and create a new district for the production of zinc and possibly lead.

Addendum to PE-100
American Zinc, Lead and Smelting Company
1000 Paul Brown Building
St. Louis 1, Missouri

Exhibit 'A'

AMERICAN ZINC, LEAD AND SMELTING COMPANY
AND WHOLLY OWNED SUBSIDIARY COMPANIES

CONSOLIDATED BALANCE SHEET - DECEMBER 31, 1950

(With comparative figures as at December 31, 1949)

ASSETS

	1950	1949
CURRENT ASSETS:		
Cash	$ 3,913,354	$ 758,996
Accounts receivable-		
United States Government	$ 250,432	$ 896,700
Customers	7,323,126	2,295,649
Miscellaneous	983,327	402,627
Reserve for doubtful accounts	(28,000)	(28,000)
	$ 8,528,885	$ 3,566,976
Claims for refund of federal taxes on income	$ -	$ 391,245
Inventories valued at the lower of cost or market-		
Concentrates and other metal-bearing materials	$ 3,898,672	$ 4,484,901
Less- Concentrates reserved for replacement of conversion slab zinc	(962,146)	-
Slab zinc, zinc oxide, and sulphuric acid	706,899	2,359,542
Materials and supplies, less reserve (1950 - $21,363; 1949 - $20,290)	1,270,500	966,894
	$ 4,913,925	$ 7,811,337
Prepaid insurance	$ 390,883	$ 131,736
	$17,747,047	$12,660,290
WORKING ASSETS:		
Residues to be treated in future years, at values not in excess of estimated recoverable amounts	$ 1,154,315	$ 1,154,315
INVESTMENTS:		
Affiliated companies, less reserve (1950 - $13,000; 1949 - $17,500)	$ 50,992	$ 44,853
United States Treasury Bonds deposited under escrow, at cost	20,203	20,256
Miscellaneous investments	69,907	80,606
	$ 141,102	$ 145,715
PROPERTIES AT COST:		
Plant sites, mineral lands, mine development, buildings, machinery, and equipment	$18,118,513	$16,403,520
Reserve for depreciation, depletion, and amortization	12,253,943	11,635,252
	$ 5,864,570	$ 4,768,268
DEFERRED CHARGES:		
Operating expense including short-life equipment	$ 985,331	$ 798,299
	$25,892,365	$19,526,887

LIABILITIES

	1950	1949
CURRENT LIABILITIES:		
Notes payable to banks-		
Short-term loans	$ -	$ 1,000,000
Portion of long-term loans payable within one year (Note 1)	500,000	500,000
Accounts payable	4,859,140	3,245,551
Dividend on prior preferred stock	84,944	84,944
Property and other taxes accrued	194,769	178,362
Estimated federal taxes on income	3,304,415	157,217
Less- United States Treasury Savings Notes	(1,500,000)	-
	$ 7,443,268	$ 5,166,074
DEFERRED LIABILITIES:		
Long-term bank loans, 2-1/2%, payable $500,000 annually in quarterly installments-		
With balance due in 1952 (paid in April, 1950)		$ 1,375,000
With balance due in 1955 (Note 1)	$ 2,250,000	
Deferred duty payable	986,413	559,066
Property purchase obligations maturing after one year	-	900
	$ 3,236,413	$ 1,934,966
SURPLUS RESERVES:		
Contingencies	$ 1,000,000	$ 700,000
Injury and damage claims	55,000	58,096
	$ 1,055,000	$ 758,096

CAPITAL STOCK AND SURPLUS:

Capital stock (Note 2)-

	Prior preferred	Common	1950	1949
Authorized, shares	75,000	1,500,000		
Issued, shares	67,955	673,100		
Par value	$1,698,875	$673,100	$ 2,371,975	$ 2,371,975
Capital surplus (no change)			3,708,958	3,708,958
Earned surplus (Note 1)			8,076,751	5,586,818
			$14,157,684	$11,667,751
			$25,892,365	$19,526,887

American Zinc, Lead & Smelting Co

Docket #DMA-1630X

Amount of Contract — $65,000.00
Gov. 50%) $32,500.00

Amount Expended — $12,756.46

Costs:-	Total	Cost/Foot
4065' Combination diamond drill & Churndrill	$12,756.46 —	$3.138

JUL 24 1952

Form MF-104 (Rev.)
(April 1952)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1036.3.
Approval expires 6-30-53.
Defense Minerals Administration

OPERATOR'S MONTHLY REPORT AND VOUCHER

JUL 28 1952

Month of June & July, 1952 Docket No. DMEA 1630X Contract No. Idm-E 182
Operator's Name American Zinc, Lead and Smelting Company Minerals Zinc
Address 1600 Paul Brown Bld., St. Louis 1, Mo.
Contract Amount, $65,000 Government Participation: 50% Amount, $32,500

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	1176.26	10,177.00	11,354.06			
Bulldozing						
Crosscutting						
Drifting						
(2) Labor and Supervision:						
Labor						
Supervision	31.50	91.12	122.62			
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives	(1)					
Pipe for casing	253.50		253.50			
Track						
water		573.85	573.85			
other	5.33	309.82	315.15			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis						
Payroll Taxes	.57	1.64	2.21			
Liability Insurance						
(8) Contingencies (specify):						
transportation	8.82	126.25	135.07			
TOTALS	1475.98	11,280.48	12,756.46			

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

Date JUL 22 1952 *Payee AMERICAN ZINC, LEAD & SMELTING CO.

Per N. J. Matthews Jr. Title Secy and Treas.

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

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

(Instructions on reverse)

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

$

Signature
(Authorized Certifying Officer)

Date Vou. No.
(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. DdmE-182 in accordance with the terms of the contract.

Signature Clinton C. Knox Title Mining Engineer Date July 24, 1952

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature David Gallagher Title Exec. Officer Date July 24, 1952

MONTHLY REPORT OF OPERATOR

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

U. S. GOVERNMENT PRINTING OFFICE 205675

Note 1:

This item is for casing which was installed in the holes down through the surface wash. This item was never charged into the project but carried as a recoverable expenditure since it was intended that this casing could be pulled after drilling was completed.

Practically, this did not work our because the diamond drill rigs were not capable of pulling the churn drill casings and because of the cost of resetting the churn drill over abandoned holes for this sole purpose.

It was also found that the holes with casings could be sealed for a total cost of $20.00 whereas those without casings are shown by former experience to cost $25.00 each to seal and make safe in the public interest. It was therefore deemed practical to leave the churn drill casing in the four holes, and weld plates on top of these holes for sealing off for abandonment. The charge for casing therefore should be entered as a charge for materials against the project.

Not included in this total is an invoice in the amount of $20.00 for the plugging of holes due to the lack ofprovision in the original contract to cover this item which was necessary as a safety measure in the public interest.

Form MF-104A
(April 1952)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 28 1952

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of June & July 1952 Docket No. DMEA 1080X Contract No. _____

Operator's Name American Zinc, Lead and Smelting Company Minerals Zinc

Address 1000 Paul Brown Bldg., St. Louis 1, Mo.

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT	
							Units	Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core / Churn	Feet	1475.90	202	12,750.46	4,065		16,000	
Auger								
Stripping								
Trenching								
Test Pits								
Roads and Trails								
								TOTAL COSTS AUTHORIZED BY CONTRACT
TOTAL DISTRIBUTED COSTS								
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		1475.90		12,750.46				65,000.00

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

AMERICAN ZINC, LEAD & SMELTING CO.

Date July 22 1952 Operator _____

Per W. F. Matthews Jr. Title Secy and Treas.

REMARKS:

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

(Instructions on reverse)

(For Government use only)

INSTRUCTIONS

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

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

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

U. S. GOVERNMENT PRINTING OFFICE 205676

MONTHLY PROGRESS REPORT

During the month of June, 1952, it was decided to stop drilling on the Mineral Hills Project as the showings have been very poor. On June 6, 1952, drill hole M3 was completed to a depth of 916 feet by diamond drilling, and hole M4 was closed off at its standing depth of 603 feet.

A summary of drilling completed during the month, and drill logs are attached hereto.

SUMMARY OF DRILL HOLE COMPLETIONS

MINERAL HILLS TRACT, FRANKLIN CO., MO.

HOLE NO.	TOTAL DEPTH	COMMENCED	COMPLETED	REMARKS
M1	1272	2/15/52	4/15/52	Stopped at 1272'
M2	1277	3/11/52	4/9/52	Stopped at 1277'
M3	916	4/10/52	6/6/52	Stopped at 916'
M4	603	5/1/52	6/1/52	Stopped at 603'

Churn drilling	
Diamond drilling	159
Total June drilling	159
May drilling as reported	1127
Total to date	4068

DRILL HOLE M3

MINERAL HILLS TRACT
FRANKLIN CO., MO.

Drill Hole Started April 10, 1952
Water struck at 90'
Water stands at 125'

Location: 2050' West and 940' North of the oneter of Section 32, T42N, R1W, Franklin Co., Mo.

DIAMOND DRILL LOG

Depth		Formation	Feet
757	795	Gray dolomite and green shale	38
795	805	Davis shale	10
805	830	Gray dolomite and green shale, slightly sandy	25
830	870	Gray dolomite and green shale interbedded	40
870	916	Davis shale	46

AMERICAN ZINC, LEAD AND SMELTING COMPANY
ST. LOUIS, MISSOURI

DRILL HOLE RECORD

PROPERTY: Mineral Hills Tract Hole No. M1

LOCATION: 2230' West and 1330' South of the center of Section 32, T42N, R1W, Franklin Co., Mo.

HOLE COMMENCED: 2/15/52 Struck Water at 160'
HOLE FINISHED: 4/15/52 Water Stands at 200'

Drillman: Arthur Smith

DEPTHS		FORMATION	FEET
0	30	Overburden. Sandstone boulders, red mud	30
30	180	Gasconade, Yellowish brown medium-grained dolomite, contains white and gray flint, some selvage	150
180	255	Eminence, gray fine-grained dolomite, contains white and gray flint, some selvage	75
255	280	Eminence, gray to yellow brown, fine-grained dolomite, contains white and gray flint	25
280	325	Eminence dolomite, gray fine-grained, contains white and gray flint, some selvage	45
325	385	Potosi dolomite, yellow brown, medium-grained, contains white and gray flint, some selvage	60
385	600	Potosi dolomite, yellow brown, medium-grained, contains white and gray flint, some selvage	215
600	640	Potosi dolomite, brown to yellowish brown, medium-grained containing many quartz lined cavities	40
640	686	Potosi dolomite, brown to gray, containing many quartz lined cavities, sandy and silty layers abundant	46
686	689	Potosi dolomite, silty layer without cavities	3
689	720	Potosi dolomite, quartz lined cavities increase greatly in number	31
720	727	Derby-Doerun, gray dolomite medium-grained with a few quartz lined cavities, fractures and cavities decrease with depth	7
727	730	Silty dolomite layer, no color change, no cavities	3
730	793	Medium-grained dolomite increasing in porosity with depth, gray to yellowish brown, some coarse brown dolomite in layers, a few quartz lined cavities	63
793	799	Davis dark green deuse shale	6
799	806	Deuse gray dolomite	7
806	826	Davis Formation - thin layers of green shale and dolomite interbedded, layers are paper thin to ¼" in thickness, some dolomite layers are 6" to 8" thick	20
826	853	Light gray medium-grained dolomite	47
853	875	Green shale seams and dolomite interbedded	22
875	876	Sandy layer	1

DEPTHS	FORMATION	FEET
876 950	Green shale - darkens with depth, residual breccia in layers	84
950 977	Extensive brecciated zone	27
977 992	Dark green shale	15
992 998	Brecciated zone	6
998 1015	Glaconitic shale interbedded with some coarse-grained dolomite	17
1015 1025	Dark hard shale	10
1025 1054	Shale and dolomite interbedded	29
1054 1124	Bonneterre Formation - coarse-grained brownish gray dolomite containing stylolites and a few thin shale seams	71
1124 1145	Shale seams increase in number and thickness	20
1145 1175	Gray dolomite	30
1175 1214	Shale seams containing residual breccia	39
1214 1235	Gray dolomite with very little shale	21
1235 1272	Gray dolomite	37

AMERICAN ZINC, LEAD AND SMELTING COMPANY
ST. LOUIS, MISSOURI

DRILL HOLE RECORD

PROPERTY: Mineral Hills Tract — Hole No. M2

LOCATION: 210' West and 290' South of the center of Section 32, T42N, R1W, Franklin, Co., Mo.

H OLE COMMENCED: #3/11/52 — Water Stuck at 105'

HOLE FINISHED: — Water Stands at 150'

DRILLMAN: Arthur Smith

DEPTHS		FORMATION	FEET
0	5	Surface Material, red mud with sandstone boulders, residual chert	5
5	140	Gasconade dolomite, yellowish brown to brown, medium-grained, contains white and gray flint, some selvage	135
140	145	Gasconade or Eminence dolomite, yellowish brown to gray, medium-grained, contains white and gray flint	5
145	310	Eminence dolomite, gray fine-grained with white and gray flint, some selvage	165
310	320	Eminence or Potosi dolomite, gray to brownish gray, white and gray flint	10
320	330	Potosi dolomite, yellowish brown to brown with gray and white flint and some druzy quartz, very little selvage	10
330	600	Potosi formation-yellowish brown to brown medium-grained dolomite containing white and gray flint and some druzy quartz	70
600	740	Yellowish brown dolomite containing numerous quartz lined cavities	140
740	783	Derby-Doerun formation-dense, gray medium-grained dolomite containing paper thin shale seams	43
783	795	Yellowish brown dolomite containing a few small cavities	12
795	823	Davis formation-shale and dolomite interbedded, shale darkens with depth, displacement along some fractures	28
823	845	Gray dolomite containing very little shale	22
845	858	Brown dolomite containing glaconitic shale seams	13
858	942	Shale seams, dense green to black containing brecciated zones	84
942	964	Shale seams containing residual brecciated zones, dolomite fragments imbedded in shale	22
964	1015	Alternate shale and brecciated zones	51
1015	1033	Bonneterre Formation, shale and dolomite interbedded	18
1033	1165	Gray medium-grained dolomite containing stylolites and shale seams, some residual dolomite fragments in shale	32
1165	1206	Shale and dolomite interbedded with stylolites, glauconitic layers	41
1206	1237	Gray dolomite containing stylolites	31
1237	1273	Bonneterre dolomite, interbedded shale and dolomite	36
1273	1277	LaMotte sandstone, probably transition zone, composed of light gray to brownhish fine-grained sandstone, very clean	4

AMERICAN ZINC, LEAD AND SMELTING COMPANY
ST. LOUIS, MISSOURI

DRILL HOLE RECORD

PROPERTY: Mineral Hills Tract — Hole No. M3
LOCATION: 2050' West and 940' North of the center of Section 32, T42N, R1W, Franklin Co., Mo.

H OLE COMMENCED: 4/10/52 — Struck water at 90'
HOLE FINISHED: 6/6/52 — Water stands at 125'
DRILLMAN: Arthur Smith

DEPTHS		FORMATION	FEET
0	10	Overburden, sandstone boulders and residual chert in red clay	10
10	140	Gasconade formation-yellowish brown medium-grained dolomite containing white and gray flint, some selvage	130
140	355	Eminence formation-gray fine grained dolomite, contains white and gray flint, some selvage	215
355	495	Potosi formation-yellowish brown dolomite, medium-gained, contains white and gray flint	140
495	500	Gray dolomite, druzy quartz filled cavities	5
500	522	Yellowish brown dolomite, quartz filled cavities	22
522	532	Gray dolomite with limonite staining in druzy quartz filled cavities	10
532	538	Gray dolomite	6
538	540	Cavity	2
540	573	Gray dolomite with druzy quartz lined cavities	33
573	587	Yellowish brown dolomite	14
587	598	Gray dolomite with quartz lined cavities	11
598	610	Brownish dolomite, sandy	12
610	625	Derby-Doerun-light gray to light brown, smaller quartz filled cavities that decrease with depth	15
625	635	Gray dolomite	10
635	680	Gray medium-grained dolomite with a few small quartz filled cavities	45
680	690	Gray medium-grained dolomite interbedded with green paper thin shale beds	10
690	707	Gray dolomite and green shale interbedded, shale is paper thin to ¼" in thickness	17
707	757	Gray dolomite and green shale interbedded	50
757	795	Davis shale and dolomite interbedded	38
795	805	Davis shale	10
805	830	Davis shale, dense green shale, slightly sandy	25
830	870	Green shale and dolomite interbedded	40
870	916	Davis shale	46

AMERICAN ZINC, LEAD AND SMELTING COMPANY
ST. LOUIS, MISSOURI

DRILL HOLE RECORD

PROPERTY: Mineral Hills Tract Hole No. M4

LOCATION: 2340' West and 1830' North of the center of Section 32, T42N, R1W, Franklin Co., Mo.

HOLE COMMENCED: 5/10/52 Struck water at 5'

HOLE FINISHED: 6/1/52 Water stands at 25'

DRILLMAN: Arthur Smith

DEPTHS	FORMATION	FEET
0 10	Overburden, sandstone boulders in red clay	10
10 140	Gasconade dolomite, yellowish brown to brown medium-grained containing white and gray flint, some selvage	130
140 195	Eminence Dolomite, gray fine-grained dolomite containing white and gray flint	55
195 305	Eminence dolomite, gray fine-grained dolomite containing white and gray flint	110
305 370	Potosi dolomite, brown to yellowish brown medium-grained dolomite containing clear Calcedony and druzy quartz, very little flint	65
370 603	Potosi dolomite	333

Form MF-104 (Rev.)
(April 1952)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

JUN 19 52

Budget Bureau No. 42-R1036.3.
Approval expires 6-30-53.

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of May, 1952 Docket No. DMEA 1630X Contract No. Idm-E 182
Operator's Name American Zinc, Lead and Smelting Company Minerals Zinc
Address 1600 Paul Brown Building, St. Louis 1, Mo.
Contract Amount, $ 65,000.00 Government Participation: 50 % Amount, $ 32,500.00

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drilling	$4,665.95	$5,511.85	$10,177.80			
Bulldozing						
Crosscutting						
Drifting						
(2) Labor and Supervision:						
Labor						
Supervision	36.00	55.12	91.12			
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Water	573.85		$ 573.85			
Other	175.00	134.82	309.82			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis						
Payroll Taxes	.65	.99	1.64			
Liability Insurance						
(8) Contingencies (specify):						
Transportation	34.72	91.53	126.25			
TOTALS	$5,486.17	$5,794.31	$11,280.48			

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 7 - 1952

I certify that the above bill is correct and just and that payment therefor has not been received.
Date June 17, 1952 Payee American Zinc, Lead and Smelting Company
Per ORIGINAL SIGNED BY C. V. BURNS Title Asst. Secretary & Asst. Treasurer

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

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

(Instructions on reverse)

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

$2,743.08

Signature
(Authorized Certifying Officer)

Date 7-3-52 Vou. No. DMEA-6-33

(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. Idm-E-182 in accordance with the terms of the contract.

Signature Wm. P. Williams Title Geologist Date June 19, 1952

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

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

MONTHLY REPORT OF OPERATOR

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

U. S. GOVERNMENT PRINTING OFFICE 205675

Form MF-104A
(April 1952)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of May, 1952 Docket No. DMEA 1630X Contract No. Idm-E 182

Operator's Name American Zinc, Lead and Smelting Company Minerals Zinc

Address 1600 Paul Brown Building, St. Louis, Mo.

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT	
							Units	Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core) Churn)	Feet	$5,486.17	1796	$11,280.48	3863		16000	
Auger								
Stripping								
Trenching								
Test Pits								
Roads and Trails								
								TOTAL COSTS AUTHORIZED BY CONTRACT
TOTAL DISTRIBUTED COSTS								
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc								
TOTAL COSTS		$5,486.17		$11,280.48				$65,000.00

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

Date June 17,1952 Operator American Zinc, Lead and Smelting Company

Per ORIGINAL SIGNED BY C. V. BURNS Title Asst. Secretary & Asst. Treasurer

REMARKS:

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

(Instructions on reverse)

(For Government use only)

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 7 - 1952

INSTRUCTIONS

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

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

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

U. S. GOVERNMENT PRINTING OFFICE 205676

AMERICAN ZINC, LEAD AND SMELTING COMPANY
EXPLORATIONS - MINERAL HILLS TRACT, FRANKLIN CO., MISSOURI
MONTHLY PROGRESS REPORT

During the month of May, 1952, drill M2 was completed to a depth of 1277 feet. M3 progressed to a depth of 757 feet by diamond drilling. M4 reached a depth of 603 feet by churn drilling.

Diamond drilling on M3 has progressed very slowly due to caving conditions in the hole. Cementing was tried, but was unsuccessful due to numerous cavities throughout the depth of the hole. It has been decided to ream the caved section and put in casing in M3.

The completion of churn drilling at a depth of 603 feet on hole M4 completes churn drilling on this project.

A summary of drilling completed during the month, and drill logs are attached hereto.

SUMMARY OF DRILL HOLE COMPLETIONS

MINERAL HILLS TRACT, FRANKLIN COUNTY, MO.

Hole No.	Total Depth	Commenced	Completed	Remarks
M1	1272'	2-15-52	4-15-52	Stopped at 1272'
M2	1277'	3-11-52	4-9-52	Stopped at 1277'
M3	incomplete	4-10-52	incomplete	in progress
M4	incomplete	5-1-52	incomplete	waiting for the diamond drill.

Churn drilling	603
Diamond drilling	524
Total May drilling	1127
April drilling as reported	1631
Total to date	3909

DRILL LOG M2

MINERAL HILLS TRACT

FRANKLIN COUNTY, MO.

Drill hole started March 11, 1952

Water struck at 105'

Water stands at 150'

Location: 210' West and 290' South of the center of Section 32, T42N, R1W, Franklin Co. Missouri

Diamond Drill Log

Depth	
1015 - 1033	Bonneterre formation, shale and dolomite interbedded.
1033 - 1165	Gray and medium grained dolomite containing stylolites and shale seams, some residual dolomite fragments in shale.
1165 - 1206	Shale and dolomite interbedded with stylolites, glauconitic layers.
1206 - 1237	Gray dolomite containing styolites.
1237 - 1273	Bonneterre dolomite, interbedded shale and dolomite.
1273 - 1277	LaMotte sandstone, probably transition zone. Composed of light gray to brownish fine grained sandstone. Very clean.

DRILL HOLE M3
MINERAL HILLS TRACT
FRANKLIN CO., MO.

Drill hole started April 10, 1952 Location: 2050' West and 940' North of the center of Section 32, T42N, R1W, Franklin Co., Mo.

Water struck at 90'
Water stands at 125'

DIAMOND DRILL LOG

Depth	
495 - 500	Gray dolomite, druzy quartz filled cavities.
500 - 522	Yellowish-brown quartz filled cavities.
522 - 532	Gray with limonite staining in druzy quartz filled cavities.
532 - 538	Gray dolomite.
538 -540	Cavity.
540 - 573	Gray with druzy quartz filled cavities.
573 - 587	Yellowish brown dolomite.
587 - 598	Gray with quartz.
598 - 610	Brown dolomite, sandy.
610 - 625	Light gray to light brown, smaller quartz filled cavities.
625 - 635	Gray dolomite.
635 - 680	Gray medium grained dolomite with a few small quartz filled cavities.
680 - 690	Gray medium grained dolomite interbedded with green paper-thin to $\frac{1}{4}$" in thickness.
690 - 707	Gray dolomite and green shale interbedded. Shale is paper-thin to $\frac{1}{4}$" in thickness.
707 - 720	Gray dolomite and green shale interbedded.
720 - 730	Gray dolomite and green shale interbedded. Slightly sandy.
730 - 757	Gray dolomite and green shale interbedded.

DRILL HOLE M4
MINERAL HILLS TRACT
ST. CLAIR, MISSOURI

Location: 2340' West and 1830' North of the center of Section 32 T42N, R1W, Franklin Co., Mo.

Water struck at 5'
Water stands at 25'

CHURN DRILL

DEPTH	
0 - 10	Overburden, sandstone boulders in red clay.
10 - 140	Gasconade dolomite, yellowish brown to brown medium grained containing white and gray flint, some selvage.
140 - 195	Eminence dolomite, gray fine grained dolomite containing white and gray flint.
195 - 305	Eminence dolomite, gray fine grained dolomite containing white and gray flint, some selvage.
305 - 370	Potosi dolomite, brown to yellowish brown medium grained dolomite containing clear calcedony and druzy quartz in cavities, very little flint.
370 - 603	Potosi dolomite.

MF-104
(August 1951)

MAY 23 1952

Budget Bureau No. 42-R1036.2.
Approval Expires 6-30-52.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Contract No. Idm-E 182

Name of Operator American Zinc, Lead and Smelting Company
Docket No. DMA 1630X
Total Contract Amount $ 65,000.00
Government Participation: 50 % Amount, $ 32,500.00
Distribution of Expenditures for Month of April, 1952

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

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

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

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

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 7 - 1952

CERTIFICATION

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

AmericanZinc, Lead and Smelting Company
(Name of Company)

By ORIGINAL SIGNED BY W. J. MATTHEWS JR.
(Signature of Authorized Official)

May 21, 1952
(Date)

Secretary & Treasurer
(Title)

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

16—64068-3

MONTHLY SUMMARY COST STATEMENT

List as Shown on Exhibits Attached to Contract

Item	Monthly Total	Totals Previously Reported	Totals to Date	For Government Use Only		
				Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
1. Fixtures and Improvements:						
(*a*) Facilities						
(*b*) Buildings						
(*c*) Fixtures						
2. Operating Equipment:						
(*a*) Purchased[1]						
(*b*) Rented[2]						
(*c*) Furnished by operator						
3. Rehabilitation and Repairs:						
(*a*) Facilities						
(*b*) Buildings						
(*c*) Installations						

AMERICAN ZINC, LEAD AND SMELTING COMPANY

EXPLORATIONS - MINERAL HILLS TRACT, FRANKLIN CO., MISSOURI

MONTHLY PROGRESS REPORT

During the month of April, 1952 drill hole M1 was completed to a depth of 1272 feet. M2 progressed to 600 feet with the churn drill and continued to a depth of 1015 feet by diamond drilling. Drill hole M3 reached a depth of 495 feet by churn drill.

Water was our most immediate problem during the month since the source of water for the diamond drill was exhausted and emergency measures were taken to haul water to supply this machine. Due to the high rates charged by local people equipped with necessary tank capacity, arrangements were made as soon as practicable with local resident to supply water from his well through the remainder of the drilling program when water was necessary. This changed the cost of water from $4.00 per hour to $10.00 per day, but with the beginning of rains again early in May even this water source will not have to be depended upon.

A summary of drilling completed during the month is as follows.

Drill logs are also attached hereto.

SUMMARY OF DRILL HOLE COMPLETIONS

MINERAL HILLS TRACT, FRANKLIN COUNTY, MO.

Hole No.	Total Depth	Commenced	Completed	Remarks
M1	1272'	2-15-52	4-15-52	Stopped at 1272'
M2	incomplete	3-11-52	incomplete	in progress
M3	incomplete	4-10-52	incomplete	in progress

	M1	M2	M3
Churn drilling	764'		
Diamond drilling	867'		
Total April drilling	1631'		
March drilling as reported	1151'		
Total to date	2782'		

PRELIMINARY DRILL LOT M1
Mineral Hills Tract
St. Clair, Missouri

Drill hole started February 15, 1952 Location: 2230' West and 1330' South of the center of Section 32, T42N, R1W, Franklin County, Missouri

Struck water at 160'
Water stands at 200' 72' casing in hole

		Feet
0 - 30	Overburden, sandstone boulders, red mud.	30
30 - 180	Gasconade dolomite, yellowish-brown medium grained, contains white and gray flint, some selvage.	150
180 - 255	Eminence dolomite, gray fine-grained, contains white and gray flint, some selvage.	75
255 - 280	Eminence dolomite, gray to yellowish-brown fine grained, contains white and gray flint.	25
280 - 325	Eminence dolomite, gray fine-grained contains white and gray flint, some selvage.	45
325 - 385	Potosi dolomite, yellow brown, medium-grained, contains white and gray flint, some selvage.	60
385 - 600	Potosi - as above -	

290 - 305 Some lead shines
360 - 375 Some lead shines

Diamond Drill Log Hole M1

600 - 640	Brown to yellowish brown medium grained dolomite containing many quartz lined cavities Potosi dolomite.
640 - 686	Potosi Dolomite, brown to gray dense dolomite containing quartz lined cavities, sandy and silty layers abundant
686 - 689	Potosi dolomite, silty layer without cavities
680 - 720	Potosi dolomite, quartz lined cavities increase greatly in numbers compared with the higher horizons.
720 - 727	Derby-Doerun, gray dolomite medium grained with a few quartz-lined cavities, fracturing and cavities decrease with depth.
727 - 730	Silty dolomite layer with no color change no cavities.

730 - 793 Medium grained dolomite increasing in porosity with depth, gray to yellowish brown, some coarse brown dolomite in layers, a few quartz lined cavities.

793 - 799 Davis? dark green dense shale.

799 - 806 Dense gray dolomite, medium grained dolomite.

806 - 826 Davis formation - thin layers of green shale and dolomite interbedded, layers are paper thin to 1/4" in thickness, some dolomite layers are 6" to 8" thick.

826 - 853 Light gray medium grained dolomite.

853 - 875 Green shale seams and dolomite interbedded.

875 - 876 Sandy layer.

876 - 950 Green shale - darkens with depth, residual breccia in layers.

950 - 977 Extensive brecciated zone.

977 - 992 Dark green shale

992 - 998 Brecciated zone

998 - 1015 Glaconitic shale interbedded with some coarse grained dolomite.

1015 - 1025 Dark hard shale.

1025 - 1054 Shale and dolomite interbedded

1054 - 1125 Bonneterre formation - coarse grained brownish gray dolomite containing stylolites and a few thin shale seams.

1125 - 1145 Shale seams increase in number and thickness

1145 - 1175 Gray dolomite

1175 - 1214 Shale seams containing residual breccia

1214 - 1235 Gray dolomite with very little shale

1235 - 1272 Gray dolomite

Bottom of hole

Assays:-

Depth	% Zn	% Pb	Oz/Au	Oz/Ag
280-285	.7	.04	none	none
285-290	.5	.04	none	none
290-295	.5	.04	none	none
295-300	.6	.04	none	none
300-305	.5	.04	none	none
355-360	.6	.06	none	none
360-365	.6	.64	none	none
365-370	.9	.16	none	none
375-375	1.0	.08	none	none
375-380	2.0	.02	none	none

DRILL LOG M2
Mineral Hills Tract
Franklin Co. Mo.

Drill hole started March 11, 1952

Location: 210' West and 290' South of the center of Section 32, T42N, R1W, Franklin County, Missouri

Struck water at 105'
Water stands at 150'

Depth	
0 - 5	Surface material, red mud with sandstone boulders, residual chert.
5 - 140	Gasconade dolomite, yellowish brown to brown medium grained, contains white and gray flint, some selvage.
140 - 145	Gasconade or Eminence dolomite? yellowish brown to gray, medium grained, contains white and gray flint.
145 - 310	Eminence dolomite, gray fine grained with white and gray flint, some selvage.
310 - 320	Eminence or Potosi dolomite, gray to brownish gray, white and gray flint.
320 - 330	Potosi dolomite, yellowish brown to brown with gray and white flint and some druzy quartz, very little selvage.
330 - 600	Potosi formation - yellowish brown to brown medium grained dolomite containing white and gray flint and some druzy quartz.

Diamond Drill Log

600 - 740	Yellowish brown dolomite containing numerous quartz-lined cavities.
740 - 783	Derby-Doerun formation - dense, gray, medium grained dolomite containing paper thin shale seams.
783 - 795	Yellowish brown dolomite containing a few small cavities.
795 - 823	Davis formation - shale and dolomite interbedded, shale darkens with depth, displacement along some fractures.
823 - 845	Gray dolomite containing very little shale.

Drill Log M2

845 - 858 Brown dolomite containing glaconitic shale seams.

858 - 942 Shale seams, dense green to black containing brecciated zones.

942 - 964 Shale seams containing residual brecciated zones, dolomite fragments imbedded in shale.

964 - 1015 Alternate shale and brecciated zones.

240 - 245	Lead and zinc shines
265 - 275	Lead and zinc shines
300 - 305	Traces - lead and zinc.

Incomplete.

Drill Hole M3
Mineral Hills Tract
St. Clair, Missouri

Drill hole started April 10, 1952

Location: 2050' West and 940' North of the center of Section 32, T42N, R1W, Franklin County

Struck Water at 90'
Water stands at 125'

0 - 10	Overburden, sandstone boulders and residual chert in red clay
10 - 140	Gasconade formation - yellowish brown medium grained dolomite containing white and gray flint, some selvage.
140 - 355	Eminence formation - gray fine grained dolomite contains white and gray flint, some selvage.
355 - 495	Potosi formation - yellowish brown dolomite medium grained, contains white and gray flint.

Incomplete.

MONTHLY SUMMARY COST STATEMENT—Continued

Item	Monthly Total	Totals Previously Reported	Totals to Date	For Government Use Only: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(d) Fixtures						
4. Labor[3] Expenses						
5. Supervision Salary & 1	$ 84.09	$ 63.55(1)	$ 147.64			
6. Supplies						
(a) Timber						
(b) Explosives						
(c) Repair Parts						
(d) Other	129.50	5.32	134.82			
7. Power						
8. Transportation						
9. Insurance						
(a) Fire						
(b) Public Liability						
(c) Workmen's Compensation						
10. Contract Work Drilling	4,311.85(2)	1,200.00	$5,511.85			
11. Other (specify)						
Total	$4,525.44	$1,268.87	$5,794.31			
Deletions						
Adjusted totals						
Totals previously reported						
Totals to date						

[1] Enter amount paid during month toward total purchase price.
[2] Payments for rental of equipment or prorated depreciation on equipment owned by contractor.
[3] Submit copy of the Social Security form filed under the Old Age Insurance system showing complete wage and salary data or furnish copy of payroll sheet giving same data.

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

FOR GOVERNMENT USE ONLY

Checked by Wm. P. Williams
Entered by
Approved by David Gallagher
Amount approved for payment $2,262.72
Remarks Vo. No. DMEA-D.-33

16—64068-3

(1) Includes $45.23 reported as "Transportation" on report for March, 1952.

(2) Includes cost of setting casing and cleaning holes

EXPLORATION UNIT COST AND PROGRESS REPORT FOR MONTH OF April, 1952

(Supply Data Below Applicable Only to Your Operations)

Item	Costs					Progress [4]				
	Wages [1] and salaries	Equipment [2]	Supplies	Other [3]	Total	Unit	Units this month	Units previously reported	Units to date	Units authorized by contract (Exhibit A)
Drifting										
Crosscutting										
Raising										
Shafts										
Winzes										
Drill holes	$37.79		$129.50	$4,358.15	$4,525.44	feet	1467*	600	2067	16,000
Overburden										
Rehabilitation and preparation										
Geology and geophysics										
Trenching										
Sampling and assaying										
Roads and trails										
Test pits										
Other (specify)										
Totals	$37.79		$129.50	4,358.15	$4,525.44	feet	1467	600	2067	16,000

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

16—64068-3 U. S. GOVERNMENT PRINTING OFFICE

*Footage paid for only.

MF-104
(August 1951)

Budget Bureau No. 42-R1036.2.
Approval Expires 6-30-52.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Contract No. Idm-E 182

Name of Operator American Zinc, Lead and Smelting Company
Docket No. DMA 1630X
Total Contract Amount $ 65,000.00
Government Participation: 50 % Amount, $ 32,500.00
Distribution of Expenditures for Month of March, 1952

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

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

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

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

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 7 1952

CERTIFICATION

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

American Zinc, Lead and Smelting Company
(Name of Company)

By W. T. Matthews Jr.
(Signature of Authorized Official)

APR 14 1952
(Date)

SECRETARY & TREASURER
(Title)

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

16—64068-3

MONTHLY SUMMARY COST STATEMENT

List as Shown on Exhibits Attached to Contract

Item	Monthly Total	Totals Previously Reported	Totals to Date	For Government Use Only		
				Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
1. Fixtures and Improvements:						
(*a*) Facilities						
(*b*) Buildings						
(*c*) Fixtures						
2. Operating Equipment:						
(*a*) Purchased[1]						
(*b*) Rented[2]						
(*c*) Furnished by operator						
3. Rehabilitation and Repairs:						
(*a*) Facilities						
(*b*) Buildings						
(*c*) Installations						

AMERICAN ZINC, LEAD AND SMELTING COMPANY

EXPLORATIONS - MINERALS HILLS TRACT, FRANKLIN CO. MISSOURI

MONTHLY PROGRESS REPORT

During the month of March, 1952 drill hole M1 was completed (location noted on sketch map submitted to you under date of March 4, 1952) to a depth of 60~~7~~0 feet by the churn drill and drill hole M2 had reached a depth of 330 feet as shown on the attached copies of drill logs. Breaking of a drill stem stopped churn drilling on hole M2 until proper repairs could be made. Diamond drilling was commenced during the month on hole M1 and continued from 600 feet to 820 feet into the Davis formation. Considerable difficulty was encountered in progress on hole M1 through Derby-Doerun due to quartz lined open cavity.

Completion of the churn drill hole on M2 will be accomplished early in April so the diamond drill can follow for deepening this hole. Due to caving conditions in the Potosi formation, the possibility of churn drilling down through the Derby-Doerun to avoid hitting open cavaties with a diamond drill appears impractical.

A summary of drilling completed during the month is as follows:

Drill logs with assays will be submitted as soon as holes are completed.

SUMMARY OF DRILL HOLE COMPLETIONS

MINERALS HILLS TRACT, FRANKLIN COUNTY, MO.

Hole No.	Total Depth	Commenced	Completed	Remarks
M1	incomplete	2-15-51	incomplete	proceeding from 600 feet with diamond drill
M2	incomplete	3-11-52	incomplete	in progress

Churn Drill	930 feet
Diamond Drill	220 feet
Total	1150 feet

PRELIMINARY DRILL LOT M1
Minerals Hills Tract
St. Clair, Missouri

Drill hole started February 15, 1952 — 2-15-52 spotted and logged by: Robert Shikhand Geology Dept. Wash. University, St. Louis, Mo. CCK.

Struck water at 160'
Water stands at 200' — 72' of casing in hole

0 - 30	Overburden, sandstone boulders, red mud.	30
30 - 180	Gasconade dolomite, yellowish-brown medium grained, contains white and gray flint, some selvage.	150
180 - 255	Eminence dolomite, gray fine-grained, contains white and gray flint, some selvage.	75
255 - 280	Eminence dolomite, gray to yellowish-brown fine grained, contains white and gray flint.	25
280 - 325	Eminence dolomite, gray fine-grained contains white and gray flint, some selvage.	45
325 - 385	Potosi dolomite, yellow brown, medium-grained, contains white and gray flint, some selvage.	60
385 - 600	Potosi - as above -	

290 - 305 Some lead shines
360 - 375 Some lead shines

Diamond Drill Log Hole M1 (to be on April Report) CCK.

600 - 640 Brown to yellowish brown medium grained dolomite containing many quartz lined cavities Potosi dolomite.

640 - 686 Potosi Dolomite, brown to gray dense dolomite containing quartz lined cavities, sandy and silty layers abundant

686 - 689 Potosi dolomite, silty layer without cavities

680 - 720 Potosi dolomite, quartz lined cavities increase greatly in numbers compared with the higher horizons.

720 - 727 Derby - Doerun, gray dolomite medium grained with a few quartz lined cavities, fracturing and cavities decrease with depth.

Diamond Drill Log Hole M1 continued.

727 - 730 Silty dolomite layer with no color change no cavities.

730 - 793 Medium grained dolomite increasing in porosity with depth, gray to yellowish brown, some coarse brown dolomite in layers, a few quartz lined cavities.

793 - 799 Davis? dark green dense shale.

799 - 806 Dense gray dolomite, medium grained dolomite

806 - 820 Davis formation - thin layers of green shale and dolomite interbedded, layers are paper thin to 1/4" in thickness, some dolomite layers are 6" to 8" thick.

Incomplete 3-31-52 ACH.
Drill to about 1270'

PRELIMINARY DRILL LOG M2
MineralsHills Tract
Franklin County, Mo.

Drill hole started March 11, 1952 (to be on April Report) C.C.K.

Depth		Feet
0 - 5	Surface material, red mud with sandstone boulders, residual chert.	5
5 - 140	Gasconade dolomite, yellowish brown to brown, medium grained, contains white and gray flint, some selvage.	135
140 - 145	Gasconade or Eminence dolomite?, yellowish brown to gray, medium grained, contains white and gray flint.	5
145 - 310	Eminence dolomite, gray fine grained with white and gray flint. some selvage.	165
310 - 320	Eminence or Potosi dolomite, gray to brownish gray, white and gray flint.	10
320 - 330	Potosi dolomite, yellowish brown to brown with gray and white flint and some druzy quartz, very little selvage.	10

240 - 245	Lead and zinc shines
265 - 275	Lead and zinc shines
300 - 305	Traces - lead and zinc

Incomplete 3-31-52

MONTHLY SUMMARY COST STATEMENT—Continued

Item	Monthly Total	Totals Previously Reported	Totals to Date	For Government Use Only: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(d) Fixtures						
4. Labor[3]						
5. Supervision	$18.32		$18.32		Robt. Slinkard sal.	CCK.
6. Supplies						
(a) Timber						
(b) Explosives						
(c) Repair Parts						
(d) Other	5.32		5.32		sample buckets	CCK.
7. Power						
8. Transportation	45.23		45.23		see Amendment #4	
9. Insurance						
(a) Fire						
(b) Public Liability						
(c) Workmen's Compensation						
10. Contract Work-Drilling	1,202.00		1,202.00	1200.00	600' @ $2.00 as per log C.C.K.	
11. Other (specify)						
Casing	~~108.00~~		~~108.00~~	none	to be pulled	
Total	~~$1,378.87~~		~~$1,378.87~~			
Deletions	-110.00 CCK.		-110.00	C.C.K.		
Adjusted totals	1268.87					
Totals previously reported						
Totals to date	~~$1,378.87~~ 1,268.87		~~$1,378.87~~ 1,268.87			

[1] Enter amount paid during month toward total purchase price.
[2] Payments for rental of equipment or prorated depreciation on equipment owned by contractor.
[3] Submit copy of the Social Security form filed under the Old Age Insurance system showing complete wage and salary data or furnish copy of payroll sheet giving same data.

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

FOR GOVERNMENT USE ONLY

Checked by Clinton C. Knox
Entered by
Approved by David Gallagher
Amount approved for payment $634.44
Remarks Vo. No. DMEA-6.-33

16—64068-3

EXPLORATION UNIT COST AND PROGRESS REPORT FOR MONTH OF March, 1952

(Supply Data Below Applicable Only to Your Operations)

Item	Costs					Progress [4]				
	Wages [1] and salaries	Equipment [2]	Supplies	Other [3]	Total	Unit	Units this month	Units previously reported	Units to date	Units authorized by contract (Exhibit A)
Drifting										
Crosscutting										
Raising										
Shafts										
Winzes										
Drill holes	$18.32		$5.32	$1,355.23	$1,378.87	Feet	~~601~~* 600	ack.	~~601~~ 600	16,000
Overburden				-110.00	-110.00					
Rehabilitation and preparation										
Geology and geophysics										
Trenching										
Sampling and assaying										
Roads and trails										
Test pits										
Other (specify)										
					ack.					
Totals	$18.32		$5.32	~~$1,355.23~~ 1245.23	~~$1,378.87~~ 1268.87	Feet	~~601~~ 0		~~601~~ 0	16,000

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

16—64068-3 U. S. GOVERNMENT PRINTING OFFICE

*Completed footage paid for only.

Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code

PROJECT SUMMARY REPORT

By: J. W. Alt July 30, 1958

1. Docket No. DMEA-1630X (Zinc-Lead)
Contract No. Idm-E182
Property: Mineral Hills Tract
Franklin County, Missouri

Operator: American Zinc, Lead and Smelting Company
1600 Paul Brown Building
St. Louis 1, Missouri

Operator's Property Rights: Owner

2. Contract dated October 15, 1951. To complete - 12 months.

Work Authorized

This project consists of churn and diamond drilling through the Eminence formation and exploring for zinc and lead.

Estimated Cost of Exploration	
Diamond drilling, 3,200 feet @ $4/ft.	$12,800.00
Churn drilling, 18,600 feet @ $2/ft.	37,200.00
Supervision, engineer-geologist @ yearly rate of	5,000.00
Part time engineering supervision @ yearly rate of	3,000.00
Clearing between drill sites	2,000.00
Estimated Cost of Equipment to be Purchased	1,000.00
Estimated Cost of Miscellaneous Supplies	4,000.00
Total Cost of Project	$65,000.00

8623

Amendments

No. 1 Dated December 28, 1951. Effective December 1, 1951.

Starting time changed from 60 days to 120 days.

No. 2 Dated December 28, 1951. Effective December 1, 1951.

Changes description of the work and the costs.
Now allows: "Combination diamond and churn drilling, about 16,000 feet at about $3.00 per foot but not to exceed $50,000.00

No. 3 Dated March 17, 1952. Effective February 10, 1952.

Change in the description where work shall be done.

No. 4 Dated May 8, 1952. Effective February 15, 1952.

Change in yearly rate of part time engineering supervision.

Work Completed

31 holes churned and diamond drilled, total drilling 4,065 feet
Total cost $12,756.46

The drilling was started on February 15, 1952, and was suspended by permission on June 6, 1952.

3. Report of Review: Dated August 19, 1952.

Total cost as billed by Contractor	$12,756.46
Exceptions	0.00
Total Accepted Cost	$12,756.46

Operator's final report dated July 9, 1952.
Field Team final report dated - none received. Letter to Field Team April 12, 1954, inquiring about report but no answer received.

4. Certification date: No Certification made as work done under the terms of the contract was unsuccessful in discovering ore.

5. Comments

The drilling accomplished under the terms of the contract was negative as far as ore discovery was concerned. Drilling done prior to the work under this contract did show values carrying up to 7% zinc, and 2% lead, and subsequent correlation of drill logs have indicated that the mineralization discovered by this previous drilling is confined to small veinlets within the Eminence formation, or mineralization is indicated in various outcrops on this property as high as the Gasconade.

No ore reserves have been developed by this work. The small veinlets existent on this property are of such a nature that economic return from them could only be realized by an individual lessee, who would be capable of sorting material for shipment from the various outcrops, or limited underground operation within the scope of his ability to develop such showings. A company operation on this property would be uneconomical, and not feasible.

Further exploration on this property with Government exploration assistance is not warranted.

J. W. Alt

JWAlt/ss 7/23/58
Copy to: Docket
Chron.

☒ Audited

[illegible]K ANALYSIS SHEET — DMEA PROJEC[illegible]

☒ Actual Cost

☐ Certified

Analysis as of 12/8/54.
Incl. Voucher for July 1952

☐ Agreed Unit Costs

Name American Zinc, Lead and Smelting Co.

Docket No. DMEA-1630X

State Missouri

Commodity Lead-Zinc.

Idn-E No. 182

OPERATION	AUTHORIZED Units	AUTHORIZED Cost	COMPLETED Units	COMPLETED Cost	NET COST
Drifting & Crosscutting					
Raising					
Shafts					
Winzes					
Drilling (Specify) Combined Churn + Diamond	16,000'	$59,000.00	4,965' Churn	$12,756.46	$12,756.46
Surface Excavation Clearing Drill Sites		2,000.00			
Underground Excavation					
Roads and Trails					
Operating Equipment Purchased + Supplies		5,000.00			
Surface Rehabilitation & Repairs					
Underground Rehabilitation					
New Building, Improvements, etc.					
Other (Specify) Supervision + Technical		8,000.00			
Totals		$65,000.00		$12,756.46	$12,756.46

Prepared by G. T. Klugescheid

February 9, 1955

Memorandum

To: Chief, Contract Administration & Audit Division

From: Chief, Base Metals Division

Subject: Contracts for which no closing letters will be prepared

We have been advised not to prepare closing letters for the following contracts as too long a period has passed since the completion or termination of these contracts.

Docket No.	Contract No.	Operator
1593	I[illegible]-[illegible]113	Ambassador Mines Corporation
1936	[illegible]160	[illegible] Valley Lead-Silver Mines, Inc.
2037	[illegible]159	Amedee Reunet
1[illegible]30	[illegible]182	American Zinc, Lead & Smelting Co.
208	[illegible]226	Linton Mines
2034	[illegible]273	White Pine Lead Company
1426	[illegible]287	Buckskin Mines, Inc.
2471	[illegible]313	Albert T. Carlson
2475	[illegible]318	Jim Creek Mines, Inc.

W. R. Griswold

W. R. Griswold

WRGriswold/hjl

Copy to: Docket (9)
Base Metals (9)
Chron.

Issuance of Terminal letter

500

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

APR 12 1954

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

Re: Pending final Field Team reports

Dear Mr. Knox:

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

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

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee

APPROVED:

J. H. Hedges
Member, Bureau of Mines

D. M. Larrabee
Member, Geological Survey

WRGriswold/bjl (4/7/54)

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

R.C.S.

FILE COPY
SURNAME:

Keating
Chambers
Ellis
JLJohnson

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

SEP 25 1952

Mr. David Gallagher
Executive Officer
DMEA Field Team, Region VI
221 West 3rd Street
Joplin, Missouri

Re: Docket No. A-1630X (Zinc-Lead)
Contract No. Idm-2182
American Zinc, Lead and
Smelting Company

Dear Mr. Gallagher:

Reference is made to a copy of your letter dated September 15, 1952, to the American Zinc, Lead and Smelting Company and to a letter of August 13, 1952, from the Operating Committee in regard to the above-cited project.

Your attention is also called to a Report of Review made by Mr. E. D. Talbert of the Contract Administration and Audit Division as of August 19, 1952, which approved all MF-104's submitted by the Company to the date given in the Report.

Therefore, you are authorized to officially terminate the above-cited contract.

Sincerely yours,

Ernest Wm. Ems (B. H.)

ACTING Chairman, Operating Committee

JLChambers/AGKeating/bw (written 9/24/52)

Copy to: Admin. R. File
Op. Committee
Docket
H. F. Keller (2)
A. G. Keating
J. L. Chambers
Mr. Bishop
Mr. McKnight
Chron.

Approved:

C. H. Johnson (B.H.)
Member, Bureau of Mines

A. R. Kinkel, Jr. (B.H.)
Member, Geological Survey

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

Joplin, Missouri
September 15, 1952

Mr. Chas. A. Dobbel
American Zinc, Lead and
Smelting Company
1600 Paul Brown Bldg.
St. Louis 1, Missouri

Re: Docket No. DMA-1630X
Contract No. Idm-E182
American Zinc, Lead and
Smelting Company
Fredericktown, Mo.

Dear Mr. Dobbel:

Confirming our telephone conversation of September 15, 1952.

When the Contract Administration and Audit Division of DMEA notifies the Washington office that the financial aspects of the subject contract are concluded to their satisfaction, the Washington office will authorize me to advise you formally that the contract is terminated.

I feel reasonably sure that the Government will not want to reinitiate work on the project, and it is therefore all right for you to give the landowner a recordable instrument to transfer the land back to him.

Sincerely yours,

David Gallagher
Executive Officer
DMEA Field Team, Region VI

DG/jd
cc: Operating Committee
J. L. Chambers
Ray C. Jonas

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 17 1952

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION

W. P. MARSHALL, PRESIDENT

1201

SYMBOLS

DL=Day Letter

NL=Night Letter

LT=Int'l Letter Telegram

VLT=Int'l Victory Ltr.

The filing time shown in the dat and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

.SA185

S.JPA214 36 GOVT NL COLLECT=JOPLIN MO 19* 1952 AUG 19 PM 5 31

=J L CHAMBERS=

DMEA DEPT OF THE INTERIOR WASHDC=

IN RE AMERICAN ZINC C-182, AMENDMENT NUMBER 3, DATED MARCH 17. EXTENDED PROPERTY COVERAGE. TOTAL SUPERVISION AND TECHNICAL SALARIES AND EXPENSE ONLY $257.69 NONE PRIOR TO DATE OF CONTRACT. FINAL PAYMENT HAS BEEN EFFECTED=

E D TALBERT=..

AUG 20 1952

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

AUG 20 6 59 AM '5

BUREAU OF MINES
MAIL ROOM
WASHINGTON, D. C.

SD

FILE COPY
SURNAME:

Chambers

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

n. s. in R. & R.

D. M. E. A.

Jay L. Chambers
3461 ~~2612~~

14X3923.970 Working Fund, DMEA
August 19, 1952

Mr. E. D. Talbert and Mr. Ray C. Jonas, Bureau of Mines 214 Barfield Bldg.
Amarillo, Texas

Retel today, American Zinc, Project E-182. Question has arisen re certain work having been done outside of property described in contract, also on certain technical salaries done prior to date of contract. Suggest payment be withheld in total or in part ~~until~~ pending further investigation.

Jay L. Chambers, Chief
Contract Administration and
Audit Division

JLChambers/wb
August 19, 1952

cc: Mails & Files
Admr. Reading File
Mr. Chambers

Mr. Jay L. Chambers
August 19, 1952
1:00

BUREAU OF MINES AMARILLO TEXAS AUGUST 19,1952

MR JAY L CHAMBERS
DMEA, DEPARTMENT OF INTERIOR

IN RE YOUR LETTER AUGUST 13,1952 REPORT OF REVIEW AUTHORIZING PAYMENT IN AMOUNT OF $6,378.23 BEING ISSUED ON E-182, AMERICAN ZINC, LEAD AND SMELTING CO. MONTHLY REPORTS ARE COMPLETELY SUPPORTED AND MAJOR PORTION OF COSTS ARE UNDER APPROVED SUB-CONTRACTS.

E D TALBERT

END OF MSG ACK PLS AM 43 BY WW

101 MSG RECD OK JED

Amarillo Texas

AUG 19 2 15 PM '52

BUREAU OF MINES
MAIL ROOM
WASHINGTON, D.C.

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

August 19, 1952

Mr. Ray C. Jonas, Field Finance Officer
U.S. Bureau of Mines
514 Barfield Building
Amarillo, Texas

Re: Docket DMA-1630X,
American Zinc, Lead and Smelting Co.
St. Louis, Missouri
Project Contract Idm E-182

Dear Mr. Jonas:

With reference to Amendment #4 to Contract Idm E-182 (Docket DMA-1630X), dated April 17, 1952, in second paragraph, the Field Team's intent in writing the final phrase "part-time supervising engineer's salary, his transportation, and expenses not to exceed a yearly rate of $3,000.00 was that it should allow the part-time supervising engineer's salary at the yearly rate of $3,000.00 plus his transportation.

Very sincerely yours,

David Gallagher
by Clinton C. Knox

David Gallagher
Executive Officer
Field Team, Region VI

c.c. Operating Committee
Contract Adm. and Audit Div.
Docket

FILE COPY
SURNAME:

500
Weller
Chamberlin
Johnson

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

AUG 13 1952

Mr. David Gallagher
Executive Officer, Region VI
DMEA Field Team
221 West 3rd Street
Joplin, Missouri

Re: Docket No. DMA-1630 (Lead-Zinc)
Contract No. Idm-N182
American Zinc, Lead and Smelting Co.
Franklin County, Missouri

Dear Mr. Gallagher:

We have your memorandum of July 25, 1952, concerning the termination of the subject contract and the three points that need settlement.

We approve of the termination of this contract at the request of the Operator, who has complied with its terms by submitting his final report in accordance with Article 14 of the contract. The following are our comments on the three points that still need settlement:

1. Audit. As the final accounts have been submitted by the Operator on Forms MF-104 and MF-104A, which were approved by your office and forwarded to the Regional Finance Officer, there should be no delay in the approval of the final audit.

2. The Drilling Contract. We recommend the acceptance of the Operator's statement that the diamond drill contract with the Joy Manufacturing Company was canceled by mutual agreement. Such a statement, if not true, would be detrimental only to the Operator.

3. The Question of Discovery. We concur with your opinion that the Government should not issue a Certificate of Discovery since no ore was actually discovered by the exploration work done under the subject contract.

As soon as we have the final approved audit, we shall advise you so that a notice of termination of the contract can be issued in accordance with DMEA Circular 22.

Sincerely yours,

(signed) FRANK E. JOHNSON (WB)

Chairman, Operating Committee

F.N. 8-13-52

APPROVED:

C. H. Johnson (WB)

Member, Bureau of Mines

S. M. Lemmon (WB)

Member, Geological Survey

HFKeller/bjl/mb
August 11, 1952
cc to: Docket ✓
Operating Committee
Adm. Reading File
Mr. Keller (2)
Mr. Bishop
Mr. McKnight
Region VI
Chron

FILE COPY
SURNAME:
800

Chambers

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

AUG 13 1952
Air Mail

Mr. E. D. Talbert
c/o Mr. Ray C. Jonas
Bureau of Mines
214 Barfield Building
Amarillo, Texas

Dear Dal:

I have just been informed by Mr. Mittendorf's office that Project No. Idm-E182, Docket No. DMA-1630X, American Zinc, Lead and Smelting Company, is to be terminated subject to a final audit or a Report of Review.

Will you please look into this matter while you are in Amarillo or Joplin to see if you have sufficient data to issue a Report of Review and if not, see if you can make arrangements for an on-site audit. If necessary, we may have to detail Mr. Finch to this audit.

Please let me know by wire your determination of this case.

Sincerely yours,

P.N. 8-13-52

(Signed) J. L. Chambers

Jay L. Chambers, Chief
Contract Administration and
Audit Division

JLChambers/wb
August 13, 1952

Copy to: Mails & Files
Admr. Reading File
Mr. Chambers

August 6, 1952

Mr. Hofflund:

Re: Docket No. DMA-1630X
Contract No. Idm-E182
American Zinc, Lead &
Smelting Company

Attached is a letter from American Zinc, Lead & Smelting Company, St. Louis, Mo., in which they request to mutually cancel Contract Idm-E182 and deed back mineral rights on the subject property to the Mineral Hills Realty Company. Your recommendations as to how this should legally be handled please.

A. G. Keating
Base Metals Division

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON 25, D.C.~~
Joplin, Missouri
August 4, 1952

Re: Docket No. DMA-1630X
Contract No. Idm-E182
American Zinc, Lead and
Smelting Co.
St. Clair, Missouri

Memo

To: Operating Committee

From: David Gallagher, Executive Officer, Field Team, Region VI

Subject: Transmittal

The two Washington copies of the final MF-104 and MF-104A reports for June and July were sent to you together with my letter of July 25, 1952 in advance of certification by the Finance Officer.

Attached hereto is a copy of a letter dated July 31, 1952 from the Finance Officer advising that he has certified this voucher in the full amount claimed.

David Gallagher

David Gallagher

DG/jd
Enc.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
AUG 4 1952

C
O
P
Y

UNITED STATES
DEPARTMENT OF THE INTERIOR
Bureau of Mines
Region VI

Room 814 Barfield Building
Amarillo, Texas
July 31, 1952

Mr. David Gallagher, Executive Officer
DMEA Field Team, Region VI
Independent Bldg.
221 W. 3rd Street
Joplin, Missouri

Re: Contract No. IDM-E182
American Zinc, Lead and
Smelting Company,
St. Clair, Missouri

Dear Dave:

We are certifying a voucher to the Regional Disbursing Office today for payment of the June and July, 1952 report under the reference contract in the amount of $737.99.

Indications are from your office that this will be the final report submitted by the American Zinc, Lead and Smelting Company under the reference document number, but in checking the previous reports, we feel they are properly substantiated by documentary evidence and no audit will be required at this time.

Yours very truly,

(s) Ray C. Jonas
Ray C. Jonas, Chief
Budget and Finance Branch
Region VI

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 28 1952

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON 25, D.C.~~
Joplin, Missouri
July 25, 1952

Re: Docket DMA-1630X
Contract Idm-E182
American Zinc Co.
St. Clair, Mo.

Memo

To: Operating Committee, DMEA

From: David Gallagher, Executive Officer, Field Team, Region VI

Subject: Winding up the project.

With the concurrence of the Field Team, the operator has suspended work and wishes to have the contract terminated by mutual agreement on the grounds that operations up to this time have not indicated the probability of making a worthwhile discovery.

The purpose of this memo is to initiate the process of termination and to take up three points that need settlement (1) audit, (2) the drilling contract, and (3) the question of "discovery".

First, to transmit documents and summarize the status. Transmitted herewith are the original and two copies of the final comprehensive geologic and engineering report submitted by the operator in compliance with Article 14 of the contract. This report meets with the approval of the Field Team.

Attached to each is a copy of self-explanatory letter from R. A. Young dated July 9, 1952.

The final MF-104 and MF-104A for June and July in the amount of $1,475.98 received in this office today has been approved and forwarded to the Finance officer, Ray C. Jonas, in Amarillo. The Washington copies are forwarded herewith to you because this is the final voucher, and because its certification by Mr. Jonas is anticipated.

The March, April, and May MF-104 vouchers covering work on this contract from its inception were certified July 1, 1952 by Ray C. Jonas for payment in the amounts of $634.44, $2,262.72 and $2,743.08 respectively; total $5,640.24 being 50% of the total amount expended through May.

Mr. Charles A. Dobbel, for the operator, phoned me on June 2, 1952 to discuss terminating the project. At my request he expressed his desire in writing in a letter dated June 5, 1952(copy attached). In a letter dated June 6, 1952(copy attached) I granted permission to stop work but pointed out that the terms of the contract remained in effect.

7-30-52

This project began before the issuance of DMEA Circular 19. When asked, the operator expressed preference for documentation. Some documentation of past MF-104's was submitted retroactively, and later MF-104's were documented. However, as only single copies were submitted as required by the regulations, and as these were forwarded by us to the Finance Officer, we do not know whether or not all documentation is complete and satisfactory. May I reccomend that the Contract Administration and Audit Division take under advisement the question of an audit, and notify us of their decision.

The diamond drilling contract between the operator and Joy Manufacturing Co., stipulates a minimum of 2,000 feet guaranteed footage. Total footage diamond drilled is reported as 1,770 feet, or less than the guaranteed minimum. In his letter of June 5 Mr. Dobbel indicates that Joy agreed to waive the guarantee, and in the final engineering report (p.2) he states that this drilling contract "was cancelled by mutual agreement." I raise the question: is this satisfactory documentation in the opinion of the Government that the diamond drilling contract is cancelled and is the Government satisfactorily protected against any future claim against it in this regard? My letter of Feb. 19, 1952 to the operator approving the diamond-drilling contract contains the required phrase, "This approval is not to be construed as making the Government a party to said drilling contract...."

The churn drilling contract with Arthur Smith contains no minimum guarantee and therefore poses no problem.

No ore of interest to the operator has been found by this DMEA project. Indeed the logs of the four holes, although stated to be complete, show no assays, leading to the inference that nothing even worth assaying was found.

However, small showings of mineralization have been known on this land for decades. The possibility exists that some operator at some time within the next 10 years might produce some ore from these lands. But it is obvious that none of any such production would be directly or indirectly the result of this DMEA work.

I raise the question: does the Government wish to Certify a Discovery or Development? I recommend that the answer be in the negative. My recommendation is based on my belief that the cost of periodically examining this land to determine whether or not mining was going on, and the cost of the legal aspects of the problem, would be excessive in comparison to the amount of money involved and the remoteness of the likelihood that any mining will be done.

The Field Team believes that termination of this contract Idm-E182 would be in the best interests of the Government. The Field Team has, however, not issued a termination notice in accordance with DMEA Circular 22, and will not do so until advised of satisfactory settlement of the points raised in this memorandum, and all matters of finance and accounting.

David Gallagher by Clinton C. Knox
David Gallagher

DG/jd

cc: J. L. Chambers
Ray C. Jonas
Chas. A. Dobbel

Enclosures:

To Operating Committee DMEA, Washington, D. C.
Operator's Final Geol. & Engr. Report (3)
Ltr. from R. A. Young July 9 (3)
Ltr. from Chas. Dobbel June 5 (4)
Ltr. to Chas. Dobbel June 6 (4)
MF-104 and MF-104A for June-July (2)

To Ray C. Jonas, Amarillo, Tex.
Ltr. from R. A. Young July 9 (1)
Ltr. from Chas. Dobbel June 5 (1)
Ltr. to Chas. Dobbel June 6 (1)
MF-104 and MF-104A for June-July (orig. & documents)

To J. L. Chambers
Ltr. from R. A. Young July 9 (1)
Ltr. from Chas. Dobbel June 5 (1)
Ltr. to Chas. Dobbel June 6 (1)

JUL 23 1952

American Zinc, Lead and Smelting Company

PAUL BROWN BUILDING
ST. LOUIS, MO.

July 9, 1952

David Gallagher
U. S. Department of the Interior
Defense Minerals Administration
Joplin, Missouri

Re; Docket No. DMA 1630X
Contract No. Idm-E 182
American Zinc, Lead &
Smelting Company

Dear Mr. Gallagher:

In accord with the recommendation of Chas. A. Dobbel in his final report on the St. Clair Project (Docket DMA 1630X - Contract Idm-E 182), four copies of which were sent you under date of July 9, I wish to apply for cancellation of the Contract Idm-E 182, and effect the clearing of the Mineral Hills Realty title to the mineral rights on this land, subject to such lien as provided for in the subordination agreement executed by the Mineral Hills Realty Company.

Very truly yours,

R. A. Young
Vice President

RAY:ES
CC: Submitted in Quadruplicate
W. J. Matthews
John Griffiths
C.A. Dobbel

JUL 23 1952

American Zinc, Lead and Smelting Company

PAUL BROWN BUILDING
ST. LOUIS, MO.

July 9, 1952

Re: Docket DMA 1630X
Contract Idm-E 182

David Gallagher
U. S. Department of the Interior
Defense Minerals Administration
Joplin, Missouri

Dear Mr. Gallagher:

In respect to your letter of June 6, 1952, I herewith submit to you a final report on the St. Clair project, conducted under DMA 1630X, contract Idm-E 182.

Respectfully submitted,

Chas. A. Dobbel

CAD:ES
CC: W. J. Matthews
John Griffiths
R. A. Young
Submitted in Qaudruplicate

JUL 23 1952

REPORT ON ST. CLAIR, MISSOURI PROJECT

AMERICAN ZINC, LEAD AND SMELTING COMPANY

DOCKET DMA 1630X

CONTRACT Idm-E 182

Operator's Final Report.

operator's final report

REPORT ON ST. CLAIR, MISSOURI PROJECT
AMERICAN ZINC, LEAD AND SMELTING COMPANY

DOCKET DMA 1630X

CONTRACT Idm-E 182

Introduction

In accord with application designated as Docket DMA 1630X, and followed by Contract Idm-E 182, drilling was started on February 15, 1952 upon the so-called St. Clair, Missouri Project.

This attempt was admittedly classed as "wild-cat" prospecting, but had been prompted by the discovery of zinc in higher formation in holes previously drilled by the American Zinc, Lead & Smelting Company, but which had not yielded results that up to that time could be considered as economically worthy mineralization.

Because of the element of chance involved, the initial contract for the actual drilling project was held down to four holes to furnish a minimum amount of holes to gain the advantage in contract price, and yet, not obligate the project to further expenditure, should these first holes prove negative.

Four locations were selected where mineralization was evident from actual surface occurrence, or from previous drilling; and the method of procedure was adopted so as to take advantage of churn drilling; down through the upper formation, where chert predominated , thence to proceed with the diamond drill down through the Bonne Terre formation.

The object of this drilling was to test deeper formations, which are the more susceptible formation to replacement mineralization in other parts of the state.

Work Accomplished

Preliminary work on this area by the American Zinc, Lead and Smelting Company had accomplished the drilling of 27 churn drill holes, and 2 diamond drill holes down into the so-called Potosi formation. A complete set of the drill logs on these preliminary holes are attached hereto, as appendix A. These holes are also indicated on the attached map, being drill holes numbered 1 to 27 as indicated.

Beginning February 15, 1952, under the aforementioned contract and its subsequent amendments, four holes designated as M1, M2, M3, and M4 were drilled. This total footage involved 4068 feet of drilling, and was accomplished by 2298 feet of churn drilling, and 1770 feet of diamond drilling. The object of churn drilling the upper parts of these holes was to get down through chert bearing formations, which were hazardous, and expensive to accomplish by core drilling methods. When holes reached below the Potosi formation, casing was placed in these holes, M1, M2, and M3, and drilling progressed from this point to the final depth of the holes by diamond drilling. Due to the poor showings, or lack of showings, in holes M1, M2, and M3, no diamond drilling was done in hole M4, and although the minimum footage called for by contract with the Joy Manufacturing Company was not met, the contract with the Joy Manufacturing Company was cancelled by mutual agreement with the completion of the 1770 feet of diamond drilling.

Complete logs of holes M1, M2, M3, and M4 are attached hereto as appendix B, and the locations of these holes are indicated on the accompanying map.

Discoveries

The drilling accomplished under contract Idm-E 182 was negative as far as ore discovery was concerned. Drilling done prior to the work under this contract did show values carrying up to 7% zinc and 2% lead, and subsequent correlation of drill logs have indicated that the mineralization discovered by this previous drilling is confined to small veinlets within the Eminence formation, or mineralization is indicated in various outcrops on this property as high as the Gasconade.

Ore Reserves

No ore reserves have been developed by this work. The small veinlets existent on this property are of such a nature that economic return from them could only be realized by an individual lessee, who would be capable of sorting material for shipment from the various outcrops, or limited underground operation within the scope of his ability to develop such showings. A company operation on this property would be unecomonical, and not feasible.

Suspension of Operation

In accord with the permission of June 6, 1952, further drilling was suspended, based on the fact that showings to date could not justify further expenditure.

Capital Expenditure

No capital expenditure has been made upon this project, and hence, there is no salvageable equipment or materials existent on this project.

Conclusion

It is my conclusion that further work on project DMA 1630X is not practical, that showings in the four drill holes drilled under this contract gave forth negative results, and, the small veinlets of mineralization existent on this property, before American Zinc activity on the property, or opened by drill holes prior to the deeper drilling under this contract, are only suited for small scale operation, and of no interest to operation by this company.

I, therefore, recommend that we ask that we be allowed to mutually cancel contract Idm-E 182, and deed back the mineral rights on this property to the Mineral Hills Realty Company, subject to any lein the Defense Minerals Administration wishes to reserve to protect its participation in this drilling project.

In the original agreement, the American Zinc was obligated to furnish a recordable instrument to clear this property in the case of suspended prospecting operations, or interest in the property, but a subordination agreement executed by the Mineral Hills Realty Company exists, in which the lien and claim under the United States of America, under provision of the said contract, is given priority to the rights of the said Mineral Hills Realty Company. A copy of the original agreement with the Mineral Hills Realty Company is hereby attached as appendix C. A copy of the subordination agreement is also attached, and designated appendix D.

Respectfully submitted,

Chas. A. Dobbel
Chief Mining Engineer

CAD:ES

APPENDIX A AND B

COMPLETE SET OF PRELIMINARY DRILL HOLES I TO 27

COMPLETE LOGS OF HOLES M1, M2, M3, AND M4

AMERICAN ZINC, LEAD & SMELTING COMPANY
JOPLIN, MISSOURI

DRILL HOLE RECORD

PROPERTY: J. C. MAHEN HOLE NO. 1

LOCATION: 476 FT. west and 20 ft. north from Center, Sec.32, Township 42N, Range 1W, Franklin Co., Mo.

H OLE COMMENCED: 7/1/50

HOLE FINISHED: 7/11/50

Struck water at 100 ft. 190 ft., & 245 ft. Water stands at 250 ft.

DRILLMAN: Clark & Smith

DEPTHS		FORMATION	FEET
0	5	Yellow brown mud and sandstone boulders	50
50	60	Gray and white flint and coarse gray dolomite	10
60	90	Gray dolomite, gray & white flint, some sandstone	30
90	105	Yellow & gray dolomite, gray & white flint, selvage	15
105	120	Gray & white flint, gray & yellow dolomite, selvage	15
120	135	Yellow & brown dolomite, and gray & white flint	15
135	150	Gray and white flint, and yellow-brown dolomite	15
150	190	Gray and white flint, and gray and yellow dolomite	40
190	205	Gray coarse dolomite, some gray and white flint	15
205	240	Gray, white, and yellow flint and gray coarse dolomite	35
240	245	Gray coarse dolomite, some gray and white flint	5
245	255	Gray and white flint, and gray coarse dolomite	10
255	275	Mostly gray coarse dolomite	20
275	295	Gray coarse dolomite, gray, white, and yellow flint	20
295	315	Tan coarse dolomite, gray & white flint, some sandstone	20
315	330	Gray coarse dolomite, some yellow dolomite	15
330	345	Gray coarse dolomite, some gray & white flint, zinc traces	15
345	355	As above, some green shale zinc traces	10
355	360	Gray coarse dolomite, some gray & white flint, zinc traces	5
360	402½	Gray coarse dolomite, some gray & white flint and sandstone (Sampled, assays as below)	
402½	408	As above, somewhat harder	

TOTAL DEPTH 408 ft.

ASSAYS

567896	J. C. Mahen #1	360 - 362½	0.26
897		362½ - 365	0.32
898		365 - 367½	0.38
899		367½ - 370	0.42
900		370 - 372½	0.30
901		372½ - 375	0.34
902		375 - 377½	0.48
903		377½ - 380	0.32
904		380 - 382½	0.28
905		382½ - 385	0.36
906		385 - 387½	0.22
907		387½ - 390	0.24
908		390 - 392½	0.26
909		392½ - 395	0.28
910		395 - 397½	0.22
911		397½ - 400	0.26
912		400 - 402½	0.20

Elevation 815

AMERICAN ZINC, LEAD & SMELTING COMPANY
JOPLIN, MISSOURI

PROPERTY: J. C. Mahen HOLE NO. 2

LOCATION: 100 ft. S. 25 E. from J. C. Mahen No. 1

HOLE COMMENCED: 7-12-50 Struck water at 80 feet
HOLE FINISHED: 7-20-50 Water stands at 225 feet

DRILLMAN: Arthur Smith HELPER: Ray Clark

DEPTHS		FORMATION	FEET
0	50	Surface clay and boulders	50
50	65	Red mud and dolomite boulders	15
65	85	Tan dolomite, gray and white flint, selvage	20
85	105	Gray and white flint, and tan dolomite	20
105	115	White and gray flint, gray dolomite	10
115	150	White and gray flint, tan dolomite	35
150	205	White and gray flint, brown dolomite	55
205	255	White and gray flint, light gray dolomite	50
255	275	White and gray flint, gray dolomite	20
275	290	White and gray flint, tan dolomite	15
290	315	Gray coarse grained dolomite	25
315	355	Gray coarse grained dolomite, zinc traces	40
355	365	Gray coarse grained dolomite, selvage, zinc traces	10
365	375	Light gray coarse grained dolomite, zinc traces	10
375	395	Light gray & tan coarse dolomite, zinc traces	20
395	400	As above, selfage, hard.	5

TOTAL DEPTH 400 feet

ASSAYS

315 - 320	.10
320 - 325	.08
325 - 327½	.05
327½ - 330	.25
330 - 332½	.10
332½ - 335	.33
335 - 337½	.08
337½ - 340	.08
340 - 342½	.08
342½ - 345	.05
345 - 347½	.08
347½ - 350	.45
350 - 352½	.14
352½ - 355	.40
355 - 357½	.18
357½ - 360	.63
360 - 362½	.18
362½ - 365	.08
365 - 367½	.13
367½ - 370	.10
370 - 372½	.13
372½ - 375	.15
375 - 377½	.13

Elevation 799

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

DRILL HOLE RECORD

PROPERTY: J. C. Mahen Hole No. 3
LOCATION: 166 ft. S 78 E from J. C. Mahen No. 1
HOLE COMMENCED: 7-21-50 Struck water at 90 feet
HOLE FINISHED: 7-28-50 Water stands at 220 feet
DRILLMAN: Arthur Smith HELPER: Ray Clark

DEPTHS		FORMATION	FEET
0	40	Surface clay and boulders	40
40	70	Light tan dolomite, gray and white flint, selvage	30
70	80	Tan dolomite, gray and white flint	10
80	100	Gray and white flint, and tan dolomite	20
100	135	Light tan dolomite, and gray and white flint	35
135	180	Gray and white flint, and tan dolomite	45
180	235	Gray and white flint, and gray dolomite	55
235	265	Gray and white flint, and tan dolomite	30
265	275	Brown medium-grained dolomite	10
275	290	Gray medium-grained dolomite	15
290	305	Tan medium-grained dolomite	15
305	320	Light gray dolomite	15
320	330	As above,	10
330	360	Gray coarse-grained dolomite	30
360	370	Light gray coarse-grained dolomite	10
370	405	Tan and light tan dolomite, zinc traces, (fair shines 370-375)	35

Total Depth: 405 feet

ASSAYS

#		
320	325	.55
325	327½	.55
327½	330	.10
330	332½	.08
332½	335	.05
335	340	.20
340	342½	.35
342½	345	.95
345	347½	.20
347½	350	.10
350	352½	.10
352½	355	.20
355	357½	.10
357½	360	.20
360	362½	.70
362½	365	.20
365	367½	.25
367½	370	.25
370	375	1.25
375	377½	.55
377½	380	.55
380	382½	.45
382½	385	.35
385	390	.30
390	395	.25
395	400	.20

Elevation 820

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

DRILL HOLE RECORD

PROPERTY: J. C. Mahen — Hole No. 4
LOCATION: 100 ft. S 80 E from J. C. Mahen No. 1
HOLE COMMENCED: 7-29-50 — Struck water at 100 feet
HOLE FINISHED: 8-8-50 — Water stands at 220 feet
DRILLMAN: Arthur Smith HELPER: Ray Clark

DEPTHS		FORMATION	FEET
0	60	Surface clay and boulders	60
60	95	Tan dolomite, and white flint, selvage	35
95	115	Gray and white flint, and yellow dolomite	20
115	145	Tan dolomite, and gray and white flint, selvage	30
145	210	Gray and white flint, and gray dolomite	65
210	220	Tan dolomite, and gray and white flint, selvage	10
220	240	Gray and white flint, and gray dolomite	20
240	250	Tan dolomite, gray and white flint, selvage	10
250	285	Gray and white flint, and gray dolomite	35
285	320	Gray coarse dolomite	35
320	330	Darker gray coarse dolomite, zinc traces	10
330	380	Light gray coarse dolomite, faint zinc traces	50
380	390	Gray coarse dolomite, zinc traces	10
390	395	Gray coarse dolomite, zinc shines	5
395	397½	Gray coarse dolomite, opening 1 ft., zinc shines	2½
397½	400	Gray coarse dolomite, zinc traces	2½
400	402½	Gray coarse dolomite, opening 1 ft., zinc traces	2½
402½	405	Gray coarse dolomite, zinc traces	2½
405	409	Light tan dolomite	4

Total Depth: 409 feet

ASSAYS

320	325	.44
325	327½	.20
327½	330	.28
380	385	.22
385	387½	.20
387½	390	.68
390	392½	.94
392½	395	.66
395	397½	.88
397½	400	.36
400	402½	.38
402½	405	.34

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

DRILL HOLE RECORD

PROPERTY: J. C. Mahen Hole No. 5

LOCATION: Approximately 416 ft. north and 924 ft. W of center of Section 32, T42N, Range 1 West

HOLE COMMENCED: 8-9-50 Struck water at 110 ft.

HOLE FINISHED: 8-17-50 Water stands at 200 ft.

DRILLMAN: Arthur Smith HELPER: Ray Clark

DEPTHS		FORMATION	FEET
0	90	Surface mud and boulders	90
90	150	Yellow lime and flint	60
150	210	Gray lime and flint	60
210	280	Dark gray lime and flint	70
280	305	Gray lime and some flint	25
305	330	Gray lime and some flint	25
330	335	Gray lime	5
335	370	Dark gray lime, traces of zinc	35
370	380	Dark lime, traces of zinc	10
380	395	Dark gray lime, good zinc shines	15
395	397½	Dark gray lime, traces of zinc	2½
397½	402	Gray lime	4½

Total Depth 402 feet

ASSAYS

		%
352½	355	.22
372½	375	.60
380	382½	.90
382½	385	1.26
385	387½	1.30
387½	390	.74
390	392½	.58
392½	395	.18

Elevation 776

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

DRILL HOLE RECORD

PROPERTY: J. C. Mahen Hole No. 6

LOCATION: 1201 ft. N and 495 ft. E of the corner of common to sections 31 & 32 of T42N, R1W, and sections 5&6 of T41N, R1W

HOLE COMMENCED: 8-18-50 Struck water at 120 feet

HOLE FINISHED: 8-28-50 Water stands at 200 feet

DRILLMAN: Arthur Smith HELPER: Ray Clark

DEPTHS		FORMATION	FEET
0	65	Surface mud and boulders	65
65	175	Gray lime and some flint	110
175	245	Gray lime and some flint	70
245	250	Gray and yellow lime, zinc shines	5
250	280	Gray lime and some flint	30
280	327½	Gray lime, and good zinc shines	47½
327½	352	Pink and yellow lime	24½

Total Depth - 352 feet

ASSAYS

245	250	1.05
280	285	2.35
285	287½	7.60
287½	290	2.25
290	292½	1.05
292½	295	2.00
295	297½	2.03
297½	300	1.18
300	302½	1.28
302½	305	1.38
305	307½	0.95
307½	310	1.50
310	312½	3.30
312½	315	3.08
315	317½	1.80
317½	320	.78
320	322½	.48
322½	325	.50
325	327½	.20

Elevation 778

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

DRILL HOLE RECORD

PROPERTY: J. C. Mahen — Hole No. 7

LOCATION: Approximately 1850 ft. N80W of Drill Hole No. 5 Sw¼ NW¼, Sec. 32, Township 42N, Range 1W, Franklin County, Missouri

HOLE COMMENCED: 8-29-50 — Struck water at 80 feet

HOLE FINISHED: 10-9-50 — Water stands at 250 feet

DRILLMAN: Arthur Smith HELPER: Ray Clark

DEPTHS		FORMATION	FEET
0	40	Surface & brown mud	40
40	55	Red clay and sandstone boulders	15
55	70	Red clay, white and gray flint boulders	15
70	95	Medium grained tan and yellow dolomite, white flint	25
95	100	White and gray flint, some medium grained tan dolomite	5
100	110	Tan dolomite, yellow clay seams	10
110	125	Coarse grained tan & yellow dolomite, some white flint	15
125	135	Coarse grained tan dolomite, little white flint	10
135	150	Medium grained light gray dolomite, little white flint	15
150	155	Medium grained light gray & yellow dolomite, little white flint	5
155	185	White & gray flint, light gray dolomite	30
185	195	Gray & tan dolomite, little white flint	10
195	350	Fine grained tan & light gray dolomite	155
350	360	Fine grained tan & some yellow dolomite	10
360	370	" " " light gray&yellow dolomite little pink spar (dolomite)	10
370	375	Fine grained tan dolomite	5
375	400	Fine grained light brown and little yellow dolomite, little green shale	25

Total Depth - 400 ft.

Elevation 794.5

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

DRILL HOLE RECORD

PROPERTY: J. C. Mahen Hole No. 8
LOCATION: Approx. 500 Ft. N27E from D.H. No. 6 NW$\frac{1}{4}$ SW$\frac{1}{4}$, Sec. 32, T41N, R1W, Franklin Co., Mo.
Hole COMMENCED: 9-11-50 Struck water at 100 feet
HOLE FINISHED: 9-20-50 Water stands at 250 feet
DRILLMAN: Arthur Smith HELPER: Ray Clark

DEPTHS		FORMATION	FEET
0	40	Surface clay and boulders	40
40	70	Red and yellow mud, yellow dolomite, gray and white flint	30
70	75	Yellow mud, yellow dolomite, gray and white flint	5
75	85	Yellow, brown, and gray dolomite, gray and white flint	10
85	105	Yellow, brown mud, gray dolomite, gray and white flint	20
105	130	Yellow, brown and gray dolomite, gray and white flint	25
130	155	Tan dolomite, some gray and white flint	25
155	175	Gray and white flint, gray and tan dolomite	20
175	190	Tan dolomite, some gray and white flint, some gray shale	15
190	195	Gray and white flint, gray and tan dolomite	5
195	200	Gray and tan dolomite, gray and white flint, lead traces	5
200	205	Tan dolomite, some gray and white flint, caldite	5
205	225	Gray and tan dolomite, gray and white flint, some limonite	20
225	230	Greenish siltstone, some limonite	5
230	260	Gray and tan dolomite, gray and white flint	5
260	280	White and gray dolomite, some limonite	25
280	285	White and gray dolomite, zinc traces	20
285	292$\frac{1}{2}$	White and gray dolomite, zinc shines, lead trace	5
292$\frac{1}{2}$	295	White and gray dolomite, zinc trace, lead trace	7$\frac{1}{2}$
295	297$\frac{1}{2}$	White and gray dolomite, zinc trace	2$\frac{1}{2}$
297$\frac{1}{2}$	302$\frac{1}{2}$	White and gray dolomite, zinc trace, lead trace	2$\frac{1}{2}$
302$\frac{1}{2}$	315	Brown and yellow dolomite	5
315	330	Yellow and white dolomite, lead trace	12$\frac{1}{2}$
330	345	Brown and yellow dolomite	15
345	352$\frac{1}{2}$	White and gray dolomite, zinc shines	15
352$\frac{1}{2}$	355	Y ellow ans white, brown dolomite	7$\frac{1}{2}$
355	357$\frac{1}{2}$	White and gray dolomite, zinc traces	2$\frac{1}{2}$
357$\frac{1}{2}$	360	White and gray dolomite, zinc traces, lead trace	2$\frac{1}{2}$
360	362$\frac{1}{2}$	White and gray dolomite, zinc shines	2$\frac{1}{2}$
362$\frac{1}{2}$	368$\frac{1}{2}$	Yellow and brown dolomite, zinc shines	2$\frac{1}{2}$
368$\frac{1}{2}$	372$\frac{1}{2}$	Opening, green shale, some sandstone, zinc shines	6
372$\frac{1}{2}$	377	Yellow and brown dolomite	4
377	400	Brown dolomite	3$\frac{1}{2}$
230	235	Yellow coarse dolomite, some black flint	23

Total depth - 400 feet

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

DRILL HOLE RECORD

PROPERTY:
LOCATION: J. C. Mahen — Hole No. 9
Approx. 200' S47W from D. H. No. 6, SW¼
SW¼ Sec. 32 T42N, R1W, Franklin Co., Mo.
Hole Commenced: 9-21-50 — Struck water at 100 feet
Hole Finished: 10-2-50 — Water stands at 275 feet
DRILLMAN: Art Smith HELPER: Ray Clark

DEPTHS		FORMATION	FEET
0	5	Surface clay	5
5	35	Brown clay and hard sandstone	30
35	45	White and red clay, and sandstone boulders	10
45	60	Red mud, and flint boulders	15
60	80	Red and yellow clay, and yellow and brown dolomite	20
80	105	Tan and brown coarse dolomite and gray and white flint	25
105	130	Tan and yellow medium grained dolomite, gray & white flint	25
130	165	Gray & yellow medium grained dolomite, some gray & white flint	35
165	170	White and gray flint, gray and white dolomite	5
170	185	Gray and tan dolomite, some gray and white flint	15
185	200	Gray and white flint, gray and tan dolomite	15
200	215	Gray and tan dolomite, some gray and white flint	15
215	240	Gray and brown dolomite, some gray and white flint	25
240	245	Gray, white, and black flint, gray and brown dolomite	5
245	290	Tan and gray dolomite	45
290	305	White and gray coarse grained dolomite	15
305	320	Gray and white dolomite, selvage, faint trace zinc	15
320	325	Gray and white dolomite, selvage, zinc shines	5
325	355	Gray and white folomite, selvage, faint trace zinc	30
355	370	Tan and gray dolomite	15
370	380	Tan and brown dolomite	10
380	400	Brown dolomite	20

Total Depth - 400 ft.

ASSAYS

320	325	.78
325	327½	.30

Elevation 775

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

DRILL HOLE RECORD

PROPERTY: J. C. Mahen — Hole No. 10
LOCATIONL: 100 ft. N27W from D. H. No. 6, NW¼ SW¼ Sec. 32 T41N, R1W, Franklin Co., Mo.
HOLE COMMENCED: 10-4-50 — Struck water at 100 feet
HOLE FINISHED: 10-12-50 — Water stands at 200 feet
DRILLMAN: Arthur Smith HELPER: Ray Clark

DEPTHS		FORMATION	FEET
0	40	Red mud, sandstone & flint boulders	40
40	55	Red mud, sandstone, yellow dolomite, gray & white flint	15
55	100	Yellow mud, tan coarse dolomite, gray & white flint	45
100	125	Tan coarse dolomite, some gray & white flint	25
125	130	Tan & gray flint, some tan dolomite (loose)	5
130	150	Tan dolomite, gray & white flint, calcite	20
150	155	Gray & tan dolomite, little gray & white flint	5
155	165	Gray & yellow flint, little gray & tan dolomite	10
165	190	Gray & tan dolomite, some gray & white flint, calcite	25
190	200	White & gray dolomite, gray & white flint	10
200	210	Gray medium grained dolomite	10
210	215	White & gray dolomite, flint, gray and white	5
215	220	Tan & gray dolomite, white and gray flint	5
220	225	Brown, tan and green dolomite	5
225	235	Tan & gray dolomite, some gray & white flint	10
235	255	Gray & brown dolomite, some gray & white flint	20
255	260	Gray & brown dolomite, selvage	5
260	275	Gray medium grained dolomite	15
275	280	Tan & gray dolomite	5
280	300	White & gray medium grained dolomite	20
300	305	White & gray medium grained dolomite, pyrite shines	5
305	325	Gray & white dolomite, pyrite, trace zinc	20
325	335	Gray & tan dolomite	10
335	374	Tan & brown dolomite	39

Total Depth - 374 ft.

NO ASSAYS

Elevation 769

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

DRILL HOLE RECORD

PROPERTY: J. C. Mahen Hole No. 11
LOCATION: Approx. 100' N55W from D. H. No. 6, NW¼ Sw¼ Sec. 32, T42N, R1W, Franklin Co., Mo.
HOLE COMMENCED: 10-13-50 Struck water at 140 feet
HOLE FINISHED: 10-20-50 Water stands at 200 feet
DRILLMAN: Art Smith HELPER: Ray Clark

DEPTHS		FORMATIONS	FEET
0	50	Yellow-brown mud, and sand boulders	50
50	65	Yellow-brown mud, yellow dolomite, yellow & gray flint	15
65	125	Yellow mud, yellow dolomite, tan and gray flint	60
125	140	Yellow and gray dolomite	15
140	160	Light gray dolomite	20
160	175	Gray and white flint, and gray dolomite	15
175	195	Gray and yellow dolomite, some gray and white flint	20
195	205	Gray and white dolomite, some gray and white flint	10
205	215	Gray and white flint, gray and yellow dolomite	10
215	225	As above, some green shale	10
225	240	Gray and yellow dolomite, gray and white flint	15
240	250	Coarse gray dolomite	10
250	275	Coarse gray and yellow dolomite	25
275	290	White and tan dolomite	15
290	300	Gray and brown dolomite, faint zinc trace	10
300	325	Gray and white dolomite, faint zinc trace	25
325	330	Gray and white dolomite, selvage, zinc shines	5
330	335	Gray and brown dolomite, faint zinc trace	5
335	371	Brown and tan dolomite	36

Total depth - 371 ft.

NO ASSAYS

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, Missouri

DRILL HOLE RECORD

PROPERTY: J. C. Mahen — Hole No. 12
LOCATION: Approx. 100' S75E from D. H. No. 6 NW¼ SW¼ Sec. 32, T42N, R1W, Franklin Co., Mo.
HOLE COMMENCED: 10-21-50 — Struck water at 140 feet
HOLE FINISHED: 10-27-50 — Water stands at 180 feet
DRILLMAN: Art Smith HELPER: Ray Clark

DEPTHS		FORMATION	FEET
0	80	Surface clay and sandstone boulders	80
80	140	Gray and yellow dolomite, white and yellow flint & yellow mud	60
140	155	White and gray flint, tan and gray dolomite	15
155	160	Tan dolomite, white and gray flint	5
160	170	White, yellow, and gray flint, and tan dolomite	10
170	180	Yellow, gray and white flint	10
180	185	Yellow, gray and white flint, and brown dolomite	5
185	200	Gray dolomite, gray and white flint	15
200	205	Gray and white flint, some gray dolomite	5
205	215	White and gray dolomite, green shale, gray and white flint	10
215	230	Gray and tan dolomite, some gray and white flint	15
230	250	White and gray dolomite, selvage	20
250	270	Gray and brown dolomite, selvage	20
270	275	Dark gray and gray coarse dolomite, zinc traces	5
275	280	Gray and brown coarse dolomite, faint lead traces	5
280	290	Tan, gray, and white coarse dolomite	10
290	295	White and gray dolomite, faint zinc and lead trace	5
295	300	Gray and white dolomite, weak zinc shines	5
300	307½	Gray and white dolomite, zinc trace	7½
307½	310	White and gray dolomite, faint zinc trace	2½
310	315	Gray and white dolomite	5
315	328	Tan, brown, and gray dolomite	13

Total Depth - 328 feet

No Assays

Elevation 608

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

DRILL HOLE RECORD

PROPERTY: J. C. Mahen — Hole No. 13
LOCATION: In Hollow, approx. 230' N and 470 W from center of NW¼, Sec. 32, T42N, R1W, Franklin Co., Mo.
HOLE COMMENCED: 10-30-50 — Struck water at 20 feet
HOLE FINISHED: 11-3-50 — Water stands at 40 feet
DRILLMAN: Art Smith HELPER: Ray Clark

DEPTHS		FORMATION	FEET
0	10	Surface clay and gravel	10
10	25	Yellow mud, yellow coarse dolomite, gray and white flint	15
25	35	Gray and white flint, yellow medium grained dolomite	10
35	40	Gray and white flint, gray medium grained dolomite, selvage	5
40	60	Gray and tan dolomite, gray and white flint	20
60	80	Tan dolomite, gray and white flint	20
80	85	Gray and white flint, tan dolomite	5
85	105	Loose gray, tan, and brown dolomite	20
105	110	Brown and tan coarse dolomite	5
110	115	As above, greenshale	5
115	120	Gray, yellow, and brown flint	5
120	125	Brown and tan dolomite, some gray and white flint	5
125	145	Brown and tan dolomite	20
145	150	Brown, yellow, and gray flint, and brown and tan dolomite	5
150	160	White, gray and brown flint, and brown and tan dolomite	10
160	175	Brown and tan dolomite, pyrite, limonite	15
175	190	Brown, tan, and gray dolomite, limonite	15
190	200	Loose, brown, tan, and gray dolomite	10
200	205	Red mud, and dolomite boulders	5
205	215	Opening, red mud	10
215	220	Loose, coarse brown dolomite	5
220	224	Firm Brown medium grained dolomite	4

Total Depth 224'

No Assays

Elevation 833

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

DRILL RECORD

PROPERTY: J. C. Mahen — Hole No. 14
LOCATION: 100' S58E from Center of T-Road Northwest
NE¼ SW¼ Sec. 32, T42N, R1W, Franklin, Dol, Mo.
HOLE COMMENCED: 11-6-50 — Struck water at 150 feet
HOLE FINISHED: 11-15-50 — Water stands at 225 feet
DRILLMAN: Arthur Smith HELPER: Ray Clark

DEPTHS		FORMATION	FEET
0	80	Yellow and red mud, and sandstone boulders	80
80	90	Yellow and red mud, gray & white flint, and yellow dolomite	10
90	145	Yellow and gray dolomite, gray & white flint, some brown mud	55
145	175	Gray and white flint, and tan dolomite	30
175	190	Tan dolomite, some gray and white flint	15
190	195	Light gray dolomite	5
195	210	Gray and brown dolomite, gray and white flint	15
210	225	Tan and brown dolomite, gray and white flint	15
225	255	Gray and white flint, some gray and tan dolomite	30
255	265	Dark gray and gray dolomite, gray and white flint	10
265	280	Gray and white flint	15
280	295	Gray and greenish gray coarse dolomite	15
295	315	Gray coarse dolomite	20
315	320	White coarse dolomite	5
320	325	White coarse dolomite, faint zinc trace	5
325	330	White coarse dolomite	5
330	335	White coarse dolomite, faint zinc trace	5
335	365	White and light gray dolomite	40
365	375	Light gray dolomite, trace of lead	10
375	385	White and light gray dolomite	10
385	400	Light gray and tan dolomite	15
400	413	Brown and tan dolomite	13

Total Depth 413'

No Assays

Elevation 776

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

PROPERTY: J. C. Mahen Hole No. 15
LOCATIONL: Approx. 360' E & 25' S from the NW Corner SW¼ SW¼ Sec. 32, T42N, R1W, Franklin County, Missouri
HOLE COMMENCED: 11-21-50 Struck Water at 130 feet
HOLE FINISHED: 12-4-50 Water stands at 200 feet
DRILLMAN: Arthur Smith HELPER: Ray Clark

DEPTHS		FORMATION			FEET
0	55	Red clay and boulders			55
55	75	Yellow dolomite, little white flint			20
75	100	Tan dolomite, some white flint			25
100	120	Yellow dense dolomite, white flint			20
120	130	Tan dolomite, white flint			10
130	150	As above, some white flint			20
150	160	Light gray dolomite, some white flint			10
160	165	as above, white flint			5
165	180	Tan dolomite, some white flint			15
180	210	Light gray dolomite, some light gray flint			30
210	220	Coarse white dolomite, gray and white flint			10
220	245	Coarse light gray dolomite, some white flint			25
245	280	Coarse light gray dolomite			35
280	305	as above	zinc	traces	25
305	307½	as above	zinc	shines	2½
307½	325	as above	zinc	traces	17½
325	335	Tan and yellow dolomite			10
335	340	Fine grained gray dolomite			5
340	350	Medium grained yellow dolomite			10

Total Depth 350'

Assays

		Zinc
280	285	.44
285	287½	.40
287½	290	.40
290	292½	.52
292½	295	.24
295	297½	.22
297½	300	.14
300	302½	.20
302½	305	.38
305	307½	1.24
307½	310	.40
310	312½	.36
312½	315	.38
315	317½	.22
317½	320	.74
320	322½	.48
322½	325	.20

Elevation 765

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

PROPERTY: J. C. Mahen — Hole No. 16
LOCATION: Approx. 455' E and 60' S from the NW Corner SW¼ SW¼ Sec. 32, T42N, R1W, Franklin Co., Missouri
HOLE COMMENCED: 12-12-50 — Struck Water at 160 feet
HOLE FINISHED: 1-9-51 — Water Stands at 215 feet
DRILLMAN: Arthur Smith HELPER: Ray Clark

DEPTHS		FORMATION	Zn.	Pb.	FEET
0	50	Red clay and boulders			50
50	90	Tan dolomite and white flint			40
90	105	White flint, and yellow dolomite			15
105	115	Tan dolomite, white and gray flint			10
115	120	Tan dolomite, some gray flint			5
120	140	Tan and yellow dolomite, little white flint			20
140	145	Gray and yellow dolomite, some white flint			5
145	175	Gray dolomite, and white flint			30
175	185	Gray dolomite, little white flint			10
185	225	Coarse gray dolomite, little white flint			40
225	290	Coarse gray dolomite			65
290	295	as above — Faint zinc trace			5
295	297½	as above	2.73		2½
297½	300	as above	.60		2½
300	302½	as above	.34		2½
302½	305	as above	.24		2½
305	330	as above — Faint zinc trace			25
330	340	Tand and yellow dolomite			10
340	345	Gray & yellow coarse dolomite, some sandstone	1.58	2.41	5
345	347½	as above	.38	.18	2½
347½	350	Gray and yellow coarse dolomite, lead trace			2½
350	357	Coarse gray and yellow dolomite, some sandstone			7

Total Depth 357'

Elevation 766

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

PROPERTY: J. C. Mahen — Hole No. 17
LOCATION: Approx. 425' E and 130' S from the NW Corner of SW¼ SW¼, Sec. 32, T42N, R1W, Franklin Co., Mo.
HOLE COMMENCED: 1-11-51 — Struck Water at 160 feet
HOLE FINISHED: 1-20-51 — Water Stands at 200 feet
DRILLMAN: Ray Clark HELPER: Bill Clark

DEPTHS		FORMATION		FEET
0	85	Red and yellow mud, sandstone and flint boulders		85
85	115	Gray and white flint, yellow and brown coarse dolomite		30
115	135	Gray and tan med. grained dolomite, some gray & white flint		20
135	160	Gray and tan, coarse dolomite, gray and white flint		25
160	165	Gray and tan med. grained dolomite		5
165	175	Gray and white flint, gray and white coarse dolomite		10
175	190	Gray and tan med. grained dolomite, some gray & white flint		15
190	200	Gray and white med. grained dolomite		10
200	215	Yellow and white dolomite, some gray and white flint		15
215	220	Gray coarse dolomite, some gray and white flint		5
220	235	Gray coarse dolomite		15
235	295	Light gray coarse dolomite		60
295	310	Gray coarse dolomite, pyrite	zinc traces	15
310	315	as above	faint zinc shines	5
315	317½	as above	few zinc shines*	2½
317½	320	as above	some zinc shines*	2½
320	322½	as above	Few zinc shines*	2½
322½	327½	as above	some shines*	5
327½	330	as above	zinc traces	2½
330	332½	as above	zinc traces*	2½
332½	335	as above	zinc traces	2½
335	340	Gray and yellow med. to coarse dolomite	faint zinc traces	5
340	355	Tan and yellow dolomite		15

Total Depth 355'

ASSAYS

		Zinc
315	317½	.44
317½	320	.80
320	322½	.34
322½	327½	.60
330	332½	.58

Elevation 778

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

PROPERTY: J. C. Mahen — Hole No. 18
LOCATION: Approx. 235' E from the NW Corner of SW¼, SW¼
Sec. 32, T42N, R1W, Franklin Co., Missouri
HOLE COMMENCED: 1-23-51 — Struck water at 240 feet
HOLE FINISHED: 2-5-51 — Water stands at 200 feet
DRILLMAN: Ray Clark HELPER: Bill Clark

DEPTHS		FORMATION		FEET
0	65	Red mud, sandstone and flint boulders		65
65	70	Yellow & white flint, some coarse dolomite		5
70	100	Gray and tan med. grained dolomite, gray and white flint		30
100	105	Gray and white flint, gray and yellow coarse dolomite		5
105	160	Yellow and tan dolomite, gray and white flint		55
160	190	Lighty gray coarse dolomite, white and gray flint		30
190	195	Gray and white flint, gray coarse dolomite		5
195	205	Yellow coarse dolomite, selvage		10
205	210	Gray medium grained dolomite, some gray and white flint		5
210	225	Gray and yellow med. grained dolomite, some gray & white flint		15
225	235	Yellow and gray med. grained dolomite, some flint		10
235	255	Gray and yellow med. grained dolomite		20
255	270	Gray and dark gray coarse dolomite	zinc traces	15
270	285	Light gray and yellow dolomite		15
285	305	Yellow and tan coarse dolomite		20
305	310	Gray coarse dolomite, pyrite		5
310	320	as above, little green shale	zinc traces*	10
320	325	as above.	faint zinc traces	5
325	330	as above	zinc traces*	5
330	335	as above	faint zinc traces	5
335	345	as above	bare zinc traces	10
345	350	Yellow & gray coarse dolomite,	bare zinc trace	5
350	355	as above	few lead shines, zinc trace*	5
355	357½	Yellow & brown dolomite	lead trace, zinc trace*	2½
357½	365	Brown & yellow dolomite		7½

Total Depth 365'

ASSAYS

		Zinc	Lead
320	325	.30	.10
330	335	.16	.08
350	355	.14	.40
355	357½	.16	.36

Elevation 740

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

PROPERTY: J. C. Mahen — Hole No. 19
LOCATION: Approx. 600' E and 200' S from NW Corner SE¼ SW¼
Sec. 32, T42N, R1W, Franklin Co., Missouri
HOLE COMMENCED: 2-7-51 — Struck water at 95 feet
HOLE FINISHED: 2-16-51 — Water stands at 165 feet
DRILLMAN: Ray Clark HELPER: Bill Clark

DEPTHS		FORMATION	FEET
0	20	Red sandstone and flint boulders, red mud	20
20	35	Tan & gray med. to coarse grained dolomite, gray & white flint	15
35	85	Gray & tan med. to coarse grained dolomite, gray & white flint	50
85	95	Gray & white flint, tan coarse grained dolomite	10
95	100	Brown and gray coarse dolomite, little flint	5
100	110	Tan and gray coarse dolomite, little gray & white flint	10
110	130	Gray and brown coarse dolomite, some gray and white flint	20
130	135	Gray and brown coarse dolomite, some gray and white flint	5
135	140	Tan and gray coarse dolomite, little gray and white flint	5
140	150	Light gray coarse dolomite, gray and white flint	10
150	165	Gray and tan coarse dolomite, gray and white flint	15
165	170	Dark gray and gray coarse dolomite, some gray and white flint	5
170	175	Tan and yellow coarse dolomite	5
175	180	Gray coarse dolomite, yellow white and gray flint	5
180	185	Gray and white med. grained dolomite, some white & gray flint	5
185	195	White and gray med. grained dolomite	10
195	210	White & gray med. grained dolomite, little green shale, pyrite	15
210	215	White and little tan med. grained dolomite pyrite zinc trace	5
215	225	White and yellow med. grained dolomite	10
225	230	Light gray med. grained dolomite	5
230	235	as above zinc trace	5
235	275	Yellow and tan coarse dolomite	40
275	300	Gray and yellow coarse dolomite	25

Total Depth 300'

Elevation 806

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

DRILL HOLE RECORD

PROPERTY: Mineral Hills Tract — Hole No. 20
LOCATION: Approx. 1385' S, 1529' W from the center of Sec. 32, T42N, R1W, Franklin Co., Missouri
HOLE COMMENCED: 2-23-51 — Struck water at 100 feet
HOLE FINISHED: 3-5-51 — Water stands at 210 feet
DRILLER: Clark & Son

DEPTHS		FORMATION	FEET
0	35	Surface, red clay and boulders	35
35	90	Red and yellow mud, yellow dolomite and white flint	55
90	235	Yellow and tan dolomite; gray and white flint	145
235	290	Gray dolomite, gray and white flint, selvage	55
290	360	Gray and white dolomite	70
360	365	Gray and white dolomite and ZnS	5
365	367½	Gray and white dolomite and ZnS	2½
367½	370	Gray and white dolomite and Zns	2½
370	372½	Gray and white dolomite and ZnS	2½
372½	375	Gray and white dolomite and ZnS	2½
375	377½	Gray and white dolomite and Zns	2½
377½	380	Gray and white dolomite and ZnS	2½
380	382½	Gray and white dolomite and ZnS	2½
382½	385	Gray and white dolomite and ZnS	2½
385	387½	Gray and white dolomite and ZnS	2½
387½	390	Gray and white dolomite and ZnS	2½
390	392½	Gray and white dolomite and ZnS weak ZnS	2½
392½	395	Gray and white dolomite and ZnS Weak ZnS	2½
395	397½	Gray and white dolomite and ZnS weak ZnS	2½
397½	400	Gray and white dolomite and ZnS weak ZnS	2½
400	402½	Gray and white dolomite and ZnS, little yellow dolomite Tr.Zn	2½
402½	405	White and light yellow dolomite	2½
405	415	White, light yellow and tan dolomite	10

Total Depth 415 feet

Assays follow

Elevation 798.5

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

DRILL HOLE RECORD

PROPERTY: Mineral Hills Tract — Hole No. 21
LOCATION: Approx. 859' S, 710'W from the center of Sec. 32 T42N, R1W, Franklin County, Missouri
HOLE COMMENCED: 3-7-51 — Struck water at 95 feet
HOLE FINISHED: 3-20-51 — Water stands at 200 feet
DRILLER: Clark & Son

DEPTHS		FORMATION		FEET
0	55	Red mud, ss. and flint boulders		55
55	75	Red and yellow-brown clay, yellow dolomite, white flint		20
75	95	Tan-yellow medium grained dolomite, white flint		20
95	160	Tan-light brown medium and coarse grained dolomite, white flint		65
160	220	Gray and tan coarse grained dolomite, white and gray flint		60
220	230	Medium gray, finely crystalline dolomite (sugary), gray flint		10
230	235	Gray, sandy, finely crystalline dolomite, gray flint		5
235	245	Greenish-gray & tan-gray sugary dolomite, gray flint, selvage		10
245	260	Light gray sugary dolomite, white and gray flint, selvage		15
260	290	Light gray-faintly greenish, coarse grained dolomite, selvage, little flint		30
290	292½	Light gray, coarse grained dolomite selvage	(Tr. Zns (Pyrite	2½
292½	295	Light gray, coarse grained dolomite selvage	(Tr. ZnS (Pyrite	2½
295	300	Light gray, coarse grained dolomite, selvage	Blank	5
300	305	Medium gray, coarse grained doll., selvage, little gray flint	Pyrite	5
305	330	Light gray coarse sugary dolomite, selvage, little gray flint		25
330	335	Light gray, fine-grained to sugary dolomite, selvage	Zns shines	5
335	337½	As above	ZnS shines	2½
337½	340	as above	Zns Shines	2½
340	345	Medium gray dolomite, selvage, pyrite	Good ZnS	5
345	347½	Medium gray dolomite, selvage, pyrite	Good ZnS	2½
347½	350	Medium gray dolomite, selvage, pyrite	good ZnS	2½
350½	352½	Medium gray dolomite, selvage, pyrite	good ZnS	2½
352½	355	Medium gray dolomite, selvage, pyrite	Excellent ZnS	2½
355	357½	Medium gray dolomite, selvage, pyrite	good ZnS	2½
357½	360	Medium gray dolomite, selvage, pyrite	Shines ZnS	2½
360	362½	Medium gray dolomite, selvage, pyrite	Shines ZnS	2½
362¼	365	Medium gray dolomite, selvage, pyrite	Fair ZnS	2¾
365	367½	Medium gray dolomite, selvage, pyrite	Good ZnS	2½
367½	370	Medium gray dolomite, selvage, pyrite	Shines ZnS	2½
370	375	Light yellow and tan dolomite, selvage	Tr. ZnS	5
375	390	Light yellow and tan dolomite, selvage	Tr. ZnS	15
390	400	Light yellow and tan dolomite, selvage	Weak Tr. ZnS	10

Total Depth 400'

PROPERTY MINERAL HILLS TRACT HOLE NO. 21

ASSAYS

DEPTH		%ZN
285	290	.30
330	335	.30
340	345	.60
345	347½	.45
347½	350	1.32
350	352½	.65
352½	355	2.2
355	357½	.75
357½	360	.32
360	362½	.65
362½	365	.40
365	367½	.35
370	375	.75
375	377½	.82
377½	380	1.42

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

DIAMOND DRILL HOLE RECORD

PROPERTY: Mineral Hills Tract — Hole No. 22
LOCATION: Approx. 1045' S, 2125' W from the center of Sec. 32, T42N, R1W, Franklin Co., Missouri
HOLE COMMENCED: 3-5-51 — Struck water at
HOLE FINISHED: 4-5-51 — Water stands at
DRILLER: Wardlaw & Son

DEPTHS		FORMATION	FEET
0	6	Clay	6
6	7	Sandstone boulder	1
7	30	Chert and sandstone boulders in red clay	23
30	36	White sandstone boulder	6
36	63	Clay and some light-gray dolomite	27
63	74	White and yellow white flint	11
74	81	Light tan fine grained dolomite, white flint	7
81	92½	Light gray and tan crystalline dolomite-spongy	11½
92½	95	White sugary dolomite	2½
95	105	Yellow and tan coarse grained dolomite	10
105	108	White flint	3
108	124	Brown and tan spongy dolomite, white flint	16
124	137	White and tan, fine grained dolomite, white flint	7
137	145	Tan, spongy dolomite, coarse grained. White flint	8
145	173½	Light tan & gray, coarse grained dolomite; white & gray flint	31½
173½	present bottom	White to yellow & tan sugary dolomite & gray & tan spongy dolomite, white & gray flint	

Logged 4/6 & 7/51

DEPTHS		DESCRIPTION	MINERALIZATION
173½	175	Dolomite - light gray, fine grained	
175	184½	Dolomite-light tan and light gray, medium crystalline and fine grained; partially porous and colored brown by oxidation; occasional small spots white chert.	
184½	192	Dolomite-medium gray, medium crystalline and spongy (leached); ½" white chert @ 191	
192	194	Dolomite - light tan, fine grained; 1-1½" pearl gray chert @ 194	
194	211	Dolomite - mixed, tan and medium gray, medium crystalline, fine grained and spongy (leached); numerous thin white bands of chert and dolomoldic silica; 2½" white chert @ 201.5; with few oolites; 2" light gray chert with abundant small white oolites @ 207; 8" white and pearl chert 209' to 209'8".	

DEPTHS		DESCRIPTION	MINERALIZATION
211	216	Dolomite - light gray, fine grained; occasional small vugs; 2" pearl gray chert @ top	
216	219½	Dolomite - mixed tan and light gray, fine grained, medium crystalline and spongy (Leached); ½" pearl gray chert @ 216.5; 1" white chert @ 217.5	
219½	222½	Mostly pearl gray and white chert, with short pieces light gray, fine grained dolomite. Recovery about 65%; core in short pieces.	
222½ (Core Rec 10'11" about 70%	238	Dolomite - mixed, light gray and tan, mostly medium crystalline and slightly spongy, with minor amounts fine grained. Numerous thin white cherts. Pearl and white, fine textured, chert breccia 233-234. Most of core in short pieces and buttons.	
238	269	Dolomite - mixed, light gray and light tan, fine grained, with little medium crystalline and slightly spongy; occasional small vugs. Chert less abundant than above; 3" light gray chert @ 255; 1" light green shale @ 262. Recovery about same as 222½ to 238.	
269	280	Dolomite - medium gray, fine grained, with short sections medium crystalline; occasional broad banding and faint mottling; ½" green shale @ 270½; small piece light gray chert @ 272; 1" pearl gray chert @ 275½.	
280	320	Dolomite - light gray, fine grained, with short sections medium crystalline, spongy and brown (leached and oxidized); upper 1' or more fairly coarsely crystalline, with fine grained chert breccia and pearl gray chert buttons; cemented cavity 287-288; mixed chalky white chert and porous crystalline dolomite 292½-294½; thin green shale @ 298½; thin white chert @ 309 and 309½; base marked by thin green shale.	
320 Core Rec. 19½'; 97½%	340	Dolomite - medium to light gray, coarsely crystalline, with short sections fine grained; upper 2' mottled by thin green shale bands and stylolites; medium gray, coarsely crystalline and slightly spongy, with rare minute fractures 326½-331; 1½" pearl gray chert @ 327; thin green shale bands 327-337½; small loose piece black chert @ 337; numerous thin green shale bands in basal foot.	Few thin high angled fractures filled with dolomite (?) 326½-331; one or two with small amts. of brown limonite or zinc blende (?)
340 Core Rec.	374	Dolomite - medium and light gray, mostly fairly coarsely crustalline and spongy, with short	Small crystal of

DEPTHS	DESCRIPTION	MINERALIZATION
340 374 32'10"; 96½% plus	sections medium to fine grained; occasional farily large cavities; small spot pearl gray chert @ 353½; 2½" green shale @ 367½	galena @ 362½; small shines or traces of sphalerite along stylolites @ 365 and 379; large (2"x3/4") spot brown sphalerite along stylolite and with incipient fracturing @ 369½
374 410 Core Rec. 31'4"; about 87%	Dolomite - mostly light gray, fine grained, with short sections medium crystalline, spongy and brown from oxidation; numerous small vugs; thin green shaly partings 393-394½; thing green shale @ base	Traces of brown sphalerite along thin stylolites and minute fractures 403½ to 404; minute trace sphalerite @ 398; occasional traces pyrite (mundic) 395-410.
410 415 Core Rec. 3'2"about 63½%	Dolomite - light brown to light gray fine grained to crystalline and porous; badly broken; heavy green shale as fragments @ 413	½" brown sphalerite as loose button @ 414½; occasional small areas of limonite
415 422½ Core Rep. by 15" mud or selvage; about 16½% of interval	Selvage - light gray, muddy; apparently represents cavity	Small, scattered loose grains brown sphalerite and pyrite
422½ 425 D Core Rec. 22"; about 73%	Sandstonen- light gray, fine grained	

Total depth 425 feet

Elevation 814

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

Drill Hole Record

PROPERTY: Mineral Hills Tract — Hole No. 23
LOCATION: Approx. 825 ft. W, 790' S from the center of Sec. 32, T42N, R1W, Franklin Co., Missouri
HOLE COMMENCED: 3-23-51 — Struck Water at 100 feet
HOLE FINISHED: 4-3-51 — Water Stands at 200 feet
DRILLER: Clark & Son

DEPTHS		FORMATION	FEET
0	85	Yellow and red mud, sandstone and flint boulders	85
85	95	Yellow and gray mud, sandstone, flint & dolomite boulders	10
95	105	Tan medium grained dolomite, some gray and white flint	10
105	115	Mud opening	10
115	140	Coarse brown and tan dolomite, gray and white flint	35
140	145	As above with yellow-brown mud	5
145	150	Coarse gray and white flint, some tan dolomite	5
150	160	Brown medium grained dolomite, gray and white flint	10
160	185	Brown, gray and tan medium grained dolomite, some limonite	25
185	190	Gray and white flint, gray and tan dolomite	5
190	200	Brown and tan dolomite, gray and white flint	10
200	210	Gray and white flint, brown and tan coarse dolomite	10
210	225	Gray and tan medium grained dolomite, gray and white flint	15
225	230	Gray and white flint, coarse gray & tan dolomite, limonite	5
230	235	Gray and white medium grained dolomite, limonite	5
235	240	Gray and greenish medium grained dolomite and selvage	5
240	250	Gray and tan dolomite, some white flint	10
250	260	Gray and white medium grained dolomite	10
260	265	As above, some white flint	5
265	300	Gray and white coarse dolomite, limonite	35
300	350	Gray coarse dolomite, limonite and mundic	50
350	355	As above, faint zinc trace	5
355	365	As above, some mundic	10
365	380	Tan, brown and gray dolomite	15
380	390	As above, zinc trace	10
390	400	Tan and brown dolomite	10

Total depth: 400 feet

Elevation 775

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

DIAMOND DRILL HOLE RECORD

PROPERTY: Mineral Hills Tract — Hole No. 24
LOCATION: Approx. 990'S, 650'W from the center of Sec. 32, T42N, R1W, Franklin Co., Mo.
HOLE COMMENCED: 4-6-51 — Struck water at
HOLE FINISHED: 4-19-51 — Water stands at
DRILLER: Wardlaw & Son

DEPTHS		FORMATION	FEET
0	29½	Surface	29½
29½	31½	Buff to white fine grained dolomite	2
31½	48	Tan to white coarsely crystalline dolomite, numerous small vugs up to ¼" diameter, some filled by brown calcite	16½
48	63	Tan, fine grained to locally medium grained dolomite and white-gray banded flint, few bugs and small cavities partially filled with brown calcite	15
63	66	White and tan spongy coarsely crystalline dolomite	3
66	69	Yellow and tan medium to coarse grained dolomite, some selvage on stilolitic partings	3
69	78	Yellow and tan medium to coarsely crystalline dolomite, irregular small clusters of vugs and giving rock spongy appearance some vugs and small cavities partially filled by reddish brown calcite. Irregular chert blebs 69½-70 and ½"-1" blue gray chert nodules from 76-78	9
78	84	Pinkish-white to tan, medium grained dolomite, 3" brown weathering with calcite filling cavities at 80'; 6" brown and porous 81 to 81½	6
84	137	Chert zone; banded gray and white flint, some in contorted knots and masses interwinding dolomite. Dolomite white to yellow & tan & brownish tan and weathered, spongy from 95 to 102 Numerous cavities, and small vugs, some lined by small calcite crystals.	53
137	157	Tannish-brown to locally white coarsely crystalline dolomite. Brown dolomite leached and porous. Some gray and white flint from 139 to 148½	20
157	169	Gray to yellow and tan coarsely crystalline dolomite, clusters of small vugs, interstitial with dolomite crystals of rock, spongy. One-half inch cryst. calcite fillint cavity @ 158' - ½" chloritic @ 159½	12
169	231	Chert zone; gray and white flint in ¼" to 3" bands and nodules every 6" - 18", locally every one or two inches. Medium gray to locally tan and yellow medium grained dolomite. Numerous small cavities, up to ½", in flint and dolomite, some partially filled by clear calcite crystals. ½" gray-green selvage @194; ¼" glauconite bands @ 203-204. Some selvage on occasional stilolitic partings.	62
231	255	Light gray, medium to coarse grained vuggy and locally porous dolomite; some cavities up to 1" diameter. Clear crystalline calcite, few dolomite crystals, in some vugs and cavities; locally, cavities partially filled by selvage and very fine pyrite	24

DEPTHS		FORMATION	FEET
255	264	Gray-green and light gray, fine grained dolomite. Sandy bed from 257 to 258½; frosted sand grains scattered in fine grained dolomite. A few cavities up to 1" in diameter lined by small dolomite crystals, a few clear calcite crystals and sparse pyrite. Much disseminated pyrite from 263 to 264. Some slevage	9
264	267	White, banded flint	3
267	271	Light gray medium to coarse grained dolomite. A few small cavities, to ¼" diameter	4
271	272½	White banded flint	1½
272½	283	Vuggy and porous zone: Light gray, some greenish-gray coarse grained dolomite. Chlorite on stilolite @272½; much interstitial glauconite. Finely divided pyrite, some clear calcite; in cavities. Gray chert nodules 276½-278½; 4" green-white flint @ 280½	10½
283	306	Light gray, medium and coarse grained dolomite, some gray & black flint, much selvage. Numerous vugs up to ½" in diameter - locally patches leached interstitially with dolomite crystals in rock. Small pyrite grains in cavities some vugs lined by dolomite and few calcite crystals. 1½" crystal calcite at 301	23
306	313	Light gray, coarse grained, vuggy dolomite, selvage and little fine pyrite in cavities. Gray chert band at 310	7
313	365	Light gray medium and coarse grained vuggy dolomite. Some vugs up to 1" diameter lined by dolomite crystal and locally containing a little selvage with fine pyrite. From 318-319, selvage ore, dolomite soft. A few ½"-1" black to dark gray and light gray chert nod. From 323 to 323½, ½"-2" clear calcite filling cavity nearly parallel to core	52
365	391	Light gray, mottled with medium and dark gray fine to medium grained dolomite. Numerous vugs up to 1" in diameter, lined with white, some pinkish, dolomite crystals, and a little selvage containing fine pyrite. At 371, irregular ½" cavity filled with pyrite. From 372-373, fracture @25° to core filled by selvage and pyrite. A few stilolitic partings with selvage	26
391	401	Fracture Zone = Light gray, fine and medium grained vuggy dolomite, broken by limonite stained fractures at 25° to 45° to core, every 2"-6". At 394½-395, a slickensided paper thin, limonite stained shear @ 20° to core, a small crystal of barite and a few microscopic crystals loose ZnS in shear	10
401	429	Light gray medium grained vuggy dolomite mottled and spotted brown-tan around some vugs. Vugs up to 1" in diameter lined with small dolomite crystals, a few calcite crystals and locally by banded chalcedony. Some selvage in a few vugs. At 428-428½, dolomite altered soft and clayey	28
429	441	Pale, tan, fine grained vuggy dolomite - Vugs up to ½" in diameter 435-438, vugs partially filled by dark gray and white flint, very delicately banded (chalcedonic) Other vugs lined by dolomite crystals and locally some selvage partially filling cavities	12

Total Depth: 441'

Elevation 730

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

DRILL HOLE RECORD

PROPERTY: Mineral Hills Tract Hole No. 25
LOCATION: Approx. 2360'N, 2515'W from the center of Sec. 32, T42N, R1W, Franklin Co., Mo.
HOLE COMMENCED: 6-5-51 Struck water at 145 feet
HOLE FINISHED: 6-22-51 Water stands at 165 feet
DRILLER: Clark & Son

DEPTHS	FORMATION	FEET
0 35	Red mud, sandstone and flint boulders	35
35 45	Gasconade; red-weathered dolomite, red clay, white flint	10
45 50	Gasconade; yellow and tan dolomite, white and gray flint	5
50 75	Gasconade; yellow and tan dolomite, gray flint yellow	25
75 85	Yellow dolomite, gray flint and selvage, Gasconade	10
85 90	Gasconade; Brown-tan dolomite, white and gray flint	5
90 115	Gasconade; yellow-buff dolomite, white and gray flint	25
115 140	Gasconade; yellow-tan to light brown dolomite gray flint, selvage	25
140 150	Gasconade; white and light gray flint, tan-gray dolomite	10
150 160	Gasconade; tan to light brown fine to medium grained dolomite, white and gray flint	10
160 180	Gasconade; brown and tan medium grained dolomite, gray flint selvage	20
180 195	Gasconade; tan, medium grained dolomite, some gray flint & little selvage	15
195 230	Gasconade; light brown and tan medium grained dolomite, selvage and white flint	35
230 240	Gasconade ? light gray and yellow, fine grained sugary dolomite white flint, some selvage	10
240 245	Eminence ? white to light gray sugary dolomite, selvage	5
245 305	Eminence ? light brown and tan medium to coarse grained dolomite some white and dark gray flint, selvage	60
305 320	Eminence ? white and tan, sugary dolomite, selvage. Mud openings	15
320 330	Eminence ? coarse grained, brown dolomite, dark gray flint, selvage	10
330 360	Eminence ? medium to coarse grained brown & tan dolomite, some gray flint & selvage. Mud openings	30
360 555	Potosi; fine to coarse grained brown & tan dolomite with white finely banded chalcedony coated by small quartz crystals. (Potosi druse)	195

Total Depth: 555'

Elevation 700'

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

DRILL HOLE RECORD

PROPERTY: Mineral Hills Tract — Hole No. 26
LOCATION: Approx. 2120'N, 2630'W from the center of Sec. 32, T42N, R1W, Franklin Co., Mo.
HOLE COMMENCED: 6-25-51 — Struck water at 135 feet
HOLE FINISHED: 7-3-51 — Water stands at 150 feet
DRILLER: Clark & Son

DEPTHS		FORMATION	ZnS	%Zinc	FEET
0	25	Red mud, clay, ss. boulders			25
25	150	Gasconade dolomite, yellow to tan & brown, medium and coarse grained, with white & gray flint			125
150	200	Gasconade ? dolomite, possibly some Eminence; yellow & medium gray, medium to coarse grained dolomite with white &gray flint			50
200	205	Eminence dolomite; light greenish-gray, medium grained, with gray and black flint, selvage			5
205	210	Eminence dol.; light gray coarse grained with selvage	Good	1.9	5
210	212½	As above	Good	1.0	2½
212½	215	Eminence dol.; light gray & yellow, coarse grained	Shines	.5	2½
215	220	As above, but more light gray	Shines	.4	5
220	245	Eminence dol.; tan and light brown with some gray, fine to medium grained; some selvage	Blank		25
245	250	Eminence dol.; greenish-yellow and gray co coarse grained dol.; with black flint and selvage	Traces		5
250	270	Eminence dolomite; medium greenish-gray medium & coarse grained, dary gray and black flint, selvage	Blank		20
270	275	Eminence dol; medium gray, fine to coarse grained	Excellent	2.3	5
275	277½	As above, with little yellow tint	Excellent	1.1	2½
277½	305	Potosi Dolomite; tan and light brown fine grained to sugary dolomite, dark gray and black flint, selvage	Traces		27½
305	320	As above, but more brown	Blank		15

Total Depth: 320'

AMERICAN ZINC, LEAD AND SMELTING COMPANY
JOPLIN, MISSOURI

DRILL HOLE RECORD

PROPERTY: Mineral Hills Tract — Hole No. 27

LOCATION: Approx. 2140'N, 2710'W from the center of Sec. 32, T42N, R1W, Franklin Co., Mo.

HOLE COMMENCED: 7-6-51 — Struck Water at 135 feet

HOLE FINISHED: 7-13-51 — Water Stands at 160 feet

DRILLER: Clark & Son

DEPTHS		FORMATION	FEET
0	20	Red mud, clay, sandstone boulders	20
20	100	Gasconade dol., brown to tan dol. white and gray flint	80
100	155	Gasconade doll., grayish tan medium grained dol., white & gray flint, selvage	55
155	190	Gasconade, dol., brownish gray dol., medium grained, white & gray flint, selvage	35
190	260	Eminence dol., gray dol., medium grained, white & gray flint selvage	70
260	265	Eminence dol., same as above, ZnS - trace	5
265	280	Eminence dol., grayish tan medium-grained dol., white & gray flint, selvage	15
280	330	Potosi dol., brown and tan dol., coarse-grained, white & gray flint, selvage	50

Total Depth: 330 feet

AMERICAN ZINC, LEAD AND SMELTING COMPANY
ST. LOUIS, MISSOURI

DRILL HOLE RECORD

PROPERTY: Mineral Hills Tract — Hole No. M1
LOCATION: 2230' West and 1330'S of the center of Sec. 32, T42N, R1W, Franklin Co., Mo.
HOLE COMMENCED: 2/15/52 — Struck water at 160'
HOLE FINISHED: 4/15/52 — Water stands at 200'
DRILLMAN: Arthur Smith

DEPTHS		FORMATION	FEET
0	30	Overburden, sandstone boulders, red mud	30
30	180	Gasconade, yellowish brown medium grained dolomite, contains white and gray flint, some selvage	150
180	255	Eminence, gray fine-grained dolomite, contains white and gray flint, some selvage	75
255	280	Eminence, gray to yellow brown, fine-grained dolomite, contains white and gray flint	25
280	325	Eminence dolomite, gray fine-grained, contains white and gray flint, some slevage	45
325	385	Potosi dolomite, yellow brown, medium-grained, contains white and gray flint, some slevage	60
385	600	Potosi dolomite, yellow brown, medium-grained, contains white and gray flint, some selvage	215
600	640	Potosi dolomite, brown to yellowish brown, medium-grained containing many quartz lined cavities	40
640	686	Potosi dolomite, brown to gray, containing many quartz lined cavities, sandy and silty layers abundant	46
686	689	Potosi dolomite, silty layer without cavities	3
689	720	Potosi dolomite, quartz lined cavities increase greatly in number	31
720	727	Derby-Doerun, gray dolomite medium-grained with a few quartz lined cavities, fractures and cavities decrease with depth	7
727	730	Silty dolomite layer, no color change, no cavities	3
730	793	Medium-grained dolomite increasing in porosity with depth, gray to yellowish brown, some coarse brown dolomite in layers, a few quartz lined cavities	63
793	799	Davis dark green deuse shale	6
799	806	Deuse gray dolomite	7
806	826	Davis Formation - thin layers of green shale and dolomite interbedded, layers are paper thin to ¼"in thickness, some dolomite layers are 6" to 8" thick	20
826	853	Light gray medium-grained dolomite	47
853	875	Green shale seams and dolomite interbedded	22
875	876	Sandy layer	1
876	950	Green shale - darkens with depth, residual breccia in layers	84
950	977	Extensive brecciated zone	27
977	992	Dark green shale	15
992	998	Brecciated zone	6

DEPTHS		FORMATION	FEET
998	1015	Glaconitic shale interbedded with some coarse-grained dol.	17
1015	1025	Dark hard shale	10
1025	1054	Shale and dolomite interbedded	29
1054	1124	Bonneterre Formation - coarse-grained brownish gray dolomite containing stylolites and a few thin shale seams	71
1124	1145	Shale seams increase in number and thickness	20
1145	1175	Gray dolomite	30
1175	1214	Shale seams containing residual breccia	39
1214	1235	Gray dolomite with very little shale	21
1235	1272	Gray dolomite	37

Total Depth: 1272'

AMERICAN ZINC, LEAD AND SMELTING COMPANY
ST. LOUIS, MISSOURI

DRILL HOLE RECORD

PROPERTY: Mineral Hills Tract — Hole No. M2
LOCATION: 210' W and 290'S of the center of Sec. 32, T42N, R1W, Franklin Co., Mo.
HOLE COMMENCED: 3/11/52 — Water Struck at 105'
HOLE FINISHED: — Water Stands at 150'
DRILLMAN: Arthur Smith

DEPTHS		FORMATION	FEET
0	5	Surface material, red mud with sandstone boulders, residual chert	5
5	140	Gasconade dolomite, yellowish brown to brown, medium-grained, contains white and gray flint, some selvage	135
140	145	Gasconade or Eminence dolomite, yellowish brown to gray medium-grained, contains white and gray flint	5
145	310	Eminence dolomite, gray fine-grained with white and gray flint, some selvage	165
310	320	Eminence or Potosi dolomite, gray to brownish gray, white and gray flint	10
320	330	Potosi dolomite, yellowish brown to brown with gray and white flint and some druzy quartz, very little selvage	10
330	600	Potosi formation-yellowish brown to brown medium-grained dolomite containing white & gray flint & some druzy quartz	70
600	740	Yellowish brown dolomite containing numerous quartz lined cavities	140
740	783	Derby-Doerun formation-dense, gray medium-grained dolomite containing paper thin shale seams	43
783	795	Yellowish brown dolomite containing a few small cavities	12
795	823	Davis formation-shale and dolomite interbedded, shale darkens with depth, displacement along some fractures	28
823	845	Gray dolomite containing very little shale	22
845	858	Brown dolomite containing glaconitic shale seams	13
858	942	Shale seams, dense green to black containing brecciated zones	84
942	964	Shale seams, containing residual brecciated zones, dolomite fragments imbedded in shale	22
964	1015	Alternate shale and brecciated zones	51
1015	1033	Bonneterre Formation, shale and dolomite interbedded	18
1033	1165	Gray medium-grained dolomite containing stylolites and shale seams, some residual dolomite fragments in shale	32
1165	1206	Shale and dolomite interbedded with stylolites, glauconitic layers	41
1206	1237	Gray dolomite containing stylolites	31
1237	1273	Bonneterre dolomite, interbedded shale and dolomite	36
1273	1277	LaMotte sandstone, probably transition zone, composed of light gray to brownish fine-grained sandstone, very clean	4

Total Depth: 1277'

AMERICAN ZINC, LEAD AND SMELTINGCOMPANY
ST. LOUIS, MISSOURI

DRILL HOLE RECORD

PROPERTY: Mineral Hills Tract — Hole No. M3

LOCATION: 2050'W and 940'N of the center of Sec. 32, T42N, R1W, Franklin, Co., Mo.

HOLE COMMENCED: 4/10/52 — Struck water at 90'

HOLE FINISHED: 6/6/52 — Water stands at 125'

DRILLMAN: Arthur Smith

DEPTHS		FORMATION	FEET
0	10	Overburden, samdstone boulders and residual chert in red clay	10
10	140	Gasconade formation-yellowish brown medium-grained dolomite containing white and gray flint, some selvage	130
140	355	Eminence formation-gray fine grained dolomite, contains white and gray flint, some selvage	215
355	495	Potosi formation-yellowish brown dolomite, medium-grained, contains white and gray flint	140
495	500	Gray dolomite, druzy quartz filled cavities	5
500	522	Yellowish brown dolomite, quartz filled cavities	22
522	532	Gray dolomite with limonite staining in druzy quartz filled cavities	10
532	538	Gray cavities of dolomite	6
538	540	Cavity	2
540	573	Gray dolomite with druzy quartz lined cavities	33
573	587	Yellowish brown dolomite	14
587	598	Gray dolomite with quartz lined cavities	11
598	610	Brownish dolomite, sandy	12
610	625	Derby-Doerun-light gray to light brown, smaller quartz filled cavities that decrease with depth	15
625	635	Gray dolomite	10
635	680	Gray medium-grained dol. with few small quartz filled cavities	45
680	690	Gray medium-grained dol. interbedded, green paper thin shale beds	10
690	707	Gray dolomite and green shale interbedded with shale, paper thin to $\frac{1}{4}$" in thickness	17
707	757	Gray dolomite and green shale interbedded	50
757	795	Davis shale and dolomite interbedded	38
795	805	Davis shale	10
805	830	Davis shale, dense green shale, slightly sandy	25
830	870	Green shale and dolomite interbedded	40
870	916	Davis shale	46

Total Depth: 916'

AMERICAN ZINC, LEAD AND SMELTING COMPANY
ST. LOUIS, MISSOURI

DRILL HOLE RECORD

PROPERTY: Mineral Hills Tract — Hole No. M4

Location: 2340' W and 1830'N of the center of Sec. 32, T42N, R1W, Franklin Co., Mo.

HOLE COMMENCED: 5/10/52 — Struck water at 5'

HOLE FINISHED: 6/1/52 — Water stands at 25'

DRILLMAN: Arthur Smith

DEPTHS		FORMATION	FEET
0	10	Overburden, sandstone boulders in red clay	10
10	140	Gasconade dolomite, yellowish brown to brown medium grained containing white and gray flint	130
140	195	Eminence Dolomite, gray fine grained dolomite containing white and gray flint	55
195	305	Eminence dolomite, gray fine grained dolomite containing white and gray flint	110
305	370	Potosi dolomite, brown to yellowish brown medium grained dol. containing clear Calcedony & druzy quartz, very little flint	65
370	603	Potosi dolomite	333

APPENDIX C

COPY ORIGINAL AGREEMENT WITH THE Mineral Hills Realty Company

DEED AND CONTRACT

THIS INDENTURE, Made this 27th day of June, 1950, by and between Mineral Hills Realty Company, a Missouri Corporation, (hereinafter referred to as Mineral Hills), and American Zinc, Lead and Smelting Company, a Maine Corporation, (hereinafter referred to as American):

WITNESSETH that Mineral Hills in consideration of the sum of ten dollars ($10) to Mineral Hills paid by American the receipt of which is hereby acknowledged and the performance of the agreements herein contained does by these presents grant, bargain and sell, convey, and confirm unto American, its successors and assigns, all of the minerals now, or at any time hereafter, lying in or under the following described tract of land (or any part thereof), situated in the County of Franklin, State of Missouri, described as follows, to-wit:

> The East half ($\frac{1}{2}$) of the Northeast quarter ($\frac{1}{4}$) and the East half ($\frac{1}{2}$) of the Southeast quarter ($\frac{1}{4}$) of Section 31, and the West half ($\frac{1}{2}$) of Section 32, Township 42 North, Range 1 West of 5th P.M., containing five hundred forty-four and eight one-hundredths (544.08) acres according to survey made by Charles L. Moore, County Surveyor, dated February 1900, of record in Surveyor's Record 7, Page 3, Recorder's office, Franklin County, Missouri. Excepting the right of way easements granted Wesley Armistead and wife by instrument of record in Vol. 138, Page 450 and to Claire Grus by instrument of record in Vol. 138, Page 156. Subject to legal highways.
>
> All that part of the Southeast quarter ($\frac{1}{4}$) of the Southwest quarter ($\frac{1}{4}$) and of the Southwest quarter ($\frac{1}{4}$) of the Southeast quarter ($\frac{1}{4}$) of Section 30, Township 42 North, Range 1 West of 5th P.M. that lies South of the centerline of the Bourbeuse River and East of the centerline of Hamilton Creek, as surveyed by Geo. H. Vossbrink, County Surveyor, on January 10, 1939, of record in Surveyor's Record 10, Page 300, containing eighty-three (83) acres, more or less,

and also the right, or privilege and easement of entering upon said lands and searching for, drilling wells, sinking shafts, mining, digging, extracting, taking and carrying away all of the minerals in or under said lands or that may be found therein or thereunder, and to make excavations, openings, stock piles, dumps, ditches, drains, roads, tracks, electric and power lines, and other improvements on said premises including the use of water in said operations, and to place such machinery thereon as American may deem necessary for sufficiently prospecting and mining said property and treating the ores or minerals mined therefrom, and also the right in American to possession and use of so much of said premises at all times that may be necessary to the practical carrying out of the purposes and provisions of this grant.

TO HAVE AND TO HOLD the premises aforesaid, with all and singular the rights, privileges, appurtenances, and immunities thereto belonging or in any wise appertaining unto the said American, and unto its successors and assigns forever; the said Mineral Hills hereby covenants that it is lawfully seised of an indefeasible estate in fee in the premises herein conveyed; that it has good right to convey the same; that the said premises are free and clear of any incumbrances done or suffered by it or those under whom it claims; and that it will warrant and defend the title to the said premises unto the said American, and unto its successors and assigns forever, against the lawful claims and demands of all persons whomsoever;

And it is hereby further expressly declared that it is the true intent and purpose of this conveyance to pass to and vest in the said American all the mineral and mineral rights in the land first described herein, and that at any time may be found therein or thereunder, and all Mineral Hills rights to operate for said minerals, and deal and contract with regard thereto, including the leasing thereof, as fully to all intent and purpose as if the said American was the absolute owner of the entire title and estate in said lands.

1. American agrees within thirty days of the execution hereof to enter upon the premises and drill four test holes at locations to be determined by American starting the first hole within said thirty day period and continuing to drill with due diligence until the four drill holes have penetrated the expected zinc bearing horizon at approximately four hundred (400) feet beneath the surface of the premises. Should American then determine not to proceed with the development of the mineral interests hereby conveyed after the completion of the four test holes American agrees to reconvey the mineral interests hereby conveyed and surrender the rights, privileges and easements herein granted, in which event there shall be no further liability on the part of American or Mineral Hills hereunder.

2. Upon the completion of the four test holes should American determine to further explore the property American agrees to proceed diligently with the exploration of the property by additional drilling until it is satisfied that a mineral deposit of economic worth exists or does not exist, and if it does not exist American shall thereupon reconvey the mineral interests hereby conveyed and surrender the rights, privileges and easements herein granted, in which event there shall be no further liability on the part of American or Mineral Hills hereunder.

Should American determine at its own discretion that a mineral deposit of economic worth exists it will then diligently develop and exploit said mineral deposit and will within six months of such determination commence the construction of a mill for the beneficiation of said minerals, said mill to be constructed and operated on as much land as is deemed necessary by American. Said land shall be designated and purchased by American from Mineral Hills upon the following basis:

a. Any property adjoining the county road on either side thereof to a distance of four hundred thirty-five (435) feet from said road, at the rate of $1,000 per acre. In the selection of such land the boundaries thereof shall conform to the boundary of lots in the Mineral Hills Subdivision.

b. Any property not included in the above area, at the rate of $200 per acre.

American shall also designate and purchase from Mineral Hills and pay for so much land as American shall deem necessary for shafts, other surface structures, dumps and stock piles upon the same basis.

Whenever American shall designate land necessary for the construction and operation of the mill and other purposes Mineral Hills agrees to convey good fee simple title upon payment of the purchase price.

3. American agrees to pay Mineral Hills the sum of $833.33 per month payable on the first of the month at Bank of Overland, at Overland 14, State of Missouri, the first of such payments to be made upon the first day of the sixth month after the month in which the construction of said mill is completed and such payments to continue until a total purchase price of $100,000 has been paid by American to Mineral Hills or until American reconveys to Mineral Hills the mineral interests hereby conveyed, surrenders the rights, privileges and easements herein granted and reconveys the property purchased under Paragraph 2 hereof.

If at any time it shall in the opinion of American be unprofitable to conduct mining operations upon the premises American may suspend such operations and during such suspension shall not be liable for the payment of $833.33 per month as hereinabove provided, but during such period shall pay Mineral Hills $250 per month which shall be applied against the total of $100,000 in like manner as the payments of $833.33.

Mineral Hills agrees that American shall have the right to reconvey the mineral interests herein conveyed, surrender the rights, privileges and easements herein granted and reconvey the property purchased under Paragraph 2 hereunder at any time upon the first day of any month upon thirty days notice and the payment of the monthly payment due on the first day of that month in which event all liability of American to make further payments hereunder shall cease and there shall be no further liability on the part of American or Mineral Hills hereunder and American shall have the right within one year from the first day of such month to remove all property which it has placed on the premises but shall not be required to do so.

4. Should the mining operation s of American materially affect the supply of water from the present well on Lot No. 5 of the Mineral Hills Subdivision during the time the title to the Mineral Hills pro-

perty conveyed hereunder is in American, American will deepen and case said well to a reasonable horizon below the level of the mining operations. The cost of deepening, casing and altering any of the pump machinery now installed on this well shall be paid by American.

Should Mineral Hills desire to use any of the prospecting holes as a water well, Mineral Hills has the right to deepen any said holes and case same if it sodesires but such cost of deepening and casing will be paid for by Mineral Hills. Any casing left in any hole at the request of Mineral Hills will be paid for by Mineral Hills.

5, There shall be sufficient delivery of all notices and other instruments hereunder if mailed by United States Mail, postage prepaid, to Mineral Hills Realty Company, at 2558 Woodson Rd., Overland 14 _____, Missouri, and to American at Room 1600, Paul Brown Building, St. Louis 1, Missouri.

Company Seal

Attest:

Al J. LeBegue
Secretary

Mineral Hills Realty Company, A Corporation

By:

Joseph C. Mahen
President

AMERICAN ZINC, LEAD AND SMELTING COMPANY, A Corporation

Company Seal

By:

Attest:

Ralph C. Perkins
Ass't. Secretary

H. I. Young
President

STATE OF MISSOURI)
COUNTY OF)

On this 26th day of June, 1950, before me appeared Joseph C. Mahen, to me personally known, who being by me duly sworn that he is the President of the Mineral Hills Realty Company, a corporation, did say, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation by authority of its Board of Directors, and said Joseph C. Mahen acknowledged said instrument to be the free act and deed of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal in said county and state the day and year last above written. My commission expires the 23rd day of March, 1953.

James L. J
Notary Public

STATE OF MISSOURI)
CITY OF ST. LOUIS) SS

On this 27th day of June, 1950, before me appeared H. I. Young, to me personally know, who being by me durly sworn did say that he is the President of the American Zinc, Lead and Smelting Company, a corporation, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation by authority of its Board of Directors, and said H. I. Young acknowledged said instrument to be the free act and deed of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal in said city and state the day and year last above written. My commission expires the 18th day of March, 1953.

Leona S. Jones
Notary Public

State of Missouri)
County of Franklin) SS

I, Ralph E. Sudholt, Recorder of Deeds, within and for said County and State, do hereby certify that the foregoing instrument of writing was filed for record on the 12 day of August 1950, at 9 o'clock 00 minutes A.M. and duly recorded on the 14 day of August, 1950, in Book 168, page 135,

IN TESTIMONY WHEREOF, I hereunto set my hand and affixed my officeal seal, at my office in Union, the date aforesaid.

Ralph E. Sudholt Recorder of Deeds
By Ruth Willson Deputy

APPENDIX D

COPY OF SUBORDINATION AGREEMENT

SUBORDINATION AGREEMENT
OF OWNER OF REVERSIONARY INTEREST

KNOW ALL MEN BY THESE PRSENTS:

WHEREAS, the undersigned is the owner of a reversionary interest in fee simple of that certain parcel of ground in the county of Franklin, State of Missouri, described in a certain Exploration Project Contract dated October 15, 1951, between American Zinc, Lead and Smelting Company, the owner of mineral rights in said property subject to the above reversionary interest in fee simple, and the United States of America;

Now, therefore, the undersigned owner of reversionary interest in fee simple of said property under contract dated June 27, 1950, does by these presents subordinate all of its right, title, and interest under the provisions of said contract to the right, title, and interest of the United States of America under the provisions of said Exploration Project Contract, and agrees that the lien and claim of the United States of America under the provisions of said contract shall be prior to the undersigned's rights to property payments under the terms of said contract; and

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

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

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

Dated this 29th day of September, 1951

Mineral Hills Realty Company

ATTEST:

Al.J. Lebegue
Secretary

By Joseph C. Mahen
President

RESOLVED, That the Directors of Mineral Hills Realty Company, a corporation, hereby authorize and approve the execution by Mineral Hills Realty Company, a corporation of a Subordination Agreement of Reversionary Interest, in favor of the United States of America, a copy of which is attached and made a part of this resolution.

Joseph C. Mahen

Corrine J. Mahen

Al. J. LeBegue

Blanche LeBegue

Directors

I, Al J. LeBegue, Secretary of the Mineral Hills Realty Company, a corporation, hereby certify that the above is a true and correct copy of a resolution which was unanimously adopted by all of the directors of the corporation at a regularly called directors meeting of the corporation on the 29th. day of September, 1951.

Al. J. LeBegue

Secretary

RESOLVED, That the execution of the original and five copies of a Subordination Agreement of Reversionary Interest of Mineral Hills Realty Company, a corporation, in favor of the United States of America, by Joseph C. Mahen, President, and Al J. LeBegue, Secretary, of the Corporation, a copy of which is attached and made a part of this resolution, be and the same is hereby unanimously authorized and approved by all of the stockholders of the Mineral Hills Realty Company, a corporation.

Joseph C. Mahen

Corrine J. Mahen

Al. J. LeBegue

Blanche LeBegue

Stockholders

I, Al. J. LeBegue, Secretary of the Mineral Hills Realty Company, a corporation, hereby certify that the above is a true and correct copy of a resolution which was unanimously adopted by all of the stockholders of the corporation at a regularly called stockholders meeting of the corporation on the 29th day of September, 1951.

Al J. LeBegue

Secretary

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

Joplin, Missouri
July 17, 1952

Mr. Chas. Dobbel
American Zinc, Lead and
Smelting Company
1600 Paul Brown Bldg.
St. Louis 1, Missouri

Re: Docket DMA-~~1360X~~ 1630
Contract Idm-E182
American Zinc, Lead and
Smelting Co.

Dear Mr. Dobbel:

We are looking forward to receiving a comprehensive geologic and engineering report as stipulated in Article 14, and a full and final accounting as stipulated in Article 17, of the contract. Can you advise about what date we may expect these.

Sincerely yours,

David Gallagher
Executive Officer
DMEA Field Team, Region VI

/jd
cc: Operating Committee, DMEA

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
JUL 23 1952

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON 25, D.C.~~
Joplin, Missouri
July 3, 1952

Operating Committee
Defense Minerals Exploration
Administration
U. S. Department of Interior
Washington 25, D. C.

Re: Docket No. DMA-1630X
Contract No. Idm-E182
American Zinc, Lead and
Smelting Company
St. Clair, Missouri

Dear Sirs:

Transmitted herewith are two copies of the monthly report for the subject Exploration Project for May, 1952 on Forms MF-104 and MF-104A with appropriate attachments, as required by the Washington office of the Defense Minerals Exploration Administration.

The original was forwarded to U. S. Bureau of Mines, Amarillo, on June 19, 1952 and notice of its certification has been received today.

Sincerely yours,

David Gallagher

David Gallagher
Executive Officer
DMEA FIELD TEAM, REGION VI

/jd
Encs.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
JUL 7 - 1952

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON 25, D.C.~~
Joplin, Missouri
July 3, 1952

Operating Committee
Defense Minerals Exploration
Administration
U. S. Department of Interior
Washington 25, D. C.

Re: Docket No. DMA-1630X
Contract No. Idm-E182
American Zinc, Lead and
Smelting Company
St. Clair, Missouri

Dear Sirs:

Transmitted herewith are two copies of the monthly report for the subject Exploration Project for April, 1952 on Form MF-104 with appropriate attachments, as required by the Washington office of the Defense Minerals Exploration Administration.

The original was forwarded to U. S. Bureau of Mines, Amarillo, on May 26, 1952 and notice of its certification has been received today.

Sincerely yours,

David Gallagher

David Gallagher
Executive Officer
DMEA Field Team, Region VI

/jd
Encs.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 7 - 1952

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON 25, D.C.~~
Joplin, Missouri
July 3, 1952

Operating Committee
Defense Minerals Exploration
Administration
U. S. Department of Interior
Washington 25, D. C.

Re: Docket No. DMA-1630X
Contract No. Idm-E182
American Zinc, Lead and
Smelting Company
St. Clair, Missouri

Dear Sirs:

Transmitted herewith are two copies of the monthly report for the subject Exploration Project for March, 1952 on Form MF-104 with appropriate attachments, as required by the Washington office of the Defense Minerals Exploration Administration.

The original was forwarded to U. S. Bureau of Mines, Amarillo, on May 9, 1952 and notice of its certification has been received today.

Sincerely yours,

David Gallagher

David Gallagher
Chairman
DMEA Field Team, Region VI

/jd
Encs.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 7 - 1952

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Docket

~~WASHINGTON 25, D.C.~~
Joplin, Missouri
July 2, 1952

Re: Docket DMA-1630X(Lead-Zinc)
Contract Idm-E182
American Zinc, Lead
and Smelting Co.
St. Clair, Mo.

Memo:

To: Operating Committee, DMEA

From: David Gallagher, Executive Officer, Field Team, Region VI

Subject: Justification for Amendment #4

Getting the "Part Time Engineer" to and from the job to perform his supervisory duties was construed as an essential direct cost of performing the work.

Exhibit A as originally drawn specified his salary only and overlooked this transportation and travel cost.

Amendment #4 was drawn to permit charging these costs specifically in the MF-104s within and as a part of the $3,000 per year rate allowed for the Part Time Engineer.

David Gallagher

David Gallagher

/jd

cc: Ray C. Jonas

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 7 - 1952

Docket

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS ADMINISTRATION

~~WASHINGTON 25, D.C.~~
Joplin, Missouri
July 2, 1952

Re: Docket DMA-1630X(Lead-Zinc)
Contract Idm-E182
American Zinc, Lead
and Smelting Co.
St. Clair, Mo.

Memo:

To: Operating Committee, DMEA

From: David Gallagher, Executive Officer, Field Team, Region VI

Subject: Justification for Amendment #3

Article 2 of the contract specified the lands within which the exploration drilling would be conducted.

Exhibit A specified the places at which holes would be drilled within the lands specified in Article 2.

The operator's ideas were not well formulated and were subject to change as indicated by his request for Amendment 2, and by his letter of March 4, 1952 with attached map proposing that three of the first four holes be drilled within the lands specified in Article 2 but at places other than those specified in Exhibit A.

As the Field Team was of the opinion that the specified hole locations were no good, we reasoned that no other location would be worse, and because of the thought and attention given the matter by the operator there was a remote chance that any other place might be better, which would therefore be in the interest of the Government, therefore Amendment #3 was written to remove the restrictions of Exhibit A as to places for the holes and to permit the operator to drill wherever he wished within the lands specified in Article 2 of the Contract Idm-E182.

David Gallagher

David Gallagher

/jd

cc: Ray C. Jonas

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 7 - 1952

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS ADMINISTRATION

Docket

~~WASHINGTON 25, D.C.~~
Joplin, Missouri
July 2, 1952

Re: Docket DMA-1630X(Lead-Zinc)
Contract Idm-E182
American Zinc, Lead
and Smelting Co.
St. Clair, Mo.

Memo:

To: Operating Committee, DMEA

From: David Gallagher, Executive Officer, Field Team, Region VI

Subject: Justification for Amendment #2

Between the formulation of the application and the issuance of the contract, the operator revised his views on the geology and likely location of the ore.

The contract limited drilling to "through the Eminence formation." The operator desired to drill deeper into the Bonne Terre formation.

Amendment #2 removed the restriction for the reason that the objective of DMEA is to find ore, not merely to drill through a certain formation.

David Gallagher

David Gallagher

/jd

cc: Ray C. Jonas

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 7 - 1952

Docket

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS ADMINISTRATION

~~WASHINGTON 25, D.C.~~
Joplin, Missouri
July 2, 1952

Re: Docket DMA-1630X(Lead-Zinc)
Contract Idm-E182
American, Zinc, Lead
and Smelting Co.
St. Clair, Mo.

Memo:

To: Operating Committee, DMEA

From: David Gallagher, Executive Officer, Field Team, Region VI

Subject: Justification for Amendment #1

Operator had difficulty finding a driller at a decent price and therefore asked extension of starting date.

Amendment #1 extending starting from 60 to 120 days was issued because in the opinion of the Field Team it was more in the interest of the Government to get a decent drilling price than it was to start work quickly inasmuch as the contract was issued despite the objection of the Field Team who believed that the likelihood of making a worthwhile discovery was too remote to justify the project.

David Gallagher

David Gallagher

/jd

cc: Ray C. Jonas

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 7 - 1952

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

XXXXXXXXXXXXXXXX
Joplin, Missouri
June 27, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 30 1951

Mr. Ray C. Jonas, Chief
Budget and Finance, Region VI
U. S. Bureau of Mines
814 Barfield Building
Amarillo, Texas

Re: Docket DMEA-163XX
Contract Idm-X182
American Zinc, Lead and
Smelting Company
St. Clair, Missouri

Dear Ray:

In reply to your letter of June 25, 1952

The attached carbons show that copies of the letters approving the drilling contracts, and copies of the drilling contracts themselves, were sent to you on February 19, 1952.

Complying with your request of June 3, 1952 we got for you another copy of each of these drilling contracts, receipt of which is acknowledged in your letter of June 25, 1952. We are forwarding herewith an additional copy of each of the letters of approval dated February 19, 1952.

Admittedly, they are all copies. However, I have not as yet been informed by Washington of any regulation stipulating that you have to have originals. The assumption seems to be that when I, as Executive of the Field Team, send you a purported copy it is presumed to be a true copy. If you doubt the validity or veracity of the copies I send you I will be glad to certify them provided you arrange to have Washington order me to do so.

In your last paragraph you indicate that if the May report is the last one you should already have been notified to that effect and so should the Contract Administration and Audit division in Washington.

If you will read the copy you admit you have of my letter of June 6, 1952 to the operator you will observe that it (1) authorizes suspension of operations, (2) stipulates that the contract Idm-X182 remains in effect until further notice, (3) asks for a final report, and (4) was sent (carbon copy) to the Operating Committee of DMEA in Washington, as I have been ordered to do, for their distribution to whomever should have it.

Sincerely yours,

David Gallagher
Executive Officer
DMEA Field Team, Region VI

cc: Operating Committee, DMEA
J. L. Chambers

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

~~WASHINGTON~~
Joplin, Missouri
June 6, 1952

Re: Docket DMA-1630X
Contract Idm-E182
American Zinc, Lead
and Smelting Co.
St. Clair, Missouri

Memorandum

To: Operating Committee, DMEA

From: David Gallagher, Executive Officer, Field Team, Region VI

The attached correspondence, following a phone call from Mr. Dobbel on June 5, 1952, is self-explanatory. The necessary information in connection with a possible Certification of Discovery will be furnished to you as soon as possible.

David Gallagher

David Gallagher

DG/jd
Enc.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 9 1952

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 9 1952

Joplin, Missouri
June 6, 1952

Mr. Chas. A. Dobbel
American Zinc, Lead and
Smelting Company
1600 Paul Brown Building
St. Louis 1, Missouri

Re: Docket DMA-1630X
Contract Idm-E182
American Zinc, Lead
and Smelting Co.
St. Clair, Mo.

Dear Mr. Dobbel:

Your letter of June 5, 1952 received recommending that the exploration project being conducted under Docket DMA-1630X, Contract Idm-E182, be terminated immediately because of the poor showings that have resulted from the holes drilled thus far.

You are hereby granted authority to suspend operations forthwith and to thereby save both the Operator and the Government money by refraining from any further expenditures, insofar as possible, in connection with the above contracts.

Your letter implies that some ore has been discovered from which production may result through the efforts of operators other than the American Zinc, Lead and Smelting Company. Therefore, this authority to suspend operations is granted as an economy measure, but this letter does not cancel Exploration Contract Idm-E182.

You are, therefore, hereby notified that the terms of Contract Idm-E182 remain in full force and effect until further notice, especially in order to protect the Government's interest in repayment from the proceeds of any ore that may be mined as stipulated in the terms of Contract Idm-E182.

Will you, therefore, supply this office as soon as possible with a final report, as stipulated in Contract Idm-E182, giving the necessary factual information with regard to the ore found, so that the Government may promptly take the necessary action to issue a Certification of Discovery, if that is deemed appropriate, in order to protect its interests under the terms of Contract Idm-E182.

Sincerely yours,

David Gallagher

David Gallagher
Executive Officer
DMEA Field Team, Region VI

DG/jd
cc: Operating Committee, DMEA(3)
Ray C. Jonas

JUN 6 1952

DG

AMERICAN ZINC, LEAD & SMELTING COMPANY

COPY FOR_____

June 5, 1952

Mr. David Gallagher, Chairman
Field Team, Region VI,
United States Department of the Interior
Defense Minerals Administration
Joplin, Missouri

Dear Mr. Gallagher:

I have checked with the Joy Manufacturing Company, since talking to you the other day, and they are perfectly willing to cancel the minimum requirement of 2,000 feet on the drilling contract on the St. Clair Project.

In view of the poor showings that have resulted from the holes drilled thus far, I believe it is logical that we cancel this project and turn the land back to the owner.

It is quite probable that small scale lessees may do some mining on this area when the information we have is turned over to the owner which will be done, of course, when we cancel the agreement which we have.

Unless you see objection on the part of the Defense Minerals Procurement Agency, I believe we should save both the Government's money and our own by an immediate cancellation of the Project.

Very truly yours,

Chas. A. Dobbel

CAD:PR
cc: Mr. R.A.Young

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON, D.C.~~
Joplin, Missouri
May 12, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 15 1952

Re: Docket No. DMA-1630X
Contract No. Idm-E182
American Zinc, Lead and
Smelting Company

Memorandum

To: C. O. Mittendorf, Acting Administrator
Defense Minerals Exploration Administration

From: Clinton C. Knox, Mining Engineer
Bureau of Mines

Subject: Field Inspection

On the morning of April 22, 1952 I visited the St. Louis office of the American Zinc, Lead and Smelting Company with regard to its March Monthly Progress Report which had been received by the Field Team on April 15, the first to be submitted after work was started on February 15, 1952 under project Contract Idm-E182 (Docket DMA-1630X).

It was agreed that the costs in the report should be reduced $108 for casing and $2 for one foot of churn drilling below the 600-foot depth of hole No. M-1, as indicated to be correct on the log by the engineer for the company.

Regarding a transportation item of $45.23, not allowable under the contract terms, the company officially requested the Field Team to further amend the contract to allow transportation of the engineer to and from the project. Therefore Amendment #4 was prepared and approved by both parties to the contract on May 9.

In other respects the project accounts appeared to be in good order and that March Monthly Progress Report, including only the costs of churn drilling hole No. M-1 to 600 feet in depth, has been approved by the Field Team and transmitted to the Field Finance Officer at Amarillo, Texas, on May 9.

Upon leaving the St. Louis office of the operator, I inspected the drilling project at St. Clair, Missouri, on the afternoon of that same day, April 22, 1952. By that time, hole No. M-1 had been continued to completion by diamond drilling to the reported top of the Lamotte sandstone, about 1,270 feet in depth. The 600-foot churn drilled section of

hole No. M-2, had been completed and diamond drilling on a 2-shift basis, was in progress in that hole at 680 feet in depth in Potosi limestone. Churn drilling was progressing slowly on hole No. M-3 at 350 feet in depth.

Results of the drilling to the date of my visit, had been reported as discouraging and the company officials suggested that it may be advisable to discontinue the project upon completion of hole No. M-4. That would appear to be a very wise decision unless much more favorable results are reported soon.

David Gallagher
for Clinton C. Knox

Noted by:

David Gallagher
David Gallagher
Executive Officer
DMEA Field Team, Region VI

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

May 9, 1952

DMEA Operating Committee
Defense Minerals Exploration
Administration
Washington 25, D. C.

Re: Docket No. DMA-1630X
Contract No. Idm-E182
American Zinc, Lead &
Smelting Co.

Dear Sirs:

Forwarded herewith are the original and two copies of an amendment dated May 8, 1952 to the subject contract, for attachment to the original and two copies of said contract in Washington.

One copy each of this letter, with one copy of the amendment attached thereto, has been sent today to the Operator, American Zinc, Lead and Smelting Company, and to Ray C. Jonas, Finance Officer in Amarillo, for attachment to their copies of the contract. One copy has been attached today to the copy of the contract in this office.

Sincerely yours,

David Gallagher

David Gallagher

cc: American Zinc, Lead &
Smelting Co.
Ray C. Jonas

/lh

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 12 1952

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

March 17, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 18 1952

DMEA Operating Committee
Defense Minerals Exploration Administration
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMA-1630X
Contract No. Idm-E182
American Zinc, Lead &
Smelting Company

Dear Sirs:

Forwarded herewith are the original and two copies of Amendment No. 3 dated March 17, 1952 to the subject contract, for attachment to the original and two copies of said contract in Washington.

One copy each of this letter, with one copy of the amendment attached thereto, has been sent today to the Operator, American Zinc, Lead and Smelting Company, and to Ray C. Jonas, Finance Officer in Amarillo, for attachment to their copies of the contract. One copy has been attached today to the copy of the contract in this office.

Sincerely yours,

David Gallagher

David Gallagher
Executive
DMEA Field Team, Region VI

Enclosures
cc: American Zinc, Lead & Smelting Co.
Ray C. Jonas

DG/lh

Contracts & Audits

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

January 9, 1952

Operating Committee
Defense Minerals Exploration Administration
Washington 25, D. C.

Re: Docket No. DMA-1630X, Zinc-Lead
Contract No. Idm-E-182
American Zinc, Lead & Smelting Co.

Dear Sirs:

In compliance with instructions received from Frank E. Johnson, Acting Director, Production Expansion Division, DMA, dated November 8, 1951, I am forwarding herewith the original and three copies of the above-subject contract, together with attached amendments numbers 1 and 2.

All these documents have been duly signed by an authorized representative of the company and I am advised by a letter from Charles A. Dobbel dated January 4, 1952 that council for the company concurs in the amendments, that copies of the amendments have been attached to the copy of the contract retained by Mr. Dobbel on behalf of the company.

I have retained the Field Team copy of the contract with attached amendments.

Sincerely yours,

David Gallagher

David Gallagher

Attachments

cc: Charles A. Dobbel

DG/lh

xxxxxxxxxxxxxxxx
Joplin, Missouri

January 9, 1952

Mr. Charles A. Dobbel
American Zinc, Lead and Smelting Company
Paul Brown Building
St. Louis, Missouri

Re: Docket No. DMA-1630X
Contract No. Idm-E-182

Dear Mr. Dobbel:

This is to advise you that I have today mailed the original and three copies of the signed contract and attached amendments numbers 1 and 2 to the Operating Committee of DMEA in Washington.

I am sorry to hear that you are having difficulties in lining up a drilling contractor at an acceptable price. I hope you will be able to submit to me soon, for my written approval, a drilling contract.

Sincerely yours,

David Gallagher

Attachment
cc: Operating Committee
DG/lh

DEC 14 1951

American Zinc, Lead and Smelting Company

PAUL BROWN BUILDING
ST. LOUIS, MO.

December 12, 1951

Mr. David Gallagher, Chairman
Field Team, Region VI
United States Department
of the Interior
Defense Minerals Administration
Joplin, Missouri

Re: Docket DMA-1630X, Zinc and Lead
Contract Idm-E182
American Zinc, Lead and Smelting Co.
St. Clair, Missouri

Dear Sir:

Following my telephone conversation of yesterday, I am submitting herewith signed original and four copies of the contract which you sent to us with your letter of November 13.

There are, however, certain items that should be of record and which may be enumerated as follows:

1. A delay in the restarting date of this project is due to the fact that it has been impossible to accept the bids of various drill contractors for the proposed work, and it has been difficult to obtain a satisfactory contractor to start before the designated starting date of December 15.

2. Exhibit "A", attached to the exploration contract, specifically approves drilling through the Eminence formation, and subsequent prospecting since the date of application has indicated that this mineralization in the Eminence formation is not of the character that was hoped. True, this is entirely a virgin area with its inherent risks of "wildcatting." It now appears that unless holes can be taken to a depth that will prospect the Bonne Terre formation, further prospecting would be useless, and the need of an amendment, therefore, to Exhibit "A" to allow prospecting into the Bonne Terre

formation is necessary.

3. Due to the necessary amendment of Exhibit "A", the estimated cost of exploration should be altered to fit this change of program, and in drilling to this depth, it appears most logical to drill the first 600 feet of each hole with a churn drill, and finish the holes with a diamond drill. The lowest bids, tentatively suggested by any contractor for carrying out this program with the combination of churn and diamond drilling, has been in the neighborhood of $3.00 per foot, so that the estimated cost of exploration should include the item, "Combination Diamond and Churn Drilling - 16,000 feet at $3.00 per foot."

I have read the various letters of comment on this project, which you included in the file sent to us, and I suggest that there may be certain comments made to clear questions of those who have studied the application.

It was indicated in the original application in Exhibit "A" of the Addenda, on Page 5, Item No. 23, that the churn drilling and diamond drilling were both to be done under contract. Since the definite question was asked as to how many men would be worked, an attempt was made to estimate that one driller and one helper would be sufficient on the churn drilling, and one foreman, one driller, and one helper would be sufficient on the diamond drilling. The cost of churn drilling was taken at the actual contract price, which American Zinc was paying at the time, for holes to the vicinity of 400 feet.

The question of presenting geology in the geometric grid was not an attempt to suggest regularity, but simply the lining up of fractures actually observed which appear to strike through old workings and through drill holes which had encountered mineralization. Definite strikes were observed in a number of these old surface workings that substantiated the strike of the straight lines drawn and indicated as various zones on the submitted map. You will note they were called "fractures" and in the original application were indicated as <u>being only of knife blade thickness</u> in certain instances. The dotted lines connecting these outcrops were drawn by Mr. Odell simply to indicate the trend of observed fractures. In the absence of subsurface geology, at least this was a suggested pattern which gave a reasonable guide for spotting drill holes instead of spotting them at random.

The item for $1,000 for the purchase of a pump driven by a gasoline engine was questioned by you in your letter to Mr.Mittendorf and was placed in the application due to the need of furnishing water for the contemplated drilling. Water for the holes to date has been furnished from a well belonging to the Mineral Hills Realty Company, and this pump was badly overworked during our preliminary drilling. Your question as to "why" may be answered by the fact the water should be pumped from our own drill holes or from nearby streams or rivers rather than have us depend on this private supply. It is not, therefore, "a stomach pump" as you suggest in your letter.

The item for miscellaneous supplies would certainly include pipe where necessary, core boxes for diamond drilling, sample bags, and numerous other pertinent supplies necessary, especially if many feet of water pipe were required to keep the price of drilling within reasonable proportions. You will note that the $1,000 for the pump carried the phrase, "if needed", in the original application.

The attempts at obtaining a sub-contractor for the contemplated drilling under this project, have been delayed while this project was under consideration in the office of the D.M.A. Original bids of $2.00 and $3.00 a foot respectively for churn and diamond drilling, of course did not contemplate a depth of 1150 feet for either churn or diamond drilling. When further bids were asked for, to cover holes to a greater depth, it appeared that various drilling contractors had compared notes on the situation and were discussing prices of $4.00 and $5.00 per foot for holes of this depth. At the present time, a drilling contractor has been approached who has suggested a tentative price of $3.00 per foot, and it appears that this individual may be able to start work within the next thirty days if we can have sufficient extension of time, and if the contract can be amended for drilling down through the Bonne Terre formation.

I will submit a drilling plan for this area as soon as the amendment is made so that we can drill deeper than the Eminence formation.

You were going to confirm our conversation of yesterday that you were willing to grant us this extension of time, and after your return to Joplin, one of our company officers will call upon you for discussion of this possibility.

Very truly yours,

Chas. A. Dobbel

CAD:HK
cc: Messrs.H.I.Young
W.J.Matthews,Jr.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON 25, D.C.~~
XXXXXXXXXXXXXX
Joplin, Missouri
November 20, 1951

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D.C. NOV 23 4 16 PM '51

DEPARTMENT OF THE INTERIOR
RECEIVED
DEC 3 1951
Defense Minerals Administration
Production Expansion Division

Reviewed by Bettering Conn (Dobbel) 11/30/51 JB

Mr. Chas. A. Dobbel
American Zinc, Lead and Smelting Co.
1600 Paul Brown Building
St. Louis 1, Missouri

Re: Docket DMA-1630X, Zinc & Lead
Contract Idm-E182
American Zinc, Lead & Smelting Co.
St. Clair, Missouri

Dear Mr. Dobbel:

As I have returned to Joplin your letter of November 18, 1951 to Clinton C. Knox has come to my attention.

Since I do not have a copy of the contract, as all copies were sent to your office on November 13 for signing, I am unable to give offhand an entirely satisfactory answer to your question.

As I understand it the original application, and the contract as drawn, are designed for drilling only as deep as the lower part of the Eminence. You now express the belief that deeper holes that would explore the Bonneterre formation would be more advisable and you ask how this deeper drilling could be authorized under the terms of the contract.

I note that in a review of your application Edwin T. McKnight of the U. S. Geological Survey recommended that the company also be encouraged to sink a few holes in the more promising areas through the Bonneterre dolomite which would be penetrated at about 1150 feet. He also recommended that should you be willing to do so the contract should be drawn in such a way as to permit deep drilling into the Bonneterre.

Your suggestion, then, is one that would apparently meet with Washington approval. Lacking a copy of the contract I am somewhat at a loss to know the best way of revising the contract to permit this new objective. There are at least two possibilities. If the contract does not suffice as it is now written we could return it to Washington for revision, or we could revise it ourselves by an amendment.

If you care to do so you could send the contract to Washington for revision. I am afraid however that that might be tantamount to a new application with the attendant delays.

Possibly the best way would be for the company to decide what course it would like to follow, and when specific plans have been formulated, a man who is authorized to sign for the company can bring the contract to our Joplin office, where we may be able to work out an amendment together that will be satisfactory to both parties, and that will permit using all, or part, of the contract for deep drill exploration of the Bonneterre.

Sincerely yours,

David Gallagher
Chairman
Field Team, Region VI

DG/jd

CC - Operating Committee

Washington

DEFENSE ADMIN WASH 51
Nov 15

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
~~WASHINGTON 25, D. C.~~
Joplin, Missouri
November 13, 1951

DEPARTMENT OF THE INTERIOR
RECEIVED
NOV 2 1951
Defense Minerals Administration,
Production Expansion Division.

American Zinc, Lead and Smelting Co.
1600 Paul Brown Building
St. Louis 1, Missouri

Re: Docket DMA-1630X, Zinc & Lead
Contract Idm-E182
American Z., L. & S. Co.
St. Clair, Mo.

Dear Sirs:

During Dr. Gallagher's absence on a trip to Washington we have again received the enclosed six copies of the above captioned exploration project contract which I am submitting herewith for your signature of approval should you still wish to enter into that agreement. Please retain one copy for your files and return the original and four copies along with all the attached documents to this office.

I note that you applied for this exploration work on May 29, 1951 and that the DMA office in Washington approved the above subject project contract on October 15, 1951 so it is possible you have made other arrangements to do the exploratory work.

In accordance with the terms of the contract, however, the work should start before December 15, 1951, and a copy of your drilling subcontract should be approved by this office before that time (as per article 4). Also this regional office DMA Field Team should give written agreement to your proposed drill hole locations as per the second paragraph of "Exhibit A", attached as a part of the above captioned contract which you are asked to sign. We could most easily satisfy ourselves on that score without the expense of a trip up there if you care to furnish us with a copy of the drill logs and assays of the 23 holes which I understand that you have already drilled in that area. Just now we are very shorthanded in this office, and I cannot leave here until Dr. Gallagher's return about November 20.

Also enclosed are blank MF-104 forms on which to make the Monthly Progress Report, the original and three copies of which should be transmitted to this office within 15 days after the close of the calender month in which the work is started.

Please do not hesitate to contact this office if further information or advice is needed.

Very sincerely yours,

Clinton C. Knox
For David Gallagher

FILE COPY
SURNAME:

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

NOV 8 1951

a. & C

AIR MAIL

Mr. David Gallagher
Executive Officer, Region VI
221 West 3rd Street
Joplin, Missouri

Re: Docket No. DMA-1630X, Zinc-Lead
American Zinc, Lead and Smelting Co.
1600 Paul Brown Building
St. Louis 1, Missouri

Dear Mr. Gallagher:

We have discussed the subject contract with Mr. E. T. McKnight of the Geological Survey and are returning it herewith. We are also enclosing one copy of the application for your files.

Accompanying this letter is one from McKnight explaining his reasoning in approving the application. We feel that some such explanation could well have accompanied the contract when we first sent it to you.

In view of the explanation, we hope that you will now concur in the project and ask you to have it signed (6 copies) by the applicant. You will note that we have changed the commencing date from thirty days to sixty days from date of contract because of our interval delays.

If no drilling contracts are contemplated, paragraph 3 of our original forwarding letter of October 15, 1951 does not apply.

Upon completion of the signatures, one copy is to be given the Contractor and one copy retained for your files. The original and three copies are to be returned to the Production Expansion Division of DMA upon receipt of which a copy will be forwarded by the Washington Finance Division to the Regional Finance Officer for your area.

Also enclosed is the original letter transmitting this contract to you under date of October 19. Said letter was returned to Washington by your office.

Sincerely yours,

(signed) FRANK E. JOHNSON (mcw)

Acting Director
Production Expansion Division

Enclosures
APPROVED:

Chairman, Coordinating Committee

Member, Bureau of Mines

Member, Geological Survey

LBMoon:mjw 11-6-51
cc to: Adm. Reading File
Reports & Records
Docket
Field Team, Region VI
Messrs. Mittendorf, Olund
Lyon, Moon, McKnight
Mote, St.Clair, H.W.
Thayer, T. P., Johnson, G.E
Ellis

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

NOV 8 1951

a.e.c

FILE COPY
Surname
McKnight
Thayer
Johnson
Dyson

Airmail

Re: DMA-1630
American Zinc Lead and Smelting Company
Operation near St. Clair
Franklin County, Missouri

Mr. David Gallagher
Geological Survey
221 West 3d Street
Joplin, Missouri

Dear Dave:

Your recent letter to Mittendorf on the subject docket has been shown to me and I have discussed with Cap Ellis those phases of it concerning the original recommendation for which I was responsible.

The history of handling of this application will illustrate the difference between a quick appraisal and a more studied appraisal of this project. During June when we had such an avalanche of applications and had to call on a lot of temporary help to get over the hump, Al Bodenlos drew this application for consideration and would up by bringing it to me for a quick appraisal. He pointed out the location, the fact that the ore was in the Emminence, and showed me the applicant's map. As my general knowledge of the geology of lead-zinc in Central Missouri corresponded very closely with what you state you have learned from discussions with geologists familiar with the region, and as the fracture pattern on the map looked equally unconvincing to me, my verdict was to put it in the denial pile. There it stayed until mid-August when I got down to it for denial.

After a more complete study, I decided that the application could not be denied; and that in the category of permissive exploration it was as good a proposal for exploration in virgin territory in the Mississippi Valley as would be likely to come up. The mineralization was accidentally discovered in drilling a well. Of the 22 holes subsequently drilled, only one found a minable grade of mineral (over an unspecified thickness), but several of the holes showed mineralization in a zone near the base of the Eminence, and the distribution of this mineral was such as to suggest that the mineral was disseminated in a favorable bed rather than being in narrow vertical fractures of the type previously known in Central Missouri.

The company proposal is to explore this favorable bed in an adjacent area where surface indications are more favorable. Such indications, as presented by the applicant, are the occurrence of mineralization and the presence of a fracture pattern which they have presented so beautifully in the geometric grid to which you so strongly object. Frankly, I didn't think much of the geometric regularity

either, and said so in the recommendation that I wrote on this application. But the important thing is that mineralization has been found at the surface in several spots where the fracture zones are shown as intersecting. So far as I am concerned the fractures may actually strike in some other direction than shown, or be curved or circular, or swastika shaped - the significant thing is that mineralization has gotten through to the surface, and there is the most logical place to explore for mineralization at lower horizons. The bigger ore deposits of eastern Tennessee were, I believe, found on no more geologic evidence than simply drilling in the vicinity of surface showings of mineral, and the same holds for the new St. Joe lead discovery at Indian Creek, though this also had superposed the concept of favorable horizon. Odell, who wrote the American Zinc Company report on the St. Clair area, is a good enough geologist so that I think we can assume that there is some steep angle fracturing in the mineralized areas, and my only disappointment in his work was the geometric pattern that he fell for. It reminded me of Foster Hewett's faults, drawn on the map with a straight edge, but I certainly would be wrong in condemning Hewett's work because of this idiosyncrasy.

This whole project is, of course, a wildcat exploration, but that type of exploration has found all of the Mississippi Valley deposits in the past, with even less geologic control to the drilling than is here proposed. The chances are not great but the stakes are big.

Other phases of your letter are out of my baliwick, though the question that you raise as to the legality of this work that you are called upon to do is certainly the Survey's business and will presumably be taken up at the next meeting of the regional men.

I understand that a copy of the original application will be sent to you. I am enclosing a copy of the justification that I presented in approving this project geologically; it is headed "4a" because it is in answer to question 4a of the review form to which it is attached, which was submitted to the Production Expansion Division on or about August 22.

Sincerely yours,

Edwin T. McKnight 11/8

Edwin T. McKnight
Geologist

ETMcKnight:emp
Copies to: The Director r. files
Geol Div. Files 4240
Br. Files 4208
Br. r. files 4214 GSA
Mr. Ellis
E. T. McKnight

for Bureau of Mines

for Geological Survey

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
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OCT 2 6 1951

DEPARTMENT OF THE INTERIOR
RECEIVED
OCT 2 9 1951
Defense Minerals Administration,
Production Expansion Division

Mr. C. O. Mittendorf, Director
Production Expansion Division
Defense Minerals Administration
Washington 25, D. C.

Re: Docket No. DMA-1630X, Zinc-Lead
American Zinc, Lead and Smelting
Company
1600 Paul Brown Bldg.
St. Louis 1, Missouri

Dear Mr. Mittendorf:

Enclosed find six copies of the above captioned Exploration Project Contract returned herewith for your reconsideration, for the following reasons:

This office has only the contract with attached Exhibit A, attached Subordination Agreement, (your covering letter states "however, no Subordination Agreement is attached".), and a map. Lacking any further information such as might have been included in the application we have no reason to be favorably disposed toward this contract.

The map shows purported fissure zones extrapolated for distances of about 1 mile each. On inspection it would appear that these purported fissure zones are based on extremely tenuous evidence. Their straightness, continuity, and paralleism are too perfect to be believed by a geologist. No supporting evidence is furnished to indicate that these intersections of this alledged pattern should be likely places for finding ore.

From discussions with geologists familiar with the region, we have learned that the veins there are small stringers in the Eminence formation, and experience has shown that these veinlets peter-out downward in the underlying Potosi formation. ?

Consequently from the information available to us we cannot feel that this project offers a reasonable likelihood of discovering worthwhile ore.

Exhibit A states that churn and diamond drilling will be done at certain intersections of so called zones implied to be those shown on the attached map. Exhibit A goes on to state that distribution and location of the drill holes must be agreed to by the Government field team "as drilling past and present indicate the most promising locations". As already stated no past drilling information has been made available to us. However, from what little we can learn from those familiar with the past drilling, the evidence indicates that further drilling will probably be equally unsuccessful.

I furthermore find myself in a quandry over the question of consulting work. The Organic Act upon which the U. S. Geological Survey is founded prohibits Survey members from engaging in private consulting work. It is my understanding that this entire question is now under discussion in Washington. As yet I have received no official notification from Washington of the policy to be followed, but the phrasing of Exhibit A suggests strongly that we are requested to indulge in something that might be construed as consulting work contrary to the laws that govern our activity.

Your covering letter indicates that drilling contracts should be approved in advance by us. The exploration contract and the attached Exhibit A do not specify how the drilling is to be done, whether by the company, or by subcontract. On Exhibit A under the estimated cost of labor it is implied that one driller and one helper under contract will be hired for the churn drilling, one foreman, one driller, and one helper under contract for the diamond drilling. The implication seems to be, as stated on Exhibit A, that these are labor contracts with five individuals, not drilling contracts.

Exhibit A specifies $4,000 for "estimated cost of miscellaneous supplies". In order to successfully operate such a contract at the field level, it would be desirable for us to know what miscellaneous supplies were asked for in the application and for what they are intended. Otherwise, it becomes almost impossible for us to approve monthly expense accounts with good conscience.

Exhibit A specifies that churn and diamond drilling will be done. Your covering letter implies that this drilling will be done on contract although Exhibit A does not so state. Yet, $1,000 is listed for the purchase of a pump driven by gasoline engine. Why? All I can think of is that this may be a stomach pump for the "part time engineering supervisor".

In short, this contract embodies many of the same features that have plagued us in the 8 contracts out of a total of 11 that have fouled-up in this region. We therefore believe that you should give this contract serious reconsideration, and possibly drastic revision, before requesting us to accept the responsibility of carrying it out successfully.

Sincerely yours,

David Gallagher

David Gallagher

DG/jd
Enclosures

CC - Coordinating Committee
through O. N. Rove

400
FILE COPY
SURNAME:

Ellis
Mittendorf

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

OCT 19 1951
AIR MAIL

Mr. David Gallagher
Executive Officer, Region VI
221 West 3rd Street
Joplin, Missouri

Re: Docket No. DMA-1630X, Zinc-Lead
American Zinc, Lead and Smelting Company
1600 Paul Brown Bldg.
St. Louis 1, Missouri

Dear Mr. Gallagher:

Enclosed find six (6) copies of the above captioned exploration project contract. An additional Field Team "work copy" is included for your file, however no Subordination Agreement is attached.

This contract I have signed. It is dated October 15, 1951 and given the project number Idm-E182.

Before completion of this contract a copy of the proposed drilling contracts is to be submitted to you for written approval in accordance with paragraph 4 of form MF-200.

Kindly have the contract signed (all six copies) by the Applicant. Upon completion of the signatures, one copy is to be given the Contractor and one copy retained for your files. The original and three copies are to be returned to the Production Expansion Division of DMA upon receipt of which a copy will be forwarded by the Washington Finance Division to the Regional Finance Officer for your area.

At the time of contacting the Applicant please furnish him with the Operator's Monthly Progress Report blanks (Form MF-104) and explain the form to him.

Sincerely yours,

C. O. Mittendorf

10/19

C. O. Mittendorf, Director
Production Expansion Division

Enclosures

APPROVED:

Chairman, Coordinating Committee

Member, Bureau of Mines

Member, Geological Survey

EWEllis/jem 10-15-51
cc to: Adm. Reading File
Reports & Records
Docket
Messrs. Mittendorf, Olund
Field Team, Region VI
Mr. Lyon
Mr. Moon
Mr. Billings
Mr. Mote
Mr. McKnight
Mr. Ellis

FILE COPY
SURNAME:

140

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

October 15, 1951

Memorandum

To: Director, Production Expansion Division

From: General Counsel

Subject: American Zinc, Lead and Smelting Co. exploration contract — DMA Docket No. 1690X

I am unable to approve the subject contract, submitted to this office on October 12, for the following reasons:

1. The description set forth in the contract is obviously defective. The words " at 5 p.m." should be "of fifth p.m.". Only part of the land in section 30 is included in the land owned by the applicant. The correct description can be taken from the deed and contract which are set forth in Exhibit "A" annexed to the application.

It seems remarkable to this office that so many contracts submitted should contain defective descriptions, when the correct description is set forth in the application. A simple checking of the description set forth in the contract form with that provided in the application would serve to eliminate such errors. It is the position of this office that the description in the contract form is essentially an engineering matter and that we should not have to review it at all. This office assumes no responsibility for the correctness of the description set forth in contracts submitted, but will do what it can to check the description set forth against any available material in the file.

2. Article 2(a) of the contract form recites: "Deed and Contract to mineral rights attached". No such instrument is attached to the contract form as submitted.

3. "Fig. 3" is not attached to the contract form as stated in Exhibit "A".

Your file in this case is returned.

J. L. Hofflund

J. L. Hofflund
General Counsel

Copy to: Repts. & Records
J. L. Hofflund
R. R. Guthrie
Chron.

a.E.C.

J. L. Hofflund/lyc

Attachment

DEFENSE MINERALS
ADMINISTRATION
WASHINGTON, D. C.
OCT 11 9 05 AM '51

American Zinc, Lead and Smelting Company

DEPARTMENT OF THE INTERIOR
RECEIVED
OCT 1 1 1951
Defense Minerals Administration,
Production Expansion Division.

PAUL BROWN BUILDING
ST. LOUIS, MO.

October 9, 1951

AIR MAIL

Mr. C. O. Mittendorf, Director
Production Expansion Division
United States Department of
the Interior
Defense Minerals Administration
Washington 25, D. C.

Re: Docket No. DMA-1630X, Lead-Zinc
Franklin County, Missouri

Dear Sir:

In response to your letter of September 21, 1951, I enclose herewith six copies of Form MF-202, which have been executed by the Mineral Hills Realty Company, and which we hope will answer your request for a Landlord's Subordination Agreement.

Actually, Mineral Hills Realty Company has a reversionary interest in these mineral rights in accord with the agreement we have with them for the purchase of these mineral rights, and we have interlined Form MF-202 accordingly.

Very truly yours,

Chas. A. Dobbel

CAD:HK
Encs.
cc: Messrs. H. I. Young
C. V. Burns
J. R. Griffiths

400

FILE COPY
SURNAME:

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

SEP 21 1951

AIR MAIL

Mittendorf

A.E.C.

American Zinc, Lead and Smelting Co.
1600 Paul Brown Building
St. Louis 1, Missouri

Re: Docket No. DMA-1630X, Lead-Zinc
Franklin County, Missouri

Gentlemen:

In reviewing the above Exploration Application, it is noted that Form DF-202, Landlord's Subordination Agreement is not included. It will be necessary for you to have the six enclosed copies executed by the Mineral Hills Realty Company and returned to this office.

Be very sure that the date of Project Contract is left blank.

Sincerely yours,

C. O. Mittendorf (ah)

C. O. Mittendorf, Director
Production Expansion Division

HBurmeister/jem
9-20-51

cc to: Adm. Heading File
Reports & Records
Messrs. Mittendorf-Olund
Mr. Billings
Mr. Mote
Mr. McKnight
Mr. Burmeister
Field Team, Reg. VI (2)
Docket

FILE COPY
SURNAME:
Hq

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

September 18, 1951

Memorandum

To: Director, Production Expansion Division

From: General Counsel

Subject: American Zinc, Lead and Smelting Co. exploration contract -- Docket No. DMA-1630X

We cannot approve the proposed exploration contract in this case for the following reasons:

1. The nature of the organization of the applicant is not indicated in the first paragraph as required by footnote 2.

2. The discussion of the project in the first five paragraphs of Exhibit "A" is in the terms of a suggestion or recommendation rather than a description and estimate as is called for by the contract. The third paragraph, a discussion of something which has not been put in the contract, has no place in the exhibit. If, as indicated in second paragraph, the applicant plans to acquire other land and include it in the project, the description of the land to be acquired should be included in paragraph 2 of the contract in a spearate sentence to follow the description already set forth and to read as follows: "Also (description) to be included in the project if, as and when acquired by the Operator." The statement of costs in the latter part of the exhibit is satisfactory.

3. A subordination agreement from the party from which applicant is buying the land is not attached to the contract. If the other land is purchased on contract and included in the project a subordination agreement on that land must be obtained at that time from the vendor.

4. Exhibit "A" refers to Figure 3 but no figure is attached to the contract.

Your file is returned herewith.

not stripped in R.S.

J. L. Hofflund

J. L. Hofflund
General Counsel

RRGuthrie/ema
Copy to: Reports & Records
R.R.Guthrie
J.L.Hofflund
Chron.

Attachment

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

PWMcGann

August 23, 1951

Memorandum

To: The Chief Counsel

From: The Chief Economist

Subject: Cost and Budget Paragraphs for Letter of Recommendation on Quick Seven Mines of the American Zinc,Lead and Smelting Company

The prudent reserve basis of estimating maximum borrowing authority required from the Treasury will be $1,000,000 which is the sum of $340,000 working capital required for about two months' purchases plus $660,000 of probable ultimate net cost to the government. This cost is the product of 16,500 tons of slab zinc times 2.0 cents per pound of average unit probable ultimate net cost to the government. The unit net cost is the difference between the 17.5 cents price requested by the company and a prudent c estimate of average price between 1952 and 1955 of 15.5 cents per pound. The maximum possible liability to the government would be $5,755,000 which is the product of 16,500 tons times $350 per ton.

The operating costs indicated by the company are $0.16024 per pound including a $0.06000 per pound smelter charge. Amortization of fixed investment is $0.00167 per pound and federal income taxes are estimated to be $0.00457 per pound (assuming an average gross tax rate of 70 percent between 1952 and 1955) leaving a net profit after taxes of $0.00852 per pound if a contract price of $0.17500 were granted. This is only 4.87 percent of price leaving little room for mistakes but it comes to an average annual return of 31.2 percent on average equity (assuming average working capital of 465,000). Under these same assumptions of costs investments and tax rates a fixed contract price of $0.165000 per pound would guarantee the firm 10 percent average annual return on average equity after paying federal income taxes of about $48,500.

Paul W. McGann

PWMcGann:mal

Copies to -

Mr. Schroeder
Mr. McGann
M & R
Files ✓

P. W. McGann

Mr. Herres
Dmar file

American Zinc, Lead and Smelting Company

HOWARD I. YOUNG
PRESIDENT

1600 PAUL BROWN BUILDING
SAINT LOUIS 1, MISSOURI

June 18, 1951

noted no
reply required
Otto Herres
6/20/51

Mr. Landon F. Strobel
Executive Secretary
United States Department of
the Interior
Defense Minerals Administration
Washington 25, D. C.

Dear Mr. Strobel: Subject: DMA-1630-X
Re: Exploration Loan -
$175,000 (Tri-State
Operations)

Thank you for your letter of June 15 acknowledging receipt of our application and attachments dated May 29 for a government loan under the Defense Production Act of 1950.

We note you have assigned this application Docket Number DMA 1630 X and referred it to Mr. Otto Herres.

All future correspondence pertaining to this application will be designated as DMA-1630 X.

Dmar 1630

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 20 1951
LANDON F. STROBEL
Executive Secretary

Very truly yours,

H. I. Young

President

LJ

JUN 20 1951

856

FILE COPY
SURNAME:

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

June 15, 1951

Mr. Howard I. Young, President
American Zinc, Lead and
Smelting Company
1600 Paul Brown Building
St. Louis 1, Missouri

Subject: DMA-1630 X
Re: Exploration Loan -
$175,000 (Tri-State
Operations)

My dear Mr. Young:

Receipt is acknowledged of your application and attachments of May 29, 1951 from the AMERICAN ZINC, LEAD AND SMELTING COMPANY for a Government loan under the Defense Production Act of 1950.

The application was assigned Docket Number 1630 X and referred to Mr. Otto Herres, Chief, Lead-Zinc Branch, on June 11, 1951.

In any future correspondence relating to your application, kindly refer to DMA-1630 X.

Sincerely yours,

LANDON F. STROBEL

Landon F. Strobel
Executive Secretary

LFSTROBEL/aec
cc: Strobel-2
Mr. Lyon
Mr. Herres
Files

Docket 1630

McKnight O'Leary (For more) 6/5/51 Johnson.

Defense Minerals Administration

Review of Application for Exploration Assistance

Docket No. 1630X

To: Production Expansion Division

Commodity Zinc, lead

From: Director, Supply

Total Amount ~~$175,000~~ ($65,000 recommended)

Govt. Participation 50% (32,500 recommended)

1. Name and Address of Applicant American Zinc, Lead and Smelting Company (Tri-State operations), 1600 Paul Brown Building, St. Louis 1, Missouri

2. Location of Property E½ of NE 1/4 and E½ of SE 1/4, Sec. 31, and W½ Sec. 32 T. 42 N., R 1 W. of 5 P.M. Also SE 1/4 of SW 1/4 and SW 1/4 of SE 1/4, Sec. 30, T. 42 N. R 1 W; also SE¼ of SW¼ and SW¼ of SE¼, sec 30, T42N, R1W; 4 miles west of St. Clair, Franklin County, Missouri

3. Mineral or metal Zinc, lead Is it listed in Section 9 of MO-5?

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 statement

b) Poor

c) None

d) Don't know—needs field examination

e) Is there an alternative and favorable project? (If so, attach an explanation)

5. Is the applicant's right to the property clearly stated? Yes (question 5, 6, 7)*

6. If applicant is a lessee, is a copy of the lease attached? Deed to mineral rights attached

Does the lease have sufficient time to run to cover a future productive period? Yes

*question numbers are those of MF-103

4. (a) A geologic study by the applicant has shown two systems of fissure zones, one striking EW and the other about N 25° E. Where zones of the two systems intersect, these zones may be 100 feet or more wide. At some of the intersections, strong mineralization, consisting of lead, zinc, barite and calcite occurs in the surface Gasconade formation and there has been considerable open pit mining in past years at such points. At one of the zone intersections, there is evidence of a sink structure, produced by solution of the underlying beds. (A similar sink structure in an area of extensive mineral showings at intersection of zones 1a and 4b is not on land controlled as yet by the company).

The company, following up a find of zinc in a well on this property, drilled 22 churn drill holes and 2 diamond drill holes. These holes found zinc mineralization with some lead in the lower part of the Eminence formation, about 350-400 feet below the surface. Only one of these holes had more than 5% zinc (over an unstated thickness). The drilling already done has proved no commercial ore, but it has indicated a favorable geologic horizon that, under a more favorable structural setup, might make ore. The applicant, therefore, proposes to drill to the lower Eminence in those parts of the tract where the intersecting fissure zones are better defined, and where there is mineralization evident in the surface rocks.

The reviewer does not place too much stock in the location of exactly parallel and perfectly straight fissure zones shown on the map (Fig. 3 of applicant). However, areas of surface mineralization are obviously favorable structural areas, regardless of whether the fissures intersect as shown on the map or not. The proposal is to explore in the general area of 6 of these intersections (zone 3a and 4a intersections with zones 5b, 6b and 7b, see Fig. 3). Two other promising intersections along the west side of Fig. 3 are not yet controlled by the company.

It is believed that this type of exploration is permissive and is a worthwhile DMA participation. Although no extensive mineralization is yet known in the Eminence dolomite, the rock is not too unlike the Bonneterre which has produced most of the Southeast Missouri lead and which also carries the ore at the new St. Joseph Lead locality at Indian Creek, recently found by this type of permissive exploration.

It is recommended that the company also be encouraged to sink a few of the holes in the more promising areas through the Bonneterre dolomite, which should be penetrated at about 1150 feet.

E. T. McKnight

7. Are subordination agreements necessary? No

a) MF-201? _____

b) MF-202 _____

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? The drilling is exploration but the $110,000 requested

If not, what part of it is? for shaft sinking and drifting, on the assumption that the drilling will be successful, should be deleted.

_____

_____

10. (a) Drilling project is described only as $50,000 worth of drilling (with some supplementary costs) in specified areas, the drilling to go through the Eminence formation. Drilling is to be both churn drilling at $2.00 per foot, and diamond drilling at $4.00 per foot but the reason for distinction between the two types is not stated. It can be surmised that most of the drilling will be churn drilling, with diamond drilling only where previous drilling has indicated that more detailed information is needed. The relative proportion between the two could not be predicted in advance of the actual drilling. It would seem that, inasmuch as the applicant's interests would run exactly parallel to those of the Government, this matter could be left to the judgment of the applicant. The exact location of holes will be worked out during the drilling, as all later holes should be spaced in relation to what has been found by the previous work.

10. (d) See comment under 10 (a). The relative footage as between diamond and churn drilling cannot be given, but the rate per foot of each is given, and the maximum drilling cost. Recommended costs are as follows:

Diamond drilling at $4.00 per foot, churn drilling at $2.00 per foot, total.....	$ 50,000
Supervision, engineer-geologist, 1 year.....	5,000
Engineering supervision, part time.....	3,000
Access roads, if needed.....	2,000
New equipment, pump and gas motor, if needed.	1,000
Miscellaneous supplies.....	4,000
	$ 65,000

Is this part a worthwhile exploration project?_____

d) Are the cost estimates detailed? See comment

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data?_____ If so, attach a draft.

e) Are the cost estimates reasonable? Yes

f) Should more information be requested from applicant? 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? Yes

b) Sufficient data? Yes If so, attach a draft. Pump and gas motor $1,000

c) Are rents and charges reasonable? not applicable

d) Is a field check needed? No

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

a) Are there sufficient data? Yes

b) Is the schedule adequate for the work proposed? Yes

c) Is the schedule excessive for the work proposed? No

d) Are the proposed wages and salaries reasonable? Yes

e) Is a field check needed? 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. Attached

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 8-17-51

Date 8-22-51

approved
Tom Lyon

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

16. It is recommended that the drilling program be approved for $ 65,000 as stated under 10 (d). It is also recommended that the contract state that should the applicant care to sink any holes through the Bonneterre dolomite at an approximate depth of 1150 feet, that this will be permissible, provided the total drilling cost doesn't exceed $50,000. It might also be pointed out to applicant that the State Geologist has always been willing to help on stratigraphic interpretations of deep drill holes put down in the State, and would doubtless be interested in any deep hole that would go through the Bonneterre.

It is also recommended that if during the course of this project, the land should be acquired containing the intersections of zone 1a with 4b, and of zone 3a with 3b, that these areas be taken into the project, the total cost not to exceed the estimated drilling cost of $50,000. These additional tracts could be included upon written representation from the applicant.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 5 - 1951
LANDON F. STAUBEL
Executive Secretary

Palmfed May 31-1951

May 31, 1951

Mr. Chas. A. Dobbel,
American Zinc, Lead and Smelting Company,
Paul Brown Building,
St. Louis, Missouri

Dear Mr. Dobbel:

This is to acknowledge receipt of the exploration application for the project near St. Clair, Missouri, and to inform you that it is being forwarded immediately to Washington.

Very truly yours,

M. HOWARD BERLINER

M. Howard Berliner
For David Gallagher

cc: Defense Minerals Administration,
Washington 25, D. C.

American Zinc, Lead and Smelting Company

MAY 31 1951

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
Postmarked May 31 1951
JUN 5 - 1951
LANDON F. STROBEL
Executive Secretary

PAUL BROWN BUILDING
ST. LOUIS, MO.

May 29, 1951

Regional Office
U. S. Department of the Interior
Defense Minerals Administration
Joplin, Missouri

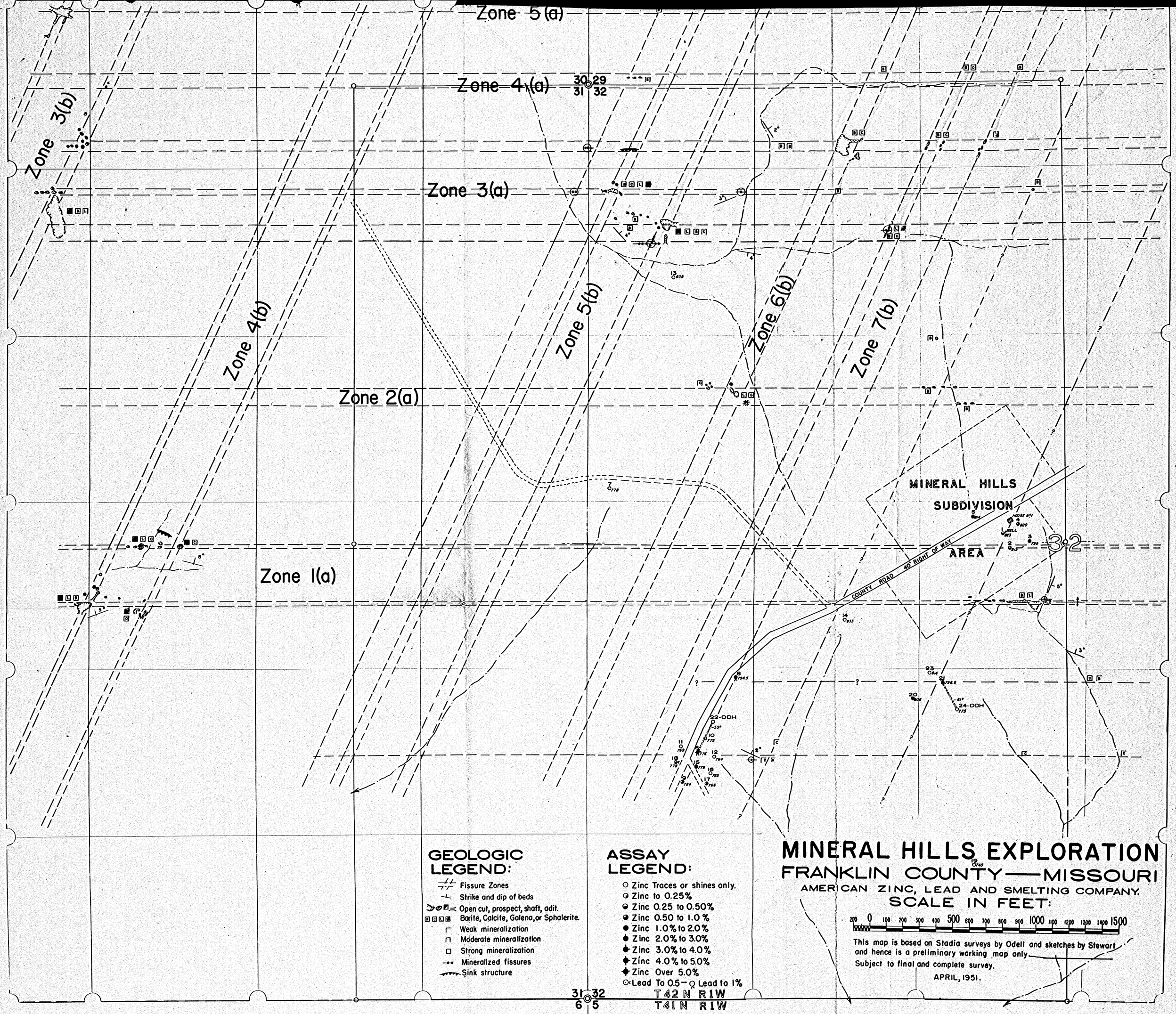
Gentlemen:

Herewith I am submitting Form MF-103, and supporting addenda, for the so-called St. Clair, Missouri project, American Zinc, Lead and Smelting Company, in quadruplicate.

Very truly yours,

Chas. A. Dobbel

CAD:HK
Encs.
cc: Mr. H. I. Young
Mr. C. V. Burns


Zone 5(a)
Zone 4(a)
30 29
31 32
Zone 3(b)
Zone 3(a)
Zone 4(b)
Zone 5(b)
Zone 6(b)
Zone 7(b)
Zone 2(a)
Zone 1(a)
MINERAL HILLS
SUBDIVISION
AREA
COUNTY ROAD 40' RIGHT OF WAY
22-DDH
24-DDH
GEOLOGIC LEGEND:
Fissure Zones
Strike and dip of beds
Open cut, prospect, shaft, adit.
Barite, Calcite, Galena, or Sphalerite.
Weak mineralization
Moderate mineralization
Strong mineralization
Mineralized fissures
Sink structure
ASSAY LEGEND:
Zinc Traces or shines only.
Zinc to 0.25%
Zinc 0.25 to 0.50%
Zinc 0.50 to 1.0 %
Zinc 1.0% to 2.0%
Zinc 2.0% to 3.0%
Zinc 3.0% to 4.0%
Zinc 4.0% to 5.0%
Zinc Over 5.0%
Lead To 0.5 — Lead to 1%
31 32
6 5
T42N R1W
T41N R1W
MINERAL HILLS EXPLORATION
FRANKLIN COUNTY — MISSOURI
AMERICAN ZINC, LEAD AND SMELTING COMPANY.
SCALE IN FEET:
200 0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500
This map is based on Stadia surveys by Odell and sketches by Stewart and hence is a preliminary working map only
Subject to final and complete survey.
APRIL, 1951.