IMEA Form 9

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE

DMEA NO. 4582

Application (Denied
(Withdrawn
(After disposition, delete items not applicable)

Contract (Terminated - not Certified
(Cancelled
(Terminated - Certified
(Royalty Agreement

This is the official contract file containing all official records of the project. The records contained in the files are checked and are arranged in this order:

Left Side

✓ Interim Royalty Audits
✓ Reports of Royalty Review
✓ Certification of Discovery 8-18-59
Certificate of Audit (Final)
Interim Audit(s)
✓ Report of Review 6-5-59
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 1-A
(3) Envelope for maps See Folder/(envelope expansion) for option contracts accompanying application.

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) 6-28-59
Operator's Final Report 6-2-59
(2R) Interim Reports
(2R) Operator's monthly reports and all attachments (latest on top)
✓ On-site Exam Report(s) (Tab)
(4) Settlement Sheets

When the volume of records is expected to warrant additional folders, or when convenience of reference warrants separate folders for certain records, they should be set up in this order:

Left Side

Folder No. 2: 2-A, and 2-B / (In chron. order) ~~Interim Summary Reports by W. G. Engineers~~

Right Side

~~Operator's Semi-Annual Report for Certified Project~~, Field Team Interim Reports, Operator's Monthly Report with transmittal, narrative, maps, and Field Team review.

Folder No. 3: Maps (Use pocket folder or envelope. Fold maps with title block out and show reference to related document or correspondence.)

Folder No. 4: Settlement Sheets

Folder No. 5: Drill Logs

OFFICE OF MINERALS EXPLORATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF ROYALTY REVIEW

I have reviewed the files of the Washington office pertaining to Contract Idm-81068, Docket OMEA-4582 (lead-zinc-copper), dated March 18, 1957, with

St. Joseph Lead Company
Bonne Terre, Missouri

for the purpose of determining the amount of royalty payable to the U. S. Government on sales of minerals from property referred to as the Courtois Area located in Washington and Crawford Counties, Missouri, during the period March 18, 1957, through September 20, 1960.

A certification of discovery or development was issued on August 18, 1959, and, in accordance with Articles 6 and 10, Annex I, and Amendment No. 7 of the contract, royalty is payable on all minerals produced from the land described in Article 2, as amended, of the contract for a period of 30 years from the date of the contract or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first. A Report of Review dated June 5, 1959, indicated accepted costs under the exploration contract amounting to $265,193.10 with the Government's contribution on a 50 percent basis being $132,596.55.

The status of the project, the scope of review, and the reasons therefor are stated on page 2.

This review established no sales subject to the Government's royalty for the period covered. Accordingly, as of September 20, 1960, the royalty account of this project was found to be:

Total Royalty Payable	$ -0-
Total Royalty Paid	-0-
Balance of Royalty Due	$ -0-

May 9, 1962

E. D. Talbert, OME Auditor

Idm-E1068 St. Joseph Lead Company DMEA-4582

STATUS OF PROJECT, SCOPE OF REVIEW
AND REASONS THEREFOR

This contract provides that the Operator, as principal if the producer or as surety if not the producer, shall pay to the Government a percentage royalty on all minerals produced for a maximum of 30 years from (1) the lands thereunder, (2) any contiguous lands in which the Operator or any subsidiary acquires any interest before March 18, 1967, and (3) the parcel of land deleted by Amendment No. 7, if the Operator or any subsidiary acquires any interest in such land or the production therefrom. "Minerals" includes limestone and dolomite products derived from processing ores and excludes any minerals which the Operator is prohibited from mining pursuant to the instruments by which the lands are held.

At the time this contract was executed, the land thereunder consisted of numerous tracts aggregating 4,366.41 acres, more or less. Amendments to the contract added approximately 1,860.09 acres and deleted 320 acres. Of the total of about 5,906.5 acres, the Operator held approximately 1,341.81 acres under Bureau of Land Management prospecting permits and 4,564.69 acres, more or less, under option contracts with private landowners. Consents to Lien and Subordination Agreements were waived.

The tracts under the contract are located in secs. 3, 4, 5, 6, 7, 8, 9, 17, and 18, T. 35 N., R. 1 W., secs. 32, 33, and 34, T. 36 N., R. 1 W., and secs. 1, 2, 11, 12, and 13, T. 35 N., R. 2 W., 5th P.M. All of the acreage, except 390 acres, are located in Washington County. Those 390 acres, located in Crawford County, together with about 8 acres in Washington County, all held under Bureau of Land Management prospecting permit no. 045266, are included also under Contract Idm-E1064, Docket DMEA-4581, with the same Operator.

Exploration work under the contract was completed on December 29, 1958. No minerals were produced from the property during the exploration period. Examinations of the property, conferences with the Operator's officials, and a September 20, 1960, reply to inquiry on MME Form 63 have disclosed no production from the lands under the contract.

If any production subject to royalty under this contract starts, royalty is to be computed and paid in accordance with a proposal set forth in an October 11, 1960, letter from the Operator and accepted by the Acting Director's November 22, 1960, letter.

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

(1) No minerals have been produced during the period covered by this review;

(2) The files indicate no activity on the property since completion of the exploration work; and

(3) The administrative cost to the Government of an on-site royalty audit at this time would be excessive in relation to the amount of possible royalty which might be disclosed.

Docket copy

Mr. Lamb

CERTIFICATION BY THE UNITED STATES OF AMERICA
OF A DISCOVERY OR DEVELOPMENT UNDER
AN EXPLORATION PROJECT CONTRACT

8/12 J. Lynch
H. Holland
"Appd. Sol. Inc."
Talbert
Selfridge

SOLICITOR

AUG 12 1959

INTERIOR DEPT.

To: Mr. Andrew Fletcher, President
St. Joseph Lead Company
230 Park Avenue
New York City, New York

Pursuant to the provisions of Exploration Project Contract No. 1dm-21068, dated March 18, 1957, Docket No. [illegible], hereinafter called the "contract", between the St. Joseph Lead Company, a New York corporation, and the United States of America, hereinafter called the "Government"; to establish and fix the Government's percentage royalty on production and its lien thereon and on the land described in the contract, the Government certifies and thereby certifies that discovery or development from which production may be made has resulted from the exploration work.

The nature of said discovery or development is described broadly or indicated as follows: Diamond drilling, with auxiliary churn drilling, has proved the existence of bedded deposits of lead ores occurring mainly in the middle zones of the Bonneterre (dolomite) formation.

AUG 18 1959

Dated: AUG 18 1959

THE UNITED STATES OF AMERICA

By Frank E. Johnson
Acting Director, Office of
Minerals Exploration

WRGriswold/gla 8-11-59
Copies to:
Mr. C.A.Fredell, Dir. TDS, DMS
Director's Reading File
F. E. Johnson
Operating Committee
Mr. Lamb, USBM
Mr. Kirkemo, USGS
OME Field Team, Region V (2)
Finance Office
Contract Adm. & Audit Div.
Mr. Griswold
Chron
Docket

OFFICE OF MINERALS EXPLORATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF REVIEW

I have reviewed the Monthly Reports of:

St. Joseph Lead Company
Bonne Terre, Mo.

pertaining to Exploration Project Contract No. Idm-81068, DMEA No. 4582, including Amendments Nos. 1 through 8, for May 1957 to December 1958, inclusive, covering a lead, zinc, and copper project in the Courtois Area, Washington County, Missouri.

My review included an examination of the Monthly Reports (Forms MF-104) and supporting documents, comparison of the claimed costs with the contract and pertinent schedules, verification of work performed by reference to Field Team reports and correspondence, and a determination of the reasonableness and propriety of the costs.

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

All of the costs were under a contract provision for payment by the Government at fixed unit costs for work performed.

The findings of this review are stated in the following summary and the attached schedule:

Total cost billed by Operator		$264,058.90
Exceptions:		
Prior to this review	$ -0-	
Herewith	-0-	-0-
Acceptable cost claimed by Operator		$264,058.90
Acceptable cost not claimed		1,134.20
Total acceptable cost, if claimed		$265,193.10

The contract calls for a 50 percent contribution of the allowable costs by the Government. Therefore, if the project is otherwise accepted as having met the terms of the contract, payments as follows are valid and proper:

On cost claimed	$132,029.45
On additional cost, if claimed	567.10
Total payable, if claimed	$132,596.55
Payable on audited claim	$132,029.45
Paid to date	127,681.62
Balance due Operator	$ 4,347.83
Additional payable, if claimed	$ 567.10

Pd 6/25/59

June 5, 1959

E. D. Talbert

E. D. Talbert, OME Auditor

Schedule of Audit Findings

	No. Holes	Drilling Footage Churn	Core	Total	Determinations Pb	Zn	Cu	Total
Work Performed:								
Stage I	84	13,084	42,941	56,025	276	31	19	326
" II	97	13,103	49,959	63,062	425	53	87	565
	181	26,187	92,900	119,087	701	84	106	891
Deducted by Operator:								
Stage I	-	0	0	0	2	0	0	2
" II - Hole 181	part	71	471	542	0	0	0	0
	-	71	471	542	2	0	0	2
Claimed by Operator:								
Stage I	84	13,084	42,941	56,025*	274	31	19	324
" II	97	13,032	49,488	62,520*	425	53	87	565
	181	26,116	92,429	118,545*	692	84	106	889
****Audit Adjustments:**								
Stage I	0	0	0	0	2	0	0	2
" II	part	71	439	510	0	0	0	0
	-	71	439	510	2	0	0	2
Accepted by Audit:								
Stage I	84	13,084	42,941	56,025	276	31	19	326
" II	97	13,103	49,927	63,030	425	53	87	565
	181	26,187	92,868	119,055	701	84	106	891

Acceptable Costs:

119,055' Churn and Diamond Drilling	@ $2.22/ft.	$264,302.10
891 Determinations	@ $1.00/ea.	891.00
Total		$265,193.10

Schedule of Audit Findings

* Footages as per logs attached to monthly reports; however, Operator's final engineering and geological report states total footages as:

Stage	I	56,015
"	II	62,530
	Total	118,545

** The Operator did not claim 542 feet of drilling in the final hole because such footage was in excess of the Stage II contractual maximum of 62,520 feet. The audit has allowed 530 feet of the unclaimed footage on the basis of the increase of the contractual maximum to 63,030 feet by Amendment No. 8. Also, in the May 1957 MF-104 the Operator claimed 16 determinations applicable to Stage I, whereas the monthly narrative and the applicable drill logs indicate 13 determinations were made.

Government's copy

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MAR 13 1959

BUREAU OF MINES
JOPLIN, MO.

MAR 16 1959
O.M.E.

EXPLORATION PROJECT CONTRACT
ST. JOSEPH LEAD COMPANY
DOCKET NO. DMEA-4582

AMENDMENT NO. 8

It is agreed this 6th day of March, 1959, between the United States of America, acting through the Department of the Interior, Office of Minerals Exploration, hereinafter called the "Government," and St. Joseph Lead Company, hereinafter called the "Operator," that Exploration Project Contract No. Idm-E1068 (Docket No. DMEA-4582), dated March 18, 1957, as amended, hereinafter called the "Contract," is further amended, as follows:

In Exhibit A:

1. Under Description of the Work, page 1, item numbered 2 is revised to read as follows:

"2. It is estimated that 181 drill holes having depths ranging approximately from 550 feet to 1,150 feet with a combined total length not to exceed 133,420 feet, will be required. Holes may not be drilled on a spacing of closer than 175 feet."

2. Under Description of the Work, page 2, item 1 under Stage I is revised to read as follows:

"1. Drill eighty-four holes, with a combined total length not to exceed 70,390 feet, at the locations identified by the symbol "+" on the attached map, 'Figure 1, Courtois Area, Missouri.' Any of these locations may be changed if the Government approves the change in advance."

3. Under Description of the Work, page 2, Stage II, item 1 is revised to read as follows:

"1. An estimated ninety seven additional holes, with a combined length not to exceed 63,030 feet, may be drilled from locations approved in advance by the Government on the basis of Stage I drilling."

Butrin
Dougan
Appr'd Sol. Off.
Jones
Selfridge
Chambers

4. Under Estimated Costs of the Project, Fixed Unit Costs, Stage I and Stage II, costs are revised to read as follows:

Stage I

70,390 feet of churn drilling and diamond drilling, @$2.22/ft. 1/	$156,265.80
1,260 determinations, @$1.00/each	1,260.00
Estimated Total Cost of Stage I	$157,525.80

Stage II

63,030 feet of churn drilling and diamond drilling, @$2.22/ft. 1/	$139,926.60
1,110 determinations, @$1.00/each	1,110.00
Estimated Total Cost of Stage II	$141,036.60

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate amount which the Government may be required to contribute, or the fixed unit cost of any item of work.

Executed in quintuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By Frank E. Johnson
Acting Director, Office of
Minerals Exploration

ST. JOSEPH LEAD COMPANY

By E. A. Jones

Title Division Manager

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TECHNOLOGY

MAR 13 1959

BUREAU OF MINES
JOPLIN, MO.

MAR 16 1959
O.M.E.

EXPLORATION PROJECT CONTRACT
ST. JOSEPH LEAD COMPANY
DOCKET NO. DMEA-4582

AMENDMENT NO. 7

It is agreed this 6th day of March, 1959, between the United States of America, acting through the Department of the Interior, Office of Minerals Exploration, hereinafter called the "Government," and St. Joseph Lead Company, hereinafter called the "Operator," that Exploration Project Contract No. Idm-E1068 (Docket No. DMEA-4582), dated March 18, 1957, as amended, hereinafter called the "Contract," is further amended, as follows:

The following parcel of land is hereby deleted from the land referred to in Article 2 of the Contract and described in Annex I:

That part of U. S. Bureau of Land Management Prospecting Permit, Serial #044857, described as follows:

S½ Section 9, Twp 35N, R1W..... 320.00 acres

The Operator:

(a) Certifies that the land has no known value for mineral production;

(b) Has, prior to the execution of this amendment, surrendered or otherwise disposed of all its interest, title, and equity in such land, and any minerals produced therefrom, including any option, lease or permit thereto, without any consideration whatsoever, including future compensation, for such surrender or disposition, other than relief from the cost of maintaining such interest;

(c) Agrees that no benefit from such land or any production of minerals therefrom will accrue to the Operator or to any of its subsidiaries, directly or indirectly, during the period expiring thirty years from the date of this Contract;

(d) Agrees that if the Operator or any of its subsidiaries acquires any interest, title, or equity in such land or any minerals produced therefrom, or derives

Austin
Sawyer
Assist. Gen.
Counsel
Chandler
Selfridge

any benefit therefrom, before the expiration of thirty years from the date of this Contract, the land with respect to which such interest, title, or equity is acquired, and any minerals produced therefrom, shall be deemed subject to this Contract and any certification from the date that the Operator or its subsidiaries acquired such interest, title, or equity, or any benefit therefrom, until the expiration of thirty years from the date of this Contract, or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first.

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate amount which the Government may be required to contribute, or the fixed unit cost of any item of work.

Executed in quintuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By Frank P. Johnson
Acting Director, Office of
Minerals Exploration

ST. JOSEPH LEAD COMPANY

By E. B. Jones

Title Division Manager

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JOPLIN, MO.

approved:

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EXPLORATION PROJECT CONTRACT IDM-E1068
ST. JOSEPH LEAD COMPANY
DOCKET NO. DMEA-4582 (LEAD-ZINC-COPPER)

AMENDMENT NO. 6

It is agreed this 27th day of October 1958, between the United States of America, acting through the Department of the Interior, Office of Minerals Exploration, and the St. Joseph Lead Company, that Exploration Project Contract Idm-E1068 (Docket No. DMEA-4582) effective as of the date above written is amended pursuant to item 1 of the Special Agreement Concerning Land in Annex I of said Exploration Contract, whereby the additional lands described in United States Bureau of Land Management Prospecting Permit Serial No. 045266, dated April 1, 1958, filed with the Office of Minerals Exploration as of that date, being contiguous to lands previously convered by said Contract become subject to the provisions of said Contract, and hereby are included with the list of properties thereunder in Annex I, particularly identified by the Operator's file number and on the Operator's maps as follows:

045266--Washington County, Missouri
The west 8 acres of NW/4 of the NE/4, sec. 12, T. 35N., R.2W,

and

045266--Crawford County, Missouri
The SW/4 of SW/4 and the south 3/4 of SE/4 of SW/4 of sec.1,

The E/2 of SE/4 of sec. 2,

The S/2 of NE/4 of sec. 11,

and the NW/4 of sec. 12, all in T. 35N, R. 2W.

This Amendment shall not be construed to increase the estimated cost of the project or the aggregate amount which the Government may be required to contribute.

Executed in quintuplicate the day and year first above written.

THE ST. JOSEPH LEAD COMPANY

By Ed Jones

Title Div. Mgr.

THE UNITED STATES OF AMERICA

By Clinton C. Knox
Executive Officer
OME Field Team, Region IV

DIVISION OF MINERAL TECHNOLOGY

OCT 29 1958

BUREAU OF MINES
JOPLIN, MO.

Bonne Terre, Missouri
October 27, 1958

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DATE	INITIALS	CODE

Mr. Clinton C. Knox, Executive Officer
DMEA Field Team, Region IV
United States Department of the Interior
Box 431
Joplin, Missouri

Dear Mr. Knox:

Re: DMEA-4582 (lead-zinc-copper), Courtois Area, Washington County, Mo., Contract Idm-41068.

Dear Mr. Knox:

Pursuant to the provisions contained in Annex I, we are requesting that an amendment to the above contract be executed to include the following listed contiguous lands:

Part of United States Bureau of Land Management Prospecting Permit, Serial No. 045266, dated April 1, 1958.

Grants exclusive right for two years (with right to a single extension) to prospect for galena and sphalerite and related minerals excluding oil and gas, oil shale, coal, phosphate, sodium, potasium and sulphur on the following described lands:

Township 35 North, Range 2 West, 5th P.M.	Acres
Section 2 - SE¼ - SE¼	40.00
" 12 - E½ - NW¼	80.00
" 12 - SW¼ - NW¼	40.00
" 1 - SW¼ - SW¼	40.00
" 11 - S½ - NE¼	80.00
" 12 - NW¼ - NW¼	40.00
" 1 - S-3/4 - SE¼ - SW¼	30.00
" 12 - W 8 acres of NW¼ - NE¼	8.00
" 2 - NE¼ - SE¼	40.00
TOTAL	398.00

Copies of covering permit are included.

Sincerely yours,

R. E. Wagner,
Geologist.

REW/jcp

Encls.

Box 431
Joplin, Missouri
October 30, 1958

Mr. R. E. Wagner, Exploration Superintendent
Geology Department
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4582 (lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mr. Wagner:

In response to your letter of request on October 27, enclosed are the original and four copies of the proposed Amendment No. 6 signed for the Government by me, covering the addition under the Contract of the tracts you listed totaling about 398 acres. If this Contract Amendment meets with the approval of your company, please have all copies signed, retain the Operator's Copy for your file, and return the others to me for the usual distribution; otherwise, return all copies with a statement of your objections for the consideration of OME.

Sincerely yours,

Clinton C. Knox
Executive Officer
OME Field Team, Region IV

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encls. 5

cc: Op.Com.(2)
Amos,USGS,Carbondale
King,USGS,Denver
4582 file
Shadow cy - Mr. E. A. Jones

Form 4-1094
(Aug. 1955)

REC'D

UNITED STATES
DEPARTMENT OF THE INTERIOR
Bureau of Land Management

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DATE	INITIALS	CODE

Office Eastern States Land Office

Serial No. ~~MM-A 019866~~
Missouri
(State)

Copper, Lead, Zinc, Iron
PROSPECTING PERMIT

Pursuant to the authority set out in, and subject to, the regulations 43 CFR 200.31-200.50, the United States of America, through the Bureau of Land Management, hereby grants to St. Joseph Lead Company, 250 Park Avenue, New York 17, New York the exclusive right for a period of two years from date hereof to propsect for copper, lead, zinc, iron and related minerals excluding oil and gas, oil shale, coal, phosphate, sodium, potassium and sulphur on the following described acquired land of the United States in the State of Missouri, and permission to erect thereon such structures and facilities as are requisite for such purpose:

In the Clark National Forest, a total of 1,069.39 acres, as shown on the attached sheet.

The United States agency having administrative control over the surface use of the land is the United States Forest Service and the authorized representative to whom all inquiries relating thereto should be addressed is C. L. Harrison, Forest Supervisor, Rolla, Missouri

This permit is subject to the following terms and the permittee agrees:

1. To pay in advance an annual rental of 25¢ per acre or fraction thereof, by remittance payable to the Bureau of Land Management.

2. To comply with all regulations of the Secretary of the Interior and the Secretary of Agriculture as to the lands described herein which are under his jurisdicition and to conduct his operations in an orderly manner, and in accordance with the regulations (30 CFR, Part 231) and the applicable Federal and State laws.

3. That the lands herein described shall be subject at all times to any other lawful uses by the United States, its lessees, permittees, licensees, and assigns; PROVIDED, That such uses subsequently granted shall not unduly interfere with the permittee's operations hereunder.

4. To conduct all operations hereunder with due regard for good land management, not to cut or destroy timber without previous permission from the authorized agency representative and to pay for such timber at rates prescribed by him; to avoid damage to improvements, timber, crops, or other cover; unless otherwise authorized by the agency representative, not to drill any well, carry on operations, make excavations, construct tunnels, drill, or otherwise disturb the surface of the lands within 200 feet of any building thereon and whenever required in writing by the authorized agency representative, and upon any partial or total relinquishment, cancellation or termination of this permit as to that portion of the land to which his rights have terminated, to fence or fill all sump holes, ditches, and other excavations, remove or cover all debris, and so far as reasonably possible, reseed or otherwise restore the surface of the lands to their former condition, or to a productive or other condition satisfactory to the authorized agency representative including the removal of structures as and if required, and when required by such representative to bury all pipelines below plow depth To do all in his power to prevent and suppress fires on the land and vicinity, and to require his employees, contractors, and subcontractors to do likewise. Unless prevented by circumstances over which he has no control, to place his employees, contractors, and subcontractors at the disposal of the authorized agency representative for the purpose of fighting fires on or originating on the land or on adjacent areas or caused by the negligence of the permittee or his employees, contractors, and subcontractors, with the understanding that payment for such services shall be made at rates to be determined by such authorized representative but not less than the current rates of pay prevailing in the vicinity for services of a similar character: PROVIDED, That if the permittee, his employees, contractors, or subcontractors, or employees of contractors or subcontractors, caused or could have prevented the origin or spread of said fire or fires, no payment shall be made for services so rendered. During periods of serious fire danger, as may be specified by the authorized agency representative, the permittee shall prohibit smoking and the building of camp and lunch fires by his employees, contractors, and subcontractors, within the permitted area except at established camps, and shall enforce this prohibition by all means within his power: PROVIDED, That the authorized agency representative may designate safe places where, after all inflammable materials have been cleared away, campfires may be built for the purpose of heating lunches and where, at the option of the permittee, smoking may be permitted: PROVIDED, Further that when in the judgment of the authorized agency representative the fire danger is of such serious nature that fires may result from the operation, the permittee will close down operations upon request of such representative for the period of such emergency. The permittee shall not burn rubbish, trash or other inflammable materials except with the consent of the authorized agency representative and shall not use explosives during the fire season except as authorized to do so or on areas approved by such representative. The permittee shall build or construct such fire lines or do such clearing on the land as the authorized agency representative decides is essential for forest, brush, and grass fire prevention which is or may be necessitated by the exercise of the privileges authorized by this permit, and shall maintain such fire tools at his headquarters or at the appropriate location on the lands as are deemed necessary by such representative.

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5. Not to clear or use the land for development or for construction purposes of any kind until a plan of construction and development therefor has been approved by the authorized agency representative and that in the location, design, construction, and maintenance of all authorized works, buildings, plants, waterways, roads, telegraph or telephone lines, pipelines, reservoirs, tanks, pumping stations, or other structures or clearance, permittee shall do all things reasonably necessary to prevent or reduce scarring and erosion of the land, pollution of the water resources and any damage to the watershed. That where construction, operation, or maintenance of any of the facilities on or connected with this permit causes damage to the watershed or pollution of the water resources, the permittee agrees to repair such damage and to take such corrective measures as are required by the authorized agency representative, including the reseeding or other restoration of the vegetative cover.

6. To pay the permitter or its tenant or the surface owner or his tenant, as the case may be, for any and all damage to or destruction of property caused by permittee's operations hereunder; to save and hold the permitter or the surface owner or their tenants harmless from all damage or claims for damage to persons or property resulting from permittee's operations hereunder.

7. To install and maintain cattle guards to prevent the passage of livestock in any openings made in fences by the permittee or his contractors to provide access to the lands covered by this permit for automotive and other equipment and that any camps to be constructed on the land will be located at a place approved by the authorized agency representative and that such camps will be kept in a neat and sanitary condition.

8. Unless otherwise authorized, prior to the beginning of operations to appoint and maintain at all times during the term of this permit a local agent upon whom may be served written orders or notices respecting matters contained in this stipulation, and to inform the authorized agency representative in writing, of the name and address of such agent. If a substitute agent is appointed, the permittee shall immediately so inform the said representative.

9. On termination of this permit by surrender, forfeiture, or otherwise, the permittee shall have the privilege at any time within a period of 90 days thereafter of removing from the premises all machinery, equipment, tools, and materials. Any materials, tools, appliances, machinery, structures, and equipment, subject to removal as above provided, which are allowed to remain on the land shall become the property of the United States on expiration of the 90-day period or such extension thereof as may be granted by it but the permittee shall remove any or all of such property when so directed by the authorized agency representative.

10. To permit inspection of the premises and operations by duly authorized representatives of the Departments of the Interior and Agriculture, and shall provide a way across the lands covered by this permit for the free ingress or egress of Government officers and for users of the lands covered by this permit or other lands administered by the agency having control over the surface or the purchasers of the products of any such lands.

11. That this permit shall become null and void if the Bureau of Land Management shall find and determine (a) that the permittee has violated or failed to comply with any of the conditions of said permit, to the detriment of the United States, or (b) that the lands herein described are required by a public agency for a public purpose with which the continuation of mining operations under this permit would be incompatible.

12. The right to mine or remove minerals in merchantable quantities is not granted by this permit except in connection with an application for a preference right lease and only as specified in the cited regulation. This permit does not authorize prospecting or removal of any mineral deposits by stripping, rim cutting or open pit methods, without the prior written approval of the authorized agency representative and on such conditions as he may prescribe. The permittee has a preference right during the term of this permit to secure a mining lease covering any of the lands described in this prospecting permit in accordance with the regulation 43 CFR 200.37.

13. That in connection with the performance of work under this permit, permittee will not discriminate against any employee or applicant for employment because of race, religion, color, or national origin. The aforesaid provision shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The permittee agrees to post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the nondiscrimination clause. The permittee further agrees to insert the foregoing provision in all subcontracts hereunder, except subcontracts for standard commercial supplies or raw materials.

14. This permit is subject to a single 2-year extension in accordance with the regulation 43 CFR 200.36.

15. That no Member of, or Delegate to, Congress, or Resident Commissioner, after his election or appointment, or either before or after he has qualified and during his continuance in office, and that no officer, agent, or employee of the Department of the Interior, except as provided in 43 CFR 7.4(a)(1), shall be admitted to any share or part in this permit or derive any benefit that may arise therefrom; and the provisions of Sec. 3741 of the Revised Statutes of the United States, as amended (41 U.S.C. Sec. 22), and Secs. 431, 432, and 433, Title 18 U. S. Code, relating to contracts, enter into and form a part of this permit so far as the same may be applicable.

APR 1 1958
Date

Joseph P. Hagan
Signing Officer

Chief, Minerals Adjudication Section
Title

IMT -DUP SEC WASH D C 85334

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TECHNOLOGY
OCT 29 1958
BUREAU OF MINES
JOPLIN, MO.

Amend No 6 - Selections

In the Clark National Forest:

		Acres
T. 36 N., R. 1 W.,	S½ Section 31	320.00
T. 35 N., R. 1 W.,	NE¼NW¼ Section 6	41.70
	NW¼NW¼ Section 6	35.27
T. 35 N., R. 2 W.	SE¼NW¼ Section 1	40.00
	SE¼SE¼ Section 2	40.00
	S½NW¼ Section 12	80.00
	SW¼NW¼ Section 12	40.00
	SW¼SW¼ Section 1	40.00
	S½ NE¼ Section 11	80.00
	NW¼NW¼ Section 12	40.00
	W½ Lot 1 NE¼ Less 8 - acre strip off West end Section 1	32.00
	N½NW¼ Section 1	81.90
	SW¼NW¼ Section 1	40.00
	S 3/4NE¼SW¼ Section 1	30.00
	W 8 acres of NW¼NE¼ Section 12	8.00
	NE¼SE¼ Section 2	40.00
	S½ Lot 1 NE¼ Section 1	40.00
	NE¼NW¼ Section 1	40.92
	Total	1069.39

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MAY 28 1958

BUREAU OF MINES
JOPLIN, MO.

Government's Copy

DMEA

EXPLORATION PROJECT CONTRACT IDM-E1068
ST. JOSEPH LEAD COMPANY
DOCKET No. DMEA-4582 (LEAD-ZINC-COPPER)

AMENDMENT NO. 5

It is agreed the 14th day of May, 1958, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and the St. Joseph Lead Company, that Exploration Project Contract Idm-E1068 (Docket No. DMEA-4582) is amended pursuant to item 1 of the Special Agreement Concerning Land in Annex I of said Exploration Contract, whereby the additional lands described in two Option Contracts filed with the Defense Minerals Exploration Administration as of May 14, 1958, being contiguous to lands covered by said Contract, becomes subject to the provisions therein, and hereby are included with the list of properties thereunder in Annex I, particularly identified by the Operator's file numbers and names of owners as follows:

CZ-283 John E. and Nettie Turnbough
CZ-288 Marvin G. and Loraine Turnbough

This amendment shall be effective as of May 14, 1958.

This amendment shall not be construed to increase the estimated cost of the project or the aggregate amount which the Government may be required to contribute.

Executed in quintuplicate the day and year first above written.

THE ST. JOSEPH LEAD COMPANY

By E. Jones

Title

THE UNITED STATES OF AMERICA

By Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

CZ-288

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DIVISION OF MINERAL
TECHNOLOGY

MAY 15 1958

BUREAU OF MINES
JOPLIN, MO.

OPTION CONTRACT

1. This instrument states the contract made by and between MARVIN T. TURNBOUGH and LORAINE TURNBOUGH, his wife, parties of the first part, hereinafter designated and referred to as the landowner, and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Sixty and 50/100 - - - - - - - - - - - - - - - - Dollars ($ 60.50) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests lying, being and situate in the County of Washington and State of Missouri, described as follows:

Part of the NW¼ of NW¼ of Sec. 4, containing 18 acres, the creek forming the line between L. C. Laramore and William Huitt farms, also, W½ Lot 1 NW¼ Sec. 4, containing 40 acres, and also, 2.5 acres in SE corner of NE¼ NE¼ Sec. 5--all in Twp. 35N, R. 1 W., containing in the aggregate 60.5 acres, more or less. (Excepting graveyard as now fenced in Sec. 4).

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DATE	INITIALS	CODE

3. The right and privilege is hereby granted the company to go in and upon the above described land and prospect for lead or other valuable minerals in modern manner and under modern local customs, that is to say, with a diamond drill or churn drill or such other implements, tools and machinery as the company may choose, and to dig, drill, bore, blast, tunnel, and sink shafts in and upon said land, and to use from said land without cost, all the water necessary for such drilling and prospecting. It is further understood and agreed that the landowner shall have the right to see and examine any and all drill cores taken from said land, and in case the company shall fail to buy under this option, all such drill cores as shall have been taken from said land and preserved by the company shall at any time within sixty days after the expiration of this contract, be turned over to the landowner upon his demand.

4. It is further agreed that all diamonds, bits, rods, pipes and other devices, tools, and appliances that may be used by the company in prospecting said land, shall remain and be the absolute property of the company, and the landowner hereby recognizes such continual ownership, and guarantees to the company the right and privilege to go in and upon said land or any part thereof, even after the expiration of this contract, or any extension thereof, for the purpose of searching for and seeking to recover any lost diamonds, bits, rods, pipes and other tools, devices and appliances.

5. It is hereby agreed that the company will be responsible for and pay the reasonable amount of damages done to any fences, fruit trees, or growing crops of the landowner by reason or as the result of the drilling and prospecting of said land, or in the search for lost bits and diamonds, and in case of a disagreement over the amount of any damage, the amount thereof shall be determined by three appraisers, who shall be citizens living in the county where the land herein described is situated, one of which appraisers shall be chosen by each of the parties to this contract and the third by the appraisers thus selected, the expense of such appraisal to be borne equally by the parties hereto.

6. If the company shall, during the life of this contract or any extension thereof, purchase under the terms of this contract, it shall pay for the above described real estate the sum of [illegible] Dollars ($ [illegible]) per acre.

7. The landowner hereby covenants and agrees that in the event of any election by the company to purchase under this contract, the landowner will, within 30 days after notice of election to purchase, furnish the company a complete abstract of title to the above described real estate. If the landowner fails to furnish said abstract within the time herein provided, the company shall have the right to procure said abstract and to retain the cost of same out of the purchase price provided for in this contract. If, upon examination of said abstract, the title be found not to be merchantable, the company shall have the right to rescind said election to purchase and in the event of such rescission shall be under no further obligation to purchase under this contract or otherwise.

8. If the company elects to purchase the above described real estate and fails to exercise the right of rescission above provided, then the landowner will make, execute and deliver to the company on the date specified in said notice of election

to purchase, a good and sufficient general warranty deed granting, bargaining and selling to the company in fee simple, free and clear of all encumbrances, the above described real estate.

9. For the purpose of this contract the aggregate acreage, as above stated, is taken to be correct and binding upon the parties, but if upon any election to purchase under the terms of this contract or at any time during the life of this contract or any extension thereof, the company shall so desire, the true acreage of said real estate shall be ascertained by survey by the County Surveyor of the county in which the land lies. And it is agreed that in the event the true acreage be established by said survey to be different from that given above, any payments made or calculated by or upon the acreage as above stated shall be corrected and adjusted to the true acreage so established.

10. Any notice or tender authorized or required to be given or made landowner shall be considered as given or made when deposited in the United States Mail, postage prepaid, addressed to _____. Tender of the company's draft shall be a valid tender under this contract.

11. This contract shall be construed as a covenant running with the land and shall be binding upon the landowner, his heirs, personal representatives and assigns and shall enure to the benefit of the company, its successors and assigns.

12. This contract shall be in force and effect for the term of one year from and after its effective date hereinafter stated. It is further agreed as part of the consideration of this contract that the term of this contract, and all of its provisions, shall, at the option of the company, be renewed or extended for further periods upon the following conditions, that is to say: Upon the tender of One and No/100 Dollars per acre on or before the last day of said first one year term, and upon like tender on or before the last day of any renewed or extended term, this contract will be renewed and extended for an additional term of one year from and after the expiration of the term immediately preceeding; provided, however, that there shall be not more than _____ such renewals or extensions.

13. This contract becomes effective on the date hereof.

14. In witness whereof, the said part___ of the first part ha___ hereunto set _____ hand__ and seal__ this _____ day of _____, 19___.

_____ (SEAL)

_____ (SEAL)

_____ (SEAL)

_____ (SEAL)

ACKNOWLEDGMENT

STATE OF MISSOURI)
COUNTY OF _____)

On this _____ day of _____, 195__, before me personally appeared _____, his wife, _____, to me known to be the persons described in and who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

In testimony whereof, I have hereunto set my hand and affixed my official seal at my office in _____ the day and year last above written.

My commission expires _____.

_____
Notary Public.

ACKNOWLEDGMENT

STATE OF MISSOURI)
COUNTY OF _____) SS.

On this _____ day of _____, 195__, before me personally appeared _____, to me known to be the person__ described in and who executed the foregoing instrument and acknowledged that __he__ executed the same as _____ free act and deed. And said _____ further declared _____ to be single and unmarried.

In testimony whereof, I have hereunto set my hand and affixed my official seal at my office in _____ the day and year last above written.

My commission expires _____.

_____
Notary Public

St. Joe Lead

4582

BLM Prospecting Permits #040279, 041828, 043391	455 acres.
Private Land Tracts.	3,911.40 "
Turnbaugh Tract.	80 "
Crabtree "	488.79 "
Permit 044857 (same as in 4581)	1,174.80 "

Land acreages.

5. Undertakes and agrees (a) neither to commit any act nor assert any claim in conflict with the provisions of this Agreement; and (b) to give advance notice of the Government's rights under this Agreement to any subsequent transferee, mortgagee, encumbrancer, or lessee of any of the undersigned's right, title, claim, or interest in or against the land, or any production therefrom furnishing the Government with two copies of such notice; and

6. Consents to all amendments (including an agreement of termination) and assignments of the contract without notice thereof, and undertakes and agrees that this Agreement shall extend and apply thereto.

7. Added provision: _____ (State "None" or "See Annex No.____")

Dated this _____ day of _____, 195__.

_____ [Seal] _____ [Address]

_____ [Seal] _____ [Address]

_____ [Seal] _____ [Address]

_____ [Seal] _____ [Address]

_____ [Seal] _____ [Address]

_____ [Seal] _____ [Address]

I, _____ certify that I am the _____ _____ (Secretary, etc.) of the corporation named herein; that _____ _____ who signed this agreement was then _____ (President or Vice-President, etc.) of said corporation; that said agreement was duly signed for and in behalf of said corporation by authority of its governing body, and was within the scope of its corporate powers.

_____

[Corporate Seal]

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EXPLORATION PROJECT CONTRACT IDM-E1068
ST. JOSEPH LEAD COMPANY
DOCKET NO. DMEA-4582 (LEAD-ZINC-COPPER)

AMENDMENT NO. 4

It is agreed this 3rd day of March 1958, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and the St. Joseph Lead Company, that Exploration Project Contract Idm-E1068 (Docket No. DMEA-4582) effective as of the date above written is amended pursuant to item 1 of the Special Agreement Concerning Land in Annex I of said Exploration Contract, whereby the additional lands described in United States Bureau of Land Management Prospecting Permit, Serial No. 044857, filed with the Defense Minerals Exploration Administration become subject to the provisions therein, and hereby are included with the list of properties thereunder in Annex I, particularly identified by the Operator's file number as follows:

044857--Washington County
That part of SE/4, sec. 1, T. 35 N., R. 2W.
The E/2 of NE/4 and that part of the SW/4 of NE/4, sec. 12, T. 35N., R. 2W
The S/2, sec. 6, T. 35N., R. 1W.
The S/2, sec. 9, T. 35N., R. 1W.

This Amendment shall not be construed to increase the estimated cost of the project or the aggregate amount which the Government may be required to contribute.

Executed in quintuplicate the day and year first above written.

THE ST. JOSEPH LEAD COMPANY

By E. Jones

Title DIVISION MANAGER

THE UNITED STATES OF AMERICA

By Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

Form 4-1099
(Aug. 1955)

UNITED STATES
DEPARTMENT OF THE INTERIOR
Bureau of Land Management

FEB 8

Office Eastern States Land Office

Serial No. BLM-A 044857

Missouri
(State)

Lead and Zinc
PROSPECTING PERMIT

Pursuant to the authority set out in, and subject to, the regulations 43 CFR 200.31-200.50, the United States of America, through the Bureau of Land Management, hereby grants to the St. Joseph Lead Company, 250 Park Avenue, New York 17, New York the exclusive right for a period of two years from date hereof to prospect for lead, zinc and related minerals excluding oil and gas, oil shale, coal, phosphate, sodium, potassium and sulphur on the following described acquired lands of the United States in the State of Missouri, and permission to erect thereon such structures and facilities as are requisite for such purpose:

1,174.80 acres as described on the attached sheet

The United States agency having administrative control over the surface use of the land is the United States Forest Service and the authorized representative to whom all inquiries relating thereto should be addressed is C. L. Harrison, Forest Supervisor, Rolla, Missouri

This permit is subject to the following terms and the permittee agrees:

1. To pay in advance an annual rental of 25¢ per acre or fraction thereof, by remittance payable to the Bureau of Land Management.

2. To comply with all regulations of the Secretary of the Interior and the Secretary of Agriculture as to the lands described herein which are under his jurisdiction and to conduct his operations in an orderly manner, and in accordance with the regulations (30 CFR, Part 231) and the applicable Federal and State laws.

3. That the lands herein described shall be subject at all times to any other lawful uses by the United States, its lessees, permittees, licensees, and assigns; PROVIDED, That such uses subsequently granted shall not unduly interfere with the permittee's operations hereunder.

4. To conduct all operations hereunder with due regard for good land management, not to cut or destroy timber without previous permission from the authorized agency representative and to pay for such timber at rates prescribed by him; to avoid damage to improvements, timber, crops, or other cover; unless otherwise authorized by the agency representative, not to drill any well, carry on operations, make excavations, construct tunnels, drill, or otherwise disturb the surface of the lands within 200 feet of any building thereon and whenever required in writing by the authorized agency representative, and upon any partial or total relinquishment, cancellation or termination of this permit as to that portion of the land to which his rights have terminated, to fence or fill all sump holes, ditches, and other excavations, remove or cover all debris, and so far as reasonably possible, reseed or otherwise restore the surface of the lands to their former condition, or to a productive or other condition satisfactory to the authorized agency representative including the removal of structures as and if required, and when required by such representative to bury all pipelines below plow depth. To do all in his power to prevent and suppress fires on the land and vicinity, and to require his employees, contractors, and subcontractors to do likewise. Unless prevented by circumstances over which he has no control, to place his employees, contractors, and subcontractors at the disposal of the authorized agency representative for the purpose of fighting fires on or originating on the land or on adjacent areas or caused by the negligence of the permittee or his employees, contractors, and subcontractors, with the understanding that payment for such services shall be made at rates to be determined by such authorized representative but not less than the current rates of pay prevailing in the vicinity for services of a similar character: PROVIDED, That if the permittee, his employees, contractors, or subcontractors, or employees of contractors or subcontractors, caused or could have prevented the origin or spread of said fire or fires, no payment shall be made for services so rendered. During periods of serious fire danger, as may be specified by the authorized agency representative, the permittee shall prohibit smoking and the building of camp and lunch fires by his employees, contractors, and subcontractors, within the permitted area except at established camps, and shall enforce this prohibition by all means within his power: PROVIDED, That the authorized agency representative may designate safe places where, after all inflammable materials have been cleared away, campfires may be built for the purpose of heating lunches and where, at the option of the permittee, smoking may be permitted: PROVIDED, Further that when in the judgment of the authorized agency representative the fire danger is of such serious nature that fires may result from the operation, the permittee will close down operations upon request of such representative for the period of such emergency. The permittee shall not burn rubbish, trash or other inflammable materials except with the consent of the authorized agency representative and shall not use explosives during the fire season except as authorized to do so or on areas approved by such representative. The permittee shall build or construct such fire lines or do such clearing on the land as the authorized agency representative decides is essential for forest, brush, and grass fire prevention which is or may be necessitated by the exercise of the privileges authorized by this permit, and shall maintain such fire tools at his headquarters or at the appropriate location on the lands as are deemed necessary by such representative.

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DATE

5. Not to clear or use the land for development or for construction purposes of any kind until a plan of construction and development therefor has been approved by the authorized agency representative and that in the location, design, construction, and maintenance of all authorized works, buildings, plants, waterways, roads, telegraph or telephone lines, pipelines, reservoirs, tanks, pumping stations, or other structures or clearance, permittee shall do all things reasonably necessary to prevent or reduce scarring and erosion of the land, pollution of the water resources and any damage to the watershed. That where construction, operation, or maintenance of any of the facilities on or connected with this permit causes damage to the watershed or pollution of the water resources, the permittee agrees to repair such damage and to take such corrective measures as are required by the authorized agency representative, including the reseeding or other restoration of the vegetative cover.

6. To pay the permitter or its tenant or the surface owner or his tenant, as the case may be, for any and all damage to or destruction of property caused by permittee's operations hereunder; to save and hold the permitter or the surface owner or their tenants harmless from all damage or claims for damage to persons or property resulting from permittee's operations hereunder.

7. To install and maintain cattle guards to prevent the passage of livestock in any openings made in fences by the permittee or his contractors to provide access to the lands covered by this permit for automotive and other equipment and that any camps to be constructed on the land will be located at a place approved by the authorized agency representative and that such camps will be kept in a neat and sanitary condition.

8. Unless otherwise authorized, prior to the beginning of operations to appoint and maintain at all times during the term of this permit a local agent upon whom may be served written orders or notices respecting matters contained in this stipulation, and to inform the authorized agency representative in writing, of the name and address of such agent. If a substitute agent is appointed, the permittee shall immediately so inform the said representative.

9. On termination of this permit by surrender, forfeiture, or otherwise, the permittee shall have the privilege at any time within a period of 90 days thereafter of removing from the premises all machinery, equipment, tools, and materials. Any materials, tools, appliances, machinery, structures, and equipment, subject to removal as above provided, which are allowed to remain on the land shall become the property of the United States on expiration of the 90-day period or such extension thereof as may be granted by it but the permittee shall remove any or all of such property when so directed by the authorized agency representative.

10. To permit inspection of the premises and operations by duly authorized representatives of the Departments of the Interior and Agriculture, and shall provide a way across the lands covered by this permit for the free ingress or egress of Government officers and for users of the lands covered by this permit or other lands administered by the agency having control over the surface or the purchasers of the products of any such lands.

11. That this permit shall become null and void if the Bureau of Land Management shall find and determine (a) that the permittee has violated or failed to comply with any of the conditions of said permit, to the detriment of the United States, or (b) that the lands herein described are required by a public agency for a public purpose with which the continuation of mining operations under this permit would be incompatible.

12. The right to mine or remove minerals in merchantable quantities is not granted by this permit except in connection with an application for a preference right lease and only as specified in the cited regulation. This permit does not authorize prospecting or removal of any mineral deposits by stripping, rim cutting or open pit methods, without the prior written approval of the authorized agency representative and on such conditions as he may prescribe. The permittee has a preference right during the term of this permit to secure a mining lease covering any of the lands described in this prospecting permit in accordance with the regulation 43 CFR 200.37.

13. That in connection with the performance of work under this permit, permittee will not discriminate against any employee or applicant for employment because of race, religion, color, or national origin. The aforesaid provision shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The permittee agrees to post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the nondiscrimination clause. The permittee further agrees to insert the foregoing provision in all subcontracts hereunder, except subcontracts for standard commercial supplies or raw materials.

14. This permit is subject to a single 2-year extension in accordance with the regulation 43 CFR 200.36.

15. That no Member of, or Delegate to, Congress, or Resident Commissioner, after his election or appointment, or either before or after he has qualified and during his continuance in office, and that no officer, agent, or employee of the Department of the Interior, except as provided in 43 CFR 7.4(a)(1), shall be admitted to any share or part in this permit or derive any benefit that may arise therefrom; and the provisions of Sec. 3741 of the Revised Statutes of the United States, as amended (41 U.S.C. Sec. 22), and Secs. 431, 432, and 433, Title 18 U. S. Code, relating to contracts, enter into and form a part of this permit so far as the same may be applicable.

MAR 1 1958
Date

Signing Officer

Chief, Minerals Adjudication Section
Title

PHOTOSTAT: J.A.T.
2-17-58
J.S.B.
2-25-58

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MAR 4 1958

BUREAU OF MINES
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BLM-A-044857

Special Conditions

A. The permittee shall fully repair all damage to National Forest roads and trails caused by the permittee in the exercise of the privileges granted by this permit.

B. The permittee shall plug all drill holes with a creosoted plug where the hole enters the solid rock below the overburden of soil and decomposed rock and cover with cement before the casing is pulled so that a permanent water tight plug results.

C. This permit does not grant the right to prospect for or remove any mineral deposits by stripping, rim cutting, contour or open pit methods, or to carry on prospecting or mining by means of mechanical earth moving equipment.

Signed _____

Attest _____

Date Oct 29, 1957

PHOTOSTAT: J.A.T.
2-17-58

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In the Clark National Forest, the following

In Township 35 North, Range 2 West:

Tract No.	Description	Acres
11B	[illegible] Sec. 1 [illegible] Sec. 12	60 50
1[illegible]4	That part of the [illegible] of Sec. 1 east of the Crawford-Washington County line	[illegible]
441	S1/4[illegible] of Sec. 1 west of the Crawford-Washington County line	[illegible]
1[illegible]1	That part of the S[illegible] of Sec. 12 east of the Crawford-Washington County line	[illegible]
2[illegible]5	[illegible] of Sec. 11	10
[illegible]	S[illegible] of Sec. 10	60
[illegible]	N[illegible] of Sec. 10	[illegible]
[illegible]	[illegible] Sec. 10	10
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]

PHOTOSTAT: J.A.T.
2-17-58

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EXPLORATION PROJECT CONTRACT IDM-E1068
ST. JOSEPH LEAD COMPANY
DOCKET NO. DMEA-4582 (LEAD-ZINC-COPPER)

AMENDMENT NO. 3

It is agreed the 16th day of October, 1957, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and the St. Joseph Lead Company, that Exploration Project Contract Idm-E1068 (Docket No. DMEA-4582) is amended pursuant to item 1 of the Special Agreement Concerning Land in Annex I of said Exploration Contract, whereby the additional lands described in one Option Contract filed with the Defense Minerals Exploration Administration as of October 16, 1957, being contiguous to lands covered by said Contract, becomes subject to the provisions therein, and hereby are included with the list of properties thereunder in Annex I, particularly identified by the Operator's file number and names of owner as follows:

CZ 223 C. A. Crabtree and Emma Crabtree(wife)

This amendment shall be effective as of October 16, 1957.

This amendment shall not be construed to increase the estimated cost of the project or the aggregate amount which the Government may be required to contribute.

Executed in quintuplicate the day and year first above written.

THE ST. JOSEPH LEAD COMPANY

By E. A. Jones

Title Div. Mgr.

THE UNITED STATES OF AMERICA

By Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

OFFICE OF SECRETARY
DMEA
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DATE	INITIALS	CODE

423

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MINERALS TECHNOLOGY
DIVISION
OCT 15 1957
BUREAU OF MINES
JOPLIN, MO.

OPTION CONTRACT

1. This instrument states the contract made by and between

C. A. CRABTREE and ELLA CRABTREE, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Four Hundred Eighty Eight and 70/100 - - - - - - - Dollars ($488.70) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights, minerals and substances of all the SE¼ of NW¼ excepting 2 acres heretofore sold; all SW¼ of NW¼; all the NW¼ of SW¼ lying on the West side of Courtois Creek. And all the SW¼ of SW¼ lying on West side of Courtois Creek except 5 acres sold--all in Sec. 5, Twp. 35 N., R. 1 W., containing 153 acres, more or less. Also, the NE¼ containing 160 acres, all in Sec. 8, Twp. 35 N., R. 1 W.

The SE¼ of SW¼ Of Sec. 32, Twp. 36 N., R. 1 W.; also, the W½ of SW¼ of Sec. 32, Twp. 36 N., R. 1 W., containing in the aggregate 120 acres, more or less.

Also, all of W½ of Lot 2 of NW¼ of Sec. 5, Twp. 35 N., R. 1 W., containing 46.79 acres, more or less.

The total aggregate terms conveyed by this option contract is 488.79 acres, more or less.

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3. The right and privilege is hereby granted to the company to go in and upon the surface of the above described land and prospect for lead or other valuable minerals in modern manner and under modern local customs, that is to say with a diamond drill or churn drill or such other implements, tools and machinery as the company may choose, and to dig, drill, bore, blast, tunnel, and sink shafts in and upon said land, and to use from said land without cost, all the water necessary for such drilling and prospecting. It is further understood and agreed that the landowner shall have the right to see and examine any and all drill cores taken from said land, and in case the company shall fail to buy under this option, all such drill cores as shall have been taken from said land and preserved by the company, shall at any time within sixty days after the expiration of this contract, be turned over to the landowner upon his demand.

4. It is further agreed that all diamonds, bits, rods, pipes and other devices, tools, and appliances that may be used by the company in prospecting said land, shall remain and be the absolute property of the company, and the landowner hereby recognizes such continual ownership, and guarantees to the company the right and privilege to go in and upon said land or any part thereof, even after the expiration of this contract, or any extension thereof, for the purpose of searching for and seeking to recover any lost diamonds, bits, rods, pipes and other tools, devices and appliances.

5. It is hereby agreed that the company will be responsible for and pay the reasonable amount of damages done to any fences, fruit trees, or growing crops of the landowner by reason or as the result of the drilling and prospecting of said land, or in the search for lost bits and diamonds, and in case of a disagreement over the amount of any damage, the amount thereof shall be determined by three appraisers, who shall be citizens living in the county where the land herein described is situated, one of which appraisers shall be chosen by each of the parties to this contract and the third by the appraisers thus selected, the expense of such appraisal to be borne equally by the parties hereto.

6. If the company shall, during the life of this contract or any extension thereof, purchase under the terms of this contract, it shall pay for the above described underground, mining rights and minerals the sum of Fifty and No/100 - - - - - - - Dollars ($50.00) per acre.

7. For and in consideration of the covenants and agreements herein expressed and of the said sum of One Dollar ($1.00) paid by the company to the landowner, and for other good and valuable considerations, the landowner by these presents grants and sells unto the company, to continue during the life of this contract or any extension thereof, the following additional exclusive right and option:

If the company shall during the life of this contract or any extension thereof buy the above described underground and mining rights and minerals at the price above set out, to wit, Fifty and No/100 - - - - Dollars ($50.00) per acre, then the company shall have the right to purchase and the landowner agrees to sell and convey by general warranty deed, free and clear of all encumbrances, any of the surface of the above described land that is desired by the company for the sum of One Hundred and No/100 - - - - Dollars ($100.00) per acre for such surface so taken, plus the reasonable value of any buildings on the surface of the land so purchased. It is agreed that if the parties hereto are unable to agree upon the

reasonable value of said buildings, then the same shall be determined by three appraisers, one appointed promptly by each of the parties and the third by the two so selected. If the said two appraisers chosen by the parties shall fail to choose a third appraiser within fifteen days after they are chosen, a third appraiser shall be appointed by the Magistrate of the county in which the above described land is located. The decision of such appraisers as to the reasonable value of said buildings shall be final and binding upon the parties, the expense of such appraisal to be borne equally by the two said parties.

8. The landowner hereby covenants and agrees that in the event of any election by the company to purchase under this contract, the landowner will, within 30 days after notice of election to purchase, furnish the company a complete abstract of title to the above described land, rights and property. If the landowner fails to furnish said abstract within the time herein provided, the company shall have the right to procure said abstract and to retain the cost of same out of the purchase price provided for in this contract. If upon examination of said abstract, the title be found not to be merchantable, the company shall have the right to rescind said election to purchase and in the event of such rescission shall be under no further obligation to purchase under this contract or otherwise.

9. If the company elects to purchase the underground, mining rights and minerals as described in paragraph 2 or said underground, mining rights and minerals and the surface or any part thereof as provided in paragraph 7, and fails to exercise the right of rescission above provided, then the landowner will make, execute and deliver to the company on the date specified in said notice of election to purchase, a good and sufficient general warranty deed granting, bargaining and selling to the company in fee simple, free and clear of all encumbrances the interests specified in the notice of election. If by said deed the company does not acquire title to any or all of the surface of the above described land, then said deed shall include a clause with respect to such unacquired surface, as follows:

"It is hereby expressly understood and agreed that the grantee, its successors and assigns, shall have the full, free and exclusive right and privilege of carrying on its business of mining upon and under the premises hereby conveyed and removing the mineral therefrom, including the right to prospect for mineral upon any part of the same, the right to sink shafts and to use so much of the surface of the conveyed premises as may be necessary or convenient for the purpose of connecting by road, railway, conduit or wire any shaft with other shafts, or with the mills or other concentrating works or smelteries, or with the tracks of any railroad and the further right of doing in a proper manner any act upon the surface of the conveyed premises which the grantee or its successors or assigns may deem necessary or desirable to fully enjoy the mining rights in and upon said premises. But it is further understood and agreed that for all damages that may be done to the surface of the conveyed premises or to any building or structure thereon in the carrying out of any or all of the purposes and rights of the grantee, said grantee shall pay the grantor, his heirs and assigns, a reasonable amount to be agreed upon; and in the event they fail to agree then the same shall be determined by three appraisers, one appointed by each party hereto and a third by those two, and their decision as to such damages shall be final, the expense of such appraisal to be borne equally by the grantor and grantee."

10. In any event in which the surface of the above described real estate is referred to in or under this contract, the word "surface" shall be construed to include all right, title and interest in and to the acreage of land specified except the underground, mining rights and minerals described in paragraph 2.

11. For the purpose of this contract the aggregate acreage, as above stated, is taken to be correct and binding upon the parties, but if upon any election to purchase under the terms of this contract or at any time during the life of this contract or any extension thereof, the company shall so desire, the true acreage of said lands or any designated part thereof shall be ascertained by survey by the County Surveyor of the county in which the land lies. And it is agreed that in the event the true acreage be established by said survey to be different from that given above, any payments made or calculated by or upon the acreage as above stated shall be corrected and adjusted to the true acreage so established.

12. Any notice or tender authorized or required to be given or made landowner shall be considered as given or made when deposited in the United States Mail, postage prepaid, addressed to C. A. Crabtree, Courtois, Missouri. Tender of the company's draft shall be a valid tender under this contract.

13. This contract shall be construed as a covenant running with the land and shall be binding upon the landowner, his heirs, personal representatives and assigns and shall enure to the benefit of the company, its successors and assigns.

14. This contract shall be in force and effect for the term of one year from and after its effective date hereinafter stated. It is further agreed as part of the consideration of this contract that the term of this contract, and all of its provisions, shall, at the option of the company, be renewed or extended for further periods upon the following conditions, that is to say: Upon the tender of One and No/100 Dollars per acre on or before the last day of said first one year term, and upon like tender on or before the last day of any renewed or extended term, this contract will be renewed and extended for an additional term of one year from and after the expiration of the term immediately preceeding; provided, however, that there shall be not more than 2 such renewals or extensions.

15. This contract becomes effective on the date hereof.

16. In witness whereof, the said parties of the first part have hereunto set their hands and seals this 12th day of July, 1957.

C A Crabtree (SEAL)

Emma Crabtree (SEAL)

_____ (SEAL)

_____ (SEAL)

_____ (SEAL)

ACKNOWLEDGMENT

STATE OF MISSOURI)
) SS.
COUNTY OF Washington)

On this 12th day of July, 1957, before me personally appeared C. A. CRABTREE and ELLA CRABTREE, his wife, to me known to be the persons described in and who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

In testimony whereof, I have hereunto set my hand and affixed my official seal at my office in Bonne Terre, Mo. the day and year last above written.

My commission expires March 5th 1958.

Lowell C. Berg
Notary Public

ACKNOWLEDGMENT

STATE OF MISSOURI)
) SS.
COUNTY OF _____)

On this _____ day of _____, 195___, before me personally appeared _____, to me known to be the person__ described in and who executed the foregoing instrument and acknowledged that __he__ executed the same as _____ free act and deed. And said _____ further declared _____ to be single and unmarried.

In testimony whereof, I have hereunto set my hand and affixed my official seal at my office in _____ the day and year last above written.

My commission expires _____.

_____
Notary Public.

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DIVISION

EXPLORATION PROJECT CONTRACT IDM-E1068
ST. JOSEPH LEAD COMPANY
DOCKET NO. DMEA-4582 (LEAD-ZINC-COPPER)

Approved WG

AMENDMENT NO. 2

It is agreed this 19th day of June 1957, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and the St. Joseph Lead Company, that Exploration Project Contract Idm-E1068 (Docket No. DMEA-4582) is amended pursuant to item 1 of the Special Agreement Concerning Land in Annex I of said Exploration Contract, whereby the additional lands described in one Option Contract filed with the Defense Minerals Exploration Administration as of June 19, 1957, being contiguous to lands covered by said Contract, becomes subject to the provisions therein, and hereby are included with the list of properties thereunder in Annex I, particularly identified by the Operator's file number and names of owners as follows:

CZ 158 Ira Turnbaugh and Bertha Turnbaugh (wife)

This Amendment shall be effective as of June 19, 1957.

This Amendment shall not be construed to increase the estimated cost of the project or the aggregate amount which the Government may be required to contribute.

Executed in sextuplicate the day and year first above written.

THE ST. JOSEPH LEAD COMPANY

By E. A. Jones

Title Div. Mgr.

THE UNITED STATES OF AMERICA

By Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

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orig to N Berry for review by Legal Div. cc

GOVERNMENT'S COPY

EXPLORATION PROJECT CONTRACT IDM-E1068
ST. JOSEPH LEAD COMPANY
DOCKET NO. DMEA-4582 (LEAD-ZINC-COPPER)

approved by Ad. W. C.

AMENDMENT NO. 2

It is agreed this 19th day of June 1957, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and the St. Joseph Lead Company, that Exploration Project Contract Idm-E1068 (Docket No. DMEA-4582) is amended pursuant to item 1 of the Special Agreement Concerning Land in Annex I of said Exploration Contract, whereby the additional lands described in one Option Contract filed with the Defense Minerals Exploration Administration as of June 19, 1957, being contiguous to lands covered by said Contract, becomes subject to the provisions therein, and hereby are included with the list of properties thereunder in Annex I, particularly identified by the Operator's file number and names of owners as follows:

CZ 158 Ira Turnbaugh and Bertha Turnbaugh (wife)

This Amendment shall be effective as of June 19, 1957.

This Amendment shall not be construed to increase the estimated cost of the project or the aggregate amount which the Government may be required to contribute.

Executed in sextuplicate the day and year first above written.

THE ST. JOSEPH LEAD COMPANY

By E. A. Jones

Title Div. Mgr

THE UNITED STATES OF AMERICA

By Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

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OPTION CONTRACT

1. This instrument states the contract made by and between

IRA TURNBOUGH and BERTHA TURNBOUGH, his wife,

parties of the first part, hereinafter designated and referred to as the landowner, and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Eighty and no/100 - - - - - - - - - - - - - - - Dollars ($ 80.00) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in all of NE¼ SW¼ and NW¼ SE¼ Sec. 4, Twp. 35 N., R. 1 W., containing 80 acres, more or less. Excepting all coal, oil and gas.

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3. The right and privilege is hereby granted the company to go in and upon the surface of the above described land and prospect for lead or other valuable minerals in modern manner and under modern local customs, that is to say with a diamond drill or churn drill or such other implements, tools and machinery as the company may choose, and to dig, drill, bore, blast, tunnel, and sink shafts in and upon said land, and to use from said land without cost, all the water necessary for such drilling and prospecting. It is further understood and agreed that the landowner shall have the right to see and examine any and all drill cores taken from said land, and in case the company shall fail to buy under this option, all such drill cores as shall have been taken from said land and preserved by the company, shall at any time within sixty days after the expiration of this contract, be turned over to the landowner upon his demand. It is agreed that Company will not drill within 500 feet of the spring.

4. It is further agreed that all diamonds, bits, rods, pipes and other devices, tools, and appliances that may be used by the company in prospecting said land, shall remain and be the absolute property of the company, and the landowner hereby recognizes such continual ownership, and guarantees to the company the right and privilege to go in and upon said land or any part thereof, even after the expiration of this contract, or any extension thereof, for the purpose of searching for and seeking to recover any lost diamonds, bits, rods, pipes and other tools, devices and appliances.

5. It is hereby agreed that the company will be responsible for and pay the reasonable amount of damages done to any fences, fruit trees, or growing crops of the landowner by reason or as the result of the drilling and prospecting of said land, or in the search for lost bits and diamonds, and in case of a disagreement over the amount of any damage, the amount thereof shall be determined by three appraisers, who shall be citizens living in the county where the land herein described is situated, one of which appraisers shall be chosen by each of the parties to this contract and the third by the appraisers thus selected, the expense of such appraisal to be borne equally by the parties hereto.

6. If the company shall, during the life of this contract or any extension thereof, purchase under the terms of this contract, it shall pay for the above described underground, mining rights and minerals the sum of Fifty and No/100 - - - - - - - Dollars ($50.00) per acre.

7. For and in consideration of the covenants and agreements herein expressed and of the said sum of One Dollar ($1.00) paid by the company to the landowner, and for other good and valuable considerations, the landowner by these presents grants and sells unto the company, to continue during the life of this contract or any extension thereof, the following additional exclusive right and option:

If the company shall during the life of this contract or any extension thereof buy the above described underground and mining rights and minerals at the price above set out, to wit, Fifty and No/100 - - - - Dollars ($50.00) per acre, then the company shall have the right to purchase and the landowner agrees to sell and convey by general warranty deed, free and clear of all encumbrances, any of the surface of the above described land that is desired by the company for the sum of One Hundred and No/100 - - - - Dollars ($100.00) per acre for such surface so taken, plus the reasonable value of any buildings on the surface of the land so purchased. It is agreed that if the parties hereto are unable to agree upon the

reasonable value of said buildings, then the same shall be determined by three appraisers, one appointed promptly by each of the parties and the third by the two so selected. If the said two appraisers chosen by the parties shall fail to choose a third appraiser within fifteen days after they are chosen, a third appraiser shall be appointed by the Magistrate of the county in which the above described land is located. The decision of such appraisers as to the reasonable value of said buildings shall be final and binding upon the parties, the expense of such appraisal to be borne equally by the two said parties.

8. The landowner hereby covenants and agrees that in the event of any election by the company to purchase under this contract, the landowner will, within 30 days after notice of election to purchase, furnish the company a complete abstract of title to the above described land, rights and property. If the landowner fails to furnish said abstract within the time herein provided, the company shall have the right to procure said abstract and to retain the cost of same out of the purchase price provided for in this contract. If upon examination of said abstract, the title be found not to be merchantable, the company shall have the right to rescind said election to purchase and in the event of such rescission shall be under no further obligation to purchase under this contract or otherwise.

9. If the company elects to purchase the underground, mining rights and minerals as described in paragraph 2 or said underground, mining rights and minerals and the surface or any part thereof as provided in paragraph 7, and fails to exercise the right of rescission above provided, then the landowner will make, execute and deliver to the company on the date specified in said notice of election to purchase, a good and sufficient general warranty deed granting, bargaining and selling to the company in fee simple, free and clear of all encumbrances the interests specified in the notice of election. If by said deed the company does not acquire title to any or all of the surface of the above described land, then said deed shall include a clause with respect to such unacquired surface, as follows:

"It is hereby expressly understood and agreed that the grantee, its successors and assigns, shall have the full, free and exclusive right and privilege of carrying on its business of mining upon and under the premises hereby conveyed and removing the mineral therefrom, including the right to prospect for mineral upon any part of the same, the right to sink shafts and to use so much of the surface of the conveyed premises as may be necessary or convenient for the purpose of connecting by road, railway, conduit or wire any shaft with other shafts, or with the mills or other concentrating works or smelteries, or with the tracks of any railroad and the further right of doing in a proper manner any act upon the surface of the conveyed premises which the grantee or its successors or assigns may deem necessary or desirable to fully enjoy the mining rights in and upon said premises. But it is further understood and agreed that for all damages that may be done to the surface of the conveyed premises or to any building or structure thereon in the carrying out of any or all of the purposes and rights of the grantee, said grantee shall pay the grantor, his heirs and assigns, a reasonable amount to be agreed upon; and in the event they fail to agree then the same shall be determined by three appraisers, one appointed by each party hereto and a third by those two, and their decision as to such damages shall be final, the expense of such appraisal to be borne equally by the grantor and grantee."

10. In any event in which the surface of the above described real estate is referred to in or under this contract, the word "surface" shall be construed to include all right, title and interest in and to the acreage of land specified except the underground, mining rights and minerals described in paragraph 2.

11. For the purpose of this contract the aggregate acreage, as above stated, is taken to be correct and binding upon the parties, but if upon any election to purchase under the terms of this contract or at any time during the life of this contract or any extension thereof, the company shall so desire, the true acreage of said lands or any designated part thereof shall be ascertained by survey by the County Surveyor of the county in which the land lies. And it is agreed that in the event the true acreage be established by said survey to be different from that given above, any payments made or calculated by or upon the acreage as above stated shall be corrected and adjusted to the true acreage so established.

12. Any notice or tender authorized or required to be given or made landowner shall be considered as given or made when deposited in the United States Mail, postage prepaid, addressed to Ira Turnbough, RR, Potosi, Missouri. Tender of the company's draft shall be a valid tender under this contract.

13. This contract shall be construed as a covenant running with the land and shall be binding upon the landowner, his heirs, personal representatives and assigns and shall enure to the benefit of the company, its successors and assigns.

14. This contract shall be in force and effect for the term of one year from and after its effective date hereinafter stated. It is further agreed as part of the consideration of this contract that the term of this contract, and all of its provisions, shall, at the option of the company, be renewed or extended for further periods upon the following conditions, that is to say: Upon the tender of One and No/100 Dollars per acre on or before the last day of said first one year term, and upon like tender on or before the last day of any renewed or extended term, this contract will be renewed and extended for an additional term of one year from and after the expiration of the term immediately preceeding; provided, however, that there shall be not more than 2 such renewals or extensions.

15. This contract becomes effective on the date hereof.

16. In witness whereof, the said parties of the first part have hereunto set their hands and seals this 24th day of December 1956.

Ira Turnbough (SEAL)

Bertha Turnbough (SEAL)

_____ (SEAL)

_____ (SEAL)

_____ (SEAL)

ACKNOWLEDGMENT

STATE OF MISSOURI)
) SS.
COUNTY OF Ninnescah)

On this 24th day of December, 1956, before me personally appeared IRA TURNBOUGH and BERTHA TURNBOUGH, his wife, to me known to be the persons described in and who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

In testimony whereof, I have hereunto set my hand and affixed my official seal at my office in Pratt, Mo the day and year last above written.

My commission expires March 5th, 1958.

Lowell Ray
Notary Public.

ACKNOWLEDGMENT

STATE OF MISSOURI)
) SS.
COUNTY OF _____)

On this _____ day of _____, 195__, before me personally appeared _____, to me known to be the person__ described in and who executed the foregoing instrument and acknowledged that __he__ executed the same as _____ free act and deed. And said _____ further declared _____ to be single and unmarried.

In testimony whereof, I have hereunto set my hand and affixed my official seal at my office in _____ the day and year last above written.

My commission expires _____.

_____
Notary Public.

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DIVISION

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EXPLORATION PROJECT CONTRACT IDM-E1068
ST. JOSEPH LEAD COMPANY
DOCKET NO. DMEA-4582(LEAD-ZINC-COPPER)

AMENDMENT NO. 1

It is agreed this 9th day of April, 1957, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government", and the St. Joseph Lead Company, hereinafter called the "Operator" that Exploration Project Contract Idm-E1068 (Docket No. DMEA-4582) dated March 18, 1957 hereinafter called the "Contract", is hereby amended effective March 18, 1957.

1. In "Exhibit A, Description of the Work" attached as a part of the Contract, the first paragraph is changed to read as follows:

The purpose of the project is to explore for ores of lead, zinc, and copper by diamond drilling, after churn drilling, as necessary, in overburden, weathered strata, and the upper more porous formations that are of no economic significance, in the upper portion of the holes.

2. The first sentence of the fourth paragraph of "Exhibit A, Description of the Work" is hereby changed as follows:

All diamond drilling shall be done with AX-size, or larger, bits, coring all strata below and including the base of the Davis Shale formation, but the use of an EX-size bit is to be permissible, if necessary in order to complete a hole.

3. Paragraph six of "Exhibit A, Description of the Work" is deleted and the following inserted instead:

In the event that the core recovery in a significantly mineralized section of a hole does not exceed 70 percent, the Operator, entirely at its own expense, shall drill another hole at a nearby location and furnish data thereon as required by the contract.

This Amendment shall not be construed to increase the estimated cost of the project, the fixed unit cost of the work or the aggregate amount which the Government may be required to contribute.

Executed in sextuplicate on the day and year first above written.

THE ST. JOSEPH LEAD COMPANY

By [signature]

Title President

THE UNITED STATES OF AMERICA

By Robert W. King
Acting Executive Officer
DMEA Field Team, Region IV

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JUSTIFICATION FOR AMENDMENT NO. 1
TO PROJECT CONTRACT IDM-E1068
ST. JOSEPH LEAD COMPANY
DOCKET DMEA-4582 (LEAD-ZINC-COPPER)
COURTOIS AREA, WASHINGTON COUNTY, MO.

Upon written requests and explanations by this Operator in letters dated March 29, and April 5, 1957, this Amendment No. 1, as hereby justified, was executed for the most practical implementation of the project objectives.

The following refer to the three items of change by the Amendment:

1. In accordance with the application and recommendations in the Field Team Examination Report dated February 8, 1957, churn drilling of the upper portions of each hole was not intended to be stopped upon merely penetrating the near-surface "overburden and loose and unconsolidated material". On the basis of many years of actual exploratory drilling experience the Contract unit cost was estimated on the use of churn drilling also through the vuggy and cherty formations, generally very costly or impossible to diamond drill and having no exploration potentialities, to the depth of the base of the Davis shale formation wherever most practical.

2. Likewise, there was no intent in the application or in the Field Team Report to imply any valid reason for core drilling above the base of the Davis shale formation which would have necessitated a higher estimate for the Contract unit cost.

3. Because of having been proven impractical and unreliable long ago in this mining district, no sludge sampling was contemplated by this Applicant or the Field Team, and therefore, the added costs for such were not included in the Contract unit cost. The percentage of core recovery is undeterminable until after the core has been pulled. Continuous sludge sampling would increase the costs considerably.

The Operator, consistent with its established exploration practice, agreed however, that holes would be redrilled when justifiable to obtain satisfactory core recovery in significantly mineralized strata.

MF-200A
(Rev. April 1956)

Government

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UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
EXPLORATION PROJECT CONTRACT
(Short Form)

DMEA No.	*Commodity*	*Contract No.*	*County*	*State*
4582	Lead-Zinc-Copper	*Idm-E* 1068	Washington	Missouri

It is agreed 18 MAR 1957, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and ST. JOSEPH LEAD COMPANY, a New York corporation,

whose mailing address is Bonne Terre, Missouri

hereinafter called the "Operator," as follows:

ARTICLE 1. *Authority and project.*—(a) This contract is entered into under the authority of the Defense Production Act of 1950, as amended. It consists of this form (MF-200A), the attached Annex I (land description), Exhibit A (work and costs), and the maps and documents listed therein. The project work is a search for indicated or undeveloped deposits of the commodity designated above. The Operator shall begin the work on or before 30 days after date of this contract, and, subject to the provisions of Article 7 and Exhibit A, shall complete the work within 24 months from the date of the contract.

(b) The description of the work and the fixed cost for each unit of work to be performed (per foot of drilling, per foot of drifting, per hour of operations, etc.) are hereby agreed upon as specified in Exhibit A. The estimated total cost of the project work is $298,560.00. The Government will contribute 50 percent of the fixed unit cost of the work performed, not exceeding $149,280.00, in accordance with the provisions of Articles 4 and 5.

(c) The Operator shall not transfer or assign this contract or any right or obligation thereunder without the written consent of the Government.

ARTICLE 2. *Operator's property rights.*—(a) The Operator represents and undertakes that Annex I correctly describes the land which is the subject of this contract and the nature of the Operator's rights of property and possession therein (whether as owner, lessee, or otherwise), and that such right, title, or interest is subject only to the following claims, liens, or encumbrances: See Annex I.

(b) The Subordination Agreement of the holder of any claim, lien, or encumbrance listed above and (if the Operator does not hold the legal title) the Consent to Lien of any holder of the legal title of the land (lessor, seller, optionor, etc.) are attached, as follows: Consent to Lien and Subordination Agreements are waived.

(c) The Operator shall preserve and maintain his right, title, and interest in the land and his right to the possession thereof for the purposes of this contract, and shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of this contract. The Operator shall neither transfer, convey, nor surrender the land nor any right, title, or interest therein, nor permit nor suffer any claim, lien, or encumbrance thereon, without expressly referring to and providing

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in the instrument of conveyance, lien, or encumbrance for the preservation of the Government's right to a percentage royalty on production and lien for the payment thereof. Two copies of such instrument shall be furnished to the Government. If the Government's rights to royalty as provided in Article 6 have been terminated, the provisions of this paragraph (c) shall become inapplicable. **See Annex I.**

ARTICLE 3. *Performance of the work.*—(a) Operator's responsibility.—The work shall be performed diligently, efficiently, expertly, in a workmanlike manner, and in accordance with good mining standards and State regulations governing health, safety, and liability insurance covering employment. The Operator shall provide suitable and adequate equipment, facilities, materials, supplies, and labor to complete the work, as specified in Article 1 (a).

(b) *Government may inspect.*—The Operator shall consult with and inform the Government on all phases of the work as it progresses. The Government may enter at all reasonable times to inspect the work under the contract, and also after certification of discovery or development, to inspect production operations and underground workings. The Operator shall provide the Government with all reasonable means of access for such inspections.

ARTICLE 4. *Contribution by the Government.*—The Government will make its contribution on the basis of the monthly vouchers referred to in Article 5 (b); but all payments by the Government are provisional only, subject to audit, and until the account between the Operator and the Government is finally audited and settled and the Operator's final report has been rendered, the Government may withhold such sums as it sees fit but not in excess of 10 percent of the estimated total cost of the work. To the extent that excesses over fixed unit costs or any excess over the estimated total cost may be necessary for the performance of the work, the Operator shall incur and pay such excesses for his own account without contribution by the Government. The Government will not contribute to the cost of any work performed prior to the date of this contract. The Government may make payments for the account of the Operator directly to independent contractors and suppliers rather than to the Operator.

ARTICLE 5. *Reports, accounts, audits.*—(a) Operator's records.—The Operator shall keep suitable records and accounts of the units of work performed and of any production in which the Government may have an interest; and shall preserve those with respect to work performed for at least three years after final payment by the Government, and those with respect to production for at least three years after any obligation to pay royalties to the Government has terminated. The Government may inspect and audit said records and accounts at any time, either by itself or by a certified public accountant. The Comptroller General of the United States or his representative, until the expiration of said three-year periods, shall have access to and the right to examine all pertinent books, documents, papers, and records of the Operator.

(b) *Progress reports and vouchers.*—The Operator shall provide the Government with five copies of monthly progress reports in three sections as follows: (1) Operator's Monthly Report and Voucher showing a detailed statement of units of work performed during the reporting period; (2) Operator's Unit Cost and Progress Report showing the various types of work performed during the reporting period and the fixed unit costs incurred for each type of work; and (3) a Narrative Report of the work performed during the reporting period including adequate engineering-geological maps or sketches, drill hole logs and locations, and assay reports on samples taken concurrently with advance in mineralized ground. (Forms for reporting under (1) and (2) above will be provided by the Government.)

(c) *Final report.*—Upon completion of the work or termination of the Government's obligation to contribute to costs, the Operator shall furnish the Government with five copies of a final report (in addition to the final progress report and voucher). This final report shall include a geological and engineering evaluation of the results of the work performed under the contract with an estimate of the ore reserves resulting from such work, complete assay data, adequate geological and engineering maps or sketches, and a summary of the work performed and the unit costs thereof.

(d) *Report of sales.*—The Operator shall provide the Government with suitable accounting and documentary evidence covering all production to which the Government's percentage royalty relates, such as copies of smelter or concentrator settlement sheets, and certified accounts of production and sale or other disposition of production.

(e) *Compliance with requirements.*—If in the opinion of the Government any of the Operator's reports, records, or accounts are insufficient or incomplete, or if the Operator fails to make them, the Government may procure the making or completion of such with suitable attachments as an expense of the work to which the Operator shall contribute. The Government may withhold approval and payment of any vouchers relating to insufficient or incomplete reports, records, or accounts.

ARTICLE 6. *Repayment by Operator.*—(a) *Certification.*—If the Government considers that a discovery or development from which production may be made has resulted from the work, the Government, at any time not later than six months after the Operator has rendered a sufficient final report (see Article 5), may so certify in writing to the Operator. Such certification shall describe broadly or indicate the nature of the discovery or development.

(b) *Royalty on production.*—The Operator, as principal if the Operator is the producer or as surety if the Operator is not the producer (for example, if the Operator either transfers or fails to retain his interest in the land), shall pay to the Government a royalty on all minerals mined or produced from the land, as follows: (1) regardless of any certification of discovery or development, from the date of the contract until the lapse of the time within which the Government may make such certification or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first; or (2) if the Government makes a certification of discovery or development, for a period of ten years from the date of the contract or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first. **See Article 10.**

(c) *Basis for computation.*—The Government's royalty shall be a percentage of the gross proceeds (including any bonuses, premiums, allowances, or other benefits) from the production sold, in the form sold (ore, concentrates, metal, or equivalent), at the point of delivery (the f. o. b. point); *except,* that charges of *the buyer* arising in the regular course of business, and shown as deductions on the buyer's settlement sheets, on account of the cost of treatment processes performed by *the buyer,* sampling and assaying to determine the value of the production sold, and freight paid by *the buyer* to a carrier (not the Operator), shall be allowed as deductions in arriving at the "gross proceeds" as that term is used herein. Any costs of treatment processes, sampling, assaying, or transportation performed or paid by the Operator or by anyone other than the buyer are not deductible in arriving at the "gross proceeds" as that term is here used. The term "treatment processes," as here used, means those processes (such as milling, concentrating, smelting, refining, or equivalent, but excluding fabricating or manufacturing) applied to the crude ore or other production after it is extracted from the ground to put it into a commercially marketable form. **See Article 10.**

(d) *Unsold production.*—If any production (ore, concentrates, metal, or equivalent) after the lapse of six months from the date the ore was extracted from the ground remains neither sold nor used by the Operator in integrated manufacturing or fabricating operations (for instance, if it is stockpiled), the Government, at its option, as long as it so remains, may require the computation and payment of its royalty on the value of such production in the form (ore, concentrates, metal, or equivalent) it is in when the Government elects to require computation and payment. If any production is used by the Operator in integrated manufacturing or fabricating operations before the Government makes its election, the Government's royalty on such production shall be computed on the value thereof in the form in which and at the time it is so used. "Value" as here used means what is or would be gross income from mining operations for percentage depletion purposes in Federal income tax determination, or the market value, whichever is greater.

(e) *Percentages of royalty.*—The percentages of the Government's royalty shall be as follows:

One and one-half (1½) percent of amounts ("gross proceeds" or "value") not in excess of eight dollars ($8.00) per ton of production in the form in which sold, held, or used, plus one-half (½) percent for each additional full fifty cents ($0.50) by which such amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) percent of such amounts.

(For instance: the royalty on an amount of five dollars ($5.00) per ton would be one and one-half (1½) percent; on an amount of ten dollars ($10.00) per ton, three and one-half (3½) percent.)

(f) *Time for computation and payment.*—The Government's royalty shall be computed and paid currently upon each lot sold, held, or used in integrated operations, as the case may be, as above provided in this Article.

(g) *Lien for payment.*—To secure the payment of its percentage royalty, there is hereby granted to the Government a lien upon the land or the Operator's interest in the land and upon any production of minerals therefrom until the royalty claim is extinguished by lapse of time or is fully paid.

(h) *Notice to purchasers.*—The Operator shall give notice of the Government's claim for royalty to any purchaser of the production, and shall authorize and direct such purchaser to pay the royalty directly to the Government and to furnish the Government with copies of the settlement sheets. If the records of any production and sales or other disposition of production, whether the production is by the Operator or by others, are not made available to the Government, the amount of the royalty may be estimated by the Administrator, Defense Minerals Exploration Administration, or his successor, and his estimate thereof shall be final and binding upon the Operator.

(i) *No obligation to produce.*—Nothing in this contract is to be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any production operations.

(j) *Government not obligated to buy.*—Nothing in this contract shall be construed as imposing any obligation on the Government to purchase any minerals mined or produced from the land.

ARTICLE 7. *Termination of the Government's obligations.*—(a) If in the opinion of the Government operations at any time have failed to achieve anticipated results that indicate the probability of making a worthwhile discovery and in the opinion of the Government further operations are not justified, the Government may give the Operator written notice thereof, and thereupon the Government shall be free of all obligation to pay on account of units of work not then performed, and the Operator shall be free of all further obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting.

(b) If in the opinion of the Government the Operator is in any manner in default under the terms of the contract, the Government may give the Operator written notice of such default with a specification of reasonable time within which the default must be cured; and if the Operator fails to cure such default as required, thereupon the Government shall be relieved of all obligation to pay on account of units of work not performed when the notice was given, and the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting. The Government may also avail itself of any other remedy the law may provide for breach of contract, including the right to rescind the contract and to demand repayment of all moneys contributed by the Government under the contract.

(c) The giving of any notice by the Government under the provisions of this Article 7 shall not affect the Government's rights as provided for in the contract with respect to a percentage royalty, and liens to secure the payment thereof, and such rights shall be fully preserved.

ARTICLE 8. *Notices to be given by the Government* may be delivered to the Operator or may be sent by registered mail addressed to the Operator at the mailing address stated in this contract. If mailed, notices are deemed to have been delivered five days after the date of mailing.

ARTICLE 9. *Officials not to benefit.*—No member of or delegate to Congress or resident commissioner shall be admitted to any share or part of this contract or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

ARTICLE 10. *Changes and added provisions.*—(a) In Article 6(b): (1) The word "minerals" includes limestone and dolomite products produced in processing ore, and excludes any mineral which the Operator is prohibited from mining by the terms of the instruments pursuant to which the Operator holds the land listed in Annex I attached to this contract; and (2) the words "ten years" are changed to "thirty years." (b) The following clause is added to Article 6(c): Provided, however, That so long as the Operator operates smelting facilities as an integrated part of its business, the settlement made by the Operator's smelter to its mine or mill on the ore or concentrates subject to the Government's royalty shall be, for the purpose of calculating the royalty payable to the Government under this contract, on the same settlement basis that the said smelter makes to its independent suppliers under the schedule most favorable to any independent supplier; or, should gross income from mining operations for percentage depletion purposes in Federal income tax determination show a greater value for ore or concentrate sales than that value which would result from applying the smelter schedule most favorable to an independent supplier, the greater value will be used as the basis for calculating royalty payable to the Government.

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

ST. JOSEPH LEAD COMPANY
(Operator)

By Francis Cameron

Title Vice President

By C. J. Mittleudorf
Administrator, Defense Minerals
Exploration Administration

I, Donold K. Lourie, certify that I am ~~the~~ an Assistant secretary of the corporation named as Operator herein; that Francis Cameron, who signed this contract on behalf of the Operator, was then Vice President of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

Donold K. Lourie

[CORPORATE SEAL]

U. S. GOVERNMENT PRINTING OFFICE: 1956—O-383069

Indretz 3/12/57
Dunn
"Appr. Sol. Off."
Murawski
Chambers
Selfridge
Johnson

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EXPLORATION PROJECT CONTRACT
ST. JOSEPH LEAD COMPANY
DOCKET NO. DMEA-4582

ANNEX I

The land referred to in Article 2 of the contract consists of lands in Washington County, Missouri, as follows:

(a) Five tracts totaling approximately 455 acres, held by the Operator under BLM-A Prospecting Permits Nos. 040279, 041128, and 043391 from the United States Bureau of Land Management, each of which grants to the Operator an exclusive right to prospect for two years for galena and sphalerite and related minerals (excluding oil and gas, oil shale, coal, phosphate, sodium, potassium, and sulphur) with right of one extension for an additional two years, as follows:

	Acres
No. 040279, dated December 1, 1956:	
T. 35 N., R. 1 W., 5th P. M., Missouri	
Sec. 7, SW¼SW¼	33.01
Sec. 17, E½SW¼, SW¼NW¼, and SE¼NW¼ except 10 acres off NE part	150.00
No. 041128, dated December 1, 1956:	
T. 35 N., R. 2 W., 5th P. M., Missouri	
Sec. 13, SE¼SE¼ and all of SW¼SE¼ east of Crawford County line	72.00
No. 043391, dated December 1, 1956:	
T. 36 N., R. 1 W., 5th P. M., Missouri	
Sec. 33, NW¼SE¼, N½SW¼	120.00
Sec. 34, N½SW¼	80.00

(b) Other tracts, totaling approximately 3911.40 acres, held by the Operator under thirty-one (31) option contracts by private landowners, each of which contracts grants to the Operator the right to explore for and to purchase the minerals in the respective tracts described therein, and each of which is incorporated by

reference as a part hereof. The said option contracts are as follows:

Option Number	Landowners	Date of Option Contract	Approximate Acreage
CZ15	Lewis J. Merritt and his wife, Nellie E. Merritt	Sept. 29, 1955	195.55
CZ50	Edmond Laramore and his wife, Nora Laramore	March 3, 1956	282.65
CZ53	E. R. Laramore and his wife, Ollie Laramore	March 15, 1956	95
CZ54	Rico Mason and his wife, Bessie Mason	April 6, 1956	288
CZ56	Simon Breakfield and his wife, Tolitha Breakfield	April 18, 1956	80
CZ57	Henry Breakfield and his wife, Lula Breakfield	April 28, 1956	40
CZ60	Lottie Bays and Burley Bays; Edmond Laramore and Nora Laramore; Marcus Laramore and Leota Laramore; E. R. Laramore and Ollie Laramore	March 15, 1956	76
CZ62	Howard M. Cole and his wife, Daphne Cole	June 8, 1956	20
CZ63	C. H. Willhite and his wife, Elizabeth Willhite	June 8, 1956	94.23
CZ64	Jesse H. Breakfield and his wife, Nettie Breakfield	June 14, 1956	135
CZ65	Kelsey Carl and his wife, Floy Carl	June 9, 1956	165
CZ66	Haskel Mason and his wife, Sadie Mason	June 21, 1956	120 plus N½ lot 1
CZ67	George D. Evans and his wife, Lillie Evans	June 20, 1956	240.23

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Option Number	Landowners	Date of Option Contract	Approximate Acreage
CZ74	Paul Thompson and his wife, Hilma Thompson	July 14, 1956	216
CZ75	John E. Turnbough and his wife, Nettie Turnbough	July 27, 1956	150.57
CZ76	Hallie G. Turner, single	July 27, 1956	90
CZ79	W. J. Turnbough and his wife, Zoe Turnbough	August 8, 1956	85.57
CZ81	Herbert Gillam, single	August 10, 1956	60
CZ82	Mary Alice Moses, single	August 13, 1956	149.6
CZ83	Elza Henslee and his wife, Cora Henslee	August 14, 1956	71.40
CZ85	Curtis Henslee and his wife, Goldie Henslee	August 15, 1956	80
CZ88	Alonzo H. Sellers and his wife, Overa Sellers	August 24, 1956	118
CZ93	Emma Payne, single; Glenwood Payne and his wife, Rita Payne; Lucille Crabtree and her husband, Orville Crabtree; Eleanor Crocker and her husband, Harold Crocker; Melba Young and her husband, Everett Young	August 28, 1956	110.50
CZ94	Percy Carl and his wife, Lydia Carl	August 25, 1956	129.6
CZ95	Lon Laramore and his wife, Esther Laramore	August 31, 1956	72
CZ98	Edward B. Heath and his wife, Hazel Heath	Sept. 10, 1956	122
CZ100	James E. Sellers and his wife, Maude Sellers	Sept. 18, 1956	140

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Option Number		Date of Option Contract	Approximate Acreage
CZ141	Bennie A. Yount and his wife, Essie Yount	November 3, 1956	85
CZ142	Adolph Moses and his wife, Irene Moses	November 3, 1956	85
CZ153	Oma Compton, single	November 16, 1956	167.5
CZ164	Everett N. Wood and his wife, Agnes Wood	January 9, 1957	147

All of the tracts referred to in this Annex I are shown on the map entitled "Figure 1 - Courtois Area, Missouri," attached hereto and made a part hereof.

Special Agreement Concerning Land

1. In the event the Operator or any subsidiary thereof at any time during the period expiring ten years from the date of this contract acquires any interest, title, or equity, in any lands contiguous to the premises described in this contract, it is agreed that such contiguous lands shall thereupon become subject to the provisions of this contract, and the parties hereto shall promptly execute amendments to this contract listing such contiguous lands as lands included in this contract.

2. It is further agreed that the Operator may, at any time before the expiration of sixty days following the conclusion or termination of exploration work performed pursuant to the terms of this contract, request the Government to delete from this contract such of the land described in the Prospecting Permit and the lease-option contracts listed in this Annex I, or in any amendments thereto, as has no known value for mineral production. The Government will promptly prepare amendments removing the specified land from the contract, which amendments shall provide that the Operator:

(a) certifies the lands have no known value for mineral production;

(b) has, prior to the execution of the respective amendment, surrendered or otherwise disposed of all its interest, title, and equity in such land, and any minerals produced therefrom, including any option, lease, or permit thereto, without

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any consideration whatsoever, including future compensation, for such surrender or disposition, other than relief from the cost of maintaining such interest;

(c) agrees that no benefit from such land or any production of minerals therefrom will accrue to the Operator or to any of its subsidiaries, directly or indirectly, during the period expiring thirty years from the date of this contract; and

(d) agrees that if the Operator or any subsidiary thereof acquires any interest, title, or equity in such land or any minerals produced therefrom, or derives any benefit therefrom, before the expiration of thirty years from the date of this contract, the land with respect to which such interest, title, or equity is acquired, and any minerals produced therefrom, shall be deemed subject to this contract and any certification from the date that the Operator or any subsidiary thereof acquired such interest, title, or equity, or any benefit therefrom, until the expiration of thirty years from the date of this contract, or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first.

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EXPLORATION PROJECT CONTRACT
ST. JOSEPH LEAD COMPANY
DOCKET NO. DMEA-4582

EXHIBIT A

Description of the Work

1. The purpose of the project is to explore for ores of lead, zinc, and copper by diamond drilling, after churn drilling, as necessary, in overburden and loose and unconsolidated material in the upper portion of the holes.

2. It is estimated that 158 drill holes will be required, having depths ranging from approximately 550 feet to approximately 1,150 feet, with a combined total length not to exceed 133,510 feet. Holes may not be drilled on a spacing of closer than 175 feet.

3. The actual locations, directions, inclinations, and extents of all holes are subject to Government approval.

4. All diamond drilling shall be done with AX size, or larger, coring bits, except that where necessary an EX size bit may be used in order to complete a hole. All drill holes shall be logged and all drill core shall be made available to the Government for examination. All significantly mineralized core, in lengths not to exceed five feet, shall be split, and one half thereof shall be properly sampled and the sample assayed for lead and zinc. Assays also shall be made for copper, nickel, and cobalt when advisable.

5. Drill holes shall be reamed and cased or cemented and redrilled as necessary.

6. Sludges corresponding to the cores shall be retained (if possible) when drilling is being done in significantly mineralized sections and, in the event that core recovery does not exceed seventy per cent, both core and sludge samples shall be taken, at intervals not to exceed five feet. Both the core and the sludge shall be split, and one half thereof properly sampled and assayed.

7. The remaining half of all significantly mineralized core samples, and sludge samples, when taken, shall be furnished to the Government, upon request.

8. All assays shall be reported monthly to the Government, together with drill logs and proper plan maps and sections showing the progress of the work and sample locations.

9. All work of drilling and sample preparation shall be properly supervised by competent engineers or geologists.

10. The project work is divided into two stages, as set forth below. The Operator shall complete Stage I, and shall perform as much of the Stage II work as the Government approves in advance.

Stage I

1. Drill eighty-four holes, with a combined total length not to exceed 70,980 feet, at the locations identified by the symbol "+" on the attached map "Figure 1, Courtois Area, Missouri." Any of these locations may be changed if the Government approves the change in advance.

2. Not more than 1,260 determinations may be made for lead and zinc, and/or copper, nickel, or cobalt.

Stage II

1. An estimated seventy-four additional holes, with a combined length not to exceed 62,530 feet, may be drilled from locations approved in advance by the Government on the basis of Stage I drilling.

2. Not more than 1,110 determinations may be made for lead and zinc, and/or copper, nickel, or cobalt.

Estimated Costs of the Project

Fixed Unit Costs

Stage I

70,890 feet of churn drilling and diamond drilling @ $2.22/ft. 1/	$157,375.80	
1,260 determinations @ $1.00/each	1,260.00	
Estimated Total Cost of Stage I		$158,635.80

Stage II

62,530 feet of churn drilling and diamond drilling @ $2.22/ft. 1/	138,816.60	
1,110 determinations @ $1.00/each	1,110.00	
Estimated Total Cost of Stage II		139,926.60

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Estimated Total Cost of Project (rounded)	$298,560.00
Government's Participation @ 50%	$149,280.00

1/ The fixed unit cost includes all drilling charges, direct and indirect; supervision and technical services; moving equipment, water supply, lost casing, cementing and redrilling, reaming, casing, and all other costs of the project whatsoever, except assaying.

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RECEIVED
MINERALS TECHNOLOGY
DIVISION

FEB 4 1957

BUREAU OF MINES
JOPLIN, MO.

SUPPLEMENT TO

PROJECT NO. 2 APPLICATION (COURTOIS AREA)

DMEA NO. 4582

RECEIVED JAN 4 1957

January 28, 1957

Reviewed by
DMEA OPERATING COMMITTEE

_____
(date)

6. Estimate of Costs:

	Total	Per Foot
Payment to independent contractors	$122,671.20	$0.919
Labor, supervision, consultants	111,184.63	0.833
Operating materials and supplies	35,416.49	0.265
Operating equipment (Depreciation)	15,989.60	0.120
Rehabilitation and repairs		
New buildings, improvements, installations..		
Miscellaneous	5,549.50	0.042
Contingencies	9,085.00	0.068
Total Estimated Cost for 133,510 feet	$299,896.42	$2.246

Churn drill contract costs in the above estimate are based on bids submitted*. Cost of operation of Company-owned core drills is based on cost of this year's operations in the Lead Belt combined with several years' experience of actual cost of contract core drilling in the project area.

The following figures on contract core drilling costs are based on costs of 75 holes drilled in and adjacent to the project area during the last two years:

Core drilling	$ 1.367	per ft.
Moving drills	0.045	" "
Plugging and Cementing Cored Hole	0.011	" "
Miscellaneous Reimbursements	0.013	" "
Payments for increased diamond bit charges. .	0.025	" "
Wage and Price-of-lead Bonus Differential Payments and Miscellaneous	0.074	" "
Total Cost of Contract Core Drilling	$ 1.535	" "

* See photostats attached to application dated 12-19-56.

6. Estimate of Costs (Cont'd).

Company-owned drills (4) - Viburnum Area

390 holes averaging 575' diamond drilling in each hole.

To be drilled in 18 to 24 months.

Estimated footage to be drilled @ 80 feet per drill shift, 2 shifts per day.

	Per Foot
Labor.....	$0.761
Supplies	0.177
Bits	0.164
Supervision	0.126
Miscellaneous	0.008
* Depreciation	0.176
Total	$1.376

*Based on $98,910.00 replacement value depreciated at $1,648.50 per month.

$$\frac{\$1,648.50 \times 24}{390 \times 575} = \$0.176$$

Cost estimates are based on the fact that one group of drills will be operating continuously in three separate project areas for a 24-month period and costs are pro-rated to each project according to proportion of footage to be drilled or the proportion of time spent on each project.

(a) Independent Contracts:

Estimated cost of churn drilling.

Drilling hole and setting casing - 158 holes @ 270 feet each = 42,660 feet @ $2.60/ft=	$110,916.00
Recovering casing - 42,660 ft. @ $0.24 per ft.	10,238.40
Plugging and Cementing Churn Drill holes - 30 feet avg. per hole @ $0.320/ft. x 158 holes	1,516.80
Total - 42,660 feet	$122,671.20

6. Estimate of Costs (Continued)

(b) Labor, supervision and consultants:

Labor operating Company-owned drills (includes mtce. labor) - 158 holes @ 575 ft. each = 90,850 ft. @ $0.725 per foot	$ 65,866.25
Supervision - core drill operation and mtce. - 90,850 ft. @ $0.126 per foot	11,447.10
*Geologist - $280.00 per month x 24 months . . .	6,720.00
Surveyor in charge - 5 days per month @ $25.00 per day x 24 months	3,000.00
Two man survey party - 8 days per month @ $32.34 per day x 24 months	6,209.28
Geophysicist - $500.00 per month x 2 months . .	1,000.00
Geophysical field crew - $30.00 per day for 2 mos.	1,300.00
Core logging, sampling, photographing, etc. - 2 days per hole (158 holes) @ $15.00 per day 1 day per hole (158 holes) @ $12.00 per day...	6,636.00
Drafting and engineering labor - 2 days per hole (158 holes) @ $16.00 per day ..	5,056.00
Accounting labor - 158 holes @ $25.00 per hole .	3,950.00
TOTAL	$ 111,184.63

*A reasonable portion of geologists' salaries. They are supervising other projects of the St. Joseph Lead Company.

(c) Operating materials and supplies:

Supplies for core drill operations - (includes materials for maintenance) 158 holes @ 575 ft. ea.= 90,850 ft. @$0.177/ft..	$16,080.45
Diamond bit costs - 90,850 ft. @ $0.164/ft. . . .	14,899.40
Cost of casing pipe -42,660 ft. @ $0.104 per ft.	4,436.64
TOTAL	$35,416.49

6. Estimate of Costs (Continued)

(d) Operating equipment.

Depreciation of core drilling operations equipment @ 1/60 per month of present value ($98,910.00) - pro-rated portion - 90,850 feet @ $0.176 per foot	$ 15,989.60

(e) None

(f) None

(g) Miscellaneous

Reconditioning and hauling casing pipe - 42,660 feet @ $0.052 per foot	$ 2,218.30
Miscellaneous operations items - 90,850 feet @ $0.008 per foot	726.80
Maintenance of vehicles for transportation of supervisory and engineering personnel between Bonne Terre and Viburnum - 9 round trips per month x 120 miles x 24 months @ $0.07 per mile..	1,814.40
Assaying charge - 5 assays per hole (158 holes)- @ $1.00 each	790.00
TOTAL - - - - - - - - - - - - - - - - - -	$ 5,549.50

(h) Contingencies.

For core boxes and transportation, road construction, property and crop damage, use of technical equipment, etc. - 90,850 feet @ $0.100 per foot	$ 9,085.00

FORM 1179-2-54

Clemora.

DATE BOTTOMED 8-13-56	ST. NO. Q-104 ST. ELEV.	CLASS INDICATIVE HOLE NO. 56W101
DESCRIBED BY L.H.N.	AREA CZAR KNOB	ELEVATION COLLAR 1002.79
DATE ESTIMATED 8-15-56	OPTION NO. C-2-66	COORDINATES: N SE¼-NW¼-Sec 7
BY L.H.N.	TRACT HASKELL MASON	200 FT. MAP NO. 50 FT. MAP NO. T35N-R1W

GENERAL HOLE DATA

HT. SLEEVE ABOVE GR 1.00 FT.

FORM BOTT. SL. DERBY DOE RUN

	DEPTH	ELEV.
DRILLED WITH:		
CHURN DRILL TO	107	896
SLEEVE BIT TO		
BEGAN CORING AT	107	896
SAVED CORES FROM		
FORMATIONS:		
SOIL TO		
"		
EMINENCE "		
POTOSI "		
POTOSI-DERBY "		
DERBY DOE RUN "	149	854
DAVIS (C.B.-S.B.) "	317	686
BONNE TERRE "	579	424
Sandy B.T.	582	421
B. T. TRANS.? "	585	418
CONGLOMERATE "		
LA MOTTE W.S. "	636	367
GRAN. OR POR. "		
PICTURES: FROM	300	703
TO	636	367
CHAR. SAMPLES: FROM	107	896
TO	636	367
INSOL. RES.: FROM		
TO		
OPENINGS AT		

MINERALIZATION RECORD 2540 N 1980 E

ROCK TYPE	DEPTH FROM	DEPTH TO	ELEV. BOTT.	THICKNESS	% LEAD ASSAY	% LEAD EST.	FT. %	% ASSAY	% EST.	FT. %	REMARKS
	356.0	357.0	645.8	1.0		TR					Species
	487.2	487.7	515.1	0.5	2.0	2.0				1.0	diss.
	487.7	489.0	513.8	1.3		TR	6.8-1.9				Sr. seams
	489.0	489.3	513.5	0.3	1.7	1.0				0.5	Seams
	490.7	494.0	508.8	3.3	2.4	2.5				7.9	diss.
	497.7	502.9	499.9	5.2	2.4	1.5				12.5	diss
	502.9	505.4	497.4	2.5		TR	8.7-1.9				speck.
	505.4	506.4	496.4	1.0	4.0	4.0				4.0	diss.
	516.7	517.0	485.8	0.3		TR					speck.
	521.4	522.0	480.8	0.6		TR					"

CORE REC.

TO	CORES LOST
107	
316	6.2
328	—
329	0.3
376	—
378	0.7
388	0.5
395	2.5
399	1.1
416	0.6
446	—
450	1.4
485	—
490	0.5
507	—
526	1.2
544	0.5
553	0.4
577	—
596	2.0
506	3.5
616	4.0
626	3.4
636	3.0

92.0 % Core Recovery 316-636

Pl. OK

RCW

FORM 9002-R-5-55
Clemons Drillers

ROCK CLASSIFICATION

DESCRIBED BY L.M. DATE 8-15-56 REF Czar Knob STOPE STAKE NO. Q-104 HOLE NO. 56W101

COLLAR ELEV. 1001.79 PITCH BEARING COORD.: N E

BOTTOM DEPTH	BOTTOM ELEV.	ZONE NUMBER	KIND OF ROCK (Depth at Bottom)
107	895	BEGAN CORING	
149	853	Derby Doe Run	thin bedded — (149)
153	849	Derby - Davis	Transition (153)
317	685	Davis	Shales — LxJ from 313 to base 317
		Bonne Terre —	
351	651	1	& dense Tan Bb (342) dense B G Hb (351)
372	630	5	50-50% interbedded Bxo porous Bf, and TBm b irregular porous patches. > thin Rb (372)
412	590	5	Bxo porous Bf ; GBxo > M ; Crepey & 380 - 398, (412)
440	562	5	TO + GTO massive Stylo ; > M - prominent Oolite - (440)
506	496	7	F FGTM - algal reef - fine Gf in slime groundmass - most of section porous, vugg. sort of Rotten condition - ; better preserved toward base. fin diss Pb 487.2 - 506.2 (506)
513.5	489	7-10	TO + GTO faintly Gf massive - (508) GTM dense (510) TO Gf (511) F FGTM (512) GTO Gf (513) F FGTM (513.5)
533	469	10	TOx + GTxO porous ; Gf - ; > M - massive - 5" F FGTM Rb @ 523 - Pb specks @ 517, & 522 > Rb 1/4" to 3/8" thick. (533)
537	465	12 type	GTM Crepe & dense ; > & 1/2" pale E Hb @ base w/ diss J (537)
579	423		> & Lt. Tan Oolitic Sugary fine xL Dolo. massive - occassional thin pale E gritty Sitic Hb. GTxO from 574 - 578, (579) ; porous F T Reef rock @ 540
582	420	sandy B.T.	& Lt. ETM dense Crepe banded (12 zone Lithology) scattered thin shaley sand banded - ; w/ disseminated S band of sparse amounts - (582)
585	417	17 ?	Lt. Crey > Dolomitic Sand ; G @ base. FeS2 specks - massive. (585)
636	366	20	Sugary porous White LaMotte Sandstone - ; cross bedded - FeS2 specked throughout - (636)

Keyed to diesel from 316 - 636

Project #2
(Courtois Area)

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED
DEC 21 1956
D.M.E.A.

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

Not to be filled in by applicant

Docket No. 4582
Metal or Mineral Pb-Zinc-Copper
Date Received 12-21-56
Estimated Cost $399,430.53
Participation (Government %) ____

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: St. Joseph Lead Company, a corporation organized under the laws of the state of New York and licensed to do business in the state of Missouri, with an office at Bonne Terre, Missouri; Andrew Fletcher, President, Robert H. Ramsey, Secretary, George I. Brigden, Vice Pres. & Treas., 250 Park Avenue, New York, New York

(*b*) If other than an individual, add to your name above whether a corporation, partnership, etc., and the name of the State in which incorporated or otherwise organized.

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

(*d*) If a partnership, add to the above statement the names and addresses of all partners.

2. *General.*—Read DMEA Order 1, "Government Aid in Defense Exploration Projects," before completing this application. Submit this application and all accompanying papers in quadruplicate (four copies), with your name and address on each sheet of the application and on all accompanying papers. Where sufficient space is not provided on the form for all required information, state it on an accompanying paper, with a reference in each case to the instruction to which it refers by number. Comply with all applicable instructions; or, if not applicable, so state. File the application with Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest field executive officer thereof.

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract See sheet 1 attached.

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

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise See sheet 1 attached.

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property. Copy of options and permits attached.

(*e*) If you own the land, describe any liens or encumbrances on it ---

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. ---

4. *Physical description.*—(*a*) Describe in detail any mining or exploration operations which have been or now are being conducted upon the land, including existing mine workings and production facilities. State your interest, if any, in such operations. Also describe accessibility of mine workings for examination purposes.

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. None

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay maps, or other technologic information you may have, indicating on each whether you require its return to you.

(*d*) State the facts with respect to the accessibility of the project: Access roads, distances to shipping, supply and residence points.

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power.

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Lead, Zinc and Copper

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc.

(*c*) The work will start within 60 days and be completed within 24 months from the date of an exploration project contract.

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations.

6. *Estimate of costs.*—Furnish a detailed estimate of the costs of the proposed work (you will have to use a separate sheet), under the following headings. Add the totals under all headings to give the estimated total cost of the project:

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.).

(*b*) *Labor, supervision, consultants.*—Include an itemized schedule of numbers, classes and rates of wages, salaries or fees for necessary labor, supervision and engineering and geological consultants.

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel.

(*d*) *Operating equipment.*—Furnish an itemized list of any operating equipment to be rented, purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or suggested use-allowance based on present value, as the case may be.

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project.

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project.

(*g*) *Miscellaneous.*—Furnish a detailed list showing the cost of repairs to and maintenance of operating equipment (not including initial rehabilitation or repairs of the Operator's equipment), analytical work, accounting, workmen's compensation and employers' liability insurance, and payroll taxes.

(*h*) *Contingencies.*—Give an estimate of any necessary allowances for contingencies not included in the costs stated above.

NOTE.—No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs.

7. (*a*) Are you prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation (Sec. 7, DMEA No. 1)? Yes

(*b*) How do you propose to furnish your share of the costs?

[x] Money [x] Use of equipment owned by you [ ] Other

Explain in detail on acompanying paper.

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief.

Dated December 19, 1956

St. Joseph Lead Company
(Applicant)

By Elmer A. Jones
Elmer A. Jones
Division Manager

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

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

RECEIVED
O.M.E.A.

3. Applicant's Property Rights.

(a) - 4,242.01 acres of land in Washington County, state of Missouri, as described in attached copies of option contracts on privately owned lands, and copies of Prospecting Permits on U. S. Forest Lands. General location shown on Map #1 and specific location shown on Map #2.

(c)- Option contracts to buy underground and mining rights and all minerals contained in 3,787.00 acres of privately owned land.

Prospecting Permits on 455.01 acres of U. S. Forest Land.

Copy of option contract for 124.00 acres of land in Section 8, shown by dashed outline, has not been included. Negotiations for acquisition of this tract have been completed but papers are not available for copying. Copy will follow later.

4. Physical Description.

(a) St. Joseph Lead Company has drilled 13 prospect core drill holes in and immediately adjacent to the project area during the last two years. American Metal Company drilled 7 holes adjacent to the area about three years ago. Spacing of above holes is erratic and is dictated by local geological features but, in general, varies from 600 to 5,000 feet apart with the majority being 600 feet to 1/2 mile apart. Location of these holes is shown on Map #2.

4. Physical Description. (Cont'd)

(a) Cont'd.

The project area lies in the southwest part of an area about 25 miles by 10 miles in size extending in a southwesterly direction from a point 2-1/2 miles north of the village of Shirley, Washington County, to a point three miles west of the village of Bixby, Iron County. These villages are located on Map #1. In this larger area, St. Joseph Lead Company has been engaged continuously in prospecting operations with from two to four diamond drills and four to 8 churn drills for the past 3-1/2 years. 205 holes have been completed in this program at a contract cost of $431,000.00. Addition of supervisory, engineering, geological, optioning and material costs amounts to a grand total of about $550,000.00 spent in the general area during the last 3-1/2 years.

One core drill is operating in the project area. Two drilling locations are in various stages of completion and will be completed previous to project drilling.

(b) None.

(c) Rock formations in the area consist of upper Cambrian sediments deposited on a somewhat mountainous Precambrian erosion surface. In the immediate area, local Precambrian hilltops

4. Physical Description. (cont'd).

(c) Cont'd.

extend upward through the Lamotte sandstone (the basal sediment) into the overlying Bonneterre and Davis formations and probably into the Derby-Doerun formation. The flanking sediments show peripheral dips around these buried hills or knobs. Erosion has exposed two of these knobs at surface - one three miles west of the project area on Mill Rock branch which is known as Czar Knob and one about two miles southeast of the area known as the Goodwater Knob. Reconnaissance drilling has located high Precambrian basement in several parts of the area as indicated on Map #2. Information from drilling is insufficient to map these areas in detail. It appears that the subsurface high in the western part of the area is an isolated knob and the one in the eastern part is on the edge of a generally high basement area lying to the southeast.

No completed maps of the areal geology of the prospect area are available. The Missouri State Geological Survey has done reconnaissance mapping in the area and an areal geology map (Map #3) has been prepared from information in their files supplemented by a small amount of mapping by our own staff. The fault pattern on this map and on Map #2 is derived from scattered drill hole information and is not complete. It does not correlate very well with the areal geology since most of

4. Physical Description. (Cont'd).

(c) Cont'd.

the faulting was not recognized during the reconnaissance mapping. However, the map does give a reasonably accurate picture of distribution of surface formations in the area.

The Potosi dolomite, a vuggy, quartz druse-bearing formation, averaging 385 feet in thickness outcrops over the largest part of the area and the Eminence dolomite, a cherty formation, caps the highest ridges.

Derby-Doerun dolomite and Davis shale formations are exposed on the flanks of Goodwater and Czar Knob peaks. Several windows of Derby-Doerun in the valleys indicate generally high Precambrian basement at these points. Cross sections based on drill hole information have been prepared (Map #4) and show the relationship of the various formations. Copies of formation logs of holes typical for the area accompany this application.

Gravimetric survey readings have been taken over the area as part of a regional reconnaissance survey. Limited amounts of magnetometer and resistivity work have been done. Results are shown on Map #5. It appears that magnetometer work is of little direct value in this project due to great differences in magnetic characteristics of the basement rocks. It is of some value when used in conjunction with gravimetric surveys.

4. Physical Description. (Cont'd).

(c) Cont'd.

The gravity work shows considerable correlation with basement topography, when properly interpreted, and it is intended to do additional work during the course of the project. Interpretation of electrical resistivity work, both in-hole and depth profile, has not been successful to date.

The disseminated lead, zinc, and copper mineralization of the Southeast Missouri District occurs as bedded deposits in the Bonneterre formation. A favored location, when mineralizing solutions were present, is on the periphery of buried Precambrian highs where the Bonneterre beds are in contact with the Precambrian and the underlying Lamotte is pinched out. These deposits often extend well out into the adjoining basin areas. Work done to date indicates that the project area shows all the conditions necessary for the presence of ore deposits. Not only are the same formations present in the same structural setting as in the Lead Belt proper, but the lithology of the formations, particularly the Bonneterre, is almost identical. Location of ore horizons (shown on Map #4) is the same as in the Lead Belt. The sediments flanking the Precambrian highs show a varied lithology similar to that in the Lead Belt where variations in lithology provide local structures which control the sites of ore deposition.

Of the 19 holes mentioned above as being completed, 10 showed significant amounts of lead, zinc or copper mineralization, including one of ore grade and four of near ore grade.

4. Physical Description. (Cont'd).

(c) Cont'd.

Generalized assay results from ore and near ore grade holes are as follows:

Twp 35 N - R 1 W

Section 7

56W101 - 6.8 feet of 1.4% Pb
8.7 feet of 1.9% Pb

56W93 - 6.4 feet of 3.6% Pb

Section 9

56W111 - 6.9 feet of 1.5% Pb

Section 18

56W69 - 3.1 feet of 3.4% Pb

56W73 -16.0 feet of 1.4% Pb

Location of these holes is shown on Map #2.

3 ore and 3 near ore grade holes are located from 3/4 mile to two miles south and southwest in the Viburnum area. Five ore holes and one near ore grade hole are located from one to 2-1/4 miles to the west in the Czar Knob area. Details on location and grade of these holes are listed in applications for projects in these areas.

In summary, the grade of mineralization in the ore grade holes in the general area encourages the belief that the source of the mineralizing solutions was of sufficient magnitude to form ore deposits of considerable size if sufficient local control exists. Results of reconnaissance drilling to date show that such controls do exist and that the lithology,

4. Physical Description. (Cont'd).

(c) Cont'd.

structural setting, and nature of mineralization is identical to that in the Lead Belt proper. For the above reasons, we wish to explore the area more thoroughly.

(d) As shown on Map #2, State Highway #49 passes through the southwest end of the area and County Highway "Y" branches off through the northwest part of the area. Other local mail route roads intersect the area giving access to all parts of it. Above roads are all of gravel type. State Highway #32, with macadam surface, is located about 5-1/2 miles south of the project area.

The closest shipping point is Steelville, Missouri, about 25 miles northwest by way of State Highways #49 and #19. The area, in general, consists of wooded uplands with small farms in the creek bottoms. There are no towns of consequence in the immediate region.

(e) There would be no difficulty in securing ordinary labor for mining operations in the area and skilled supervision and labor could be obtained from the main Southeast Missouri mining area which is about 40 miles distant. The same statement applies for supplies and equipment. Sufficient water for mining operations is present in the form of spring-fed streams. Low voltage electricity is available in the area and the closest high voltage line is located about 11 miles to the north.

5. The Exploration Project.

(b) As mentioned above, the location of ore in the Southeast Missouri type deposits is controlled by local sedimentary structures in the Bonneterre formation. Their nature is such as to give no surface expression and they are quite variable and erratic in size and position. It is not possible to discover and delineate them by anything but close, less than 500-foot spaced, pattern drilling and then only in an approximate sense. The actual mapping of the controlling structures can usually not be done until mining has begun.

The pattern developed for our exploration drilling is one in which each hole is at the center of a hexagon formed by the 6 surrounding holes. Fill-in drilling is done by spotting holes at the centers of the six equilateral triangles formed in each hexagon which in turn forms other hexagons oriented at a 30° angle from the first ones. This process is repeated until the minimum spacing desired is reached. With 100-foot spacing usually being the minimum desired, the successive spacings between holes in an expanding pattern become 100 feet, 175 feet, 300 feet, 520 feet, 900 feet, 1560 feet, 2700 feet, 4680 feet, etc. The system is quite flexible since it can be considered as a pattern of sections in three directions, any one of which can be drilled if a section is desired and can be followed by a development of the hexagonal pattern in areas of interest or by additional sections. Our general method of exploring an area in which significant mineralization has been found is as follows:

5. The Exploration Project. (Cont'd)

(b) Stage 1 - Holes spaced from 1/2 to one mile apart are drilled in an expanding pattern or series of sections outward from the known mineralization. The purpose of this is to outline limits of mineralization or of favorable indications. This also tends to develop the general structural and lithological picture. Spacing is somewhat erratic as it is influenced by geological and geophysical knowledge of the area as well as by the pattern of mineral rights on which legal agreements are obtainable.

Stage 2 - The part of the area outlined by Stage 1 drilling as showing significant mineralization or favorable indications is filled in on approximately 1560-foot hexagonal spacing. This narrows down the area in which possibility of finding ore is indicated.

Stage 3 - The favorable area outlined by Stage 2 drilling is filled in next on 900-foot spacing.

Stage 4 - 520-foot drilling is done in an expanding pattern around all holes that show ore grade or near ore grade mineralization.

Stage 5 - Areas in which 520-foot spaced drilling has failed to locate ore, but in which results still indicate the possibility of its presence, are drilled out on 300, 175 or even 100-foot spacing until either ore is found or it is indicated to be absent.

In practice, Stages 1, 2 and 4 are usually in progress simultaneously after sufficient drilling has been done to provide

5. The Exploration Project (Cont'd).

(b) Cont'd.

Stage 4 locations. The advantage of this is that knowledge is gained as soon as possible about the nature of the mineralization, ore controls, etc., which assists in guiding the remainder of the program.

Drilling in the project area has already advanced to the point where all stages of this procedure are represented. Based on results to date, 84 drill hole locations have been spotted on the map as follows:

14 Stage 1 holes
40 Stage 2 holes
30 Stage 4 holes

These locations are tentative as results from drilling may make changes advisable.

The total number of holes necessary in what now appear as most favorable parts of the area in order to bring the program to a point where the government can determine whether certification of discovery should be made, can only be an estimate. From results gained to date and our experience in this type of exploration, we estimate that this can be accomplished by the addition of 74 holes to the above listing for a grand total of 158 holes in the project.

It is probable that other areas favorable for certification will be developed by the above program. To complete the program for the entire project area will probably require a

5. The Exploration Project (Cont'd).

(b) Cont'd.

considerable number of additional holes. This can probably be best done by an extension of the contract for more holes and money when the requirements can be better estimated.

Six-inch holes will be drilled by churn drill through the upper chert-bearing formations to estimated depths of 50 to 600 feet and averaging 270 feet. Three-inch casing will be set in these holes and diamond core drills will complete the holes into the Lamotte sandstone or the Precambrian, whichever comes first. Diamond drill footage on each hole will average 575 feet. Total depth of holes will vary from 550 to 1150 feet with an average of 845 feet. Total footage is estimated as 133,510 feet.

Churn drilling will be done by independent contractors. Core drilling will be done by four Company-owned and operated drills operating two shifts per day.

Cores will be brought from the field to the central core house in the Lead Belt for processing. Here they are spread out on roller conveyor racks for examination and logging by core inspectors. Color photos are taken of the Bonneterre section of each hole and transparencies are filed permanently in the Geology Department for possible use in future studies. Character samples of the various beds and all sections showing any mineralization are transferred to steel trays

5. The Exploration Project (Cont'd).

(b) Cont'd.

for permanent storage. Any parts estimated as containing 1.0% or better lead or zinc or 0.25% Cu are split, either by core splitter or diamond saw. Split half is crushed, ground, sampled and sent to our assay laboratory for analysis. Anything more than mere traces of nickel and cobalt are assayed. Assay results are reported to the core room and logs of the holes are completed and sent to the proper engineering and geological offices.

Cores remaining from holes drilled on optioned land, after removal of character samples and mineralization, are boxed in special corrugated cardboard boxes for return to the land owner if the option is not exercised. Cores remaining from Company owned land are discarded.

(d) St. Joseph Lead Company has been actively engaged in mining and exploration operations in Southeast Missouri since 1864. Mr. R. E. Wagner, who will supervise the exploration activity, has been actively engaged in exploration operations for St. Joseph Lead Company since 1928.

6. Estimate of Costs:

	Total	Per Foot
Payment to independent contractors	$122,671.20	$0.919
Labor, supervision, consultants	115,000.33	0.861
Operating materials and supplies	40,684.40	0.305
Operating equipment	15,989.60	0.120
Rehabilitation and repairs		
New buildings, improvements, installations..		
Miscellaneous	5,640.35	0.042
Contingencies	9,085.00	0.068
Total Estimated Cost for 133,510 feet	$309,070.80	$ 2.315

Churn drill contract costs in the above estimate are based on bids submitted.* Cost of operation of Company-owned core drills is based on cost of this year's operations in the Lead Belt combined with several years' experience of actual cost of contract core drilling in the project area. Included is an allowance of 5% increase in cost of labor and 15% increase in cost of materials.

The following figures on contract core drilling costs are based on costs of 75 holes drilled in and adjacent to the project area during the last two years:

Core drilling	$ 1.367	per ft.
Moving Drills	0.045	" "
Plugging and Cementing Cored Hole	0.011	" "
Miscellaneous Reimbursements	0.013	" "
Payments for increased diamond bit charges. .	0.025	" "
Wage and Price-of-lead Bonus Differential Payments and Miscellaneous	0.074	" "
Total Cost of Contract Core Drilling	$ 1.535	" "

* See attached photostats.

6. Estimated of Costs (Cont'd).

Company-owned drills (4) - Viburnum Area

390 holes averaging 575' diamond drilling in each hole.

To be drilled in 18 to 24 months.

Estimated footage to be drilled @ 80 feet per drill shift, 2 shifts per day.

	Per Foot
Labor.....	$0.761
Supplies	0.203
Bits	0.189
Supervision	0.132
Miscellaneous	0.009
* Depreciation	0.176
Total	$1.470

*Based on $98,910.00 replacement value depreciated at $1,648.50 per month.

$$\frac{\$1,648.50 \times 24}{390 \times 575} = \$0.176$$

Cost estimates are based on the fact that one group of drills will be operating continuously in three separate project areas for a 24-month period and costs are pro-rated to each project according to proportion of footage to be drilled or the proportion of time spent on each project.

(a) Independent Contracts:

Estimated cost of churn drilling.

Drilling hole and setting casing - 158 holes @ 270 feet each = 42,660 feet @ $2.60/ft=$110,916.00

Recovering casing - 42,660 ft. @ $0.24 per ft. 10,238.40

Plugging And Cementing Churn Drill holes - 30 feet avg. per hole @ $0.320/ft. x 158 holes 1,516.80

Total - 42,660 feet $122,671.20

6. Estimate of Costs (Continued)

(b) Labor, supervision and consultants:

Labor operating Company-owned drills (includes mtce. labor) - 158 holes @ 575 ft. each = 90,850 ft. @ $0.761 per foot	$ 69,136.85
Supervision - core drill operation and mtce. - 90,850 ft. @ $0.132 per foot	11,992.20
*Geologist - $280.00 per month x 24 months . . .	6,720.00
Surveyor in charge - 5 days per month @ $25.00 per day x 24 months	3,000.00
Two man survey party - 8 days per month @ $32.34 per day x 24 months	6,209.28
Geophysicist - $500.00 per month x 2 months . .	1,000.00
Geophysical field crew - $30.00 per day for 2 mos.	1,300.00
Core logging, sampling, photographing, etc. - 2 days per hole (158 holes) @ $15.00 per day 1 day per hole (158 holes) @ $12.00 per day...	6,636.00
Drafting and engineering labor - 2 days per hole (158 holes) @ $16.00 per day ..	5,056.00
Accounting labor - 158 holes @ $25.00 per hole .	3,950.00
TOTAL	$ 115,000.33

*A reasonable portion of geologists' salaries. They are supervising other projects of the St. Joseph Lead Company.

(c) Operating materials and supplies:

Supplies for core drill operations - (includes materials for maintenance) - 158 holes @ 575 ft. ea.= 90,850 ft. @$0.203/ft..	$18,442.55
Diamond bit costs - 90,850 ft. @ $0.189/ft. . .	17,170.65
Cost of casing pipe -42,660 ft. @ $0.120 per ft.	5,071.20
TOTAL	$40,684.40

6. Estimate of Costs (Continued)

(d) Operating equipment.

Depreciation of core drilling operations equipment @ 1/60 per month of present value ($98,910.00) - pro-rated portion - 90,850 feet @ $0.176 per foot	$ 15,989.60

(e) None

(f) None

(g) Miscellaneous

Reconditioning and hauling casing pipe - 42,660 feet @ $0.052 per foot	$ 2,218.30
Miscellaneous operations items - 90,850 feet @ $0.009 per foot	817.65
Maintenance of vehicles for transportation of supervisory and engineering personnel between Bonne Terre and Viburnum - 9 round trips per month x 120 miles x 24 months @ $0.07 per mile..	1,814.40
Assaying charge - 5 assays per hole (158 holes)- @ $1.00 each	790.00
TOTAL -	$ 5,640.35

(h) Contingencies.

For core boxes and transportation, road construction, property and crop damage, use of technical equipment, etc. - 90,850 feet @ $0.100 per foot	$ 9,085.00

LATTIE GOGGINS

DRILLING CONTRACTOR PROSPECT AND TEST HOLES
DRILLING DONE ANY PLACE PUMPS

ELVINS, MISSOURI
PHONE 450

November 30 1956

RECEIVED
DEC 21 1956
D.M.E.A.

St. Joseph [illegible]
Boone [illegible]

[illegible]

Dear Sir:

[illegible] repairs, [illegible] the [illegible] for the [illegible]

	cost per foot
[illegible]	[illegible].50
[illegible]	[illegible].65
[illegible]	[illegible].25
[illegible]	[illegible].20

[illegible]

[illegible]	[illegible].25
[illegible]	2.75
[illegible]	3.60
[illegible]	4.00
[illegible]	5.90
[illegible]	7.00

Miscellaneous [illegible]

For use of [illegible] drilling machine - - - - - - - - - - -	2.00 per hr.
For use of drilling machine - - - - - - - - - - - - - - -	2.50 per hr.

Sleeve holes for the Indian Creek Mines from top to bottom - - 2.40 per ft.

Sleeve holes all other areas from top to bottom - - - - - - - - 2.60 per ft.

For a sleeve hole that is drilled 100 miles and over from the National office (top to bottom) - - - - - - - - - - - - - - - 2.75 per ft.

For pulling pipe 100 miles and over from the National office:

5 inch - 26¢ per ft.
4-7/8, [illegible], 6 and [illegible] inch - - - - - - - - - - - - - - - - 30¢

For [illegible] [illegible]irley, [illegible]
[illegible] - - - - - - - - - - - - - - - - - - 24¢ per ft.

JOY MANUFACTURING COMPANY

[illegible] AVENUE

MICHIGAN CITY, INDIANA

September [illegible], 1956

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DEC 21 1956
D.M.E.A.

[illegible]

[illegible] 18 [illegible] to [illegible], [illegible] [illegible] 2" casing [illegible] and pull the 3" casing from the holes upon completion of the core drilling. It would be our responsibility then, to furnish 2" pipe or 2" flush coupled casing which is needed to go inside the 3" pipe.

We would expect you to furnish core boxes. Your representative would look after the transportation of core.

The holes are to run up to 1600 ft. in depth, but in the event you should decide to drill a little deeper, we have quoted prices to depths of 2,000 ft. as listed below.

AX Drilling	-	400 to 800 ft.	$3.25 per ft.
AX "	-	800 to 1200 "	$3.75 " "
AX "	-	1200 to 1600 "	$4.50 " "
AX "	-	1600 to 2000 "	$5.50 " "

Delays will be chargeable at the rate of $30.00 per 8-hr. shift or part thereof.

[illegible] Workmen's Compensation Insurance [illegible]

[illegible]

[illegible]

[illegible] position. [illegible]

[illegible] extended [illegible]

[illegible]

[illegible]

J. M. [illegible], [illegible] Mgr.
Contract Drill Division

JMM/ot

ST. JOSEPH LEAD COMPANY

SOUTHEAST MISSOURI MINING AND MILLING DIVISION

BONNE TERRE, MO.

E. A. JONES,
DIVISION MANAGER.

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DEC 21 1956
D.M.E.A.

December 19, 1956

Mr. C. O. Mittendorf
Administrator, Defense Minerals
Exploration Administration
Department of the Interior
Washington, D. C.

Dear Mr. Mittendorf:

Enclosed is an application, in quadruplicate, for exploration aid in the Courtois Area (Project #2) in Washington County, Missouri.

31 options and two U. S. Prospecting Permits have been obtained on land in this area. A photostat of one complete option is enclosed and photostats of the first sheet of 30 others -- to indicate names of land owners and land descriptions -- are included. Also enclosed are photostats of U. S. Prospecting Permits No. 040279 and No. 041128. This is in accordance with a telephone conversation I had with Bill Griswold in September, 1956.

As we are anxious to explore this area further as soon as possible, we will appreciate anything you can do to expedite action on this application. If application is approved, we prefer that the contract be on a unit cost (short form) basis.

Yours very truly,

E. A. Jones

Division Manager

UNITED STATES
DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Eastern States Land Office
Washington 25, D. C.

Office BLM-A

Serial No. 040279

Missouri
(State)

Clark National Forest

PROSPECTING PERMIT
Galena and Sphalerite

Pursuant to the authority set out in, and subject to, the regulations 43 CFR 200.31-200.50, the United States of America, through the Bureau of Land Management, hereby grants to St. Joseph Lead Company, 250 Park Avenue, New York 17, New York the exclusive right for a period of two years from date hereof to prospect for galena and sphalerite and related minerals excluding oil and gas, oil shale, coal, phosphate, sodium, potassium and sulphur on the following described acquired lands of the United States in the State of Missouri, and permission to erect thereon such structures and facilities as are requisite for such purpose:

See attached sheet

RECEIVED
DEC 21 1956
D.M.E.A.

The United States agency having administrative control over the surface use of the land is the Forest Service and the authorized representative to whom all inquiries relating thereto should be addressed is Byron L. Groesbeck, Forest Supervisor, Rolla, Missouri

This permit is subject to the following terms and the permittee agrees:

1. To pay in advance an annual rental of 25¢ per acre or fraction thereof, by remittance payable to the Bureau of Land Management.

2. To comply with all regulations of the Secretary of the Interior and the Secretary of Agriculture as to the lands described herein which are under his jurisdiction and to conduct his operations in an orderly manner, and in accordance with the regulations (30 CFR, Part 231) and the applicable Federal and State laws.

3. That the lands herein described shall be subject at all times to any other lawful uses by the United States, its lessees, permittees, licensees, and assigns; PROVIDED, That such uses subsequently granted shall not unduly interfere with the permittee's operations hereunder.

4. To conduct all operations hereunder with due regard for good land management, not to cut or destroy timber without previous permission from the authorized agency representative and to pay for such timber at rates prescribed by him; to avoid damage to improvements, timber, crops, or other cover; unless otherwise authorized by the agency representative, not to drill any well, carry on operations, make excavations, construct tunnels, drill, or otherwise disturb the surface of the lands within 200 feet of any building thereon and whenever required in writing by the authorized agency representative, and upon any partial or total relinquishment, cancellation or termination of this permit as to that portion of the land to which his rights have terminated, to fence or fill all sump holes, ditches, and other excavations, remove or cover all debris, and so far as reasonably possible, reseed or otherwise restore the surface of the lands to their former condition, or to a productive or other condition satisfactory to the authorized agency representative including the removal of structures as and if required, and when required by such representative to bury all pipelines below plow depth. To do all in his power to prevent and suppress fires on the land and vicinity, and to require his employees, contractors, and subcontractors to do likewise. Unless prevented by circumstances over which he has no control, to place his employees, contractors, and subcontractors at the disposal of the authorized agency representative for the purpose of fighting fires on or originating on the land or on adjacent areas or caused by the negligence of the permittee or his employees, contractors, and subcontractors, with the understanding that payment for such services shall be made at rates to be determined by such authorized representative but not less than the current rates of pay prevailing in the vicinity for services of a similar character: PROVIDED, That if the permittee, his employees, contractors, or subcontractors, or employees of contractors or subcontractors, caused or could have prevented the origin or spread of said fire or fires, no payment shall be made for services so rendered. During periods of serious fire danger, as may be specified by the authorized agency representative, the permittee shall prohibit smoking and the building of camp and lunch fires by his employees, contractors, and subcontractors, within the permitted area except at established camps, and shall enforce this prohibition by all means within his power: PROVIDED, That the authorized agency representative may designate safe places where, after all inflammable materials have been cleared away, campfires may be built for the purpose of heating lunches and there, at the option of the permittee, smoking may be permitted: PROVIDED, Further that when in the judgment of the authorized agency representative the fire danger is of such serious nature that fires may result from the operation, the permittee will close down operations upon request of such representative for the period of such emergency. The permittee shall not burn rubbish, trash or other inflammable materials except with the consent of the authorized agency representative and shall not use explosives during the fire season except as authorized to do so or on areas approved by such representative. The permittee shall build or construct such fire lines or do such clearing on the land as the authorized agency representative decides is essential for forest, brush, and grass fire prevention which is or may be necessitated by the exercise of the privileges authorized by this permit, and shall maintain such fire tools at his headquarters or at the appropriate location on the lands as are deemed necessary by such representative.

5. Not to clear or use the land for development or for construction purposes of any kind until a plan of construction and development therefor has been approved by the authorized agency representative and that in the location, design, construction, and maintenance of all authorized works, buildings, plants, waterways, roads, telegraph or telephone lines, pipelines, reservoirs, tanks, pumping stations, or other structures or clearance, permittee shall do all things reasonably necessary to prevent or reduce scarring and erosion of the land, pollution of the water resources and any damage to the watershed. That where construction, operation, or maintenance of any of the facilities on or connected with this permit causes damage to the watershed or pollution of the water resources, the permittee agrees to repair such damage and to take such corrective measures as are required by the authorized agency representative, including the reseeding or other restoration of the vegetative cover.

6. To pay the permitter or its tenant or the surface owner or his tenant, as the case may be, for any and all damage to or destruction of property caused by permittee's operations hereunder; to save and hold the permitter or the surface owner or their tenants harmless from all damage or claims for damage to persons or property resulting from permittee's operations hereunder.

7. To install and maintain cattle guards to prevent the passage of livestock at any openings made in fences by the permittee or his contractors to provide access to the lands covered by this permit for automotive and other equipment and that any camps to be constructed on the land will be located at a place approved by the authorized agency representative and that such camps will be kept in a neat and sanitary condition.

8. Unless otherwise authorized [illegible] the beginning of operations [illegible] at all times during the term of this permit a local agent [illegible] to serve [illegible] in order [illegible] contained in this stipulation, and to inform the authorized agency representative in writing [illegible] of such agent. If a substitute agent is appointed the permittee shall immediately so inform [illegible].

9. On termination of this permit by lapse, forfeiture, or otherwise, [illegible] shall have the privilege at any time within a period of [illegible] days after termination of permittee's right to the premises [illegible] tools, and materials. Any materials, tools, [illegible] and equipment [illegible] provided, which are allowed to remain on the land [illegible] the property of the United States [illegible] 90-day period or such extension thereof as may be granted [illegible] but the permittee shall remove any or all of such property when so directed by the authorized agency representative.

10. To permit inspection of the premises and operations by duly authorized representatives of the Departments of the Interior and Agriculture [illegible] any several lands covered by this permit for the free ingress or egress of Government officers and [illegible] lands covered by this permit or other lands controlled by the agency having control over the surface or the [illegible] the premises [illegible] any such inspection.

11. That this permit shall become void at the Bureau of Land Management's sole discretion (a) that the permittee has violated or failed to comply with any of the conditions of said permit, to the detriment of the United States, or (b) that the lands herein described are required by a public agency for a public purpose with which the continuation of mining operations which [illegible] would be incompatible.

12. The right to mine or remove minerals in certain [illegible] quantities [illegible] this permit except in connection with an application for a preference right lease [illegible] as specified in the prior regulation. This permit does not authorize prospecting or removal of the minerals [illegible] stripping [illegible] or other methods without the prior written approval of the authorized agency representative and on such conditions as he may prescribe. The permittee has a preference right during the term of this permit to secure a mining lease covering any of the lands described in this prospecting permit in accordance with the regulation 43 CFR [illegible].

13. That in connection with the performance of work under this permit, permittee will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. The aforesaid provision shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The permittee agrees to post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the nondiscrimination clause. The permittee further agrees to insert the foregoing provision in all subcontracts hereunder, except subcontracts for standard commercial supplies or raw materials.

14. This permit is subject to a single 2-year extension in accordance with the regulation 43 CFR 200.34.

15. That no Member of, or Delegate to, Congress, or Resident Commissioner, after his election or appointment, or either before or after he has qualified and during his continuance in office, and that no officer, agent, or employee of the Department of the Interior, except as provided in 43 CFR 7.4(a)(1), shall be admitted to any share or part in this permit or derive any benefit that may arise therefrom; and the provisions of Sec. 3741 of the Revised Statutes of the United States, as amended (41 U.S.C. Sec. 22), and Secs. 431, 432, and 433, Title 18 U. S. Code, relating to contracts, enter into and form a part of this permit so far as the same may be applicable.

See special stipulation attached which is made a part of this permit.

DEC 1 1956
Date

Joseph P. Hagan
Signing Officer

Acting Chief, Minerals Adjudication Section
Title

IRY -DUP. SEC WASH. D C 05336

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DEC 21 1956
D.M.E.A.

T. 35 N., R. 1 W., 5th P.M., Missouri

	Acres
Sec. 7, [illegible]	33.01
Sec. 17, [illegible], [illegible], [illegible] except 10 acres off NE part.	150.00
~~Sec. 19, [illegible] lot 1 [illegible]~~	~~320.00~~
~~Sec. 30, [illegible] lot 1 [illegible], [illegible] lot 2 [illegible]~~	~~[illegible]~~
~~Sec. 32, [illegible], [illegible], [illegible] lot 1 [illegible] lot 2 [illegible]~~	~~155.32~~

NOT IN PROJECT

~~T. 35 N., R. 2 W., 5th P.M.,~~

~~Sec. 10, [illegible], [illegible]~~	~~160.00~~
~~Sec. 12, [illegible]~~	~~160.00~~
~~Sec. 14, [illegible], [illegible]~~	~~320.00~~
~~Sec. 15, [illegible], [illegible], [illegible]~~	~~160.00~~
	~~1155.03~~

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DEC 21 1956
D.M.E.A.

SPECIAL STIPULATION

This permit does not grant the right to prospect for or remove any mineral deposits by stripping, rim cutting, contour, or open pit methods, or to carry on prospecting or mining by means of mechanical earth moving equipment.

UNITED STATES
DEPARTMENT OF THE INTERIOR
Bureau of Land Management

Eastern States Land Office
Washington 25, D.C.

Office BLM-A

Serial No. 041128

Missouri
(State)

Clark National Forest

PROSPECTING PERMIT
Galena and Sphalerite

Pursuant to the authority set out in, and subject to, the regulations 43 CFR 200.31-200.50, the United States of America, through the Bureau of Land Management, hereby grants to St. Joseph Lead Company, 250 Park Avenue, New York 17, New York the exclusive right for a period of two years from date hereof to prospect for galena and sphalerite and related minerals excluding oil and gas, oil shale, coal, phosphate, sodium, potassium and sulphur on the following described acquired lands of the United States in the State of Missouri, and periodically to erect thereon such structures and facilities as are requisite for such purpose:

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T. 35 N., R. 2 W., 5th P.M., Missouri

Sec. 13, SE¼SE¼, All of SW¼SE¼ East of Crawford County line	72.00 a
~~Sec. 22, W½NE¼, E½SW¼~~	~~160.00 a~~
~~Sec. 23, N½NW¼, NW¼SE¼, W½~~	~~440.00 a~~
~~Sec. 24, SW¼NW¼~~	~~40.00 a~~
~~Sec. 25, SW¼, SW¼NW¼~~	~~200.00 a~~
~~Sec. 26, SE¼NE¼~~	~~40.00 a~~
	~~952.00 a~~

NOT IN PROJECT

The United States agency having administrative control over the surface use of the land is the Forest Service and the authorized representative to whom all inquiries relating thereto should be addressed is Byron L. Groesbeck, Forest Supervisor, Rolla, Missouri

This permit is subject to the following terms and the permittee agrees:

1. To pay in advance an annual rental of 25¢ per acre or fraction thereof, by remittance payable to the Bureau of Land Management.

2. To comply with all regulations of the Secretary of the Interior and the Secretary of Agriculture as to the lands described herein which are under his jurisdiction and to conduct his operations in an orderly manner, and in accordance with the regulations (30 CFR, Part 231) and the applicable Federal and State laws.

3. That the lands herein described shall be subject at all times to any other lawful uses by the United States, its lessees, permittees, licensees, and assigns; PROVIDED, That such uses subsequently granted shall not unduly interfere with the permittee's operations hereunder.

4. To conduct all operations hereunder with due regard for good land management, not to cut or destroy timber without previous permission from the authorized agency representative and to pay for such timber at rates prescribed by him; to avoid damage to improvements, timber, crops, or other cover; unless otherwise authorized by the agency representative, not to drill any well, carry on operations, make excavations, construct tunnels, drill, or otherwise disturb the surface of the lands within 200 feet of any building thereon and whenever required in writing by the authorized agency representative, and upon any partial or total relinquishment, cancellation or termination of this permit as to that portion of the land to which his rights have terminated, to fence or fill all sump holes, ditches, and other excavations, remove or cover all debris, and so far as reasonably possible, reseed or otherwise restore the surface of the lands to their former condition, or to a productive or other condition satisfactory to the authorized agency representative including the removal of structures as and if required, and when required by such representative to bury all pipelines below plow depth. To do all in his power to prevent and suppress fires on the land and vicinity, and to require his employees, contractors, and subcontractors to do likewise. Unless prevented by circumstances over which he has no control, to place his employees, contractors, and subcontractors at the disposal of the authorized agency representative for the purpose of fighting fires on or originating on the land or on adjacent areas or caused by the negligence of the permittee or his employees, contractors, and subcontractors, with the understanding that payment for such services shall be made at rates to be determined by such authorized representative but not less than the current rates of pay prevailing in the vicinity for services of a similar character: PROVIDED, That if the permittee, his employees, contractors, or subcontractors, or employees of contractors or subcontractors, caused or could have prevented the origin or spread of said fire or fires, no payment shall be made for services so rendered. During periods of serious fire danger, as may be specified by the authorized agency representative, the permittee shall prohibit smoking and the building of camp and lunch fires by his employees, contractors, and subcontractors, within the permitted area except at established camps, and shall enforce this prohibition by all means within his power: PROVIDED, That the authorized agency representative may designate safe places where, after all inflammable materials have been cleared away, campfires may be built for the purpose of heating lunches and there, at the option of the permittee, smoking may be permitted: PROVIDED, Further that when in the judgment of the authorized agency representative the fire danger is of such serious nature that fires may result from the operation, the permittee will close down operations upon request of such representative for the period of such emergency. The permittee shall not burn rubbish, trash or other inflammable materials except with the consent of the authorized agency representative and shall not use explosives during the fire season except as authorized to do so or on areas approved by such representative. The permittee shall build or construct such fire lines or do such clearing on the land as the authorized agency representative decides is essential for forest, brush, and grass fire prevention which is or may be necessitated by the exercise of the privileges authorized by this permit, and shall maintain such fire tools at his headquarters or at the appropriate location on the lands as are deemed necessary by such representative.

5. Not to clear or use the land for development or for construction purposes of any kind until a plan of construction and development therefor has been approved by the authorized agency representative and that in the location, design, construction, and maintenance of all authorized works, buildings, plants, [illegible]ways, roads, telegraph or telephone lines, pipelines, reservoirs, tanks, [illegible]ping stations, or other structures or cle[illegible]ce, permittee shall do all things reasonably necessary to prevent or reduce [illegible]carring and erosion of the land, pollution of the water resources and any damage to the watershed. That where construction, operation, or maintenance of any of the facilities on or connected with this permit causes damage to the watershed or pollution of the water resources, the permittee agrees to repair such damage and to take such corrective measures as are required by the authorized agency representative, including the reseeding or other restoration of the vegetative cover.

6. To pay the permitter or its tenant or the surface owner or his tenant, as the case may be, for any and all damage to or destruction of property caused by permittee's operations hereunder; to save and hold the permitter or the surface owner or their tenants harmless from all damage or claims for damage to persons or property resulting from permittee's operations hereunder.

7. To install and maintain cattle guards to prevent the passage of livestock in any openings made in fences by the permittee or his contractors to provide access to the lands covered by this permit for automotive and other equipment and that any camps to be constructed on the land will be located at a place approved by the authorized agency representative and that such camps will be kept in a neat and sanitary condition.

8. Unless otherwise authorized, prior to the beginning of operations to appoint and maintain at all times during the term of this permit a local agent upon whom may be served written orders or notices respecting matters contained in this stipulation, and to inform the authorized agency representative in writing, of the name and address of such agent. If a substitute agent is appointed, the permittee shall immediately so inform the said representative.

9. On termination of this permit by surrender, forfeiture, or otherwise, the permittee shall have the privilege at any time within a period of 90 days thereafter of removing from the premises all machinery, equipment, tools, and materials. Any materials, tools, appliances, machinery, structures, and equipment, subject to removal as above provided, which are allowed to remain on the land shall become the property of the United States on expiration of the 90-day period or such extension thereof as may be granted by it but the permittee shall remove any or all of such property when so directed by the authorized agency representative.

10. To permit inspection of the premises and operations by duly authorized representatives of the Departments of the Interior and Agriculture, and shall provide a way across the lands covered by this permit for the free ingress or egress of Government officers and for users of the lands covered by this permit or other lands administered by the agency having control over the surface or the purchasers of the products of any such lands.

11. That this permit shall become null and void if the Bureau of Land Management shall find and determine (a) that the permittee has violated or failed to comply with any of the conditions of said permit, to the detriment of the United States, or (b) that the lands herein described are required by a public agency for a public purpose with which the continuation of mining operations under this permit would be incompatible.

12. The right to mine or remove minerals in merchantable quantities is not granted by this permit except in connection with an application for a preference right lease and only as specified in the cited regulation. This permit does not authorize prospecting or removal of any mineral deposits by stripping, rim cutting or open pit methods, without the prior written approval of the authorized agency representative and on such conditions as he may prescribe. The permittee has a preference right during the term of this permit to secure a mining lease covering any of the lands described in this prospecting permit in accordance with the regulation 43 CFR 200.37.

13. That in connection with the performance of work under this permit, permittee will not discriminate against any employee or applicant for employment because of race, religion, color, or national origin. The aforesaid provision shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The permittee agrees to post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the nondiscrimination clause. The permittee further agrees to insert the foregoing provision in all subcontracts hereunder, except subcontracts for standard commercial supplies or raw materials.

14. This permit is subject to a single 2-year extension in accordance with the regulation 43 CFR 200.36.

15. That no Member of, or Delegate to, Congress, or Resident Commissioner, after his election or appointment, or either before or after he has qualified and during his continuance in office, and that no officer, agent, or employee of the Department of the Interior, except as provided in 43 CFR 7.4(a)(1), shall be admitted to any share or part in this permit or derive any benefit that may arise therefrom; and the provisions of Sec. 3741 of the Revised Statutes of the United States, as amended (41 U.S.C. Sec. 22), and Secs. 431, 432, and 433, Title 18 U. S. Code, relating to contracts, enter into and form a part of this permit so far as the same may be applicable.

See special stipulation attached which is made a part of this permit.

DEC 1 1956
Date

Joseph P. Hagan
Signing Officer

Acting Chief, Minerals Adjudication Section
Title

INT -DUP SEC. WASH . D.C 05336

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DEC 21 1956
D.M.E.A.

SPECIAL STIPULATION

This permit does not grant the right to prospect for or remove any mineral deposits by stripping, rim cutting, contour, or open pit methods, or to carry on prospecting or mining by means of mechanical earth moving equipment.

Francis Cameron

Francis Cameron, Vice President

UNITED STATES
DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Eastern States Land Office
Washington 25, D. C.

Office BLM-A

Serial No. 043391

Missouri
(State)

Clark National Forest

PROSPECTING PERMIT

Galena and Sphalerite

Pursuant to the authority set out in, and subject to, the regulations 43 CFR 200.31-200.50, the United States of America, through the Bureau of Land Management, hereby grants to St. Joseph Lead Company, 250 Park Avenue, New York 17, New York the exclusive right for a period of two years from date hereof to prospect for galena and sphalerite and related minerals excluding oil and gas, oil shale, coal, phosphate, sodium, potassium and sulphur on the following described acquired lands of the United States in the State of Missouri, and permission to erect thereon such structures and facilities as are requisite for such purpose:

See attached sheet

RECEIVED DEC 21 1956 D.M.E.A.

The United States agency having administrative control over the surface use of the land is the Forest Service and the authorized representative to whom all inquiries relating thereto should be addressed is Byron L. Groesbeck, Forest Supervisor, Rolla, Missouri

This permit is subject to the following terms and the permittee agrees:

1. To pay in advance an annual rental of 25¢ per acre or fraction thereof, by remittance payable to the Bureau of Land Management.

2. To comply with all regulations of the Secretary of the Interior and the Secretary of Agriculture as to the lands described herein which are under his jurisdiction and to conduct his operations in an orderly manner, and in accordance with the regulations (30 CFR, Part 231) and the applicable Federal and State laws.

3. That the lands herein described shall be subject at all times to any other lawful uses by the United States, its lessees, permittees, licensees, and assigns; PROVIDED, That such uses subsequently granted shall not unduly interfere with the permittee's operations hereunder.

4. To conduct all operations hereunder with due regard for good land management, not to cut or destroy timber without previous permission from the authorized agency representative and to pay for such timber at rates prescribed by him; to avoid damage to improvements, timber, crops, or other cover; unless otherwise authorized by the agency representative, not to drill any well, carry on operations, make excavations, construct tunnels, drill, or otherwise disturb the surface of the lands within 200 feet of any building thereon and whenever required in writing by the authorized agency representative, and upon any partial or total relinquishment, cancellation or termination of this permit as to that portion of the land to which his rights have terminated, to fence or fill all sump holes, ditches, and other excavations, remove or cover all debris, and so far as reasonably possible, reseed or otherwise restore the surface of the lands to their former condition, or to a productive or other condition satisfactory to the authorized agency representative including the removal of structures as and if required, and when required by such representative to bury all pipelines below plow depth. To do all in his power to prevent and suppress fires on the land and vicinity, and to require his employees, contractors, and subcontractors to do likewise. Unless prevented by circumstances over which he has no control, to place his employees, contractors, and subcontractors at the disposal of the authorized agency representative for the purpose of fighting fires on or originating on the land or on adjacent areas or caused by the negligence of the permittee or his employees, contractors, and subcontractors, with the understanding that payment for such services shall be made at rates to be determined by such authorized representative but not less than the current rates of pay prevailing in the vicinity for services of a similar character: PROVIDED, That if the permittee, his employees, contractors, or subcontractors, or employees of contractors or subcontractors, caused or could have prevented the origin or spread of said fire or fires, no payment shall be made for services so rendered. During periods of serious fire danger, as may be specified by the authorized agency representative, the permittee shall prohibit smoking and the building of camp and lunch fires by his employees, contractors, and subcontractors, within the permitted area except at established camps, and shall enforce this prohibition by all means within his power: PROVIDED, That the authorized agency representative may designate safe places where, after all inflammable materials have been cleared away, campfires may be built for the purpose of heating lunches and more, at the option of the permittee, smoking may be permitted: PROVIDED, Further that when in the judgment of the authorized agency representative the fire danger is of such serious nature that fires may result from the operation, the permittee will close down operations upon request of such representative for the period of such emergency. The permittee shall not burn rubbish, trash or other inflammable materials except with the consent of the authorized agency representative and shall not use explosives during the fire season except as authorized to do so or on areas approved by such representative. The permittee shall build or construct such fire lines or do such clearing on the land as the authorized agency representative decides is essential for forest, brush, and grass fire prevention which is or may be necessitated by the exercise of the privileges authorized by this permit, and shall maintain such fire tools at his headquarters or at the appropriate location on the lands as are deemed necessary by such representative.

5. Not to clear or use the land for development or for construction purposes of any kind until a plan of construction and development therefor has been approved by the authorized agency representative and that in the location, design, construction, and maintenance of all authorized works, buildings, plants, waterways, roads, telegraph or telephone lines, pipelines, reservoirs, tanks, pumping stations, or other structures or clearance, permittee shall do all things reasonably necessary to prevent or reduce scarring and erosion of the land, pollution of the water resources and any damage to the watershed. That where construction, operation, or maintenance of any of the facilities on or connected with this permit causes damage to the watershed or pollution of the water resources, the permittee agrees to repair such damage and to take such corrective measures as are required by the authorized agency representative, including the reseeding or other restoration of the vegetative cover.

6. To pay the permitter or its tenant or the surface owner or his tenant, as the case may be, for any and all damage to or destruction of property caused by permittee's operations hereunder; to save and hold the permitter or the surface owner or their tenants harmless from all damage or claims for damage to persons or property resulting from permittee's operations hereunder.

7. To install and maintain cattle guards to prevent the passage of live[illegible]k in any openings made in fences by the permittee or his contractors to provide access to the lands covered by this p[illegible]it for automotive and other equipment and that any camps to be constructed on the land will be located at a place approved by the authorized agency representative and that such camps will be kept in a neat and sanitary condition.

8. Unless otherwise authorized, prior to the beginning of operations to appoint and maintain at all times during the term of this permit a local agent upon whom may be served written orders or notices respecting matters contained in this stipulation, and to inform the authorized agency representative in writing, of the name and address of such agent. If a substitute agent is appointed, the permittee shall immediately so inform the said representative.

9. On termination of this permit by surrender, forfeiture, or otherwise, the permittee shall have the privilege at any time within a period of 90 days thereafter of removing from the premises all machinery, equipment, tools, and materials. Any materials, tools, appliances, machinery, structures, and equipment, subject to removal as above provided, which are allowed to remain on the land shall become the property of the United States on expiration of the 90-day period or such extension thereof as may be granted by it but the permittee shall remove any or all of such property when so directed by the authorized agency representative.

10. To permit inspection of the premises and operations by duly authorized representatives of the Departments of the Interior and Agriculture, and shall provide a way across the lands covered by this permit for the free ingress or egress of Government officers and for users of the lands covered by this permit or other lands administered by the agency having control over the surface or the purchasers of the products of any such lands.

11. That this permit shall become null and void if the Bureau of Land Management shall find and determine (a) that the permittee has violated or failed to comply with any of the conditions of said permit, to the detriment of the United States, or (b) that the lands herein described are required by a public agency for a public purpose with which the continuation of mining operations under this permit would be incompatible.

12. The right to mine or remove minerals in merchantable quantities is not granted by this permit except in connection with an application for a preference right lease and only as specified in the cited regulation. This permit does not authorize prospecting or removal of any mineral deposits by stripping, rim cutting or open pit methods, without the prior written approval of the authorized agency representative and on such conditions as he may prescribe. The permittee has a preference right during the term of this permit to secure a mining lease covering any of the lands described in this prospecting permit in accordance with the regulation 43 CFR 200.37.

13. That in connection with the performance of work under this permit, permittee will not discriminate against any employee or applicant for employment because of race, religion, color, or national origin. The aforesaid provision shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The permittee agrees to post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the nondiscrimination clause. The permittee further agrees to insert the foregoing provision in all subcontracts hereunder, except subcontracts for standard commercial supplies or raw materials.

14. This permit is subject to a single 2-year extension in accordance with the regulation 43 CFR 200.36.

15. That no Member of, or Delegate to, Congress, or Resident Commissioner, after his election or appointment, or either before or after he has qualified and during his continuance in office, and that no officer, agent, or employee of the Department of the Interior, except as provided in 43 CFR 7.4(a)(1), shall be admitted to any share or part in this permit or derive any benefit that may arise therefrom; and the provisions of Sec. 3741 of the Revised Statutes of the United States, as amended (41 U.S.C. Secs. 22), and Secs. 431, 432, and 433, Title 18 U. S. Code, relating to contracts, enter into and form a part of this permit so far as the same may be applicable.

See special stipulation attached which is made a part of this permit.

DEC 1 1958
Date

Joseph P. [illegible]
Signing Officer

Acting Chief, Minerals Adjudication Section
Title

INT.-DUP. SEC. WASH., D.C. 05336

043391

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DEC 21 1956
D.M.E.A.

NOT IN PROJECT

~~T. 36 N., R. 1 E., 5th P.M.,~~	~~Acres~~
~~Sec. 31, all~~	~~579.14~~
~~Sec. 32, N½NW¼~~	~~80.00~~
T. 36 N., R. 1 W., 5th P.M.,	
~~Sec. 25, N½~~	~~160.00~~
Sec. 33, N½SE¼, N½SW¼	120.00
Sec. 34, N½SW¼	80.00
~~Sec. 36, E½ except 120 acres, starting at a point 10.25 chains south of the northwest corner of sec. 36, T. 36 N., R. 1 W., thence west 34.65 chains, thence south 34.65 chains, thence east 34.65 chains to the section line, all of T. 36 N., R. 1 W., 5th P.M.~~	~~200.00~~
	~~1219.14~~

043391

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SPECIAL STIPULATION

This permit does not grant the right to prospect for or remove any mineral deposits by stripping, pit cutting, contour, or open pit methods, or to carry on prospecting or mining by means of mechanical earth moving equipment.

CZ-85

OPTION CONTRACT

1. This instrument states the contract made by and between

CURTIS HENSLEE and GOLDIE HENSLEE, his wife,

parties of the first part, hereinafter designated and referred to as the landowner, and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Eighty and no/100 Dollars ($ 80.00) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in the W½ of NE¼ of Sec. 8, Twp. 35 N., R. 1 W., containing 80 acres, more or less.

3. The right and privilege is hereby granted the company to go in and upon the surface of the above described land and prospect for lead or other valuable minerals in modern manner and under modern local customs, that is to say with a diamond drill or churn drill or such other implements, tools and machinery as the company may choose, and to dig, drill, bore, blast, tunnel, and sink shafts in and upon said land, and to use from said land without cost, all the water necessary for such drilling and prospecting. It is further understood and agreed that the landowner shall have the right to see and examine any and all drill cores taken from said land, and in case the company shall fail to buy under this option, all such drill cores as shall have been taken from said land and preserved by the company, shall at any time within sixty days after the expiration of this contract, be turned over to the landowner upon his demand.

4. It is further agreed that all diamonds, bits, rods, pipes and other devices, tools, and appliances that may be used by the company in prospecting said land, shall remain and be the absolute property of the company, and the landowner hereby recognizes such continual ownership, and guarantees to the company the right and privilege to go in and upon said land or any part thereof, even after the expiration of this contract, or any extension thereof, for the purpose of searching for and seeking to recover any lost diamonds, bits, rods, pipes and other tools, devices and appliances.

5. It is hereby agreed that the company will be responsible for and pay the reasonable amount of damages done to any fences, fruit trees, or growing crops of the landowner by reason or as the result of the drilling and prospecting of said land, or in the search for lost bits and diamonds, and in case of a disagreement over the amount of any damage, the amount thereof shall be determined by three appraisers, who shall be citizens living in the county where the land herein described is situated, one of which appraisers shall be chosen by each of the parties to this contract and the third by the appraisers thus selected, the expense of such appraisal to be borne equally by the parties hereto.

6. If the company shall, during the life of this contract or any extension thereof, purchase under the terms of this contract, it shall pay for the above described underground, mining rights and minerals the sum of [illegible] ([illegible]) Dollars per acre.

7. For and in consideration of the covenants and agreements herein expressed and of the said sum of One Dollar ($1.00) paid by the company to the landowner, and for other good and valuable considerations, the landowner by these presents grants and sells unto the company, to continue during the life of this contract or any extension thereof, the following additional exclusive right and option:

If the company shall during the life of this contract or any extension thereof buy the above described underground and mining rights and minerals at the price above set out, to wit, [illegible] ([illegible]) Dollars per acre, then the company shall have the right to purchase and the landowner agrees to sell and convey by general warranty deed, free and clear of all encumbrances, any of the surface of the above described land that is desired by the company, for mining purposes or uses, for the sum of [illegible] ([illegible]) ○○○○ Dollars per acre for such surface so taken, plus the reasonable value of any buildings on the surface of the land so purchased. It is agreed that if the parties hereto are

unable to agree upon the reasonable value of said buildings, then the same shall be determined by three appraisers, one appointed promptly by each of the parties and the third by the two so selected. If the said two appraisers chosen by the parties shall fail to choose a third appraiser within fifteen days after they are chosen, a third appraiser shall be appointed by the Magistrate of [illegible] County. The decision of such appraisers as to the reasonable value of said buildings shall be final and binding upon the parties, the expense of such appraisal to be borne equally by the two said parties.

8. The landowner hereby covenants and agrees that in the event of any election by the company to purchase under this contract, the landowner will, within 30 days after notice of election to purchase, furnish the company a complete abstract of title to the above described land, rights and property. If the landowner fails to furnish said abstract within the time herein provided, the company shall have the right to procure said abstract and to retain the cost of same out of the purchase price provided for in this contract. If upon examination of said abstract, the title be found not to be merchantable, the company shall have the right to rescind said election to purchase and in the event of such rescission shall be under no further obligation to purchase under this contract or otherwise.

9. If the company elects to purchase the underground, mining rights and minerals as described in paragraph 2 or the surface or any part thereof as provided in paragraph 7, or both, and fails to exercise the right of rescission above provided, then the landowner will make, execute and deliver to the company on the date specified in said notice of election to purchase, a good and sufficient general warranty deed granting, bargaining and selling to the company in fee simple, free and clear of all encumbrances the interests specified in the notice of election. If by said deed the company does not acquire title to any or all of the surface of the above described land, then said deed shall include a clause with respect to such unacquired surface, as follows:

"It is hereby expressly understood and agreed that the grantee, its successors and assigns, shall have the full, free and exclusive right and privilege of carrying on its business of mining upon and under the premises hereby conveyed and removing the mineral therefrom, including the right to prospect for mineral upon any part of the same, the right to sink shafts and to use so much of the surface of the conveyed premises as may be necessary or convenient for the purpose of connecting by road, railway, conduit or wire any shaft with other shafts, or with the mills or other concentrating works or smelteries, or with the tracks of any railroad and the further right of doing in a proper manner any act upon the surface of the conveyed premises which the grantee or its successors or assigns may deem necessary or desirable to fully enjoy the mining rights in and upon said premises. But it is further understood and agreed that for all damages that may be done to the surface of the conveyed premises or to any building or structure thereon in the carrying out of any or all of the purposes and rights of the grantee, said grantee shall pay the grantor, his heirs and assigns, a reasonable amount to be agreed upon; and in the event they fail to agree then the same shall be determined by three appraisers, one appointed by each party hereto and a third by those two, and their decision as to such damages shall be final, the expense of such appraisal to be borne equally by the grantor and grantee."

10. In any event in which the surface of the above described real estate is referred to in or under this contract, the word "surface" shall be construed to include all right, title and interest in and to the acreage of land specified except the underground, mining rights and minerals described in paragraph 2.

11. For the purpose of this contract the aggregate acreage, as above stated, is taken to be correct and binding upon the parties, but if upon any election to purchase under the terms of this contract or at any time during the life of this contract or any extension thereof, the company shall so desire, the true acreage of said lands or any designated part thereof shall be ascertained by survey by the County Surveyor of the county in which the land lies. And it is agreed that in the event the true acreage be established by said survey to be different from that given above, any payments made or calculated by or upon the acreage as above stated shall be corrected and adjusted to the true acreage so established.

12. Any notice or tender authorized or required to be given or made landowner shall be considered as given or made when deposited in the United States Mail, postage prepaid, addressed to Curtis Fowler, Ruger, Missouri. Tender of the company's draft shall be a valid tender under this contract.

13. This contract shall be construed as a covenant running with the land and shall be binding upon the landowner, his heirs, personal representatives and assigns and shall enure to the benefit of the company, its successors and assigns.

14. This contract shall be in force and effect for the term of one year from and after its effective date hereinafter stated. It is further agreed as part of the consideration of this contract that the term of this contract, and all of its provisions, shall, at the option of the company, be renewed or extended for further periods upon the following conditions, that is to say: Upon the tender of One and No/100 Dollars per acre on or before the last day of said first one year term, and upon like tender on or before the last day of any renewed or extended term, this contract will be renewed and extended for an additional term of one year from and after the expiration of the term immediately preceeding; provided, however, that there shall be not more than 8 such renewals or extensions.

15. This contract becomes effective on the date hereof.

16. In witness whereof, the said part[illegible] of the first part ha[illegible] hereunto set [illegible] hand[illegible] and seal[illegible] this _____ day of _____, 19[illegible].

_____ (SEAL)

_____ (SEAL)

_____ (SEAL)

_____ (SEAL)

_____ (SEAL)

ACKNOWLEDGMENT

State of Missouri,)
) ss.
County of _____)

On this _____ day of _____, 195__, before me personally appeared _____ CURTIS BESSLER and COLLIE BESSLER, his wife, _____ to me known to be the persons described in and who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

In testimony whereof, I have hereunto set my hand and affixed my official seal at my office in _____ the day and year last above written.

My commission expires _____, 19__

_____
Notary Public.

ACKNOWLEDGMENT

State of Missouri)
) ss.
County of _____)

On this _____ day of _____, 195__, before me personally appeared _____ to me known to be the person__ described in and who executed the foregoing instrument and acknowlodged that __he__ executed the same as _____ free act and deed. And said _____ further declared _____ _____ to be single and unmarried.

In testimony whereof, I have hereunto set my hand and affixed my official seal at my office in _____ the day and year last above written.

My commission expires _____, 19__

_____
Notary Public.

CZ-15

OPTION CONTRACT

1. This instrument states the contract made by and between

LEWIS J. MERRITT and NELLIE E. MERRITT, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of One Hundred Ninety Five and 55/100 - - - -Dollars ($195.55) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the Counties of Washington & Iron and State of Missouri, described as follows:

All underground and mining rights in and pertaining to, and all minerals contained in Lot 1 and the S½ of Lot 2 of the southwest quarter and the NW¼ of the SE¼ and the S½ of the SW¼ of the NE¼ of Sec. 18, Twp. 35 N., R. 1 W., containing 175.55 acres, more or less.

Also, all of the N½ of the N½ of Lot 1 of the NW¼ of Sec. 19, Twp. 35 N., R. 1 W. except the transfers made and recorded in Book 60, page 42 and Book 64, page 551, containing 20 acres, more or less.

The total aggregate acreage contained in this option contract is 195.55 acres, more or less.

32-50

RECEIVED DEC 21 1956 D.M.E.A.

OPTION CONTRACT

1. This instrument states the contract made by and between

EDMOND LARAMORE and NORA LARAMORE, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of TWO HUNDRED EIGHTY TWO AND 65/100 - - - - - Dollars ($ 282.65) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Crawford & Washington and State of Missouri, described as follows:

The NE¼ of SW¼ and the SE¼ of NW¼, and the S½ of NE¼ of NW¼ and 4 acres off the west part of the W½ of NW¼ of NE¼, and 8 acres off the west part of SW¼ of NE¼ and 8 acres off the west part of NW¼ of SE¼, except the following described tract, all that part of the S½ of NE¼ of NW¼ described as follows: Beginning at NW corner of said S½ of NE¼ of NW¼ and running thence east 12.20 chains, then southwesterly to a point 3-1/3 chains south of point of beginning; thence N. 3-1/3 chains to point of beginning, containing 2 acres, more or less. Also, all that part of N½ of NE¼ of NW¼ and the W½ of NW¼ of NE¼ west of county line described as follows: Beginning 12.20 chains east of SW corner of said N½ of NE¼ of NW¼ and running thence east 12.20 chains to county line, thence N. 3½ chains, thence southwesterly to point of beginning, containing 2 acres, more or less—all being in Sec. 13, Twp. 35 N., R. 2 W., containing 120 acres, more or less, in Crawford County.

Also, the East part of NW¼ of SE¼ and W½ of east part of SW¼ of NE¼—all in Sec. 13, Twp. 35 N., R. 2 W., containing 40 acres; also, NE¼ of NE¼ of Sec. 13 and the NE¼ of SE¼ of Sec. 13—all in Twp. 35 N., R. 2 W., containing 80 acres; also the N½ of Lot 2 of SW¼ of Sec. 18, Twp. 35 N., R. 1 W., containing 34.65 acres, more or less, in Washington County.

The total aggregate acreage contained in this option contract is 282.65 acres, more or less.

C2-53

OPTION CONTRACT

RECEIVED DEC 21 1956 D.M.E.A.

1. This instrument states the contract made by and between

E. R. LARAMORE and OLLIE LARAMORE, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Ninety five and no/100 - - - - - - - - - - - Dollars ($_____) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in all the W½ of NE¼ of NE¼ and NW¼ of NE¼ of Sec. 18; also, a part of SE¼ of SE¼ of Sec. 7, being 80 rods in length and 20 rods wide in Twp. 35 N., R. 1 W., containing in the aggregate 70 acres.

Also, the N½ of the SW¼ of the NE¼ and a part of the SE¼ of NW¼ containing 5 acres, described as follows: Beginning at the SW corner of the N½ of SW¼ of NE¼ and run 18 rods west then run 22 rods NW; then run north down a ravine to a big hollow, then down the hollow to the half mile line where it crosses the hollow running north and south--all in Sec. 18, Twp. 35 N., R. 1 W., containing 25 acres, more or less.

This option contract contains in the aggregate 95 acres, more or less.

CZ-54

OPTION CONTRACT

RECEIVED DEC 21 1956 D.A.S.A.

1. This instrument states the contract made by and between

RICO MASON and BESSIE MASON, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Two hundred eighty-eight and no/100 - - - Dollars ($ 288.00) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

The NW¼ of Sec. 18 and S½ of SE¼ of SW¼ and SW¼ of SE¼ and S½ of NW¼ of SE¼ and 30 acres, the north part of SE¼ of SE¼ and 20 acres, part of the S½ of NE¼ of SE¼ of Sec. 7, Twp. 35 N., R. 1 W., and containing in the aggregate 288 acres, more or less.

CZ-56

OPTION CONTRACT

1. This instrument states the contract made by and between

SIMON BREAKFIELD and TOLITHA BREAKFIELD, his wife,

parties of the first part, hereinafter designated and referred to as the Landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Eighty and no/100 - - - - - - - - - - - - - Dollars ($ 80.00) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in the S½ of the SE¼ of Sec. 18, Twp. 35 N., R. 1 W., containing 80 acres, more or less.

CZ-57

OPTION CONTRACT

1. This instrument states the contract made by and between

HENRY BREAKFIELD and LULA BREAKFIELD, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Eighty and no/100 - - - - - - - - - - - - - Dollars ($80.00) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in the SW¼ of the SW¼ of Sec. 17, Twp. 35 N., R. 1 W., containing 40 acres, more or less.

CZ-60

OPTION CONTRACT

1. This instrument states the contract made by and between

LOTTIE BAYS and BURLEY BAYS; EDMOND LARAMORE and NORA LARAMORE; MARCUS LARAMORE and LORETA LARAMORE; E. R. LARAMORE and OLLIE LARAMORE,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Seventy-six and no/100 ($76.00) - - - - - Dollars ($ 76.00) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in all the NE¼ of NE¼, 20 acres in the south part of the east part of the NW¼ of NE¼, and 16 acres in the north part of the east part of SW¼ of NE¼--all in Sec. 13, Twp. 35 N., R. 2 W. and containing in the aggregate 76 acres, more or less.

CZ-62

OPTION CONTRACT

1. This instrument states the contract made by and between

HOWARD M. COLE and DAPHINE COLE, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Twenty and no/100 - - - - - - - - - - - - - - Dollars ($ 20.00) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in part of SE¼ SE¼ of Sec. 7, Twp. 35 N., R. 1 W., lying east of Indian Creek and described as follows: Begin at a point 20 rods north of SE corner of Section 7; run north to a ravine below Bluff Spring; thence west to Indian Creek; thence south along Indian Creek to point due west of point of beginning; thence east to point of beginning, containing 20 acres, more or less.

CI-63

OPTION CONTRACT

1. This instrument states the contract made by and between

C. H. WILLHITE and ELIZABETH WILLHITE, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Ninety Four and 23/100 - - - - - - - - - - - Dollars ($94.23) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in all the NE¼ of SE¼ of Sec. 12, Twp. 35 N., R. 2 W. and N½ of Lot 2 of SW¼ of Sec. 7, Twp. 35 N., R. 1 W., containing 74.23 acres.

Also, part of SE¼ SW¼ of Sec. 7, Twp. 35 N., R. 1 W. as follows: Beginning at the NW corner of said 40 acres; thence east to NE corner of said 40 acres; thence south 6 chains and 66 links and running in a westerly directio across said 40 acres making it wide enough at west side to contain 20 acres, more or less.

This option contract contains in the aggregate 94.23 acres.

CZ-64

OPTION CONTRACT

1. This instrument states the contract made by and between

JESSE H. BREAKFIELD and NETTIE BREAKFIELD, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of One Hundred Thirty-five and no/100 - - - - Dollars ($ 135.00) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in the NW¼ of southwest Quarter of Sec. 17, the NE¼ SE¼ of Sec. 18, and SE¼ NE¼ of Sec. 18 except 5 acres in SW corner deeded for church and graveyard purposes; also, that part of NE¼ NE¼ of Sec. 18 lying east of Indian Creek containing 20 acres. All being in Twp. 35 N., R. 1 W. and containing in the aggregate 135 acres, more or less.

CZ-65

OPTION CONTRACT

1. This instrument states the contract made by and between

KELSEY CARL and FLOY CARL, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of One Hundred Sixty Five and no/100 - - - - - Dollars ($ 165.00) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in all that part of N½ of NW¼ lying west of Courtois Creek; and all that part of NE¼ of SE¼ of NW¼ lying west of Courtois Creek; all in Sec. 17, Twp. 35 N., R. 1 W., containing 85 acres, more or less.

Also, begin at a point 9 chains south of NE corner of NE¼ of SW¼ of Sec. 8, Twp. 35 N., R. 1 W.; thence South 53° W. to West line of said Section 8; thence south 3 chains and 25 links to SW corner of section 8; thence east to SE corner of SW¼ of said Section 8; thence north to place of beginning, containing 80 acres, and being in Twp. 35 N., R. 1 W.

This option contract contains in the aggregate 165 acres, more or less.

CZ-66

OPTION CONTRACT

1. This instrument states the contract made by and between

HASKEL MASON and SADIE MASON, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of One Hundred Twenty and no/100 - - - - - - - Dollars ($_____) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in the S½ of SW¼ of NW¼; the S½ of SE¼ of NW¼ and S½ of SW¼ of NE¼ of Sec. 7; also, a part of the SE¼ NE¼ and a part of the NE¼ SE¼ and a part of the NW¼ SE¼ in Sec. 7, said last 3 tracts are described as follows: Begin in center of Sec. 7; thence east on line dividing NE¼ from SE¼ running to creek; thence up creek to mouth of the branch; thence westwardly with said branch to where the same crosses the line dividing the SE¼ from SW¼ of said section 7; thence north along said line to place of beginning, containing 120 acres, more or less, and all being located in Twp. 35 N., R. 1 W. Also the North half of Lot One of the Southwest quarter of Section 7, Township 35, North Range 1 West.

CZ-67

OPTION CONTRACT

1. This instrument states the contract made by and between

GEORGE D. EVANS and LILLIE EVANS, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Two Hundred Forty and 23/100 - - - - - - - Dollars ($240.23) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in all of NW¼ and NE¼ except that part now owned by Haskel Mason and Howard Cole and George White--all in Sec. 7, Twp. 35 N., R. 1 W., containing 227.23 acres;

also, a part of the NW¼ of Sec. 8 described as follows: Beginning at section corner of sections 5, 6, 7, and 8, running south following section line of Sec. 7 and 8 about 25 rods to a large white oak and mulberry tree standing near section line; thence due east to Courtois Creek; thence following main channel of said creek to intersection of section lines of Sec. 5 and 8; thence west following line to point of beginning--all in Sec. 8, Twp. 35 N., R. 1 W. and containing 8 acres;

also, beginning at SW corner of SW¼ of Sec. 5, Twp. 35 N., R. 1 W., described as follows: Beginning at said SW corner of Sec. 5, running north to a white oak and a mulberry tree, thence east to main channel of Courtois Creek; thence following said creek south to section line; thence following said section line west to place of beginning--all in Section 5, Twp. 35 N., R. 1 W. and containing 5 acres.

The total aggregate acreage contained in this option contract is 240.23 acres, more or less.

CZ-14

OPTION CONTRACT

1. This instrument states the contract made by and between

PAUL THOMPSON and HILMA THOMPSON, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Two Hundred Sixteen and no/100 Dollars ($216.00) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in all the SW¼ of NW¼ and the S½ of NW¼ of NW¼ of Sec. 9, Twp. 35 N., R. 1 W., containing 60 acres; Also the SE¼ of NW¼ and S½ NE¼ of NW¼ of Sec. 9, Twp. 35 N., R. 1 W., excepting 2 acres heretofore sold to Roy Carl, containing 58 acres. Also, excepting 2 acres from NE corner of SW¼ of NW¼ of Sec. 9, Twp. 35 N., R. 1 W., described as follows: Commence at NE corner of SW¼ of said Sec. 9; thence running west on ¼ sec. line 18 rods for a corner; thence south parallel with east line of said SW NW of Sec. 9, 18 rods for a corner; thence east parallel with north line of said SW NW ¼ Sec. 9.18 rods to north & south ¼ section line; thence north on said north & south ¼ section line a distance of 18 rods to place of beginning.

Also, the NE¼ of NE¼ and also the N½ of SE¼ NE¼, all in Sec. 8, Twp. 35 N., R. 1 W., containing 60 acres; also, N½ NW¼ of NW¼ of Sec. 9, containing 20 acres. Also, S½ SW¼ SW¼ Sec. 4, containing 20 acres, all in Twp. 35 N., R. 1 W.

This option contract contains in the aggregate 216.0 acres more or less.

CZ-75

OPTION CONTRACT

1. This instrument states the contract made by and between

JOHN E. TURNBOUGH and NETTIE TURNBOUGH, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of One Hundred Fifty and 57/100 - - - - - - - - - - - - Dollars ($ 150.57) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in the N½ of the SW¼ of the SW¼ of Sec. 4, Twp. 35 N., R. 1 W., making the bottom of a certain hollow the line east and west running where hollow forks right hand, the land containing 20 acres. The SW¼ of the SE¼ of Sec. 5, Twp. 35 N., R. 1 W., containing 40 acres. The E½ of the SE¼ of Sec. 5, Twp. 35 N., R. 1 W. except 5.57 acres in north corner of NE¼ of SE¼ of Sec. 5 and described as follows: Begin at quarter corner between Secs. 4 and 5, gas pipe driven and pile stones, one gov. stump, thence west va. 5° 30' at 3.38 chains stake and stones hickory 4" N. 48° W. 8 links, a gum 20" N. 17° E. 9 links thence S. 13° E. at 2.65 chains stake on S. 26° E. at 5.71 chains stake and stones white oak 6" N. 65° E. 19 links apple tree S. 81° W. 14 links, thence S. 74° E. at 6.82 chains intersecting line between Secs. 4 & 5, thence N. va. 5° at 6.32 chains to beginning.

Also, 10 acres off the East end of the NW¼ of SE¼ of Sec. 5, Twp. 35 N., R. 1 W.

Also, that part of the SW¼ of NE¼ of Sec. 5, Twp. 35 N., R. 1 W. described asfollows: Starting at southwest corner of Lot 2 of NE¼, thence south along old line fence at 12.5 chains old road, to beginning point, thence N. 72° E. along old road at 10.16 chains stake; thence N. 24° E. at 4.16 chains stake; thence N. 81° E. 3.73 chains stake; thence N. 63° E. 5.18 chains stake; thence south to SE corner of SW¼ of NE¼; thence west to SW corner of same; thence north to point of beginning; the total acreage conveyed in this option contract is 150.57 acres, more or less.

CZ-16

OPTION CONTRACT

1. This instrument states the contract made by and between

HALLIE G. TURNER, single,

party of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Ninety and no/100 - - - - - - - - - - - - - - - - - - Dollars ($ 90.00) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in a part of NE¼ of Sec. 5, Twp. 35 N., R. 1 W., beginning at NE corner of Sec. 5, thence south 86° 45' W. V. 5° on Twp. line at 27.50 chains set pile of stone, thence S. 19° W. V. 7° at 27.50 chains, stake in field; thence west 300 feet to old corner old hickory tree north 16 links; thence south along old line fence at 12.50 chains old road; thence N. 72° E. along old road at 10.16 chains to stake; thence N. 24° E. at 4.16 chains to stake; thence N. 81° E. 3.73 chains to stake; thence N. 63° E. 5.18 chains to stake; thence N. 23° E. 5.29 chains to stake; thence N. 40° E. at 1.79 chains to stake; thence N.29° E. at 7.39 chains to stake; thence N. 83° E. 12.60 chains to county road; thence on line between Secs. 4 and 5 at 17.21 chains to beginning, containing 90 acres, more or less.

C2-79

OPTION CONTRACT

1. This instrument states the contract made by and between

W. J. TURNBAUGH and ZOE TURNBAUGH, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Eighty-five and 57/100 - - - - - - - - - - - - - - Dollars ($ 85.57) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in the NW¼ of SW¼ of Sec. 4, the SE¼ of NE¼ of Sec. 5, and 5.57 acres in NE corner of NE¼ of SE¼ of Sec. 5 and described as follows: Beginning at ¼ corner between Secs. 4 and 5 at pile of stone and pipe; thence west Va 5.30 at 8.38 chains to stake; thence S. 13° E. 2.65 chains; thence S. 26° E. 5.17 chains; thence S. 74° E. 6.82 chains intersecting line Secs. 4 and 5; thence north on line 6.32 chains to beginning--all said land being in Twp. 35 N., R. 1 W. and containing in the aggregate 85.57 acres, more or less.

CZ-81

OPTION CONTRACT

1. This instrument states the contract made by and between

HERBERT GILLAM, single,

party of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Sixty and no/100 - - - - - - - - - - - - - - - - - - Dollars ($ 60.00) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in the S½ of SE¼ of NE¼ of Sec. 8 and all of NE¼ of SE¼ of Sec. 8--all in Twp. 35 N., R. 1 W. and containing 60 acres, more or less.

C2-82

OPTION CONTRACT

1. This instrument states the contract made by and between

MARY ALICE MOSES, single,

party y of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of One Hundred Forty Nine and 60/100 - - - - - - - - - - Dollars ($ 149.60) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in all that part of the SW¼ of NE¼ of Sec. 32 not heretofore sold to Marion Jarvis; the part hereby conveyed containing 28 acres, more or less. Also, the E½ of SE¼ of Sec. 32, containing 80 acres. Also, the SW¼ of SW¼ of Sec. 33, containing 40 acres. Also, 5.6 acres, part of the SE¼ of NE¼ of Sec. 32 described as follows: Begin at SW corner of SE¼ NE¼ of Sec. 32, thence N. 87° E. 975' to road; thence N. 61.5° W. 550'; thence N. 71.5° W. 600' along road to intersection of West line of said SE¼ of NE¼; thence S. 500' to place of beginning. Except from above described land, Book 89, page 412, Four (4) acres, part of SW¼ of NE¼ of Sec. 32, as follows: Begin at a point 500' N. of SW corner of SE¼ of NE¼ of Sec. 32, thence N. 840' to NW corner of SE¼ of NE¼ of Sec. 32, thence S. 87° W. 210' to corner in Courtois Creek; thence in Southerly direction with the meandering of the creek, 840' to corner in creek; thence N. 87° E. 210 feet to place of beginning.

All above described land being located in Twp. 36 N., R. 1 W. and containing in the aggregate 149.6 acres, more or less.

C2-83

OPTION CONTRACT

1. This instrument states the contract made by and between

ELZA HENSLEE and CORA HENSLEE, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Seventy-one and 40/100 - - - - - - - - - - - - - - - Dollars ($ 71.40) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in the SE$\frac{1}{4}$ and the S$\frac{1}{2}$ of S$\frac{1}{2}$ of NE$\frac{1}{4}$ of Sec. 17, Twp. 35 N., R. 1 W. less 129.6 acres sold to Percy Carl and recorded in Book 94, page 400, in the Recorder's Office of Washington County, Missouri, and described as follows: Begin at SE corner of Sec. 17, thence W. 40 chains to a corner; thence N. 25.7 chains to a corner; thence N. 87° E. 42.5 chains to East line of Sec. 17, thence S. 39.1 chains to beginning corner;

This option contract contains in the aggregate 71.40 acres, more or less.

CZ-88

OPTION CONTRACT

1. This instrument states the contract made by and between

ALONZO H. SELLERS and OVERA SELLERS, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of One Hundred Eighteen and no/100 - - - - - - - - - - - Dollars ($ 118.00) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in the N½ of NE¼; the N½ of SE¼ of NE¼ and the N½ of SW¼ of NE¼, except 2 acres a part of N½ of NW¼, described as follows: Beginning on the north section line of Sec. 17 at a point where said section line intersects the east right-of-way line of county road, thence following county road 100 feet to north bank of a branch, thence following the north bank of said branch in an easterly direction 800 feet, thence north 100 feet to section line; thence west on section line to point of beginning. All said above described land is in Twp. 35 N., R. 1 W. and contains in the aggregate 118 acres, more or less, in Section 17.

C2-93

OPTION CONTRACT

1. This instrument states the contract made by and between EMMA PAYNE, single; GLENWOOD PAYNE and RITA PAYNE, his wife; LUCILLE CRABTREE and ORVILLE CRABTREE, her husband; ELEANOR CROCKER and HAROLD CROCKER, her husband; and MELBA YOUNG and EVERETT YOUNG, her husband,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of One Hundred Ten and 50/100 - - - - - - - - - - - - - - Dollars ($ 110.50) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in all that part of NW¼ of Sec. 8, Twp. 35 N., R. 1 W. lying east of Courtois Creek, containing 110.50 acres, more or less.

CZ-94

RECEIVED DEC 21 1956 D.M.E.A.

OPTION CONTRACT

1. This instrument states the contract made by and between

PERCY CARL and LYDIA CARL, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of One Hundred Twenty Nine and 60/100 - - - - - - - - - Dollars ($ 129.60) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in part of the SE¼ of Sec. 17, Twp. 35 N., R. 1 W. described as follows: Begin at the SE corner of Sec. 17, thence W. 40 chains to a corner; thence N. 25.7 chains to a corner; thence N. 87° E. 42.5 chains to the East line of Sec. 17, thence S. 39.1 chains to beginning corner, containing 129.6 acres, more or less.

CL-95

OPTION CONTRACT

1. This instrument states the contract made by and between

LON LARAMORE and ESTHER LARAMORE, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Seventy Two and no/100 - - - - - - - - - - - - - - - Dollars ($ 72.00) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in the SE$\frac{1}{4}$ of SE$\frac{1}{4}$ and 32 acres being the East part of SW$\frac{1}{4}$ of SE$\frac{1}{4}$ of Sec. 12, Twp. 35 N., R. 2 W., containing in the aggregate 72 acres, more or less.

CZ-98

OPTION CONTRACT

1. This instrument states the contract made by and between

EDWARD B. HEATH and HAZEL HEATH, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of One Hundred Twenty-two and no/100 - - - - - - - - - - Dollars ($122.00) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in the S½ of SE¼ and NW¼ of SE¼ of Sec. 8, Twp. 35 N., R. 1 W., containing 120 acres, and all that part of N½ NE¼ of Sec. 17, Twp. 35 N., R. 1 W., described as follows: Beginning on the North section line of Sec. 17 at a point where said section line is intersected by the east right-of-way line of county road, thence following county road 100 feet to north bank of a branch, thence following the north bank of said branch in a easterly direction 800 feet; thence north 100 feet to section line; thence west on the section line to point of beginning, containing 2 acres. The above described land contains in the aggregate 122 acres, more or less.

C2-100

OPTION CONTRACT

1. This instrument states the contract made by and between

JAMES E. SELLERS and MAUDE SELLERS, his wife,

parties of the first part, hereinafter designated and referred to as the landowner and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of One Hundred Forty and no/100 - - - - - - - - - - - - Dollars ($ 140.00) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests, lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in the NW¼ of SE¼ (except 10 acres off the east end running north and south) containing 30 acres; and all that part of the SW¼ lying east of main channel of Courtois Creek--all in Sec. 5, Twp. 35 N., R. 1 W., and containing in the aggregate 140 acres, more or less.

OPTION CONTRACT C2-146

1. This instrument states the contract made by and between

BENNIE A. YOUNT and ESSIE YOUNT, his wife,

parties of the first part, hereinafter designated and referred to as the landowner, and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Eighty five and no/100 - - - - - - - - - - - - - Dollars ($ 85.00) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in N½ NE¼ of NW¼ of Sec. 9; also SE¼ SE¼ Sec. 4; also SW¼ SW¼ Sec. 4 except 15 acres now owned by Dave and Lottie Turnbough--all in [redacted] Township 35 N., R. 1 W. and containing in the aggregate 85.0 acres, more or less.

C2-142

RECEIVED DEC 21 1956 D.M.E.A.

OPTION CONTRACT

1. This instrument states the contract made by and between

ADOLPH MOSES and IRENE MOSES, his wife,

parties of the first part, hereinafter designated and referred to as the landowner, and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of Eighty five and no/100 - - - - - - - - - - - - - - Dollars ($85.00) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in the E½ Lot 2 NW¼ of Sec. 4 lying north of north bank of Cub Creek, containing 51 acres; also, all W½ Lot 2 NW¼ Sec. 3 lying north of north bank of Cub Creek, containing 34 acres--all in Twp. 35 N., R. 1 W., and containing in the aggregate 85 acres, more or less.

C2-153

OPTION CONTRACT

1. This instrument states the contract made by and between

OMA COMPTON, single,

party of the first part, hereinafter designated and referred to as the landowner, and ST. JOSEPH LEAD COMPANY, a corporation of the State of New York, party of the second part, hereinafter designated and referred to as the Company.

2. In consideration of the covenants and agreements hereinafter expressed and of the sum of One Hundred Sixty Seven and 50/100 - - - - - - - - Dollars ($167.50) paid by the company to the landowner, the receipt of which is hereby acknowledged, the landowner by these presents grants and sells unto the company, the exclusive right and option to buy, upon the terms and conditions and within the time hereinafter set out, the following described real estate, property, rights and interests lying, being and situate in the County of Washington and State of Missouri, described as follows:

All underground and mining rights in and pertaining to and all minerals contained in the following: Beginning at NW corner of SE¼ SE¼ Sec. 4, thence N. 46.50 chains to N. bank of Cub Creek; thence S. 87° E. making the north bank of Cub Creek the line 23 chains to corner; thence S. 46.5° E. 7.5 chains to corner; thence S. 40° E. crossing Cub Creek to south side 5 chains to a corner; thence up Cub Creek on south side 10.5 chains intersecting east boundary line of W½ Lot 1 NW¼ Sec. 3; thence south 35 chains to corner; thence west 40 chains to beginning, being part of Secs. 3 and 4, Twp. N., R. 1 W and containing 169 acres, more or less. Excepting the following: Begin near NE corner of SW¼ NW¼ Sec. 3, pile of rock; thence south 3 chains and 50 links; thence west 5 chains to south corner; thence north 3 chains and 50 links to a corner; thence back to beginning, containing 1.5 acres, leaving in the aggregate 167.5 acres, more or less.

Docket copy

PROJECT SUMMARY REPORT

By: W. R. Griswold September 30, 1959

1. Docket No. DMEA-4582 (Lead-Zinc-Copper)
   Contract No. Idm-E1068

   Operator - St. Joseph Lead Company
   Bonne Terre, Missouri

   Property - Courtois Area
   Washington County, Missouri

   Operator's Property Rights -
   Five tracts held under Prospecting Permits from Bureau of Land Management.

   Option contracts from private landowners.

2. Contract, dated March 18, 1957.

   Work Authorized -

133,420 feet churn and diamond drilling at about $2.24/ft.	$298,560.00
Government participation at 50%	$139,280.00

   Amendments -

   No. 1, dated April 9, 1957, provides churn drilling in upper porous formations as well as in overburden; AX core drilling, or larger, but EX may be used when necessary to complete a hole; where core recovery is less than 70%, the Operator must drill a near-by hole at its own expense.

   No. 2, dated June 19, 1957
   No. 3, dated October 16, 1957
   No. 4, dated March 3, 1958
   No. 5, dated May 14, 1958
   No. 6, dated October 27, 1958

   Amendments No. 2 through No. 6 add lands to the contract.

   No. 7, dated March 6, 1959, deletes land from the contract.

   No. 8, dated March 6, 1959, regroups the Stage I and Stage II drilling but no cost change.

Work completed -

119,055 feet churn and diamond drilling at about $2.23/ft.	$265,193.10
Government participation at 50%	$132,596.55

Work completed December, 1958
Report of Review, June 5, 1959
Operator's final report received June 2, 1959
Final Field Team report received August 3, 1959.

Certification of discovery August 18, 1959.

Ore reserve estimate:

7,004,120 tons - 4.41% lead.

Comments -

Project work was handled in an efficient and business-like manner. This project, in conjunction with projects DMEA-4581 and 4583, has shown the existence of a major occurrence of lead ore, one of large magnitude, and which should be able to produce lead metal competitively with any mine in the world.

W. R. Griswold

WRGriswold/gla
9-30-59
cc to: Director's Reading File
Frank E. Johnson
Docket
Chron

ME Form 17
Mar. 59

OFFICE OF MINERALS EXPLORATI

WORK COMPLETED ANALYSIS

X Certified 8/18/59 After final audit or review report is received, prepare in duplicate. File original in official docket. Send copy to Code 210.

Operator: ST. JOSEPH LEAD COMPANY

Actual Cost

State: MISSOURI

Agreed Unit Cost: X

Final Report of Audit

Commodity: LEAD-ZINC-COPPER

Docket No.: DMEA-4582

Final Report of Review: 6/5/59.

Contract No.: Idm-E1068

Type of Work (Use these categories only)	Authorized by Contract and Amendments		Completed and Paid for		Net cost after sale of Gov't. Property
	Units	Cost 1/	Units	Cost 1/	
Drifting & Crosscutting					
Raising					
Shafts					
XXXXXXX			Core 92,868'	$206,166.96	$264,302.10
Drilling (Specify) Churn or Diamond (AX)	133,420' @ $2.22/ft.	$296,192.40	Churn 26,187'	58,135.14	
Surface Excavation					
Underground Excavation					
Roads and Trails					
Operating Equipment Purchased					
Surface Rehabilitation & Repairs					
Underground Rehabilitation					
New Building, Improvements, etc.					
Other (Specify) 2,370 determinations @ $1.00 each		2,370.00	891	891.00	891.00
Totals		$298,560.00		$265,193.10	2/ $265,193.10

1/ Round off to dollars.
2/ Net cost total must agree with final report of audit or review.

Prepared by W. P. Klugescheid Date 9/11/59.

52616

☒ Audited RofR-6/5/59. WORK ANALYSIS SHEET - DMEA PROJECT ☐ Actual Cost

☒ Certified 8/18/59. Analysis as of Dec. 1958 ☒ Agreed Unit Costs

Incl. Voucher for Audit

Name ST. JOSEPH LEAD COMPANY Docket No. 4582

State MISSOURI Commodity LEAD-ZINC-COPPER Idm-E No. 1068

OPERATION	AUTHORIZED Units	AUTHORIZED Cost	COMPLETED Units	COMPLETED Cost	NET COST
	Claimed		allowable		
Drifting & Crosscutting St. 1	Core 42,941	205,198.38 95,329.02	Core 42,941' ✓	206,166.96 95,329.02	
Total 92,429' St. 2	49,488	109,863.36	49,927' ✓	110,837.94	Total 92,868'
Raising St. 1	Churn 13,084'	29,046.48	Churn 13,084' ✓	29,046.48	
St. 2	13,032'	28,931.04	13,103' ✓	29,088.66	
Total Shafts	26,116'	57,977.52	26,187'	58,135.14	
~~Winzes~~ Drilling--Stage I. (AX)	70,890' @ $2.22/ft.	$157,375.80	Core 92,868'	206,166.96	
Drilling (Specify) Stage II.	62,530' @ $2.22/ft.	138,816.60	Churn 26,187'	58,135.14	
Surface Excavation					
Underground Excavation					
Roads and Trails					
Operating Equipment Purchased					
Surface Rehabilitation & Repairs					
Underground Rehabilitation					326.00
New Building, Improvements, etc.			326 565 324 565 891		565.00 891.00
Other (Specify) Stage I-1260 Deter. @$1.0		1,260.00		891.00	324.00 565.00 Claimed
" II-1110 " "		1,110.00			889.00
(Rounded) Totals		$298,560.00		265,193.10	

Contract date-March 18,1957.

Expiration date of Royalty Payments-Thirty Years.

Amendment No. 1--Some changes made in Exhibit "A" by the Field Team.

Amendment No. 2--Land added to the contract.

Amendment No. 3--Land added to the contract.

Amendment No. 4--Lands held by a Prospecting Permit from B.L.M. are included.

Amendment No. 5--Two tracts of land added to the Contract.

Prepared by W. P. Klugesheard

Amendment No. 6--Land added to the Contract.

Amendment No. 7--Deletion of land from the contract.

Amendment No. 8--Some items in Exhibit "A" and "Estimated Cost of the Project" are changed.

Operator's Final Report received--June 2, 1959.

71626

Stage I

70,890' Chute + D.D. @ $2.22/ft.	$157,375.80
1260 determinations @ $1.00/ft.	1,260.00
Total Stage I.	$ 158,635.80

Stage II

62,530' Chute + D.D. @ $2.22/ft.	$138,816.60
1,110 determinations @ $1.00/ft.	1,110.00
Total Stage II	$ 139,926.60

Total Cost of Project - (Rounded) $298,560.00

Spent. 1957 ~~Feb, Mar, April, May, June, July, Aug, Sept, Oct, Nov, Dec~~ 1958 ~~Jan~~

Stage I.

Churn Drilling @ 2.22 1280

D.D. @ 2.22

Assays @ $1.00

~~18,947'~~	~~16,176'~~	~~16,166'~~	~~15,496'~~	~~13,157'~~	~~23,169'~~	~~22,668'~~	~~11,846.34~~	~~37,606.72~~	~~35,888.52~~	~~44,699.70~~	~~34,401.12~~	~~33,811.12~~	~~50,363.92~~	~~11,318.02~~	~~25,419.22~~	~~51,434.08~~	~~15,000.30~~	~~27,208.54~~	~~54,465.18~~	~~8,083.02~~	~~27,644.24~~	~~56,667.72~~	~~2,871.60~~
~~7,801'~~	~~5,865'~~	~~3641'~~	~~4,318'~~	~~14,604'~~	~~27,534'~~	~~57,977.52~~	~~30,612.69~~	~~54,089.52~~															
~~11,022'~~	~~15,241'~~	~~25,716'~~	~~26,116'~~	~~30,195'~~	~~25,586'~~																		

~~25,414'~~	~~30,629'~~	~~15,253'~~	~~9,385'~~	~~35,515'~~	~~182,530.62~~	~~700,861.26~~	~~68,376.00~~	~~55,770.64~~	~~191,851.52~~	~~91,555.00~~	~~80,854.10~~	~~45,716.38~~	~~205,783.68~~	~~184,842.00~~	~~7,352.66~~	~~35,861.66~~	~~205,192.38~~	~~140,255.38~~	~~135,061.42~~	~~111,356.38~~	~~156,064.00~~	~~136,465.62~~	~~111,800.64~~
~~3,563'~~	~~30,800'~~	~~61,471'~~	~~55,711'~~	~~57,712'~~	~~50,191'~~	~~45,191'~~	~~41,241'~~	~~64,079'~~	~~71,200'~~	~~80,056'~~	~~82,221'~~	~~89,116'~~	~~91,511'~~	~~93,429'~~	~~111,724.32~~								

~~210~~	~~215~~	~~205~~	~~166~~	~~134~~	~~103~~	~~606~~	~~760~~	~~16~~	~~54~~	~~496~~	~~575~~	~~513~~	~~761~~	~~496~~	~~352~~	~~858~~	~~884~~	889	~~575.00~~	~~205.00~~	~~134.00~~	~~103.00~~	~~606.00~~	~~166.00~~
~~16.00~~	~~54.00~~	~~760.00~~	~~352.00~~	~~210.00~~	~~215.00~~	~~496.00~~	~~513.00~~	~~761.00~~	~~496.00~~	~~858.00~~	~~884.00~~	889.00											

~~176,810.96~~	~~166,246.84~~	~~26,971.72~~
~~181,044.08~~	~~134,209.84~~	~~46,190.36~~
~~201,032.12~~	~~135,016.68~~	~~46,984.16~~
~~224,988.40~~	~~146,032.50~~	~~65,248.60~~
~~234,792.10~~	~~151,015.16~~	~~46,801.08~~
~~255,363.24~~	~~161,666.14~~	~~63,205.24~~
~~266,757.20~~	~~264,058.90~~	

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
1/25	Johnson	110
	Gilbreath	120
		220

JAN 2 8 1966

Haskins and Sells
Certified Public Accountants
800 Boatmen's Bank Building
St. Louis, Missouri 63102

Gentlemen:

As requested in a January 21 letter from its Southeast Missouri Mining and Milling Division, the status of St. Joseph Lead Company's accounts as of December 31, 1965, are confirmed by our records to be as follows:

Contract No.	Docket No.	Government's Contribution	Royalty Repayments	Balance Repayable
Idm-E1064	DMEA-4581	$120,252.54	$120,252.54	$ -0-
Idm-E1068	DMEA-4582	132,596.55	132,596.55	-0-
Idm-E1073	DMEA-4583	134,103.50	-0-	134,103.50
Totals		$386,952.59	$252,849.09	$134,103.50

Sincerely yours,

(signed) FRANK E. JOHNSON

Frank E. Johnson
Chief, Office of
Minerals Exploration

Copy to St. Joseph Lead Company
Southeast Missouri Mining
and Milling Division
Bonne Terre, Mo.

cc: Director's reading file
Division file
Economic Geology file
OME file - Dockets 4581 - 4582 - 4583
OME reading file
OME CA&A file
OME Region IV w/cy inc.ltr.

FEJohnson/bih 1/25/66

23263

ST. JOSEPH LEAD COMPANY

SOUTHEAST MISSOURI MINING AND MILLING DIVISION

BONNE TERRE, MO.

E. A. JONES,
DIVISION MANAGER.

January 20, 1966

Mr. George Punich, Jr., Director
Office of Minerals Exploration
U. S. Department of the Interior
Washington 25, D. C.

Dear Mr. Punich:

According to our records, total advances to St. Joseph Lead Company by the Defense Mineral Exploration Administration through the year 1959 for DMEA Projects were, as follows:

Contract No.	Project No.	DMEA No.	County	Amount
Idm-E1064	1	4581	Crawford	$ 120,252.54
Idm-E1068	2	4582	Washington	132,596.55
Idm-E1073	3	4583	Iron	134,103.50
			Total	$ 386,952.59

As of December 31, 1965, $120,252.54 has been repaid on DMEA #4581 and $132,596.55 on DMEA #4582, leaving the balance payable to the Office of Minerals Exploration at December 31, 1965, as follows:

DMEA #4583 - $ 134,103.50

Will you please confirm to our auditors, Messrs. Haskins and Sells, 800 Boatmen's Bank Building, St. Louis, Missouri, the above advances and balance as of December 31, 1965.

A stamped, addressed envelope is enclosed for your convenience.

Yours very truly,

E. A. Jones

Division Manager.

cc - Haskins & Sells

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
6/4	Johnson	110
		100
		220

JUN 4 1965

St. Joseph Lead Company
Southeast Missouri Mining and
Milling Division
Bonne Terre, Missouri

Re: DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract Idm-E1068

Gentlemen:

Thank you for repaying in full the Government's participation of $132,596.55 in the exploration for lead-zinc-copper ore under the subject contract. In view of this repayment, the Government retains no lien or claim against the property described in the contract or on any production therefrom.

Sincerely yours,

George Fumich, Jr.
Acting Director

FEJohnson/bih
6/4/65

cc to: Files (docket)
Dir. reading file
Mr. R. A. Laurence, Knoxville, Tenn.
CA&A Division
120-M
Mr. Johnson

43683

37902

May 27, 1965

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Mr. E. A. Jones
Division Manager
St. Joseph Lead Company
Bonne Terre, Missouri 63628

Dear Mr. Jones:

DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract Idm-E1068

Dear Mr. Jones:

This will acknowledge receipt of your letter of May 25, submitting a draft for $12,429.85 as the final payment of DMEA royalty on the Courtois project. We are always happy to note the completion of repayments on the more successful DMEA projects, and the three St. Joe projects certainly were among our most outstanding contracts.

Sincerely yours,

Robert A. Laurence

RAL/mg
cc Geo. G. Selfridge (OME)
Harold Kirkemo (USGS)
Files

37902

May 27, 1965

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JUN 1 1965

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Memorandum

To: Fiscal Section, Office of Management Operations
Office of the Secretary, Department of the Interior
Washington, D. C. 20240

From: Robert A. Laurence

Subject: Royalty Payment
DMEA-4582, Contract Idm-E1068 (lead-zinc-copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Revolving Fund - 14X4401

Attached is Draft No. 5411, dated May 24, 1965, in the amount of $12,429.85, covering repayment royalty on the subject contract for the month of April 1965.

Robert A. Laurence

Attachment
mg
cc - Mr. George C. Selfridge (OME)
Mr. Harold Kirkemo (USGS)
Files

RECAPITULATION OF TOTAL MONEY PAID ON DMEA-4582, CONTRACT Idm-E1068

Total Money Borrowed as of January 1, 1959. . . . (Completion date of Contract)	$132,596.55
Amount of Monthly Royalty Repayments as of March 31, 1965 . . . . . (Covering Period from September, 1964 to March, 1965, Inclusive)	120,166.70
Balance Due	$ 12,429.85
Enclosed Final Repayment Royalty for the Month of April, 1965	12,429.85
Balance Due as of 5-1-65 . . .	NONE

RECEIVED
U. S. Geological Survey

ROYALTY [illegible]E U. S. GOVERNMENT FOR DMEA ORE [illegible]NED DURING

MONTH OF APRIL 1965

DMEA 4582 - PROJECT #2

1. PRODUCTION: From 29 Mine 58,859 Tons Ore
55,922 Portion Containing Zinc

From Area bounded by Coordinates 112,700 to 114,900 North & 88,000 to 88,900 East

Wet Tons Ore	Dry Tons Ore (3% H_2O)	% Pb In * Ore	Tons Pb In Ore	% Zn In * Ore	Tons Zn In Ore
58,859	57,093.23	3.539	2,020.529		
55,922	54,244.34			.219	118.795

*Head Mill Assay of Total Mine Production

2. MILL ASSAY STATISTICS:

	% Metal In Heads	% Metal In Tails (Shift Sample)	% Metal In Conc. (Shift Sample)	% Est. Content Per Dry Ton Zinc Conc.
Lead	3.539	.069	71.82	
Zinc	.219	.038	57.17	
Zinc Conc-Cadmium Content-				.87
Zinc Conc-Lead Content-				2.10
Zinc Conc-Iron Content-				3.30
Zinc Conc-Copper Content-				1.42

3. RECOVERY: (Calculated)

Official Formula: $\frac{\text{\% Metal In Feed - \% Metal In Tailings X \% Metal In Conc.}}{\text{\% Metal In Conc - \% Metal In Tailings X \% Metal In Feed}} \times 100$

Lead: $\frac{3.539 - .069 \times 71.82}{71.82 - .069 \times 3.539} \times 100 = \frac{2.49215}{2.53927} = 98.14$ % Recovery of Lead

Zinc: $\frac{.219 - .038 \times 57.17}{57.17 - .038 \times .219} \times 100 = \frac{.10348}{.12512} = 82.70$ % Recovery of Zinc

(Cadmium paid for in Zinc Concentrates)

4. TONS OF METAL IN CONCENTRATES:

Lead: 2,020.529 Tons Pb In Ore X 98.14 % Recovery = 1,982.947 Tons Lead In Conc.

Zinc: 118.795 Tons Zn In Ore X 82.70 % Recovery = 98.243 Tons Zinc In Conc.

5. VALUE OF LEAD CONCENTRATES:

1,982.947 Tons Pb In Conc ÷ 71.82 % Pb In Conc = 2,760.996 Tons Dry Pb Conc.

% Moisture = 5.98 ; 2,760.996 Tons Dry Pb Conc ÷ (100 - 5.98 %) = 2,936.605 Wet

Wet Tons Pb Conc.	Dry Tons Pb Conc.	Tons Pb In Conc.
2,936.605	2,760.996	1,982.947

Tons Pb @ 90% (National Contract Basis) = 1,982.947 X 90% = 1,784.652 Tons

1,784.652 X $ 316.00 Per Ton(Aver. Lead Price at St. Louis for Month April 1965)

= GROSS VALUE OF LEAD CONCENTRATES $ 563,950.03

Deductions - Freight:

Rail - Middlebrook, Mo., to Federal, Ill.

2,936.605 Wet Tons Conc X $4.76 = $ 13,978.24

Deductions - Treatment Charge:

$15.00/Dry Tons 2,760.996 Dry Tons Conc X $15.00= $ 41,414.94

Total Deductions $ 55,393.18

Balance $ 508,556.85

Bonus On Grade Of Conc. (National Contract Basis of 72%):

Grade 71.82 % - 72.00% = 0 % Above Base

0 % X 10¢ Per Percentage Unit X 2,760.996 Net Dry Tons Conc $ 0

NET VALUE OF LEAD CONCENTRATES $ 508,556.85

ROYALTY DUE @ 5 % $ 25,427.84

6. **VALUE OF ZINC CONCENTRATES:**

98.243 Tons Zinc in Conc ÷ 57.17 % Zn In Conc = 171.844 Tons Dry Zinc Conc.

% Moisture = 9.26 ; 171.844 Tons Dry Zn Conc ÷ (100 - 9.26 %) = 189.381 Wet

Wet Tons Zinc Conc.	Dry Tons Zinc Conc.	Tons Zinc In Conc.
189.381	171.844	98.243

Determination Of Price Per Dry Ton Of Concentrates (Noranda Sales Corp. Contract):

E.&.M.J. Average Price For Month Of April 1965

Zinc-E.St.L.	$ .145	Lb.
Cadmium	$ 2.65	Lb.
Lead-St.L.	$ .1580	Lb.

Payments:

Zinc: 2000# X % Zn in Conc. 57.17 % = 1,143.40 # X 85%
= 971.89 # X Aver. Price $ .145 = $ 140.92

Cadmium: 2000# X % Cad. In Conc. .87 % = 17.40 # - 8#
= 9.40 # X 60% = 5.64 # X Aver. Price $ 2.65 = $ 14.95

Lead: Premium - 40¢ For Each 1/10% Below .5%
.5% - 2.10 % = 0 % X 40 cents = $ 0

Sub-Total $ 155.87

Deductions:

Treatment Charge: - Base ($.13 Zinc) = $ 44.50

Variation due to Zinc Price:

$ .145 Over $0.13 = $ .015 @ $1.00 Per $.01 = 1.50

$ _____ Less $0.13 = $ _____ @ $1.00 Per $.01 = _____

Total $ 46.00

Penalties:

Iron: $1.00/Ton Conc For Each 1% Above 11%
3.30 % - 11% = 0 % X $1.00 = $ 0

Copper: $1.00/Ton Conc For Each .25% Above .5%
No Fractions Pro-Rata
1.42 % - .5% = .92 ÷ .25% = 4 X $100 = $ 4.00 $ 50.00

Net Price Per Dry Ton Of Concentrates $ 105.87

Dry Tons Conc. 171.844 X Net Price $ 105.87 = $ 18,193.12

Less - Rail Freight- Middlebrook to Josephtown, Pa.
189.381 Wet Tons Conc X $ 8.14 = $ 1,541.56

$ 1,541.56

Net Value Of Zinc Concentrates $ 16,651.56

ROYALTY DUE @ 5 % $ 832.58

7. **TOTAL ROYALTY DUE - LEAD AND ZINC:** $ 26,260.42 *

* Reduced to cover final balance due . . . . . $ 12,429.85

c o p y

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ST. JOSEPH LEAD COMPANY

Southeast Missouri Mining and Milling Division

Bonne Terre, Mo.

E. A. Jones,
Division Manager.

May 25, 1965

Field Officer
Office of Minerals Exploration
Region IV, Room 11
Post Office Building
Knoxville 2, Tennessee

Dear Sir:

DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract Idm-E1068

Enclosed is our draft for $12,429.85 covering repayment royalty on DMEA-4582, Contract Idm-E1068, for the month of April, 1965. This amount covers the final payment due for money advanced on this contract which was completed as of January 1, 1959.

Attached are detailed calculation reports, in duplicate, supporting this payment.

Sincerely yours,

/s/ E. A. Jones

Division Manager

cc: Mr. Francis Cameron
Mr. James C. Colvin
Mr. K. R. Baker
Mr. J. A. Thomure

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

37902

April 28, 1965

OFFICIAL COPY
O. M. E.
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M

Memorandum

To: Fiscal Section, Office of Management Operations
Office of the Secretary, Department of the Interior
Washington, D. C. 20240

From: Robert A. Laurence

Subject: Royalty Payment
DMEA-4582, Contract Idm-E1068 (lead-zinc-copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Revolving Fund - 14X4401

Attached is Draft No. 4420, dated April 23, 1965, in the amount of $28,616.38, covering repayment of royalty on the subject contract for the month of March 1965.

Robert A. Laurence

Attachment
mg
cc Mr. George C. Selfridge (2)(OME)
Mr. Harold Kirkemo (USGS)
Files

c o p y

ST. JOSEPH LEAD COMPANY
Southeast Missouri Mining and Milling Division
Bonne Terre, Mo.

E. A. Jones
Division Manager.

April 26, 1965

Field Officer
Office of Minerals Exploration
Region IV, Room 11
Post Office Building
Knoxville 2, Tennessee

Dear Sir:

DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract Idm-E1068

Enclosed is our draft for $28,616.38 covering repayment royalty on DMEA-4582, Contract Idm-E1068, for the month of March, 1965.

Attached are detailed calculation reports, in duplicate, supporting this payment.

Sincerely yours,

/s/ E. A. Jones

Division Manager

cc: Mr. Francis Cameron
Mr. James G. Colvin
Mr. K. R. Baker
Mr. J. A. Thomure

ROYALTY D[illegible]U. S. GOVERNMENT FOR DMEA ORE [illegible]ED DURING

MONTH OF MARCH, 1965

DMEA 4582-Project #2

1. PRODUCTION: From 29 Mine 59,665 Tons Ore
56,477 Portion Containing Zinc

From Area bounded by Coordinates 112,900 to 114,900 North & 88,000 to 88,900 East

Wet Tons Ore	Dry Tons Ore (3% H_2O)	% Pb In * Ore	Tons Pb In Ore	% Zn In * Ore	Tons Zn In Ore
59,665	57,875.05	3.794	2195.779		
56,477	54,782.69			.277	151.748

*Head Mill Assay of Total Mine Production

2. MILL ASSAY STATISTICS:

	% Metal In Heads	% Metal In Tails (Shift Sample)	% Metal In Conc. (Shift Sample)	% Est. Content Per Dry Ton Zinc Conc.
Lead	3.794	.077	72.12	
Zinc	.277	.046	53.77	
Zinc Conc-Cadmium Content-				.82
Zinc Conc-Lead Content-				2.10
Zinc Conc-Iron Content-				3.30
Zinc Conc-Copper Content-				2.11

3. RECOVERY: (Calculated)

Official Formula: $\frac{\text{\% Metal In Feed} - \text{\% Metal In Tailings} \times \text{\% Metal In Conc.}}{\text{\% Metal In Conc} - \text{\% Metal In Tailings} \times \text{\% Metal In Feed}} \times 100$

Lead: $\frac{3.794 - .077 \times 72.12}{72.12 - .077 \times 3.794} \times 100 = \frac{2.68070}{2.73331} = 98.08$ % Recovery of Lead

Zinc: $\frac{.277 - .046 \times 53.77}{53.77 - .046 \times .277} \times 100 = \frac{.12421}{.14882} = 83.46$ % Recovery of Zinc

(Cadmium paid for in Zinc Concentrates)

4. TONS OF METAL IN CONCENTRATES:

Lead: 2195.779 Tons Pb In Ore X 98.08 % Recovery = 2153.620 Tons Lead In Conc.

Zinc: 151.748 Tons Zn In Ore X 83.46 % Recovery = 126.649 Tons Zinc In Conc.

5. VALUE OF LEAD CONCENTRATES:

2153.620 Tons Pb In Conc ÷ 72.12 % Pb In Conc = 2986.162 Tons Dry Pb Conc.

% Moisture = 6.33 ; 2986.162 Tons Dry Pb Conc ÷ (100 - 6.33 %) = 3187.960 Wet

Wet Tons Pb Conc.	Dry Tons Pb Conc.	Tons Pb In Conc.
3187.960	2986.162	2153.620

Tons Pb @ 90% (National Contract Basis) = 2153.620 X 90% = 1938.258 Tons

1938.258 X $ 316.00 Per Ton (Aver. Lead Price at St. Louis for Month March, 1965)

= GROSS VALUE OF LEAD CONCENTRATES $ 612,489.53

Deductions - Freight:

Rail - Middlebrook, Mo., to Federal, Ill.

3187.960 Wet Tons Conc X $4.76 = $ 15,174.69

Deductions - Treatment Charge:

$15.00/Dry Tons 2986.162 Dry Tons Conc X $15.00 = $ 44,792.43

Total Deductions $ 59,967.12

Balance $ 552,522.41

Bonus On Grade Of Conc. (National Contract Basis of 72%):

Grade 72.12 % - 72.00% = .12 % Above Base

.12 % X 10¢ Per Percentage Unit X 2986.162 Net Dry Tons Conc $ 35.83

NET VALUE OF LEAD CONCENTRATES $ 552,558.24

ROYALTY DUE @ 5 % $ 27,627.91 66

6. VALUE OF ZINC CONCENTRATES:

126.649 Tons Zinc in Conc ÷ 53.77 % Zn In Conc = 235.538 Tons Dry Zinc Conc.
% Moisture = 11.49; 235.538 Tons Dry Zn Conc ÷ (100 - 11.49 %) = 266.115 Wet

Wet Tons Zinc Conc.	Dry Tons Zinc Conc.	Tons Zinc In Conc.
266.115	235.538	126.649

Determination Of Price Per Dry Ton Of Concentrates (Noranda Sales Corp. Contract):

E.&.M.J. Average Price For Month Of March, 1965

Zinc-E.St.L.	$ .145	Lb.
Cadmium	$ 2.69565	Lb.
Lead-St.L.	$ .158	Lb.

Payments:

Zinc: 2000# X % Zn in Conc. 53.77 % = 1075.40 # X 85%
= 914.09 # X Aver. Price $ .145 = $ 132.54

Cadmium: 2000# X % Cad. In Conc. .82 % = 16.40 # - 8#
= 8.40 # X 60% = 5.04 # X Aver. Price $2.69565 = $ 13.59

Lead: Premium - 40¢ For Each 1/10% Below .5%
.5% - 2.10 % = 0 % X 40 cents = $ 0

Sub-Total $ 146.13

Deductions:

Treatment Charge: - Base ($.13 Zinc) = $ 44.50
Variation due to Zinc Price:
$ .145 Over $0.13 = $ .015 @ $1.00 Per $.01 = 1.50
$ Less $0.13 = $ @ $1.00 Per $.01 =
Total $ 46.00

Penalties:

Iron: $1.00/Ton Conc For Each 1% Above 11%
3.30 % - 11% = 0 % X $1.00 = $ 0

Copper: $1.00/Ton Conc For Each .25% Above .5%
No Fractions Pro-Rata
2.11 % - .5% = 1.61 ÷ .25% = 7 X $100 = $ 7.00 $ 53.00

Net Price Per Dry Ton Of Concentrates $ 93.13

Dry Tons Conc. 235.538 X Net Price $ 93.13 = $ 21,935.65

Less - Rail Freight- Middlebrook to Josephtown, Pa.
266.115 Wet Tons Conc X $ 8.14 = $ 2,166.18

$ 2,166.18

Net Value Of Zinc Concentrates $ 19,769.47

ROYALTY DUE @ 5 % $ 988.47 ebf

7. TOTAL ROYALTY DUE - LEAD AND ZINC: $ 28,616.38 ebf

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

37902

March 29, 1965

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Memorandum

To: Fiscal Section, Office of Management Operations
Office of the Secretary, Department of the Interior
Washington, D. C. 20240

From: Robert A. Laurence

Subject: Royalty Payment
DMEA-4582, Contract Idm-E1068 (lead-zinc-copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Revolving Fund -

Attached is draft No. 3460, dated March 25, 1965, in the amount of $21,787.42, covering repayment royalty on the subject contract for the month of February 1965.

Robert A. Laurence

Attachment
mg
cc - Mr. George C. Selfridge (2) OME)
Mr. Harold Kirkemo (USGS)
Files

copy

ST. JOSEPH LEAD COMPANY
Southeast Missouri Mining and Milling Division
BONNE TERRE, MO.

E. A. Jones,
Division Manager.

March 26, 1965

Field Officer
Office of Minerals Exploration
Region IV, Room 11
Post Office Building
Knoxville 2, Tennessee

Dear Sir:

DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract Idm-E1068

Enclosed is our draft for $21,787.42 covering repayment royalty on DMEA-4582, Contract Idm-E1068, for the month of February, 1965.

Attached are detailed calculation reports, in duplicate, supporting this payment.

Sincerely yours,

/s/ E. A. Jones

Division Manager

cc: Mr. Francis Cameron
Mr. James G. Colvin
Mr. K. R. Baker
Mr. J. A. Thomure

copy

ST. JOSEPH LEAD COMPANY
Southeast Missouri Mining and Milling Division
BONNE TERRE, MO.

E. A. Jones,
Division Manager.

March 26, 1965

Field Officer
Office of Minerals Exploration
Region IV, Room 11
Post Office Building
Knoxville 2, Tennessee

Dear Sir:

DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract Idm-E1068

Enclosed is our draft for $21,787.42 covering repayment royalty on DMEA-4582, Contract Idm-E1068, for the month of February, 1965.

Attached are detailed calculation reports, in duplicate, supporting this payment.

Sincerely yours,

/s/ E. A. Jones

Division Manager

cc: Mr. Francis Cameron
Mr. James G. Colvin
Mr. K. R. Baker
Mr. J. A. Thomure

ROYALTY [illegible] U. S. GOVERNMENT FOR DMEA ORE [illegible]NED DURING

MONTH OF February, 1965

DMEA 4582-Project #2

1. PRODUCTION: From 29 Mine 46,661 Tons Ore
44,171 Portion Containing Zinc

From Area bounded by Coordinates 113,100 to 114,900 North & 88,000 to 88,900 East

Wet Tons Ore	Dry Tons Ore (3% H_2O)	% Pb In * Ore	Tons Pb In Ore	% Zn In * Ore	Tons Zn In Ore
46,661	45,261.17	3.695	1672.400		
44,171	42,845.87			.265	113.542

*Head Mill Assay of Total Mine Production

2. MILL ASSAY STATISTICS:

	% Metal In Heads	% Metal In Tails (Shift Sample)	% Metal In Conc. (Shift Sample)	% Est. Content Per Dry Ton Zinc Conc.
Lead	3.695	.064	70.54	
Zinc	.265	.054	55.48	
Zinc Conc-Cadmium Content-				.84
Zinc Conc-Lead Content-				2.10
Zinc Conc-Iron Content-				3.30
Zinc Conc-Copper Content-				2.06

3. RECOVERY: (Calculated)

Official Formula: $\frac{\text{\% Metal In Feed} - \text{\% Metal In Tailings} \times \text{\% Metal In Conc.}}{\text{\% Metal In Conc} - \text{\% Metal In Tailings} \times \text{\% Metal In Feed}} \times 100$

Lead: $\frac{3.695 - .064 \times 70.54}{70.54 - .064 \times 3.695} \times 100 = \frac{2.56131}{2.60409} = 98.36$ % Recovery of Lead

Zinc: $\frac{.265 - .054 \times 55.48}{55.48 - .054 \times .265} \times 100 = \frac{.11706}{.14688} = 79.70$ % Recovery of Zinc

(Cadmium paid for in Zinc Concentrates)

4. TONS OF METAL IN CONCENTRATES:

Lead: 1672.400 Tons Pb In Ore X 98.36 % Recovery = 1644.973 Tons Lead In Conc.

Zinc: 113.542 Tons Zn In Ore X 79.70 % Recovery = 90.493 Tons Zinc In Conc.

5. VALUE OF LEAD CONCENTRATES:

1644.973 Tons Pb In Conc ÷ 70.54 % Pb In Conc = 2331.972 Tons Dry Pb Conc.

% Moisture = 6.33 ; 2331.972 Tons Dry Pb Conc ÷ (100 - 6.33 %) = 2489.561 Wet

Wet Tons Pb Conc.	Dry Tons Pb Conc.	Tons Pb In Conc.
2489.561	2331.972	1644.973

Tons Pb @ 90% (National Contract Basis) = 1644.973 X 90% = 1480.476 Tons

1480.476 X $ 316.00 Per Ton (Aver. Lead Price at St. Louis for Month February, 1965)

= GROSS VALUE OF LEAD CONCENTRATES $ 467,830.42

Deductions - Freight:

Rail - Middlebrook, Mo., to Federal, Ill.

2489.561 Wet Tons Conc X $4.76 = $ 11,850.31

Deductions - Treatment Charge:

$15.00/Dry Tons 2331.972 Dry Tons Conc X $15.00 = $ 34,979.58

Total Deductions $ 46,829.89

Balance $ 421,000.53

Bonus On Grade Of Conc. (National Contract Basis of 72%):

Grade 70.54 % - 72.00% = 0 % Above Base

0 % X 10¢ Per Percentage Unit X 2331.972 Net Dry Tons Conc $ 0

NET VALUE OF LEAD CONCENTRATES $ 421,000.53

ROYALTY DUE @ 5 % $ 21,050.03

6. **VALUE OF ZINC CONCENTRATES:**

90.493 Tons Zinc in Conc ÷ 55.48 % Zn In Conc = 163.109 Tons Dry Zinc Conc.
% Moisture = 11.36; 163.109 Tons Dry Zn Conc ÷ (100 - 11.36 %) = 184.013 Wet

Wet Tons Zinc Conc.	Dry Tons Zinc Conc.	Tons Zinc In Conc.
184.013	163.109	90.493

Determination Of Price Per Dry Ton Of Concentrates (Noranda Sales Corp. Contract):

E.&.M.J. Average Price For Month Of February, 1965

Zinc-E.St.L.	$ .145	Lb.
Cadmium	$ 3.00	Lb.
Lead-St.L.	$ .158	Lb.

Payments:

Zinc: 2000# X % Zn in Conc. 55.48 % = 1109.6 # X 85%
= 943.16 # X Aver. Price $ .145 = $ 136.76

Cadmium: 2000# X % Cad. In Conc. .84 % = 16.8 # - 8#
= 8.8 # X 60% = 5.28 # X Aver. Price $ 3.00 = $ 15.84

Lead: Premium - 40¢ For Each 1/10% Below .5%
.5% - 2.10 % = 0 % X 40 cents = $ 0

Sub-Total $ 152.60

Deductions:

Treatment Charge: - Base ($.13 Zinc) = $ 44.50
Variation due to Zinc Price:
$ .145 Over $0.13 = $ .015 @ $1.00 Per $.01 = 1.50
$ Less $0.13 = $ @ $1.00 Per $.01 =
Total $ 46.00

Penalties:

Iron: $1.00/Ton Conc For Each 1% Above 11%
3.30 % - 11% = 0 % X $1.00 = $ 0

Copper: $1.00/Ton Conc For Each .25% Above .5%
No Fractions Pro-Rata
2.06 % - .5% = 1.56 ÷ .25% = 7 X $1.00 = $ 7.00 $ 53.00

Net Price Per Dry Ton Of Concentrates $ 99.60

Dry Tons Conc. 163.109 X Net Price $ 99.60 = $ 16,245.66

Less - Rail Freight- Middlebrook to Josephtown, Pa.
184.013 Wet Tons Conc X $ 8.14 = $ 1,497.87
$ 1,497.87

Net Value Of Zinc Concentrates $ 14,747.79

ROYALTY DUE @ 5 % $ 737.39

7. **TOTAL ROYALTY DUE - LEAD AND ZINC:** $ 21,787.42

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

ROOM [illegible] BLDG.
KNOX[illegible] 37902

March 1, 1965

OFFICIAL COPY
O. M. E.
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Memorandum

To: Fiscal Section, Office of Management Operations
Office of the Secretary, Department of the Interior
Washington, D. C. 20240

From: Robert A. Laurence

Subject: Royalty Payment
DMEA-4582, Contract Idm-E1068 (lead-zinc-copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Revolving Fund - 14X4401

Attached is Voucher 2386, dated February 23, 1965, in the amount of $22,103.71, covering royalty on the above contract for the month of January 1965.

Robert A. Laurence

Attachment
mg
cc - Mr. George C. Selfridge (2) (OME)
Mr. Harold Kirkemo (USGS)
Files

copy

ST. JOSEPH LEAD COMPANY

Southeast Missouri Mining and Milling Division

Bonne Terre, Mo.

E. A. Jones
Division Manager.

February 26, 1965

Field Officer
Office of Minerals Exploration
Region IV, Room 11
Post Office Building
Knoxville 2, Tennessee

Dear Sir:

DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract Idm-E1068

Enclosed is our draft for $22,103.71 covering repayment royalty on DMEA-4582, Contract Idm-E1068, for the month of January, 1965.

Attached are detailed calculation reports, in duplicate, supporting this payment.

Sincerely yours,

/s/ E. A. Jones

Division Manager

cc: Mr. Francis Cameron
Mr. James G. Colvin
Mr. K. R. Baker
Mr. J. A. Thomure

ROYALTY D[illegible] U. S. GOVERNMENT FOR DMEA ORE [illegible]ED DURING

MONTH OF January, 1965

DMEA 4582-Project #2

1. **PRODUCTION:** From 29 Mine 42,340 Tons Ore
39,770 Portion Containing Zinc
From Area bounded by Coordinates 113,100 to 114,800 North & 88,000 to 88,900 East

Wet Tons Ore	Dry Tons Ore (3% H_2O)	% Pb In * Ore	Tons Pb In Ore	% Zn In * Ore	Tons Zn In Ore
42,340	41,069.80	4.176	1715.075		
39,770	38,576.90			.208	80.240

*Head Mill Assay of Total Mine Production

2. **MILL ASSAY STATISTICS:**

	% Metal In Heads	% Metal In Tails (Shift Sample)	% Metal In Conc. (Shift Sample)	% Est. Content Per Dry Ton Zinc Conc.
Lead	4.176	.064	70.26	
Zinc	.208	.053	54.85	
Zinc Conc-Cadmium Content-				.83
Zinc Conc-Lead Content-				2.10
Zinc Conc-Iron Content-				3.30
Zinc Conc-Copper Content-				2.23

3. **RECOVERY: (Calculated)**

Official Formula: $\frac{\text{\% Metal In Feed} - \text{\% Metal In Tailings} \times \text{\% Metal In Conc.}}{\text{\% Metal In Conc} - \text{\% Metal In Tailings} \times \text{\% Metal In Feed}} \times 100$

Lead: $\frac{4.176 - .064 \times 70.26}{70.26 - .064 \times 4.176} \times 100 = \frac{2.88909}{2.93138} = 98.56$ % Recovery of Lead

Zinc: $\frac{.208 - .053 \times 54.85}{54.85 - .053 \times .208} \times 100 = \frac{.08502}{.11398} = 74.59$ % Recovery of Zinc

(Cadmium paid for in Zinc Concentrates)

4. **TONS OF METAL IN CONCENTRATES:**

Lead: 1715.075 Tons Pb In Ore X 98.56 % Recovery = 1690.378 Tons Lead In Conc.
Zinc: 80.240 Tons Zn In Ore X 74.59 % Recovery = 59.851 Tons Zinc In Conc.

5. **VALUE OF LEAD CONCENTRATES:**

1690.378 Tons Pb In Conc ÷ 70.26 % Pb In Conc = 2405.890 Tons Dry Pb Conc.
% Moisture = 6.38 ; 2405.890 Tons Dry Pb Conc ÷ (100 - 6.38 %) = 2569.846 Wet

Wet Tons Pb Conc.	Dry Tons Pb Conc.	Tons Pb In Conc.
2569.846	2405.890	1690.378

Tons Pb @ 90% (National Contract Basis) = 1690.378 X 90% = 1521.340 Tons
1521.340 X $ 316.00 Per Ton (Aver. Lead Price at St. Louis for Month January, 1965)

= GROSS VALUE OF LEAD CONCENTRATES $ 480,743.44

Deductions - Freight:
Rail - Middlebrook, Mo., to Federal, Ill.
2569.846 Wet Tons Conc X $4.76 = $ 12,232.47

Deductions - Treatment Charge:
$15.00/Dry Tons 2405.890 Dry Tons Conc X $15.00 = $ 36,088.35
Total Deductions $ 48,320.82
Balance $ 432,422.62

Bonus On Grade Of Conc. (National Contract Basis of 72%):
Grade 70.26 % - 72.00% = 0 % Above Base
0 % X 10¢ Per Percentage Unit X 2405.890 Net Dry Tons Conc $ 0

NET VALUE OF LEAD CONCENTRATES $ 432,422.62

ROYALTY DUE @ 5 % $ 21,621.13

6. **VALUE OF ZINC CONCENTRATES:**

59.851 Tons Zinc in Conc ÷ 54.85 % Zn In Conc = 109.118 Tons Dry Zinc Conc.
% Moisture = 11.90 ; 109.118 Tons Dry Zn Conc ÷ (100 - 11.90 %) = 123.857 Wet

Wet Tons Zinc Conc.	Dry Tons Zinc Conc.	Tons Zinc In Conc.
123.857	109.118	59.851

Determination Of Price Per Dry Ton Of Concentrates (Noranda Sales Corp. Contract):

E.&.M.J. Average Price For Month Of January, 1965

Zinc-E.St.L.	$ .145	Lb.
Cadmium	$ 3.00	Lb.
Lead-St.L.	$ .158	Lb.

Payments:

Zinc: 2000# X % Zn in Conc. 54.85 % = 1097 # X 85%
= 932.45 # X Aver. Price $ .145 = $ 135.21

Cadmium: 2000# X % Cad. In Conc. .83 % = 16.6 # - 8#
= 8.6 # X 60% = 5.16 # X Aver. Price $ 3.00 = $ 15.48

Lead: Premium - 40¢ For Each 1/10% Below .5%
.5% - 2.10 % = 0 % X 40 cents = $ 0

Sub-Total $ 150.69

Deductions:

Treatment Charge: - Base ($.13 Zinc) = $ 44.50
Variation due to Zinc Price:
$ .145 Over $0.13 = $ .015 @ $1.00 Per $.01 = 1.50
$ _____ Less $0.13 = $ _____ @ $1.00 Per $.01 =
Total $ 46.00

Penalties:

Iron: $1.00/Ton Conc For Each 1% Above 11%
3.30 % - 11% = 0 % X $1.00 = $ 0

Copper: $1.00/Ton Conc For Each .25% Above .5%
No Fractions Pro-Rata
2.23 % - .5% = 1.73 ÷ .25% = 7 X $100 = $ 7.00 $ 53.00

Net Price Per Dry Ton Of Concentrates $ 97.69

Dry Tons Conc. 109.118 X Net Price $ 97.69 = $ 10,659.74

Less - Rail Freight- Middlebrook to Josephtown, Pa.
123.857 Wet Tons Conc X $ 8.14 = $ 1,008.20

$ 1,008.20

Net Value Of Zinc Concentrates $ 9,651.54

ROYALTY DUE @ 5 % $ 482.58

7. **TOTAL ROYALTY DUE - LEAD AND ZINC:** $ 22,103.71

RECEIVED
MAR 1- 1965
U. S. Geological Survey
Geologic Division
Knoxville, Tenn.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

[illegible] 37902

February 1, 1965

OFFICIAL COPY
C. M. E.
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Memorandum

To: Fiscal Section, Office of Management Operations
Office of the Secretary, Department of the Interior
Washington, D. C. 20240

From: Robert A. Laurence

Subject: Royalty Payment
DMEA-4582, Contract Idm-E1068 (lead-zinc-copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Revolving Fubd - 14X4401

Attached is Voucher 1434, dated January 27, 1965 in the amount of $21,372.31, covering repayment royalty for the month of December 1964.

Robert A. Laurence

Attachment
mg
cc - Mr. George C. Selfridge (2)
Mr. Harold Kirkemo
Files

c o p y

ST. JOSEPH LEAD COMPANY
Southeast Missouri Mining and Milling Division

BONNE TERRE, MO.

E. A. Jones,
Division Manager.

January 28, 1965

Field Officer
Officer of Minerals Exploration
Region IV, Room 11
Post Office Building
Knoxville 2, Tennessee

Dear Sir:

DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract Idm-E1068

Enclosed is our draft for $21,372.31 covering repayment royalty on DMEA-4582, Contract Idm-E1068, for the month of December, 1964.

Attached are detailed calculation reports, in duplicate, supporting this payment.

Sincerely yours,

/s/ E. A. Jones

Division Manager

cc: Mr. Francis Cameron
Mr. James G. Colvin
Mr. K. R. Baker
Mr. J. A. Thomure

ROYALTY [illegible] U. S. GOVERNMENT FOR DMEA ORE [illegible]NED DURING

MONTH OF December, 1964

DMEA 4582-Project #2

1. PRODUCTION: From 29 Mine 43,932 Tons Ore
41,148 Portion Containing Zinc

From Area bounded by Coordinates 113,200 to 114,700 North & 88,000 to 88,900 East

Wet Tons Ore	Dry Tons Ore (3% H_2O)	% Pb In * Ore	Tons Pb In Ore	% Zn In * Ore	Tons Zn In Ore
43,932	42,614.04	3.985	1698.169		
41,148	39,913.56			.211	84.218

*Head Mill Assay of Total Mine Production

2. MILL ASSAY STATISTICS:

	% Metal In Heads	% Metal In Tails (Shift Sample)	% Metal In Conc. (Shift Sample)	% Est. Content Per Dry Ton Zinc Conc.
Lead	3.985	.070	71.16	
Zinc	.211	.057	54.43	
Zinc Conc-Cadmium Content-				.83
Zinc Conc-Lead Content-				2.10
Zinc Conc-Iron Content-				3.30
Zinc Conc-Copper Content-				2.01

3. RECOVERY: (Calculated)

Official Formula: $\frac{\text{\% Metal In Feed} - \text{\% Metal In Tailings} \times \text{\% Metal In Conc.}}{\text{\% Metal In Conc} - \text{\% Metal In Tailings} \times \text{\% Metal In Feed}} \times 100$

Lead: $\frac{3.985 - .070 \times 71.16}{71.16 - .070 \times 3.985} \times 100 = \frac{2.78591}{2.83294} = 98.34$ % Recovery of Lead

Zinc: $\frac{.211 - .057 \times 54.43}{54.43 - .057 \times .211} \times 100 = \frac{.08382}{.11473} = 73.06$ % Recovery of Zinc

(Cadmium paid for in Zinc Concentrates)

4. TONS OF METAL IN CONCENTRATES:

Lead: 1698.169 Tons Pb In Ore X 98.34 % Recovery = 1669.979 Tons Lead In Conc.

Zinc: 84.218 Tons Zn In Ore X 73.06 % Recovery = 61.530 Tons Zinc In Conc.

5. VALUE OF LEAD CONCENTRATES:

1669.979 Tons Pb In Conc ÷ 71.16 % Pb In Conc = 2346.795 Tons Dry Pb Conc.

% Moisture - 6.32 ; 2346.795 Tons Dry Pb Conc ÷ (100 - 6.32 %) = 2505.118 Wet

Wet Tons Pb Conc.	Dry Tons Pb Conc.	Tons Pb In Conc.
2505.118	2346.795	1669.979

Tons Pb @ 90% (National Contract Basis) = 1669.979 X 90% = 1502.981 Tons

1502.981 X $ 309.14 Per Ton(Avgr. Lead Price at St. Louis for Month Dec., 1964.)

= GROSS VALUE OF LEAD CONCENTRATES $ 464,631.55

Deductions - Freight:

Rail - Middlebrook, Mo., to Federal, Ill.

2505.118 Wet Tons Conc X $4.76 = $ 11,924.36

Deductions - Treatment Charge:

$15.00/Dry Tons 2346.795 Dry Tons Conc X $15.00= $ 35,201.93

Total Deductions $ 47,126.29

Balance $ 417,505.26

Bonus On Grade Of Conc. (National Contract Basis of 72%):

Grade 71.16 % - 72.00% = 0 % Above Base

0 % X 10¢ Per Percentage Unit X 2346.795 Net Dry Tons Conc $ 0

NET VALUE OF LEAD CONCENTRATES $ 417,505.26

ROYALTY DUE @ 5 % $ 20,875.26

6. VALUE OF ZINC CONCENTRATES:

61,530 Tons Zinc in Conc ÷ 54.43 % Zn In Conc = 113.044 Tons Dry Zinc Conc.

% Moisture = 6.56 ; 113.044 Tons Dry Zn Conc ÷ (100 - 6.56 %) = 120.980 Wet

Wet Tons Zinc Conc.	Dry Tons Zinc Conc.	Tons Zinc In Conc.
120.980	113.044	61.530

Determination Of Price Per Dry Ton Of Concentrates (Noranda Sales Corp. Contract):

E.&.M.J. Average Price For Month Of Dec., 1964

Zinc-E.St.L.	$ .145	Lb.
Cadmium	$ 3.00	Lb.
Lead-St.L.	$ .15457	Lb.

Payments:

Zinc: 2000# X % Zn in Conc. 54.43 % = 1088.6 # X 85%
= 925.31 # X Aver. Price $ .145 = $ 134.17

Cadmium: 2000# X % Cad. In Conc. .83 % = 16.6 # - 8#
= 8.6 # X 60% = 5.16 # X Aver. Price $ 3.00 = $ 15.48

Lead: Premium - 40¢ For Each 1/10% Below .5%
.5% - 2.10 % = 0 % X 40 cents = $ 0

Sub-Total $ 149.65

Deductions:

Treatment Charge: - Base ($.13 Zinc) = $ 44.50
Variation due to Zinc Price:
$ .145 Over $0.13 = $ .015 @ $1.00 Per $.01 = 1.50
$ Less $0.13 = $ @ $1.00 Per $.01 =
Total $ 46.00

Penalties:

Iron: $1.00/Ton Conc For Each 1% Above 11%
3.30 % - 11% = 0 % X $1.00 = $ 0

Copper: $1.00/Ton Conc For Each .25% Above .5%
No Fractions Pro-Rata
2.01 % - .5% = 1.51 ÷ .25% = 7 X $100 = $ 7.00 $ 53.00

Net Price Per Dry Ton Of Concentrates $ 96.65

Dry Tons Conc. 113.044 X Net Price $ 96.65 = $ 10,925.70

Less - Rail Freight- Middlebrook to Josephtown, Pa.
120.980 Wet Tons Conc X $ 8.14 = $ 984.78
$ 984.78

Net Value Of Zinc Concentrates $ 9,940.92

ROYALTY DUE @ 5 % $ 497.05

7. TOTAL ROYALTY DUE - LEAD AND ZINC: $ 21,372.31

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
1/26	Alley	800
1/26	Murphy	120M
	Loveridge	120
1/26	Fumich	110
"	[illegible]	100
		220

JAN 27 1965

Hankins and Sells
Certified Public Accountants
800 Boatmen's Bank Building
Saint Louis, Mo. 63102

Gentlemen:

As requested in a January 21 letter from its Southeast Missouri Mining and Milling Division, the status of St. Joseph Lead Company's accounts as of December 31, 1964, are confirmed by our records to be as follows:

Contract No.	Docket No.	Government's Contribution	Royalty Repayments	Balance Repayable
Idm-X1064	DMEA-4581	$120,252.54	$120,252.54	$ -0-
Idm-X1068	DMEA-4582	132,596.35	26,286.68	106,309.67
Idm-X1073	DMEA-4583	134,103.50	-0-	134,103.50
Totals		$386,952.39	$146,539.22	$240,413.17

Sincerely yours,

George Fumich, Jr.

Acting Director

cc: Southeast Missouri Mining and Milling Division
St. Joseph Lead Company
Bonne Terre, Missouri

AMAlley/ama 1-26-65

cc:
Docket - DMEA-4582
Director's Reading File
CA & A Division
Region IV (w/cy of inc. ltr.)

23263

ST. JOSEPH LEAD COMPANY

SOUTHEAST MISSOURI MINING AND MILLING DIVISION

BONNE TERRE, MO.

E. A. JONES,
DIVISION MANAGER.

OFFICIAL COPY
O. M. E.
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January 21, 1965

Mr. George Fumich, Jr., Director
Office of Minerals Exploration
U. S. Department of the Interior
Washington 25, D. C.

Dear Mr. Fumich:

According to our records, total advances to St. Joseph Lead Company by the Defense Mineral Exploration Administration through the year 1959 for DMEA Projects were, as follows:

Contract No.	Project No.	DMEA No.	County	Amount
Idm-E1064	1	4581	Crawford	$ 120,252.54
Idm-E1068	2	4582	Washington	132,596.55
Idm-E1073	3	4583	Iron	134,103.50
			Total	$ 386,952.59

As of December 31, 1964, $120,252.54 has been repaid on DMEA #4581 and $26,286.88 on DMEA #4582, leaving the balance payable to the Office of Minerals Exploration at December 31, 1964, as follows:

DMEA #4582	-	$ 106,309.67
DMEA #4583	-	134,103.50
Total		$ 240,413.17

Will you please confirm to our auditors, Messrs. Haskins and Sells, 800 Boatmen's Bank Building, St. Louis, Missouri, the above advances and balance as of December 31, 1964.

A stamped, addressed envelope is enclosed for your convenience.

Yours very truly,

E. A. Jones

Division Manager.

cc - Haskins & Sells

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
[illegible] BLDG.
[illegible] 37902

OFFICIAL FILE COPY
O. M. E
RECEIVED DEC 23 1964

DATE		
12/23	[illegible]	800
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		220

December 22, 1964

Memorandum

To: Fiscal Section, Office of Management Operations
Office of the Secretary, Department of the Interior
Washington, D. C. 20240

From: Robert A. Laurence

Subject: Royalty Payment
DMEA-4582, Contract Idm-E1068 (lead-zinc-copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Revolving Fund - 14X4401

Attached is check number 12299, dated December 16, 1964, in the amount of $15,012.93, covering repayment royalty for the month of November, 1964.

Robert A. Laurence

Attachment
cc - Mr. George C. Kelfridge (2)
Files

ROYALTY I[illegible] U. S. GOVERNMENT FOR DMEA ORE [illegible]NED DURING

MONTH OF November, 1964

DMEA 4582-Project #2

1. PRODUCTION: From 29 Mine 35,052 Tons Ore
33,617 Portion Containing Zinc

From Area bounded by Coordinates 113,200 to 114,700 North & 88,000 to 88,900 East

Wet Tons Ore	Dry Tons Ore (3% H_2O)	% Pb In * Ore	Tons Pb In Ore	% Zn In * Ore	Tons Zn In Ore
35,052	34,000.44	3.684	1252.576		
33,617	32,608.49			.200	65.217

*Head Mill Assay of Total Mine Production

2. MILL ASSAY STATISTICS:

	% Metal In Heads	% Metal In Tails (Shift Sample)	% Metal In Conc. (Shift Sample)	% Est. Content Per Dry Ton Zinc Conc.
Lead	3.684	.057	69.03	
Zinc	.200	.064	53.53	
Zinc Conc-Cadmium Content-				.81
Zinc Conc-Lead Content-				2.10
Zinc Conc-Iron Content-				3.30
Zinc Conc-Copper Content-				1.15

3. RECOVERY: (Calculated)

Official Formula: $\frac{\text{\% Metal In Feed} - \text{\% Metal In Tailings} \times \text{\% Metal In Conc.}}{\text{\% Metal In Conc} - \text{\% Metal In Tailings} \times \text{\% Metal In Feed}} \times 100$

Lead: $\frac{3.684 - .057 \times 69.03}{69.03 - .057 \times 3.684} \times 100 = \frac{2.50372}{2.54097} = 98.53$ % Recovery of Lead

Zinc: $\frac{.200 - .064 \times 53.53}{53.53 - .064 \times .200} \times 100 = \frac{.07280}{.10693} = 68.08$ % Recovery of Zinc

(Cadmium paid for in Zinc Concentrates)

4. TONS OF METAL IN CONCENTRATES:

Lead: 1252.576 Tons Pb In Ore X 98.53 % Recovery = 1234.163 Tons Lead In Conc.

Zinc: 65.217 Tons Zn In Ore X 68.08 % Recovery = 44.400 Tons Zinc In Conc.

5. VALUE OF LEAD CONCENTRATES:

1234.163 Tons Pb In Conc ÷ 69.03 % Pb In Conc = 1787.865 Tons Dry Pb Conc.

% Moisture = 6.12 ; 1787.865 Tons Dry Pb Conc ÷ (100 - 6.12 %) = 1904.415 Wet

Wet Tons Pb Conc.	Dry Tons Pb Conc.	Tons Pb In Conc.
1904.415	1787.865	1234.163

Tons Pb @ 90% (National Contract Basis) = 1234.163 X 90% = 1110.747 Tons

1110.747 X $ 296.00 Per Ton (Aver. Lead Price at St. Louis for Month Nov. 1964)

= GROSS VALUE OF LEAD CONCENTRATES $ 328,781.11

Deductions - Freight:

Rail - Middlebrook, Mo., to Federal, Ill.

1904.415 Wet Tons Conc X $4.76 = $ 9,065.02

Deductions - Treatment Charge:

$15.00/Dry Tons 1787.865 Dry Tons Conc X $15.00 = $ 26,817.98

Total Deductions $ 35,883.00

Balance $ 292,898.11

Bonus On Grade Of Conc. (National Contract Basis of 72%):

Grade 69.03 % - 72.00% = 0 % Above Base

0 % X 10¢ Per Percentage Unit X 1787.865 Net Dry Tons Conc $ 0

NET VALUE OF LEAD CONCENTRATES $ 292,898.11

ROYALTY DUE @ 5 % $ 14,644.91 EEP

6. VALUE OF ZINC CONCENTRATES:

44.400 Tons Zinc in Conc ÷ 53.53 % Zn In Conc = 82.944 Tons Dry Zinc Conc.

% Moisture = 9.25 ; 82.944 Tons Dry Zn Conc ÷ (100 - 9.25 %) = 91.398 Wet

Wet Tons Zinc Conc.	Dry Tons Zinc Conc.	Tons Zinc In Conc.
91.398	82.944	44.400

Determination Of Price Per Dry Ton Of Concentrates (Noranda Sales Corp. Contract):

E.&.M.J. Average Price For Month Of Nov. 1964

Zinc-E.St.L.	$ .145	Lb.
Cadmium	$ 3.00	Lb.
Lead-St.L.	$ .148	Lb.

Payments:

Zinc: 2000# X % Zn in Conc. 53.53 % = 1070.6 # X 85%
= 910.01 # X Aver. Price $ .145 = $ 131.95

Cadmium: 2000# X % Cad. In Conc. .81 % = 16.2 # - 8#
= 8.2 # X 60% = 4.92 # X Aver. Price $ 3.00 = $ 14.76

Lead: Premium - 40¢ For Each 1/10% Below .5%
.5% - 2.10 % = 0 % X 40 cents = $ 0

Sub-Total $ 146.71

Deductions:

Treatment Charge: - Base ($.13 Zinc) = $ 44.50

Variation due to Zinc Price:

$ .145 Over $0.13 = $ .015 @ $1.00 Per $.01 = 1.50

$ Less $0.13 = $ @ $1.00 Per $.01 =

Total $ 46.00

Penalties:

Iron: $1.00/Ton Conc For Each 1% Above 11%
3.30 % - 11% = 0 % X $1.00 = $ 0

Copper: $1.00/Ton Conc For Each .25% Above .5%
No Fractions Pro-Rata
1.15 % - .5% = .65 ÷ .25% = 3 X $1.00 = $ 3.00 $ 49.00

Net Price Per Dry Ton Of Concentrates $ 97.71

Dry Tons Conc. 82.944 X Net Price $ 97.71 = $ 8,104.46

Less - Rail Freight- Middlebrook to Josephtown, Pa.
91.398 Wet Tons Conc X $ 8.14 = $ 743.98

$ 743.98

Net Value Of Zinc Concentrates $ 7,360.48

ROYALTY DUE @ 5 % $ 368.02 668

7. TOTAL ROYALTY DUE - LEAD AND ZINC: $ 15,012.93 668

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

Washington, D. C. 20240

November 23, 1964

OFFICIAL FILE COPY
O. M. E
RECEIVED NOV 27 1964

DATE	INITIALS	CODE
11/30	CEF	800
11/30	FMM	120M
		130
		220

Memorandum

To: Fiscal Section, Office of Management Operations
Office of the Secretary, Department of the Interior
Washington, D. C. 20240

From: Robert A. Laurence

Subject: Royalty Payment
DMEA-4582, Contract Idm-E1068
(Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Revolving Fund - 14X4401

Attached is check number 11305, dated November 19, 1964, in the amount of $6,419.66, covering repayment royalty for the month of October 1964.

Robert A. Laurence

Attachment
cc - Mr. George C. Selfridge (2)
Files

ST. JOSEPH LEAD COMPANY

SOUTHEAST MISSOURI MINING AND MILLING DIVISION

BONNE TERRE, MO.

E. A. JONES,
DIVISION MANAGER.

November 20, 1964

Field Officer
Office of Minerals Exploration
Region IV, Room 11
Post Office Building
Knoxville 2, Tennessee

Dear Sir:

DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract Idm-E1068

Enclosed is our draft for $6,419.66 covering repayment royalty on DMEA-4582, Contract Idm-E1068, for the month of October, 1964.

Attached are detailed calculation reports, in duplicate, supporting this payment.

Sincerely yours,

E. A. Jones
Division Manager.

cc: Mr. Francis Cameron
Mr. James G. Colvin
Mr. K. R. Baker
Mr. J. A. Thomure

RECEIVED

ROYALTY D[illegible] U. S. GOVERNMENT FOR DMEA ORE [illegible]ED DURING

MONTH OF October, 1964

DMEA 4582-Project #2

1. PRODUCTION: From 29 Mine 18,279 Tons Ore
11,344 Portion Containing Zinc

From Area bounded by Coordinates 113,200 to 114,700 North & 88,000 to 88,900 East

Wet Tons Ore	Dry Tons Ore (3% H_2O)	% Pb In * Ore	Tons Pb In Ore	% Zn In * Ore	Tons Zn In Ore
18,279	17,730.63	3.148	558.160		
11,344	11,003.68			.224	24.648

*Head Mill Assay of Total Mine Production

2. MILL ASSAY STATISTICS:

	% Metal In Heads	% Metal In Tails (Shift Sample)	% Metal In Conc. (Shift Sample)	% Est. Content Per Dry Ton Zinc Conc.
Lead	3.148	.062	70.62	
Zinc	.224	.063	57.36	
Zinc Conc-Cadmium Content-				.87
Zinc Conc-Lead Content-				2.10
Zinc Conc-Iron Content-				3.30
Zinc Conc-Copper Content-				1.19

3. RECOVERY: (Calculated)

Official Formula: $\frac{\text{\% Metal In Feed} - \text{\% Metal In Tailings} \times \text{\% Metal In Conc.}}{\text{\% Metal In Conc} - \text{\% Metal In Tailings} \times \text{\% Metal In Feed}} \times 100$

Lead: $\frac{3.148 - .062 \times 70.62}{70.62 - .062 \times 3.148} \times 100 = \frac{2.17933}{2.22117} = 98.12$ % Recovery of Lead

Zinc: $\frac{.224 - .063 \times 57.36}{57.36 - .063 \times .224} \times 100 = \frac{.09235}{.12835} = 71\ 95$ % Recovery of Zinc

(Cadmium paid for in Zinc Concentrates)

4. TONS OF METAL IN CONCENTRATES:

Lead: 558.160 Tons Pb In Ore X 98.12 % Recovery = 547.667 Tons Lead In Conc.

Zinc: 24.648 Tons Zn In Ore X 71.95 % Recovery = 17.734 Tons Zinc In Conc.

5. VALUE OF LEAD CONCENTRATES:

547.667 Tons Pb In Conc ÷ 70.62 % Pb In Conc = 775.513 Tons Dry Pb Conc.

% Moisture = 5.66 ; 775.513 Tons Dry Pb Conc ÷ (100 - 5.66 %) = 822.040 Wet

Wet Tons Pb Conc.	Dry Tons Pb Conc.	Tons Pb In Conc.
822.040	775.513	547.667

Tons Pb @ 90% (National Contract Basis) = 547.667 X 90% = 492.900 Tons

492.900 X $ 286.00 Per Ton(Aver. Lead Price at St. Louis for Month October, 1964)

= GROSS VALUE OF LEAD CONCENTRATES $ 140,969.40

Deductions - Freight:

Rail - Middlebrook, Mo., to Federal, Ill.

822.040 Wet Tons Conc X $4.76 = $ 3,912.91

Deductions - Treatment Charge:

$15.00/Dry Tons 775.513 Dry Tons Conc X $15.00= $ 11,632.70

Total Deductions $ 15,545.61

Balance $ 125,423.79

Bonus On Grade Of Conc. (National Contract Basis of 72%):

Grade 70.62 % - 72.00% = 0 % Above Base

0 % X 10¢ Per Percentage Unit X 775.513 Net Dry Tons Conc $ 0

NET VALUE OF LEAD CONCENTRATES $ 125,423.79

ROYALTY DUE @ 5 % $ 6,271.19

6. **VALUE OF ZINC CONCENTRATES:**

17.734 Tons Zinc in Conc ÷ 57.36 % Zn In Conc = 30.917 Tons Dry Zinc Conc.

% Moisture = 7.70 ; 30.917 Tons Dry Zn Conc ÷ (100 - 7.70 %) = 33.496 Wet

Wet Tons Zinc Conc.	Dry Tons Zinc Conc.	Tons Zinc In Conc.
33.496	30.917	17.734

Determination Of Price Per Dry Ton Of Concentrates (Noranda Sales Corp. Contract):

E.&.M.J. Average Price For Month Of October, 1964

Zinc-E.St.L.	$ .13991	Lb.
Cadmium	$ 3.00	Lb.
Lead-St.L.	$ .143	Lb.

Payments:

Zinc: 2000# X % Zn in Conc. 57.36 % = 1147.2 # X 85%
= 975.12 # X Aver. Price $ .13991 = $ 136.43

Cadmium: 2000# X % Cad. In Conc. .87 % = 17.4 # - 8#
= 9.4 # X 60% = 5.64 # X Aver. Price $ 3.00 = $ 16.92

Lead: Premium - 40¢ For Each 1/10% Below .5%
.5% - 2.10 % = 0 % X 40 cents = $ 0

Sub-Total $ 153.35

Deductions:

Treatment Charge: - Base ($.13 Zinc) = $ 44.50

Variation due to Zinc Price:

$ .13991 Over $0.13 = $ .00991 @ $1.00 Per $.01 = .99

$ _____ Less $0.13 = $ _____ @ $1.00 Per $.01 = _____

Total $ 45.49

Penalties:

Iron: $1.00/Ton Conc For Each 1% Above 11%
3.30 % - 11% = 0 % X $1.00 = $ 0

Copper: $1.00/Ton Conc For Each .25% Above .5%
No Fractions Pro-Rata
1.19 % - .5% = .69 ÷ .25% = 3 X $100 = $ 3.00 $ 48.49

Net Price Per Dry Ton Of Concentrates $ 104.86

Dry Tons Conc. 30.917 X Net Price $ 104.86 = $ 3,241.96

Less - Rail Freight- Middlebrook to Josephtown, Pa.
33.496 Wet Tons Conc X $ 8.14 = $ 272.66

$ 272.66

Net Value Of Zinc Concentrates $ 2,969.30

ROYALTY DUE @ 5 % $ 148.47

7. **TOTAL ROYALTY DUE - LEAD AND ZINC:** $ 6,419.66 EEG

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

OFFICIAL FILE COPY
O. M. E.
RECEIVED OCT 29 1964

DATE	INITIALS	CODE
10/29	EEF	800
10/30	[illegible]	120
		120
		220

37902

October 28, 1964

Memorandum

To: Fiscal Section, Office of Management Operations
Office of the Secretary, Department of the Interior
Washington, D. C. 20240

From: Robert A. Laurence

Subject: Royalty Payment
DMEA-4582, Contract Idm-K1068
(Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Revolving Fund - 14X4401

Attached is check number 10383, dated October 23, 1964, in the amount of $4,854.29, covering repayment royalty for the month of September 1964.

Robert A. Laurence

Attachment
mg
cc - George C. Selfridge (2)
Files

ST. JOSEPH LEAD COMPANY

SOUTHEAST MISSOURI MINING AND MILLING DIVISION

BONNE TERRE, MO.

E. A. JONES,
DIVISION MANAGER.

October 26, 1964

Field Officer
Office of Minerals Exploration
Region IV, Room 11
Post Office Building
Knoxville 2, Tennessee

Dear Sir:

DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract Idm-E1068

Enclosed is our draft for $4,854.29 covering repayment royalty on DMEA-4582, Contract Idm-E1068, for the month of September, 1964.

Attached are detailed calculation reports, in duplicate, supporting this payment.

Sincerely yours,

E. A. Jones
Division Manager

cc: Mr. Francis Cameron
Mr. James G. Colvin
Mr. K. R. Baker
Mr. J. A. Thomure

RECEIVED
OCT 28 1964
U. S. Geological Survey
Geologic Division
Knoxville, Tenn.

ROYALTY DUE U. S. GOVERNMENT
FOR DMEA ORE MINED
DURING SEPTEMBER, 1964

DMEA-4582-Project #2

1. PRODUCTION: 14,247 Tons Government Ore from No. 29 Mine

From Area bounded by co-ordinates 112,915 to 114,585 North and 87,985 to 89,045 East

Wet Tons Ore	Dry Tons Ore (3% H_2O)	* % Pb in Ore	Tons Pb in Ore
14,247	13,819.59	3.260	450.519

*Head Mill Assay of Total Mine Production.

2. MILL ASSAY STATISTICS:

% Pb in Heads	% Pb in Tails (Shift Samples)	% Pb in Conc. (Shift Samples)
3.260	.075	71.52

3. RECOVERY: (Calculated)

Official Formula: $\frac{\text{\% Pb in Feed - \% Pb in Tailings X \% Pb in Conc}}{\text{\% Pb in Conc - \% Pb in Tailings X \% Pb in Feed}}$ X 100

$\frac{3.260 - .075 \times 71.52}{71.52 - .075 \times 3.260} \times 100 = \frac{2.27791}{2.32911} = 97.80$ Recovery

4. TONS OF LEAD IN CONCENTRATES:

450.519 Tons Pb in Ore X 97.80% Recovery = 440.608 Tons

5. VALUE OF CONCENTRATES:

440.608 Tons Pb in Conc ÷ 71.52 % Pb in Conc = 616.063 Tons Dry Conc
% Moisture - = 6.02
616.063 Tons Dry Conc ÷ (100 - 6.02%) = 655.526 Tons Wet Conc.

Wet Tons Conc.	Dry Tons Conc.	Tons Pb in Conc.
655.526	616.063	440.608

Tons Pb @ 90% (National Contract Basis) = 440.608 X 90% = 396.547 Tons
396.547 X $276.00 per Ton (Average lead price at St. Louis for month of September, 1964)

= Gross Value of $ 109,446.97

Deductions:
Freight (rail @ $4.76/net wet ton (Middlebrook, Mo., to Federal, Ill.) = 655.526 wet tons X $4.76 = $ 3,120.30
Treatment Charge:
$15.00/net dry ton = 616.063 Dry Tons X $15.00 = 9,240.95

Penalties: None

Total Deductions 12,361.25

Balance $ 97,085.72

Bonus on Grade of Conc (National Contract Basis of 72% Pb):
Grade 71.52% - 72.00% = 0 % above base
0 % X 10¢ per percentage unit X 0 net dry tons = 0

TOTAL VALUE $ 97,085.72

ROYALTY DUE @ 5% $ 4,854.29

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
1/21	Talbert	800
1/21	Murphy	500
	Selfridge	120
1/21	Johnson	110
	Terry	100
1/22	[illegible]	220

JAN 22 1964

Haskins and Sells
Certified Public Accountants
800 Boatmen's Bank Building
Saint Louis 2, Missouri

Gentlemen:

As requested in a January 16 letter from its Southeast Missouri Mining and Milling Division, the status of St. Joseph Lead Company's accounts as of December 31, 1963, are confirmed by our records to be as follows:

Contract No.	Docket No.	Government's Contribution	Royalty Repayments	Balance Repayable
Idm-E1064	DMEA-4581	$120,252.54	$120,252.54	$ -0-
Idm-E1068	DMEA-4582	132,596.55	-0-	132,596.55
Idm-E1073	DMEA-4583	134,103.50	-0-	134,103.50
Totals		$386,952.59	$120,252.54	$266,700.05

Sincerely yours,

George Fumich, Jr.

Acting Director

cc: Southeast Missouri Mining and Milling Division
St. Joseph Lead Company
Bonne Terre, Missouri

EDTalbert/ama 1-21-64

cc:
Docket - DMEA-4582
Director's Reading File
CA & A Division
Region IV (w/cy of inc. ltr.)

43683

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

December 5, 1963

Re: DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Mo.
Contract Idm-E1068

St. Joseph Lead Company

Bonne Terre, Missouri

Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

F M Murphy

F. M. Murphy, Acting Chief
Division of Minerals

OFFICIAL FILE COPY,
O. M. E
RECEIVED DEC 13 1963

DATE	INITIALS	CODE
12/16		800
12/16	Murphy	100
		500
		220

RET'D DEC 9 1963

MME Form 63
Revised 3-62

REQUEST FOR INFORMATION ON CERTIFIED PROJECT AND PROJECT UNDER ROYALTY AGREEMENT

1. Since August 20, 1962, has there been a change in ownership, lease, or sublease? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before. Yes ☐ No ☒

2. Since August 20, 1962, has there been any production from the land subject to the contract? Yes ☐ No ☒

   A. If so and it was shipped, give quantity, value, and name and address of purchaser.

	Quantity	Value
--		
--	--	--

   B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity		Estimated Grade	Location
Ore	--	Tons	--	--
Concentrates	--	Tons	--	--
Other	--	Tons	--	--

3. Since , has any production been transported through workings (see of contract)? Yes ☐ No ☒

   A. If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value
--	--	--

Submitted by:

Name E. Jones Title DIVISION MANAGER

Address Bonne Terre, Missouri Date December 10, 1963

4511

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
1/21	Talbert	800
	Swanold	500
	Selfridge	120
1/21	Jo Hurley	110
	[illegible]	100
		220

JAN 21 1963

Haskins and Sells
Certified Public Accountants
800 Boatmen's Bank Building
Saint Louis 2, Missouri

Gentlemen:

As requested in a January 14 letter from its Southeast Missouri Mining and Milling Division, the status of St. Joseph Lead Company's accounts as of December 31, 1962, are confirmed by our records to be as follows:

Contract No.	Docket No.	Government's Contribution	Royalty Repayments	Balance Repayable
Idm-E1064	DMEA-4581	$120,252.54	$80,098.75	$ 40,153.79
Idm-E1068	DMEA-4582	132,596.55	-0-	132,596.55
Idm-E1073	DMEA-4583	134,103.50	-0-	134,103.50
		$386,952.59	$80,098.75	$306,853.84

Sincerely yours,

George Fumich, Jr.

Director

cc: Southeast Missouri Mining and Milling Division
St. Joseph Lead Company
Bonne Terre, Missouri

EDTalbert/ama 1-21-63

cc:
Docket - DMEA-4582
Director's Reading File
CA & A Division
Region IV (w/cy of incoming ltr.)

43683

ST. JOSEPH LEAD COMPANY

SOUTHEAST MISSOURI MINING AND MILLING DIVISION

BONNE TERRE, MO.

E. A. JONES,
DIVISION MANAGER.

August 20, 1962

OFFICIAL FILE COPY
O. M. E
RECEIVED AUG 22 1962

DATE	INITIALS	CODE
8/23		800
8/23		100
8/23		110
		120 ✓ 2/3 8/24
8/24		500
		220

Mr. W. R. Griswold, Chief
Division of Minerals
U. S. Department of the Interior
Office of Minerals Exploration
Washington 25, D. C.

Dear Mr. Griswold:

DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Your request dated
August 13, 1962.

Enclosed are two copies of completed questionnaire on DMEA-4582, Contract Idm-E1068.

Sincerely yours,

Elmer A. Jones

Division Manager

cc: Mr. J. A. Thomure

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

August 13, 1962

Re: DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Mo.
Contract Idm-E1068

St. Joseph Lead Company

Bonne Terre, Missouri

Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

W. R. Griswold, Chief
Division of Minerals

MME Form 63
Revised 3-62

DMEA-4582
Idm-E1068

REQUEST FOR INFORMATION ON CERTIFIED PROJECT AND PROJECT UNDER ROYALTY AGREEMENT

1. Since September 20, 1960, has there been a change in ownership, lease, or sublease? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before. Yes ☐ No ☒

2. Since September 20, 1960, has there been any production from the land subject to the contract? Yes ☐ No ☒

   A. If so and it was shipped, give quantity, value, and name and address of purchaser.

	Quantity	Value

   B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity	Estimated Grade	Location
Ore	Tons		
Concentrates	Tons		
Other	Tons		

3. Since March 18, 1957, has any production been transported through workings (see date of contract)? Yes ☐ No ☒

   A. If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name E. A. Jones Title Division Manager

Address Bonne Terre, Missouri Date August 20, 1962

4511

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
5/11	GCS	120
		225

MAY 1 1 1962

Memorandum

To: Chief, Fiscal Section, Division of Administrative Services, Office of the Secretary

From: Chief, Division of Field Operations, OME

Subject: DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington and Crawford Counties, Missouri
Contract Idm-E1068

Enclosed for your files is the original of a Report of Royalty Review on the subject contract.

George C. Selfridge

Enclosure

GCSelfridge/hb (5/10/62)
cc to: Docket DMEA-4582
Director's Reading File
CA&A Division
G.C.Selfridge
R. A. Laurence, USGS, Region IV, w/cy of Report of Royalty Review dtd 5/9/62 & orig. cy of memo dtd 4/20/62 to Chief, Div. of Field Operations from CA&A Division.
Avery Reed, USBM, Reg. IV, w/cy of ea. item sent to Mr. Laurence.

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
		220

MAY 9 1962

Memorandum

To: Chief, Division of Field Operations

From: E. D. Talbert, Acting Chief (Signed) E. D. Talbert
Contract Administration and Audit Division

Subject: DMEA-4592 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington and Crawford Counties, Missouri
Contract Idm-E1068

Enclosed are the original and two copies of a Report of Royalty Review covering the subject Region IV contract. If you concur in the facts stated therein, please make the following distribution:

(a) Original to the Fiscal Section, Division of Administrative Services, Office of the Secretary; and

(b) Two copies to Region IV files.

This report is for OME record purposes only; therefore, no copy has been provided for the Operator.

As evidence of your concurrence, a copy of your memorandum transmitting the original of the report to the Department's Fiscal Section should be furnished this Division. If for any reason you do not concur, the original and both copies should be returned to this Division with your comments.

Enclosures

EDTalbert/ama 5-9-62

cc:
Docket
Director's Reading File
CA & A Division
Mr. Rothrock

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
1/29	Talbert	800
	Sweeney	500
1/29	Selfridge	120
"	Johnson	110
1-29	Fumich	100
		220

JAN 29 1962

Haskins and Sells
Certified Public Accountants
800 Boatmen's Bank Building
Saint Louis 2, Missouri

Gentlemen:

As requested in a January 23 letter from its Southeast Missouri Mining and Milling Division, the status of St. Joseph Lead Company's accounts are confirmed by our records to be as follows:

Contract No.	Docket No.	Government's Contribution	Royalty Repayments	Balance Repayable
Idm-E1064	DMEA-4581	$120,252.54	$40,243.38	$ 80,009.16
Idm-E1068	DMEA-4582	132,596.55	-0-	132,596.55
Idm-E1075	DMEA-4583	134,103.50	-0-	134,103.50
		$386,952.59	$40,243.38	$346,709.21

Sincerely yours,

George Fumich, Jr.

Director

cc: Southeast Missouri Mining and Milling Division
St. Joseph Lead Company
Bonne Terre, Missouri

EDTalbert/ama 1-29-62

cc:
Docket - DMEA-4582
Director's Reading File
CA & A Division
Region IV Files

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
2/6	Talbert	800
	Edwards	500
2/7	Johnson	120
		110
		220

FEB 7 1961

Haskins and Sells
Certified Public Accountants
800 Boatmen's Bank Building
St. Louis 2, Missouri

Re: DMEA-4581 (Lead-Zinc-Copper)
St. Joseph Lead Company
Bear Knob Area
Crawford County, Missouri
Contract Idm-K1064

DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract Idm-K1068

DMEA-4583 (Lead-Zinc-Copper)
St. Joseph Lead Company
Viburnum Area
Iron County, Missouri
Contract Idm-K1073

Gentlemen:

We have been requested by Mr. E. A. Jones, Division Manager of the St. Joseph Lead Company, to confirm to you the advances and balances payable as of December 31, 1960, under the referenced contracts.

Our records disclose the following conditions as of that date:

Contract	Advances	Repayments	Balances Payable
Idm-K1064	$120,252.54	$6,605.31	$113,647.23
Idm-K1068	132,396.53	-0-	132,396.53
Idm-K1073	134,103.50	-0-	134,103.50
Totals	$386,952.59	$6,605.31	$380,347.28

Sincerely yours,

(signed) FRANK E. JOHNSON

Acting Director

cc: Mr. E. A. Jones

Copy to: Docket - DMEA-4582
Director's Reading File
CA & A Division

EDTalbert/ama
February 6, 1961

43683

FORM 898

ST. JOSEPH LEAD COMPANY

EXTRA COPY
O. M. E
BONNE TERRE, MISSOURI
RECEIVED FEB 06 1961
DATE | CODE

January 31, 1961

Mr. George C. Selfridge, Acting Director
Office of Minerals Exploration
U. S. Department of the Interior
Washington 25, D. C.

Dear Mr. Selfridge:

According to our records, total advances to St. Joseph Lead Company by the Defense Mineral Exploration Administration through the year 1959 for DMea Projects were, as follows:

Contract No.	Project No.	DMEA No.	County	Amount
Idm-E1064	1	4581	Crawford	$120,252.54
Idm-E1068	2	4582	Washington	132,596.55
Idm-E1073	3	4583	Iron	134,103.50
			Total	$386,952.59

Of the total above, payment of $6,605.31 was made on DMEA #4581 in December, 1960, and the balance payable to the Office of Minerals Exploration at December 31, 1960, was:

DMEA #4581	-	$113,647.23
DMEA #4582	-	132,596.55
DMEA #4583	-	134,103.50
Total		$380,347.28

Will you please confirm to our auditors, Messrs. Haskins and Sells, 800 Boatmen's Bank Building, St. Louis, Missouri, the above advances and balance as of December 31, 1960.

A stamped, addressed envelope is enclosed for your convenience.

Yours very truly,

E. L. Jones
Division Manager.

In Duplicate ✓

COPY

cc: Haskins & Sells
Mr. J. A. Thomure

4582

IN REPLY REFER TO:

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

official
~~EXTRA~~ COPY
O. M. E.
RECEIVED NOV 28 1960

DATE	INITIALS	CODE
		220

November ~~25, 1960~~

Memorandum

To: Acting Administrator, OME

From: Thor H. Kiilsgaard, U. S. Geological Survey

Subject: Semi-annual inspection of St. Joseph Lead Company projects, DMEA Dockets 4581, 4582, and 4583

I visited Viburnum, Missouri, on November 18, 1960, where I called on Mr. Ken Baker, Manager of St. Joseph operations in the Viburnum area. Mr. Baker directed me to the recently opened No. 27 mine, the only mine in the Viburnum area that was in production at the time of the visit. I was then directed through the No. 27 mine by Mr. Earl Holley, Mine Superintendent.

The No. 27 shaft is in the Czar Knob area, in the northeast corner of the Kilmer tract, adjacent to diamond drill hole 57 VZ 171, as that hole is shown on DMEA maps. The shaft extends to a depth of 804 feet and from it have been driven two levels; the upper at an elevation of 486 feet, the lower at an elevation of 412 feet. It is a concreted circular shaft, 12 feet in diameter, with two hoisting compartments. The shaft collars in the Potosi formation, but at a shallow depth it passes into Precambrian granite, remaining in that rock to the bottom. Immediately off the shaft on the lower level is a large excavated area, in granite, in which are located a large maintenance shop for trucks, tractors, and other operating equipment, pumping station, truck turn around and skip pocket, spare parts shop, etc. I was told the shaft and associated working places were spotted in granite to take advantage of the dryness in that rock, and the fact that openings in the granite do not spall and do not need support.

These are two separate dumping sites on each of the levels, one for ore from the St. Joe properties, the other for ore from Government lands, the latter of which, in the Czar Knob area, will be subject to DMEA royalty. These ore passes feed two separate skip pockets, each with about 3000 tons capacity, and

each drawn by vibrating feeders at a loading point about 100 feet below the lower level. Mining practice is to keep St. Joe and Government ore completely separate, keeping a tally of ore dumped into the pockets and hoisting each pocket separately. The ore is weighed and sampled separately as it is moved from the surface ore bin at the shaft head frame.

The two haulage levels are 12 by 24 feet in cross section, but are not driven on any specific grade. The lower level is connected to the upper one by a 12 by 24-foot haulage way, driven on a negative 12 percent grade and in a circular direction more or less running downward around and in the buried granite knob. There are nine 10-ton trucks used to haul ore. Drilling is done by a tri-beam jumbo mounted on a D-4 tractor, with two men operating the equipment. Ore broken per shift averages 360 tons per jumbo, although production has gone as high as 500 tons per jumbo shift. A total of 52 men are employed at the mine, working two shifts, and averaging a production of 2000 tons per day.

The only DMEA ore being mined was from the upper level, from an area east of the shaft. This ore is from what they call a conglomerate zone, but which, in fact, is simply an old talus slope surrounding the granite knob. The talus trails off into dolomite of the upper Bonneterre formation. Talus fragments range in size from sand grains to angular blocks several feet in width. The galena forms as pockets, disconnected stringers, and discrete blebs scattered in the talus material. The faces I saw were very lean and probably would not average 1 percent Pb. In the mine office, I saw sample slips of better grade ore--ranging from two to seven percent Pb--although I did not request a total tonnage of Government ore nor an average grade.

Mr. Holley told me that he was given a certain quota of lead to produce each month and that he was currently mixing low grade conglomerate ore with higher grade lower-level ore in order to get increased tonnage and balanced grade. He also said the conglomerage headings were being driven partly for stoping and partly to reach holes that had indicated better ore beyond the headings. On the lower level, a heading had been driven 1400 feet to the north, into Government ground, to reach good ore indicated in drill holes. I did not visit this heading.

Ground water has bothered mining operations. They currently are pumping 3100 gallons per minute, but are equipped to pump 4000 gallons. They are, however, drawing down the water table some and expect eventually to have relatively dry workings.

The No. 27 mine is about 4 miles northwest of the mill, but connected by a good, all weather road. Ore is hauled from the mine in 30-ton trucks.

The mill is about one mile east of Viburnum, in the northeast corner of the Conway tract, more or less between holes 57 W 123 and 57 W 126. It is a modern brick building designed to process 6000 tons per day, although currently equipped to process only 3000 tons per day. It commenced production on July 18, 1960, and since then has treated only ore from the No. 27 mine. It reportedly is the most modern mill in operation.

The No. 28 shaft head frame adjoins the mill building on the west side. The shaft has been sunk to a depth of 904 feet; development headings are being driven from it but the mine is not yet in production. It eventually will mine DMEA ore, although initially it is planned to mine St. Joe ore within the Conway tract.

A third shaft, the No. 29, is to be sunk in the Courtois area, west of Indian Creek, approximately at coordinates N 115,000, E 88,400. This shaft has not started and they do not plan to begin work in the near future. All ore from this mine will be subject to DMEA royalty.

I did not ask for production figures, assuming these would be submitted when the company made royalty payments. The entire operation is in little more than a shake-down stage and is just getting under way. The entire operation is superbly equipped, and well-planned. It will unquestionably repay the Government completely and eventually become the biggest lead-producing district in the United States.

Thor H. Kiilsgaard

cc: OME (3)
Chron.
Docket file
THKiilsgaard/mm

REQUEST FOR INFORMATION
FROM OPERATOR ON CERTIFIED PROJECT
AND PROJECT UNDER ROYALTY AGREEMENT

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

From: ACTING Field Officer, OME
Region IV
Washington 25, D. C.

Date: August 29, 1960

Concerning:
Docket No. DMEA-4582
Property Project #2
St. Joseph Lead Co.
Location Washington County, Missouri
Contract Idm-E1068

St. Joseph Lead Co.

Bonne Terre, Missouri

With the certification of the exploration project identified above, you were asked to inform our office about changes in the status of the property and production from it.

To assist you to furnish this information and to assure the accuracy of our records, we ask that you answer the questions below and return one copy to this office with copies of any pertinent documents.

ACTING Field Officer Lawrence G. Hook

1. Since Aug. 18, 1959, has there been a change in ownership, lease, or sublease about which the OME has not been notified? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents. Yes ☐ No ☒

2. Since Aug. 18, 1959, has there been any production from the property?* Yes ☐ No ☒

A. If so and it was shipped, give name and address of purchaser?

	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity		Estimated Grade	Location
Ore	0	Tons		
Concentrates	0	Tons		
Other	0	Tons		

Submitted by:

Name E. A. Jones
E. A. JONES

Title

Address Bonne Terre, Missouri

Date September 20, 1960

MME Form 63 8-60 * Property means land subject to the contract. 79340-60

REQUEST FOR INFORMATION
FROM OPERATOR ON CERTIFIED PROJECT
AND PROJECT UNDER ROYALTY AGREEMENT

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

From: ACTING Field Officer, OME
Region IV
Washington 25, D. C.

Date: August 29, 1960

Concerning:
Docket No. DMEA-1582
Property Project #2
St. Joseph Lead Co.
Location Washington County, Missouri
Contract IGm-E1068

St. Joseph Lead Co.

Bonne Terre, Missouri

With the certification of the exploration project identified above, you were asked to inform our office about changes in the status of the property and production from it.

To assist you to furnish this information and to assure the accuracy of our records, we ask that you answer the questions below and return one copy to this office with copies of any pertinent documents.

Lawrence G. Houk
ACTING Field Officer

1. Since Aug. 18, 1959, has there been a change in ownership, lease, or sublease about which the OME has not been notified? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents. Yes ☐ No ☐

2. Since Aug. 18, 1959, has there been any production from the property?* Yes ☐ No ☐

A. If so and it was shipped, give name and address of purchaser?

	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity		Estimated Grade	Location
Ore		Tons		
Concentrates		Tons		
Other		Tons		

Submitted by:

Name _____ Title _____

Address _____ Date _____

MME Form 63 8-60 * Property means land subject to the contract. 79340-60

Docket No. DMEA-4582
St. Joseph Lead Company
COURTOIS AREA

Land remaining in the contract, as of March 6, 1959:

A - Land in the Contract by Annex I

Option or Permit No.	Type of Conveyance, and Owner	Area, Acres.
040279	Prospecting Permit - U. S. Bureau of Land Management	(33.01 (150.00
041128	" " " " " " "	72.00
043391	" " " " " " "	(120.00 (80.00
CZ15	Option - Lewis J. and Nellie E. Merritt	195.55
CZ50	" Edmond and Nora Laramore	282.65
CZ53	" E. R. and Ollie Laramore	95
CZ54	" Rico and Bessie Mason	288
CZ56	" Simon and Tolitha Breakfield	80
CZ57	" Henry and Lula Breakfield	40
CZ60	" Lottie and Burley Bays; Edmond and Nora Laramore; Marcus and Leota Laramore; E. R. and Ollie Laramore	76
CZ62	" Howard M. and Daphne Cole	20
CZ63	" C. H. and Elizabeth Willhite	94.23
CZ64	" Jesse H. Breakfield and Nettie Breakfield	135
CZ65	" Kelsey and Floy Carl	165
CZ66	" Haskel and Sadie Mason	120 plus N½ Lot 1
CZ67	" George D. and Lillie Evans	240.23
CZ74	" Paul and Hilma Thompson	216
CZ75	" John E. and Nettie Turnbough	150.57
CZ76	" Hallie G. Turner, single	90
CZ79	" W. J. and Zoe Turnbough	85.57

Option or Permit No.	Type of Conveyance, and Owner		Area, Acres.
CZ81	Option -	Herbert Gillam, single	60
CZ82	"	Mary Alice Moses, single	149.6
CZ83	"	Elza and Cora Henslee	71.40
CZ85	"	Curtis and Goldie Henslee	80
CZ88	"	Alonzo H. and Overa Sellers	118
CZ93	"	Emma Payne, single; Glenwood and Rita Payne; Orville and Lucille Crabtree; Harold and Eleanor Crocker; Everett and Melba Young	110.50
CZ94	"	Percy and Lydia Carl	129.6
CZ95	"	Lon and Esther Laramore	72
CZ98	"	Edward B. and Hazel Heath	122
CZ100	"	James E. and Maude Sellers	140
CZ141	"	Bennie A. and Bessie Yount	85
CZ142	"	Adolph and Irene Moses	85
CZ153	"	Oma Compton, single	167.5
CZ164	"	Everett N. and Agnes Wood	147
B - Land Added by Amendment No. 2			
CZ158	"	Ira and Bertha Turnbough	80
C - Land Added by Amendment No. 3			
CZ223	"	C. A. and Emma Crabtree	488.79
D - Land Added by Amendment No. 4			
044857	Prospecting Permit - U. S. Bureau of Land Management (Part of land in this Permit in DMEA 4581)		(894.80) 808.80
E - Land Added by Amendment No. 5			
CZ283	Option -	John E. and Nettie Turnbough	24. (17.0) (Estimated)
CZ288	"	Marvin G. and Loraine Turnbough	60.5

Option or Permit No.	Type of Conveyance, and Owner	Area, Acres
F - Land Added by Amendment No. 6		
045266	Prospecting Permit, U. S. Bureau of Land Management, (Also in DMEA 4581, q.v.)	398.0
G - Land Withdrawn by Amendment No. 7		
044857	Prospecting Permit, U. S. Bureau of Land Management, (In part. See also DMEA 4581)	- 320.0
	Total Land Remaining in Contract	5,906.50 (5,985.50) (Estimated plus N½ Lot 1 in Option CZ66).

Stephen P. Holt

Stephen P. Holt
August 29, 1960

DMEA-4582

OFFICIAL FILE COPY

Date	Surname	Code
11/21	Brownell	500
		140
		140
11/21	Talbert	800
11/22	Selfridge	120
		110
11-22	gad	220

MME Form 7
(10-58)

(See Agreement in Docket D MEA-4581)

NOV 22 1960

Mr. E. A. Jones
Division Manager
St. Joseph Lead Company
Southeast Missouri Mining and Milling Division
Bonne Terre, Missouri

Re: DMEA-4581 (Lead-Zinc-Copper)
St. Joseph Lead Company
Czar Knob Area
Crawford County, Missouri
Contract Idm-E1064

DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract Idm-E1068

DMEA-4583 (Lead-Zinc-Copper)
St. Joseph Lead Company
Viburnum Area
Iron County, Missouri
Contract Idm-E1073

Dear Mr. Jones:

We wish to apologize for our delay in replying to your October 11 letter. Certain contract technicalities had to be resolved which were time consuming.

We hereby give tentative approval to the method you propose to use in calculating DMEA royalties (under the current most favorable smelter schedule). In fact, under the circumstances, it seems the only logical method. In essence, each "lot" sold would be based upon the measured production of DMEA ore from your monthly stope measurements and ultimately sold as lead concentrate to your smelter. You should maintain separate accounts covering each contract.

We note your statement, "in figuring the value of DMEA concentrates, we propose to use a calculated monthly mill recovery percentage." We consider this as reasonable, assuming, of course, that the recovery percentage used is derived from actual concentrate sales to the smelter, or a close approximation thereof, based upon a running metallurgical balance. Your monthly remittances should be accompanied by statements showing the pertinent smelter calculations used as the basis for settlement of the D MEA royalties.

43683

It is correct that the royalty would not be in excess of five percent of the gross value.

Sincerely yours,

(signed) FRANK E. JOHNSON

Acting Director

WRGriswold/gla
11-21-60
cc to: Director's Reading File
CA&A Division
Region IV (2)
Docket DMEA-4581
Docket DMEA-4582
Docket DMEA-4583
Code 500
Chron

ST. JOSEPH LEAD COMPANY

SOUTHEAST MISSOURI LEAD MILLING DIVISION

RECEIVED OCT

October 11,

Mr. Frank E. Johnson

dollars ($8.00) per ton of production in the form in which sold, held, or used, plus one-half (1/2) percent for each additional full fifty cents ($0.50) by which such amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) percent of such amounts.

(For instance: the royalty on an amount of five dollars ($5.00) per ton would be one and one-half ($1\frac{1}{2}$) percent; on an amount of ten dollars ($10.00) per ton, three and one-half ($3\frac{1}{2}$) percent.)

Is it correct that the royalty due would not be in excess of five percent of the gross value?

Under Article 6 (f) on page 3, quote:

(f) Time for computation and payment.--The Government's royalty shall be computed and paid currently upon each lot sold, held, or used in integrated operations, as the case may be, as above provided in this Article.

This apparently means that royalty shall be computed and paid for each car of concentrate shipped. It would be very difficult for us to do this. Instead, we would like your permission to calculate and pay royalty at the end of each month. This would fit in with all of our accounting practices.

We will appreciate a prompt reply as we are anxious to get a routine established for regular payment of DMEA royalties. At present, such payments are due on DMEA No. 4581 for the months of August and September.

Yours very truly,

Division Manager

cc: Mr. J. A. Thomure
Mr. K. R. Baker

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
	Griswold	500
9/3	Selfridge	120
8/31	Gall	220
		500

AUG 31 1959

Mr. Donald K. Lourie, Secretary
St. Joseph Lead Company
250 Park Avenue
New York, New York

Re: Docket No. DMEA-4581 (Lead-Zinc-Copper)
St. Joseph Lead Company
Czar Knob Area
Crawford County, Missouri
Contract No. Idm-E1064
Docket No. DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract No. Idm-E1068
Docket No. DMEA-4583 (Lead-Zinc-Copper)
St. Joseph Lead Company
Viburnum Area
Iron County, Missouri
Contract No. Idm-E1073

Dear Mr. Lourie:

We have your letters of August 17 and 20 regarding the certifications issued on DMEA Dockets 4581 and 4582. We have since issued a certification on DMEA-4583.

If and whenever you may wish, we shall be glad to discuss with you any of the specific arrangements set forth in the contracts.

Sincerely yours,

George C. Selfridge

Acting Director

WRGriswold/GCSelfridge/gla/fw
8/28/59
cc: Dir.Read. File
Mr. Lamb, USBM
Mr. Kirkemo, USGS
OME Field Team, Reg. V (2), w/2cc each letters
Dockets 4581 August 17 and 20
4582
4583
Chron

8623

ST. JOSEPH LEAD COMPANY

250 PARK AVENUE

NEW YORK 17, N.Y.

TELEPHONE YUKON 6-7474

DONOLD K. LOURIE
SECRETARY

August 20, 1959

Mr. Frank E. Johnson
Office of Minerals Exploration
U.S. Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract No. Idm-E1068

Dear Mr. Johnson:

Thank you very much for your letter dated August 18, 1959 enclosing a certification of discovery covering the land described in Article 2 of the Exploration Project Contract No. Idm-E1068 dated March 18, 1957.

We understand the terms of the contract and will make royalty payments and follow the procedures outlined in your letter.

As stated in our letter pertaining to Docket No. DMEA-4581, it is doubtful that production will commence until the end of the first quarter of 1960. The above lands, of course, will be operated jointly with those of Docket No. DMEA-4581. As with respect to those lands, shipments of concentrates from the above lands will be made to our own smelter and royalty payments will be made in accordance with the special terms set forth in the contract. We will notify the Executive Officer when production commences.

It is possible that prior to production we will want to discuss with you, in more detail, the specific arrangements set forth in the contract.

Very truly yours,

Donald K. Lourie

OFFICIAL FILE COPY
O. M. E.
RECEIVED AUG 24 1959

DATE	INITIALS	CODE
8/24	gad	220
		420
"	Received	500

UNITED STATES
DEPARTMENT OF THE INTERIOR
~~OFFICE OF MINERALS EXPLORATION~~
~~WASHINGTON 25, D.C.~~

BUREAU OF MINES

P. O. Box 431, Joplin, Mo.

August 14, 1959

Memorandum

To: Chairman, Operating Committee, OME

From: Clinton C. Knox, Mining Engineer, Joplin, Mo.

Subject: Docket No. DMEA-4581 (Lead-Zinc-Copper)
St. Joseph Lead Company
Czar Knob Area
Crawford County, Missouri
Contract No. Idm-E1064
Docket No. DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Viburnum Area
Iron County, Missouri
Contract No. Idm-E1073

Furnished herewith are copies of ore reserve calculation sheets and map to supplement the Field Team Final Reports submitted on these projects July 31, 1959.

/s/ Clinton C. Knox

Clinton C. Knox

encls. 9

cc: Opr.Com.
4581 file
4582 "
4583 "

c
o
p
y

DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Project
Washington County, Missouri
Contract Idm-E1068

Discovery Hole No.	Ore-bearing Horizon From	To	Ore Thickness (ft.)	Avg. Metallic Content (Percent) Pb	Zn	Cu	Ft. x percent Pb	Zn	Cu
57VC19	436.1 -	443.7	7.1	10.2	-	0.5	72.2	-	3.24
57VC22	507.0 -	514.0	7.0	1.8	-	-	12.8	-	-
57VC50	431.8 -	441.9	10.1	12.5	-	0.14	126.6	-	1.40
57VC47	460.2 -	467.2	7.0	6.1	-	-	43.2	-	-
57VC52	407.4 -	415.6	8.2	1.2	-	-	9.6	-	-
57VC48	495.2 -	502.2	7.0	1.8	2.9	-	12.4	20.0	-
57VC68	522.0 -	529.0	7.0	2.1	-	-	14.5	-	-
57VC71	564.7 -	588.4	24.1	2.7	-	-	64.9	-	-
57VC81	503.2 -	511.1	7.9	1.4	-	-	10.3	-	-
57VC104	552.3 -	560.2	7.9	1.2	-	-	10.1	-	-
57VC114	510.5 -	521.6	11.1	4.3	-	-	47.7	-	-
57VC122	492.7 -	508.0	15.3	1.8	-	-	28.3	-	-
57VC143	535.5 -	542.5	7.0	5.2	-	0.03	36.3	-	0.19
57VC162	(416.9 -	428.7	11.8	2.0	1.6	-	23.2	19.3	-
	(442.0 -	449.6	7.6	1.6	0.1	-	12.3	0.6	-
57VC157	536.8 -	543.8	7.0	3.6	-	0.40	25.5	-	2.81
57VC163	637.2 -	644.2	7.0	1.2	-	-	8.5	-	-
57VC173	570.8 -	578.6	7.8	2.0	0.2	-	15.6	1.2	-
57VC179	507.0 -	514.0	7.0	6.6	-	-	46.5	-	-
58VC2	(418.8 -	551.4	32.6	6.0	2.0	0.12	197.1	64.4	4.0
	(470.6 -	477.6	7.0	4.4	1.3	-	30.6	8.9	-
58VC15	477.0 -	488.9	11.9	8.6	0.4	-	102.1	4.6	-
58VC20	430.2 -	447.8	17.6	2.7	3.4	-	47.7	60.1	-
58VC19	503.6 -	510.6	7.0	1.2	0.4	-	8.3	3.1	-
58VC26	499.2 -	506.2	7.0	1.2	2.1	-	8.5	14.5	-
58VC30	482.2 -	489.4	7.2	5.4	-	-	39.2	-	-
58VC36	510.7 -	517.7	7.0	1.2	5.3	-	9.3	37.2	-
58VC32	445.3 -	452.3	7.0	1.2	-	-	9.8	-	-
58VC39	580.0 -	590.1	10.1	13.8	7.3	-	139.8	73.3	-
58VC47	587.5 -	596.0	8.5	5.1	0.5	-	42.9	4.4	-
58VC43	559.8 -	566.8	7.0	11.6	3.1	-	80.9	21.7	-
58VC51	536.0 -	543.0	7.0	2.1	-	-	14.6	-	-
58VC57	381.4 -	390.4	7.0	1.3	-	-	8.9	-	-
58VC65	524.2 -	432.7	8.5	20.2	1.4	-	161.9	12.0	-
58VC69	381.0 -	415.4	34.4	2.6	2.0	-	89.2	68.7	-
58VC81	(540.4 -	547.4	7.0	3.9	-	-	27.1	-	-
	(576.5 -	584.0	8.5	1.2	-	-	9.9	-	-
58VC85	477.4 -	495.8	18.4	0.6	-	-	10.9	-	-
58VC89	646.8 -	665.0	18.2	7.4	0.3	-	133.9	6.0	-
58VC99	384.9 -	397.5	12.6	5.3	0.8	-	66.4	9.9	-
58VC101	589.5 -	600.6	11.1	1.4	0.3	-	15.1	3.2	-
58VC102	444.2 -	470.1	25.9	1.5	0.2	-	39.0	5.8	-

Discovery Hole No.	Ore-bearing Horizon From	To	Ore Thickness (ft.)	Avg. Metallic Content (Percent) Pb	Zn	Cu	Ft. x percent Pb	Zn	Cu
Cont'd									
58VC106	346.3 -	370.1	23.8	11.7	1.0	0.35	279.3	23.5	8.15
58VC109	508.6 -	515.6	7.0	1.9	-	-	13.0	-	-
58VC111	380.2 -	387.2	7.0	10.0	0.4	-	70.0	3.2	-
58VC128	462.9 -	475.0	12.1	0.9	-	-	11.5	-	-
58VC141	406.7 -	429.1	22.4	0.7	0.3	-	14.7	5.9	-
58VC164	650.5 -	662.8	12.3	7.4	-	0.56	90.7	-	6.87
58VC185	339.1 -	367.7	38.6	10.2	0.5	0.45	392.2	17.1	17.27
58VC187	473.3 -	482.9	9.6	3.2	-	-	40.1	-	-
58VC188	527.1 -	544.5	17.4	0.7	0.2	-	12.1	3.9	-
58VC192	504.4 -	512.4	8.0	1.9	-	0.12	15.2	-	0.97
58VC193	494.1 -	501.1	7.0	3.5	-	0.61	24.4	-	4.29
58VC195	569.2 -	576.2	7.0	1.4	-	-	10.0	-	-
58VC198	547.3 -	554.3	7.0	4.5	0.5	0.04	31.7	3.4	0.27
58VC200	363.0 -	389.0	26.0	0.6	-	-	16.6	-	-
68VC201	(463.1 -	471.4	8.3	1.2	-	-	10.1	-	-
	(529.0 -	542.2	13.2	2.4	-	-	31.8	-	-
58VC203	454.2 -	474.4	20.2	12.8	3.8	-	259.7	77.1	-
58VC206	544.9 -	551.9	7.0	1.5	-	-	10.7	-	-
58VC217	479.7 -	499.5	19.8	4.5	-	0.14	88.5	-	2.73
58VC229	355.7 -	377.5	21.8	3.2	-	1.64	69.4	-	35.89
58VC239	645.0 -	653.2	8.2	3.9	-	-	32.2	-	-
58VC241	542.7 -	579.7	37.0	1.0	-	-	35.8	-	0.02
58VC244	557.7 -	577.2	19.5	8.9	0.2	-	170.3	5.0	-
58VC247	580.5 -	597.6	17.1	4.2	-	-	72.8	-	-
58VC248	446.9 -	453.9	7.0	11.2	-	-	78.4	-	-
58VC250	437.8 -	488.5	50.7	8.3	-	0.04	420.5	-	2.10
58VC277	476.8 -	489.9	13.1	3.0	-	-	40.3	-	-
Average: 42 ore discovery			911.5				4255.6	578.0	86.60
and 23 indicative holes			14.0	4.67	0.63	0.10			

10 Discovery Areas = $\frac{15,600,000 \square' \times 14.0}{12}$ = 18,200,000 tons

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
8/11	[illegible]	500
8/12	[illegible]	140
		140
8/17	Talbut	800
8/18	Jeffrey	130
		~~110~~
		~~[illegible]~~
8/19	gad	220
		500
8/18	Lamb	130
8/18	Kirkemo	130

AUG 18 1959

Mr. Andrew Fletcher, President
St. Joseph Lead Company
250 Park Avenue
New York City, New York

Re: Docket No. DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract No. Idm-E1068

Dear Mr. Fletcher:

Enclosed is a certification of discovery or development that covers all the land described in Article 2 of the contract.

By the terms of the Exploration Project Contract, as amended, and the certification, all minerals mined or produced from March 18, 1957, to March 18, 1987, are subject to the Government's percentage royalty as set forth in the contract until the sum of $132,596.55 is repaid to the Government.

Royalty payments should be made to the Executive Officer, OME Field Team, Region V, Room 2B, Post Office Building, Knoxville 2, Tennessee, by the purchaser with checks drawn payable to the Office of Minerals Exploration. The purchaser should be advised to deduct royalties from the amount due on each shipment and send the check to the Executive Officer. Each check should be accompanied by suitable sales evidence - such as copies of settlement sheets - showing the name of the purchaser, the quantity and grade of the products sold, and the price and charges, certified to be correct by the purchaser.

You are requested to notify the Executive Officer of any changes in ownership or production rights that may have any effect on the Government's right to its percentage royalty. Your attention is called particularly to Article 2(c) of the contract relating to the preservation of the Government's right to a percentage royalty on production. Also when production starts, please notify the Executive Officer. Thereafter, if production ceases for any extended period, please notify him accordingly at six-month intervals.

WRGriswold/gla 8-11-59

Sincerely yours,

Frank E. Johnson (for)

Acting Director

cc to: Director's Reading File
F. E. Johnson
Operating Committee
Mr. Lamb, USBM
Mr. Kirkemo, USGS
Contract Adm. & Audit Div.
Enclosure OME Field Team, Region V (2)
Docket
Chron
Mr. Griswold

43683

MME Form 7
(10-58)

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Date	Surname	Code
8/11	Warnell	500
8/12	Tobyack	140
		140
8/17	Talbert	800
8/18	Selbordge	130
8/18	Lamb	130
8/18	Kirkemo	130
		~~110~~
8/19	gad	220
		500

AUG 18 1959

Mr. Clarence A. Fredell, Director
Technical Research and Development Division
Defense Materials Service
General Services Administration
6018 GSA Building
Washington 25, D. C.

Re: [redacted]KA-4582 (Lead-Zinc-Copper)
St. Joseph[redacted]ead Company
Courtois [redacted]
[redacted]ounty, Missouri
Contract No. Idm-K1068

Dear Mr. Fredell:

Enclosed is a copy of a certification of discovery or development related to Exploration Project Contract No. Idm-K1068.

The contract was dated March 18, 1957, with the Government participating to the extent of 50 percent in an exploration project estimated to cost $298,560.00. Actual expenditures were $265,193.10, with the Government's share being half of such amount, or $132,596.55.

The total amount of work provided for under the contract consisted of 133,420 feet of diamond drilling and auxiliary churn drilling. Work actually completed consisted of 119,055 feet of such drilling.

The discovery consisted of bedded deposits of lead ores occurring mainly in the middle zones of the Bonneterre (dolomite) formation. The estimated ore reserve resulting from the work of exploration under the contract consists of 7,004,120 tons, with a grade of 4.41 percent lead. Minor amounts of copper and zinc occur with the lead ores.

WRgriswold/gla 8-11-59

Sincerely yours,

cc to: Director's Reading File
F. E. Johnson
Operating Committee
Mr. Lamb, USBM
Mr. Kirkemo, USGS
OME Field Team, Region V (2)
Mr. Griswold
Docket
Chron

Frank E. Johnson (fw)

Acting Director

Enclosure

43683

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

EXTRA COPY
O. M. E.
RECEIVED AUG 14 1959
DATE | INITIALS | CODE

August 13, 1959

Memorandum

To: V. E. Griswold, Office of Mineral Exploration

From: Commodity Specialist, Branch of Base Metals

Subject: Field Team Final Reports on St. Joseph Lead Co. - DMEA Projects 4961, 4962 and 4963.

I read the 3 subject Field Team reports by Clinton E. Knox and Henry H. Jones, noting the immense success of the exploration. The Field Team reports that drilling indicated reserves of about 37 million tons resulting in part from drilling by St. Joseph Lead Co., and in part by 46 combination shaft drill- and diamond drill-holes under 3 separate DMEA contracts. The drilling in which Government participated totaled 34,500 feet, and cost $[illegible]. The field team estimate of 37 million tons of ore approximating 4.8 percent lead, 0.5 percent zinc and 0.1 percent copper, is based on a cut-off of one percent combined lead-zinc-copper for a minimum 7-foot drill intersection. The reports state that St. Joseph Lead Co., as of the end of 1958, indicated to the Field Team that total drilling had revealed 23.5 million tons of ore in the new 3-county area, and that the DMEA portion of the drilling accounted for 11.5 million tons. The spread between the two sets of reserves reflects the conservatism of St. Joseph Lead Co. It also reflects the essential difference in viewpoint between operating personnel and the field team who doubtless included large tonnages which St. Joseph Lead Co. would class as inferred or possible.

The reports are well written summaries of the projects and with the maps, logs and computations amply document the discovery and the recommendation for Certification of a Discovery under such contract.

The success of this exploration stems from the ore-finding skill of the St. Joseph Lead Co., combined with "good fortune" and adequate financing by the Company and the Government. The discovery-development program was actually begun in the mid 1940's when St. Joseph Lead Co., American Metal-Climax Co., Minerva Oil Co. and others secured leases and options and with and without geophysical

guidance began drilling the Bonne Terre-La Motte contacts at depths up to 2,000 feet in western Washington County, Missouri. These companies and the Missouri Geological Survey joined the USGS in cooperatively financing an airborne magnetic survey of part of the same region in 1948.

Thereafter, companies other than St. Joseph Lead withdrew from the area, but that company continued exploration - gaining knowledge of the structure, stratigraphy and mineralization - until it had indicated large ore shoots on the Kilmer and Couroy tracts.

In late 1956, St. Joseph Lead Co. made applications for Government assistance in exploring, delineating and sampling additional but contiguous areas by drilling in the vicinity of pre-Cambrian highs in the Czar Knob area (DMSA 4581), Courtois area (DMSA 4582), and the Viburnum area in Iron County, (DMSA 4583).

It can hardly be over-emphasized that the success of the projects was the fruition of many years experience and patient fact gathering on ore controls utilizing all available techniques over a period of 15 years or more to prove a major new district whose future output will be measured in hundreds of millions of dollars.

O. M. Bishop

O. M. Bishop

OMBishop:fvh
cc: Division of Minerals
Mr. Killingsard
Mr. Lamb
Mr. Bishop
F I L E S

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

P. O. Box 431
Joplin, Missouri

July 31, 1959

Memorandum

To: Chairman, Operating Committee, OME

From: Executive Officer, OME Field Team, Region IV

Subject: Docket No. DMEA-4581 (Lead-Zinc-Copper)
St. Joseph Lead Company
Czar Knob Area
Crawford County, Missouri
Contract No. Idm-E1064
Docket No. DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract No. Idm-E1068
Docket No. DMEA-4583 (Lead-Zinc-Copper)
St. Joseph Lead Company
Viburnum Area
Iron County, Missouri
Contract No. Idm-E1073

In response to your memorandum of July 10, 1959, the joint Final Field Team Reports, in triplicate on each of the three cited projects, are transmitted herewith.

CCK/lmd

Clinton C. Knox

encls. 3

cc: Op.Com.
Amos, USGS, Knoxville w/cy
of each report
4581-4582-4583 files

Official

~~EXTRA~~ COPY
O. M. E.
RECEIVED AUG 3 1959

DATE	INITIALS	CODE
8-3	gad	220
8-4	[illegible]	130
"	FEJ	110
8-7	[illegible]	130
8-10	gad	220

~~120~~
8/10 800
8/10 ~~Received~~ 500

Reviewed by
OME OPERATING COMMITTEE
8/7/59
(date)

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O. M. E.
RECEIVED AUG 3 1959

DATE	INITIALS	CODE
8-3	gad	vvo
		130

FIELD TEAM FINAL REPORT

Courtois Project
Washington County, Missouri
Contract Idm-E1068

Docket DMEA-4582(Lead-Zinc-Copper)
St. Joseph Lead Company
Bonne Terre, Missouri

by

Clinton C. Knox
Mining Engineer
U. S. Bureau of Mines
Joplin, Missouri

Dewey H. Amos
Geologist
U. S. Geological Survey
Knoxville, Tennessee

July 28, 1959

FINAL
FIELD
TEAM
REPORT

SUMMARY

The exploratory work under this Contract and the many other holes drilled here and in contiguous project areas have discovered an important new lead mining district which in a very few years is expected to become the Nation's leading producer. The Operator is continuing the exploration on tracts in this project in an effort to eventually justify development drilling and initial shaft sinking there at least in the best of the ore discovery areas.

A total of 181 holes aggregating 119,055 feet of churn and diamond drilling were completed acceptably at a cost of $265,193.10 under the Contract. Lead ore of commercial grade and thickness was

Reviewed by
ONE OPERATING COMMITTEE
8-7-59
(date)

cut in 42 of those holes and 23 indicated marginal ore. Recoverable amounts of zinc and copper also are indicated in some of the ore. Calculations on the results of these widely scattered 65 ore discovery-, and indicative-holes show that the recommended adequate further exploratory drilling of the discovery areas reasonably could be expected to indicate reserves of at least 18 million tons containing 4.60 percent lead, 0.60 zinc and 0.10 percent copper. Also, 97 of the other holes showed traces to significant amounts of ore minerals from which are inferred additional exploration potential for reserves of possibly 7 million tons that likewise remain to be delineated and sampled by adequate further exploratory drilling. Only 19 of the project holes drilled under this Contract were blank.

When the ore-bearing areas of the project were found to extend far beyond any previous expectations, Amendments No. 2 through 6 were enacted to add 13 newly optioned tracts totaling 2,068 acres under the Contract for exploration of this project area of 8½ square miles in Washington County, Missouri. Insufficient drilling was allowable under this unit-price Contract, however, to in any way meet its stipulation "to reasonably delineate and sample the mineral deposit," and the Operator's formal application on April 23, 1958, for a $238,608 expansion of the Contract to permit more adequate exploratory drilling, was denied June 12, 1958.

RECOMMENDATIONS

Although the present metal market outlook, and Government policies lend no incentive for exploration or development of important

mineral resources as discovered in this vast project area, from a long-range viewpoint much additional exploratory drilling is warranted there either privately financed or with Government assistance.

Adequate exploration of the project area should have been provided by timely amendment of this Contract to permit continuing Government assistance for necessary additional exploratory drilling footage.

Although still undelineated, the discoveries are believed to represent inferred reserves of at least 25 million tons and therefore, "certification" of this project is recommended by the Field Team.

LOCATION

The Courtois area is in extreme southwestern Washington County, Missouri. Exploratory drilling was conducted under the contract in sections 3, 4, 5, 6, 7, 8, 9, 17 and 18, T.35N., R.1W.; sections 32, 33, and 34, T.36N., R.1W.; and sections 1, 12 and 13, T.35N., R.2W. The bulk of the contract work was done in sections 5, 7, 8 and 18, T.35N., R.1W.

PROJECT WORK AND EXPENDITURES

The exploration work was started under the Contract on March 18, 1957 and completed on December 29, 1958. A total of 181 holes aggregating 119,055 feet of churn and diamond drilling

were acceptably completed under the two-stage "Short Form" Contract. Also, 891 analytical determinations for lead, zinc and copper were made on samples split from all the significantly mineral cores.

The accepted work units and costs on Stages I and II under the Contract were as follows:

	No. of Holes	Feet Drilled			Analytical Determinations			
		Churn	Core	Total	Pb	Zn	Cu	Total
Stage I	84	13,084	42,941	56,025	276	31	19	326
Stage II	97	13,103	49,927	63,030	425	53	87	565
Total Items	181	26,187	92,868	119,055	701	84	106	891
Acceptable unit costs				@ $2.22/ft.				@$1.00 ea.
Total costs				$264,302.10				$891.00

Total accepted Stage I costs	$124,701.50
Total accepted Stage II costs	140,491.60
Total accepted Project costs	$265,193.10
Government participation paid(50 percent	$132,596.55
Allowable max. Gov't participation	149,280.00
Unexpended	$ 16,683.45

Prior to the Contract AMCO had drilled 8 holes(withdrawn application DMEA-3339) and this Operator had drilled 5 holes. Many were drilled entirely at the Operator's expense during this project work and it is continuing the exploratory drilling.

Contract Amendments No. 7 and 8 were granted on March 6, 1959, respectively to delete a 320-acre Government-owned tract with no known mineral value from the Contract and forthcoming "Certification", and to permit audit clearance for an equitable final settlement. The OME Audit Report of Review was issued June 5, 1959, and

the terminal settlement was made June 25, 1959. The Operator's Final Report and reserve estimates were received June 2, 1959.

The project work under the Contract was conducted in a completely satisfactory manner. The Operator is to be commended for conducting all aspects of the work efficiently and with the latest known effective exploration techniques. The geophysics employed by the Operator over the project area, however, failed to be of much practical benefit.

ESTIMATED RESERVES

Continuity of mineable reserves cannot be assumed with any assurance between the widely scattered 42 project holes which actually cut lead ore of commercial grade and thickness, nor to the other 23 indicative holes postulated as on the margins of extensions of the ore discovery areas, because of the exacting lithologic, stratigraphic and structural controls of ore mineralization as evidenced by the drilling results on this project, and from underground exposures in similar-appearing erratic deposits of the Operator's Indian Creek mine 20 miles to the northward (USBM I. C. 7875). Evidently related directly to the tree-like algal reef rocks in various strata of the Bonneterre dolomite, the generally flat-bedded small individual ore lenses believed to comprise each of the major discovery areas on this Courtois project, are expected to be spotty and on erratic elevations.

Statistically, however, the average of the lead-zinc-copper assays on the 65 indicative holes is expected to be representative of the grade of ore that could be mined there within the 30-year repayment period set by the Contract, if sufficient tonnage can be assured by completion of the project explorations to warrant drainage, shaft sinking and underground mine development. Of course, maintaining minimum mining thicknesses of 12 feet as the Operator is planning to permit use of large efficient equipment, would dilute the grade of the thinner-bedded ore materially, apparently somewhat below the average computed in the Operator's Final Report. For purposes of the Government here, the reserve estimates below were made on an arbitrary cutoff basis of 1 percent combined lead-zinc-copper content for ore zone at least 7 feet in thickness for each of the 65 holes; those averaging in excess of 2 percent were considered of ore grade.

The recommended modest amount of additional exploratory drilling to adequately detail the areas of the widely scattered 65 discovery holes is expected to indicate reserves of at least 18 million tons now clearly inferred from results of the 65 indicative holes with an average metallic content of 4.60 percent lead, 0.60 zinc and 0.10 percent copper, and mining thickness averaging 14 feet. Copies of the reserve calculations and map will be furnished as a supplement to this report. Also, on the

basis of traces to significant amounts of ore minerals found in 97 of the other project holes and the other geologic data, an exploration potential for other areas in the project is inferred where a bolder drilling program probably would indicate an additional 7 million tons. Only 19 of the preliminary project holes drilled under this Contract were blank.

GEOLOGY

The contract area is about 2 miles northwest of the St. Francois Mountains which consist of Precambrian igneous rocks. In the area a thin cover of upper Cambrian sedimentary rocks overlies unconformably a broad buried nose of basement rocks that extend northwestward from the exposed Precambrian mass. Small inliers of basement rock crop out near the exploration area. Drilling data indicate that the post-Precambrian erosional surface is one of considerable relief.

Red granite of Precambrian age crops out on Czar Knob about 4 miles west of the area and at two small places approximately 2 miles south of the

southern boundary of the area. Drilling has outlined part of five Precambrian "highs" in the Courtois area (see map attached to the Operator's final report). These five highs are located as follows: (1) along the boundary between section 4 and 5, T.35N., R.1W.; (2) SW¼, section 5, T.35N., R.1W.; (3) northern part of section 7, T.35N., R.1W. and northern part of section 12, T.35N., R.2W.; (4) along boundary between section 8 and 9, T.35N., R.1W.; and (5) section 18, T.35N., R.1W. All drill holes which penetrated basement rock on highs 1, 2 and 3 encountered red granite, whereas holes drilled on highs 4 and 5 cut rhyolite porphyry. Thus, a contact between red granite to the northwest and rhyolite porphyry to the southeast trends northeastward across the project area. An aerial magnetic survey made by the Operator failed to show all of the Precambrian topographic highs (see map attached to Operator's final report). The basement rocks evidently vary enough in magnetic susceptibility to destroy some of the correlations of magnetics with the Precambrian buried topography.

The basal sediment overlying the Precambrian, the upper Cambrian Lamotte sandstone, is not exposed in the vicinity but is encountered in the subsurface. It occurs in depressions on the Precambrian erosional surface and attains a maximum thickness of about 220 feet. The formation pinches out on the flanks of the Precambrian highs at an elevation of 380-420 feet above sea level.

The Bonneterre dolomite overlies the Lamotte in the subsurface and has a maximum thickness of about 260 feet in depressions between the Precambrian highs. Over and on the flanks of the highs the lower units of the formation pinch out. In extreme cases, only the upper 100 feet of the Bonneterre dolomite cover the highs. The formation in the project area can

be divided into 8 lithologic units some of which are discontinuous. These units in descending order are:

Zone 1 - Dense, tan fine-grained dolomite banded and sometimes mottled with dense brown; 25-75 feet thick.

Zone 5 - Tan and brown porous oolitic dolomite with oolitic-pitted algal brown spots in upper part; local thin algal reefs; 70-120 feet thick.

Zone 7 - Nonbedded fingered algal reef rock with interreef filling of bedded gray spotted mottled and gray spotted dolomite; average 85 feet thick but highly variable.

Zone 10 - Tan oolitic dolomite; 0-80 feet thick.

Zone 11 - Thin-bedded shaly limestone; very discontinuous.

Zone 12 - Gray mottled or gray tan mottled dolomite with thin, closely-spaced, wavy black shale partings or stylolites; 0-80 feet thick.

Zone 15 - Light colored, medium to coarsely crystalline dolomite with disseminated glauconite; 0-45 feet thick.

Zone 19 - Gray or tan sandy dolomite, dolomitic sand and sandstone; 0-40 feet thick.

All of these units exhibit local variation in lithology and thickness. Such variations are related geometrically to the Precambrian highs (see cross sections attached to Operator's final report). The most significant lateral facies change is the presence of algal reef rock on the flanks of the highs. Such reef rock is best developed high on the flanks, especially in Zone 7 and to a lesser extent in Zone 5. In the central part of the depositional basins, reef facies are generally absent. The reef rock is the most favored host of mineralization in this district.

Overlying the Bonneterre is the Davis shale which is 150-200 feet thick. It occurs only in the subsurface but does crop out peripheral to the Precambrian exposures near the project area. The Derby-Doe Run dolomite overlies the Davis shale and is exposed in inliers in deeper valleys in the area. It is normally about 90 feet thick. The Potosi dolomite overlies the Derby-Doe Run and is the surface formation over most of the area.

It is about 385 feet thick. The youngest formation in the vicinity is the Eminence dolomite which is exposed along the northern part of the area.

Regionally, the dip of the sedimentary rocks is to the west-northwest. Locally, the dip is peripherally away from the Precambrian highs due to differential compaction of the sediments. This local dip progressively decreases upward in the younger sedimentary rocks.

One fault, the Cub Creek fault, is present in the northern part of the area. It strikes about east-west and has gravity-type displacement. The north block has been dropped down about 50 feet.

MINERALIZATION

Mineralization in the Courtois area is galena with local subordinate sphalerite and chalcopyrite. It occurs vertically throughout the Bonneterre dolomite but is most extensive and intense in algal reef rock near the middle of the formation, especially Zone 7 and to a lesser extent Zone 5. The ore minerals replace the reef rock.

The significant mineralization is on the flanks of the Precambrian highs in the reef rock, particularly in the lower part of the protuberances which project laterally from the reef mass. Many of the reefs have a considerable vertical extent (up to 100 feet) and, hence, several protuberances on both the inshore and offshore side. As a result a single reef mass may contain several disconnected bodies at different horizons and on opposite sides of the reefs. This discontinuous character of the mineralization requires that exploratory drill holes be closely spaced in order to assure a reliable ore reserve estimate. As the reefs formed along an uneven and embayed land mass, the reefs have a sinuous trend and are not

continuous across embayed areas. This means that individual bodies have an irregular and discontinuous trend and can not be projected any distance with assurance.

Extensive mineralization was discovered associated with the Precambrian highs 1, 2, 3, and 5. It occurs on both flanks of high 3 and 5, on the northwest flank of high 1 and on the southeast flank of high 2. Ore-grade mineralization was also encountered in saddles between highs 1 and 2, 2 and 3, and 3 and 4. The extent of the ore-grade mineralization is not adequately known because of insufficient drill holes in the contract area. Indicative mineralization was found on the western flank of high 4.

RECEIVED
DIVISION OF MINERAL
TECHNOLOGY
JUN 15 1959
BUREAU OF MINES
JOPLIN, MO.

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

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JUL 10 1959

Memorandum

To: Executive Officer, [redacted] Field Team, Region IV

From: Chairman, Operating Committee, OME

Subject: Docket No. [redacted] (Lead-Zinc-Copper)
St. Joseph Lead [redacted]
Czar Knob Area
Crawford County, [redacted]
Contract No. [redacted]
Docket No. [redacted] (Lead-Zinc-Copper)
St. Joseph Lead [redacted]
Coutois Area
Washington County, [redacted]
Contract No. [redacted]
Docket [redacted] (Lead-Zinc-Copper)
St. Joseph Lead [redacted]
Viburnum Area
Iron [redacted], [redacted]
Contract No. [redacted]

We are desirous of [redacted] the referenced dockets as soon as possible. In the event [redacted] delay should be [redacted] in the preparation of a joint [redacted] Field Team Report, we [redacted] that you and Mr. Amos forward us separate reports. If at all [redacted] venient, we would like to have your section of such reports by the end of the month.

/s/ George C. Selfridge (245)

APPROVED:

P. F. Yopes (245)
Member, Bureau of Mines

Harold Kirkemo (245)
Member, Geological Survey

WRGriswold/gla 7-9-59
Copies to: Director's Reading File
Operating Committee
Mr. Bishop, USBM
Mr. Kirkemo, USGS
Dockets (3)
Chron

Copy to: Dewey H. Amos, Carbondale, Illinois

8623

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

Box 431
Joplin, Missouri

June 22, 1959

orig + 1 to 800
EXTRA COPY
O. M.
RECEIVED JUN 25 1959
DATE
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Memorandum

To: E. D. Talbert, Acting Chief, Contract Administration & Audit Division, Office of Minerals Exploration, Room 4448, Interior Building, Washington 25, D. C.

From: Executive Officer, OME Field Team, Region IV, Joplin, Mo.

Subject: DMEA-4582(lead-zinc-copper), St. Joseph Lead Co., Courtois Project Contract Idm-E1064, Washington County, Mo.

With reference to your June 10 memo with the Report of Review dated June 5, 1959, for final settlement of this account, a revised final (December 1958) MF-104 and MF-104A (copy attached) was received from the Operator today claiming the allowable maximum under the Audit, and this confirms that the units of work listed below were acceptably performed, and that the project otherwise is accepted as having met the terms of the Contract.

Accepted Work	No. Holes	Feet Drilled			Assay Determinations					
		Churn	Core	Total	Pb	Zn	Cu	Ni	Co	Total
Stage I	84	13,084	42,941	56,025	276	31	19	-	-	326
Stage II	97	13,103	49,927	63,031	425	53	87	-	-	565
Total Units acceptably performed	181	26,187	92,868	119,055	701	84	106	-	-	891

I concurred with the facts stated in your Report of Review received here June 12, 1959, forwarded the copy to the Operator then, and upon receiving the Operator revised final MF-104 claim today, have forwarded the original and one copy of the Report of Review with the originals of the Operator's November and December MF-104 Reports to the Bartlesville Finance Office for certification of the final settlement payment due.

CCN/imd

Clinton C. Knox

cc: Op.Com.(2)
Amos,USGS,Knoxville
Finance Office,USBM,Bartlesville
4582 file

DATE	INITIALS	CODE

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
Box 431
Joplin, Missouri

June 22, 1959

Mr. R. E. Wagner, Exploration Superintendent
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA 4582 (lead-zinc-copper)
Courtois Project
Washington County, Mo.
Contract Idm-E1068

Dear Mr. Wagner:

This will acknowledge receiving your June 19 letter with the revised MF-104 and MF-104A Reports for completion of the project last December.

Please be advised that they as well as your reports for November 1958 have been approved as claimed upon my concurrence with the facts in the OME Audit Report of Review as per copy furnished you with my letter on June 12, and the Finance Office, U. S. Bureau of Mines, Bartlesville, Oklahoma, has been authorized to certify payment of the balance found due your company in final settlement by the Government.

Please advise if the check is not received within a reasonable length of time.

Sincerely yours,

Clinton C. Knox
Executive Officer
OME Field Team, Region IV

CCK/imd

Shadow cy-Mr. E.A.Jones

cc: Op.Com.(2)
Amos,USGS,Knoxville
Finance Office,USBM,Bartlesville
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
Box 431
Joplin, Missouri

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OFFICIAL FILE COPY
O. M. E.
RECEIVED JUN 25 1959

DATE	INITIALS	CODE

June 22, 1959

Mrs. Cora A. Bailey, Fiscal Officer
U. S. Bureau of Mines, Region IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA-4582(lead-zinc-copper)
St. Joseph Lead Co
Courtois Area
Washington County, Missouri
Contract No. Idm-E1068

Dear Mrs. Bailey:

Transmitted herewith are the original and one copy of the final Report of Review on this completed project received June 12 from the OME Contract Administration and Audit Division, Washington, D. C. One copy was furnished the Operator then, and in accordance with the offer therein, the Operator's revised final (December 1958) MF-104 Claim was received today covering all the project work acceptably performed to the extent allowable under Contract Amendment No. 8 enacted as of March 6, 1959. Copies of this letter are being furnished OME and my teammate, Dewey Amos, USGS, Knoxville, Tennessee.

I concurred with the facts in the Audit Report and hereby authorize you to certify payment in the amount of $4,914.93 found due the Operator in final settlement of this account. Therefore, the originals of the Operator's November and December (Revised June 15, 1959) MF-104 Reports pertinent to this final settlement also are enclosed for your file. Approvals on them had been withheld pending receipt of the Operator's final engineering-geologic report(copy sent you June 2), the enclosed Audit Report and Operator's revision of the December 1958 MF-104 Report. The project otherwise also has been accepted as having met the terms of the Contract.

Copies of these monthly reports by the Operator were furnished my teammate on December 17, 1958, January 23, 1959, and today, respectively, after receipt here, and likewise one copy of each (excepting the MF-104 vouchers) were furnished the Washington Office. The second Washington copies with both the MF-104s of each are retained here awaiting your voucher data to be posted thereon.

Sincerely yours,

CCK/imd

Clinton C. Knox
Executive Officer
OME Field Team, Region IV

encl. 5

cc: Dp.Com.(2)
Amos, USGS, Knoxville
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
Box 431
Joplin, Missouri

June 12, 1959

OFFICIAL FILE COPY O. M. E. RECEIVED JUN 15 1959		
DATE	INITIALS	COUNT
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6/16	[illegible]	800
6/16	[illegible]	500

Mr. R. E. Wagner, Exploration Superintendent
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMRA-4582(lead-zinc-copper)
Courtois project
Washington County, Mo.
Contract Idm-K1068

Dear Mr. Wagner:

Your final engineering-geologic report and ore reserve estimates on this project completed last December, were received here June 2, 1959. The final audit was made since, and enclosed is your copy of the Report of Review received this morning from the Contract Administration and Audit Division, Office of Minerals Exploration, Washington, D. C.

You will note that under the changed allowable maximum set for Stage II drilling in Amendment No. 8, entered as of March 6, 1959, an additional 71 feet of churn drilling and 439 feet of diamond drilling in your final hole No. 58WC277, acceptably performed during the last month of the project work, would be allowable if claimed in your report for that month of December 1958. Also found allowable by the audit, if actually claimed by you, would be the cost for two assays made in May 1957 and reported but not included in your claim for that month. Sets of Form MF-104 and MF-104A also are enclosed on which you may want to revise your final cost claims of last December. My approval otherwise for the final settlement on your claims for last November and December will await a revised claim or waiver from you. I concurred with the facts in the Audit Report but cannot authorize Government payments unless formally claimed.

Sincerely yours,

CCK/lmd

Clinton C. Knox
Executive Officer
OME Field Team, Region IV

encls.

Finance Off., USBM, Bartlesville
4582 file

Shadow cy: Mr. Wagner

cc: OP.COM. (2)
Amos, USGS, Carbondale

MME Form 7
(10-58)

OFFICIAL FILE COPY

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JUN 10 1959

Memorandum

To: Executive Officer, OME Field Team, Region IV

From: E. D. Talbert, Acting Chief (Signed) E. D. Talbert
Contract Administration and Audit Division

Subject: Docket No. DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract No. Idm-E1068

As requested in your June 2 letter to the Operating Committee, forwarding copies of the Operator's final report, an audit review of the subject contract has been performed. Enclosed are the original and three copies of a Report of Review in lieu of a final audit.

If you concur with the facts as stated in this report, the original and one copy should be forwarded to the Authorized Certifying Officer in the Bartlesville office, one copy should be sent to the Operator, and one copy should be retained for your file. If for any reason you do not concur, please return the original and all copies with your comments to this Division.

A memorandum dated January 9, 1957, from the Chief, Contract Administration and Audit Division, to all auditors provides that a report of review or final audit certificate will not be issued without the auditor having a communication from the Executive Officer of the region specifically confirming, among other things, the number of units of work acceptably performed. This memorandum was approved and promulgated for compliance by the Operating Committee's letter addressed to you under date of January 17, 1957.

Such a communication has not been furnished in this case. Therefore, this Division would appreciate a memorandum specifically confirming the acceptable performance of the units of work shown as accepted by audit in the Schedule of Audit Findings, attached to the enclosed Report of Review.

Enclosures

EDTalbert/ama
June 9, 1959

Copy to: Docket
Director's Reading File
CA & A Division
Mrs. Cora Bailey

43683

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
Box 431
Joplin, Missouri

OFFICIAL FILE COPY
O. M. E.
RECEIVED JUN 4 1959

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June 2, 1959

Operating Committee
Office of Minerals Exploration
Department of the Interior
Room 4457
Washington 25, D. C.

Re: DMEA-4582(Pb-Zn-Cu)
St. Joseph Lead Co.
Courtois Project
Washington County, Mo.
Project Contract Idm-E1068

Dear Sirs:

Forwarded herewith are the original and one copy of the Operator's final report on this project, received and accepted by this Field Team Office today. One copy is sent Amos, USGS, Carbondale, one to Finance Office, USBM, Bartlesville, and one is retained here.

I expect the Field Team's joint final report on this project will be completed for submittal to you in July. It will verify that the items of work acceptably performed under the Contract and the approved unit costs and total project costs are in full agreement with those given in the Operator's last (December 1958) MF-104A (see copy sent you 1-28-59) and in the Operator's Final Report enclosed herewith; of course, the Field Team's final report also will recommend certification, and subject to OME Audit clearance, the project is hereby accepted as otherwise having met the terms of the Contract.

Therefore, I see no need for further delay in final settlement of this account, so the final OME Audit Review is hereby requested.

Please advise if we can do anything further to facilitate the final settlement.

Sincerely yours,

Clinton C. Knox

Clinton C. Knox
Executive Officer
OME Field Team, Region IV

P.S. The key to lithologic zoning and symbols used by the Operator was sent you 7-5-57.

encl. 2

cc: Op.Com.
Amos, USGS, Carbondale
King, USGS, Denver
Finance Office, USBM, Bartlesville
4582 file

OPERATOR'S FINAL REPT

OPERATOR'S FINAL REPORT

DMEA NO. 4582 (Metals or Minerals)

CONTRACT NO. Idm-E-1068

NAME AND LOCATION OF PROPERTY - VIBURNUM, MO.

NAME OF OPERATOR - ST. JOSEPH LEAD CO.

By: G. E. Westerman, Geologist.

RECEIVED
DIVISION OF MINERAL
TECHNOLOGY

JUN 2 1959

BUREAU OF MINES
JOPLIN, MO.

Summary of Project

Exploration for lead, zinc and copper ores authorized by DMEA under contract Idm-E-1068 began March 18, 1957 and was successfully completed January 1, 1959. Diamond drilling, churn drilling and assaying were completed at a fixed unit cost, $2.22 per foot for drilling and $1.00 per assay. A total of 181 holes were drilled resulting in 42 pay, 23 indicative, 97 trace and 19 blank holes.

Drilling Footage and Costs

Stage	No. Holes	Feet	Costs
I	84	56,015	$124,353.30
II	97	62,530	138,816.60
TOTAL	181	118,545	$263,169.90

Assays @ $1.00.....	$ 889.00
TOTAL COST OF CONTRACT.....	$264,058.90
Excess Footage - disallowed in Stage I - 14,875 feet.....	$ 33,022.50
Assays allowed and not used - 1,481.....	$ 1,481.00
TOTAL COSTS ALLOWED BY CONTRACT.....	$298,562.40

The contract called for drilling an estimated 158 holes with a combined length not to exceed 133,510 feet, and a total expenditure of $298,562.40. Since Stage II drilling was completed as to estimated number of holes with a considerable amount of footage remaining, permission was granted by the DMEA field team to drill the remaining footage allowed by contract. As a result 23 more holes were completed.

Ore reserves were calculated at 7,004,120 tons of 4.41% lead or 308,867 lead tons. The average height of ore bodies is 14.5 feet.

This project entered into with the government "to reasonably delineate and sample the mineral deposit" was not completed in this sense. St. Joseph Lead Company is continuing with its exploration efforts to delineate and sample the deposit.

Geology

Additional information gained by diamond drilling did not essentially alter the geological picture presented in the original application. Consequently, this report will refer only to geologic details which were not apparent after the initial drilling program by St. Joseph Lead Company.

Several buried Precambrian knobs have been located and partially delineated in the Courtois area. See Map 1. All show a considerable amount of relief. When Derby-Doerun or lower formations are exposed at the surface above Precambrian highs the sedimentary units show peripheral dips. This is due to a draping effect caused by differential compaction and sedimentation. If Potosi or higher formations are exposed above these highs there is no discernable surface expression due to the lack of a good outcrop pattern.

One nearly east-west fault zone was found in the Courtois area by drilling and surface exposure along Cub Creek. The Cub Creek fault is a normal fault with about 50 feet displacement being down on the north.

A structure map (Map 1) and cross-sections (Plate 1 and 2) included in this report indicate the relationship of mineralization to lithology and structure. Most of the ore is related to the 5 zone, 7 zone and 7/10 zones or middle lithologic zones of the Bonneterre formation.

Ore zones are irregular in nature, lack persistence over any great distance and often associated ~~to~~ with Precambrian basement highs. Due to lack of persistence and irregular nature of the disseminated ore it is entirely possible to drill a trace hole 175 feet from an extremely rich pay hole. These inconsistencies made exploration difficult and necessitated relatively close spaced drilling, 175 feet in some areas, in order to reasonably delineate and sample the ore.

In addition to lead ore, in the form of galena, some sphalerite and chalcopyrite are present. Sphalerite will be recovered at the mill and space has been left in the mill for a copper circuit. Due to difficult flotation problems with mixtures containing chalcopyrite and sphalerite, one or the other is lost in the tails, depending upon which is suppressed in flotation. Selective mining may be a solution to the problem of recovering both since a large part of the ore is either galena and sphalerite or galena and chalcopyrite. These latter mixtures are more easily treated in flotation mills if kept separate.

Results of a regional aerial magnetic survey are shown on Map 3. A possible northern extension of the Conway fault parallels a magnetic ridge as shown on the map. This is the only structural feature in the Courtois area which could be related to the magnetics. Differences in magnetic susceptability of the various Precambrian rock types seem to be sufficient to destroy any correlation of magnetics with Precambrian surface topography but not of great enough magnitude to allow delineation of Precambrian rock type areas.

Ore Bodies

Ore reserves are calculated only for those holes drilled under DMEA contract terms. These holes are all underlined on Map 2. St. Joseph Lead Company private drilling is indicated by a different hole number system and ~~are~~ is not underlined.

Diamond drill hole spacing in the Viburnum district is based on the hexagonal pattern. This method was adequately described in the original application. Minimum diamond drill hole spacing in the contract was 175 feet. Due to the irregular and nonpersistent nature of the ore, 175 feet spacing of holes is believed to be the maximum spacing with which ore holes can be connected to represent ore bodies. Based on the hexagonal pattern the above spacing provides the optimum size block, 150 x 175 feet or 26,250 sq. ft., for representing ore bodies. Since the minimum height of mining is 12 feet, it is the determining factor in establishing minimum height of ore bodies. A basic size ore block of 12 feet height is equal to approximately 28,000 tons of ore.

When spacing exceeds 175 feet ore bodies are not connected. In this case, for reasons of representation, the basic block on an ore hole is changed in dimensions, but not in area, to 262.5 x 100 feet or 26,250 sq. ft. Adjacent to this basic block of proven ore one or two additional similar blocks may be added to represent the estimated additional certain ore, Map 2.

In determining ore bodies, economic conditions play an important part. Cost of production and the value of the contained metal or metals are limiting factors. In the Lead Belt, St. Joseph Lead Company in recent years has been operating profitably on rock containing slightly less than 2.0% lead. This grade of ore is the basis for the following hole classification system used in calculating ore bodies in the Viburnum district.

The initial hole classification in the Viburnum district was based on previous experience in the Lead Belt. A pay hole is 8.0 feet of 2.5% lead or 20 feet percent lead in 8.0 feet and an indicative hole is 8.0 feet of 1.0% lead or 8.0 feet percent lead in 8.0 feet. Hole symbols on the map follow this classification. Since the minimum height of mining in the Viburnum district was later established at 12 feet, based on different mining methods from that of the Lead Belt, all holes were recalculated to meet this requirement. A pay hole is 12 feet of 2.0% lead or 24 feet percent lead in 12 feet and an indicative hole is 12 feet of 1.0% lead or 12 feet percent lead in 12 feet. As a result of reclassification the original minimum grade pay and indicative holes do not meet the requirements now in effect. They were included in the list of ore bodies because the average grade of ore entering the mill is the determining factor in stope cut off limits and the inclusion of these lower grade holes does not lower the overall grade appreciably. It is our experience also that, in the majority of cases, closer drilling in the vicinity of these low grade holes will result in their incorporation with higher grade holes into ore bodies.

Ore bodies are listed in Table I. Each are numbered according to their respective diamond drill hole numbers and represent the number of blocks of ore assigned to them. One ore block is given to all ore holes as a proven ore block. Estimated ore is represented by the arbitrary addition of blocks of ore of similar tenor as the proven ore according to the location and nature of ore. Adding blocks of ore is analogous to superimposing one block on another, grade of ore being fixed but the height varying as a multiple of the proven ore block. Therefore, total tonnage varies with the height and number of ore blocks. By adding the number of ore blocks and multiplying by the area and average height divided by the number of

Ore Bodies (Continued)

cubic feet per ton of ore, total tons of ore are quickly ascertained. Calculations are in Table I. Addition of proven ore and estimated additional certain ore represent the total ore indicated by the drilling done.

Total ore in the Courtois area is 7,004,120 tons of 4.41% lead or 308,867 lead tons. Of this total 2,439,818 tons of 4.26% lead or 103,936 lead tons is proven ore. Overall the DMEA and private drilling to date indicates about 55% of the tonnage grades above 2.5% lead at 6.26% lead and 45% of the tonnage grades below 2.5% lead at 1.56% lead.

There has been no attempt by the company to estimate zinc and copper ore reserves.

TABLE I

Ore Body	Proven Ore Ft.	Proven Ore %	Proven Ore Ft.%	No. of Add. Blk.	Estimated Ore Ft.	Estimated Ore %	Estimated Ore Ft.%	Total No. of Blk.	Total Ore Ft.	Total Ore %	Total Ore Ft.%
58VC20	13.6	3.4	46.2	2	27.2	3.4	92.4	3	40.8	3.4	138.6
57VC173	12.6	1.7	21.7	1	12.6	1.7	21.7	2	25.2	1.7	43.4
58VC101	12.0	1.3	15.1	1	12.0	1.3	15.1	2	24.0	1.3	30.2
57VC179	12.0	3.8	45.5	2	24.0	3.8	91.0	3	36.0	3.8	136.5
57VC162	12.0	1.0	12.3	2	24.0	1.0	24.6	3	36.0	1.0	36.9
	12.0	1.9	23.2	2	24.0	1.9	46.4	3	36.0	1.9	69.6
58VC19	12.0	0.7	8.3	1	12.0	0.7	8.3	2	24.0	0.7	16.6
58VC89	18.2	7.4	133.9	2	36.4	7.4	267.8	3	54.6	7.4	401.7
58VC109	18.4	1.5	28.0	2	36.8	1.5	56.0	3	55.2	1.5	84.0
58VC15	12.0	1.8	21.3	2	24.0	1.8	42.6	3	36.0	1.8	63.9
	12.0	8.5	102.1	2	24.0	8.5	204.2	3	36.0	8.5	306.3
58VC69	25.4	3.5	87.7	2	50.8	3.5	175.4	3	76.2	3.5	263.1
58VC102	12.0	1.7	20.3	2	24.0	1.7	40.6	3	36.0	1.7	60.9
58VC81	12.0	2.3	27.1	2	24.0	2.3	54.2	3	36.0	2.3	81.3
	12.0	0.9	10.8	2	24.0	0.9	21.6	3	36.0	0.9	32.4
57VC163	12.0	0.75	8.5	1	12.0	0.75	8.5	2	24.0	0.75	17.0
58VC85	12.0	0.8	10.0	2	24.0	0.8	20.0	3	36.0	0.8	30.0
58VC2	18.2	10.8	197.3	2	36.4	10.8	394.6	3	54.6	10.8	591.9
	17.3	2.4	42.1	2	34.6	2.4	84.2	3	51.9	2.4	126.3
58VC99	12.6	5.1	64.3	2	25.2	5.1	128.6	3	37.8	5.1	192.9
58VC26	12.0	0.7	8.5	2	24.0	0.7	17.0	3	36.0	0.7	25.5
58VC128	13.3	0.9	12.1	1	13.3	0.9	12.1	2	26.6	0.9	24.2
58VC57	12.0	1.4	16.5	2	24.0	1.4	33.0	3	36.0	1.4	49.5
58VC141	12.0	1.1	13.2	2	24.0	1.1	26.4	3	36.0	1.1	39.6
58VC111	12.0	6.0	72.3	2	24.0	6.0	144.6	3	36.0	6.0	216.9
58VC106	23.8	11.7	278.5	2	47.6	11.7	557.0	3	71.4	11.7	835.5
58VC36	12.0	0.8	9.3	2	24.0	0.8	18.6	3	36.0	0.8	27.9
57VC52	12.0	0.9	10.3	2	24.0	0.9	20.6	3	36.0	0.9	30.9
58VC65	12.0	13.5	162.4	2	24.0	13.5	324.8	3	36.0	13.5	487.2
57VC47	12.0	3.6	43.8	2	24.0	3.6	87.6	3	36.0	3.6	131.4
58VC43	12.0	6.8	81.9	2	24.0	6.8	163.8	3	36.0	6.8	245.7
57VC50	12.0	1.0	11.8	2	24.0	1.0	23.6	3	36.0	1.0	35.4
	12.5	10.2	128.3	2	25.0	10.2	256.6	3	37.5	10.2	384.9
58VC47	12.0	3.8	45.3	2	24.0	3.8	90.6	3	36.0	3.8	135.9
58VC39	12.0	11.6	139.8	2	24.0	11.6	279.6	3	36.0	11.6	419.4
58VC32	12.0	0.8	9.8	2	24.0	0.8	19.6	3	36.0	0.8	29.4
58VC51	12.0	1.2	14.6	2	24.0	1.2	29.2	3	36.0	1.2	43.8
57VC48	12.0	5.3	64.0	2	24.0	5.3	128.0	3	36.0	5.3	192.0
	12.0	1.0	12.4	2	24.0	1.0	24.8	3	36.0	1.0	37.2
58VC30	12.0	3.3	39.2	2	24.0	3.3	78.4	3	36.0	3.3	117.6
57VC122	12.0	2.0	25.0	2	24.0	2.0	50.0	3	36.0	2.0	75.0
57VC22	12.0	1.1	13.5	2	24.0	1.1	27.0	3	36.0	1.1	40.5
57VC19	22.4	3.5	78.4	2	44.8	3.5	156.8	3	67.2	3.5	235.2
57VC114	12.0	4.0	47.7	2	24.0	4.0	95.4	3	36.0	4.0	143.1
58VC193	12.0	2.1	24.7	2	24.0	2.1	49.4	3	36.0	2.1	74.1
57VC71	23.7	2.7	64.9	2	47.4	2.7	129.8	3	71.1	2.7	194.7
58VC244	19.5	8.9	173.6	2	39.0	8.9	347.2	3	58.5	8.9	520.8
58VC241	12.0	1.9	22.5	2	24.0	1.9	45.0	3	36.0	1.9	67.5
57VC68	18.6	1.4	26.3	2	37.2	1.4	52.6	3	55.8	1.4	78.9
58VC187	12.0	3.3	40.1	2	24.0	3.3	80.2	3	36.0	3.3	120.3
58VC277	15.5	3.0	45.7	2	31.0	3.0	91.4	3	46.5	3.0	137.1
58VC247	17.1	4.3	72.8	2	34.2	4.3	145.6	3	51.3	4.3	218.4
58VC164	12.0	7.5	90.4	2	24.0	7.5	180.8	3	36.0	7.5	271.2
58VC239	12.0	2.7	32.2	2	24.0	2.7	64.4	3	36.0	2.7	96.6

TABLE I (Continued)

Ore Body	Proven Ore Ft.	Proven Ore %	Proven Ore Ft.%	No. of Add. Blk.	Estimated Ore Ft.	Estimated Ore %	Estimated Ore Ft.%	Total No. of Blk.	Total Ore Ft.	Total Ore %	Total Ore Ft.%
58VC185	28.6	13.7	391.8	2	57.2	13.7	783.6	3	85.8	13.7	1175.4
58VC229	13.0	5.0	65.0	2	26.0	5.0	130.0	3	39.0	5.0	195.0
58VC203	20.2	12.8	258.5	2	40.4	12.8	517.0	3	60.6	12.8	775.5
58VC198	12.0	2.6	31.7	2	24.0	2.6	63.4	3	36.0	2.6	95.1
57VC81	12.0	0.9	10.8	2	24.0	0.9	21.6	3	36.0	0.9	32.4
58VC192	12.0	1.3	15.2	1	12.0	1.3	15.2	2	24.0	1.3	30.4
58VC250	50.7	8.3	420.5	2	101.4	8.3	841.0	3	152.1	8.3	1261.5
58VC200	12.0	1.0	12.2	1	12.0	1.0	12.2	2	24.0	1.0	24.4
	12.0	0.8	10.1	2	24.0	0.8	20.2	3	36.0	0.8	30.3
58VC201	12.0	2.5	30.6	2	24.0	2.5	61.2	3	36.0	2.5	91.8
58VC195	12.0	0.8	10.0	1	12.0	0.8	10.0	2	24.0	0.8	20.0
58VC248	12.0	6.5	78.4	2	24.0	6.5	156.8	3	36.0	6.5	235.2
58VC188	12.0	0.8	10.1	1	12.0	0.8	10.1	2	24.0	0.8	20.2
57VC143	12.0	3.0	36.3	2	24.0	3.0	72.6	3	36.0	3.0	108.9
58VC206	12.0	0.9	10.7	-	-	-	-	1	12.0	0.9	10.7
58VC217	19.8	4.5	89.1	2	39.6	4.5	178.2	3	59.4	4.5	267.3
57VC157	12.0	2.2	25.9	2	24.0	2.2	51.8	3	36.0	2.2	77.7

Average:

71 Ore Blks. 14.4 ft. - 4.26% | 131 Ore Blocks 14.59 ft. - 4.49% | 202 Ore Blocks 14.53 ft. - 4.41%

Calculations - area per ore block = 150' x 175' or 100' x 262.5' = 26,250 sq. ft.

Proven Ore

$$\frac{\text{71 ore blocks @ 26,250 sq. ft. x 14.4 feet height}}{\text{11 cu. ft. per ton}} = 2{,}439{,}818 \text{ tons of } 4.26\% \text{ Pb}$$
= 103,936 Pb tons.

Estimated Ore

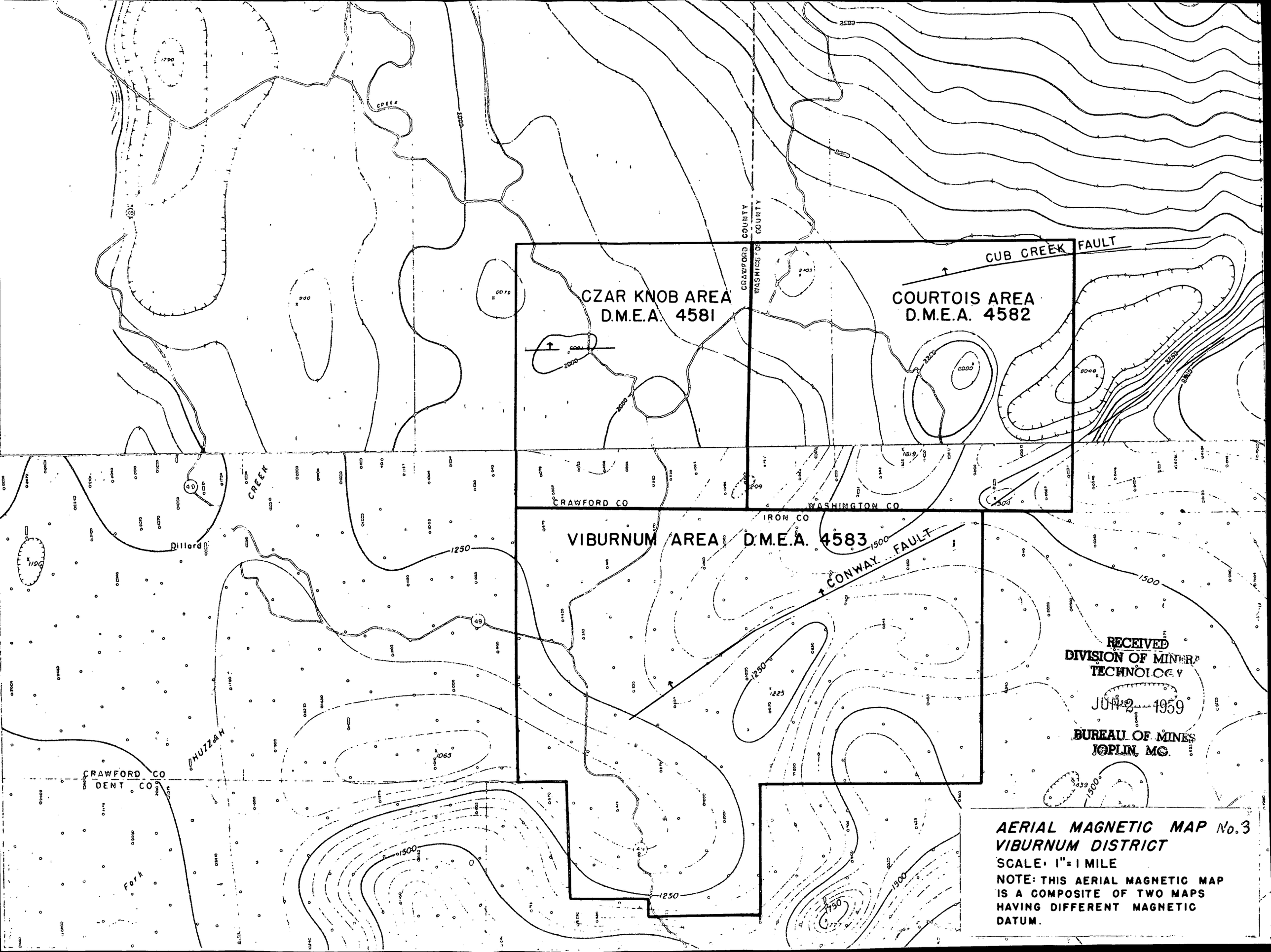
$$\frac{\text{131 ore blocks @ 26,250 sq. ft. x 14.6 feet height}}{\text{11 cu. ft. per ton}} = 4{,}564{,}159 \text{ tons of } 4.49\% \text{ Pb}$$
= 204,931 Pb tons.

Total Estimated and Proven Ore

$$\frac{\text{202 ore blocks @ 26,250 sq. ft. x 14.53 (-) feet height}}{\text{11 cu. ft. per ton}} = 7{,}004{,}120 \text{ tons of } 4.41\% \text{ Pb}$$
= 308,867 Pb tons.

Contract — yellow
Amend 2 — green
" 3 — Purple
" 5 — Brown
" 6 — Orange
" 7 — Withdrawn, red X

23
15
115
23
345 - original
57 - excess
402 Total ?



AERIAL MAGNETIC MAP No. 3
VIBURNUM DISTRICT

SCALE: 1" = 1 MILE

NOTE: THIS AERIAL MAGNETIC MAP IS A COMPOSITE OF TWO MAPS HAVING DIFFERENT MAGNETIC DATUM.

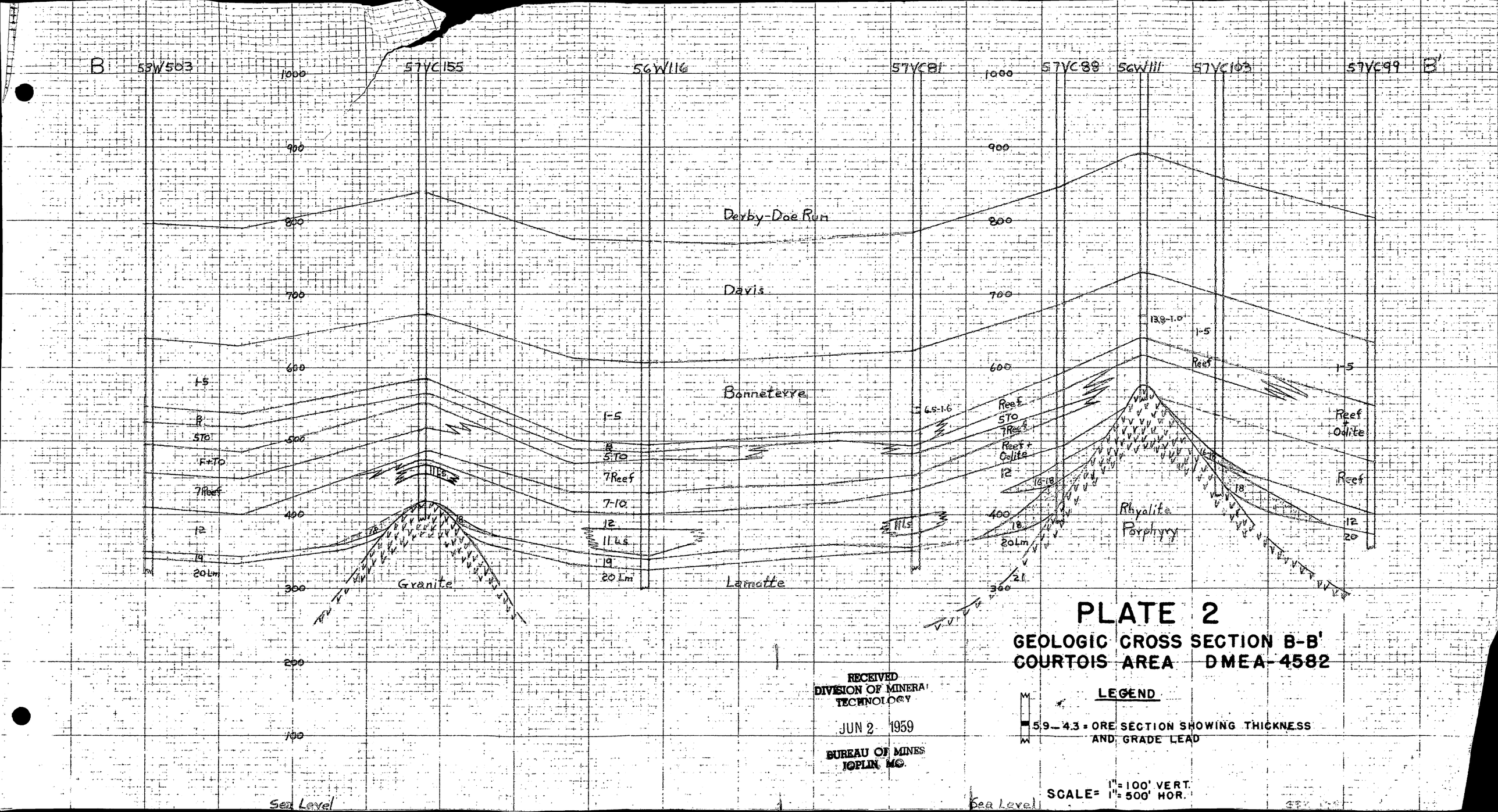


PLATE 2

GEOLOGIC CROSS SECTION B-B'
COURTOIS AREA DMEA-4582

LEGEND

5.9—4.3 = ORE SECTION SHOWING THICKNESS AND GRADE LEAD

SCALE= 1"=100' VERT.
1"=500' HOR.

RECEIVED
DIVISION OF MINERAL TECHNOLOGY
JUN 2 1959
BUREAU OF MINES
JOPLIN, MO.

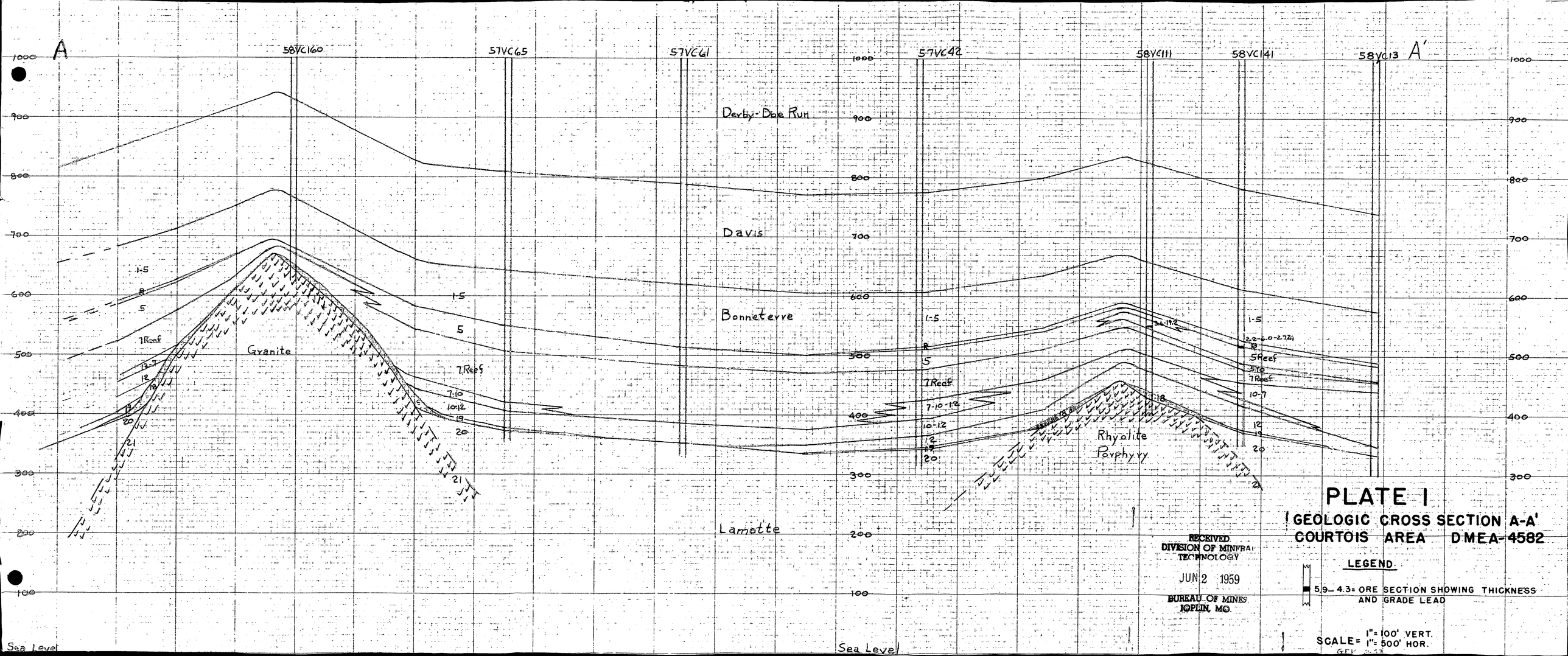


PLATE I

GEOLOGIC CROSS SECTION A-A'
COURTOIS AREA DMEA-4582

RECEIVED
DIVISION OF MINERAL TECHNOLOGY
JUN 2 1959
BUREAU OF MINES
JOPLIN, MO.

LEGEND

5.9– 4.3= ORE SECTION SHOWING THICKNESS AND GRADE LEAD

SCALE= 1"= 100' VERT.
1"= 500' HOR.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

Box 431
Joplin, Missouri

June 2, 1959

~~EXTRA COPY~~
O. M. E.
RECEIVED JUN 4 1959

DATE	INITIALS	CODE

Mr. Dewey H. Amos, Geologist
U. S. Geological Survey
Geology Department
Southern Illinois University
Carbondale, Illinois

Re: DMKA-4581,-4582 and-4583(Pb-Zn-Cu)
St. Joseph Lead Co.
Project Contracts Idm-K1064,-K1068
and -K1073

Dear Dewey:

Here is your copy of this Operator's Final Report as received today for each of the three captioned projects. Please advise immediately if you should find these reports inacceptable.

I believe, however, that I will be inclined reasonably in our final reports to estimate indicated and inferred ore reserves on these three St. Joe projects more optimistically than the Operator has in its final reports, but on the other hand, I have nothing to risk.

Robert King called me long-distance last Friday from Denver, explaining that he will be leaving for field work in Maine, as you probably already are informed. Because all Field Team work on OME-DMKA apparently is completed in the western States of Region IV with which he has been directly concerned, his termination as the actually appointed Survey Member should create no problems as long as your summer work assignments are as you were expecting when I last talked with you in Rolla 2 weeks ago. Please let me know soon, however, should your assignments be made in such a way as not to leave any time for you to write a section on "Geology" for each of our final Field Team reports on these St. Joe projects, and for examining cores when holes are completed on our remaining single active project: Ross-Bixby, DMKA-4798.

Thanks for your note with the time charges for inclusion in the May report of this Field Team.

Sincerely yours,

Knox

Clinton C. Knox

CCK/lmd
encl. 3

cc: OME Op.Com.(2)
King, USGS, Denver
4581 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
Box 431
Joplin, Missouri

March 13, 1959

2 amends

OFFICIAL FILE COPY
O. M. E.
RECEIVED MAR 16 1959

DATE	INITIALS	CODE
3/16	C	220
3/16	~~[illegible]~~	~~500~~

OME Operating Committee
Room 4457
Department of the Interior
Washington 25, D. C.

Re: DMEA-4582 (lead-zinc-copper)
St. Joseph Lead Co.
Courtois Project
Washington County, Missouri
Contract Idm-E1068

Dear Sirs:

Forwarded herewith are your original and one copy each of Amendments No. 7 and 8 to the cited Contract executed by the Operator and returned to this office today.

The Operator and Field Team have obtained their respective copies of these two amendments and the Finance Offic copies are being furnished with a copy of this letter.

Sincerely yours,

Clinton C. Knox

Clinton C. Knox
Executive Officer
OME Field Team, Region IV

encls. 4

cc: OME Op.Com.(2)
Amos,USGS,Carbondale
King,USGS,Denver
4582 file
Finance Office,USBM,Bartlesville
w/cy Amend.7&8

OFFICIAL FILE COPY
O. M. E.
RECEIVED MAR 11 1959

DATE		
3/11	C	220
3/11		800
3/12		500

Box 431
Joplin, Missouri

March 9, 1959

Mr. R. E. Wagner, Exploration Superintendent
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4582 (lead-zinc-copper)
Courtois Project
Washington County, Mo.
Contract Idm-E1068

Dear Mr. Wagner:

In response to your letter of request on January 20, enclosed are the original and four copies of proposed Amendment No. 7, signed for the Government by the Acting Director, OME, to delete a 320-acre tract from the Contract; also proposed Amendment No. 8 is enclosed likewise as deemed desirable to facilitate the final OME audit of this account on Government participation in costs of the total 181 holes as actually reported completed under the Contract.

If these amendments meet with the approval of your company, please sign all five copies of each, retain those marked "Operator's Copy" for your file, and return the original and other three copies of each to me for the usual distribution; otherwise, return all copies with statements of your objections.

Receipt March 6 of your executed amendments of February 13, and 20, respectively, to likewise delete land from your other recently completed Project Contracts Idm-E1064, and Idm-E1073, is hereby acknowledged.

Sincerely yours,

CCK/imd

Clinton C. Knox
Executive Officer
OME Field Team, Region IV

encl. 10
cc: Mr. E. A. Jones
Op.Com.(2)
Amen,USGS,Carbondale w/cyins.cor.Am-trt Amend.
King,USGS,Denver w/photo inc.cor. " "
4582 file

m 7
58)

OFFICIAL FILE COPY

Date	Surname	Code
3/5	Jasinski	500
3-5	Chambers	800
3/6	GCS	130
11	Johnson	110
		~~100~~
		~~HB~~
3/9	C	220
		500

500

MAR 6 1959

MEMORANDUM

To: Mr. Clinton C. Knox, Executive Officer
OME Field Team, Region IV, Joplin, Missouri

From: George C. Selfridge, Chairman, Operating Committee, OME

Subject: Docket No. DMEM-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Project
Washington County, Missouri
Contract No. idm-E1068

With reference to your letter of February 10, 1959, we are enclosing the original and four copies of a proposed Amendment No. 7 to the contract, providing for the requested land deletion.

We also call your attention to the enclosed copies of a memorandum from the Contract Administration and Audit Division dated February 4, 1959. We have, therefore, prepared a proposed Amendment No. 8 (original and four copies enclosed) to permit audit clearance for the project.

All copies of both amendments have been signed by the Acting Director for the Government. If they meet with your approval, kindly present it to the Operator for approval and signature and, when completed, distribute all the copies in the usual manner. Otherwise, and if any proposed change should lie beyond your delegated authority, return all copies to us with your recommendations.

Two extra copies are enclosed for the use of the Field Team.

George C. Selfridge
(SHB)
Chairman, Operating Committee

Enclosures
APPROVAL:

H. G. Iverson (HB)
Member, Bureau of Mines

N. E. Nelson (SHB)
Member, Geological Survey

WRGriswold/er 3/5/59
CC: Docket
Dir Read File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron.

43683

Form 7
-58)

OFFICIAL FILE COPY

Date	Surname	Code

March 5, 1959

MEMORANDUM FOR THE DOCKET

From: Chief, Division of Base Metals

Subject: Justification for Proposed Amendments Nos. 7 and 8 for
Docket No. DMEA-4582 (Copper-Lead-Zinc)
St. Joseph Lead Company
Courtois Project
Washington County, Missouri
Contract No. Idm-E1068

Under date of January 20, 1959, the Operator requested certain land deletions. We know of no reason why such deletions would not be in order, hence, it has been covered by Amendment No. 7.

Likewise, under the date of February 4, 1959, the Audit Division has pointed out certain discrepancies which should be straightened out. This has been done by Amendment No. 8.

It was found that the ore bodies occurred at a lesser depth than had been expected, hence the anticipated number of Stage II drill holes was greater than had been expected, though with no increase in aggregate total footage.

W. R. Griswold

WRG/er
CC: Docket
Dir Read File
Chron.

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code

500

February 18, 1959

Memorandum

To: Associate Solicitor, Division of Minerals Resources

From: Chief, Division of Base Metals

Subject: Preparation of Amendment No. 8 for Docket No. LMLA-4582, St. Joseph Lead Company, Courtois Project, Washington County, Missouri, Contract No. Idm-21068, Lead-Zinc-Copper.

Will you kindly prepare an Amendment No. 8 to the contract which will have the following effect:

On the first page of Exhibit A of the contract, item 2 should be deleted and replaced by the following:

2. "It is estimated that 181 holes will be required, having depths ranging from approximately 550 feet to approximately 1,150 feet, with a combined total length not to exceed 133,420 feet. Holes may not be drilled on a spacing of closer than 175 feet."

On the second page of Exhibit A, item1 under Stage I is deleted and the following substituted:

"1. Drill eighty four holes, with a combined total length not to exceed 70,390 feet, at the locations identified by the symbol "I" on the attached map "Figure 1, Courtois Area, Missouri." Any of these locations may be changed if the Government approves the change in advance."

43683

On the second page of Exhibit A, item 1 under Stage II is deleted and the following substituted:

"1. An estimated ninety seven additional holes, with a combined length not to exceed 63,030 feet, may be drilled from locations approved in advance by the Government on the basis of Stage I drilling."

On the second page of Exhibit A, under Estimated Costs of the Project, Fixed Unit Costs Stage I and Stage II costs are deleted and the following substituted:

Stage I

70,390 feet of churn drilling and diamond drilling, @ $2.22/ft. 1/	$156,265.80
1,260 determinations, @ $1.00/each	1,260.00
Estimated Total Cost of Stage I	$157,525.80

Stage II

63,030 feet of churn drilling and diamond drilling, @ $222/ft. 1/	$139,926.60
1,110 determinations, @ $1.00/each	1,110.00
Estimated Total Cost of Stage II	$141,036.60

W. R. Griswold

W. R. Griswold

WRG/er
CC: Docket
Dir Read File
Chron

Form 7
-58)

OFFICIAL FILE COPY

Date	Surname	Code

500

February 18, 1959

Memorandum

To: Associate Solicitor, Division of Minerals Resource

From: Chief, Division of Base Metals

Subject: Preparation of Amendment No. 7 for Docket No. DMM-4582, St. Joseph Lead Company, Courtois Project, Washington County, Missouri, Contract No. 4dm-E1068, Lead-Zinc-Copper.

With reference to the Field Team's letter of February 10 and the operator's letter of January 20, 1959, will you kindly prepare an Amendment No. 7 to the cited contract, which will make the requested land deletion.

W. R. Griswold

WRG/er
CC: Docket
Dir Read File
Chron.

43683

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
2/4	Talbert	800
2/4	C	220
		500
	(Signed) J. L.	Chambers

FEB 4 1959

Memorandum

To: W. R. Griswold, Base Metals Division

From: Jay L. Chambers, Contract Administration and Audit Division

Subject: Idm-E1068, DMEA-4582, St. Joseph Lead Company

The Field Team's Interim Report of their January 15, 1959, final inspection of the subject project states that the total footage in completed holes amounts to 119,087 feet. However, a preliminary audit review of this project indicates the total (assuming footages in Field Team reports of inspections subsequent to October 31, 1958, to be correct) should be 119,037 feet. This difference is due to:

(1) Error in addition between final and prior reports ..... 65 ft.

(2) Hole 106 logged and billed as 529 ft., but reported as 524 ft..... - 5 ft.

(3) Hole 147 logged and billed as 665 ft., but reported as 655 ft..... -10 ft.

Total ..... 50 ft.

The preliminary review also indicates the following pertinent facts in regard to the drilling (the asterisks indicating contractual maximums):

	Authorized		Completed	
	Holes	Footage	Holes	Footage
Stage I	84*	70,980*	84	56,025
Stage II	74	62,530*	97	63,012
Totals	158	133,510*	181	119,037

If the 482 foot excess over the contractual maximum and the 23 hole (approximately 31%) excess over the contractual estimate for Stage II is to be allowed, an appropriate amendment to the contract should be executed prior to final audit.

EDTalbert/GMcC
February 4, 1959

cc: Docket
Director's Reading File
Mr. Chambers
Mr. Talbert

8623

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

FEB 4 1959

Memorandum

To: W. R. Griswold, Base Metals Division

From: Jay L. Chambers, Contract Administration and Audit Division

Subject: Idm-E1068, DMEA-4582, St. Joseph Lead Company

The Field Team's Interim Report of their January 15, 1959, final inspection of the subject project states that the total footage in completed holes amounts to 119,087 feet. However, a preliminary audit review of this project indicates the total (assuming footages in Field Team reports of inspections subsequent to October 31, 1958, *to be correct) should be 119,037 feet. This difference is due to:

(1) Error in addition between final and prior reports ..... 65 ft.

(2) Hole 106 logged and billed as 529 ft., but reported as 524 ft..... - 5 ft.

(3) Hole 147 logged and billed as 665 ft., but reported as 655 ft..... -10 ft.

Total ..... 50 ft.

The preliminary review also indicates the following pertinent facts in regard to the drilling (the asterisks indicating contractual maximums):

	Authorized		Completed	
	Holes	Footage	Holes	Footage
Stage I	84*	70,980*	84	56,025
Stage II	74	62,530*	97	63,012
Totals	158	133,510*	181	119,037

If the 482 foot excess over the contractual maximum and the 23 hole (approximately 31%) excess over the contractual estimate for Stage II is to be allowed, an appropriate amendment to the contract should be executed prior to final audit.

* They were not correct. Insp. Rept of 10/08/58 reports hole 165 as bottoming at 435'. Log indicates 485'. Talbot 5/14/59

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
Box 431
Joplin, Missouri
January 28, 1959

OFFICIAL FILE COPY
O. M. E.
RECEIVED FEB 2 1959

DATE	INITIALS	CODE
2/2	C	220
"	[illegible]	110
2/4	[illegible]	800
2/5	[illegible]	500

OME Operating Committee
Room 4457
Department of the Interior
Washington 25, D. C.

Re: DMEA_4582(lead-zinc-copper)
St. Joseph Lead Co.
Courtois Project
Crawford County, Mo.
Contract Idm-E1068

in Reports folder

Dear Sirs:

Submitted herewith are four copies of an Interim Report received January 21 from Dewey Amos, USGS, Carbondale, covering the joint Field Team final inspection he and I made the afternoon of January 15 on this project following completion of drilling under this Contract on December 29, 1958.

Also herewith is a Memorandum intended as the Field Team's Justification Report and recommendation for proposed Contract Amendment No. 7 by the Director, OME as formally requested by the Operator on January 20.

In addition, to complete your information on this account on which I expect shortly to formally request the final OME audit, one of your copies of the Operator's December (Final) Progress Reports (excepting the MF-104 Voucher) also is enclosed herewith.

Sincerely yours,

Clinton C. Knox

Clinton C. Knox
Executive Officer
OME Field Team, Region IV

encl. 9

cc: OME Op.Com.(3)
King,USGS,Denver
Amos,USGS,Carbondale
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
Box 431
Joplin, Missouri
February 10, 1959

OFFICIAL FILE COPY
O. M. E.
RECEIVED FEB 13 1959

DATE	INITIALS	CODE
2/13	N. J.	225
		130
2/16	wrlb.	500

Mr. George C. Selfridge, Chairman
OME Operating Committee
Office of Minerals Exploration
Washington 25, D. C.

Re: DMEA-4582(lead-zinc-copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract No. Idm-E1068

Dear Mr. Selfridge:

With reference to your letter of February 6, captioned as above, attached are two photo copies of the proper letter of request dated January 20, 1959, from subject Operator which should have been attached to my January 28 memorandum justification report for proposed Amendment No. 7.

Sincerely yours,

Clinton C. Knox

Clinton C. Knox
Executive Officer
OME Field Team, Region IV

encl. 2

cc: OME Op.Com.
4582 file

RECEIVED
DIVISION OF MINERAL
TECHNOLOGY

JAN 22 1959

BUREAU OF MINES
JOPLIN, MO.

ST. JOSEPH LEAD COMPANY

Bonne Terre, Missouri
January 20, 1959

OFFICIAL RECORD
RECEIVED FEB 13 1959

DATE	INITIALS	WORK

Mr. Clinton C. Knox, Executive Officer
OME Field Team, Region IV
Office of Minerals Exploration
Box 341
Joplin, Missouri

Re: DMEA-4582 (lead, zinc, copper)
Courtois Area
Washington County, Missouri
Contract IDM-E 1068

Dear Mr. Knox:

Pursuant to the provisions contained in Annex I, we are requesting that an amendment to the above contract be executed deleting the following described lands from the contract.

That part of U. S. Bureau of Land Management Prospecting Permit, Serial #044857, described as follows:

S½ Section 9, Twp 35N, R1W..... 320.00 acres

St. Joseph Lead Company certifies that this land has no known value for mineral production and agrees to the stipulations as stated in sections (a), (b), (c), and (d), paragraph 2, Special Agreement Concerning Land, Annex I of the above contract.

Very truly yours,

Richard E. Wagner

Richard E. Wagner,
Geologist.

REW/jcp

MME Form 7
(10-58)

500

FEB 6 1959

OFFICIAL FILE COPY

Date	Surname	Code
2/5	Swanson	500
2/6	[illegible]	130
"	Johnson	110
		~~200~~
		~~115~~
2/9	C	220
		500

Mr. Clinton C. Knox
Executive Officer
OME Field Team, Region IV
Post Office Box 431
Joplin, Missouri

Re: Docket No. DMA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract No. Idm-21068

Dear Mr. Knox:

With your memorandum of January 28, 1959, covering land deletions under the cited project, you forwarded us copies of the Operator's letter pertaining to Docket DMA-4581. Kindly forward copies of the proper letter.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (245)

APPROVED:

H. G. Iverson (245)
Member, Bureau of Mines

N. E. Nelson (245)
Member, Geological Survey

WRGriswold/er 2/5/59
Copy to: Docket
Dir Read File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron.

43683

OFFICIAL FILE COPY
O. M. E.
RECEIVED FEB 2 1959

DATE	INITIALS	CODE
2/2	C	220
		130
2/4		500

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

Box 431
Joplin, Missouri
January 28, 1959

Memorandum

To: OME Operating Committee, Department of the Interior, Washington 25, D. C.

From: OME Field Team, Region IV, Joplin, Mo.

Subject: Justification Report for proposed Amendment No. 7 DMEA-4582(lead-zinc-copper), St. Joseph Lead Co. Courtois Area, Washington County, Mo. Project Contract Idm-E1068

Attached herewith are photocopies of a January 20 letter from the subject Operator notifying that it has divested itself of all interest in a described tract of 320 acres that was under this Contract, certifying that it has no known mineral value, and formally requesting it be deleted from the Contract by an appropriate amendment to be enacted as of the date of the letter.

Due partially to this Operator's inability to obtain an expansion to this Project Contract, no exploration has been done on this particular half section of land which was included upon obtaining B.L.M. Prospecting Permit No. 044857. Lithologic and mineralogic indications were somewhat unfavorable, however, in three holes drilled about 1/2 mile apart adjacent to the west and north. Based on a review of all pertinent records, the Field Team concurs with the Operator that it was wise to drop this tract without doing any drilling thereon, and that it has no known mineral value.

Therefore, the Field Team hereby recommends that OME promptly grant the amendment requested by the Operator accordingly as provided under Item 2(a, b, c and d) of the Special Agreement Concerning Land in Annex I of the subject Contract.

Exploratory drilling under this Project Contract was completed December 29, 1958, but is being continued entirely at the Operator's expense on numerous of the tracts retained under this Contract where the preliminary widely spaced drilling showed favorable possibilities for discovery of commercial ore bodies.

Clinton C. Knox
Clinton C. Knox
Executive Officer
OME Field Team, Region IV

cc: OME Op. Com.
King, USGS, Denver
Amos, USGS, Carbondale
4582 file

Encl.

ST. JOSEPH LEAD COMPANY

RECEIVED
DIVISION OF MINERAL
TECHNOLOGY

JAN 22 1959

BUREAU OF MINES
JOPLIN, MO.

FILE COPY

RECEIVED FEB 2 1959

DATE	INIT.	CODE

Mr. [illegible] C. [illegible], [illegible]
[illegible] Field Team, [illegible]
Office of Minerals Exploration
Box 3[illegible]
[illegible], Missouri

Re: [illegible]
[illegible]
Grandfather County, [illegible]
Saint Joe [illegible]

Dear Mr. [illegible]:

Pursuant to the provisions contained in Article [illegible] we are [illegible] that an amendment to the above contract be executed deleting the [illegible] described lands from the contract.

That part of U. S. Survey [illegible], Serial No. [illegible], described as follows:

[illegible] Section [illegible]
[illegible]
[illegible]

[illegible]

[illegible]

OFFICE OF ... COMM
RECEIVED NOV 28 1958
DATE | CODE
11-28 | C | 220
11/28 | | 800
12/1 | copy | 500

Box 431
Joplin, Missouri
November 25, 1958

Mr. E. A. Jones, Division Manager
St. Joseph Lead Company
Box 32
Bonne Terre, Missouri

Re: DMEA-4582(lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mr. Jones:

This is to advise that your MF-104 Report covering the October work on the cited project has been approved in the amount claimed, and the original forwarded to the Finance Officer to certify for the Government's 50 percent participation payment.

Sincerely yours,

CCK/imm

Clinton C. Knox
Executive Officer
OME Field Team, Region IV

cc: OME Op.Com.(2)
King,USGS,Denver
Amos,USGS,Carbondale
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
November 24, 1958

OFFICIAL FILE COPY
O. M. E.
RECEIVED NOV 28 1958

DATE	INITIALS	CODE
11-28	C	220
11/28	[illegible]	8.00
12-1	[illegible]	500

Mrs. Cora A. Bailey, Fiscal Officer
U. S. Bureau of Mines, Region IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA-4582(lead-zinc-copper)
St. Joseph Lead Co.
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mrs. Bailey:

Transmitted herewith to be certified for the Government's 50 percent participation payment is the original of the Operator's MF-104 Report for October approved in the amount of $17,571.14.

One copy was sent to the Survey Member of the Field Team on November 18, and both Washington copies are being retained here awaiting your voucher data to be posted thereon.

Sincerely yours,

CCK/imd

Clinton C. Knox
Executive Officer
OME Field Team, Region IV

encl.

cc: OME Op.Com.(2)
King,USGS,Denver
Amos,USGS,Carbondale
4582 file

OFFICIAL FILE COPY
O. M. E.
RECEIVED NOV 28 1958
DATE | INITIALS | CODE
11-28 | C | 220
12/1 | ~~C~~ | ~~500~~

Box 431
Joplin, Missouri
November 21, 1958

Mr. R. E. Wagner, Exploration Superintendent
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4582(Lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract Idm-X1068

Dear Mr. Wagner:

This will confirm in writing the approval of the Government given for the Field Team by Dewey Amos during telephone conversation with you on November 11, 1958, when he was laid up in Carbondale with pneumonia. As had been requested and geologically justified by you, this approval includes sites of three Stage II holes to be drilled under the subject Contract as follows:

Site No.	VC-179	about	520	feet	N70°E	of	Site No.	VC-159
	VC-180	"	520	"	S50°E	"	" "	VC-159
	VC-181	"	520	"	S10°W	"	" "	VC-135

Of course, the above approvals are not to be construed to commit the Government to any participation in the costs of drilling beyond the allowable maximum footage limitations set in the Contract for Stage II work.

Sincerely yours,

COK/id

Clinton C. Knox
Executive Officer
OME Field Team, Region IV

cc: OME Op.Com.(2)
King,USGS,Denver
Amos,USGS,Carbondale
4582 file
Shadow cy - Mr. E. A. Jones

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
November 19, 1958

OFFICIAL FILE COPY
O M E
RECEIVED NOV 21 1958

DATE	INITIALS	CODE
11/21	C	220
		130
11/24	[illegible]	500

OME Operating Committee
Office of Minerals Exploration
Department of the Interior
Washington 25, D. C.

Re: DMEA-4582 (lead-zinc-copper)
St. Joseph Lead Co.
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Sirs:

Furnished herewith are the original and audit copy of Amendment No. 6 to the captioned Contract enacted to add contiguous lands as listed in the enclosed letter of request from the Operator, and photostats of the B.L.M. Prospecting Permit covering 398 acres added to the subject contract in accordance with Annex I.

The Operator has retained its copy of the executed amendment and the Finance Office Copy is being furnished with a copy of this letter.

Sincerely yours,

Clinton C. Knox

Clinton C. Knox
Executive Officer
OME Field Team, Region IV

encls.

cc: OME Op.Com.
King,USGS,Denver
Amos,USGS,Carbondale
Finance Officer,USBM,Bartlesville
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
November 3, 1958

11-7
11/7
11/12
220
800
500

Mrs. Cora A. Bailey, Fiscal Officer
U. S. Bureau of Mines, Region IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA-4582(lead-zinc-copper)
St. Joe Lead Co.
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mrs. Bailey:

Transmitted herewith to be certified for the Government's 50 percent participation payment is the original of the Operator's MF-104 Report for September approved in the amount of $7,883.70.

One copy was sent to the Survey Member of the Field Team on October 15, and both Washington copies are being retained here awaiting your voucher data to be posted thereon.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
OME Field Team, Region IV

encl.

cc: OME Op.Com.(2)
King,USGS,Denver
Amos,USGS,Carbondale
4582 file

Box 431
Joplin, Missouri
November 3, 1958

11-7
11/7
11/12
work.

1958
220
800
500

Mr. E. A. Jones, Division Manager
St. Joseph Lead Company
Box 32
Bonne Terre, Missouri

Re: DMEA-4582(lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mr. Jones:

This is to advise that your MF-104 Report covering the September work on the cited project has been approved in the amount claimed, and the original forwarded to the Finance Officer to certify for the Government's 50 percent participation payment.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DME Field Team, Region IV

cc: DME Op.Com.(2)
King,USGS,Denver
Ames,USGS,Carbondale
4582 file
Shadow cy - Mr. R. E. Wagner

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
October 6, 1958

OFFICIAL FILE COPY
C.M.E.
RECEIVED OCT 8 1958

DATE	INITIALS	CODE
10/8	C	220
10/9	GEB	800
10/13	~~GEB~~	500

Mr. E. A. Jones, Division Manager
St. Joseph Lead Company
Box 32
Bonne Terre, Missouri

Re: LMEA-4582(lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract Idm-E1058

Dear Mr. Jones:

This is to advise that your MF-104 Report covering the August work on the cited project has been approved in the amount claimed, and the original forwarded to the Finance Officer to certify for the Government's 50 percent participation payment.

Sincerely yours,

CCK/le

Clinton C. Knox
Executive Officer
CME Field Team, Region IV

cc: [illegible]
[illegible]
[illegible]
[illegible]
[illegible]

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri

October 6, 1958

OFFICIAL FILE COPY
O. M. E.
RECEIVED OCT 8 1958

DATE	INITIALS	CODE
10/8	C	220
10/9	[illegible]	800
10/13	[illegible]	500

Mrs. Cora A. Bailey, Fiscal Officer
U. S. Bureau of Mines, Region IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA 4582(lead-zinc-copper)
St. Joe Lead Co.
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mrs. Bailey:

Transmitted herewith to be certified for the Government's 50 percent participation payment is the original of the Operator's MF-104 Report for August approved in the amount of $20,875.48.

One copy was sent to the Survey Member of the Field Team on September 9, and both Washington copies are being retained here awaiting your voucher data to be posted thereon.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
OME Field Team, Region IV

encl.

cc: OME Op.Com.(2)
King,USGS,Denver
Amos,USGS,Carbondale
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
September 12, 1958

OFFICIAL FILE COPY
DMEA
RECEIVED SEP 15 1958

DATE	MEMO	CODE
9-15	C	220
"	Ms	500

Mr. R. E. Wagner, Exploration Superintendent
Geology Department
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4582(lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract Idr-21068

Dear Mr. Wagner:

This is written confirmation of approval of the Government given by the Field Team examiners in your office on September 4, 1958, for drilling 20 additional holes under Stage II, Exhibit A of the cited Contract as requested and geologically justified by you and shown on your map in the following areas:

Stake No.	Location
VC-159	T35N - R2W - Sec. 12 - NW¼ SW¼ NE¼
VC-160	" " " 1 - SW¼ SW¼ SE¼
VC-166	" " " 7 - SE¼ NE¼ NW¼
VC-167	" " " 6 - SE¼ SE¼ SE¼
VC-168	" " " 8 - NW¼ NW¼ NE¼
VC-169	" " " 8 - NW¼ NW¼ NW¼
VC-170	" " " 8 - SE¼ NW¼ NW¼
VC-171	" " " 8 - NW¼ SW¼ NW¼
VC-172	" " " 5 - SE¼ SW¼ SW¼
VC-173	" " " 8 - NW¼ NE¼ NW¼
VC-174	" " " 5 - SE¼ SE¼ SW¼
VC-175	" " " 8 - SE¼ NW¼ NE¼
VC-176	" " " 8 - NW¼ NW¼ NE¼
VC-177	" " " 5 - NW¼ SW¼ SE¼
VC-178	" " " 5 - SW¼ NW¼ SE¼
VC-161	" " " 7 - SW¼ NE¼ NW¼
VC-162	" " " 8 - NW¼ SE¼ NW¼
VC-163	" " " 7 - SW¼ NW¼ NW¼
VC-164	" " " 7 - NE¼ NW¼ NW¼
VC-165	" " " 7 - SE¼ NW¼ NW¼

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

cc: DMEA Op.Com.(2)
King, USGS, Denver
Amos, USGS, Carbondale
4582 file
Shadow cy - Mr. R. E. Wagner

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
September 4, 1958

OFFICIAL FILE COPY
DMEA
RECEIVED SEP 8 1958

DATE	INITIALS	CODE
9-8	C	220
9/8	[illegible]	800
	[illegible]	500

Mrs. Cora A. Bailey, Fiscal Officer
U. S. Bureau of Mines, Region IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA-4582(lead-zinc-copper)
St. Joe Lead Co.
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mrs. Bailey:

Transmitted herewith to be certified for the Government's 50 percent participation payment is the original of the Operator's MF-104 Report for July approved in the amount of $21,502.84.

One copy was sent to the Survey Member of the Field Team on August 18, and both Washington copies are being retained here awaiting your voucher data to be posted thereon.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encl.

cc: DMEA Op.Com.(2)
King,USGS,Denver
Amos,USGS,Carbondale
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
September 4, 1958

9-8 C 220
9/8 800
500

Mr. E. A. Jones, Division Manager
St. Joseph Lead Company
Box 32
Bonne Terre, Missouri

Re: DMEA 4582(lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mr. Jones:

This is to advise that your MF-104 Report covering the July work on the cited project has been approved in the amount claimed, and the original forwarded to the Finance Officer to certify for the Government's 50 percent participation payment.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

cc: DMEA Op.Com.(2)
King,USGS,Denver
Amos,USGS,Carbondale
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
July 22, 1958

7-28 C 220
7/28 800
500

Mr. G. A. Jones, Division Manager
St. Joseph Lead Company
Box 32
Bonne Terre, Missouri

Re: DMEA-4582(lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract Idm-61068

Dear Mr. Jones:

This is to advise that your IF-104 Report covering the June work on the cited project has been approved in the amount claimed and the original forwarded to the Finance Officer to certify for the Government's 50 percent participation payment.

Sincerely yours,

Robert U. King

Robert U. King
Acting Executive Officer
DMEA Field Team, Region IV

/ao

cc: [illegible]

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
July 22, 1958

DMEA
RECEIVED JUL 28 1958

DATE	INITIALS	CODE
7-28	C	220
7/28		800
		500

Mrs. Cora A. Bailey, Fiscal Officer
U. S. Bureau of Mines, Region IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA-4582(lead-zinc-copper)
St. Joe Lead Co.
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mrs. Bailey:

Transmitted herewith to be certified for the Government's 50 percent participation is the original of the Operator's MF-104 Report for June approved in the amount of $8,681.12.

One copy was sent to the Survey Member of the Field Team on July 17, and both Washington copies are being retained here awaiting your voucher data to be posted thereon.

Sincerely yours,

/id

Robert U. King, Acting
Executive Officer
DMEA Field Team, Region IV

encl.

cc: DMEA Op.Com.(2)
King,USGS,Denver
Amos,USGS,Knoxville
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
July 2, 1958

Mrs. Cora A. Bailey, Fiscal Officer
U. S. Bureau of Mines, Region IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA-4582(lead-zinc-copper)
St. Joe Lead Co.
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mrs. Bailey:

Transmitted herewith to be certified for the Government's 50 percent participation is the original of the Operator's MF-104 Report for May approved in the amount of $17,022.82.

One copy was sent to the Survey Member of the Field Team on June 18, and both Washington copies are being retained here awaiting your voucher data to be posted thereon.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encl.

cc: DMEA Op.Com.(2)
King,USGS,Denver
Amos,USGS,Knoxville
4582 file

DMEA

7/7	C	220.
7/7		800
7/8		500

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
July 2, 1958

Mr. E. A. Jones, Division Manager
St. Joseph Lead Company
Box 32
Bonne Terre, Missouri

Re: DMEA-4582(lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mr. Jones:

This is to advise that your MF-104 Report covering the May work on the cited project has been approved in the amount claimed and the original forwarded to the Finance Officer to certify for the Government's 50 percent participation payment.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

cc: DMEA Op.Com.(2)
King,USGS,Denver
Amos,USGS,Knoxville
4582 file
Shadow cy - Mr. H. T. Warner

7/7 C 220
7/7 800
7/8 .500

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

June 25, 1958

Memorandum

To: W. R. Griswold, DMEA

From: O. M. Bishop, USBM

Subject: DMEA 4581 (Idm E1064) and 4582 (Idm E1068) Interim reports based on projects inspection June 11-12, 1958

I wish to call your attention to the section "significant assay results of recently completed holes" on page 3 of the subject interim reports.

Many of the assays are of interest, and a few of them are significant in themselves, but most of them lack significance without additional assay results which are not given and possibly do not exist. For instance VZ-91 shows 1.1 feet of 14.6 percent lead at 844.9 to 846.0 feet of depth. The significance of such an assay depends on whether associated ground carries metallization.

Although I do not consider it essential for the total picture to be presented in the interim report, I believe enough data should be given for me or any other reviewer to evaluate the portion of the holes reported preferably in terms of minable thickness.

O. M. Bishop

O. M. Bishop

cc: Division of Minerals
Mr. Kiilsgaard
Mr. Lamb
F I L E S

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
June 16, 1958

6/19 C 220
6/20 800
6/22 500

Mr. T. A. Jones, Division Manager
St. Joseph Lead Company
Box 32
Bonne Terre, Missouri

Re: DMEA 4582(lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract Idm-21068

Dear Mr. Jones:

This is to advise that I have approved your MF-104 Report covering the April work on the above cited project as claimed and forwarded the original to the Finance Officer to certify for the Government's 50 percent participation payment.

This also will acknowledge receiving your May Monthly Report today.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

cc: DMEA Op.Com.(2)
King,USGS,Denver
Amos,USGS,Knoxville
4582 file
Shadow cy - Mr. [illegible] Wagner

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
June 16, 1958

6/19 C 220
6/20 800
6/24 500

Mrs. Cora A. Bailey, Fiscal Officer
U. S. Bureau of Mines, Region IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA-4582(lead-zinc-copper)
St. Joe Lead Co.
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mrs. Bailey:

Transmitted herewith to be certified for the Government's 50 percent participation payment is the original of the Operator's MF-104 Report for April in the amount of $10,730.98, which I have approved.

One copy was sent to the Survey Member of the Field Team on May 15, and one copy(excepting the MF-104 Voucher) was mailed to Washington May 16. The other Washington copy and both its MF-104s are being retained here awaiting your voucher data to be posted thereon.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encl.

cc: DMEA Op.Com.(2)
King,USGS,Denver
Amos,USGS,Knoxville
4582 file

DMEA Form 7
(12-56)

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Date	Surname	Code
6/11	Griswold	500
6/11	Selfridge	130
6/11	Lamb	130
6/11	Kiilsgaard	130
"	Johnson	110
12	Mittendorf	100
6/12	C	220
/		500

I have signed this but only because of the June 6 policy change.

Mr. E. A. Jones, Division Manager
St. Joseph Lead Company
Box 32
Bonne Terre, Missouri

JUN 12 1958

Re: Docket No. DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract No. Idm-E1068

Dear Mr. Jones:

Reference is made to your letter dated April 23, 1958, requesting that the Government participation authorized under Contract Idm-E1068 be increased by $238,608.00 in order to perform the additional work outlined in your letter.

Under the new policy announced on June 6, copy enclosed, we are unable to increase the Government's financial commitment in any existing contract where results to date have progressed to a point at which a certification of discovery or development can be issued.

Since, in our opinion, the results of the work performed under Contract Idm-E1068 provide the basis for a certification of discovery or development, your case falls within the restricted category; therefore, I regret to advise you that additional funds cannot be approved.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

WRGriswold/er 6/11/58
Copy to: Docket
Admr R File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Region IV (2)
Chron.

Enclosure

8623

Official -

June 5, 1958

Memorandum

To: W. R. GRIGGSBY, Defense Minerals Exploration Administration

From: T. R. Kiliagnard, U. S. Geological Survey

Subject: Review of Field Team Report, St. Joe Lead Mining Company, Viburnum and Courtois Districts Nos. 4583 and 4582

SUMMARY

The Field Team recommends additional exploration on both the Viburnum and Courtois projects. For the Viburnum project, the Field Team recommends practically the same program requested by the applicant. The work would consist of:

1. 55 holes between the Conway tract and Fredericktown high "B".
2. 23 holes northeast of Fredericktown high "B".
3. 39 holes south and southeast of Conway tract.

For the Courtois area, the Field Team also recommends practically the same program as requested by the applicant. The work would consist of:

1. 85 holes northeast of Courtois.
2. 35 holes northwest of Courtois.
3. 30 holes southwest of Courtois.

DISCUSSION

Mr. Henry Anna, U. S. Geological Survey, has presented a competent review of the geology of the St. Joe holdings, to which I have nothing to add. It is obvious, however, that a significant discovery has been made in each of the areas but that much work remains to be done before the area can be considered as adequately explored. From a geological standpoint, it would be completely unsuitable for the Government to assume that further participation in the proposed exploration is unnecessary. The reasons for this emphatic statement are clearly illustrated in Anna's report, his sketches, and in the applicant's maps.

The applicant's maps show lenses and pinchouts on Fredericktown highs. But it will be noted that these substantiate

contacts are faulted, and not definitely located. Some points out that the contacts are based on geophysical data that may indicate the position of offshore edge of marine-cut terraces, but that variation in rock type in the Precambrian series may mask or reverse the anomalies, in which case interpretations from them could be in error. This means the applicant is not sure of the location of the pinchouts, and not being sure of these, he is not sure of the projected ore-trends. Even where drill data pinpoints the pinchout, the indefinite nature of the ore bodies is illustrated by the diagrammatic "Christmas tree" sketch. The ore bodies are not continuous, blanket-like deposits but instead are scattered along the strike trend of the reefs and also at different horizons. Ore bodies cannot reasonably be projected from one hole to another. Considering that the reefs formed along the edges of an uneven and changed land mass, it is also easy to see that the trends of the reefs themselves cannot be projected any distance with assurance.

All of this boils down to the simple fact that the holes drilled or approved for drilling in these two tracts cannot be considered to have adequately explored the possible targets in these areas. The sparseness of drilling and the meager information on which we would base a discovery is apparent in the Wharton area. Here, only 8 of the 96 holes drilled have found commercial ore, yet the area drilled covers several square miles. Elsewhere in our IMMA projects, we have spent far more money on more limited targets contained in areas only a fraction of the size of that at Wharton. Rather than question the need for exploration, a more pertinent question would seem to be: How much exploration should IMMA be expected to participate in?

I believe that all Precambrian pinchouts should be drilled for possible reefs. These reefs should be further checked for ore deposits. The spacing and location of drilling should depend on information gained from previous drilling. On wide reefs, or where previous evidence indicates the trend might be projected with assurance, only wide-spaced holes would be needed. In no case does there appear to be a need for holes on less than 300-foot centers. It is true that the applicant believes holes on 175-foot centers are necessary, but such holes seem designed to block-out ore and to assist in laying out mine patterns. As IMMA is not concerned with detailed results of this sort it would seem unnecessary to participate in the costs of such detailed work.

RECOMMENDATIONS

I concur with the Field Team and recommend approval of some work in each of the two projects. I suggest, however, that consideration be given to the following modifications:

Viburnum Area

1. The 70 holes to be drilled south and southeast of the Conway tract should be drilled chiefly in sections 1 & 2, which presumably will be added to the contract by amendment. Drilling in this area will give us information on the country between the Viburnum project and the Bone-Bixby project farther to the southwest. This information will be vitally important in appraising the potential of the newly developing district.

Courtois Area

1. In the area immediately southwest of Courtois, which has been fairly well explored, care should be taken to explore only those targets that remain indefinite.

No holes should be drilled in either area on intervals closer than 300 feet unless the Field Team can present sufficient evidence to ERMA to warrant such a hole, in which case an amendment might be prepared in Washington authorizing such drilling.

T. E. Ehlegaard

cc: ERMA (6)
O.M. Bishop, 3617
Director's reading
Branch reading
Denny Adams
Chron. file
Docket (2) file
TEEhlegaard/mm
6-MD-6-5-58

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DMEA
RECEIVED JUN 4 1958

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

DATE	INITIALS	
6/5	C	220
6/5	wph	500

June 4, 1958

Re: DMEA 4582 & 4583
Contract Idm-E1068 & 1073
St. Joseph Lead Company
Viburnum & Courtois areas
Washington & Iron Counties,
Missouri

Memorandum

To: W. R. Griswold, DMEA

From: O. M. Bishop, USBM

Subject: Review of St. Joseph Lead Company proposals of April 21 and 23, 1958 for additional work in the Viburnum and Courtois areas, Missouri

Additional information from the field together with project data previously received indicated drilling is needed in certain undrilled areas within the zone of probable mineralization. These undrilled areas are on the ore trend to the southwest and between proven areas to the northeast of Viburnum. They include areas extending for as much as 2,000 feet on the probable ore trend, but there is no drilling whatever to indicate presence or absence of ore.

I recommend these areas be drilled and that 500 feet be set as the minimum spacing between ore holes on the trend direction of the ore structure. Spacing of holes in the fences is to be worked out between the field team and St. Joseph Lead Co., but total new holes allowed should not exceed 80.

O. M. Bishop

O. M. Bishop

cc: Division of Minerals
Mr. Kiilsgaard
Mr. Lamb
Mr. Callaway
F I L E S

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
June 2, 1958

AIRMAIL
SPECIAL DELIVERY

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DMEA
RECEIVED JUN 18 1958

DATE	INITIALS	CODE
6 3	C	220
6 3	Copy	500

Mr. George C. Selfridge, Chairman
DMEA Operating Committee
Department of the Interior
Washington 25, D. C.

Re: DMEA-4582 and -4583(lead-zinc-copper)
St. Joseph Lead Co.
Courtois and Viburnum Projects
Washington and Iron Counties, Mo.
Contract Idm-E1068 and -E1073

Dear Mr. Selfridge:

With reference to my May 15 letter on this subject, I am pleased to transmit herewith in quadruplicate a geologic justification report received May 29 from Dewey Amos, USGS, Carbondale, with two sketch maps specifically covering this Operator's April 23 request for an amendment to expand the maximums in Contract Idm-E1068.

I believe you will find this report very comprehensively justifies that proposed amendment recommended by the Field Team, and more effectively justifies the like proposed amendment for Contract Idm-E1073 to which it also can be considered applicable in most respects, and therefore, effectively supplements my report thereon sent you May 15.

My suggested draft of the proposed Amendment No. 6 to Contract Idm-E1068, however, is appended hereto. Copies of the Operator's April reports(excepting the MF-104 Voucher), and the Field Team's Interim Report on the May 8 inspection by Dewey Amos and Robert King, have been furnished for your information. With the addition of those and the geologic justification report transmitted herewith, should any data be found still lacking in your docket files to facilitate your prompt decision on this request, please wire me immediately. The need to be advised of your reaction is expected to become critical in about two weeks in planning for the obviously justified orderly continuation of this budding exploration program.

To give you a quick idea of the tenor of the ore [redacted] expected to be indicated in this Courtois deposit, as of May 8, the 20 so-called commercial ore holes and the additional 14 so-called indicative non-commercial holes, or the total of 34 widespread discovery holes to date have a weighted average of a 10.7-foot thickness containing about 4 percent lead, and 1 percent zinc.

In addition to all the other justifying information of my May 15 report, primarily concerned with the proposed amendment for Contract Idm-E1073, and that of last October 25, likewise concerned with Contract Idm-E1064, I want to direct your attention to the strong likelihood that the Government is more apt to receive full repayment on these three DMEA loans then any other of the large ones made in the United States. Furthermore, by the precedent in royalties set recently in converting Prospecting Permits on Government land surrounding the Kilmer tract(Czar Knob, Idm-E1064) to actual mining leases, stronger incentives were added for expanding payments to the Government both of D.M.E.A. royalties and B.L.M. royalties by a sliding scale. Under that scale, royalty to B.L.M. for the first 10 years while amortizing plant and development costs, and the expected repayment of all DMEA exploration aid, B.L.M. will require only 4 percent on the net production. After 10 years and up to 15 years--4½ percent; beyond 15 years-5 percent. Thus, the Operator may be justified in launching a "crash" program in this inferred new Missouri Lead Belt, moving all production operations from the old Lead Belt as rapidly as possible, and providing there is any marginal market for lead for the next 10 years, no loss would be suffered comparable to that which is expected if operations are continued on the lower-grade reserves of the old Lead Belt. Also, in the struggle to survive the disastrous lead market conditions, the Operator announced last week that wages of all its employees would be cut 10 percent.

Although not yet speeded up, development is preceding on schedule. A costly and permanent surface plant was constructed at the Kilmer deposit and sinking of the initial large circular concreted shaft was nearly half completed as of the May 8 project inspection(the next joint Field Team inspection is scheduled for June 12). Preparation for surface plant construction and the initial shaft sinking are being made at the St. Joe-Conway deposit one mile east of Viburnum(Idm-E1073). To date, only the Kilmer tract in the Czar-Knob area(Idm-E1063) and the St. Joe-Conway have been delineated by close enough exploratory drilling, entirely at the Operator's expense, to permit making reasonable ore reserve estimates. As soon as the presently inferred vast deposits likewise have been reasonably delineated and sampled under the three

DMEA project contracts(with the proposed amendments), tentative plans of the Operator call for immediate sinking of additional shafts, eventually at least two in each of the three project areas, including two on the Courtois project(Idm-E1068) where the very widespread indicative drilling to date yet has failed to indicate the most logical initial shaft site.

The Field Team believes that the maximum of justifiable exploration that can be fostered now on these above-mentioned three projects would result in exemplifying the part that the DMEA exploration program was intended to play in the economy of our country. It also appears that in these particular cases the Government can expect return of all its participation funds plus interest and all administrative costs in the form of production royalties on many of the properties which are under the jurisdiction of B.L.M.

Sincerely yours,

Clinton C. Knox

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

append.
encls. 4

cc: DMEA Op.Com.(3)
Amos,USGS,Carbondale w/cy sketches
King,USGS,Denver " "
4582 file
4583 "

EXPLORATION PROJECT CONTRACT IDM-E1068
ST. JOSEPH LEAD COMPANY
DOCKET NO. DMEA-4582(LEAD-ZINC-COPPER)

Suggested Draft

AMENDMENT NO. 6

It is agreed this 1st day of June, 1958, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government", and the St. Joseph Lead Company, hereinafter called the "Operator" that Exploration Project Contract Idm-E1068 (Docket No. DMEA-4582) dated March 18, 1957 hereinafter called the "Contract, is hereby amended effective the same day as first above written as follows:

1. In Article 1(a) of the Contract the time allowed for completion of the work is changed from 24 months to 36 months from the date of the Contract.

2. In Article 1(b) of the Contract, the estimated total cost of the project is increased from $298,560.00 to $238,600.00 and the amount of Government participation at 50 percent is increased from $149,280.00 to $268,580.00.

3. In Exhibit "A", under the heading
Description of the Work

(a) The second paragraph on page 1 is revised to read as follows:

"It is estimated that 318 drill holes will be required varying in depth from 550 to 1,150 feet, with an aggregate of about 239,900 of drilling. Holes may not be drilled on a spacing of closer than 175 feet."

(b) The second paragraph on page 2 is revised to read as follows:

"The project work is divided into three stages, as set forth below. The Operator shall complete as much of Stages II and III as the Government approves in advance."

(c) The following new stage is added:

"Stage III

"An estimated 160 holes with aggregate drilling not to exceed 106,400 feet in all may be drilled from locations approved in advance by the Government on the basis of results obtained from Stage I and Stage II drilling.

"Not more than 2,400 determinations may be made for lead, zinc, copper, nickel, or cobalt."

4. In Exhibit "A" under the heading Estimated Costs of the Project:

(a) The following Fixed Unit Costs are added:

"Stage III

"106,400 feet of churn and diamond drilling @$2.22/ft.1/	$236,208.00	
"2,400 assays @ $1.00	2,400.00	
"Estimated total cost of Stage III		$238,608.00

(b) The new project totals are changed as above to read as follows:

"Estimated Total Cost of Project(rounded)	$537,160.00
"Government Participation @ 50 percent	268,580.00

Executed in quintuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By XXXXXX
Administrator, Defense Minerals Exploration Administration

ST. JOSEPH LEAD COMPANY

By XXXXX

Title XXXXX

1/ The fixed unit cost includes all drilling charges, direct and indirect; supervision and technical services; moving equipment, water supply, lost casing, cementing and redrilling, reaming, casing and all other costs of the project whatsoever, except assaying.

Orig. Wash.
RECEIVED
DIVISION OF MINERAL
TECHNOLOGY
St. Joe
DMEA-4582
MAY 29 1958
BUREAU OF MINES
JOPLIN, MO.
CCK.
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Geology

The area of exploration is about 3 miles northwest of the exposed portion of the St. Francois Mountains which consist of plutonic and metavolcanic rocks of pre-Cambrian age. A thin cover of Upper Cambrian sediments overlies unconformably a broad nose of basement rocks that extends northwestward from the exposed pre-Cambrian mass. Small inliers of basement rock crop out near the area of exploration. Drilling completed to date and available geophysical data indicate that the erosion surface between the rocks of pre-Cambrian and Upper Cambrian age is one of considerable relief. At least four buried "highs" or hills of pre-Cambrian rocks exist in the exploration area (designated "A", "B", "C" and "D" on attached map).

A generalized stratigraphic section of the Upper Cambrian sedimentary rocks in the area is as follows:

Formation	Thickness
Eminence dolomite	+150 ft.
Potosi dolomite	385± ft.
Derby-Doe Run dolomite	90 ft.
Davis shale	150-250 ft.
Bonneterre dolomite	0-260 ft.
Lamotte sandstone	0-200 ft.

The Lamotte sandstone is not exposed but is encountered in the subsurface. It occurs in depressions on the pre-Cambrian erosional surface but pinches out on the flanks of pre-Cambrian hills or "highs". The Bonneterre dolomite which overlies the Lamotte in the subsurface pinches out around the higher pre-Cambrian hills. It is divisible into a lower light gray member and a upper dark brown member. The lower member in places exhibits a lateral facies change to coarsely crystalline, reddish-brown dolomite. All of the younger formations listed above crop out in the exploration area but the Potosi dolomite is the surface formation over most of the region. A basal-type conglomerate is present along the unconformity between the basement rocks and the sedimentary rocks. This conglomerate transgresses all the Upper Cambrian units of the area.

Regionally, the dip of the sedimentary rocks is to the west-northwest. Locally, the dip is peripherally away from the pre-Cambrain highs due to differential compaction of the sediments.

Several normal faults of relatively small displacement occur in the area. In addition, a fault zone which trends north-northeast is present in sections 7, 8 and 18. It is approximately along Indian Creek which is the topographic expression of the zone. The surface location of the zone north of section 8 is not known, although geomorphic evidence suggests that it may continue north-northeastward along the valley of Courtois Creek. A branch may extend northwestward from near the northwest corner of section 8 passing to the southwest of pre-Cambrian high "C" (see attached map).

Marine-cut terraces occur in the pre-Cambrian rocks at or slightly below the base of the Bonneterre dolomite (see attached diagrammtic cross-section). These occur around the pre-Cambrian "highs" which project above the base of the Bonneterre dolomite and are almost continuous except in embayed portions of the "highs". The width of the terraces shows considerable variation but normally averages 500-1500 feet. Fringing-type, algal reefs occur in the Bonneterre dolomite above the offshore edge of the terraces (see attached diagrammtic cross-section). These reefs are largely confined to the lower member of the Bonneterre dolomite but a few extend into the lower part of upper member. The width of the reefs are highly variable and at certain stratigraphic positions may be absent while at other horizons may be very wide (up to 2000 feet). Material constituting the reefs is now entierly dolomitized but has a distinctive structure which can generally be recognized in outcrops and in cores. In general, non-reef facies of the Bonneterre dolomite on the inshore side of the reefs has distinctive lithologic differences from dolomite on the seaward side (basin-side) of the reef. These differences can usually be recognized in core specimens. The lower part of the Bonneterre dolomite in embayed areas where terraces and hence, reefs are absent is commonly reddish-brown in color. This characteristic is used to eliminate unfavorable areas marginal to the pre-Cambrian highs.

Geophysical data often indicates the position of the offshore edges of the marine-cut terraces. A steep gradient of the magnetic

and gravity anomalies commonly occurs along the break in slope along the outer edges of the terraces. Variations in rock type of the pre-Cambrian may mask or reverse the anomalies; thus, geophysical data must be used with caution.

Mineralization

Mineralization in the area consists of galena with subordinate sphalerite and chalcopyrite associated with traces of various cobalt and nickel sulphides. Most of the ore bodies discovered in the area are replacements of portions of the algal reefs. The bodies are largely confined to the underneath portions of lateral protuberances of the reefs (see attached diagrammatic cross-section). At a few places the entire reef is mineralized. At a given place one reef may contain several ore bodies at different stratigraphic positions and on opposite sides of the feature. No symmetrical distribution of the ore bodies with respect to the reefs is apparent. The bodies are serpentine in shape with the long dimension parallel to the long direction of the reefs. Individual bodies are usually several hundred feet in length (average about 700 feet), the width seldom exceeds 75-100 feet and the height is 0-35 feet.

The chief concentration of ore bodies in the area are in reefs which are near the fault zone that extends in a north-northeast direction across the region. Evidently the fault zone served as channelways for the introduction of hydrothermal solutions.

A few ore bodies also occur along the pinch-out line of the Lamotte sandstone against the pre-Cambrian highs. The mineralization is in the Lamotte sandstone or in the lower part Bonneterre dolomite above the pinch-out. Ore bodies also occur at certain stratigraphic horizons in the lagoonal portions of the Bonneterre dolomite on the inshore side of the reefs. Some of these bodies appear to be in reef-rock which at certain places and times apparently formed over most of the lagoon above the terrace.

Results Accomplished To Date

Discovery of ore by the work done under this contract, under other DMEA contracts in the area (DMEA-4581 and DMEA-4583) and by individual companies has showed a district having a potential of ore equivalent in quantity and grade to that mined or known in the Lead Belt Proper which is about 40 miles east of the area. The Lead Belt Proper has been mined almost continuously since the early 1700's and has been the leading lead-producing district of the world for many years. The discovery of this new district is regarded as the most significant discovery of lead in the world in the last one-half century. Actually the area may contain much more ore than now suspected as all exploratory work has been chiefly of a reconnaissance nature.

A summary of work accomplished on Contract Idm-E1068 as of May 8, 1958 is as follows:

Total number of holes completed	110
Footage in holes completed	72,567
Number of holes showing commercial ore	20
Number of holes showing indicative non-commercial mineralization	14
Number of holes showing trace mineralization	58
Number of holes showing speck trace mineralization	7
Number of barren holes	11

Drilling is being done on an equilateral triangular grid and the closest spacing of holes has been at 300-foot centers. The grid is expanded and contracted integral amounts as demanded by local geologic conditions and favorbility of features for mineralization, In addition, the orientation of the grid is varied in different areas to take advantage of local structural and stratigraphic linear features.

As the bodies are generally about 75-100 feet wide, exploratory drilling would be required on this spacing to be assured that no ore bodies were missed. Since the bodies have certain structural, lithologic and stratigraphic controls some predictions can be made as to the most favorable drilling sites. With the benefit of geological and geophysical data that has been obtained it is believed that most of the significant ore bodies can be detected by drilling at a minimum spacing of about 175 feet in favorable areas. Any drilling at this spacing or a larger spacing is definitely exploration and could in no way be construed as development by anyone based on the present knowledge of the area.

Drilling to date has established the broad zones of mineralization in the contract area (see attached map). It has also determined unfavorable areas in which additional work is not warranted. The most favorable areas based on present geologic knowledge of the marine terraces and associated reefs are as follows:

1. Southeast flank of pre-Cambrian high "A".
2. Between northeast end of pre-Cambrian high "A" and east end of pre-Cambrian high "B".
3. North flank of pre-Cambrian high "B".
4. East flank of pre-Cambrian high "C".
5. Northwest flank of pre-Cambrian high "D".

A summary of the favorable and unfavorable areas by sections is as follows:

Section 17--The northwestern one-quarter is very favorable and needs additional exploration. The remainder is not favorable and does not warrant additional work.

Section 18--Very favorable except for the northwestern one-quarter and will require more drilling.

Section 13--Not favorable.

Section 9--Not favorable.

Section 8--Northwestern one-quarter very favorable and needs additional drilling; remainder not favorable.

Section 7 --Most of section favorable except for southwestern one-quarter; will need considerable more exploration.

Section 12--Unknown; need wide-spaced drilling in northeastern one-quarter.

Section 4--Not favorable.

Section 5--In large part not known. Wide-spaced drilling needed in eastern one-half.

Section 6--Not known but geology favorable in southern one-half; need wide-spaced drilling in this part.

Section 1--Favorability not known; will depend on results in sections 6, 7 and 12.

Section 33--Not favorable.

Section 32--Not known; will depend on drilling in section 5.

Drilling completed under the contract has not been of sufficient areal intensity to estimate reserves in the indicated category. It should be emphasized that the deposits are not the normal blanket-type; thus, even though several adjacent holes on 300-foot centers contain ore the mineralization often does not represent the same bodies. Because of this the normal methods of ore reserve computation utilized for blanket-type deposits cannot be employed. Considerable additional exploratory drilling will be required before any reliable ore reserve estimate can be made.

Many of the properties in the northern half of the contract area were added to the contract by subsequent amendments. Most of this area has not had any exploratory drilling, although geological and geophysical data indicate portions are favorable.

Recommendations

It is strongly recommended that the request for additional exploration by amendment to the existing contract be granted because of the following reasons:

1. Considerable area has been added to the original contract by amendment.

2. The areal extent of the zones of significant mineralization in the contract area is much greater than originally anticipated when the contract was executed.

3. The northern one-half of the contract area has not been explored to any extent even by preliminary wide-spaced holes. The favorable areas have not even been delimited in a general way except what can be inferred by geological and geophysical knowledge.

4. Drilling has not been of sufficient intensity to estimate ore reserves in the indicated category because of the character of the ore bodies.

If the request is granted, the following are recommended:

1. All the hole locations should have prior Government approval. It is not feasible to determine the exact drilling sites at this time as a few holes remain to be drilled on the contract and results from these holes as they are completed give a continuously changing geologic picture. It is believed that in this district drilling is conducted most effectively if hole locations are based on recently completed holes rather than at predetermined sites without benefit of recently acquired data.

2. Additional drilling in the southern half of the area should be confined to the zones of mineralization as shown on the attached map.

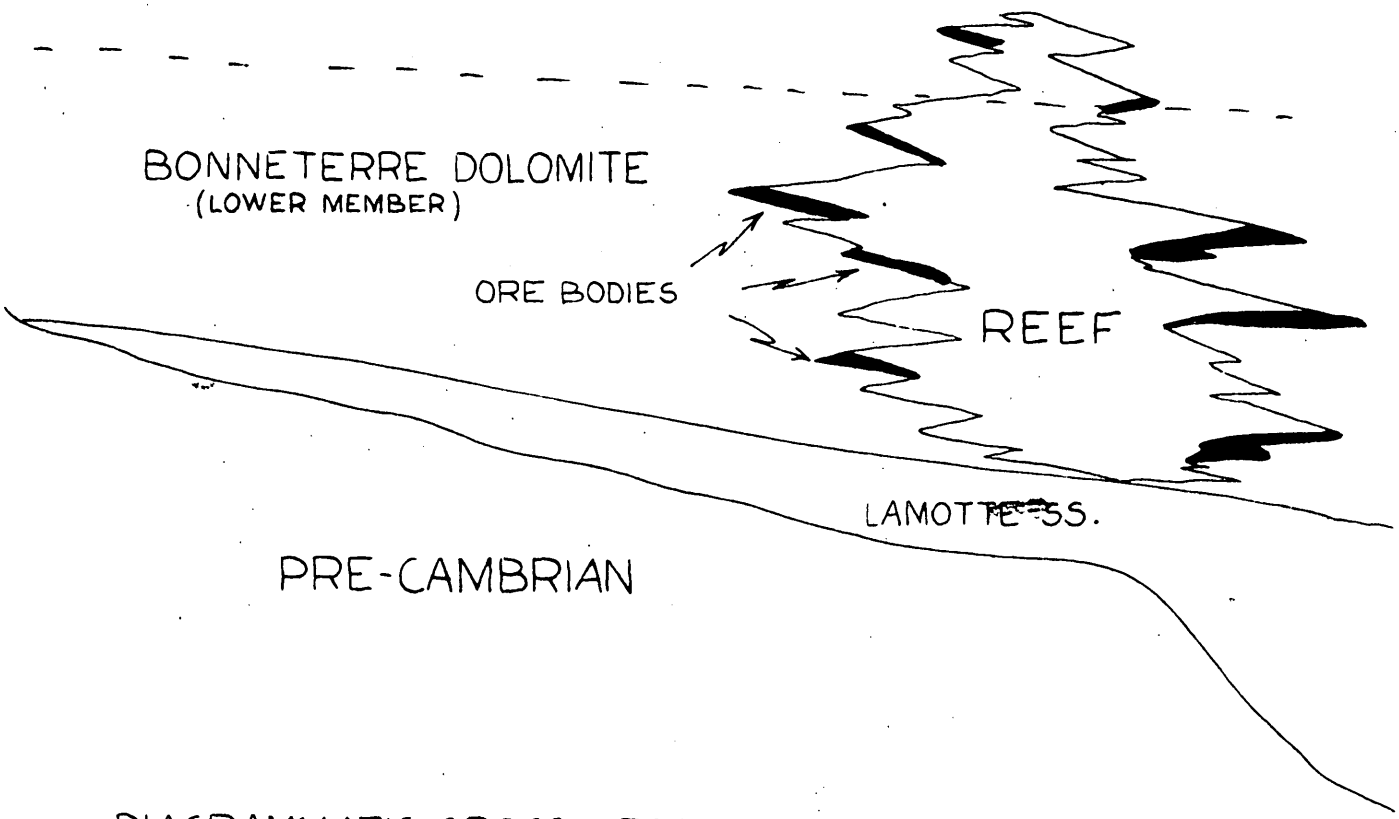
3. Drilling in the northern half of the area should, in general, be conducted in a south-to-north sequence.

4. Provision should be made to drill at a spacing as close as 175 feet if necessary for delimiting ore bodies and/or for reserve calculations and to be assured that large numbers of ore bodies do not remain undiscovered.

5. A total of 150 holes should be added by amendment. An approximate breakdown by area is as follows:

a. Northeast of village of Courtois 85 holes at estimated average depth of 650 ft.	55,250 ft.
b. Northwest of village of Courtois 35 holes at estimated average depth of 735 ft.	25,725 ft.
c. Southwest of village of Courtois 30 holes at estimated average depth of 640 ft.	22,050 ft.
Total	103,025 ft.

Dewey H. Amos
Geologist
U. S. Geological Survey



DIAGRAMMATIC CROSS-SECTION OF ORE BODIES IN VIBURNUM AREA, MISSOURI

RECEIVED
DIVISION OF MINERAL
TECHNOLOGY
MAY 29 1968
BUREAU OF MINES
ROLLA, MO.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
May 29, 1958

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DMEA
RECEIVED JUN 1958
DATE
6/2 C 220
130
6/3 WPB 500

DMEA Operating Committee
Department of the Interior
Washington 25, D. C.

Re: DMEA-4582 (lead-zinc-copper)
St. Joseph Lead Co.
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Approved by WPB.

Dear Sirs:

Forwarded herewith are the original and one copy of Amendment No. 5 and photostats of two option contracts recently executed by the Operator to add 212 acres for exploration under the cited project Contract.

The Operator and the Field Team retained their respective copies and the proper copy is being furnished to the Finance Officer with a copy of this letter.

Sincerely yours,

Clinton C. Knox

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encl. 4

cc: DMEA Op.Com.
Amos,USGS,Carbondale w/cy Option Contracts
King,USGS,Denver
Finance Officer,USBM,Bartlesville
w/cy encls.
4582 file

DMEA 4582 + 4583

May 22, 1958

Mr. Dewey H. Amos
Box 64
Southern Illinois University
Carbondale, Illinois

Dear Dewey:

After telephoning you yesterday, I attended a meeting in Bill Griswold's office, which also was attended by Otty Bishop and Harry Calloway of the Bureau of Mines. We discussed the new St. Joe proposals.

All of us agreed that more exploration is warranted in the Viburnum and Curtois areas. But the problem is to determine the amount and location of work in which the Government justifiably could be expected to participate. In this respect, we considered the Operator and DMEA to have two different objectives in mind. Of these, the Operator is concerned not only with finding ore, but also of determining the grade and tonnage of given areas and in such a manner as to ascertain how these areas can best be mined. In fact, yesterday Elmer Jones called Mittendorf, saying his big problem at the moment was to better delimit the Viburnum and Curtois deposits so he could properly locate the two shafts that are to be put down in those areas. He said they are very anxious to learn how far to the northeast and southwest the ore bodies will extend as this will affect the shaft locations. He implied that St. Joe was getting into financial difficulties because of present metal prices, and that they needed help in their proposed exploration programs.

On the other hand, DMEA is concerned in exploring a deposit only insofar as its value to our national resources is concerned. As you know, this is a hard line to draw and what holds for one deposit or operator would not necessarily hold for another. For example, if a small operator with limited finances and limited ground was exploring the Curtois deposit, DMEA might be quite liberal in allowing additional drilling as it might be figured that such an operator would need all the help he could get to bring the deposit into production. With a big company like St. Joe however; where the holdings are immense and where ore findings are so widely scattered, it might be reasoned that they will bring the property into production with or without further Government assistance. In such a case, it might logically be assumed that the national reserves have been adequately improved by work completed to date.

The above is merely to inform you of our thinking here in Washington. It is not intended to influence the geologic report you are preparing, the objective of which should be to justify the Field Team recommendations. I do, however, suggest that you write only one report for the two proposals, as I assume that what holds for one also will hold for the other. I also suggest that you give careful thought before recommending drilling on centers any closer together than 300 feet as I believe DMEA will not approve such drilling. St. Joe has not asked for any drilling on 300-foot centers, but it is inferred that they might use some of the holes for such purposes or else ask for further amendments allowing such drilling.

Another question that is certain to arise concerns the 80 holes south and east of the St. Joe-Conway tract. The applicant's map shows this area to be liberally covered with approved drill locations and it is difficult to see how more holes can be drilled unless on close centers. It may be that St. Joe proposes to put these holes in Iron County ground they hope to acquire by prospecting permit. If this is so, they must have the permit before the amendment is drawn; otherwise it might be better to withdraw these holes now but include them under another amendment when the land is acquired.

Still another question is certain to concern the 58 holes to be drilled southwest of Curtois. It is difficult to define the extent of this area, although from the map it would appear that the target had been adequately tested--that is for DMEA purposes. Could it be that more holes have been proposed than are needed to accomplish DMEA objectives?

I shall await your report before writing a Survey review for DMEA. As the St. Joe proposal most certainly will be highly controversial and will take some time to settle, it is hoped you can submit your report as soon as possible.

I am looking forward to seeing you in June--hoping, that is, there will be money enough in the kitty to make the trip.

Sincerely,

Thor H. Kiilsgaard
Staff Assistant for DMEA

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
May 21, 1958

OFFICIAL FILE COPY
DMEA 3
RECEIVED 24 1958
5/26 C 220
5/26 wfb 500

Mr. R. E. Wagner, Exploration Superintendent
Geology Department
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4582(lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mr. Wagner:

This will acknowledge receiving on May 15 your Monthly Progress Report for the April project work with your formal request for an amendment to add two newly optioned tracts totaling about 212 acres for exploration under this Contract.

Therefore, enclosed herewith are the original and four copies of proposed Amendment No. 5 signed by me covering addition of those two tracts. If it meets with the approval of your company, please have all copies signed, retain the Operator's Copy for your file and return the others to me for the usual distribution; otherwise, return all copies with a statement of your objections for the consideration of DMEA.

This also is written confirmation of the approval of the Government as of May 8, 1958 verbally given by the Field Team examiners in your office then for drilling 18 additional holes under "Stage II, Exhibit A" of the cited Contract, as requested and geologically justified by you for the following sites:

Site No.							
C-141	about	1500	feet	S60°W	of	Hole	56W160
C-142	"	1200	"	N18°W	"	"	56W160
C-143	"	1150	"	S43°W	"	"	56W158
C-144	"	975	"	N85°W	"	"	"
C-145	"	850	"	N22°W	"	"	"
C-146	"	520	"	N30°E	"	Stake	VC58
C-147	"	900	"	S45°W	"	"	VC44
C-148	"	900	"	S15°E	"	"	"
C-149	"	900	"	S75°E	"	"	"

Stake No.(Cont'd)

C-150	about	900	feet	N75°W	of	Stake	VC44
C-151	"	900	"	N45°E	"	"	VC44
C-152	"	900	"	S45°W	"	"	VC55
C-153	"	900	"	S15°E	"	"	VC55
C-154	"	900	"	S75°E	"	"	"
C-155	"	900	"	N15°W	"	"	"
C-156	"	900	"	N45°E	"	"	"
C-157	"	900	"	S75°E	"	"	VC65
C-158	"	900	"	N15°W	"	"	"

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encls. 5

cc: DMEA Op.Com.(2) w/cy Amend.
Kin,,USGS,Denver " "
Amos,USGS,Carbondale " "
4582 file
Shadow cy-Mr. E. A. Jones

Memo copy

OFFICIAL FILE COPY
DMEA
RECEIVED 24 1958
DATE

EXPLORATION PROJECT CONTRACT IDM-81068
ST. JOSEPH LEAD COMPANY
DOCKET No. DMEA-4582 (LEAD-ZINC-COPPER)

AMENDMENT NO. 5

It is agreed the 14th day of May, 1958, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and the St. Joseph Lead Company, that Exploration Project Contract Idm-81068 (Docket No. DMEA-4582) is amended pursuant to item 1 of the Special Agreement Concerning Land in Annex I of said Exploration Contract, whereby the additional lands described in two Option Contracts filed with the Defense Minerals Exploration Administration as of May 14, 1958, being contiguous to lands covered by said Contract, becomes subject to the provisions therein, and hereby are included with the list of properties thereunder in Annex I, particularly identified by the Operator's file numbers and names of owners as follows:

C2-283 John S. and Nettie Turnbough
C2-288 Marvin C. and Loraine Turnbough

This amendment shall be effective as of May 14, 1958.

This amendment shall not be construed to increase the estimated cost of the project or the aggregate amount which the Government may be required to contribute.

Executed in quintuplicate the day and year first above written.

THE ST. JOSEPH LEAD COMPANY

By XXXXXXXXXXXXXXXXXXXXXX

Title XXXXXXXXXXXXXXXXXXXX

THE UNITED STATES OF AMERICA

By XXXXXXXXXXXXXXXXXXXX
Executive Officer
DMEA Field Team, Region IV

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box [illegible]
[illegible]plin, Missouri
May 15, 1955

[illegible] Operating Committee
Department of the Interior
Washington 25, D. C.

Re: [illegible] and -[illegible]
St. Joseph-Lead Co.
Courtois & Viburnum areas
Washington & Iron Counties, Mo.
Contracts Idm-[illegible] & [illegible]

Dear Sirs:

In acknowledgment of your May 12 letter of referral of the Operator's recent request for amendments to the cited contracts, furnished herewith without further delay are three copies of a draft of a justification report which had been in the making.

I believe it and the other attachments including the April 26 letter by Denny Ames, USGS, will fulfill your expressed need for a comprehensive Field report on the latter. Robert U. King, Survey Member of the Field Team, verbally expressed accord with our ideas here last Saturday following his visit to these projects with Ames last week.

The rough draft report and attachments, of course, are almost equally as applicable to the first cited Contract(Idm-[illegible]), but I will forward you a report on it next week likewise justifying and confirming the previous Field Team recommendations for the requested amendment.

Besides the addition by previous amendment to the later of the cited contracts of seven newly optioned tracts aggregating an additional [illegible] acres for exploration, we are expecting the B.L.M. Prospecting Permits to be granted momentarily on applications filed a year ago on the elongated sections of land contiguous on the south of the existing project area. No allowance was made in the original Contract for exploring these additional tracts nor for adequately exploring such a large mineralized zone as comprehensively outlined on the Operator's maps furnished you. Thus, because the inferred extent of the project appears to be beyond our most optimistic expectations, there is no escaping the fact that these Contracts may have to be expanded again and again.

Please rest assured, however, that the Field Team feel entirely competent to decide at the earliest moment when the Operator can make any reasonably reliable ore reserve estimates for final reports, and we certainly will not approve any drill holes beyond that point.

Concerning the Operator's April MF-104 Reports on these projects mentioned in my attached report, one of your copies of each as received today(excepting MF-104 Voucher) also is enclosed herewith for your information. Furthermore, I understand that the Field Team Interim Reports by Amos of the May 1 inspection to save time has been submitted to you through King's office in Denver.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encls

cc: DMEA Op.Com(2)
King,USGS,Denver
Amos,USGS,Carbondale
4582 file
4583 file

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
5/12	[illegible]	500
5/12	Jeffrey	130
5/12	Smith	130
		130
5/12	Johnson	110
	Mittendorf	200 HB
		220
		500
5/12	Williams	130

MAY 12 1958

Mr. E. A. Jones, Division Manager
St. Joseph Lead Company
Box 32
Bonne Terre, Missouri

Re: Docket No. DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract No. Idm-E1068

Dear Mr. Jones:

Your application for additional Government assistance to explore the cited property has been reviewed by the Division of Base Metals of the Defense Minerals Exploration Administration and is being referred to:

Mr. Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV
Post Office Box 431
Joplin, Missouri

If additional information concerning your application is needed, the Field Team will get in touch with you at an early date.

Sincerely yours,

C. O. Mittendorf

Administrator

WRGriswold/er 5/12/58
Copy to: Docket
Admr R File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Region IV (2)
Chron.

8623

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
5/12	[illegible]	500
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MAY 12 1958 500

Mr. Clinton C. Knox, Executive Officer
DMEA Field Team, Region IV
Post Office Box 431
Joplin, Missouri

Re: Docket No. DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract No. Idm-E1068
and
Docket No. DMEA-4583 (Lead-Zinc-Copper)
St. Joseph Lead Company
Viburnum Area, Iron County, Missouri
Contract No. Idm-E1073

Dear Mr. Knox:

The two cited applications are being referred to your office for consideration and review and, of course, a field examination if necessary. Copies of memoranda, dated May 7 and 9, 1958, by T. H. Kiilsgaard, Geological Survey, and O. M. Bishop, Bureau of Mines, respectively, relating to the projects are enclosed for your information. While Mr. Kiilsgaard's memorandum relates to Docket No. DMEA-4583, yet, in principle, it applies equally to Docket No. DMEA-4582.

We are fully in accord with the expressed opinions that we can take no action until we have a full Field Team review of the present status of both these projects, along the lines outlined by Mr. Kiilsgaard; accompanied by maps showing some delineation of the proposed drilling. We have, at present, no fixed opinions on the Bishop recommendation for denials, but we assuredly could take no affirmative position unless we had comprehensive Field Team reports covering the applications.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (HB)

Enclosures

APPROVED:

Frank D. Lamb (HB)
Member, Bureau of Mines

W. P. Williams (HB)
Member, Geological Survey

WRGriswold/er 5/12/58
Copy to: Dockets (2)
Admr R File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron.

8623

OFFICIAL FILE COPY
DMEA
RECEIVED
19 C 220
500

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

May 9, 1958

Re: DMEA 4582 and 4583
(Contracts Idm-E1068 & 1073)
St. Joseph Lead Company
Viburnum and Courtois Areas
Washington and Iron Counties,
Missouri

Memorandum

To: W. R. Griswold, DMEA

From: O. M. Bishop, USBM

Subject: Review of requests for amendments to the 2 attached contracts, such amendments to authorize 343 additional drill holes, costing $508,000. Proposals dated April 21 and 23, respectively, were received April 24 and 28, 1958.

The Viburnum area is contiguous with and lies southwest of the Courtois area. The St. Joseph Lead Co. has completed 78 holes of an authorized 145 holes in the Viburnum area and 101 of an authorized 158 holes in the Courtois area. Drilling todate has defined a broad mineralized belt up to 5,000 feet wide and about 7 miles long. The mineralization is replacement in the Bonne Terre dolomite in the vicinity of the pinchout zone of the underlying Lamotte sandstone.

The applicant now proposes amendments to the two contracts which would provide 343 additional holes costing $508,000. Elmer A. Jones, speaking for St. Joseph Lead Co., states the additional drilling is needed "to discover, delineate, and sample the ore bodies in the project area sufficiently to permit a reasonable calculation of ore reserves."

There is little doubt that the proposed drilling is geologically and economically justified. However, the 124 holes authorized and remaining under Stage II of the existing contracts appear adequate to give a "reasonable delineation and sampling" of the ore bodies discovered under the DMEA contracts.

The amendment adds no new facet or area to the exploration projects, but rather only additional detail.

I recommend denial of the proposed amendments without prejudice.

If at or near contract completion there should be doubt that the drilling has reasonably delineated the ore, the matter can be reconsidered.

O. M. Bishop

O. M. Bishop

cc: Division of Minerals
Mr. Kiilsgaard
Mr. Lamb
Mr. Callaway
F I L E S

4582

File Copy

Original

RECEIVED

DATE 5/8

May 7, 1958

Memorandum

To: W. E. Grigsold, Defense Minerals Exploration Administration

From: T. E. Ellingsworth, U. S. Geological Survey

Subject: Review of letter from Executive Officer, DMEA Region IV, proposing amendment to St. Joe project, Contract No. 4583, Viburnum Area, Iron County, Missouri 4582

The Executive Officer has presented an application for amendment from the St. Joe Company, which would add 165 holes to the present project, and which would expand the contract amount by $270,265.00. No specific recommendations are given, although it is inferred that both the Executive Officer and Survey Area of the Survey are in favor of the Operator's proposal.

From the data submitted, I am unable to write a geologic justification for this proposed amendment. There is no doubt but what a very significant discovery has been made by work completed thus far. The Operator's map also indicates there remains numerous favorable targets to explore. However, before expanding this program, it would be prudent to receive from the Field Team a geologic appraisal of the results accomplished to date. We also should have the Field Team reasons for expecting the targets, outlined by the Operator, to be favorable. I do not, for example, have any information showing where the St. Joe-Cominco tract is located. Therefore, such a vague proposal as 60 holes north and northeast of this tract is meaningless to me. Is this the open-end area northeast of Courtwright? If this is so, is it the area for which St. Joe recently acquired a prospecting permit, and have steps been taken to add this ground to that already obligated to contract tonnage? With what respect to Bonneterre Hills and to the mineral trend is the location of the area where the 165 holes are to be drilled?

There also are some unanswered questions on the problem of hole spacing. Holes on 900-foot spacing would seem to be legitimate

exploration of any target. Even 300-foot holes are customarily considered as exploratory, but holes on 175-foot centers would appear to go beyond what is needed for reasonable delineation and sampling. If BMRA had participated in all of the close-centered holes that have been proposed on the Colorado Plateau, that region would now look like a pin cushion and the amount of Federal funds spent would have been fantastic. It may be that some of these 175-foot centered holes should be allowed, but they should be justified by the Field Team. From the comparatively thick and extensive nature of the ore bodies, as shown on the Operator's map and from logs submitted by the Field examiners, it seems to me that BMRA would hardly be justified in participating in such close-spaced drilling, for they appear to be more development than exploration.

I recommend the Field Team be asked for an analysis of results accomplished to date and for geologic justification for the proposed work before any further consideration is given this request for amendment.

T. M. Kilingsard

cc: BMRA (3)
O.M.Bishop, 3617
Director's reading
Branch reading
Chron. file
Docket file
TMKilingsard/mm
6-MB-5-7-58

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
May 6, 1958

OFFICIAL FILE COPY
DMEA
RECEIVED MAY 9 1958

DATE		CODE
5/9	C	220
5/9	[illegible]	800
5/9	[illegible]	500

Mr. E. A. Jones, Division Manager
St. Joseph Lead Company
Box 32
Bonne Terre, Missouri

Re: DMEA 4582(lead-zinc-copper)
Viburnum Area
Iron County, Mo.
Contract Idm-E1068

Dear Mr. Jones:

This is to advise that I have approved your MF-104 Report covering the March work on the above cited project as claimed and forwarded the original to the Finance Officer to certify for the Government's 50 percent participation payment.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

cc: DMEA Op.Com.(2)
King,USGS,Denver
Amos,USGS,Carbondale
4582 file
Shadow cy - Mr. A. E. Wagner

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
May 5, 1958

OFFICE FILE COPY
DMEA
RECEIVED MAY 9 1958

DATE	INITIALS	CODE
5-9	C	220
5/9	[illegible]	800
5/12	~~copies~~	500

Mrs. Cora A. Bailey, Fiscal Officer
U. S. Bureau of Mines, Region IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA-4582(lead-zinc-copper)
St. Joe Lead Co.
Courtois project
Washington County, Mo.
Contract Idm-E1068

Dear Mrs. Bailey:

Transmitted herewith to be certified for the Government's 50 percent participation payment is the original of the Operator's MF-104 Report for March in the amount of $5,055.66, which I have approved.

One copy was sent to the Survey Member of the Field Team on April 17, and both Washington copies are being retained here awaiting your voucher data to be posted thereon.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encl.

cc: DMEA Op.Com.(2) ✓
King,USGS,Denver
Amos,USGS,Carbondale
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
April 28, 1958

Mr. Elmer A. Jones, Division Manager
St. Joseph Lead Company
Box 32
Bonne Terre, Missouri

Re: DMEA-4582 and -4583(lead-zinc-copper)
St. Joseph Lead Co.
Courtois and Viburnum Projects
Washington and Iron Counties, Mo.
Contract Idm-E1068 and -E1073

Dear Mr. Jones:

This is to acknowledge receiving on April 24 your application with map for an amendment to expand the first of the above cited Contracts by about 160 holes or $238,608; and, to acknowledge receiving on April 21 your application to expand the second of the above Contracts by about 148 holes or $270,265.

Please rest assured that copies of your applications immediately upon receiving each, were submitted for the consideration of the Washington Office of D.M.E.A. and the Geological Survey Member of this Field Team. Upon receiving the latter's comments, the Field Team's suggested drafts, ~~and~~ recommendations and justifications for your proposed Contract amendments will be submitted to D.M.E.A.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

cc: DMEA Op.Co..(2)
King, USGS, Denver
Amos, USGS, Carbondale
4582 file
4583 file
Shadow-Mr. E.A.Jones

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
April 25, 1958

4/28 WPB.

Mr. Dewey H. Amos
Geology Department
Southern Illinois University
Carbondale, Illinois

Re: DMEA-4582(lead-zinc-copper)
St. Joe Lead Co.
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Dewey:

Furnished herewith is a copy of a letter application with map received today from this Operator for a $238,608-expansion amendment to the cited Contract. I believe you will find this application is a reiteration of all the data and work maps which this Operator's geologic representative explained to us in detail following our latest project inspection on April 10. Furthermore, I believe this amendment request is substantially in accordance with the recommendations which you and I afterward tentatively agreed that the Field Team should make to the Washington Office. There did seem to be no immediate concern however, for the requested extension of a year in the expiration date of the Contract but, on the other hand, there seems to be no reason why the Field Team should not recommend that also.

In order to file this amendment request for processing at the earliest possible date at Washington, two copies with map are being forwarded to DMEA with copies of this letter intended to serve as the Field Team's endorsement of this request. Any comments or recommendations that you may wish to have on the record in concurrence with this letter, or exceptions you wish to take, would be appreciated at your earliest convenience.

A copy of this amendment request with map also is being furnished King with a copy of this letter so that he likewise can advise if any exceptions should be taken in the Field Team's recommendations for this proposed expansion in the Contract maximums.

Sincerely yours,

CCK/di

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encl.

cc: DMEA Op.Com.(2) w/2 cy encl.
King,USGS,Denver w/cy encl.
4582 file

RECEIVED
DIVISION OF MINERAL
TECHNOLOGY
APR 24 1958
BUREAU OF MINES
JOPLIN, MO.

ST. JOSEPH LEAD COMPANY

April 23, 1958

Mr. Clinton C. Knox, Executive Officer
DMEA Field Team, Region IV
Defense Minerals Exploration Administration
Box 431
Joplin, Missouri

Re: DMEA-4582 (lead-zinc-copper)
Courtois Area
Washington County, Missouri
Contract IDM-E 1068

Dear Mr. Knox:

As of April 1, 1958, 101 holes, or 60.8% of the 158 holes allowed in this contract, had been completed, 10 more holes were in various stages of progress and 8 other hole locations had been approved. 21 additional hole locations were approved on April 10th, so that there now remain only 18 holes to be approved in the contract. Approval of location will be requested for these on May 1st.

Two diamond drills and 4 churn drills now are operating in the project area and it is estimated that the 47 holes remaining to be started as of April 1st will provide drilling sites for the churn drills until about July 15th.

The 101 holes completed include 83 of the 84 Stage I holes allowed in the contract and 18 of the Stage II holes. These are distributed over the entire project area. Consequently, the information gained allows a reasonable classification into favorable and unfavorable areas and a rough estimation of additional drilling required for discovery, delineation, and sampling of the ore bodies present.

The 101 completed holes include 18 ore grade, 13 near ore grade, 59 trace and 11 blank holes. The holes with significant mineralization are grouped in such a fashion as to form a broad trend in a northeast-southwest direction across the center of the project area, this being a continuation of a similar trend in the Viburnum project area to the southwest. Ten blank, or nearly blank, holes drilled on wide spacing in the northeast part of the project area indicate that the mineralized zone as now known does not extend much farther in this direction. The northeast end of the zone has not been cut off to the northwest, and it is possible that mineralization will continue around the flank of a granite high of unknown dimension located here. A northeast extension of the mineralized zone begins near the village of Courtois and has not been cut off by drilling to date. A U. S. Forest Prospecting Permit acquired recently permits the extension of drilling in this direction.

Mr. Clinton C. Knox, Executive Officer

A zone of higher concentration of mineralization is located along the central portion of the main northeast-southwest mineral trend. The northwest extension shows concentrations of mineralization along the northeast flank of a buried Pre-Cambrian ridge and, to a lesser extent, along the south flank.

A map showing these trends has been prepared to accompany this request. Their delineation is based on total feet x percent of lead in the holes. The red lines enclose indicated higher grade zones in which all holes to date show 8.0 feet percent of lead or better. The outer blue line encloses the area in the project in which all holes show better than 1.0 feet percent of lead, which is considered to be a significant amount. The map shows the structurally high parts of the area, where the underlying Pre-Cambrian basement extends up through the Lamotte sand horizon, and also an east-west fault zone which may represent the northern boundary of significant mineralization. Considerable work remains to be done in order to delineate more exactly these structural features which influence the distribution of the mineral concentrations.

It is our opinion that drilling on 900-foot spacing should be completed over the entire broad trend of significant mineralization. This would require an estimated 80 additional holes. Furthermore, all of the higher grade trends now known and extensions or additions to these which might be developed by the 900-foot spaced drilling should, we believe, be drilled on 520-foot spacing. It is estimated that 98 additional hole will be required for this purpose.

After the program has been completed to this point, it will be necessary to drill a considerable part of the then-indicated higher concentration zones on 300-foot spacing, and, in some areas, on 175-foot spacing in order to discover, delineate and sample the ore bodies in the project area sufficiently to permit a reasonable calculation of ore reserves.

It is impossible to make a satisfactory estimate at this time as to the number of holes required on 300-foot and 175-foot spacing in order to complete the project. This request for additional holes does not provide for such drilling, but provides only for drilling that can be foreseen as necessary at this time. However, it is not our intention to preclude the drilling of some holes on 300 or 175-foot spacing under the terms of this amendment if the results of the program indicate such drilling to be advisable.

Estimate of average depth of additional holes requested in this amendment, based on actual depth of holes completed to date in the areas involved, is as follows:

Mr. Clinton C. Knox, Executive Officer

Mineralized area northeast of Courtois -
85 holes at 650 feet depth..... 55,250 feet

Mineralized area southwest of Courtois -
58 holes at 640 feet depth..... 37,120 feet

Mineralized area northwest of Courtois -
35 holes at 735 feet depth..... 25,725 feet

TOTAL - 178 holes at 663.4 feet depth..... 118,095 feet

In rounded figures - 178 holes at 665 feet depth. 118,370 feet

To be deducted from this total are 18 holes in the original contract to be approved for location. Accordingly, we request that an amendment to the contract be executed to include the following:

Estimated 160 holes at 665 feet each = 106,400 feet @ $2.22 per foot
= $236,208.00
+ 15 assays per hole @ $1.00 each..... 2,400.00

TOTAL..... $238,608.00

The expiration date for the original contract is March 18, 1959. An extension of 1 year is requested to allow time for completion of the additional drilling.

Yours very truly,

E. O. Jones

Division Manager

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
April 17, 1958

4/21 C 220
4/21 CWO 200
4/22 ~~CWO~~ 500

Mrs. Cora A. Bailey, Fiscal Officer
U. S. Bureau of Mines, Region IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA_4582(lead-zinc-copper)
St. Joe Lead Co.
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mrs. Bailey:

Transmitted herewith to be certified for the Government's 50 percent participation payment is the original of the Operator's MF-104 Report for February in the amount of $10,946.82, which I have approved.

One copy was sent to the Survey Member of the Field Team on March 18, and both Washington copies are being retained here awaiting your voucher data to be posted thereon.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encl.

cc: DMEA Op.Com.(2)
King,USGS,Denver
Amos,USGS,Carbondale
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
April 17, 1958

DMEA
RECEIVED APR 21 1958

DATE	INITIALS	CODE
4/21		226
4/21		226
4/22		566

Mr. E. A. Jones, Division Manager
St. Joseph Lead Company
Box 32
Bonne Terre, Missouri

Re: DMEA-4582(lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mr. Jones:

This is to acknowledge receiving your MF-104 Report covering the March work on the cited project and the logs and assays to accompany your February MF-104 Report received a month ago.

Therefore, this also is to advise that upon receiving those logs and assays on your February drilling, your MF-104 Report covering the February work on the cited project has been approved as claimed and the original forwarded to the Finance Officer to certify for the Government's 50 percent participation payment.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

cc: DMEA Op.Com.(2)
King,USGS,Denver
Amos,USGS,Carbondale
Finance Officer
4582 file
Shadow-Mr. R. E. Wagner

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
April 16, 1958

RECEIVED

DATE		CODE
4/21	C	236
4/21	~~copy~~	~~506~~

Mr. R. E. Wagner, Exploration Superintendent
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4582(lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mr. Wagner:

This is written confirmation of the approval of the Government as of April 10, 1958 given by the Field Team in your office then for drilling 21 additional holes under "Stage II, Exhibit A" of the cited Contract as requested and geologically justified by you for the following sites:

Site No.						
C-120	about	500	feet	E	of	C-112
C-121	"	"	"	"	"	C-104
C-122	"	"	"	W	"	C-119
C-123	"	"	"	E	"	57VC57
C-124	"	600	"	"	"	C-119
C-125	"	500	"	W	"	C-77
C-126	"	"	"	"	"	C-102
C-127	"	520	"	N45°W	of	VC35
C-128	"	"	"	N15°E	"	"
C-129	"	"	"	N75°E	"	"
C-130	about	520	feet	S45°E	of	VC35
C-131	"	"	"	S15°W	"	"
C-132	"	"	"	S75°W	"	"
C-133	"	"	"	N45°W	"	C132
C-134	"	"	"	N45°W	"	C133
C-135	"	"	"	S75°W	"	VC43
C-136	"	1040	"	N45°W	"	"
C-137	"	1560	"	N75°E	"	C136
C-138	"	1040	"	N15°E	"	C127
C-139	"	1380	"	N25°W	"	C136
C-140	"	1560	"	N75°E	"	C139

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

cc: DMEA Op.Com.(2)
King,USGS,Denver
Amos,USGS,Carbondale
4582 file
Shadow - Mr. E. A. Jones

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
March 19, 1958

OFFICIAL FILE COPY
DMEA
RECEIVED MAR 21 1958

DATE		CODE
3/21	C	220
/		130
3/24	WRD.	500

DMEA Operating Committee
Defense Minerals Exploration Administration
Room 4457 - Interior Building
Washington 25, D. C.

approved by WRD

Re: DMEA-4582 (lead-zinc-copper)
St. Joseph Lead Co.
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Sirs:

Forwarded herewith are the original and one copy of Amendment No. 4 and two photostats of Prospecting Permit 044857 to the cited Contract executed by the Operator to add 889 acres thereunder for exploration.

The Operator and the Field Team retained their respective copies, and the proper copy is being furnished to the Finance Office with a copy of this letter.

Sincerely yours,

Clinton C. Knox

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encl. 4

cc: DMEA Op.Com.
Amos,USGS,Carbondale w/cy Permit
Finance Officer,USBM,Bartlesville w/cy ea. encl.
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
March 10, 1958

OFFICIAL FILE COPY
DMEA
RECEIVED MAR 17 1958
3/17 C 220
3/18 800
3/19 .500

Mrs. Cora A. Bailey, Fiscal Officer
U. S. Bureau of Mines, Region IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA-4582(lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mrs. Bailey:

Transmitted herewith to be certified for the Government's 50 percent participation payment is the original of the Operator's MF-104 Report for January. As indicated thereon we have approved it in the amount of $10,853.44.

One copy was sent to the Survey Member of the Field Team on February 18, and one copy(excepting MF-104 Voucher) was sent to the Washington Office on that same date. The other Washington copy of the report and both the MF-104s are being retained here awaiting your voucher data to be posted thereon.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encl.

cc: DMEA Op.Com.(2)
Amos,USGS,Carbondale
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
March 10, 1958

DMEA
RECEIVED MAR 17 1958
CODE
220
800
500

Mr. E. A. Jones, Division Manager
St. Joseph Lead Company
Box 32
Bonne Terre, Missouri

Re: DMEA-4582(lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mr. Jones:

This is to advise that I have approved your MF-104 Report covering the January work on the above cited project as claimed and forwarded the original to the Finance Officer to certify for the Government's 50 percent participation payment.

Also, with this letter, are furnished the original and four copies of proposed Amendment No. 4, signed for the Government by me, to add the tracts under this Contract which recently were acquired under the Bureau of Land Management Prospecting Permit No. 044857, in accordance with your March 3 letter of request furnishing photostats of the Permit.

If this proposed Amendment meets with the approval of your company, please have all five copies signed, retain the "Operator's Copy" for your file and return the original and other three copies to me for the usual distribution; otherwise, return all copies with a statement of your objections for our consideration.

Sincerely yours,

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

CCK/id

encls. 5

cc: DMEA Op.Com.(2) w/extra cy encl.
Amos, USGS, Carbondale "
4581 file
Shadow cy-Mr. R. E. Wagner

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
February 12, 1958

2/18
2/14 220
500

Mr. R. E. Wagner, Exploration Superintendent
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4582(lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mr. Wagner:

This is written confirmation of the approval of the Government as of February 6, 1958 given by the Field Team in your office then for drilling 16 additional holes under "Stage II, Exhibit A" of the cited Contract as requested and geologically justified by you for the following sites:

Site No.	C-104	about	900	feet	N5°W	of C-83
	C-105	"	520	"	N25°E	of C-83
	C-106	"	520	"	N85°E	" C-83
	C-107	"	520	"	N85°E	" C-48
	C-108	"	520	"	S85°W	" C-83
	C-109	"	900	"	S55°W	" C-83
	C-110	"	520	"	N25°E	" C-88
	C-111	"	520	"	N35°W	" C-89
	C-112	"	520	"	N25°E	" C-87
	C-113	"	520	"	S85°W	" C-89
	C-114	"	520	"	N85°E	" C-87
	C-115	"	490	"	S35°E	" C-88
	C-116	"	520	"	S25°W	" C-89
	C-117	"	520	"	S85°W	" C-80
	C-118	"	1040	"	N35°W	" C-80
	C-119	"	1040	"	N25°E	" C-80

Also confirmed here is the approval of the Government which the Field Team likewise gave for a changed Stage I Hole Site C-103 about 1,560 feet N50°W of C-55 for a hole to be drilled there instead of at the originally designated Site C2-67 which was eliminated upon completion of land surveying at the beginning of the project work.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

4582 file
Shadow cy-Mr. E. A. Jones

cc: DMEA Op.Com.(2)
Amos, USGS, Carbondale

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
January 29, 1958

OFFICE OF THE SECRETARY
DMEA
RECEIVED JAN 31 1958

DATE	WRITER	AMOUNT
1/31		
2/4		220
		800
		500

Mrs. Cora A. Bailey, Fiscal Officer
U. S. Bureau of Mines, Region IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA-4582(lead-zinc-copper)
St. Joseph Lead Company
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mrs. Bailey:

Transmitted herewith to be certified for the Government's 50 percent participation payment is the original of this Operator's MF-104 Report for December in the amount of $15,972.40.

One copy was sent to the Survey Member of the Field Team on January 16 and one copy (excepting MF-104 Voucher) was sent to the Washington office on that same date. The other Washington copy of the report and both the MF-104s are being retained here awaiting your voucher data to be posted thereon.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encl.

cc: DMEA Op.Com.(2)
Amos,USGS,Carbondale
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
January 29, 1958

OFFICIAL FILE COPY
DMEA
RECEIVED JAN 30 1958

DATE	INITIALS	CODE
1-31	gb	220
2/3	[illegible]	800
		500

Mr. E. A. Jones, Division Manager
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4582(lead-zinc-copper)
St. Joseph Lead Company
Courtois Area
Washington County, Mo.
Contract Idm-E1058

Dear Mr. Jones:

This is to advise that I have approved your MF-104 Report covering the December work on the above cited project as claimed and forwarded the original to the Finance Officer to certify for the Government's 50 percent participation payment.

Sincerely yours,

COX/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

cc: DMEA Op.Com.(2)
Amos,USGS,Carbondale
4582 file
Shadow cy-Mr. R. E. Wagner

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
January 10, 1958

OFFICIAL FILE COPY
DMEA
RECEIVED JAN 13 1958

1/13 C 220
1/13 800
1/14 500

Mr. E. A. Jones, Division Manager
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4582(lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract 14m-M1062

Dear Mr. Jones:

This is to advise that I have approved your MF-104 Report covering the November work on the above cited project as claimed and forwarded the original to the Finance Officer to certify for the Government's 50 percent participation payment.

Sincerely yours,

CCh/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

cc: DMEA Op.Com.(2)
Amos,USGS,Carbondale
Finance Officer,USBM,Bartlesville
4582 file
Shadow cy-Mr. R. E. Wagner

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
January 9, 1958

RECEIVED JAN 13 1958

1-13 C 220
1/13 8.00
1/14 500

Mrs. Cora A. Bailey, Fiscal Officer
U. S. Bureau of Mines, Region IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA 4582(lead-zinc-copper)
St. Joseph Lead Company
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mrs. Bailey:

Transmitted herewith to be certified for the Government's 50 percent participation payment is the original of this Operator's MF-104 report for November in the amount of $15,061.60.

One copy was sent to the Survey Member of the Field Team on December 16, and one copy (excepting MF-104 Voucher) was sent to the Washington office on that same date. The other Washington copy of the report and both the MF-104s are being retained here awaiting your voucher data to be posted thereon.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encl.

cc: DMEA Op.Com.(2)
Amos,USGS,Carbondale
4581 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
December 10, 1957

OFFICIAL FILE COPY
DMEA
RECEIVED DEC 13 1957

DATE		CODE
12/13	gb	220
12/13	[illegible]	800
12/16	[illegible]	500

Mrs. Cora A. Bailey, Fiscal Officer
U. S. Bureau of Mines, Region IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA 4582(lead-zinc-copper)
St. Joseph Lead Company
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mrs. Bailey:

Transmitted herewith to be certified for the Government's 50 percent participation payment is the original of the MF-104 report for October. As indicated thereon, I have approved it in the claimed amount of $16,395.96.

One copy of this report was sent to the Survey Member of the Field Team November 20, 1957. The two Washington copies are being retained here awaiting your voucher data to be posted thereon.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encl.

cc: DMEA Op.Com.(2)
Amos,USGS,Carbondale
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
December 10, 1957

OFFICE OF DMEA
RECEIVED DEC 13 1957

12/13	gb	220
12/12	688	800
12/11	~~wh~~	500

Mr. E. A. Jones, Division Manager
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4582(lead-zinc-copper)
St. Joseph Lead Company
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mr. Jones:

This is to advise that I have approved your MF-104 Report covering the October work on the above-cited project as claimed and forwarded the original to the Finance Officer to certify for the Government's 50 percent participation payment.

Sincerely yours,

CCK/id

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

cc: DMEA Op.Com.(2)
Finance Officer,USBM,Bartlesville
Amos,USGS,Carbondale
4582 file
Shadow cy - Mr. R. E. Wagner

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
November 20, 1957

11/22 gb 220
11/26 ~~[illegible]~~ 500

Mr. Dewey H. Amos
Geology Department
University of Southern Illinois
Carbondale, Illinois

DMEA-4582

Dear Dewey:

Enclosed herewith for your information are your copies of the St. Joe MF-104s for October on their three projects (Idm-E1064, -E1068 and -E1073).

Chester received your November 17 letter this morning and this also is to confirm that either he or I will meet you at the hotel in Flat River on Wednesday evening, December 4 to make the necessary Field inspection of the three above-mentioned St. Joe and the National Lead Projects on December 5.

One of the copies of the St. Joe report (excepting the MF-104) on its Czar Knob Project Idm-E1064 is being forwarded to Washington now with a copy of this letter to facilitate the decision on our recommended Amendment No. 4 for this project which will be urgent by the time of the above scheduled inspection.

With best personal regards, I am,

Sincerely yours,

CCK/jd

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encls. 3

cc: DMEA Op.Com.(2) w/cy encl.
4581 file

The MF-104's for October were not rec'd.
(Bette Razum)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
November 7, 1957

official

RECEIVED NOV 12 1957

DATE		CODE
11/12	C	220
11/12		800
11/12		500

Mr. E. A. Jones, District Superintendent
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4581, -4582, -4583
Crawford, Washington,
Iron Counties, Mo.
Project Contract Idm-E1064
-E1068, -E1073

Dear Mr. Jones:

This is to advise that we have approved your September MF-104 reports as claimed and forwarded them to the Finance Office, U. S. Bureau of Mines, Bartlesville, Oklahoma for certification of the Government's 50 percent participation payment.

Enclosed herewith are sets of the forms MF-104 and MF-104A for use in preparing your next report on the subject project contracts.

Sincerely yours,

CCK/jd

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encls.

cc: DMEA Op.Com.(2)
Amos,USGS,Carbondale
4581 file
4582 "
4583 "
Shadow copy - Mr. E. A. Jones

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
November 7, 1957

11/12 C 20
11/12 800
11/12 500

Mrs. Cora A. Bailey, Fiscal Officer
U. S. Bureau of Mines, Region IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA-4582(lead-zinc-copper)
St. Joseph Lead Company
Courtois Project
Washington County, Mo.
Contract Idm-E1068

Dear Mrs. Bailey:

Transmitted herewith to be certified for the Government's 50 percent participation payment is the original of the MF-104 reports for September. As indicated thereon, I have approved it in the claimed amount of $13,560.68.

One copy of this report was sent to the Survey Member of the Field Team October 16, 1957; the two Washington copies are being retained here awaiting your voucher data to be posted thereon.

Sincerely yours,

CCK/jd

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encl.

cc: DMEA Op.Com.(2)
Amos,USGS,Carbondale
4582 file

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

NOV 1 1957

Hon. John L. McClellan
United States Senate
Washington 25, D. C.

Dear Senator McClellan:

Reference is made to the letter dated October 21, 1957, signed by Mr. Donald F. O'Donnell, Acting Chief Counsel, Permanent Subcommittee on Investigations, requesting certain information relating to the administration of the Defense Minerals Exploration Program. I shall answer the questions posed by Mr. O'Donnell in the order in which they appear in his letter.

1. The Policy and Coordinating Committee was established at the time the Defense Minerals Administration was being abolished and the exploration functions were transferred to the Defense Minerals Exploration Administration. The first official action taken by the Policy and Coordinating Committee was on November 16, 1952. Specifically, that action outlined the duties of the Operating Committee, and a copy of the official memorandum was furnished you by our letter of October 9, 1957. The Policy and Coordinating Committee has not been disbanded.

2. The delegation of authority and responsibility of the Administrator of DMEA during the tenure of office of Mr. Robert R. Rose, Jr. as Assistant Secretary for Mineral Resources are defined in Departmental Order 2605 and confirmed in Order 2614, copies of which are enclosed. Also enclosed is a copy of a memorandum dated September 28, 1951, signed by Mr. Oscar L. Chapman, Secretary of the Interior, designating Mr. Mittendorf as Acting Administrator of the Defense Minerals Administration.

3. During the tenure of office of Mr. Robert R. Rose, Jr. as Assistant Secretary for Mineral Resources, he provided top policy guidance and direction of the DMEA program. He had no direct responsibility for and did not exercise any supervision over individual case actions.

4. Since inception of the Defense Minerals Exploration Program the Administrator has had a delegation of authority from the Secretary to perform and exercise functions and powers relating to domestic exploration for metals and minerals. There has been no change of policy, nor any change in delegation of authority and responsibility of the Administrator of DMEA since Mr. Rose left office.

Sincerely yours,

Frank E. Johnson

Acting Administrator

Enclosures

COMittendorf/FEJohnson/LEImhoff/fw-10/30/57

PRS 2681

cc: Secretary's Reading File
MR (2)
DL (2)
DCCO
Mr. Imhoff
Mails & Files, DMEA
Admr. Read. File
Mr. P.D.Lamb, BM
Mr. Kilgerard, GS
Mr. Robert R. Rose, Jr. (via Mr. Imhoff)
Mr. Grinwald (2)
Mr. Selfridge
Mr. Johnson
Mr. Mittendorf

C
O
P
Y

UNITED STATES
DEPARTMENT OF THE INTERIOR
Office of the Secretary

January 25, 1951

ORDER NO. 2614

Subject: Confirmation of defense actions and redelegations of authority

Sec. 1 Confirmations. The Petroleum Administration for Defense, established by Order No. 2591, as amended (15 F. R. 6767, 9529), and the Defense Minerals Administration, the Defense Power Administration, and the Defense Solid Fuels Administration, established by Order No. 2605 (15 F. R. 8718), are continued, and all orders and appointments made and all actions taken by appropriate officials of these agencies or by the Secretary of the Interior pursuant to Executive Order 10161 (15 F. R. 6105) and Executive Order 10182 (15 F. R. 8013) are ratified and confirmed, under the authority vested in the Secretary of the Interior by Delegation No. 1 of the Defense Production Administrator issued pursuant to Executive Order 10200 (16 F. R. 61).

Sec. 2 Redelegations. In so far as Delegation No. 1 issued by the Defense Production Administrator pursuant to Executive Order 10200 (16 F. R. 61) vests in the Secretary of the Interior the powers redelegated by the Secretary to the Deputy Administrator of the Petroleum Administration for Defense by Order No. 2591, as amended (15 F. R. 6767, 9529) and to the respective Administrators of the Defense Minerals Administration, the Defense Power Administration, and the Defense Solid Fuels Administration by Order No. 2605 (15 F. R. 8718), those powers are again redelegated to the Deputy Administrator and to the respective Administrators under the conditions stated in those orders.
(Sec. 6, E. O. 10200, 16 F. R. 61.)

s/ OSCAR L. CHAPMAN

Secretary of the Interior

UNITED STATES
DEPARTMENT OF THE INTERIOR
Office of the Secretary

COPY

ORDER NO. 2605, Amendment No. 6 November 20, 1951

Subject: Defense administrations for minerals, power, solid fuels, and fisheries

The name of the Defense Minerals Administration is changed to Defense Minerals Exploration Administration and the words "Defense Minerals Exploration Administration" are substituted for the words "Defense Minerals Administration" wherever the latter words appear in Order No. 2605, as amended (16 F. R. 2231, 5024, 5846, 9531).

s/ OSCAR L. CHAPMAN

Secretary of the Interior

UNITED STATES
DEPARTMENT OF THE INTERIOR
Office of the Secretary

Order No. 2605

Subject: Defense administrations for minerals, power, solid fuels, and fisheries

Sec. 1 Purpose. The purpose of this order is to establish the Defense Minerals Administration, the Defense Power Administration, the Defense Solid Fuels Administration, and the Defense Fisheries Administration, to carry out the functions vested in the Secretary of the Interior pursuant to Executive Order 10161 (15 F. R. 6105) with respect to metals and minerals, electric power, solid fuels, and fishery commodities.

Sec. 2 Establishment of administrations. There are established a Defense Minerals Administration, a Defense Power Administration, a Defense Solid Fuels Administration, and a Defense Fisheries Administration. Each of the defense administrations shall be headed by an Administrator who shall be appointed by the Secretary of the Interior and who shall report and be responsible directly to the Secretary.

Sec. 3 Delegation of authority. Except as provided in section 4 of this order, and except as the Secretary of the Interior may otherwise provide, all of the functions and powers vested in the Secretary of the Interior by Executive Order 10161 and by subdelegations made to him under that order by appropriate officers of the Government may be performed and exercised by:

(a) the Administrator of the Defense Minerals Administration in so far as these functions and powers relate to metals and minerals,

(b) the Administrator of the Defense Power Administration in so far as these functions and powers relate to electric power,

(c) the Administrator of the Defense Solid Fuels Administration in so far as these functions and powers relate to solid fuels, and

(d) the Administrator of the Defense Fisheries Administration in so far as these functions and powers relate to fishery commodities.

Sec. 4 Limitations. With respect to the defense administrations established by this order, the Secretary of the Interior reserves to himself:

(a) the approval of any redelegation by an Administrator of any of the powers delegated to him by the Secretary of the Interior;

(b) the creation of advisory committees, and the establishment of policies respecting the composition, appointment of members, and operation of such committees;

(c) the exercise of the powers and the performance of the functions respecting voluntary agreements and programs delegated to the Secretary of the Interior by section 710(b) of Executive Order 10161;

(d) the exercise of the powers and the performance of the functions respecting the guarantee of loans and the certification of loans, purchases, and commitments delegated to the Secretary of the Interior by Part III of Executive Order 10161;

(e) the employment of persons under section 710 of the Defense Production Act of 1950 and the obtaining of exemptions under that section;

(f) the requisitioning of property;

(g) the making of recommendations with respect to necessity certificates in regard to amortization;

(h) the approval of all industry orders, and amendments, which the Administrators formulate;

(i) the approval of major policy or program actions which the Administrators propose to take;

(j) the maintenance of all interagency relationships with respect to matters which are common to the areas of responsibility covered by the defense administrations, including representation on the policy level with the National Security Resources Board, the National Production Authority, the Executive Office of the President, and other major agencies concerned with defense production, and the Congress; and

(k) the establishment of general policies and procedures respecting the exercise of powers and the performance of functions vested in the Secretary of the Interior by or under Executive Order 10161 and matters of internal administration.

(Sec. 902, E. O. 10161; 15 F. R. 6105, 6107.)

s/ OSCAR L. CHAPMAN

Secretary of the Interior

December 4, 1950

C
O
P
Y

UNITED STATES
DEPARTMENT OF THE INTERIOR
Office of the Secretary
Washington 25, D. C.

September 28, 1951

Memorandum

To: Heads of Bureaus, Offices, and Defense Administrations

From: Secretary of the Interior

Subject: Designation of Acting Administrator, Defense Minerals Administration

Mr. C. O. Mittendorf is hereby designated Acting Administrator of the Defense Minerals Administration to succeed Dr. W. C. Schroeder. This designation is effective today, September 28, 1951.

s/ OSCAR L. CHAPMAN

Secretary of the Interior

COPY

UNITED STATES SENATE
Committee on
Government Operations
Senate Permanent Subcommittee
on Investigations
(Pursuant to S. Res. 37, 85th Congress)

October 21, 1957

Mr. C. O. Mittendorf, Administrator
Department of Interior
Defense Minerals Exploration Administration
Washington 25, D. C.

Dear Mr. Mittendorf:

The Sixth Annual Report of the Joint Committee on Defense Production makes reference to a Policy and Coordinating Committee within the Department of the Interior which was comprised of the Assistant Secretary for Mineral Resources, as Chairman; the Administrator of DMEA; and the Directors of the Bureau of Mines and Geological Survey.

Will you kindly furnish this Subcommittee with the following information:

(1) How long was the Policy and Coordinating Committee in existence. Please furnish a copy of any internal order which resulted in disbanding this Committee and setting up a new type of procedure, if such is the case.

(2) The delegation of authority and responsibility of the Administrator of DMEA during the tenure of office of Mr. Robert R. Rose, Jr., as Assistant Secretary for Mineral Resources.

(3) What authority and responsibility did Mr. Rose exercise over DMEA loans to private industry.

(4) Has there been any change of policy or any change in delegation of authority and responsibility of the Administrator of DMEA since Mr. Rose left office. If there were any changes, please furnish documentation.

Sincerely yours,

s/ DONALD F. O'DONNELL

Donald F. O'Donnell
Acting Chief Counsel

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
October 28, 1957

Approved WPY

OFFICIAL FILE COPY
DMEA
RECEIVED OCT 30 1957

DATE		CODE
10/30	C	220
10/31	243	130
10/31	~~[illegible]~~	500

DMEA Operating Committee
Department of the Interior
Washington 25, D. C.

Re: DMEA-4582(lead-zinc-copper)
St. Joseph Lead Co.
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Sirs:

Forwarded herewith are your original and one copy of the Amendment No. 3 just executed by the Operator to include one newly optioned tract under the Contract.

This Amendment is justified under the provisions in Annex I of the Contract. A copy of the option is attached.

One copy of this Amendment has been retained by the Operator, one by the Field Team, and one is being sent to the Finance Officer.

Sincerely yours,

Clinton C. Knox

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encl. 3

cc: DMEA Op.Com.
Finance Officer,USBM,Bartlesville w/cy Amendment
Amos,USGS,Carbondale
4582 file

Amendment

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
October 17, 1957

OFFICIAL FILE COPY
DMEA
RECEIVED OCT 22 1957

DATE	INITIALS	CODE
10/22	C	220
10/22	[illegible]	800
10/22	[illegible]	500

Mr. R. E. Wagner, Exploration Superintendent
Geology Department
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4562(lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract Ldr-11052

Dear Mr. Wagner:

As formally requested in your 17-10A reports received yesterday with those of your other two projects covering the work in September, enclosed herewith are the original and four copies of proposed Amendment No. 5, signed for the Government by me, to add one newly optioned tract under the cited Contract.

If this Amendment meets with the approval of your company, please have all five copies signed, retain the "Operator's Copy" for your files and return the original and other three copies to me for the usual distribution; otherwise, return all copies with a statement of your objections for our consideration.

Sincerely yours,

CDK/jo

Clinton D. Knox
Executive Officer
DMEA Field Team, Region IV

encl. 5

cc: [illegible]
[illegible]
4562 File
[illegible]

Extra advanced copy
Washington

EXPLORATION PROJECT CONTRACT IDM-E1068
ST. JOSEPH LEAD COMPANY
DOCKET NO. DMEA-4582 (LEAD-ZINC-COPPER)

AMENDMENT NO. 3

It is agreed the 16th day of October, 1957, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and the St. Joseph Lead Company, that Exploration Project Contract Idm-E1068 (Docket No. DMEA-4582) is amended pursuant to item 1 of the Special Agreement Concerning Land in Annex I of said Exploration Contract, whereby the additional lands described in one Option Contract filed with the Defense Minerals Exploration Administration as of October 16, 1957, being contiguous to lands covered by said Contract, becomes subject to the provisions therein, and hereby are included with the list of properties thereunder in Annex I, particularly identified by the Operator's file number and names of owner as follows:

CZ 223 J. A. Crabtree and Emma Crabtree(wife)

This amendment shall be effective as of October 16, 1957.

This amendment shall not be construed to increase the estimated cost of the project or the aggregate amount which the Government may be required to contribute.

Executed in quintuplicate the day and year first above written.

THE ST. JOSEPH LEAD COMPANY

By _____

Title _____

THE UNITED STATES OF AMERICA

By _____
Executive Officer
DMEA Field Team, Region IV

OFFICIAL FILE COPY
DMEA
RECEIVED OCT 22 1957

DATE	INITIALS	CODE

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
October 14, 1957

OFFICIAL FILE COPY
DMEA
RECEIVED OCT 21 1957

DATE	INITIALS	CODE
10/21	GB	220
10/21		800
		500

Mr. E. A. Jones, District Superintendent
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4581, -4582, -4583
Crawford, Washington,
Iron Counties, Mo.
Project Contract Idm-E1064
-E1068, -E1073

Dear Mr. Jones:

This is to advise that we have approved your August MF-104 reports as claimed and forwarded them to the Finance Office, U. S. Bureau of Mines, Bartlesville, Oklahoma for certification of the Government's 50 percent participation payment.

Enclosed herewith are sets of the forms MF-104 and MF-104A for use in preparing your September report on the subject project contracts.

Sincerely yours,

CCK/jd

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encls.

cc: DMEA Op.con.(2)
Amos, U.S., Carbondale
4581 File
4582
4583 "
Shadow copy - Mr. E. A. Jones

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
October 14, 1957

OFFICIAL FILE COPY
DMEA
RECEIVED Oct 24 1957

DATE		AMOUNT
10/21	GB	220
10/21	[illegible]	800
10/21	~~[illegible]~~	500

Mrs. Cora A. Bailey, Fiscal Officer
U. S. Bureau of Mines, Region IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA-4582(lead-zinc-copper)
St. Joseph Lead Company
Courtois Project
Washington County, Mo.
Contract Idm-E1068

Dear Mrs. Bailey:

Transmitted herewith to be certified for the Government's 50 percent participation payment is the original of the MF-104 reports for August. As indicated thereon, I have approved it in the claimed amount of $16,263.64.

One copy of this report was sent to the Survey Member of the Field Team September 16, 1957; the two Washington copies are being retained here awaiting your voucher data to be posted thereon.

Sincerely yours,

CCK/jd

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encl.

cc: DMEA Op.Com.(2)
Amos,USGS,Carbondale
4582 file

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

DMEA-4582

OCT 9 1957

Hon. John L. McClellan
United States Senate
Washington 25, D. C.

Dear Senator McClellan:

I am transmitting herewith copies of certain Departmental orders and memoranda relating to the administration of the DMEA program. This material includes that which was requested orally on October 1, 2, and 3 by Mr. Joseph Maher, Investigator for your Committee, and also other background documents which are related to those requested by Mr. Maher. The enclosures are listed as follows:

1. Departmental Order 2303
2. " " 2634 (superseded by 2303)
3. " " 2731
4. " " 2764 (superseded by 2731)
5. " " 2755
6. Operating Committee Memorandum No. 31 with attached Memorandum of Understanding between USGS, USBM, and DMEA, dated March 6, 1955
7. DMEA Circular No. 34 with attached Part 111.6.1 of Organization Series of the Departmental Manual
8. DMEA Circular No. 13
9. Operating Committee Memorandum No. 13
10. Memorandum dated January 26, 1956, re designation of Executive Officers
11. Operating Committee Memorandum No. 33 designating Acting Executive Officer, Region IV
12. Memorandum dated January 21, 1955, re designation of Executive Officers

PRS 1619
(follow-up)

13. Teletype dated January 14, 1955, Smith to Mittendorf, with attached reply

14. DMEA Order-1, Amended, with Amendments 1 and 2 attached

15. Memorandum dated January 27, 1954, re designation of Clinton C. Knox as Executive Officer, Region VI (now Region IV)

16. Operating Committee Memorandum No. 25 re designation of Clinton C. Knox to replace William P. Williams as Executive Officer, Region VI (now Region IV)

17. Copy of letter dated January 15, 1954, from Mittendorf to Williams

18. Copy of letter dated January 15, 1954, from Mittendorf to Knox

19. Copy of letter dated March 13, 1957, to Knox from Operating Committee, re docket DMEA-4582

20. Copy of DMEA press release dated June 17, 1957

21. Section A32.00 of Department of the Interior Official Organization Handbook which establishes a Policy and Coordinating Committee and an Operating Committee and otherwise describes the organizational structure of the DMEA

22. DMEA Circular 4 which transmits Memorandum dated November 16, 1954, from Policy and Coordinating Committee to Operating Committee re Functions of the Operating Committee

23. Copy of Departmental press release dated September 26, 1957, re Mr. Royce A. Hardy, Jr.

Mr. Meher also requested a copy of the Office of Defense Mobilization Borrowing Authority Review Board Document No. 12-A/10, dated August 20, 1957. Since this is an internal working document of the Office of Defense Mobilization, prepared by their Production Staff for the use of the Review Board in its consideration of the Department's request for additional borrowing authority funds, I consider it inappropriate for me to release it. It is respectfully suggested that you direct your request for a copy of the document to Mr. Gordon Gray, Director of the Office of Defense Mobilization.

Sincerely yours,

C. O. Mittendorf

Administrator

Enclosures
COMittendorf/fw-10/9/57

cc: Mails & Files
MR (2)
DCCO
DL (2)

Mr. F. Lamb (BM)
Mr. Kiilsgaard (GS)
Mr. Griswold (2)
Mr. Mittendorf
Mr. Johnson

Griswold
Betty

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

PRS 1619

SEP 30 1957

Omek-4582

Hon. John L. McClellan
United States Senate
Washington 25, D. C.

Dear Senator McClellan:

This is with further reference to Mr. Donald J. O'Donnell's request of September 11, 1957, for photostats of certain documents in the DMEA files relating to the St. Joseph Lead Company, and to Mr. Frank E. Johnson's letter to you of September 18, 1957, on the same subject.

In response to Mr. O'Donnell's request, photostats of the documents personally selected by Mr. Maher, investigator for your Committee, are listed and enclosed.

Your attention is called to the confidential data contained in certain of the documents which include descriptions of the applicant's property rights, physical descriptions of the properties, and accounts of the geological justifications for the projects supported by the results of preliminary work performed by the applicant. Documents of this nature are held to be in a privileged category and would include the application of the St. Joseph Lead Company, the reports on the on-site field examinations made by Government engineers and geologists, memoranda of interagency commodity specialists' reviews and recommendations, and copies of the exploration contracts. The photostatic copies of all of the documents which we hold to be "privileged" are so designated.

The release of certain information in these documents to unauthorized persons would be a breach of faith and violate the confidence of the applicant, as well as of the employees of the U. S. Bureau of Mines and U. S. Geological Survey who comprise the DMEA field staff. This information could be used improperly by competitors of the applicant or by individuals for their personal gain. Therefore, you are requested to restrict the use of these documents to only duly authorized members of your Committee and staff.

Sincerely yours,

C. O. Mittendorf

Administrator

Enclosures

FEJohnson/GCSelfridge/COMittendorf/bih/fw
9/27/57

cc: Mails & Files
Admr. Reading File
MR (2)
DCCO
DL (2)
Mr. F. Lamb (BM)
Mr. Kiilsgaard (GS)
Mr. Griswold (2)
Mr. Mittendorf
Mr. Johnson

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

FRJ 1619

SEP 18 1957

DMEA - 4582

Hon. John L. McClellan
United States Senate
Washington 25, D. C.

Dear Senator McClellan:

Reference is made to letter dated September 11, 1957, from Donald F. O'Donnell, Acting Chief Counsel, Committee on Government Operations, requesting photostats of certain documents in the Defense Minerals Exploration Administration files on St. Joseph Lead Company. We are having photostats made of these documents and expect they will be available in about three days.

As to Mr. O'Donnell's request for photostats of correspondence between Mr. Felix Wenner and the St. Joseph Lead Company, which Mr. Maher discussed with Mrs. Odell Brown, I am referring his letter to the Office of the Assistant Secretary of Mineral Resources for attention.

Sincerely yours,

Frank E. Johnson

Acting Administrator

F.E.Johnson/bih
9/18/57
cc to: Docket
Admr. Reading File
Mineral Resources (2)
DL (2)
OCCO
Mr. Griswold (2)
F.E.Johnson

C
O
P
Y

UNITED STATES SENATE
Committee on
Government Operations
Senate Permanent Subcommittee
On Investigations

September 11, 1957

Mr. Frank E. Johnson
Deputy Administrator
Defense Minerals Exploration Administration
Department of the Interior
Washington 25, D. C.

Dear Mr. Johnson:

Pursuant to your request made to Mr. Maher, a member of the staff of this Subcommittee, it is requested that you kindly furnish photostatic copies of certain documents in your St. Joseph Lead Company file. You discussed with Mr. Maher the appropriate documents to be photostated. In addition, we will appreciate receiving photostatic copies of all correspondence emanating from Mr. Wormser to St. Joseph Lead Company and vice versa. Mrs. Brown, Administrative Assistant, showed a representative number of correspondence to Mr. Maher. She advised there was also more correspondence between Mr. Wormser and St. Joseph Lead Company which she will secure from the files. We will appreciate receiving photostatic copies of these as well.

Your cooperation in this matter is appreciated.

Sincerely yours,

(s) Donald F. O'Donnell

Donald F. O'Donnell
Acting Chief Counsel

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
September 11, 1957

Dr. John S. Brown
Chief Geologist
St. Joseph Lead Company
Bonne Terre, Missouri

DMEA - ~~58~~ 4582

Dear Dr. Brown:

This is to express appreciation for the information furnished in your letter of September 9 giving the elevations of the tops of formations penetrated by the four holes drilled in recent years by your company in the Bess-Sinky area.

Please rest assured, with respect to the preference you expressed, that this information will be treated confidentially for Government use only on the study we are making in that area.

I hope to arrange to visit your office about the close of September in connection with a Field Team inspection of your three DMEA projects. I will advise you or Mr. Wagner well before hand, however, when a firm date can be set.

With best personal regards, I am,

Sincerely yours,

GHK/jk

Glinton G. Knox
Executive Officer
DMEA Field Team, Region IV

cc: DMEA Op.Com.(2)
Ames,USGS,Carbondale(2)
File

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
September 9, 1957

EXTRA COPY DMEA RECEIVED SEP 13 1957		
DATE	INITIALS	CODE

Mr. E. A. Jones, District Superintendent
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4581, -4582, -4583
Crawford, Washington,
Iron Counties, Mo.
Project Contract Idm-E1064,
-E1068, -E1073

Dear Mr. Jones:

This is to advise that we have approved your July MF-104 reports as claimed and forwarded them to the Finance Office, U. S. Bureau of Mines, Bartlesville, Oklahoma for certification of the Government's 50 percent participation payment.

Enclosed herewith are sets of the forms MF-104 and MF-104A for use in preparing your August report on the subject project contracts.

Sincerely yours,

CCK/jd

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encls.

cc: DMEA Op.Com.(2)
Amos,USGS,Knoxville
4581 File
4582 "
4583 "

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D.C.~~
Box 431
Joplin, Missouri
August 9, 1957

OFFICIAL FILE COPY
DMEA
RECEIVED AUG 12 1957

DATE	INITIALS	CODE
8/12	P	220
8/12	EEP	800
8/13	~~[illegible]~~	500

DMEA-4582

Mr. Dewey Amos, Geologist
U. S. Geological Survey
Room 13, Post Office Bldg.
Knoxville 2, Tennessee

Re: St. Joe Lead Projects
Idm-E1064,-E1068,-E1073 and
National Lead Co. Project
Idm-E48 Amended
Eastern Missouri Lead Belt

Dear Dewey:

Receipt yesterday of the four Interim Reports of the July 30 inspections by you and Chester on the above cited projects is hereby acknowledged and the original and two copies of each are transmitted to Washington.

I believe they gave good coverage and no changes were made because I had confirmed in writing by two letters to St. Joe Lead Co. dated August 6, the Field Team's approval given for the additional four holes on Idm-E1064 and eleven holes on Idm-E1068; also by my August 8 letter, the additional two holes and magnetic surveys to National Lead on Idm-E48 Amended, copies of all of which are enclosed herewith for your files.

Chester has been in Texas this week, but before leaving here he explained that you probably will be on other assignments for considerable time in the future, so Chester or I will arrange to inspect these four projects in the Eastern Missouri Lead Belt about the close of August. I advised Uhley(National Lead) of this in his telephone call yesterday, and he explained that no serious geologic problems were anticipated there for sometime. I see no reason yet why you should be present at these next project inspections, but if any unusual geologic problems arise I will consult you by telephone or letter. Probably I will arrange to meet with you there again on project inspections about the close of the Summer.

Dan Stewart is assembling the necessary data on the last three holes completed on American Zinc's Boss-Bixby project. When I receive that supplemental information from him and the Field referral on this Application DMEA-4798, I immediately will forward a complete copy to you in hopes that you can prepare a geologic section for the joint Field Team Examination Report as soon as you have time available.

With best personal regards, I am,

Sincerely yours,

CCK/jd

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encl. 3

cc: DMEA Op.Com.(2)
Chester, USBM, Joplin
4581-4582-4583 File
1371 File
4798 File

P.S. I am also returning herewith initialed copies of each of the four above-mentioned Interim Reports for your files.

CCK

encl. 8

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
August 6, 1957

OFFICIAL FILE COPY
DMEA
RECEIVED AUG 12 1957

DATE	INITIALS	CODE
8/12	P.	220
8/12	GEF	800
8/13	~~COPY~~	500

Mr. R. E. Wagner, Exploration Superintendent
Geology Department
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4582 ~~(Lead-zinc-copper)~~
Courtois Project
Washington County, Mo.
Contract Idm-11088

Dear Mr. Wagner:

This is the written approval of the Government as of July 30, 1957, confirming the verbal approval given by the DMEA Field Team in your office on that date for drilling 11 additional holes under "Stage II, Exhibit A" of the cited Contract at the following sites which you justified and showed on your project map, prints of which will be furnished with your forthcoming monthly report for July:

Hole Site Nos.	VC-92	about	520	feet	S 30° E of VC-56
	VC-93	"	520	"	N of VC-10
	VC-94	"	520	"	N 60° E of VC-10
	VC-95	"	520	"	S 60° E of VC-10
	VC-96	"	520	"	S of VC-10
	VC-97	"	520	"	S 60° W of VC-10
	VC-98	"	520	"	N 60° W of VC-10
	VC-99	"	520	"	N 30° E of VC-8
	VC-100	"	520	"	S 30° E of VC-95
	VC-101	"	520	"	W of VC-28
	VC-102	"	520	"	S 30° E of VC-6

For such information on the eight "Stage II" drill hole sites which were previously approved as of June 28, 1957, please refer to my July 3 and 5 letters to you.

Sincerely yours,

CCK/jd

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

cc: DMEA Op.Com.(2) Amos,USGS,Knoxville 4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D.C.~~
Box 431
Joplin, Missouri
August 5, 1957

OFFICIAL FILE COPY
DMEA
RECEIVED AUG 8 1957

DATE	INITIALS	CODE
8/8	P.K.	220
8/8	[illegible]	800
8/8	[illegible]	500

Mrs. Cora A. Bailey, Fiscal Officer
U. S. Bureau of Mines, Region IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA-4582(lead-zinc-copper)
Courtois Project
Washington County, Mo.
St. Joseph Lead Co.
Contract Idm-E1068

Dear Mrs. Bailey:

Transmitted herewith to be certified for the Government's 50 percent participation payment is the original of the MF-104 report for June. As indicated thereon, we have approved it in the claimed amount of $18,781.46.

One copy of this report was sent to the Geological Survey Member of the Field Team on July 15, 1957, and one to Washington; the other Washington copy and both its MF-104s are being retained here awaiting your voucher data to be posted thereon. The fifth copy will remain in the Field Team file.

Sincerely yours,

CCK/jd

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encls. 3

cc: DMEA Op.Com.(2)
Amos,USGS,Knoxville
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
Box 431
Joplin, Missouri
August 5, 1957

Official Copy

RECEIVED

DATE	INIT.	CODE
8/8	WCK	500

Mr. E. A. Jones, District Superintendent
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4581,-4582,-4583
Contracts Idm-E1064,
-E1068, -E1073

Dear Mr. Jones:

This is to advise that we have approved your June MF-104 reports as claimed and forwarded them to the Finance Office, U. S. Bureau of Mines, Bartlesville, Oklahoma for certification of the Government's 50 percent participation payment.

Enclosed herewith are sets of the forms MF-104 and MF-104A for use in preparing your July report on the subject project contracts.

Sincerely yours,

C. C. Knox
Executive Officer
DMEA Field Team, Region IV

CCK/jd

encls.

cc: DMEA Op.Cos.(2)
Amos,USGS,Knoxville
4581 file
4582 "
4583 "

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
July 5, 1957

OFFICIAL FILE COPY
DMEA
RECEIVED JUL 8 1957

DATE	INITIALS	CODE
7-9	C	220
7/10	[illegible]	800
7/11	WRB	500

Mr. E. A. Jones, District Superintendent
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4582(lead-zinc-copper)
Courtois Project
Washington County, Mo.
Contract Idm-E1068

Dear Mr. Jones:

This is to advise that we have approved your May MF-104 Report as claimed and forwarded it to the Finance Office, U. S. Bureau of Mines, Bartlesville, Oklahoma for certification of the Government's 50 percent participation payment.

Sincerely yours,

CCK/jd

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

cc: DMEA Op.Com.(2)
Amos, USGS, Knoxville
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D. C.~~
Box 431
Joplin, Missouri
July 5, 1957

OFFICIAL FILE COPY
DMEA
RECEIVED JUL 8 1957

DATE	INITIALS	CODE
7-9	C	
7/11	[illegible]	220
7/11	[illegible]	800
		500

Mrs. Cora A. Bailey, Fiscal Officer
U. S. Bureau of Mines, Region IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA-4582(~~lead-zinc~~-copper)
Courtois Project
Washington County, Mo.
St. Joseph Lead Co.
Contract Idm-E1068

Dear Mrs. Bailey:

Transmitted herewith to be certified for the Government's 50 percent participation payment is the original of the MF-104 report for May. As indicated thereon, we have approved it in the claimed amount of $10,190.26.

One copy of this report was sent to the Geological Survey Member of the Field Team on June 18, 1957 and one(excepting the MF-104 voucher) is being forwarded to Washington office with a copy of this letter(its other copy is retained here awaiting your voucher data to be posted thereon), and the fifth copy will remain in the Field Team file.

Sincerely yours,

CCK/jd

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encl. 1

cc: DMEA Op.Com.(2) w/1 cy May MF-104A
Amos,USGS,Knoxville
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
July 5, 1957

OFFICIAL FILE COPY
DMEA
RECEIVED JUL 8 1957

DATE	INITIALS	CODE
7-9	C	220
7/9	[illegible]	800
7/9	~~[illegible]~~	500

Mr. R. E. Wagner, Exploration Superintendent
Geology Department
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4582(lead-zinc-copper)
Courtois Project
Washington County, Mo.
Contract Idm-H1068

Dear Mr. Wagner:

This is to correct the section numbers given in my July 3 letter approving eight drill hole sites under "Stage II" of the subject Contract.

In the last paragraph of that letter the second line of the first sentence hereby is changed to: tracts on each side of the line between sections 7 and 8, T.35N, R.1W, Washington County, Missouri.

Sincerely yours,

CCK/jd

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

cc: DMEA Op.Com.(2)
Amos,USGS,Knoxville
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
July 3, 1957

OFFICIAL FILE COPY
DMEA
RECEIVED JUL 8 1957

DATE	INITIALS	CODE
7-9	C	220
7-9	WRB	300

Mr. R. E. Wagner, Exploration Superintendent
Geology Department
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4582(lead-zinc-copper)
Courtois Project
Washington County, Mo.
Contract Idm-E1068

Dear Mr. Wagner:

This is the written approval of the Government as of June 28, 1957, confirming the verbal approval given by the DMEA Field Team in your office on that date to start the work under "Stage II, Exhibit A" of the cited Contract by drilling additional holes at the following sites which you justified and showed on your project map, prints of which will be furnished with your forthcoming monthly report for June:

Hole Site Nos.	VC-56	about	520'	E	of	"Stage I" drill Hole Site No. VC-2
" "	VC-57	"	"	"	of	VC-1
	VC-58	"	900'	NE	of	"
	VC-59	"	520'	NNE	"	"
	VC-60	"	"	NNW	"	"
	VC-61	"	"	"	"	VC-4
	VC-62	"	"	"	"	VC-13
	VC-63	"	"	N	"	"

These eight approved "Stage II" drill hole sites located on your optioned tracts on each side of the line between sections 4 and 5, T.35N, R.1W, Washington County, are in accordance with the justifications you gave the Field Team on the basis of "Stage I" drilling results nearing completion on those eight tracts, during the joint DMEA Field Team inspection of your project on June 27 and 28.

Sincerely yours,

CCK/jd

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

cc: DMEA Op. Com.(2) ✓ Amos, USGS, Knoxville 4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

OFFICIAL FILE COPY
DMEA
RECEIVED JUL 5 1957

DATE	INITIALS	CODE
7/5	C	220
7/5	[illegible]	500

July 2, 1957

Memorandum

To: Operating Committee, DMEA, Washington, D. C.

From: D. H. Amos, U. S. Geological Survey, Knoxville, Tenn.

Subject: DMEA-4582, Idm-E1068
St. Joseph Lead Company, Bonne Terre, Missouri
Courtois Area, Washington County, Missouri

Attached are four copies of a key to the symbols and abbreviations used on the drill hole logs submitted by the Operator under the subject contract. Also, included are four copies of the detailed stratigraphic nomenclature of the area.

Enclosures 8

OFFICIAL FILE COPY
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RECEIVED JUL 5 1957

DATE	INITIALS	CODE

ROCK CLASSIFICATION SYSTEM

VIBURNUM AREA

Rock Zones

The Bonneterre and underlying formations are subdivided into rock zones according to lithology of dominant types with numbers assigned ranging from 1 to 21 in descending order beginning with the top bed of the Bonneterre and ending in the Precambrian. Some numbers are left open for addition of more zones, if necessary.

Following is brief description of rock zones used at present:

Zone 1 - Top Transition Zone - 25-75 feet thickness.

Type Rock - Dense tan, fine grained dolomite banded and sometimes mottled with dense brown.

Variations - Davis type beds near upper contact and 20-30 feet below top. Oolite beds and slightly gray mottled or crystalline beds.

Zone 3 - Blue White Mottled Zone - Variable thickness. Dense nearly white dolomite mottled with bluish gray areas and showing considerable vugginess. An alteration of pre-existing normal rock types. Not present over much of the area. May occur anywhere in the section but favorite horizon over Southeast Missouri is between 1 and 5 zones.

Zone 4 - Gray White Crystalline Zone - Variable thickness. Coarsely crystalline gray-white, greenish white and pinkish white dolomite characterized by development of sizable dolomite rhombs with green clay in vugs and filling interstices between rhombs. Iron sulfide, as small crystals in vugs, is generally associated with this and zone 3 rocks. An alteration of pre-existing normal rock types and occurring only in parts of the area. May occur anywhere in the section but generally in the middle and lower parts and may occupy the entire Bonneterre thickness.

Zone 5 - Upper Oolite Zone - 70-120 feet thickness.

Type Rock - Tan and brown porous oolitic dolomite with oolite pitted algal brown spots in upper part.

Variations - Crepey gray tan mottled and gray spotted beds near center of zone. Thin algal reefs in some areas.

Zone 7 - Middle Reef Zone - 85 feet average thickness.

Type Rock - Nonbedded fingered algal reef rock with interreef filling of bedded gray spotted mottled and gray spotted oolitic dolomites.

Variations - Tan oolitic dolomite.

Zone 10 - Lower Oolite Zone - 0-80 feet thickness.

Type Rock - Tan oolitic dolomite often with less oolite development than in the 5 zone.

Variations - Thin algal reefs - alternations with 12 and 15 type rocks.

Zone 11 - Limestone - Not found in the project area to date. This number may be used to denote all limestone in the Bonneterre section regardless of horizon but generally is applied to limestone in the middle and lower Bonneterre of a thin bedded shaly nature. Limestone beds which correspond in lithology to numbered dolomite zones are designated as 5 LS, 7 LS, etc.

Zone 12 - Lower Mottled Zone or Crepe Zone - 0-80 feet thick.

Type Rock - Gray mottled or gray tan mottled dolomite characterized by thin, closely spaced, wavy black shale parting planes or stylolites and known as crepe rock.

Variations - 10-15 and 16 zone types and thin reefs.

Zone 15 - Light Colored Crystalline Zone - 0-45 feet thick.

Type Rock - Light colored, medium to coarsely crystalline dolomite with varying amounts of disseminated glauconite.

Variations - Thin slime and green shale banding. Tan instead of light colored. 10-12-16 zone types.

Zone 16 - Lower Marble Zone - 0-60 feet thick.

Type Rock - Brown algal reef rock - more massive fingering and less associated gray spotting than 7 zone type reefs.

Variations - Brown algal spotting - 10-12-15 zone types.

Zone 17 - Sandy Bonneterre - 0-75 ? feet thick.

4 zone rock types with varying amounts of included sand grains and with bands of clean Lamotte type sand. Occurs in the basal partion of the Bonneterre in areas where 3 and 4 zone rocks dominate.

Zone 18 - Cobble Conglomerate Beds - 0-45 feet thick. Rounded pebbles, cobbles and boulders of Precambrian rocks forming beds in whatever zones were being deposited offshore at time of formation. Designated as a zone only where conglomerate forms the bulk of the rock.

Zone 19 - Transition Sand Zone - 0-40 feet thick.

Type Rock - Gray or tan sandy dolomite, dolomitic sand and sandstone lying between typical 12-15-16 zone rocks and the Lamotte sandstone. If these overlying beds are sandy they are logged as 12S, 16S, etc.

Zone 20 - Lamotte Sandstone -

White sand

Zone 21 - Precambrian

Red granite - dark rhyolite porphyry and basic dikes.

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RECEIVED JUL 5 1957

DATE	INITIALS	CODE

DATA FOR INTERPRETATION OF
ROCK CLASSIFICATION LOGS

VIBURNUM AREA

List of Rock Zones

Zone 1 - Top transition zone..... 25-75 feet thick

Zone 5 - Upper oolite zone..... 70-120 " "

Zone 7 - Middle algal reef zone..... 85 feet average thickness

Zone 10 - Lower oolite zone..... 0-80 feet thick

Zone 11 - Limestone zone..... Variable thickness

Zone 12 - Lower mottled or crepe zone..... 0-80 feet thick

Zone 15 - Light colored crystalline zone..... 0-45 " "

Zone 16 - Lower marble zone..... 0-60 " "

Zone 18 - Cobble conglomerate zone..... Variable thickness

Zone 19 - Sandy transition zone..... 0-40 feet thick

Zone 20 - Lamotte sandstone

Zone 21 - Precambrian

Alteration Zones

Zone 3 - Blue white mottled zone..... Variable thickness

Zone 4 - Gray white crystalline zone..... " "

Zone 17 - Sandy Bonneterre zone..... " "

ROCK TERM ABBREVIATIONS

SYMBOL	USED AS ROCK TYPE	USED AS VARIETY OR MODIFICATION
A	Altered Dolomite	Altered
B	Brown Dolomite	Brown
B/	Brown Spotted Dolomite	
D	Dolomite	Dolomitic
E	Greenish Gray Dolomite	Green or greenish gray
F	Fingered Dolomite	Fingered
G	Gray Dolomite	Gray
G/	Gray Spotted Dolomite	
H	Greenish Gray Shale	Shaly (greenish gray)
I	Pink Dolomite	Pink
J	Glauconite	Glauconitic
K	Slime (dolomite)	Containing slime
KR	Slide Breccia	
L	Light colored Dolomite	Light Colored
M	Mottled Dolomite	Mottled
N	Marble (dolomite)	Marbled
O	Oolite (dolomite)	Oolitic
P	Porphyry	Containing porphyry
Gr	Granite	Containing granite
Q	Precambrian grit	Containing grit
R	Black Shale	Shaly (black)
S	Sandstone	Sandy
T	Tan Dolomite	Tan
W	White Dolomite	White
X	Crystalline (med. & coarse) Dolomite	Medium to coarse crystalline
Y	Yellow Dolomite	Yellow
L	Leached Rock	
L	Leached and Oxidized Rock	

OTHER DESCRIPTIVE SYMBOLS

Porosity

p_0 - No apparent porosity

p_1 - Finely porous

p_2 - Porous

p_3 - Very porous

p_4 - Vuggy

p_5 - Cavernous

Bedding

b_1 - Massive or thick bedded

b_2 - Irregularly bedded

b_3 - Very thin bedded

$\sim$ - Crape

b_4 - Banded (alternate bands of 1" to 4" thick carbonate, shale, etc.

b_5 - Slide breccia

Grain Size

g_0 - Microscopic

g_1 - Very fine (slime)

g_2 - Finely Crystalline

g_3 - Medium Crystalline

g_4 - Coarsely Crystalline

g_5 - Very large Crystalline

Effervescence

Ef 1- Slightly effervescent

Ef 2- Fairly effervescent

Ef 3- Strongly effervescent

Following symbols precede descriptive terms:

> - Slight or few

< - Much or many

: - Parts

Following subletters are in use:

———x - Coarsely crystalline

———b - Banded

———s - Spotted

———m - Mottled

———p - Pebbles

"$\_\_\_\_\__{m}$" as a subletter differs from "M" as a descriptive term in that "$\_\_\_\_\__{m}$" means a definitely outlined mottling by the agent named by the prime letter while "M" is used to denote irregularly and indistinctly outlined slime mottling.

Example: TB_m = tan dolomite mottled with distinct areas of brown dolomite.

Finger Rock is further described by the use of $\frac{A}{B}$ where the symbol above the line describes the finger material and the one below the line the matrix.

Example: - $\frac{T}{GM}$ = Tan fingers in gray tan mottled dolomite.

DEFINITIONS

Altered Rock (A) - The original definition of altered rock was made in 1935 and was re-stated in 1938 as follows:

"Those rocks whose constituents have undergone visible alteration by percolating solutions or gases since their original dolomite condition are classed as altered rocks. This does not include the latest alteration effects caused by leaching and oxidizing surface waters.- - - - includes any alteration occurring subsequent to dolomitization and up to the period of exposure to surface oxidizing waters."

Unfortunately, for more than 10 years thereafter, it was generally considered that the reddish brown"fingers" in the algal reef zones were due to a partial alteration of gray spotted rock which, if carried to completion, resulted in solid beds of reddish brown or gray brown "altered rock". The term became synonomous with these particular beds or with any gray mottled beds showing reddish brown mottling. Since the determination that these rocks were the result of algal growth the term has fallen somewhat into disuse. The original definition is still valid for this term and it may be used when applicable but should have nature of alteration noted in the details.

Slime (K) - Fine grained, dense, light gray or greenish gray dolomite. Has the appearance of siltstone but is often very pure dolomite.

Mottled Rocks (M)- Fine grained rocks in which two or more colors produce a mottled effect which is quite vague and indefinite in outline and is different from mottling caused by distinctly outlined areas of differing composition or color. Part of the apparent color difference is due to variable amounts of impurities and part due merely to differences in density. Slime is considered to be an integral part of mottled rocks and they might be defined as rocks of near slime density vaguely mottled with several gradational colors.

Marble (N) - Basal Bonneterre algal rock forming broad fingers or algal heads or thin wide-spread layers.

Green Shale (H) - Normal sedimentary shale beds and bands of greenish gray color.

Residue Shale (R)- Dark gray or black shale occurring usually as bands or as coatings on stylolite partings. Color due mainly to presence of finely divided sulfides. Is more alkalic in nature than green shale and often coarser in texture and includes more impurities. Originally was considered to be a residue of insoluble material remaining after solution of rock along bedding planes but this feature is no longer considered to be an important factor in its formation.

Gray Spotted (G_s)- Gray spots are small, generally less than 1/16" in diameter, dark spots without sharp outlines. They are clusters of extremely finely divided iron sulfide and are disseminated through the rock, generally in the vicinity of algal reefs. Their mode of origin is uncertain.

Brown Spotted (B_s)-Brown spots are round slightly flattened structures of algal origin, often with a shell fragment or rock grain as a nucleus and averaging 1/4" in diameter. Similar in appearance to the girvanella type of algae.

Fingered Dolomite (F) - Algal rock showing thin, up to 1" in diameter, closely spaced vertical columns of algal growth of the genus collenia. Space between columns is generally filled with gray spotted, gray mottled dolomite.

Leached Rocks (L)- Oxidizing waters from the surface percolating down through the formation, especially along channels and fractures, bleach out the color in the rocks to a pale greenish white, yellowish white or white color and create openings along fractures. The rocks thus formed are classed as leached rocks.

Oxidized Rocks (O)-These rocks are similar to above but are distinguished by the presence of much yellow and brown iron oxide formed from oxidation of the sulfide content of the rocks.

Slide or Slump Breccia (SB) - Produced where deposition of alternating layers of muds and carbonates occurred on a slope too steep for stability while muds were still soft with consequent sliding down slope to form distorted and broken layers of carbonate in a shale matrix and with much jumbled brecciation at the slide front. Once thought of as a solution breccia or conglomerate but no longer considered so.

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

Box 431
Joplin, Missouri

OFFICIAL FILE COPY
DMEA
RECEIVED JUN 24 1957

DATE	INITIALS	CODE
6-24	C	220
6/26	[illegible]	600
6/25	[illegible]	500

Airmail

June 20, 1957

Mr. E. A. Jones, District Manager
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4582 (lead-zinc-copper)
Courtois Area
Washington County, Mo.
Contract Idm-E1068

Dear Mr. Jones:

As formally requested in your May MF-104 Report, received here June 17, enclosed herewith are the original and five copies of Amendment No. 2, signed for the Government by me, to add one newly optioned tract under the cited Contract.

If this Amendment meets with the approval of your company, please sign all six copies, retain the "Operator's Copy" for your files and return the original and other four copies to me for distribution; otherwise, return all copies with a statement of your objections.

Sincerely yours,

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

CCK/enn

Encl.(6)

cc: DMEA Op.Com.(2)
Amos, USGS, Knoxville
4581 file

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

EXTRA COPY
DMEA
RECEIVED JUN 22 1957

DATE	INITIALS	CODE
6/25	[illegible]	5000

Airmail

P.O. Box 431
Joplin, Missouri
June 20, 1957

Mr. R. E. Wagner, Exploration Superintendent
Geology Department
St. Joseph Lead Company
Bonne Terre, Mo.

Re: DMEA-4581
DMEA-4582
DMEA-4583

Dear Mr. Wagner:

The plan for the DMEA Field Team to make our next inspections of your projects on Thursday, June 27, has been rearranged in accordance with the June 16 letter from Dewey Amos to you which he later rescinded. Therefore, as he first stated, we plan to arrive at your Viburnum project sub-office about 8:30 a.m. on June 27.

I have just received word that Frank Lamb and Thor Kiilsgaard, the Bureau of Mines and the Geological Survey representatives, respectively, in the Washington Office of DMEA, and Robert Laurence of the Knoxville Office all have arranged their schedules to be there that morning with this Field Team. As you know, those men have key positions in the Government's mineral commodity set-up, and I believed it would be mutually advantageous for your company and the Field Team, if they could be given a first-hand concept of the scope, results, and difficulties encountered to date on the DMEA projects in your region of Missouri.

With best personal regards and hopes of seeing you or one of your men at Viburnum on Thursday morning, June 27, I am,

Sincerely yours,

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

CCK/enn

cc: DMEA Op.Com.(2)
Mr. E.A. Jones, Bonne Terre
Amos, USGS, Knoxville
4581 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.
Box 431
Joplin, Mo.

May 8, 1957

Mr. E. A. Jones
District Manager
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA-4582(lead-zinc-copper)
Courtois Area
Washington County, Missouri
Project Contract Idm-E1068

Dear Mr. Jones:

This is written approval of the Government as of April 15, 1957, confirming the verbal approval of the Field Team at that time for delaying start of the project work under the subject contract until April 25, 1957, as requested by your representative.

It was explained that this extension of the time for beginning work on the contract would be necessary because due to the very heavy rains and extremely muddy conditions in your project area your drillers were unable to move from the exploratory holes then in progress on which costs were entirely at your company's expense.

Sincerely yours,

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

cc: DMEA Op. Com. (2)
Amos, [illegible], Carbondale
Finance Officer
4582 File

OFFICIAL FILE COPY
D M E A
RECEIVED MAY 13 1957
DATE | INITIALS | CODE
5-13 | | 220
5/13 | | [redacted]
| | 500

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code

COPY

May 7, 1957

Memorandum

To: Catherine Curtin, Statistics and Control Division

From: Hazel Berry, Operating Committee

Subject: Amendments to Contracts

Attached are the following docket copies of amendments to contracts which have been reviewed and approved by the commodity divisions and the Contract Administration and Audit Division.

These amendments do not require clearance by the Legal Division.

St. Joseph Lead Co., DMEA-4581, Idm-E1064, Amendment No. 1.

St. Joseph Lead Co., DMEA-4582, Idm-E1068, Amendment No. 1.

Attachments-2

8623

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D. C.~~
Box 431
Joplin, Missouri

April 22, 1957

Official
EXTRA COPY
DMEA
RECEIVED APR 24 1957

DATE	INITIALS	CODE
4/24	C	220
	esf	130
	C	500

DMEA Operating Committee
Department of the Interior
Washington 25, D. C.

Re: DMEA-4581 & -4582
St. Joseph Lead Co.
Project Contracts
Idm-E1064 & -E1068

Dear Sirs:

Forwarded herewith are the original and two copies of the Amendments No. 1 just executed by the Operator for each of the above cited Contracts.

The original and two copies of the justification for each are also enclosed herewith along with copies of the Operator's letters of request.

Copies of this Amendment to each of these contracts have been retained by the Operator, by this Field Team, and are being sent to the Finance Officer.

Sincerely yours,

CCK/jd

Clinton C. Knox
Executive Officer
DMEA Field Team, Reg. IV

encl. 9

cc: DMEA Op.Com.(3)
Finance Officer, Bartlesville
w/copy of 2 amendments
4581 file
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

OFFICIAL FILE COPY
DMEA
RECEIVED APR 12 1957

DATE	INITIALS	CODE
4/12	C	220
4/12	[illegible]	800
	WRB	500

Box 431
Joplin, Missouri

April 10, 1957

Mr. E. A. Jones, District Manager
St. Joseph Lead Company
Bonne Terre, Missouri

Re: DMEA 4582(lead-zinc-copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract Idm-E1068

Dear Mr. Jones:

In reply to your letter of April 4, 1957 requesting a change in the cited contract, we are enclosing the original and five copies of Amendment No. 1 signed by me for the Government. If it meets with the approval of your company, please sign them for the company, retain the "Operator's Copy" for your files and return the original and other copies to this office; otherwise, return the original and all copies with a statement of your objections.

Very truly yours,

Robert U. King

Robert U. King
Acting Executive Officer
DMEA Field Team, Region IV

RUK/ja

encl. 6

CC: DMEA Op. Com. (2)
Amos, USGS, Carbondale
4582 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

EXTRA COPY DMEA RECEIVED APR 12 1957		
DATE	INITIALS	CODE
4/18	ARS	520

Box 431
Joplin, Missouri

April 10, 1957

Mr. Dewey Amos
Geology Department
University of Southern Illinois
Carbondale, Illinois

Re: DMEA-4581 & -4582
(lead-zinc-copper)
St. Joseph Lead Co.
Contract Idm-E1064 & 1068

Dear Dewey:

Enclosed for your use are the extra(unsigned) copy of the executed Contract Idm-E1068, DMEA-4582, and a copy of Annex I, Annex II, and Exhibit A of the contract that has been submitted on DMEA-4583.

Very truly yours,

Robert J. King
Acting Executive Officer
DMEA Field Team, Region IV

RJK;jd

encl. 2

cc: DMEA Op. Com. (2)
4582 file
4583 file

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~XWASHINGTON 25, D.~~C.
Box 431
Joplin, Missouri

April 8, 1957

OFFICIAL FILE COPY
DMEA
RECEIVED APR 12 1957

DATE	INITIALS	CODE
4/12	C	220
4/12	[illegible]	800
	WRL.	500

Mrs. Cora A. Piper
Regional Finance Officer
U. S. Bureau of Mines, Reg. IV
206 Federal Building
Bartlesville, Oklahoma

Re: DMEA 4582 (lead-zinc-copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri

Dear Mrs. Piper:

Transmitted herewith is the Finance Office copy of the subject contract received from DMEA Operating Committee today.

Very truly yours,

RUK/jd

Robert U. King
Acting Executive Officer
DMEA Field Team, Region IV

encl.

cc: DMEA Op. Com.(2) ✓
4582 File

C
O
P
Y

ST. JOSEPH LEAD COMPANY

Bonne Terre, Mo.

April 5, 1957

Mr. Clinton C. Knox
Regional Executive Officer
Defense Minerals Exploration Administration
P. O. Box 431
Joplin, Missouri

Att: Mr. King

Dear Mr. King:

As a result of your telephone conversation today with Arch Harrison, we have checked on the various points about our proposed amendment to our three DMEA projects.

The A. U. bit is one developed by St. Joseph Lead Company and has the same ID as the AX bit -- 1-3/16". The AJ bit has an OD of 1-15/16" while the AX bit has an OD of 1-29/32". Since both bits produce the same size core, we prefer to leave the bit specified as AX.

We have rewritten our request for amendments, and the sentence you read over the telephone today is included in the paragraph about core recovery, etc. Also, we are requesting that the amendments apply to all three DMEA projects -- #4581, #4582 and #4583.

Yours very truly,

/s/ E. A. Jones
aBst
Division Manager.

cc: Mr. John Brown
Mr. J. A. Thomure

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

500

Date	Surname	Code
4/5	Griswold	800
4/5	Selfridge	130
"	Johnson	110
"	Mittendorf	102
4/8	C	225
		500

APR 5 - 1957

Mr. Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV
Post Office Box 431
Joplin, Missouri

Re: Docket No. DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri
Contract No. Idm-E1068

Dear Mr. Knox:

Referring to the cited contract, we are enclosing the executed "Finance Office" and "Field Team copies. An extra copy (unsigned) is also enclosed for the Field Team use.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

Enclosures

APPROVED:

Frank D. Lamb
Member, Bureau of Mines

Thor H. Kiilsgaard
Member, Geological Survey

WRGriswold/er 4/5/57
Copy to: Docket
Admr R File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron.

8623

ST. JOSEPH LEAD COMPANY

250 PARK AVENUE
NEW YORK 17, N.Y.

TELEPHONE YUKON 6-7474

CLINTON H. CRANE, CHAIRMAN OF BOARD
ANDREW FLETCHER, PRESIDENT

C. MERRILL CHAPIN, JR., VICE PRES.
FRANCIS CAMERON, VICE PRES.
CHARLES R. INCE, VICE PRES. & SALES MGR.
RENE J. MECHIN, VICE PRES.

GEORGE I. BRIGDEN, VICE PRES. & TREAS.
ROBERT H. RAMSEY, SECRETARY
JAMES G. COLVIN, COMPTROLLER

April 1, 1957

OFFICIAL FILE COPY
DMEA
RECEIVED APR 3 1957

DATE	INITIALS	CODE
4/3	C	220
		500

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

Re: No. DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri

Gentlemen:

Enclosed herewith are five copies of your short form contract covering certain work in the above area. These copies were mailed to us by Mr. Elmer A. Jones for our approval and signature.

The form of contract meets with our approval and has been signed by the Vice President of this Company. We have retained the "Operator's Copy" for our files.

Very truly yours,

Donold K. Lourie

Donold K. Lourie
Counsel

Enclosures

cc: Mr. Elmer A. Jones
Dr. John Brown
Mr. W. Oliver Rasch
Mr. J. A. Thomure

59

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

~~WASHINGTON 25, D. C.~~
Box 431
Joplin, Missouri

June 26, 1957

Original

EXTRA COPY
DMEA
RECEIVED JUN 28 1957

DATE	INITIALS	CODE
6/28	C	220
	es	130
	f	500

DMEA Operating Committee
Department of the Interior
Washington 25, D. C.

Re: DMEA-4581, -4582 & -4583
(lead-zinc-copper)
St. Joseph Lead Co.
Bonne Terre, Mo.
Contract Idm-K1064, -K1068
& -K1073

Dear Sirs:

Forwarded herewith are your original and two copies of the Amendment No. 2 just executed by the Operator for each of the above cited Contracts.

This Amendment is justified under the provisions in Annex I of the Contract.

Copies of this Amendment have been retained by the Operator, by the Field Team and are being sent to the Finance Officer.

Sincerely yours,

CCK/jd

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

encl. 3

cc: DMEA Op.Com.(3)
Finance Officer w/cy Amendments
Ames,USGS,Knoxville
4581 File
4582 "
4583 "

C
O
P
Y

ST. JOSEPH LEAD COMPANY

Bonne Terre, M o

March 29, 1957

Mr. Clinton C. Knox
Regional Executive Officer
Defense Minerals Exploration Administration
P. O. Box 431
Joplin, Missouri

EXTRA COPY DMEA RECEIVED APR 24 1957		
DATE	INITIALS	CODE

DMEAZ- 4582
Contract No. Idm-E 1068
Courtois Area
Washington County, Mo.

Dear Mr. Knox:

In view of the results of our discussion with you and Mr. Amos at our Bonne Terre office on March 26th, regarding the provisions of the above contract, we are requesting that the following amendments to the contract be made.

Exhibit "A" - page 1 - paragraph 4 should read -

"All diamond drilling shall be done with AX size, or larger, bits, unless it is necessary to use an EX size bit in order to complete a hole. All of the hole below and including the base of the Davis Shale formation shall be cored. All drill holes----------etc."

It is customary in this district to use a solid bit through the Derby-Doerun and Davis formations, excepting for an occasional hole to determine regional thicknesses and nature of these formations. No information of value is gained by coring this section of all holes. Added cost of coring these formations was not included in our cost estimates.

Exhibit "A" - page 1 - paragraph 6 should be deleted. All attempts to develop practical sludge sampling methods during the last 35 years in this district have been abandoned because the results obtained do not justify the additional cost. Core recovery in the area is adequate to make a satisfactory evaluation of the core in nearly all cases. In extreme cases of grinding loss it is considered to be more practical to redrill the hole, taking special pains to recover the core, than to maintain a system of sludge sampling for all holes. The added cost of sludge sampling has not been included in our cost estimates.

3-29-57

Mr. Clinton C. Knox

Assuming that the contract covering the Viburnum Area (DMEA 4583) will read exactly the same as No. 4582, then we should also like for these same amendments to apply to that project.

Very truly yours,

/s/ E. A. Jones

Division Manager

cc: Mr. Andrew Fletcher
Mr. John Brown
Mr. J. A. Thomure

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

Box 431
Joplin, Missouri
March 20, 1957

OFFICIAL FILE COPY
DMEA
RECEIVED MAR 21 1957

DATE	INITIALS	CODE
3/23	C	220
3/25	WH	500

AIRMAIL

Docket

Mr. Dewey H. Amos, Geologist
Department of Geology
Southern Illinois University
Carbondale, Illinois

Re: Docket No. DMEA-4582
(lead-zinc-copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri

Dear Dewey:

Furnished herewith for your immediate information is the second Field Team copy of memorandum attachments to the contract offered St. Joe for signature of acceptance as of March 18 on the cited application.

Sincerely,

Knox

Clinton C. Knox

CCK/enn

Encl.(1)

cc: DMEA Op.Com.(2)
4582 file

DMEA-4582
St. Joseph Lead Company

I have surnamed the contract but I wish to call your attention to Item 2, Stage I, page 2 of Exhibit "A". Personally, I do not understand this sentence.

J. L. Chambers
3/15/57

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
3/14	Griswold	500
3-14	Chambers	800
3/18	Selfridge	120
"	Johnson	110
		100
3/20	C	225

500

500

MAR 18 1957

Mr. Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV
Post Office Box 431
Joplin, Missouri

Re: Docket No. DMEA-4562 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri

Dear Mr. Knox:

As requested by the Applicant, we are forwarding the original and five copies of a short form contract covering the cited project to its Bonne Terre, Missouri office.

We are enclosing two extra copies (minus the form) for Field Team use. Such material consists of Annex I (five pages), Exhibit A (three pages) and one map. You will note that the contract conforms to your recommendations, except that assays are carried as separate units.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

Enclosures

WRGriswold/er 3/14/57
Copy to: Docket
Admr R File
Op. Committee
Base Metals
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron.

APPROVED:

Frank D. Lamb
Member, Bureau of Mines

Thor H. Kiilsgaard
Member, Geological Survey

8623

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
3/14	Griswold	500
3-14	Chambers	800
3/18	Selbridge	130
"	Johnson	110
"	Hittendorf	109
		225

500.
Lamb
Kiilsgaard

MAR 18 1957

Mr. Elmer A. Jones, Division Manager
St. Joseph Lead Company
Bonne Terre, Missouri

Re: Docket No. DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri

Dear Mr. Jones:

This is with reference to the application of your company for Government assistane on the cited exploration project. We are enclosing the original and five copies of a proposed short form contract covering the work in question, which has been signed by the Administrator, for the Government.

The contract consists of the form, Annex I (five pages), Exhibit A (three pages), and one map. If it meets with your approval, will you kindly sign all copies, retain the "Operator's Copy" for your files, and return the others to us. In the event that you do not approve of any of the contract provisions, please return all copies to us, with your comments.

Sincerely yours,

O. D. Hittendorf (for)

Administrator

WRGriswold/er 3/14/57
Copy to: Docket
Admr R File
Op. Committee
Base Metals
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Region IV (2)
Chron.

8623

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

March 8, 1957

Re: DMEA 4582; Pb-Zn-Cu;
$298,000
St. Joseph Lead Co.
Courtois Area
Washington County, Missouri

Memorandum

To: W. R. Griswold, DMEA

From: O. M. Bishop, USBM

Subject: Field team report of February 27, 1957 (received March 8, 1957) on proposed exploration.

I recommend that the application be approved and a contract be prepared authorizing Government participation in the exploration as recommended by the field team.

The exploration is to be based on geological and geophysical data already collected in the course of mineral exploration carried on in the past. Such work includes magnetic and gravimetric surveys as well as the drilling of 10 holes in the proposed project area and 195 others in adjacent areas.

The geologic setting of the area is favorable for the presence of orebodies and drilling in and near the area definitely demonstrates a potentiality for commercial ore in the area.

During the time The American Metal Co. was conducting exploration in the Courtois area I examined core from the drill holes and can vouch for the presence of lead mineralization.

O. M. Bishop

O. M. Bishop

Copy to: Division of Minerals
Mr. Kiilsgaard
Mr. Lamb
Mr. Bishop
Files

OFFICIAL FILE COPY
DMEA
RECEIVED MAR 11 1957

DATE	INITIALS	CODE
3/11	C	220
3/11	WRG	500

OFFICIAL FILE COPY
DMEA
RECEIVED MAR 8 1957

DATE	INITIALS	CODE
3/8	C	220
3/8	WRG	500

IN REPLY REFER TO:

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

March 7, 1957

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: W. P. Williams, U. S. Geological Survey

Subject: Review of field examination report DMEA 4582 (lead-zinc-copper), St. Joseph Lead Company, Courtois area, southeast Missouri Lead district, Washington County, Missouri.

As a result of field examination the Field Team recommend approval of a DMEA contract providing for a total of 158 drill holes, a total of 133,510 feet of drilling to be done in two stages at a total estimated cost of $298,000.

The proposed drilling would be done on lands that lie adjacent to DMEA 4581 and 4583. Much of the drilling is designed as offset drilling around previously drilled mineralized holes. Four of the proposed holes, located in sections 33 and 34, T. 36 N., R 1W., and section 18, T. 35 N., R. 1 W., appear to be too close (less than 200 feet) to property boundaries.

Geologic criteria on the property, as listed in the examination report, appear to be favorable for the presence of lead ore deposits. The desirable possibility also exists that a discovery on the property would provide a westward extension of the southeast Missouri lead belt.

The possibilities for success of the proposed project appear to be good; and for that reason I am in agreement with the Field Team's recommendation for approval.

W. P. Williams

W. P. Williams

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
500		

March 6, 1957

Memorandum

To: Associate Solicitor, Division of Mineral Resources

From: Chief, Base Metals Division

Subject: Preparation of Contract for Docket No. DMEA-4582, St. Joseph Lead Company, Courtois Area, Washington County, Missouri, Lead-Zinc-Copper.

Will you kindly prepare a short form contract along the lines of the attached draft. We would appreciate having this as soon as possible. One copy of the map is attached, the other copies will be sent you shortly.

W. R. Griswold

W. R. Griswold

WRG/er

Copy to: Docket
Chron.

8623

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri
February 27, 1957

OFFICIAL FILE COPY
DMEA
RECEIVED MAR 4 1957

DATE	INITIALS	CODE
3/4	C	220
3/4	WRJ	130
		220

ON-SITE Report

Memorandum

To: DMEA Operating Committee, Department of the Interior, Washington, D. C.

From: DMEA Field Team, Region IV

Subject: Joint Field Team Examination Report
DMEA-4582 (lead-zinc-copper)
St. Joseph Lead Company, Courtois Area
Washington County, Mo.

Transmitted herewith are the original and three copies of the subject report with recommendations for approval of the application. The Field Team is in accord on the recommendations for approval in this joint report.

A list of operating equipment to be used on the Project is attached to our report to comply with item 1 in your letter of January 8, 1957.

Two copies of a supplement to the Application are also enclosed as furnished by the Applicant. The supplement contains a revision of the estimated cost figures of the original application and puts the Applicant in line for a unit cost contract.

Nine extra copies of the map, Fig. 1, of the Courtois Area are also being sent for your possible use. This map shows the outlines of the 36 individual land parcels in the project as requested by your letter of January 8, 1957. The outlined parcels are each covered by an option or permit which accompanied the original Application.

DMEA
3-6-57

Clinton C. Knox

Clinton C. Knox
Executive Officer
DMEA Field Team, Reg. IV

Encl.
cc: DMEA Op. Com. (3)
Amos, USGS, Carbondale w/c of report
Laurence, USGS, Knoxville w/c of report
4582 file (2)

Note: The nine extra copies of map, Fig. 1, above, are being sent under separate cover.

60

DEFENSE MINERALS ADMINISTRATION
RECEIVED MAR 4 1957
DATE | INITIALS | CODE
130 2B
220

FIELD TEAM EXAMINATION REPORT

on

St. Joseph Lead Company
Washington County, Missouri

by

Dewey Amos, Geologist, U. S. Geological Survey

and

Clinton Knox, Mining Engineer, U. S. Bureau of Mines

Application Docket DMEA-4582 (lead-zinc-copper)
St. Joseph Lead Company
Bonne Terre, Missouri

February 26, 1957

SUMMARY AND CONCLUSIONS

The Applicant's proposed Courtois lead-zinc-copper project in Washington County offers good possibilities for exploration.

The review of factual data and discussions with the Applicant's representative during and since preparation of the application has convinced the Field Team that important reserves of lead-zinc-copper may be found by the proposed drilling project in the Courtois district.

While no commercial ore has been indicated on the properties included in this application proposal, indicative lead mineralization in five holes gives excellent promise for developing commercial ore. In the general vicinity a few other holes showed significant indication of mineralization. Also the geologic features are much the same as those in producing fields of the Eastern Missouri Lead Belt.

The Field Team concludes that the Courtois area is favorable for finding commercial ore deposits and that the proposed drilling program is warranted.

3-6-57

61

RECOMMENDATIONS

Approval of the application is recommended for a DMEA project contract. The contract would cover churn and diamond drilling exploration to be carried out in two stages with an allowable maximum cost of $298,000 as detailed in the closing pages of this report. The drilling of a maximum of 158 holes averaging 845 feet in depth from surface or a total of 133,510 feet of drilling appears justifiable. The drilling can be expected to indicate and reasonably outline and sample the inferred deposits to a minimum extent that would be required for a discovery certification.

The Applicant entirely at its own expense expects to complete the delineative drilling and underground development which would be necessary to bring all commercial reserves into production of lead-zinc-copper ore.

LOCATION

The area of proposed exploration is in the vicinity of Courtois, southwestern Washington County, Missouri. Portions of sections 32, 33, and 34, T.36N., R.1W.; sections 3, 4, 5, 7, 8, 9, 17 and 18, T.35N., R.1W.; and sections 12 and 13, T.35N., R.2W. are considered by the Applicant to warrant exploration.

ACCESS

An improved secondary road runs through the center of the Courtois project area making most of the area readily accessible. The terrain is of moderate relief and is in large part forested.

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APPLICANT'S PROPERTY RIGHTS

Property rights consisting of option contracts or prospecting permits are held on 36 parcels of land containing 4,242.01 acres.

Permits on five parcels are federal Government prospecting permits covering 455.01 acres of U. S. Forest Service Land held on the following locations (Fig. 1):

Section 33, T.36N., R.1W. N½ SW¼ and NW¼ SE¼

Section 34, T.36N., R.1W. N½ SW¼

Section 7, T.35N., R.1W. SW¼ SW¼

Section 17, T.35N., R.1W. E½ SW¼; SW¼ NW¼; & all SE¼ NW¼ except NE¼

Section 13, T.35N., R.2W. S½ SE¼

The Applicant has option contracts to buy mining rights and all minerals on 31 tracts containing 3,787 acres of privately owned land (Fig. 1).

Section 32, T.36N., R.1W. E½ SE¼; all SW¼ NE¼ except for about NE 1/5; & approximately the SW 1/5 SE¼ NE¼

Section 33, T.36N., R.1W. SW¼ SW¼

Section 3, T.35N., R.1W. SW¼ NW¼; S½ NW¼ NW¼; and NW¼ SW¼

Section 4, T.35N., R.1W. E½ NE¼; E½ SE¼; SW¼ SE¼; and W½ SW¼

Section 5, T.35N., R.1W. SE¼; all NE¼ except about NW 1/6; and except about S 1/5 NE¼ NE¼; and all SW¼ except about NW 1/3

Section 7, T.35N., R.1W. All Sec. 7 except about 10 acres along N line NE¼; and except SW¼ SW¼

Section 8, T.35N., R.1W. Entire section

Section 9, T.35N., R.1W. All NW¼

Section 17, T.35N., R.1W. E½; W½ SW¼; N½ NW¼; and NE¼ SE¼ NW¼

Section 18, T.35N., R.1W. Entire section

Section 12, T.35N., R.2W. All of SE¼ except NW¼

Section 13, T.35N., R.2W. N½ SE¼; NE¼ NE¼; SE¼ NE¼; SW¼ NE¼; and S½ NW¼ NE¼

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APPLICANT'S PROPOSAL

A total of 158 drill holes aggregating 133,510 feet was proposed. Depths per hole were estimated to vary from 550 to 1,150 feet with an average of 845 feet. The Applicant proposes to drill 84 preliminary holes based on present geological and geophysical data and so located to give good coverage (proposed locations are shown on Map No. 2 in the application). Provisions for up to a total of 74 additional holes also were requested as a second phase of the program. Their locations would depend upon the results obtained from the preliminary holes.

Churn drilling is expected to be necessary for the upper portion of each hole (estimated at 50 to 600 feet and averaging 270 feet). Each hole would be completed with diamond drilling and cores would be taken throughout the Bonneterre dolomite formation. The churn drilling ordinarily is to produce a 6-inch or larger hole into which a 3-inch "sleeve" casing is set for the diamond drilling of an AX-size hole. Independent contracts would be let for the churn drilling. Company owned drill rigs with their crews would be used for the diamond drilling.

PREVIOUS WORK

The Applicant and some other concerns have conducted exploratory drilling programs over a large region on and adjacent to the proposed Courtois area during the last 3½ years (American Metals Company, Ltd., Application Docket DMEA-3339, submitted May, 1954).

No mining operations have been conducted on or near the area of the proposed work. But during the above time the Applicant completed development and put into operation its large Indian Creek lead-zinc ore deposit about 20 miles northward from Courtois.

24

In the Courtois area and in a large region adjacent to it, the Applicant completed the drilling of 205 holes. Ten of these holes were drilled on properties included in the application. One hole is now in progress on one of the properties, (Fig. 1), under consideration. In addition 29 holes have been drilled on properties immediately adjacent to the Courtois area and drilling of three others is now in progress (Fig. 1).

Of the 10 holes completed in the proposed project area, one contained ore-grade mineralization; four, near-ore-grade mineralization; four, significant traces; one, weak traces; and the remainder were blank. Generalized assay results from the ore and near-ore holes are as follows:

Hole No.	Location	Ore Thickness	Percent Pb
56 W 101	Sec. 7, T.35N., R.1W.)	6.8	1.4
	)	8.7	1.9
56 W 93	Sec. 7, T.35N., R.1W.	6.4	3.6
56 W 111	Sec. 9, T.35N., R.1W.	6.9	1.9
56 W 69	Sec. 18, T.35N., R.1W.	3.1	3.4
56 W 73	Sec. 18, T.35N., R.1W.	16.0	1.4

Of the 13 holes on contiguous properties, one revealed near-ore mineralization; one, significant traces; two, weak traces; and the remainder were blank. The near-ore hole outside the Courtois area had eight feet of 2.25 percent lead.

A gravimetric survey has been made of the general region by the Applicant and the results shown on Map No. 5 accompanying the application. Magnetic surveys have also been run in selected parts of the region but not in the Courtois sector of the region.

65

GEOLOGY

The area of proposed exploration is about 2½ miles northwest of the pre-Cambrian St. Francois Mountains. A thin cover of upper Cambrian sediments overlies unconformably a broad nose of basement rocks that extends northwestward from the exposed pre-Cambrian mass. Small inliers of basement rock crop out near the area of proposed work. Drilling and geophysical data indicates that the post-pre-Cambrian erosional surface is one of considerable relief.

Pre-Cambrian rhyolite occurs on Czar Knob about three miles west of the area. About two miles south of the southeastern corner of the area, two small bodies of pre-Cambrian granite crop out. The basal sediment overlying the pre-Cambrian, the upper Cambrian Lamotte sandstone, is not exposed in the vicinity but is encountered in the subsurface. It occurs in depressions on the pre-Cambrian erosional surface reaching a maximum thickness of about 200 feet but pinches out on the flanks of pre-Cambrian hills or highs. The Bonneterre dolomite overlies the Lamotte in the subsurface and pinches out around the higher pre-Cambrian hills. It is generally divisible into a lower light gray member and an upper dark brown member. The lower light gray member in places exhibits a lateral facies change to coarsely crystalline red dolomite. The thickness of the Bonneterre averages about 240 feet except over pre-Cambrian highs, where it may be thinner or entirely absent. Overlying the Bonneterre is the Davis shale which is about 150-250 feet thick. It crops out near the area peripheral to the pre-Cambrian exposures. The Derby-Doe Run dolomite overlies the Davis and is exposed in inliers in the deeper valleys in the area under consideration. It is normally about 90 feet thick.

67

The Potosi dolomite overlies the Derby-Doe Run and is the surface formation over most of the area. It is about 385 feet thick. The youngest formation in the vicinity is the Eminence dolomite which is exposed along the northern boundaries of the area.

Regionally the dip of the sedimentary rocks is to the west-northwest. Locally, the dip is peripherally away from the pre-Cambrian highs due to differential compaction of the sediments.

Deep cherty residuum covers much of the surface making detailed areal geologic mapping difficult and in places not too reliable. Three normal faults of relatively small displacement are known to occur in the area (location shown on Map No. 3 in the application). Two strike north and dip steeply eastward and the other strikes east-northeast and dips steeply to the northwest. Numerous unrecognized minor faults may occur being obscured by the residuum.

An adequate geologic map is attached to the application (Map No. 3). It was compiled from material in the files of the Missouri Geological Survey, surface mapping by the Applicant's geologists and from drill records.

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MINERALIZATION

Commercial mineralization in southeastern Missouri is galena with subordinate sphalerite and chalcopyrite and sometimes associated with traces of various nickel and cobalt sulphides and sulphosalts. All economic deposits discovered to date in the district exhibit this mineral association, suggesting a common origin. Much of the non-commercial mineralization of the region which is generally higher stratigraphically does not have the typical mineral assemblage.

The mineral deposits are of the bedded-type and may be blanket or serpentine in shape. The length is usually several hundred feet, the width seldom exceeds 75-100 feet and the height 0-50 feet. They are in the lower part of the lower dark gray dolomite member of the Bonneterre formation and more rarely in the upper part of the underlying Lamotte sandstone. The Bonneterre deposits are restricted to where the lower member is dark gray dolomite. Structurally, they occur at or near pinch-outs of the Lamotte against the pre-Cambrian highs or a few hundred feet offshore from the pinch-outs above what appears to be the offshore edge of marine-cut terraces.

GEOLOGICAL RECOMMENDATION

Approval of this application is strongly recommended. The exploratory program as outlined by the Applicant shows excellent promise of making a significant discovery and extending the lead mining district westward.

69

The following factors favor discovery of one or more commercial deposits:

(1) Discovery of ore-grade mineralization in one hole and near-ore grade in four holes already completed on the property included in the application.

(2) Same stratigraphy and lithology as in areas of economic production, especially the character of the lower light gray dolomite in the lower member of the Bonneterre.

(3) Mineral association in the completed holes typical of economic deposits of the district.

(4) Favorable structural conditions as evidenced by areal geologic mapping, geophysical surveying and drilling.

The following exploration program is recommended:

Stage I (Applicant's Stages 1, 2, and 4). A total of 84 holes located approximately as shown on the attached map (Fig. 1). The location of certain holes may be changed or even omitted if geological or geophysical data obtained from completed work so warrants. Government approval for such changes would be required.

Stage II. A total of a maximum of 74 additional holes if warranted by the results of Stage I work. Locations of all holes would have prior approval from the Government.

All holes should be bottomed in the Lamotte sandstone or the pre-Cambrian whichever is encountered first.

AVAILABILITY OF SUPPLIES, LABOR, ETC.

Most types of drilling and mining equipment and supplies are available in the supply centers of the East Missouri Lead Belt about 40 miles to the east. Ordinary labor, supplies, and equipment can be procured in nearby town of Potosi.

The churn drilling is to be done by independent contractors and such contractors in the region have well-trained crews steadily employed. Diamond core drilling is to be done by the Applicant's drills, which are now in operation and have experienced crews. Mining labor is available in the main mining district to the east. Copies of bids from both churn and diamond drilling contractors were furnished with the application.

Electricity is available in the area at low voltage. High voltage electricity is available about 11 miles north of the area. Numerous streams contain ample water for the drilling operations.

The most available railway shipping point at present is Steelville about 25 miles northwest by way of Highways No. 49 and 19. Another shipping point that may be available is Potosi about 25 miles to the northeast. The Applicant operates the Indian Creek concentration mill which is about 20 miles to the northward and also has several mills in the main mining camps of the Lead Belt about 40 miles to the eastward.

COMPETENCY OF APPLICANT

The Applicant is the largest, most successful and most progressive mining concern in the southeast Missouri lead district. Professional and operating personnel employed by the Applicant are entirely competent and have made significant contributions to mining and geology in recent years.

SUGGESTED DMEA PROJECT CONTRACT

The purpose of the project work is to explore lead, zinc, and copper mineral deposits by churn and diamond core drilling on land described in the application, or other applicable tracts which the Applicant subsequently may acquire in the proposed project area of Washington County, Missouri, during the two years of the project period.

The parties to the proposed DMEA Project Contract shall promptly execute amendments thereto which will include any justifiable additions of land so acquired. Also at any time before expiration of 60 days following conclusion or termination of the project work, as requested by the Project Operator, an amendment may be executed by both parties to the DMEA Contract deleting therefrom any tracts as have no known value for mineral production from the scope of any "Certification" that may be made by the Government thereunder.

The project work is expected to start within 30 days after date of Contract. The work will be completed within 24 months after date of Contract.

The work of the project will be carried in two stages. Stage I will consist of a maximum of 84 holes or 70,980 feet of churn and diamond drilling. Stage II will consist of a maximum of 74 holes or 62,530 feet of churn and diamond drilling. Stage II will follow Stage I if the results of the drilling of Stage I warrant further exploration.

Depths of holes in Stages I and II will vary from 550 to 1,150 feet giving an approximate average of 845 feet depth per hole drilled.

Spacing of hole locations must be limited to a minimum of 75 feet.

Churn drills will ordinarily be used for drilling the residuum, weathered rock and more porous formations in the upper portion of each hole.

72

The churn drilling usually produces a 6-inch or larger hole into which 3-inch "sleeve" casing is set. The remainder of the holes will be drilled by diamond drills using an AX-size bit. With Government approval the hole may be reduced in size when necessary to prevent abandonment of hole.

All hole collar locations must be surveyed and elevations determined by accurate methods. Maps must be provided to the Government at reasonable intervals. Cores and cuttings of all holes will be logged by professional personnel. Assays must be made for Pb-Zn-Cu-Ni-Co when cores are estimated to contain over one percent Pb, one percent Zn, 0.25 percent Cu, and/or traces of Ni and Co. No single assayed sample should extend over a vertical distance greater than five feet.

Geophysical (gravity and magnetic) surveys may be made and results furnished the Government as required for hole locations and interpretations. The cost of the geophysical work is to be included as part of the unit drilling costs.

Stage I. A maximum of 84 holes or 70,980 feet is to be churn and diamond drilled on tentative locations as shown on the attached map of the Courtois area, (Fig. 1). Specific locations of these holes, however, are to be subject to modification. Some locations may be eliminated entirely as drilling results are obtained to the extent necessary to achieve the project objectives. Written approval by the Government is required for any change of locations.

Stage II. A maximum of 74 additional holes or 62,530 feet of drilling may be drilled on locations justified by the Operator on the basis of the results of Stage I drilling. These locations must have prior written approval of the Government.

7.3

ESTIMATED COST OF PROJECT

It is estimated that the total cost of the project will be $298,000. Details making up this suggested allowable maximum cost are given in the table on the following pages. The project containing both churn and diamond drilling has some interrelated cost items that are not too readily separated as will be noted in the table. A further explanation as to how some of the cost items are derived is given in Notes (1) and (2).

Note (1). Diamond drilling costs shown under (b) and (c) on pages 15, 16, 17, and 18 of this report are derived from actual diamond drilling experiences of the Applicant in the Courtois and adjacent areas and its general experience in the southeast Missouri district. These cost experiences are translated into unit-costs per foot and applied to the proposed footage of the Courtois project.

Labor	0.725
Supervision	0.126
Supplies	0.177
Bits	0.164
Misc.	0.008
Depreciation	0.176

Note (2). Depreciation. The equipment to be used in diamond drilling in the Courtois area is to be furnished by the Applicant and is valued as itemized on sheets accompanying this report (pages 21 and 22). The diamond drilling equipment as operated by the Applicant will be used on other projects carried on simultaneously with the Courtois project; the other projects will be on explorations in adjoining counties. It is therefore proper that only a portion of the depreciation

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on the equipment should be charged to the Courtois project. The value of all the equipment for the diamond drilling work of these projects is $98,910. Depreciation at 20 percent per year would be $19,782 per year or $1,648.50 per month. It is anticipated that the equipment will be used on a total of 390 holes within a period of 24 months. The amount of the depreciation will therefore be $\frac{\$1,648.50 \times 24}{390}$ or $101.446 per hole. This rate per hole is used in item (d) on pages 16 and 18 of this report.

75

ESTIMATED STAGE I COSTS

84 holes

22,680 feet churn drilling
48,300 feet diamond drilling
70,980 feet total drilling

	Costs	Cost per foot Total drilling
(a) Independent Contracts		
Drilling churn holes and setting casing		
22,680 ft. of churn hole at $2.60 per ft.	$58,968.00	
Recovering casing		
22,680 ft. of churn hole at $0.24 per ft.	5,443.20	
Plugging and cementing churn holes		
30 ft. per hole (84 holes) at $0.32 per ft.	806.40	
	$65,217.60	0.919
(b) Company-owned diamond drills		
Labor of drilling - see Note (1) page 13		
48,300 ft. drilling at $0.725 per ft.	$35,017.00	0.493
Supervision, Consultants, Technical Services for entire drilling of churn and diamond holes		
Supervision for diamond drilling, Note (1) page 13		
48,300 ft. x 0.126 per ft.	$6,085.80	
Supervision for churn drilling - will be handled by diamond drill supervision above.		
Geologists - 1/2 of one man's time		
$280 per month x 13 months	3,640.00	
Surveyor in charge		
5 days per month at $25 per day x 13 months	1,625.00	
Survey party		
8 days per month at $32.34 per day x 13 months	3,363.36	
Geophysicist for one month at $500	500.00	
Geophysical crew - 23 days at $30 per day	690.00	
Core logging, sampling, photographing, etc.		
2 days per hole (84 holes) at $15 per day	2,520.00	
1 day per hole (84 holes) at $13 per day	1,008.00	
	$19,432.16	0.274

76

	Costs	Cost per foot Total drilling
(c) Operating materials and supplies		
Diamond drill supplies		
48,300 ft. at $0.177	$8,549.10	
Diamond bits		
48,300 ft. at $0.164 - Note (1) page 13	7,921.20	
Misc. diamond drilling items		
48,300 ft. at $0.008	386.40	
Core handling, 50 trays at $15 per tray ?	750.00	
Casing repair and replacement		
22,680 ft. churn hole at $0.156	3,538.80	
	$21,145.50	0.298
(d) Operating equipment		
Depreciation on equipment furnished by the Applicant is calculated on a per hole basis - see Note (2) page 13.		
84 holes at $101.446 per hole	$8,520.46	
Depreciation and maintenance expense on vehicles for travel to and from Project by supervisory personnel -		
9 trips per mo. x 120 miles x 13 mos. x $0.07 per mile	982.80	
	$9,503.26	0.134
(e) None		
(f) None		
(g) Miscellaneous		
Drafting and engineering		
2 days per hole (84 holes) x $16 per day	$2,688.00	
Accounting labor		
$25 per hole for 84 holes	2,100.00	
Assaying charge		
5 samples per hole x 3 assays per sample x 84 holes x $1 per assay	1,260.00	
Road Construction		
48,300 feet of diamond drilling at $0.05 per ft.	2,415.00	
	$8,463.00	0.119
(h) None		
Total Estimated Cost of Stage I	$158,778.52	2.237

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ESTIMATED STAGE II COSTS

74 holes

19,980 feet churn drilling
42,550 feet diamond drilling
62,530 feet total drilling

	Costs	Cost per foot Total drilling
(a) Independent Contracts		
Drilling churn holes and setting casings		
19,980 feet of churn holes at $2.60 per ft.	$51,948.00	
Recovering casing		
19,980 feet of churn holes at $0.24 per ft.	4,795.20	
Plugging and cementing holes		
Avg. 30 ft. per hole (74 holes) at $0.32 per ft.	710.40	
	$57,453.60	0.919
(b) Company-owned diamond drills		
Labor of drilling - see Note (1) page 13		
42,550 feet of drilling at $0.725 per ft.	$30,848.75	0.493
Supervision, Consultants, Technical Services for the entire drilling of churn and diamond hole		
Supervision for diamond drilling, Note (1) page 13		
42,550 feet of drilling at $0.126 per ft.	$5,361.30	
Supervision for churn drilling - will be handled by diamond drill supervision above.		
Geologist - 1/2 of one man's time		
$280 per month x 11 months	3,080.00	
Surveyor in charge		
5 days per month at $25 per day x 11 mos.	1,375.00	
Survey party - two men		
8 days per month at $32.34 per day x 11 mos.	2,845.92	
Geophysicist		
One month at $500	500.00	
Geophysical field crew		
19 days at $30 per day	570.00	
Core logging, sampling, photographing, etc.		
2 days per hole (74 holes) at $15 per day	2,220.00	
1 day per hole (74 holes) at $12 per day	888.00	
	$16,840.22	0.269

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	Costs	Cost per foot Total drilling
(c) Operating Materials and Supplies		
Diamond drilling supplies and maintenance		
42,550 ft. at $0.177 per ft. - see Note (1), page 13	$7,531.50	
Diamond bits		
42,550 ft. at $0.164 per ft.	6,978.20	
Misc. diamond drill items		
42,550 ft. at $0.008	340.40	
Core handling		
50 trays at $15 per tray	750.00	
Casing repair and replacement		
19,980 feet of churn hole at $0.156	3,116.88	
	$18,716.98	0.299
(d) Operating equipment		
Depreciation on equipment furnished by the Applicant is calculated on a per hole basis - See Note (2) page 13.		
74 holes at $101.446 per hole	$7,507.00	
Depreciation and operating expense on vehicles for travel to and from project by supervisory personnel -		
9 trips per mo. x 120 miles x $0.07 per mile x 11 months	831.60	
	$8,338.60	0.133
(e) None		
(f) None		
(g) Miscellaneous		
Drafting and engineering		
2 days per hole (74 holes) x $16 per day	$2,368.00	
Accounting labor		
$25 per hole x 74 holes	1,850.00	
Assaying charge		
5 samples per hole x 3 assays per sample x 74 holes x $1 per assay	1,110.00	
Road construction		
42,550 feet diamond drilling at $0.05 per ft.	2,127.50	
	$7,455.50	0.119
(h) None		
Total Estimated Cost of Stage II	$139,653.65	2.233

79

SUMMARY OF TOTAL PROJECT COSTS
(158 holes - 133,510 feet drilling)

	Totals	Cost per foot Total drilling
Estimated Cost of Stage I	$158,778.52	
Estimated Cost of Stage II	139,653.65	
Estimated Total Cost	$298,432.17	
Estimated Total Cost (rounded)	$298,000.00	2.232
Estimated Government Participation (50 percent)	$149,000.00	

* * * * * * * * * * *

80

COPY

Bonne Terre, Missouri
January 25, 1957

Memorandum to Mr. E. A. Jones:

Re: DMEA Projects #4581, #4582, and #4583.

The letter from Mr. Knox, Administrator - Joplin Office, of recent date, stated that he desired "an itemized list with present values of the respective units of equipment for depreciation allowances as actually to be applicable for each of the proposed projects".

Under the proposed method of using Company-owned drills for this prospecting, it is impossible to say that a certain drill or other piece of equipment will be used exclusively for any one of the three projects.

Therefore, we are attaching to this memorandum a list of equipment needed for the three projects together with present or replacement values.

We hope that this information meets the requirements of Mr. Knox.

In another paragraph of the same letter, Mr. Knox asks for verification that a contingency would be required on each (project) to allow for a possible 5% increase in labor and 15% increase in material costs.

We cannot supply this verification and for that reason it is suggested that we remove this item in its entirety from our application.

By doing so, it is believed that our application can be made on the "short form" without question.

/s/ Jim Jewell
/t/ J. E. Jewell

JEJ/jcp

Encls.

Reviewed by
DMEA OPERATING COMMITTEE
3-6-57
(date)

81

COPY

REPLACEMENT VALUE OF EQUIPMENT NEEDED FOR DIAMOND DRILL OPERATIONS

BY COMPANY-OWNED DRILLS ON DMEA PROJECTS 4581, 4582 & 4583

I. Drilling equipment - 4 diamond drills:

a. 4 Longyear diamond drills at $7,000 each $28,000.00

b. 4 drill shanties at $500 each 2,000.00

c. 4 D-4 Caterpillars at $5,000 each 20,000.00

d. 4 Rod and casing wagons or trailers at $500 ..... 2,000.00

e. 4 sets of rods, core barrels, rock bit barrels and casing barrels at $2,050 each 10,200.00

f. 4 sets of bits: 1 - 2-1/2" sleeve bit at $250 each
2 - 2" sleeve bits at $130 each
1 - 2-1/2" reaming bit at $200 each
1 - 2" reaming bit at $130 each
10 - "A.J." core bits at $160 each

TOTAL 9,760.00

g. 4 sets of dogs, tools, running boards, water boxes, etc. at $500 each 2,000.00

Total for drilling equipment $73,960.00

II. Equipment and Material for water hauling and supply for 4 drills:

a. 2 water-hauling tank trucks - 4 x 4 drive - at $3,000 ea. 6,000.00

b. 1 piston pump at $750 each 750.00

c. 3 1-1/2" centrifugal pump at $500 each 1,500.00

d. 2,000 feet of 1-1/2" plastic pipe with couplings at $0.30 per foot 600.00

e. 2,000 feet of 2" Victaulic-coupled pipe at $0.45 per foot 900.00

Total for water hauling and supply $9,750.00

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C O P Y

III. Administration, supply and repair parts:

a.	6 shanties for check office, supplies (2), oil & grease, repaired paets, core storage at $300 each	$1,800.00
b.	Spare engine, spare drill parts, supplies	4,800.00
c.	1,000 feet of 2-1/2" flush joint pipe	500.00
d.	1,000 feet of 2" flush joint pipe	400.00
e.	1 jeep for foreman's use	2,100.00
f.	1 supply truck	2,000.00
g.	1 casing truck, used also in moving 1-1/2 ton (4 x 4)	3,000.00
h.	2 fuel storage tanks at $250 each	500.00
i.	Coal and coal storage	100.00
	Total supply and repair requirements and foreman's equipment	$15,200.00

RECAPITULATION: -

I -	Drilling Equipment	$73,960.00
II -	Supply and water hauling equipment	9,750.00
III -	Supplies, repair parts and equipment for administration	15,200.00
	GRAND TOTAL	$98,910.00

ABOVE ITEMS TO BE DEPRECIATED AT RATE OF ONE-SIXTIETH PER MONTH

$$\frac{(\$98,910.00)}{(60)} = \$1,648.50 \text{ per month}$$

83

ST. JOSEPH LEAD COMPANY

SOUTHEAST MISSOURI MINING AND MILLING DIVISION

BONNE TERRE, MO.

E. A. JONES,
DIVISION MANAGER.

February 26, 1957

Mr. C. O. Mittendorf, Administrator
Defense Minerals Exploration Administration
U. S. Department of the Interior
Washington 25, D. C.

Dear Mr. Mittendorf: Attention: Mr. Bill Griswold

Photostats of a complete set of option contracts covered by our DMEA Applications No. 4582 and 4583 are enclosed. There are 31 options in No. 4582 and 29 in No. 4583.

For Application No. 4583, option contract CZ188 replaces option contract CZ49 in the original application. This was necessary due to an erroneous land description in option contract CZ49. CZ188 contains the correct land description.

I believe this will take care of your request when we talked by telephone last week.

Sincerely yours,

E. A. Jones
Division Manager.

Air Mail - Special Delivery

cc: Mr. Francis Cameron
Mr. John Brown

Option Contracts filed separately

OFFICIAL FILE COPY
DMEA
RECEIVED FEB 27 1957

DATE	INITIALS	CODE
2/27	C	220
2/27	WLG	520

84

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Box 431
Joplin, Missouri

DMEA
RECEIVED JAN 18 1957

DATE	INITIALS	CODE
1-18	CW	220
1/18	WRH	500

Airmail

January 16, 1957

Mr. E. A. Jones, Division Manager
St. Joseph Lead Company
Bonne Terre, Missouri

Re: Applications DMEA-4581,-4582,and -4583
Czar Knob, Courtois, and Viburnum Areas
Crawford, Washington, and Iron Counties,
Mo.

Dear Mr. Jones:

Following reviews in Washington, your above-cited three applications were referred to this Field Team for our examination reports and recommendations.

Based on your applications and pertinent data which Dewey Amos and I previously examined in your offices on December 10, our respective geological and engineering reports are in preparation.

Dewey Amos has just advised me that he can arrange to conclude his report upon a summary conference with your Geological Department about January 29 while he will be in that locality on other DMEA Field Team work. I cannot be there, but to avoid possible delay later on, this is to advise furnishing either of us with some additional data which I am to include with the report to Washington, as follows:

1. An itemized list with present values of the respective units of equipment for depreciation allowances as actually to be applicable for each of the proposed projects.

2. Outlines on a map of the individual land parcels identified with each of the option agreements filed with each of the applications.

3. Verification that a contingency would be required on each to allow for a possible five percent increase in labor costs and 15 percent in material costs.

As I recall our discussions there December 10, you are aware that allowing for such a contingency would preclude letting the simpler "Short Form" (agreed unit cost) type of DMEA project contract. The principle underlying the use of that agreed unit cost or "short" contract

form is that costs be calculated upon actual conditions as of the date on which the contract is let. Anticipated, as well as unforseen conditions could increase the project costs somewhat to the operator's disadvantage. By the same token, unexpected favorable conditions might develope to the operator's advantage; and the simpler accounting required is generally mutually advantageous.

Large organizations such as yours, however, on large projects carry on detailed cost accounting anyhow, and consider that furnishing the documentary support required with the monthly cost claims and reports to DMEA under the "Long Form" type of contract, to be little added work.

Please rest assured that every effort is being made to expedite the best decisions on your applications.

Sample copies of both contract forms and monthly report forms are enclosed herewith for your ready reference.

Sincerely yours,

Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV

Encl.(7)
CCK/enn

cc: DMEA Op.Com.(2)
Amos,USGS,Carbondale
4581, 4582, and 4583 files

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

500

Date	Surname	Code
1/7	Friewald	~~500~~
1/7	Selfridge	130
1/7	Johnson	110
1/8	Fitzsimmons	100
		~~215~~
1-8	C	225

500

JAN 8 1957

Mr. Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV
Room 303, Post Office Bldg.
Post Office Box 431
Joplin, Missouri

Re: Docket No. DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri

Dear Mr. Knox:

The cited application is being referred to your office for consideration, a field examination of the property if warranted, and recommendations.

We are enclosing copies of memoranda dated January 2 and 4, 1957, by O. W. Bishop, Bureau of Mines, and W. P. Williams, Geological Survey, respectively, relating to the project. One copy of the application is also enclosed.

There are certain points which you should clarify with the Applicant at this time, to avoid delay later on, as follows:

1. The company states that operating equipment with a total value of $98,910.00 is to be depreciated but it does not give us a listing of such equipment. We should have such a list, showing present values of the respective items comprising the total.

2. Map No. 2 submitted with the application shows "private lands optioned" but does not show the outlines of the individual land parcels covered by the options. This should be furnished us.

RCh

8623

3. The Applicant requests a short form contract but its application states "included is an allowance of 5% increase in cost of labor and 15% increase in cost of materials". If such increases are only anticipated, rather than actual, as of the present time, they may not be included in calculating a base for a short form (agreed unit cost) contract. They would, of course, be quite in order if an actual cost contract were to be used. The whole underlying theory on an agreed unit cost contract is that costs be calculated upon actual conditions prevailing at the time. Obviously, anticipated or unforeseen future conditions could increase the project cost, somewhat to the disadvantage of the Operator. By the same token, unexpected favorable conditions might develop which could be to the Operator's advantage.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (GCS)

Enclosures

APPROVED:

Frank D. Lamb (GCS)

Member, Bureau of Mines

Thor H. Kiilsgaard (GCS)

Member, Geological Survey

P. S. As you already have a copy of the application, the copy referred to above is being sent to Mr. Laurence.

WRGriswold/er 1/4/57

Copy to: Docket
Admr R File
Op. Committee
Base Metals
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Region V (2)
Chron.

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
1/4/57	Griswold	500
1/7	Selfridge	130
1/7	[illegible]	110
1/8	[illegible]	100
		225

Lamb
Kiilsgaard

JAN 8 1957

Mr. E. A. Jones, Division Manager
St. Joseph Lead Company
Bonne Terre, Missouri

Re: Docket No. DMEA-4582 (Lead-Zinc-Copper)
St. Joseph Lead Company
Courtois Area
Washington County, Missouri

Dear Mr. Jones:

Your application for Government assistance to explore the cited property has been reviewed by the Base Metals Division of the Defense Minerals Exploration Administration and is being referred to:

Mr. Clinton C. Knox
Executive Officer
DMEA Field Team, Region IV
Room 303, Post Office Bldg.
Post Office Box 431
Joplin, Missouri

If additional information concerning your application is needed, the Field Team will contact you at an early date.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

WRGriswold/er 1/4/57
Copy to: Docket
Admr R File
Op. Committee
Base Metals
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Region IV (2)
Region V (1)
Chron.

R.S.L.

8623

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

OFFICIAL FILE COPY
DMEA
IN REPLY REFER TO:
RECEIVED JAN 4 1957

DATE	INITIALS	CODE
		500

Memorandum

January 4, 1957

To: W. R. Griswold, Defense Minerals Exploration Administration

From: W. P. Williams, U. S. Geological Survey

Subject: Review of application, DMEA 4582, St. Joseph Lead Company, Project No. 2, Courtois area, Southeast Missouri lead district, Washington County, Missouri, (lead-zinc-copper).

The applicant proposes to perform exploration drilling on 4,242 acres of land. The applicant has drilled 13 prospect core drill holes on and immediately adjacent to the project area, and American Metals Company drilled seven holes adjacent to the property. According to the applicant ten of the holes showed significant amounts of lead, zinc, or copper.

The applicant expresses the opinion that geologic conditions on the property have striking similarities to those of the lead belt proper which lies about 20 miles to the east.

The proposed project would consist of a total of 158 combination churn and core drill holes to be drilled in four stages in a hexagonal pattern.

Judging from the fairly well documented application, it appears that a DMEA contract is warranted. It is recommended that the Field Team be asked for their advice and recommendations concerning the application. The subject property - proposed project No. 2 - is immediately adjacent to proposed projects Nos. 1 and 3, DMEA 4581 and DMEA 4583. In the interest of conserving time and expense, all three properties could be examined on one field visit with the results possibly embodied in one report.

W. P. Williams

W. P. Williams

OFFICIAL FILE COPY
DMEA
RECEIVED JAN 3 1957
DATE | | CODE
500

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

January 2, 1957

Re: DMEA 4582; Pb-Zn-Cu; $309,070.
St. Joseph Lead Co.
Courtois Area
Washington County, Missouri

Memorandum

To: W. R. Griswold, DMEA

From: O. M. Bishop, Branch of Base Metals

Subject: Application dated December 19, 1956, received December 27, 1956.

I have reviewed the subject application which requests Government participation in the exploration of 4,242 acres of land in Western Washington County to the east and northeast of the company's Czar Knob project proposal area.

On the basis of surface geology, airborne magnetics, ground magnetics and a gravimeter survey, augmented by several drill holes, the St. Joseph Lead Co. proposes to drill an estimated 158 holes by a combination of churn drilling and diamond drilling for a total footage of 133,510 feet and a total cost of $309,070.80.

In addition to reviewing the project proposal I have in the past examined the airborne magnetic map of the area, logged many drill holes of the American Metals Co. who drilled an adjacent tract, and have discussed the area exploration with various persons informed on the subject.

On the basis of these many contacts and the data presented in the application I consider the exploration outlined to be soundly conceived. I recommend referral to the Field Team for its review, but do not believe it will be of value to examine the project area. Drill and other pertinent data in the files of the Missouri geological Survey may be of considerable value to the Field Team in reviewing DMEA 4581, 4582 and 4583.

O. M. Bishop

O. M. Bishop

Copy to: Division of Minerals
Mr. Kiilsgaard
Mr. Lamb
Mr. Bishop
Files

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

December 21, 1956

St. Joseph Lead Company
Bonne Terre,
Missouri

Subject: DMEA-4582
Project #2

Gentlemen

Your application for exploration assistance, dated December 19, 1956 submitted to our office at Joplin, has been assigned Docket Number DMEA-4582 and referred to the Base Metals Division in the Washington office. Kindly identify all future correspondence relating to your application by this Docket Number.

Sincerely yours,

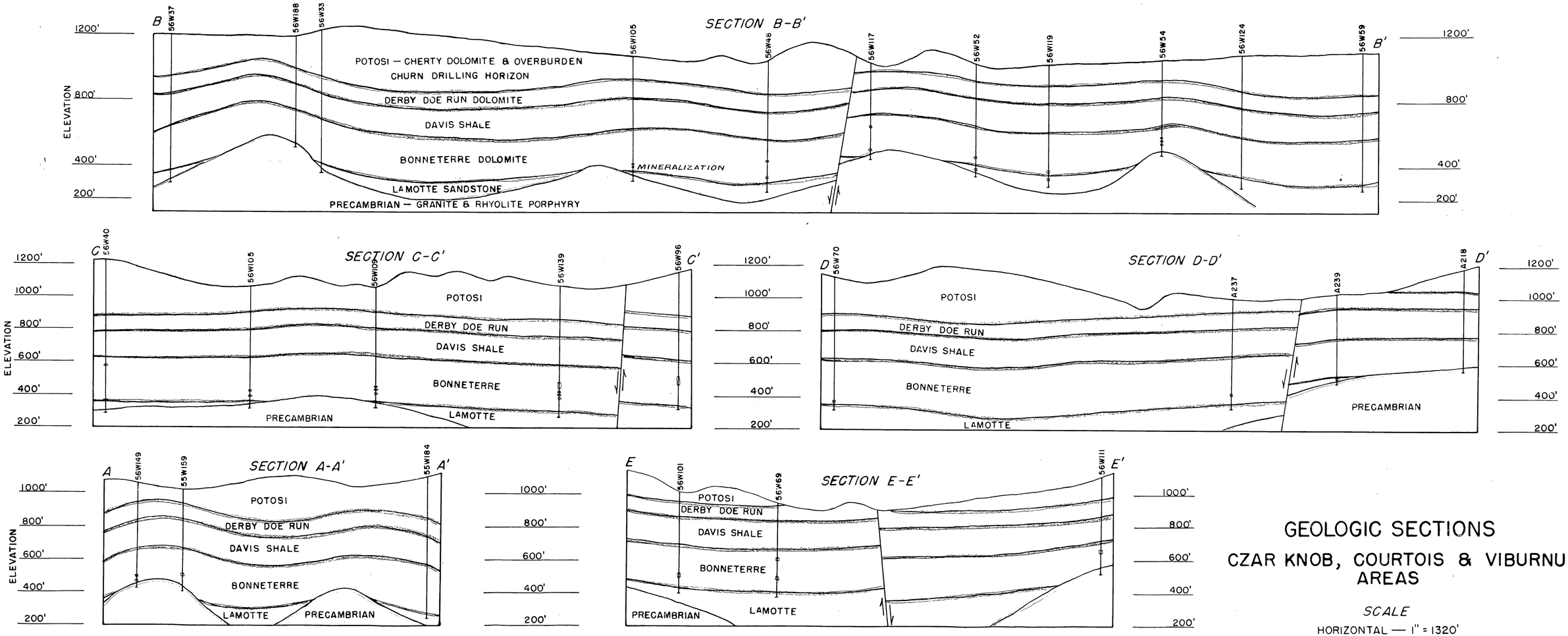
(Sgd) Allen S. Dakan

Allen S. Dakan, Director
Operations Control and
Statistics Division

Copy to:

Code 500

6416



GEOLOGIC SECTIONS

CZAR KNOB, COURTOIS & VIBURNUM AREAS

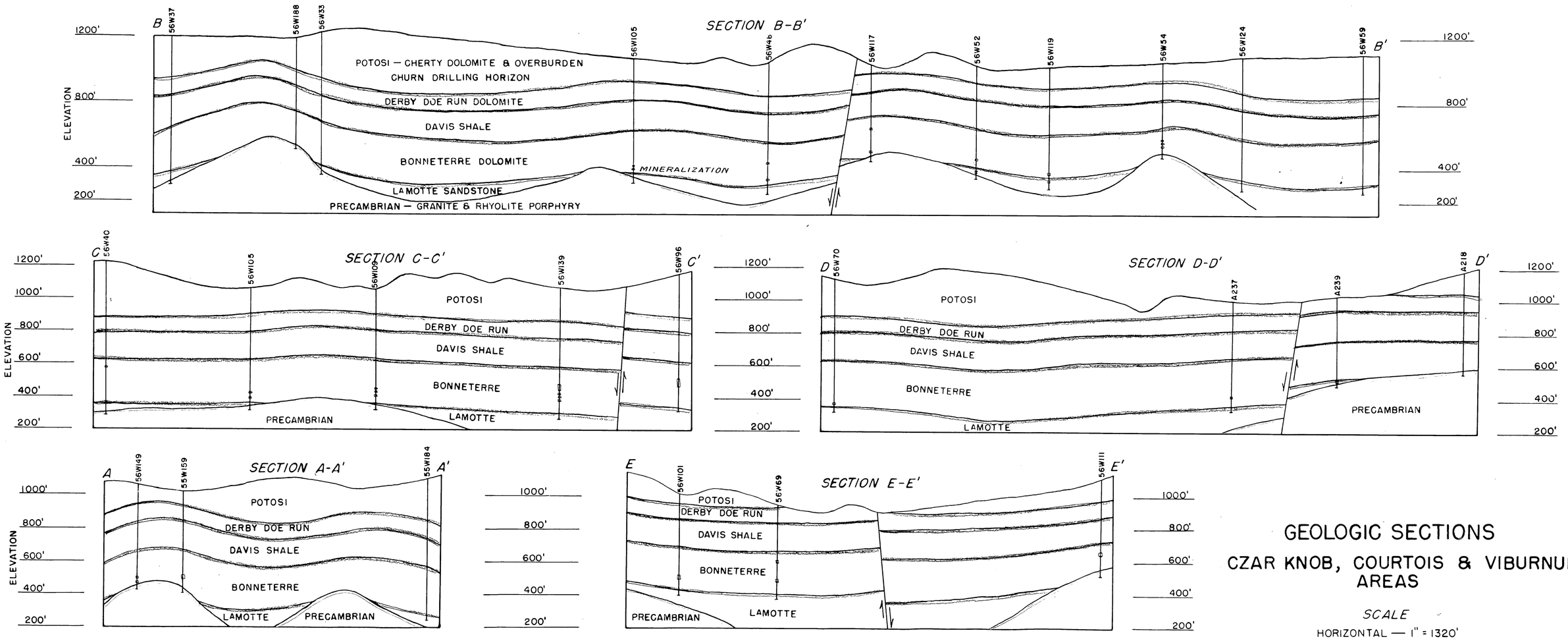
SCALE

HORIZONTAL — 1" = 1320'
VERTICAL — 1" = 400'

MAP #4

MAP #4

RECEIVED
DEC 21 1956
D.M.E.A.



GEOLOGIC SECTIONS

CZAR KNOB, COURTOIS & VIBURNUM AREAS

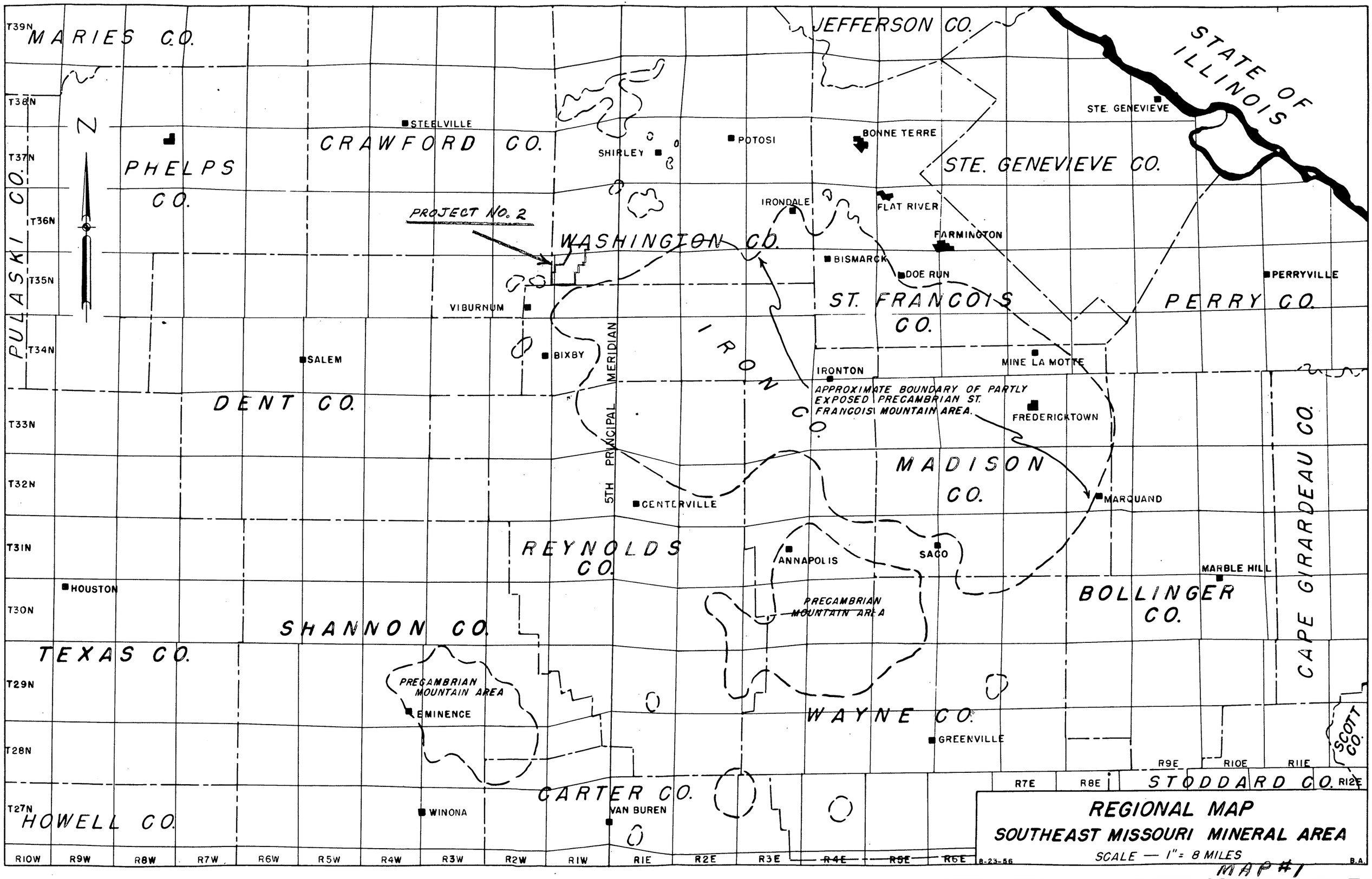
SCALE

HORIZONTAL — 1" = 1320'
VERTICAL — 1" = 400'

MAP #4

RECEIVED
DEC 27 1956
D.M.E.A.

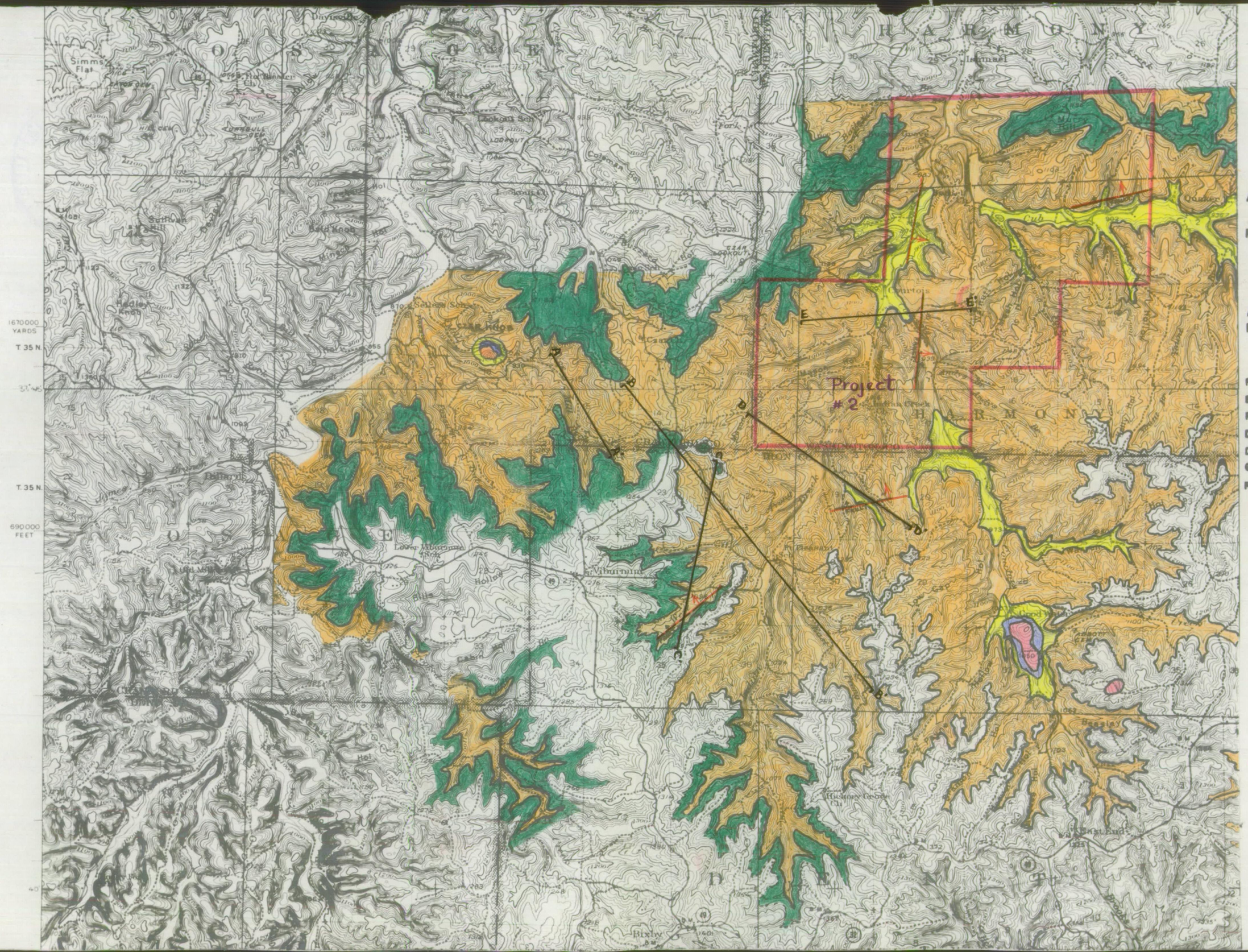
MAP #4


MARIES CO.
JEFFERSON CO.
STATE OF ILLINOIS
STE. GENEVIEVE
STEELVILLE
CRAWFORD CO.
POTOSI
BONNE TERRE
SHIRLEY
STE. GENEVIEVE CO.
PHELPS CO.
PULASKI CO.
N
PROJECT NO. 2
IRONDALE
FLAT RIVER
WASHINGTON CO.
FARMINGTON
BISMARCK
DOE RUN
PERRYVILLE
VIBURNUM
ST. FRANCOIS CO.
PERRY CO.
BIXBY
SALEM
IRON CO.
IRONTON
MINE LA MOTTE
APPROXIMATE BOUNDARY OF PARTLY EXPOSED PRECAMBRIAN ST. FRANCOIS MOUNTAIN AREA.
FREDERICKTOWN
DENT CO.
5TH PRINCIPAL MERIDIAN
MADISON CO.
CAPE GIRARDEAU CO.
MARQUAND
CENTERVILLE
REYNOLDS CO.
ANNAPOLIS
SAGO
MARBLE HILL
HOUSTON
PRECAMBRIAN MOUNTAIN AREA
BOLLINGER CO.
SHANNON CO.
TEXAS CO.
PRECAMBRIAN MOUNTAIN AREA
EMINENCE
WAYNE CO.
GREENVILLE
SCOTT CO.
CARTER CO.
STODDARD CO.
WINONA
VAN BUREN
HOWELL CO.
T39N
T38N
T37N
T36N
T35N
T34N
T33N
T32N
T31N
T30N
T29N
T28N
T27N
R10W
R9W
R8W
R7W
R6W
R5W
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
R11E
R12E
REGIONAL MAP
SOUTHEAST MISSOURI MINERAL AREA
SCALE — 1" = 8 MILES
8-23-56
B.A.

MAP #1

RECEIVED
DEC 21 1956
D.M.E.A.

MAP #1


CZAR KNOB
COURTOIS
VIBURNUM
AREA
AREAL GEOLOGY
FROM
MO. GEOL. SURVEY
FILES
FAULTING
AND SECTIONS
FROM DRILLING
RESIDUUM
EMINENCE
POTOSI
DERBY DOE RUN
DAVIS
GRANITE
RHYOLITE
Project #2
MAP #3
1670000 YARDS
T. 35 N.
690000 FEET
Simms Flat
Sullivan Hill
Bald Knob
Hedley Knob
Czar Knob
Courtois
Viburnum
Bixby
Ironton
Ironmaine
Quarry
Cub
Fork
Ismael
Lookout
Czar Lookout
Hollow
Bills
Hol
Lower Viburnum Branch
Bishop Creek
Bishop Creek Fd.
Washington Co.
Washington Co. Line
Above Grade
Bassett
Bassett Fd.
Mt. Hill
Dayton Hollow
Hunter Cb.
Hill Cab
Longbull Cb.
Hinge
Sulphur Spr.
Sulphur Spring
Hollow
Bixby Fd.
A
A'
B
B'
C
C'
D
D'
E
E'
F
F'
G
G'
H
H'
K
K'

MAP # 3

RECEIVED
DEC 21 1956
D.M.E.A.

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

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE TO AVOID
PAYMENT OF POSTAGE, $300
(PMGC)

Maps for
Operator's Final
Report DMEA-4582
6-2-59

WASHINGTON 25, D. C.

OFFICIAL BUSINESS

MAP RECEIVED WITH CLINTON C. KNOX MEMO 8/14/59 - ore reserve calculations

U. S. Government Messenger Envelope

Standard Form No. 65 (Rev. 1/46)

1. Use blocks consecutively, one at a
2. Void previous block.
3. Write clearly.

NAME OR TITLE OF PERSON, DEPARTMENT, ADDRESS, AND ROOM		NAME OR TITLE OF PERSON, DEPARTMENT, ADDRESS, AND ROOM	
~~Mr. Rodgers~~	RUN STOP		RUN STOP
Mr. E. H. Ellis Rm. 4449 Interior Bldg.	RUN STOP		RUN STOP
	RUN STOP		RUN STOP
	RUN STOP		RUN STOP
	RUN STOP		RUN STOP
	RUN STOP		RUN STOP
	RUN STOP		RUN STOP
	RUN STOP		RUN STOP
	RUN STOP		RUN STOP
	RUN STOP		RUN STOP

Send surplus envelopes to supply room for reissue.

Use other side

16—

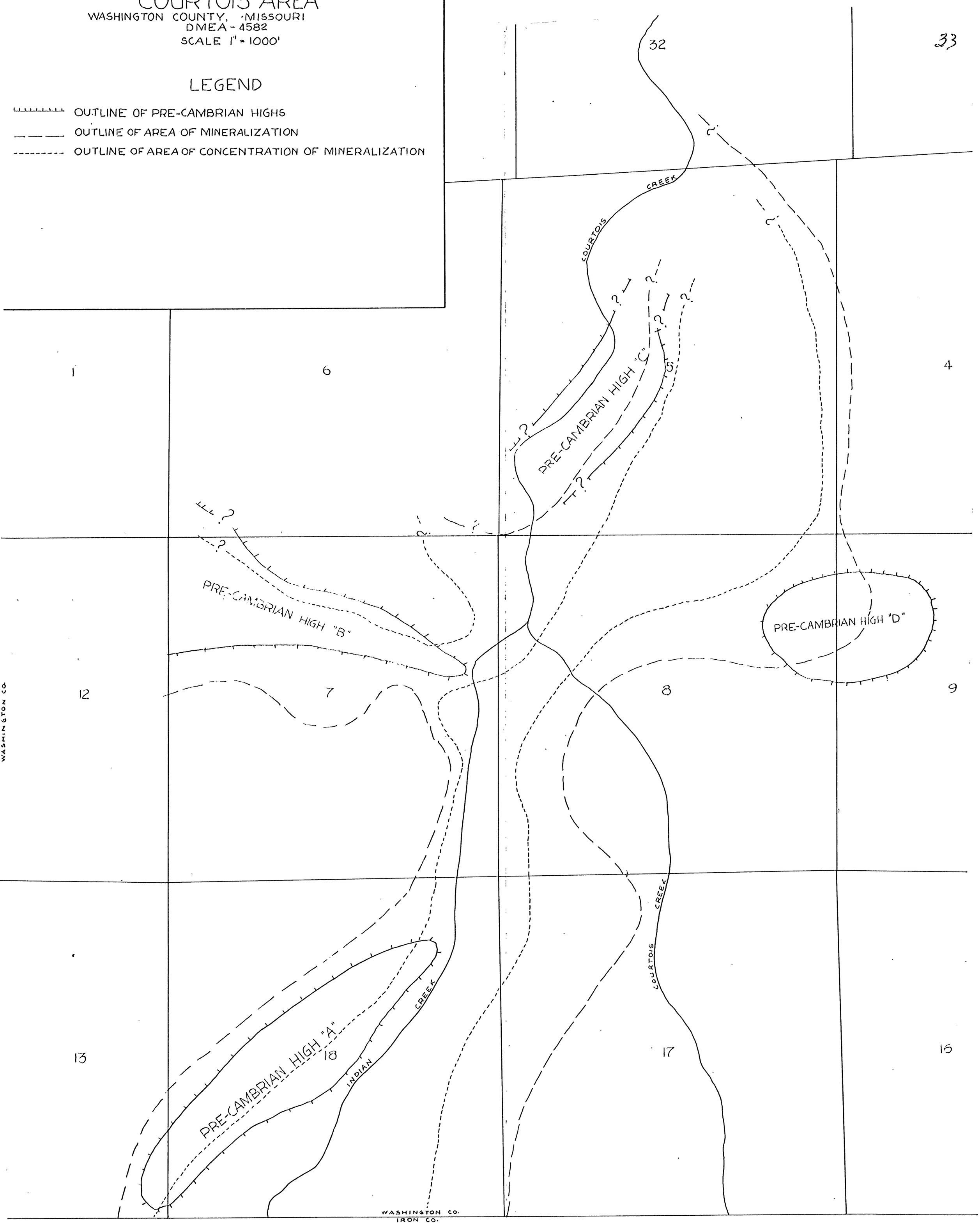
Use RUN and STOP only when messenger service between Government buildings in Washington is required. Your mail room has RUN and STOP information.

COURTOIS AREA

WASHINGTON COUNTY, MISSOURI
DMEA - 4582
SCALE 1" = 1000'

LEGEND

- OUTLINE OF PRE-CAMBRIAN HIGHS
- OUTLINE OF AREA OF MINERALIZATION
- OUTLINE OF AREA OF CONCENTRATION OF MINERALIZATION



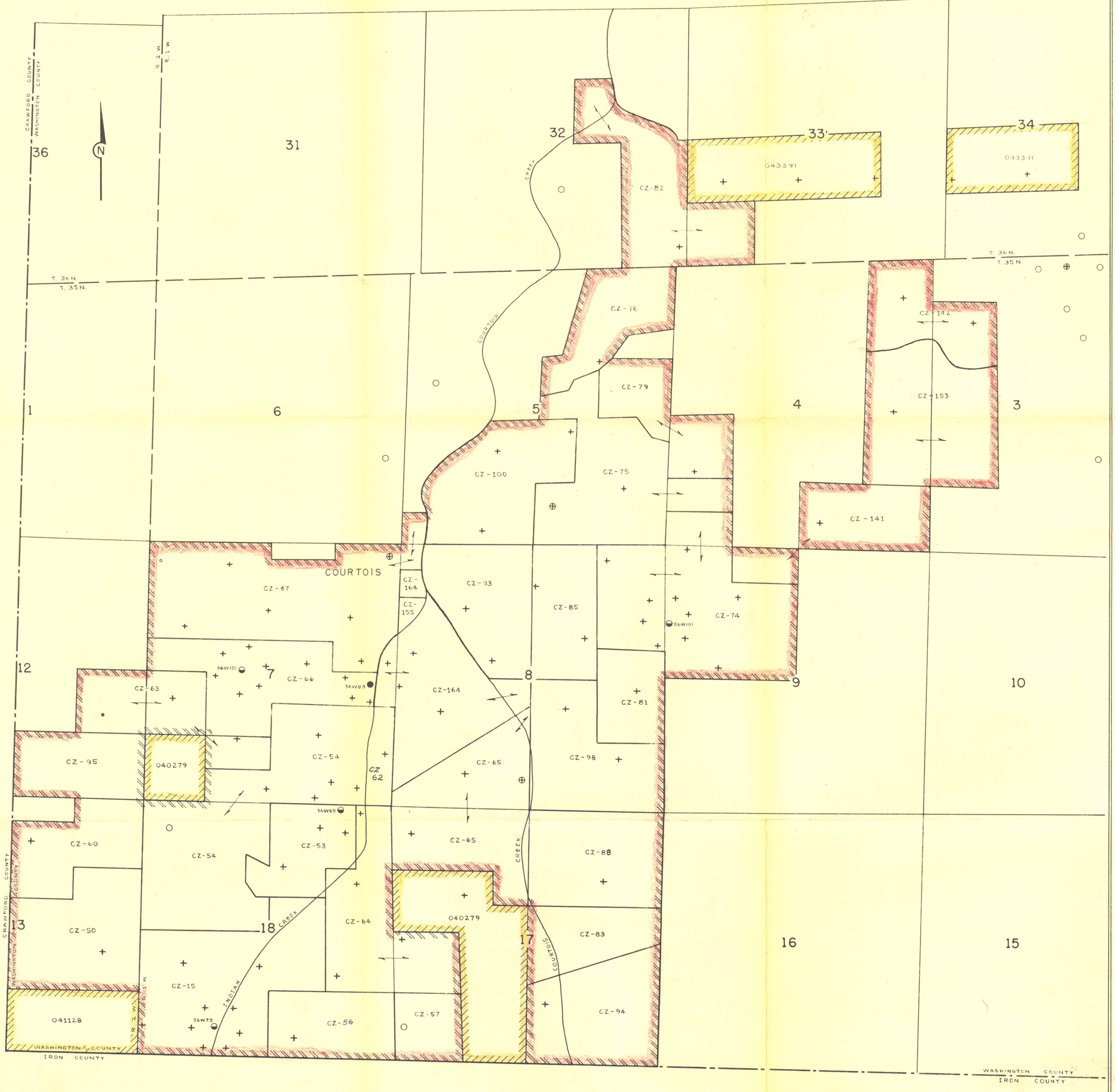


FIGURE 1- COURTOIS AREA, MISSOURI

WASHINGTON, COUNTY

DMEA 4582 (LEAD, ZINC & COPPER) ST. JOSEPH LEAD COMPANY

—LEGEND—

- ● HOLE INDICATING ORE
- ◒ SUBMARGINAL ORE
- ⊕ SIGNIFICANT ORE TRACE
- ⊖ WEAK TRACE
- ○ BLANK HOLE
- ∘ HOLES IN PROGRESS
- + PROPOSED HOLES - STAGE I

750 250
1000 500 0 1000 2000 3000 4000
SCALE IN FEET

SCALE 1" = 1000'

—LEGEND—

- OPTIONED PRIVATE LAND
- U.S. FOREST SERVICE PROSPECTING PERMITS

AMOS-KNOX 2-27-57

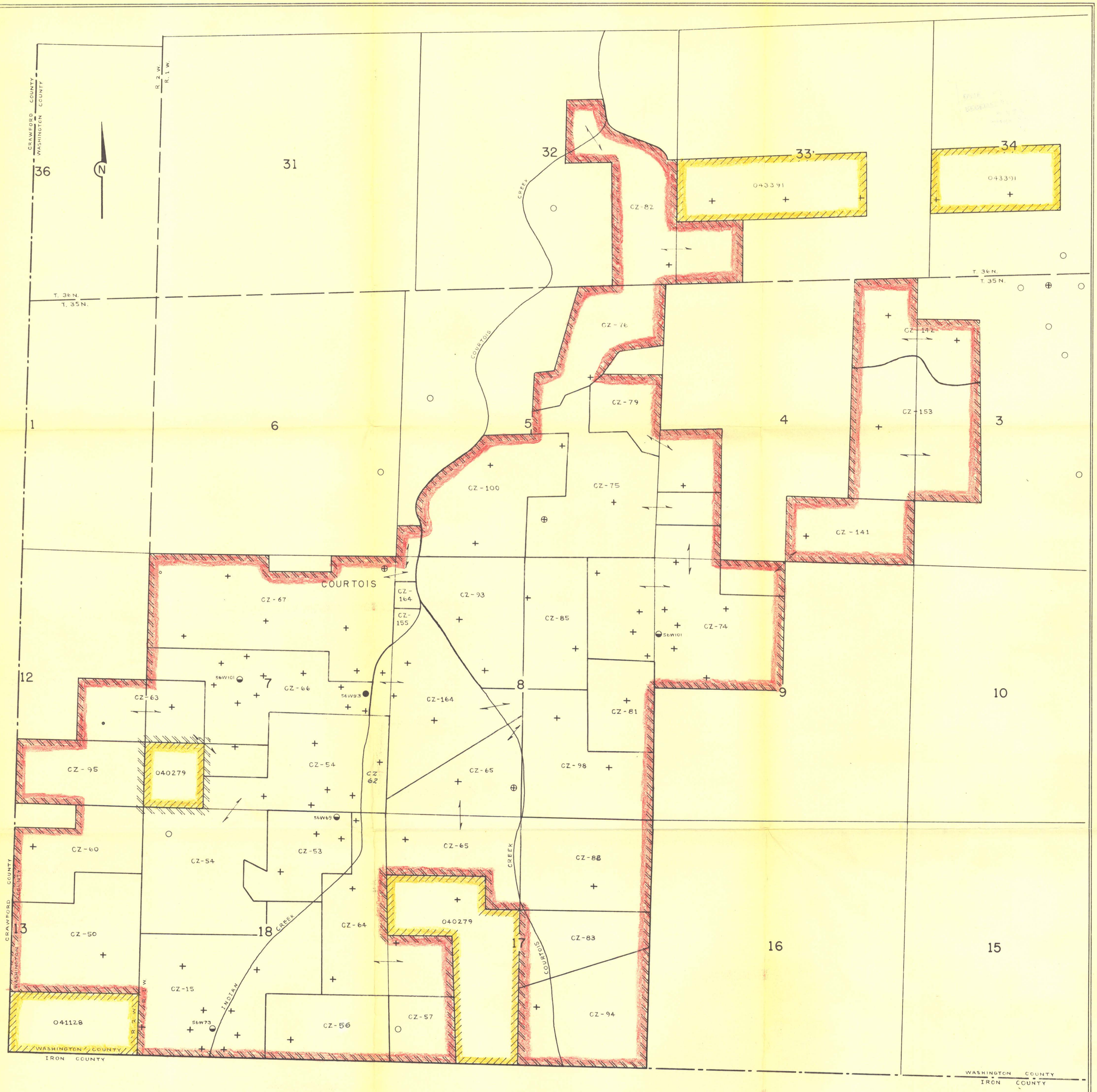


FIGURE 1- COURTOIS AREA, MISSOURI

WASHINGTON, COUNTY

DMEA 4582 (LEAD, ZINC & COPPER) ST. JOSEPH LEAD COMPANY

SCALE IN FEET

SCALE 1" = 1000'

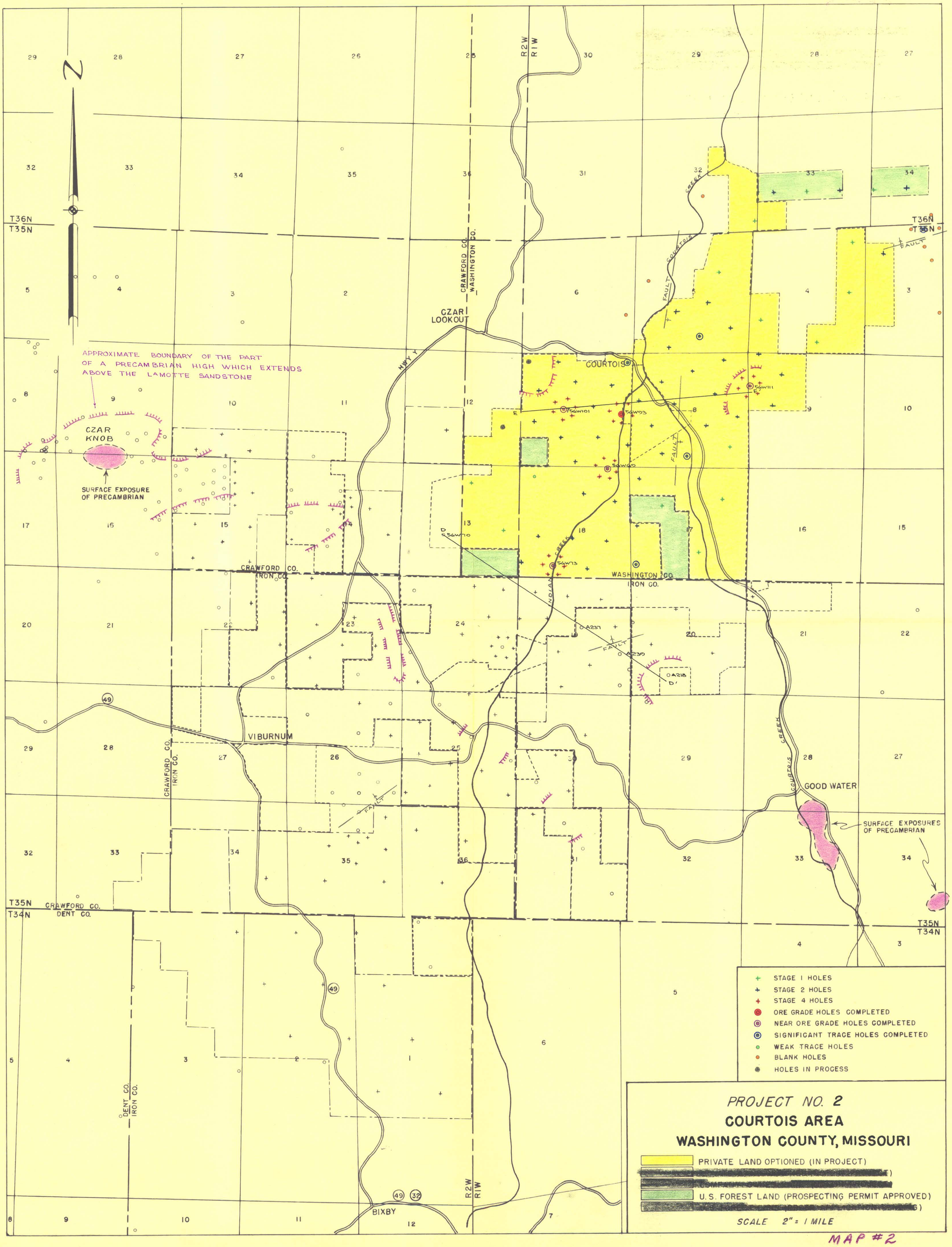
AMOS-KNOX 2-27-57

— LEGEND —

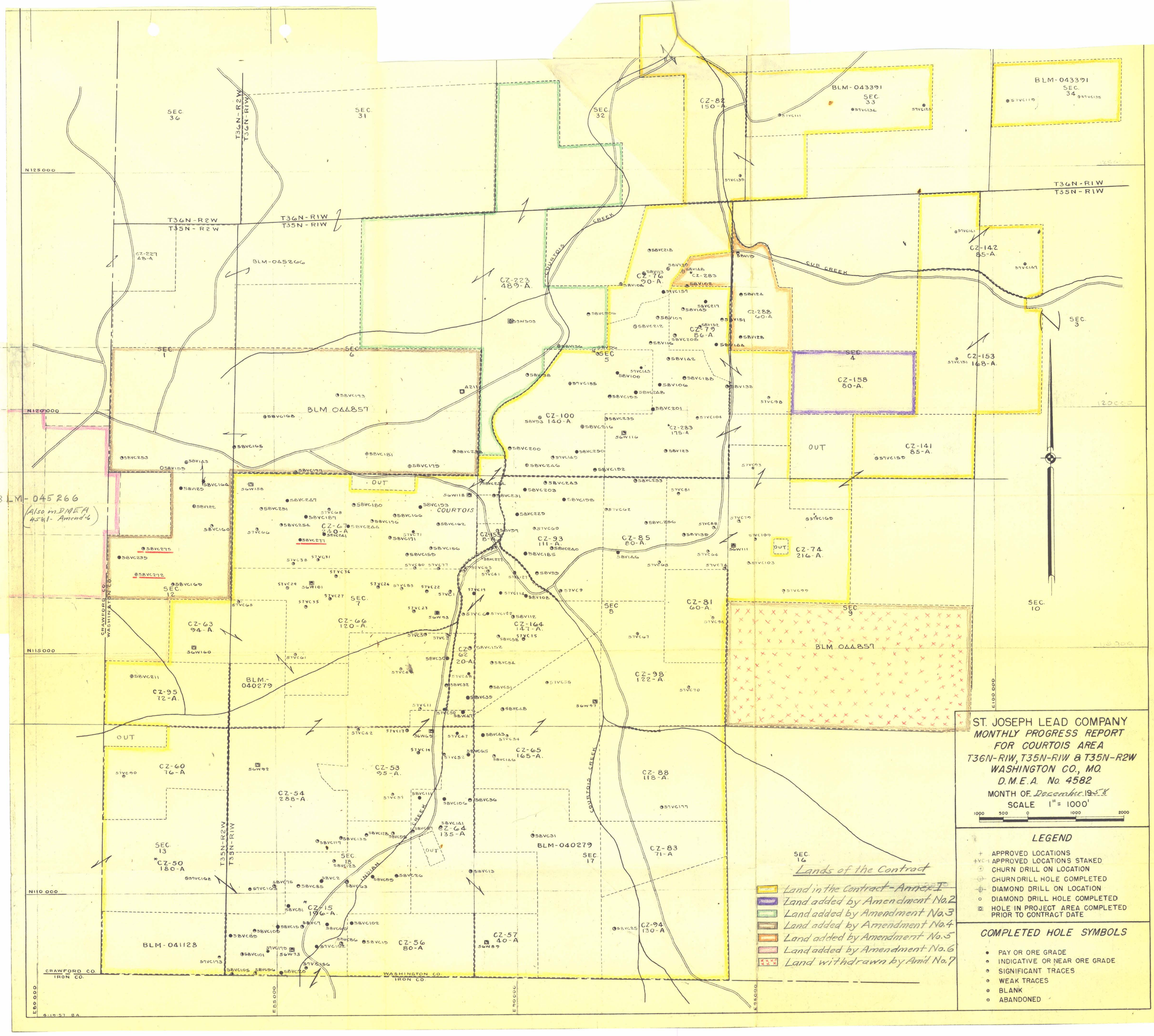
- HOLE INDICATING ORE
- SUBMARGINAL ORE
- SIGNIFICANT ORE TRACE
- WEAK TRACE
- BLANK HOLE
- HOLES IN PROGRESS
- PROPOSED HOLES - STAGE I

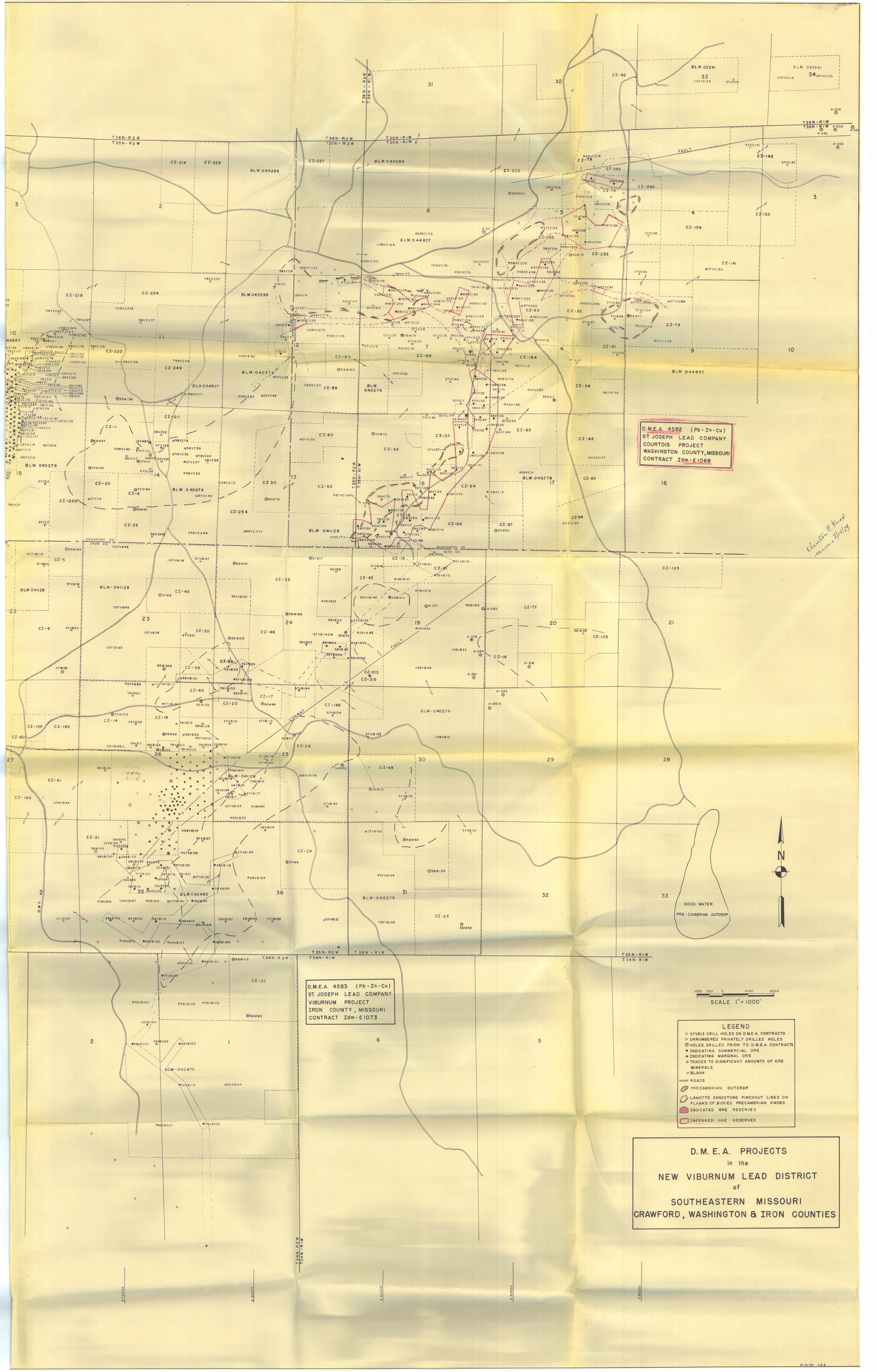
— LEGEND —

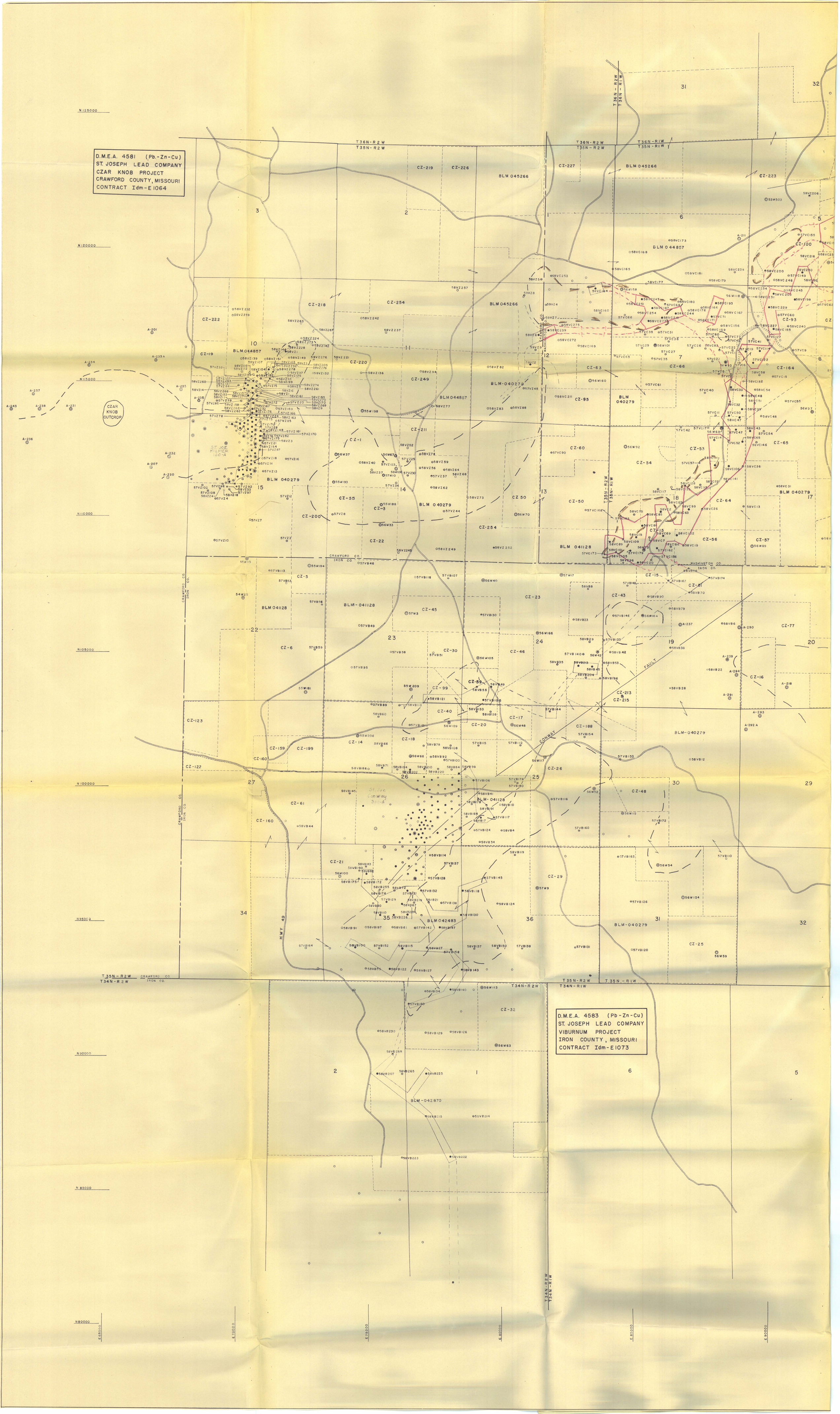
- OPTIONED PRIVATE LAND
- U. S. FOREST SERVICE PROSPECTING PERMITS


N
T36N
T35N
T35N
T34N
R2W
R1W
CRAWFORD CO.
WASHINGTON CO.
IRON CO.
DENT CO.
CZAR LOOKOUT
COURTOIS
VIBURNUM
GOOD WATER
BIXBY
HWY Y
COURTOIS CREEK
INDIAN CREEK
FAULT
APPROXIMATE BOUNDARY OF THE PART OF A PRECAMBRIAN HIGH WHICH EXTENDS ABOVE THE LAMOTTE SANDSTONE
CZAR KNOB
SURFACE EXPOSURE OF PRECAMBRIAN
SURFACE EXPOSURES OF PRECAMBRIAN
56W101
56W93
56W111
56W69
56W70
56W73
A237
A239
A218
STAGE 1 HOLES
STAGE 2 HOLES
STAGE 4 HOLES
ORE GRADE HOLES COMPLETED
NEAR ORE GRADE HOLES COMPLETED
SIGNIFICANT TRACE HOLES COMPLETED
WEAK TRACE HOLES
BLANK HOLES
HOLES IN PROCESS
PROJECT NO. 2
COURTOIS AREA
WASHINGTON COUNTY, MISSOURI
PRIVATE LAND OPTIONED (IN PROJECT)
U.S. FOREST LAND (PROSPECTING PERMIT APPROVED)
SCALE 2" = 1 MILE

MAP #2


ST. JOSEPH LEAD COMPANY
MONTHLY PROGRESS REPORT
FOR COURTOIS AREA
T36N-R1W, T35N-R1W & T35N-R2W
WASHINGTON CO., MO.
D.M.E.A. No. 4582
MONTH OF December 1958
SCALE 1" = 1000'
1000 500 0 1000 2000
LEGEND
APPROVED LOCATIONS
APPROVED LOCATIONS STAKED
CHURN DRILL ON LOCATION
CHURN DRILL HOLE COMPLETED
DIAMOND DRILL ON LOCATION
DIAMOND DRILL HOLE COMPLETED
HOLE IN PROJECT AREA COMPLETED PRIOR TO CONTRACT DATE
COMPLETED HOLE SYMBOLS
PAY OR ORE GRADE
INDICATIVE OR NEAR ORE GRADE
SIGNIFICANT TRACES
WEAK TRACES
BLANK
ABANDONED
Lands of the Contract
Land in the Contract - Annex I
Land added by Amendment No. 2
Land added by Amendment No. 3
Land added by Amendment No. 4
Land added by Amendment No. 5
Land added by Amendment No. 6
Land withdrawn by Amd. No. 7
T36N-R2W
T35N-R2W
T36N-R1W
T35N-R1W
T35N-R2W
T35N-R1W
SEC. 36
SEC. 31
SEC. 32
SEC. 33
SEC. 34
SEC. 3
SEC. 1
SEC. 6
SEC. 5
SEC. 4
SEC. 12
SEC. 7
SEC. 8
SEC. 9
SEC. 10
SEC. 13
SEC. 18
SEC. 17
SEC. 16
COURTOIS CREEK
CUB CREEK
INDIAN CREEK
CRAWFORD CO.
WASHINGTON CO.
IRON CO.
BLM-045266
(Also in DMEA 4581 - Amend. 6)
BLM-043391
BLM-044857
BLM-040279
BLM-041128
CZ-227 48-A
CZ-223 489-A
CZ-82 150-A
CZ-76 90-A
CZ-283
CZ-288 60-A
CZ-79 86-A
CZ-142 85-A
CZ-153 168-A
CZ-158 80-A
CZ-141 85-A
CZ-100 140-A
CZ-283 175-A
CZ-67 240-A
CZ-93 111-A
CZ-85 80-A
CZ-74 216-A
CZ-63 94-A
CZ-66 120-A
CZ-164 147-A
CZ-62 20-A
CZ-81 60-A
CZ-98 122-A
CZ-95 72-A
CZ-60 76-A
CZ-53 95-A
CZ-65 165-A
CZ-88 118-A
CZ-54 288-A
CZ-64 135-A
CZ-50 180-A
CZ-15 176-A
CZ-56 80-A
CZ-57 40-A
CZ-83 71-A
CZ-94 130-A
OUT
N125000
N120000
N115000
N110000
E80000
E85000
E90000
E95000
E100000
4-19-57 BA


D.M.E.A. 4582 (Pb-Zn-Cu)
ST. JOSEPH LEAD COMPANY
COURTOIS PROJECT
WASHINGTON COUNTY, MISSOURI
CONTRACT Idm-E1068
D.M.E.A. 4583 (Pb-Zn-Cu)
ST. JOSEPH LEAD COMPANY
VIBURNUM PROJECT
IRON COUNTY, MISSOURI
CONTRACT Idm-E1073
GOOD WATER
PRE-CAMBRIAN OUTCROP
SCALE 1" = 1000'
LEGEND
57VB13 DRILL HOLES ON D.M.E.A. CONTRACTS
UNNUMBERED PRIVATELY DRILLED HOLES
HOLES DRILLED PRIOR TO D.M.E.A. CONTRACTS
INDICATING COMMERCIAL ORE
INDICATING MARGINAL ORE
TRACES TO SIGNIFICANT AMOUNTS OF ORE MINERALS
BLANK
ROADS
PRECAMBRIAN OUTCROP
LAMOTTE SANDSTONE PINCHOUT LINES ON FLANKS OF BURIED PRECAMBRIAN KNOBS
INDICATED ORE RESERVES
INFERRED ORE RESERVES
D. M. E. A. PROJECTS
in the
NEW VIBURNUM LEAD DISTRICT
of
SOUTHEASTERN MISSOURI
CRAWFORD, WASHINGTON & IRON COUNTIES
8-10-59 J.D.A.


D.M.E.A. 4581 (Pb.-Zn-Cu)
ST. JOSEPH LEAD COMPANY
CZAR KNOB PROJECT
CRAWFORD COUNTY, MISSOURI
CONTRACT Idm-E 1064
CZAR KNOB OUTCROP
D.M.E.A. 4583 (Pb-Zn-Cu)
ST. JOSEPH LEAD COMPANY
VIBURNUM PROJECT
IRON COUNTY, MISSOURI
CONTRACT Idm-E1073
T36N-R2W
T35N-R2W
T36N-R1W
T35N-R1W
T34N-R2W
T34N-R1W
CRAWFORD CO.
IRON CO.
WASHINGTON CO.
CONWAY FAULT
HWY 49
BLM 045266
BLM 044857
BLM 040279
BLM 041128
BLM-042483
BLM-042870
N125000
N120000
N115000
N110000
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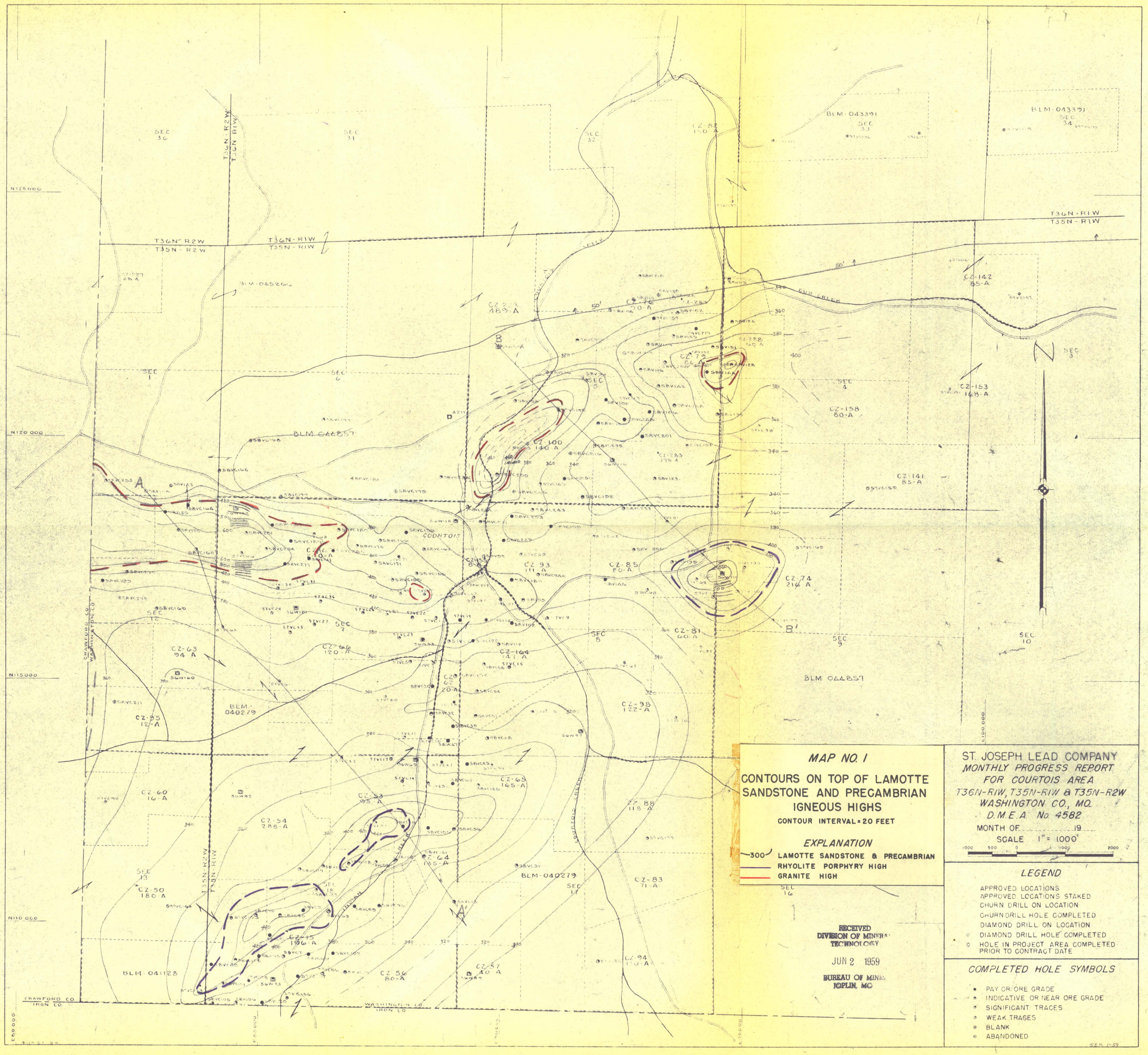
E70000
E75000
E80000
E85000
E90000


MAP NO. 1
CONTOURS ON TOP OF LAMOTTE SANDSTONE AND PRECAMBRIAN IGNEOUS HIGHS
CONTOUR INTERVAL = 20 FEET
EXPLANATION
300 LAMOTTE SANDSTONE & PRECAMBRIAN
RHYOLITE PORPHYRY HIGH
GRANITE HIGH
ST. JOSEPH LEAD COMPANY
MONTHLY PROGRESS REPORT
FOR COURTOIS AREA
T36N-R1W, T35N-R1W & T35N-R2W
WASHINGTON CO., MO.
D.M.E.A. No. 4582
MONTH OF 19
SCALE 1" = 1000'
LEGEND
APPROVED LOCATIONS
APPROVED LOCATIONS STAKED
CHURN DRILL ON LOCATION
CHURNDRILL HOLE COMPLETED
DIAMOND DRILL ON LOCATION
DIAMOND DRILL HOLE COMPLETED
HOLE IN PROJECT AREA COMPLETED PRIOR TO CONTRACT DATE
COMPLETED HOLE SYMBOLS
PAY OR ORE GRADE
INDICATIVE OR NEAR ORE GRADE
SIGNIFICANT TRACES
WEAK TRACES
BLANK
ABANDONED
RECEIVED
DIVISION OF MINERAL TECHNOLOGY
JUN 2 1959
BUREAU OF MINES
JOPLIN, MO
T36N-R2W
T35N-R2W
T36N-R1W
T35N-R1W
SEC 36
SEC 31
SEC 32
SEC 33
SEC 34
SEC 1
SEC 6
SEC 5
SEC 4
SEC 3
SEC 12
SEC 7
SEC 8
SEC 9
SEC 10
SEC 13
SEC 18
SEC 17
SEC 16
BLM-043391
BLM-044857
BLM-040279
BLM-041128
BLM-045266
CZ-82 140-A
CZ-223 180-A
CZ-142 85-A
CZ-153 168-A
CZ-158 80-A
CZ-141 85-A
CZ-100 140-A
CZ-283 175-A
CZ-93 111-A
CZ-85 80-A
CZ-74 214-A
CZ-81 60-A
CZ-63 94-A
CZ-66 120-A
CZ-164 141-A
CZ-62 20-A
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CZ-95 12-A
CZ-60 16-A
CZ-69 165-A
CZ-58 95-A
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CZ-88 118-A
CZ-50 180-A
CZ-83 71-A
CZ-115 196-A
CZ-56 80-A
CZ-57 40-A
CZ-94 150-A
COURTOIS CREEK
CUH CREEK
CRAWFORD CO
WASHINGTON CO
IRON CO
N125000
N120000
N115000
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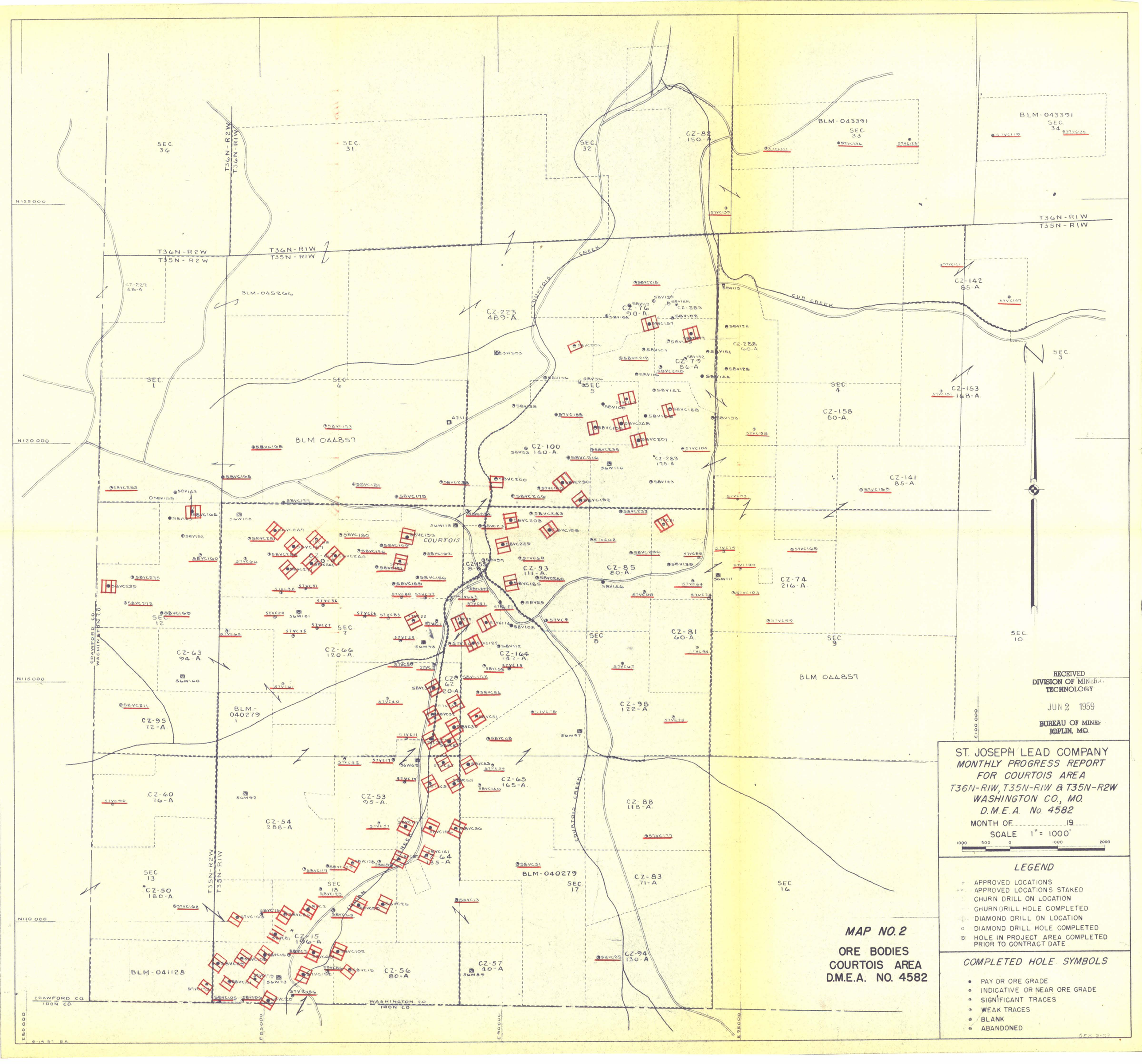
E100000
E200000
E300000
E400000
E500000


ST. JOSEPH LEAD COMPANY
MONTHLY PROGRESS REPORT
FOR COURTOIS AREA
T36N-R1W, T35N-R1W & T35N-R2W
WASHINGTON CO., MO.
D.M.E.A. No. 4582
MONTH OF ..... 19 .....
SCALE 1" = 1000'
1000 500 0 1000 2000
LEGEND
APPROVED LOCATIONS
APPROVED LOCATIONS STAKED
CHURN DRILL ON LOCATION
CHURN DRILL HOLE COMPLETED
DIAMOND DRILL ON LOCATION
DIAMOND DRILL HOLE COMPLETED
HOLE IN PROJECT AREA COMPLETED PRIOR TO CONTRACT DATE
COMPLETED HOLE SYMBOLS
PAY OR ORE GRADE
INDICATIVE OR NEAR ORE GRADE
SIGNIFICANT TRACES
WEAK TRACES
BLANK
ABANDONED
MAP NO. 2
ORE BODIES
COURTOIS AREA
D.M.E.A. NO. 4582
RECEIVED
DIVISION OF MINERAL TECHNOLOGY
JUN 2 1959
BUREAU OF MINES
JOPLIN, MO.
T36N-R2W
T35N-R2W
T36N-R1W
T35N-R1W
T35N-R2W
T33N-R1W
CRAWFORD CO.
WASHINGTON CO.
IRON CO.
COURTOIS CREEK
CUB CREEK
SEC. 36
SEC. 31
SEC. 32
SEC. 33
SEC. 34
SEC. 1
SEC. 6
SEC. 5
SEC. 4
SEC. 3
SEC. 12
SEC. 7
SEC. 8
SEC. 9
SEC. 10
SEC. 13
SEC. 18
SEC. 17
SEC. 16
BLM-043391
BLM-045266
BLM 044857
BLM-040279
BLM-041128
CZ-227 48-A
CZ-223 489-A
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