May 21, 1951

RAYMOND S. ROBERTS

MISSOURI

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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

P. O. BOX 136
ROLLA, MISSOURI

May 21, 1951

Dr. James Boyd
Administrator
Defense Minerals Administration
New Interior Building
Washington 25, D. C.

Dear Dr. Boyd:

Enclosed are four copies of an application for exploration aid, which were mailed to this office by Raymond S. Roberts, Farmer's Bank Building, Farmington, Mo., lessee of the Maumee mining property in Searcy County, Ark.

The application consists of form MF-103 (MO-5) and pertinent documents and reports. The applicant proposes to explore, by churn drilling, a partly explored zinc sulfide deposit, to a maximum expenditure of $12,000, 50 percent of which is to be borne by the Federal Government.

The work is to be done on the SE¼ NE¼ and NE¼ SE¼ sec. 11, and SW¼ NW¼ and NW¼ SW¼ sec. 12, all in T. 16 N., R. 16 W., M. P. Cayce, lessor.

No explanatory letter accompanied the remission to this office but it is presumed that Mr. Roberts wants the application to be processed through regular channels.

Sincerely yours,

T. R. Graham for
R. G. Knickerbocker

Enclosures 4

May 10, 1951

U. S. Department of the Interior
Defense Minerals Administration

Gentlemen:

Attached hereto find application for exploration on leased property at Maumee, Arkansas.

A reading of the attached exhibits to the application will show that a number of years ago, in fact around 1906 and 1907, some sixteen drill holes (churn drills) were sunk on this property, covering a distance from north and south of about 1900 feet and in the center thereof a distance east and west of about 250 to 300 feet. A reading of the log kept by the drillers at the time, if accurate, shows sufficient zinc sulphide to make mining operations profitable, provided the zinc sulphide area covers sufficient area. At one time a small mill was built on this property and some zinc concentrate was mined, milled and shipped. However, the old mill burned and no operation has been carried on on the property except that the now present owner, M. P. Cayce, sunk a shaft in 1946.

The writer has the mind the following plan of operation. It is proposed that if this application is approved, that a competent mining engineer be employed and sent down to this property with a good drill contractor and that some five or six holes be drilled up and down the valley for the purpose of testing and proving that the old sixteen drill holes are approximately accurate. In other words, if the five or six well-placed drill holes for testing purposes show that the old sixteen drill hole logs were accurate, then the drills would be moved east and west and north and south in accordance with the geological outlay of the land and some ten or twelve additional drill holes would be sunk to determine the extent and direction of the main body of ore. However, on the other hand, if the drilling of the five or six test holes up and down the valley, as above outlined, should prove that the old drill logs are inaccurate and that there is insufficient zinc sulphide to make mining profitable, then the operation would cease and no further drilling would be attempted.

The basis of the figure of $10,000.00 to $12,000.00 with the writer to spend 50% thereof, would cover the entire operation and the writer is prepared to enter into a contract with a competent drilling operator to drill only the five or six holes for testing purposes first and then if, as above stated, it was considered feasible at that time, then to drill the remaining.

You will note from the lease that the writer has only approximately three months from this date in which to start drilling operations. It is requested that this application be acted upon at an early date, if approved, so that drilling operations may actually start as quickly as possible and certainly before the expiration date of the lease.

Respectfully submitted,

Raymond S Roberts

RSR/elh
Enclosures

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

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

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

DO NOT FILL IN THIS BLOCK

Docket No. dma - 1252 X

Date received 5/25/51

Participation

[illegible]
[illegible]
[illegible]

Name and address of applicant

Date May 10, 1951

FILL IN THIS BLOCK

Date of application May 10, 1951

Estimated cost [illegible]

Mineral or metal zinc

Percentage of Government participation 50%

Location of mine Marion, Arkansas

Date of filing MF-100

DMA Docket Number, if available dma - 1252 X

INSTRUCTIONS

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

THE APPLICANT

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

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

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

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

16—64067-1

THE PROPERTY

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

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

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

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

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

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

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

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

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

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

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

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

THE EXPLORATION

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

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

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

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

THE REQUIREMENTS AND COSTS

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

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

CERTIFICATION

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

Raymond Shobert
(Name of company)

By _____
(Signature of authorized official)

Nov 30, 1951
(Date)

_____
(Title)

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

*Same as footnote on page 1.

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

1. Individual - Raymond S. Roberts
Farmers Bank Building
Farmington, Missouri

2. no

3. no

4. No previous mining experience - Attorney at Law for 22 years.

5. Lessee

6. No claims or encumbrances.

7. Copy attached. Lease in good standing.

8. Financial Statement attached.

9. $6,000.00 - This amount is sufficient to pay half of the costs of the project.

10a. SE¼ of NW¼, NE¼, N½ of SE¼, all of 11-16-16, the NW¼, N½ of SW¼, SW¼ of SW¼, S½ of NE¼, NE¼ of SE¼, all of 12-16-16, N½ of SW¼, S½ of NW¼, SW¼ of SE¼, N½ of NE¼, all of 18-16-16, S½ of SW¼, S½ of SE¼, N½ of SW¼, all in 7-16-15. (Surface rights has been sold to some of the above acreage.)

10b. SE¼ of NE¼ and the NE¼ of the SE¼ of Section 11, Township 16 North, Range 16 West. SW¼ of the NW¼ and the NW¼ of the SW¼ of Section 12, Township 16 North, Range 16 West.

11. This property has been known for many years and is still known as the Maunce Mining Property.

12. The property is located about ten to twelve miles South of Yellville, Arkansas which is on the Missouri Pacific Railroad and the road from the mine to Yellville is about half Federal and State maintained highway and half hard surface. The roads are all-weather, all-condition roads.

13. The Buffalo River is less than half a mile from this property and water for normal mining operations is available in all seasons - a power line runs through the property with sufficient power available.

14. There are no useable facilities or equipment or structures now on the property that can be devoted to exploration work.

15. The ore could be shipped from Yellville, Arkansas to Fort Smith, Arkansas, Bartelsville, Illinois or East St. Louis, Illinois for smelting. If ore in sufficient

quantities is found, the milling would be done on the property.

16a. See copy of letter attached from C. H. Bilharz to Dwight A. Jones, President, St. Joe Lead Company.

16b. No knowledge of production of adjoining and neighboring properties other than zinc carbonate.

16c. See attached reports.

17. Mine is not in production.

18. See copy of former drill hole reports attached.

19. The purpose of this application is to secure government help in drilling - first to check the sixteen drill holes as the reports attached hereto show and, second, if drill holes are found accurate, to drill east and west and north of present drill holes to determine how wide an area the zinc sulphide ore body covers.

20. The exploration will be to discover zinc.

21. It is proposed to test drill the present sixteen known drill holes by placing drill holes at five or six well selected spots to determine if the old drill holes are accurate and if the old drill holes are found to be accurate, to then drill east and west and north to determine the width and extent of the ore body by placing some twelve to sixteen well located drill holes.

22. See attached statements and maps which show the amount of zinc sulphide and zinc carbonate as reported by the drill holes and engineering reports.

23. Churn drill or diamond drill operators for the purpose of this drilling operation can be contracted at the rate of $2.00 per foot for the drilling. It is estimated that the complete cost of drilling, together with engineering and assay work, will run between $10,000.00 and $12,000.00. These are the same types of drills that are now operating for the St. Joe Lead Company in St. Francois County, Missouri.

24. The drilling can be completed within sixty days from the date of starting. It is estimated by a contract driller and by a retired geologist and mining engineer for the St. Joe Lead Company, Mr. L. P. Pressler, who has seen the property and a report of which is attached herein, that it will cost, for all purposes, to complete all the drilling, between $10,000.00 and $12,000.00.

It is understood, however, that if the drill holes placed to prove the old sixteen drill holes should not show ore present, then drilling operations would, of course, be immediately stopped.

MINING LEASE

This indenture made this 1st day of May, 1951, by and between M. P. Cayce, hereinafter referred to as the Lessor, and Raymond S. Roberts, hereinafter referred to as the Lessee.

WITNESSETH:

1. That in consideration of the covenants and agreements hereinafter set out, to be kept and performed by Lessee, the Lessor does hereby lease unto Lessee for prospecting and mining for zinc, lead and other ores and minerals for ten years from the date hereof, the following described lands situated in Searcy County, State of Arkansas, to-wit:

> SE ¼ of NW¼, NW¼ N½ of SW¼, all of 11-16-16 the NW¼, N½ of SW¼, SW¼ of SW¼, S½ of NW¼, NE¼ of SE¼, all of 12-16-16, N½ of SW¼, S½ of NW¼, SW¼ of SE¼, N½ of NE¼, all of 18-16-16, S½ of SW¼, S½ of SE¼, N½ of SW½, all in 7-16-15. (Surface rights have been sold to some of the above acreage.)

(It is mutually understood and agreed by and between the parties that neither party is to be bound by the above description but that the intention of both parties is to include in this indenture all of the lands now owned by M. P. Cayce in Searcy County, Arkansas.

2. The Lessor hereby gives and grants unto Lessee for said term the exclusive right and license to prospect and mine said land for zinc, lead and other ores and minerals, together with the right and license to prepare for market on said premises and remove and sell all zinc and lead and other ores and mineral concentrates produced from said ores, with the right to construct buildings or other structures and power lines and to make excavations, openings, stock-piles, dumps, ditches, drains and tailing dams and ponds, roads and other improvements upon said premises, including the use of water on and from such lands in such operations and to place such machinery thereon as Lessee may deem necessary for efficiently prospecting and mining said land and treating the ores mined therefrom, with the right in Lessee to remove all property so placed thereon at any time during the term hereof or within one year after the termination of this lease.

3. IN CONSIDERATION WHEREOF, Lessee agrees to pay unto Lessor at Farmington, Missouri, on or before the tenth day of each month a royalty of five per centum (5%) of all moneys received for the zinc, lead and other ores and mineral concentrates produced and sold from said land during the preceding month with the privilege to Lessee to consume such concentrates and pay Lessor said percentage of the market price thereof at the concentration mill as royalty thereon. For the protection of the Lessor and to the end that there may be no dispute as to the market price of concentrates so consumed, it is expressly agreed that if Lessor be not satisfied with the market price used in making royalty settlements, Lessor shall have and hereby agrees to take said percentage of said concentrates, or concentrates of like quality, in lieu of said royalty, at the bins where stored and further agrees to give written notice at once in the event Lessor is not satisfied as aforesaid.

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

5. The Lessee shall keep accurate books showing quantities and kinds of concentrates produced from said lands and sold or consumed, when and to whom sold, and the moneys received from sales and such

books of account shall be open to inspection by Lessor at all reasonable hours.

6. All mining operations shall be carried on in a miner-like and workman-like manner as the same are usually conducted in the district and the Lessee agrees to hold the Lessor harmless from any claims, suits for injuries or other type of claims or damages caused by Lessee's operations.

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

8. If the ores mined and raised from the lands herein leased are treated and cleaned at a Central Concentrating Plant, whether located on this or other lands, separately or with other ores as above provided, the tailings, sands, rock and other by-products resulting from the treatment of said ores shall thereupon become the sole property of and belong to the owner of the land upon which same are deposited by Lessee; that is to say, if ores and rock from the lands covered hereby are milled on other lands, the tailings, rock and other by-products resulting therefrom shall belong to the owner of such other lands or of the lands upon which same are deposited and if the ores and rocks from this or other lands are milled upon the lands covered hereby, all such materials shall belong to the Lessor; provided, however, Lessee shall at all times during the life of this lease have the right to re-mill said tailings and other by-products materials and during the period of said re-milling operations, Lessee shall be relieved from the obligation to conduct prospecting and mining operations.

9. The Lessor shall have the right to enter upon said land for the purpose of inspecting and examination, not unnecessarily interferring with the prospecting and mining operations of Lessee.

10. The Lessee shall commence prospecting or mining upon said lands within three months from the date hereof; such prospecting or mining shall be carried on continuously and shall not be suspended at any time for longer than thirty days except on account of unavoidable accidents, strikes or other conditions beyond the control of Lessee and except that when the sale value of concentrates produced from said premises shall be such that mining thereof cannot be profitably carried on by Lessee, operations may be suspended until prices improve so that the mining can be profitably conducted, provided suspension of operation from said last mentioned cause shall not continue longer than six months without the written consent of the Lessor.

11. The Lessee shall furnish Lessor a true copy of the log of each drill hole put down on said land by Lessee showing any assays made or cuttings therefrom and shall, upon request of Lessor, furnish print of any underground workings on said land at least once every three months period.

12. After the expiration of the term hereof fixed, this lease shall continue in force and effect so long thereafter as ore shall

be produced therefrom by the Lessee or Lessee shall continue prospecting or mining operations of said lands or any part thereof in good faith.

13. Lessor hereby warrants and agrees to defend the title to the lands herein described and agrees that the Lessee shall have the right at any time to redeem for Lessor by payment, any mortgages, taxes or other liens on the above described lands in the event of default of payment by Lessor.

14. The Lessee shall have the right to assign or sublet this lease.

15. The Lessee shall pay for damages caused by operations hereunder to growing crops and/or any improvements on said lands.

16. In case of failure of Lessee to keep and perform the terms of this lease, Lessor may give thirty days written notice of the violation complained of and if such violation or default is not removed within said thirty day period, this lease shall be thereupon terminated at the option of the Lessor which remedy shall be exclusive. Lessee may at any time, if Lessee desires to do so, pay all royalties then due together with $25.00 surrender and terminate this lease by giving seven days written notice of intention to do so and thereupon Lessee shall be relieved from all obligations hereunder with like effect as if this lease had not been made.

17. In consideration of the sum of $1.00 paid b Lessee to Lessor, the receipt of which is hereby acknowledged, and other good and valuable considerations, the Lessor does hereby give and grant to Lessee the exclusive right and option to purchase all of the land and all other mineral and underground rights thereto in and of the above described land within six months from the date hereof for the sum of $40,000.00 in cash to Lessor, less the amount of royalties and rentals paid and due at the time of notice to purchase. Notice of intention to purchase the surface rights, mineral and underground rights shall be in writing and shall be given to Lessor at least thirty days before the expiration of said such option period and Lessor within ninety days shall furnish to Lessee an abstract of title showing the Lessors an indefeasible perfect title in fee simple, free and clear from all liens, incumbrances, claims, burdens and obligations; conveyance to be by general warranty deed, including the covenant to defend. Lessor shall within ninety days correct any defect appearing in the abstract and in the event of Lessor's failure to do so within said time, Lessee at his option may proceed to correct the same, charging Lessor with all costs and expenses in relation thereto, including attorneys' fees.

18. Any notice herein authorized or required to be given Lessor must be in writing and may be served by mailing the same by registered mail, postage prepaid, addressed to Lessor or Lessor's heirs, legal representatives, successors or assigns at Farmington, Missouri. Any notice herein authorized or required to be given Lessee shall be in writing and may be served by mailing the same byregistered mail, postage prepaid, addressed to Lessee or Lessee's legal representatives, successors or assigns, at Farmers Bank Building, Farmington, Missouri.

19. The terms and conditions of this lease shall be binding upon and inure to the benefit of the heirs, successors, legal representatives and assigns of the parties hereto.

IN WITNESS WHEREOF, the parties hereto have duly executed this indenture the day and year first above written.

_____
Lessor

_____
Lessee

ACKNOWLEDGMENT

STATE OF MISSOURI)
(SS
COUNTY OF ST. FRANCOIS)

On this, the 1st day of May, 1951, before me personally appeared M. F. Cayce and Raymond S. Roberts, to me known to be the persons who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal at my office in Farmington, Missouri, the day and year last above written.

My term expires _____.

_____
Notary Public

FINANCIAL STATEMENT

RAYMOND S. ROBERTS
ATTORNEY AT LAW
FARMERS BANK BUILDING
FARMINGTON, MISSOURI

May 10, 1951

A S S E T S

Cash on hand and in bank	$ 750.00
Accounts due me (good)	2500.00
Stocks and bonds (including U. S. Securities)	13500.00
Law library and office equipment	5000.00
Real estate (jointly owned with wife), including household fixtures and furniture	25000.00
Cash surrender insurance policies	6500.00
50% stock Roberts-Lloyd Company, Inc. (total appraised value - $120,000.00)	60000.00
	$ 113250.00

L I A B I L I T I E S

Notes owed by me without security	$ 2900.00
Notes owed by me with security (including real estate)	6000.00
Indebtedness Roberts-Lloyd Company, Inc. (total indebtedness - $41,000.00)	41000.00
	$ 49900.00

TOTAL ASSETS	$113,250.00
TOTAL LIABILITIES	49,900.00
	$ 63,350.00

The undersigned, in connection with Form MF 103, Defense Minerals Administration, Mineral Order No. 5, under Defense Production Act of 1950, submits herewith a financial statement as of the date of May 10, 1951.

Raymond S. Roberts

Raymond S. Roberts

Rivermines, Mo., July 21st, 1913.

Dwight A. Jones, Esq.,

45 Nassau Street,

New York City.

Dear Sir: -

Under separate cover I have mailed you blue print showing Mine Workings and Drill Holes on the Meramec Property.

After about four weeks of pumping, which was however frequently interrupted by break-downs of the pumping machinery available, we succeeded On July 5th., to unwater the mine so far that an inspection of the workings was possible.

As mentioned before - the whole plant is in very bad condition. With a few exceptions, nothing but second hand machinery was originally installed. Since the plant has been idle for several years, the machinery has deteriorated to such an extent that it required considerable time and work to put the plant in a fairly safe operating condition.

No repair work was undertaken on the Shaft proper, as it would have taken considerable time and money to do so. As I have stated before, the shaft was found to be in an exceedingly dangerous condition due to the rotting of the wooden cribbing, on which the entire Shaft Building with pump and hoisting machinery rests; so that a caving of the Shaft can be expected to occur at any time.

The Mine Workings proper were found to be in safe condition. They consist of a drift started from the bottom of the shaft in a Southeasterly direction a distance of 150 feet, which then widens out into an opening of 88 feet in length, 50 feet in width and 12 feet average height, which I estimate to have contained about 4,000 tons of Ore. I am informed that in all 360,000 pounds of concentrates were made from this ore during the operation of the Mill.

Considering that the recovery in the Mill could not have been more than 65%, due to the insufficient sand and slime treatment and other defects in the mill, the Mine must have furnished an ore containing not less than 6 per-cent in concentrates; however, of a

low grade, since only $37.50 per ton was obtained for them.

On examination of the mine workings it was found that the Drift at Point X (see map) entered from a solid strata of limestone into a disturbed and brecciated formation interwoven with numerous streks and seams of Pink Spar or Dolomite. The whole formation after its original deposition from the sea was no doubt subjected to heavy down and lateral movement, possibly due to dissolution and breaking down of the lower stratas. This caused the fracturing and displacement of the rocks of the upper stratas in various directions. As more or less space was left between the broken and fractured rock in the form of seams and cracks easy circulation of the waters coming from the over or underlying formations was made possible. These waters were in this case heavily charged with Magnesia which was precipitated as Magneisum Carbonate, thus filling up the crevices between the broken rocks, binding and cementing them together again into a solid mass.

Associated with the Magnesium Carbonate, Zinc was also carried in solution and precipitated in the form of Zinc Blende or Zinc Sulphide in greater or less quantities.

The quality of this Zinc ore when in form of concentrates is of exceptional pureness and therefore com ands thehighest price on the ore market.

The above described brecciated formation extends in the mine from Point X all along the mine workings to Point Y (see map), a distance of 150 feet, principally along the South side of the workings.

Whilst it was a very difficult matter to determine by sight the contents of mineral in the ore in the various stopes, one cannot hesitate to say that the mineralization is of such extent and character that it appears that the mining of the ore as shown along the faces should be profitable. Its extent, if the diamond drill records were made by reliable and experienced men, appears to be assured over an area of about 10 acres, of a formation similar to that exposed in the Mine.

Since, however, no other information except a record of the drill holes (which are platted on the Map) is the only basis on which

an opinion as to the value of the area for future mining operations can be formed, it appears highly advisable to appropriate a certain amount of money; not along in order to verify the old drill records, but to conduct drilling beyond the at present known mineral bearing area in order to determine its extent. Twelve or sixteen drill holes placed in well selected places, which can be drilled at an expense of about $2500.00 will prove of great benefit in the determination of the value and extent of the Lower Ore Horizon. In the meantime some exploration work should be started on the Oxidized or Carbonate ores exposed in many places on the surface along the bluffs where, I am of the opinion that, with a small expenditure of money, ore could be mined of high enough grade to be marketable without concentration. This has been done in previous years and can, no doubt, be done in the future.

After a few drill holes have been put down into the Sulphide Ore Body a decision can be reached either as to the repair of the present mill which is, as previously mentioned, not along of small capacity; but a badly constructed affair; or as to the erection of a welldesigned new Mill of larger capacity.

I would advise, also, to at once repair the present Shaft and put it in safe condition; and also consider the sinking of a second Shaft as soon as drilling has progressed far enough to warrant it. The location of this shaft should be determined by the extent of the Main Ore Body and the Location of the Mill, so that all unnecessary haulage below, as well as on the surface, is avoided.

The following estimate may give you an idea of the Profits that can be expected by the operation of a Mill of 200 Tons capacity.

200 Tons Ore of 6% Concentrates equals with 80% Recovery a Production of 19,200 Pounds, or 9.6 tons of Concentrate containing 63 per-cent Zn. valued at $44.00 Per Ton.

Value of 9.6 Tons Concentrate ----------$422.40

Production Cost would be as follows:

Mining Per Ton Ore---------	90 cents.
Milling " " " ---------	25 cents.
Genl. Exp. " " " ---------	15 cents.
	$1.30 Per Ton of Ore.

200 Tons Ore @ $1.30 per Ton ---------- 260.00

Haulage & Freight per ton)
of Concentrate @ 4.50 X (---------- 43.20
9/6 Tons ofConcentrate)

Production Cost (total)

Value of Concentrates-------$422.40

Cost of Concentrates-------- 302.20

Profits----------$119.20 per day

$119.20 per day equals $2990.00 per month.

The profits realized at the present market price per ton of Concentrates would be $12.40 per ton. A reduction can, no doubt, be made in the cost of Haulage to railroad by River transportation, which is possible during 9 months of the year.

The transportation of powder and other supplies could also be done in the same manner with considerable saving.

Respectfully,

O. M. Bilharz

DRILL LOG OF PROSPECT DRILL HOLES

OF NORTH ARKANSAS MINING & INVESTING COMPANY.

Drill Hole #1:

Open ground at 26 ft. to 38. sand and lime with some tiff and spar, at 38 ft. struck opening with water carrying away cuttings, 39 ft. sand and lime, 41 ft. sand and lime and spar and some jack, same to 44 ft. after which no more ore was found, formation being lime and spar and sand, until 51 ft., from 51 ft. to 71 ft. desceminated ore, in blue shale and flinty lime, and spar, the ore running about 4% zinc blende, from 71 ft. to 101 the formation was black lime and sand some quartz, very hard drilling, 101 to 110 ft. zinc blende, jack, desceminated in flinty lime and spar, same running 3 to 4% zinc blende, from 110 to 144 ft. formation was lime and spar and sand, very hard, from 144 to 150 ft. zinc blende in a softer rock being a bluish lime shale, with spar and tiff, hole finished at 150 ft. formation continuing carrying ore.

Singledecker Driller; 1903

Drill Hole #2:

Rock at 5 ft. soft black lime and sand, same continuing to 38 ft., struck opening with water 39 to 44 ft. formation being same as above, 44 to 51 ft. spar and sand and lime, some ore possibly 3%, this hole seems to have been drilled direct in fault, rock very much disturbed, this disturbance continuing to different depths, no more ore was encountered until 157 ft. when ore was again encountered, to 163 ft. same being a bluish lime and spar, and some mundic, after this depth no more ore was encountered the hole being drilled to a depth of 200 ft. the rock continuing changeable, from lime and flint to sand quartz and spar and tiff.

Tom Matlock Driller

January 16, 1906.

Hole #3:

Open ground to 26 ft., 26 ft. to 38 ft., lime and sand with some spar, 39 to 41 ft., same, 42 to 45 some nice ore (jack) same to 50 ft., being in light colored lime and sand and shale. 53 dark lime and sand, same to 55 ft. same to 60 ft., 60 ft. to 69 ft., continuing same being lime and sand, except some quartz, at 69 ft., struck opening, opening being about 6 inches, formation continuing to be lime and sand, formation continuing to be lime and sand until 83 ft., 83 to 87 ft., bluish lime and sand, same to 87 ft., then hard sand and lime and spar to 95 ft., blue lime and sand to 105 ft., 105 ft., sacharoidal sand to 108, from 108 to 114 bluish shale and soft bluish lime, some mundic rock having a coarse granular quartz similar to that found at Hazel Dell. 114 no change to 116 ft., 116 to 119 ore, same being in bluish shale and lime, 119 to 125 ft., the ore increases, running to about 6 to 10% blende, 125 to 128 ft. rock changing to flanky lime with plenty of spar, but not so much ore, after 128 ft., no more to 147 ft. when hole was bottomed.

Feb. 19, 1906.

Hole #4:

Dirt to 6 ft., then 4 ft. rock, then open ground to 13 ft., and not real solid formation to 24 ft., at 28 ft. went into opening 2 ft., the formation continuing as before striking an opening being a lime and a sand, and continuing to 37 ft., same to 45 ft., when another opening was struck, the formation being from 45 to 63 ft., being in a dark lime and sand and spar, 63 to 72 ft., dark lime and spar, 72 to 78 ft., dark lime and sand and spar, 78 ft., shows a 6" opening with tallow clay then sacharoidal sand to 81 ft., 81 ft. to 84 ft., pluish lime and shale with ore, 87 same with ore running about 4%, 88 ft. to 90 ft., bluish lime and shale and spar, 94 same, 96 to 98 and to 102 rock is streaked with spar and sand of light color same continuing to 112 ft., then 112 to 115 ft., sacheroidal sand 116 to 119 bluish lime and shale with ore, looks fine, 119 to 124 same, formation being same as Hole #3, after this hole showed no more ore. It was bottomed at 150 ft.

March 30, 1906.

Hole #5:

Dirt to 10 ft., loose boulders to 14 ft., 15 ft. solid rock, 20 ft., struck small opening rock to 37 ft., being in light colors lime and sand, 40 ft., light colored lime and sand and sand and spar, 43 lime and gravel continuing together with sacharoidal sand and spar, same continuing to 63 ft., 63 ft., to 73 ft., tallow clay and shale, shale being bluish color, 77 ft. to 83 ft., soft gray lime and sand some tiff and spar, same continuing to 92 ft., 93 to 95 ft., spar and bluish lime and sand, 98 ft., same continuing to 104 ft., from 104 to 112 bluish shale and lime and sand carrying ore, ore being desceminated, 116 sacharoidal sand and bluish shale, some spar same continuing to 125 to 142, streaks of spar and bluish lime shale carrying considerable ore, rock soft and mushy, best ore being from 130 to 140 at 143 the rock changed to a harder and hole bottomed at 145 ft.

April 26, 1906.

Hole #6:

The record of this hole (lost) showed ore about the same as No. 5.

Hole #7:

Open ground to 26 ft., from 26 to 50 dark lime and sand, at 50 struck open ground for 8 ft., 60 ft., sand and lime, 62 same, 66 sand and light colored quartz, same formation continuing to 89, 92 gray sand, 95 gray sand and lime and spar, 97 lime and spar, 100 same to 106, with a slight opening, 190 to 11, dark lime, 118 gray lime and sand and quartz, same to 122, same to 126, 129 dark lime and sand, same to 135, 139 sacharoidal sand cap rock, 143 gray and blue lime and shale with ore, looks good. Sand at 145, 149 formation same but carrying more ore, 153 formation same but not so much ore, 154 more ore, 156 same as 154, 157 not so much ore, 161 very rich ore, 162 same, quit hole.

Hole #8:

Struck solid rock at 18 ft., 20 gray sand, 22 sand and lime, 26 same formation same formation but some spar mixed with the sand and lime, 28 same, 34 same formation, dark sand and lime, 37 to 44 same, 50 white sand and some lime, 53 gray lime and spar and sand, 56 same, 60 same, 63 dark lime and sand with some spar, 69 same, 72 to 75 same, 78 dark lime and sand, 84 gray sand and lime and sacharoidal sand, 88 same with some quartz, seemingly a mixture, 90 ft., lime and sand, same continuing to 96, 99 same but streaked with quartz, 102 same, 105 dark lime and spar, 108 gray lime and sand, 110 same, 113 grayish lime and spar, same to 119, 122 same, 125 dark lime and sand, 128 same, 131 dark lime and spar, 134 same, 137 lime and spar (and ore), 140 same, 143 same, 146 same except formation softer being bluish lime, 149 formation seemingly same but no ore, ore being from 137 to 146, 153 blue lime and sand, 155 same, 158 same, 163 dark sand and lime with some quartz, same to 170, 173 hard sand and lime, 173 to 176 sacharoidal sand, 178 same, 181 bluish lime with ore, 184 to 187 same, 190 more ore, 191 not so much ore, 193 to 196 no ore, hole bottomed.

Hole #9:

Solid rock at 19 ft., 25 lime and sand, 28 dark and gray lime and sand, 33 same, 39 same except harder, 44 same as 39, 49 same with some spar, 55 dark lime and spar and clay seams, 60 ft. dark slatey lime, 63 same, 66 same, 73 dark lime and sand and spar, 77 same, 81 bluish shale and lime, 85 same, 90 the rock is principally blue lime and shale and some sand, 92 same, same to 98, 99 is sacharoidal sand, 101 gray lime with some spar, 103 a mixture of blue and dark lime and shale, 105 same, 106 same with ore, seemingly desceminated, formation being soft, same to 114, carrying ore about 5% blende, hole bottomed at 120 ft.

Hole #10:

Solid formation at 10 ft., being dark sand and lime, same at 14 same to 24 ft., 25 dark lime and sand and some clay, 28 same, 31 dark lime and sand, this formation continues to 64 ft., 67 seams of spar in the lime, 69 dark gray lime with streaks of spar, and some quartz, 72 same, 74 slatey lime, same to 80 ft., when sacharoidal sand is struck, continuing to 85 ft., 86 blue lime and shale with ore, 88 same as 86, but formation softer, 90 a mixture of flinty lime and spar with ore, no dhange to 96, ore running about 4%, blende, 99 same,

102 same, 106 to 108 still carries ore but more spar, 110 rock changes to dark lime, not so much ore, 111 to 115 rock harder no ore quit hole.

Hole #11:

Solid rock at 12 ft., being dark lime and sand, continuing to 18, 22 hard lime and some sand, 25 lime and gray sand, 28 sand with very little lime, 30 same with clay seam, 33 to 35 dark lime and sand, 37 same, 40 grayish lime and some sand, 42 dark lime, 45 dark and light lime, and some sand not very hard, 48 same, 52 to 55 same, 57 soft black lime, 60 dark lime and spar with some quartz, 61 lime, 63 hard grayish lime and spar with some blue shale, 71 hard grayish lime and sand and some spar, 76 same, 78 and 79 sacharoidal sand, 80 dark lime and spar, with ore, 82 same, 84 dark lime and blue shale, 86 to 89 same carrying ore, same to 95, at 96 ore increases to at least 10% blende, 97 to 98 about 5% ore, 102 about 5% ore, 104 changing to desceminated ore running about 4% blende, 106 formation same still carrying ore, 109 same, this ore continues to 120 ft., at 102 no ore being found hole is bottomed.

Hole #12:

Solid formation at 5ft., being dark lime and sand, same continuing to 27, I will say in the beginning this hole is a blank, seemingly having been drilled on a bar, barren of ore, 31 to 44 dark sand and lime, 35 gray sacharoidal sand, same to 53, 55 gray lime and sand, sand at 60, 70 dark sticky lime, 77 same, 81 dark gray lime but soft, 86 to 89 same, 93 dark lime and sand continuing to 100, 103 bluish lime and sacharoidal sand, 106 same, 109 same, 112 lime looks beaded with sand and clay, 115 light sand and lime, 119 same to 125, 128 soft mushy lime, same at 129, same at 133, same at 139, 142 same except some spar, no change to 147, formation continues lime until 158, where hole is bottomed.

Hole #13:

Solid formation at 18 ft., formation from 18 to 35 being a dark lime and sand and a clay seam, 42 dark lime, 47 lime and sand and tallow clay, 50 dark lime and sand, 53 same, 57 same, 60 bluish shale and lime, 64 no change, 69 same, 72 same, 75 dark sticky lime and spar, 80 same, 85 bluish sacharoidal sand and lime, 88 same, 91 some spar and blue lime and shale, 94 same, 97 light lime and shale, 100 light lime and shale carrying ore, 103 same the ore being desceminated, 104 same, 106 not so much ore, 109 formation is light lime and spar, 112, more ore, 113 not so much ore, possibly 3%, 114 same, 116 no more ore formation changing to dark lime, hole bottomed at 130 ft.

Hole #14:

Solid rock at 14 ft., dark lime and spar to 21, 24 gray lime and sand and spar, 28 dark lime, 29 to 45 soft formation with clay and spar, 45 to 47 jack, ore about 4%, 49 same formation, but not so much ore, 50 lime and sand, 52 same, 55 bluish sand and lime, 60 dark lime, 64 same, 70 same, at 70 grayish lime and some sand, same to 82, at 82 sacharoidal sand continuing to 85, 85 to 87 sacharoidal sand and bluish lime, 90 soft bluish lime carrying ore, same continuing to 102, from 102 to 111 no ore, hole bottomed at 111.

Hole #15:

Solid formation at 12 ft., being in beaded lime and sand to 22 ft., 24 to 26 gray lime and sand, 30 dark bluish sand also sacharoidal sand, 32 dark gray lime, 36 colored lime, and sand, 40 same, 47 same, 52 dark lime and sand, 55 same, 60 dark lime and spar, 63 same, 67 dark sticky lime with spar, 72 dark gray lime beaded with spar some ore, 75 dark gray lime with sacharoidal sand, same at 82, with some ore, 89 formation is dark gray lime, 93 dark gray lime and spar, 95 light lime and sacharoidal sand, 101 same, 104 a bright bluish lime and ore, about 5%, same to 109, 110 same, 112 not so much ore, 115 no ore, hole bottomed at 115 ft.

Hole #16:

Solid rock 17 ft., formation to 30 being a dark gray lime and spar, 32 dark sticky lime, 35 same, 40 grayish lime and sand, 42 same, 45 same, to 47, 52 dark lime, 55 grayish lime with beaded sand, 60 gray lime with spar, 65 disturbed formation, with veins of

red spar and lime and spar being pocketed, 71 sacharoidal sand with shale, 74 mixture of rock all broken, shale with bluish lime and sand beaded, 78 brown sand in broken mixture, 80 same, 83 to 86 lime and sand with spar mixture, 89 sacharoidal sand with a mushy mixture of mushy granular dolomite spar, 90 light lime and spar, and soft, carrying ore, 92 same to 95, ore being desceminated and running about 10% blende, 96 to 102 same formation, but not so much ore, 106 to 108 more ore, 10% or better, 109 not so much ore, 112 flinty lime carrying not very much ore, 114 flinty lime no more ore to 122, where hole is bottomed.

Hole #17:

Record so mutilated could not read correctly so am not giving the record.

North Arkansas Mining & Investment Company.
By Ed Zimmerman,
Vice President and General Manager.

C O P Y

Flat River, Mo., Sept. 21, 1937.

Mr. M. P. Cayce,
Farmington, Mo.

Dear Sir:

You have asked me to pass on the merits of mining property located in the zinc fields of Northwestern Arkansas and I herewith give the following summary of my findings.

L O C A T I O N

The property, consisting of about 1100 acres, is included in the general Maumee - Water Creek District, which lies partly in Marion County, partly in Searcy County, along the middle stretch of the county line and within the drainage basins of Green Haw, Hollow, North Star and Maumee Creeks, which empty into Buffalo River, South of the mineral lands. The claims lie in Sections 11 and 12, Twp. 16 N. R. 16 West and in Sections 7 and 18, Twp. 16 N. R. 15 West, all of which comprising what is locally known as the Maumee Mines of the North Arkansas Mining and Investment Company and includes the Town of Maumee and power site on Buffalo River. Maumee is on a fairly good wagon road about 5 miles North East of the town of Gilbert located on the Missouri and N. A. Railroad and the nearest shipping point.

G E O L O G Y

The rocks of this district belong to the sedimentary series of Lower Orduvician and consist mostly of Everton Formation which is a compact bluish gray limestone and sandy limestones with friable white to buff sandstones, sandy gray dolomite and dolomite all interbedded and of about 400 feet in thickness. It is one of the principal sources of zinc and lead ores in Northern Arkansas as practically all the producing mines so far discovered in Marion, Searcy and Boone Counties were developed on ore deposits in the Everton formation. It is overlain by the St. Peters Sandstone which is the overlying formation in the normal stratographic section. The ore deposits also occur chiefly in the fine-to-medium grained dolomites and sometimes in dolomite sandstones. The ore deposits consist mainly of zinc sulphides and some zinc carbonates in the higher horizons. The principal ore however is the zinc sulphide Rosin Jack and occurs associated with pink spar in seams and shallow cracks chiefly in a fine grained dark gray dolomite, to a less extent in a medium grained dolomite or in a greenish sandstone.

MINE WORKINGS

A. A shaft 130 feet deep from which depth point is a drift extending eastward 150 feet widening out into a stope 88 feet in length 50 feet in width and about 12 feet in height which is said to have mined about 4000 tons of ore averaging about 6% zinc metal. This shaft was originally sunk in a promising location from a drilling campaign of 17 drill holes put down along the hollow over a length of 1900 feet, the lowermost hole 800 feet downstream from the site of the shaft, all these drilled holes reported ores except two, one of which lies on the east side of the hollow about 350 feet east of the shaft. The ore occurs approximately in the same level in all holes, and runs in thickness from 8 to 40feet and averages about 3 to 10% zinc content. These drill holes show a mineralized area of about 10 acres. The drill hole, #11, penetrating the richest ore lies practically in the bed of the branch, 250 feet east Southeast from the shaft and the hole is 120 feet deep containing ore in the bottom 40 feet, the richest ore occurring in the upper half of this ore zone, workings from the shaft are on this level. Most of the drill logs show the ore to be only a few feet below a sugary sandstone 4 to 6 feet thick.

B. A 70 feet tunnel driven into the hill 15 feet vertically above the shaft collar is absolutely barren. Near the top of the hill considerable open cut work has been done at a horizon 30 feet below the St. Peter formation and over an outcrop 150 feet in length. The largest cut is 70 feet in diameter. Although no ore now shows in this series of cuts, it has been reported to have produced considerable carbonate. Another group of diggings in located up the hollow almost a half mile above Maumee shaft and a quarter of a mile below a small fault that runs east and west across a hollow, a shaft estimated to be 50 feet deep is on the top of the ridge containing some ore.

All of these workings apparently were sunk on Shear zones in the original limestone and thru which solutions of zinc mineral came and made runs of ore in favorable depositing shots. There seems to be evidence that mineralization covered a wide range and extended along the area from the town of St. Joe, Arkansas to the Rush Creek district, a distance of 25 miles. There are several Northwesterly Southeasterly shearing zones in the area, showing much disturbance and indications of ore which would be interpolated

that the ore would occur in the immediate vicinity of these breaks and parallel to each other. The few drill holes corroborate this view.

The mine workings are now inaccessible. See attached log of the drilling; also maps showing location of mines and geology. There was at one time a small mill at the shaft, but all plant equipment is now obsolete.

RECOMMENDATIONS:

More drilling is necessary to develop adequate ore reserves before a method of mining or milling can be arranged. The holes should be systematically placed so ore reserves can be consistently calculated and the future value of the property ascertained. All drilling completed so far should be checked, and if these results are corroborated and new drilling develops more ore, the mining problems can be started.

Looking at this area from a broad viewpoint, I would say that there is now enough evidence to interest some reputable mining concern on a lease and option basis. The value of the holdings, as is, can be conservatively placed at about $50,000. A lease and option to buy could be arranged on a 10 year period with a $5000.00 per year payment with a certain amount of stock in the enterprise as interest money, stipulating that a vigerous churn drilling campaign be completed in two years time. Drilling the area is not very difficult as the cost per foot should not exceed $1.50 and 300 feet is the maximum depth of the area to be explored.

The value of the present shaft is about $10,000 as as much rehabilitation must be done to place same in working condition. The ore is easily milled.

The approximate cost of mining and milling on a 500 ton daily basis will approximate about $2.00 per ton, everything considered.

The cost of equipment for a 500 ton mill using tables and flotation units would require about $75,000.00 and another $75,000.00 for mining equipment.

The ore reserves to handle such an expenditure for plant would have to total at least 500,000 tons of 3% zinc content, and the set up would be about as follows:

Ore Reserves, 500,000 tons 3% zinc -	30,000.00	lbs. zinc
less 20% loss - net of	24,000.00	lbs. zinc
total value @ 5¢ per lb.	$1,200,000.00	~~lbs. zinc~~
mining and milling @ $2.00	1,000,000.00	
Plant a/c	150,000.00	
Total Cost	1,150,000.00	

Profit over 3 1/3 years -- $50,000.00

From the records of the drill holes so far outlined, 500,000 tons ore may be developed. The $2.00 per ton cost should cover transportation and other expenses.

Yours very truly,

(signed) L. P. Pressler

ENGINEERING
INSPECTIONS and TESTS

The Bruce Williams Laboratories

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MAIN OFFICES
620 Joplin Street
JOPLIN, MISSOURI

INDUSTRIAL and ANALYTICAL
CHEMISTS

Ed Zimmerman 7/1/46

109 S. Connell Street
Picher, Oklahoma

423 East Main Street
Batesville, Arkansas

25M 7-43 186994

OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE
488574		Sample Maumee Shaft 90'-92 level	11.20%				

THE BRUCE WILLIAMS LABORATORIES

BY Bruce Williams

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The Bruce Williams Laboratories

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JOPLIN, MISSOURI

CHEMISTS
INDUSTRIAL and ANALYTICAL

109 S. Connell Street
Picher, Oklahoma
Telephone 110

~~Ed Zimmerman~~ ~~11/27/46~~

1297 N. 51st Street
East St. Louis, Ill.
Telephone Hemlock 2940

OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE
497281	Naumee Shaft	100 Ft. Depth	11.56				

ENGINEERING
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CHEMISTS

109 S. Connell Street
Picher, Oklahoma
25M 7-43 186994

Mr. Ed Zimmerman 7-11-46

423 East Main Street
Batesville, Arkansas

OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE
488973		Sample by Zimmerman Fine Dirt 90-92'	2.76				

THE BRUCE WILLIAMS LABORATORIES
BY Bruce Williams

ENGINEERING
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CHEMISTS

109 S. Connell Street
Picher, Oklahoma
25M 7-43 186994

Ed Zimmerman 7/22/46
Maurice Shaff

423 East Main Street
Batesville, Arkansas

OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE
489141	95-97'		13.60				

Mr M. P. Cayce
Farmington Mo
Copy to Zimmerman

ENGINEERS
INSPECTIONS and TESTS

The Bruce Williams Laboratories

ESTABLISHED 1898
Main Office 620-622 Joplin Street Telephone 556
JOPLIN, MISSOURI

CHEMISTS
INDUSTRIAL and ANALYTICAL

109 S. Connell Street
Picher, Oklahoma
Telephone 110

Ed Zimmerman 9/2/46

1297 N. 51st Street
East St. Louis, Ill.
Telephone Hemlock 2940

OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE
491594		Sample 96-98 Foot level of shaft	16.94				

MAP
SHOWING MINE WORKINGS,
LOCATION AND CROSS SECTIONS OF
CHURN DRILL HOLES ON THE PROPERTY
OF THE
NORTH ARAPAHOS MINING & INVESTMENT CO.
MINERALIZED AREA
ZINC SULPHIDES.
No Record
716 ft elevation
Sec 1 pt 1 cm
Sec 1 pt 1 cm

DMA Form 1

DEFENSE MINERALS ADMINISTRATION
Control Slip

CONTROLLED DOCUMENT

DMA Docket No. 1252-X

DO NOT DETACH THIS SLIP

Action on this document is recorded and controlled in Reports and Records Branch. Any movement of this document between divisions or offices of DMA or movement outside DMA must be reported to the Reports and Records Branch. Actions taken that affect status of the case must also be reported.

This document has been recorded as

an exploration application

Any action taken to change the type of request for assistance must be promptly reported to the Reports and Records Branch. Use DMA Form 2 for submitting these reports.

Routing Slip

To:	R.E. Div.	Date	6/29/51
To:	F.L. Knouse	Date	7/31/51
To:	RLR	Date	11/29/51
To:		Date	
To:		Date	
To:		Date	
To:		Date	
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To:		Date	

DO NOT DETACH

CONTROLLED DOCUMENT

FILE COPY
SURNAME:

410

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

FLKnouse
Mittendorf

NOV 30 1951

Mr. Raymond S. Roberts
Farmers Bank Building
Farmington, Missouri

Re: Docket No. DMA 1252X
Raymond S. Roberts
Exploration Project Application

Dear Mr. Roberts:

I refer to your telephone conversation with Mr. F. L. Knouse, of this office, regarding the above-referenced application. In the conversation Mr. Knouse requested from you various data which was required to process your application. On August 8, as you requested, we forwarded to you Forms MF-202, "Landlord's Subordination Agreement", which were to be signed by the land owner and returned to this office. Inasmuch as we have not had any further communication from you, we assume you have no further interest in this project and are placing your application in an inactive file. Should you desire to re-open this case, please address this office and refer to the above-referenced docket.

Sincerely yours,

C. O. Mittendorf (for) 11/30

ACTING Administrator
Defense Minerals Exploration
Administration

FLKnouse/meb
11/26/51

cc to: Adm.Reading File
Reports & Records
Mr. Mittendorf
FLKnouse
Docket

NOV 30 1951

Mr. Raymond S. Roberts
Bank Book Building
Springfield, Missouri

Re: Docket No. DMA 1252X
Raymond S. Roberts
Exploration Project Application

Dear Mr. Roberts:

I refer to your telephone conversation with Mr. F. L. Knouse, of this office, regarding the above-referenced application. In the conversation Mr. Knouse requested from you various data which was required to process your application. On August 8, as you requested, we forwarded to you Form DF-202, "Landlord's Subordination Agreement", which were to be signed by the land owner and returned to this office. Inasmuch as we have not heard further from you, we assume you have no further interest in this project and are placing your application in an inactive file. Should you desire to re-open this case, please advise this office and refer to the above-referenced docket.

Sincerely yours,

C. O. Mittendorf

ACTING Administrator
Defense Minerals Exploration
Administration

FLKnouse/meb
11/26/51

cc to: Adm.Reading File
Reports & Records
Mr. Mittendorf
FLKnouse
Docket

FILE COPY
SURNAME:

Mittendorf

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

August 9, 1951

G.E.C.

Mr. Raymond S. Roberts
Farmers Bank Building
Farmington, Missouri

Re: Docket No. DMA 1252X
Raymond S. Roberts
Exploration Contract

Dear Mr. Roberts:

As requested in your letter of August 2, 1951, we are enclosing eight copies of Form MF-202 "Landlord's Subordination Agreement".

We will require one original and six copies of this form signed by the property owner in order to process your application. Please leave "date of Exploration Project Contract" unfilled.

Sincerely yours,

C. O. Mittendorf

C. O. Mittendorf, Director
Production Expansion Division

Enclosures - 8

FLKnouse/meb
cc to: Admr's Reading File
Reports & Records
Mittendorf - Olund
Billings
Field Team Reg VI (2)
Knouse
Docket

~~140~~
410

RAYMOND S. ROBERTS
ATTORNEY AT LAW
FARMER'S BANK BUILDING
FARMINGTON, MISSOURI

August 2, 1951

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 7 1951
LANDON F. STROBEL
Executive Secretary

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 7 1951
LANDON F. STROBEL
Executive Secretary

Mr. F. L. Knouse
Defense Minerals Administration
Production Extension Division
South Interior Building
Washington, D. C.

Re: DMA-1252X
Exploration Loan
Maumee Mining Property

Dear Mr. Knouse:

In reference to your telephone conversation, please mail copy of the subrogation agreement that you desire.

I am having maps made and will get the additional data to you at an early date.

Very truly yours,

Raymond S. Roberts

RSR/elh

FILE COPY
SURNAME:

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

Herres
Strobel

June 12, 1951

DMA-1252X

Hon. J. W. Fulbright
United States Senate
Washington 25, D. C.

My dear Senator Fulbright:

In reply to your inquiry of June 11 concerning application DMA-1252X for Government assistance to a mine property in Searcy County, Arkansas, under the mineral exploration program of DMA, this application was received by the Lead-Zinc Branch on May 28.

The application for a loan of $12,000 on a matching basis to explore a zinc sulfide deposit by churn drilling is now under consideration and will be handled as promptly as possible.

In case I can be of further assistance at any time, please let me know.

Sincerely yours,

JAMES BOYD

Administrator

OHWERS:ks

cc: Administrator
Strobel
Cote
McKnight
Herres
Files

TOM CONNALLY, TEX., CHAIRMAN
WALTER F. GEORGE, GA.
THEODORE FRANCIS GREEN, R. I.
BRIEN McMAHON, CONN.
J. W. FULBRIGHT, ARK.
JOHN J. SPARKMAN, ALA.
GUY M. GILLETTE, IOWA
ARTHUR H. VANDENBERG, MICH.
ALEXANDER WILEY, WIS.
H. ALEXANDER SMITH, N. J.
BOURKE B. HICKENLOOPER, IOWA
HENRY CABOT LODGE, JR., MASS.
CHARLES W. TOBEY, N. H.
FRANCIS O. WILCOX, CHIEF OF STAFF

United States Senate

COMMITTEE ON FOREIGN RELATIONS

June 11, 1951

Mr. James Boyd, Administrator
Defense Minerals Administration
Department of the Interior
Washington, D. C.

6/11/51
Gives -
Bixby - Boyd

Dear Mr. Boyd:

I have received an inquiry regarding the application submitted by Mr. M. F. Cayce to develop zinc mining properties located near Marshall, Arkansas.

It is my understanding that this application has been assigned the following docket number: DMA-1252X.

I shall appreciate your advising me of the status of this application and any other information which might be helpful to my constituents who are interested in the development of this property.

Sincerely yours,

J. W. Fulbright

JWF:dw

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

TOM CONNALLY, TEX., CHAIRMAN
WALTER F. GEORGE, GA.
THEODORE FRANCIS GREEN, R. I.
BRIEN MC MAHON, CONN.
J. W. FULBRIGHT, ARK.
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FRANCIS O. WILCOX, CHIEF OF STAFF

United States Senate

COMMITTEE ON FOREIGN RELATIONS

Marsh - Copy control
No attachments

June 11, 1951

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
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JUN 11 1951
LANDON F. STROBEL
Executive Secretary

Mr. James Boyd, Administrator
Defense Minerals Administration
Department of the Interior
Washington, D. C.

Dear Mr. Boyd:

I have received an inquiry regarding the application submitted by Mr. M. P. Cayce to develop zinc mining properties located near Marshall, Arkansas.

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I shall appreciate your advising me of the status of this application and any other information which might be helpful to my constituents who are interested in the development of this property.

Sincerely yours,

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DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 11 1951
LANDON F. STROBEL
Executive Secretary

JUN 21 1951

BUREAU OF MINES
MAIL ROOM
WASHINGTON, D. C.

JUN 11 8 25 AM '51

FILE COPY
SURNAME:

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

May 28, 1951

Mr. Raymond S. Roberts
Farmers Bank Building
Farmington, Missouri

Subject: DMA-1252X
Re: Exploration Loan
Maumee Mining Property

My dear Mr. Roberts:

Receipt is acknowledged of your application and attachments of May 10, 1951 for an exploration loan under the Defense Production Act of 1950.

The application was assigned Docket Number DMA-1252X and was referred to Mr. Otto Herres, Chief, Lead-Zinc Branch on May 25, 1951.

In any future correspondence relating to your application, kindly refer to DMA-1252X.

Sincerely yours,

LANDON F. STROBEL jhs

Landon F. Strobel
Executive Secretary

LFSTROBEL:jhs
cc: Strobel-2
✓Files
Herres
Lyon

Broken Arrow Mtg 6/5/51

Defense Minerals Administration

Review of Application for Exploration Assistance

Docket No. 1252X

To: Director, Production Expansion Division

Commodity Zinc

From: Director, Supply Division

Total Amount $12,000

Govt. Participation 50%

1. Name and Address of Applicant Raymond S. Roberts, Farmers Bank Building, Farmington, Missouri

2. Location of Property SE 1/4 and NE 1/4 of SE 1/4, Section 11, and SW 1/4 of NW 1/4 and NW 1/4 of SW 1/4, Section 12, R. 16 W, R. 16 W., 10-12 miles south of Yellville, Arkansas

3. Mineral or metal Zinc Is it listed in Section 9 of MO-5?

If not, application will be rejected.

4. Geologic probability of discovery—based on data in application (question #16, 17, 18, 20 and 22)*

Mines or Survey reports, etc., do you rate chances:

a) Good See attached statement

b) Poor

c) None

d) Don't know—needs field examination

e) Is there an alternative and favorable project? No
(If so, attach an explanation)

5. Is the applicant's right to the property clearly stated? Yes
(question 5, 6, 7)*

6. If applicant is a lessee, is a copy of the lease attached? Yes

Does the lease have sufficient time to run to cover a future

productive period? Yes, but lease has clause requiring start of exploration prior to August 1st.

*question numbers are those of MF-103

4. (a) The zinc ore at this property occurs in the Everton formation, known to carry the majority of the deposits of this area. Previous mining showed that the mineral deposits occur in shatter zones cemented by dolomite and containing sphalerite. Drilling in 1906-07 disclosed the presence of from 4 to 10 per cent sphalerite in several horizons over an area 1900 by 250 feet and at depths ranging from 85 to 190 feet (as well as at depths from 45-49 feet in a limited area). Owing to these discoveries of mineralization in favorable strata and containing favorable structures, geologic indications are considered moderately good for the proving of sphalerite reserves.

7. Are subordination agreements necessary? _____

a) MF-201? _____

b) MF-202 _____

8. From the data presented, does the proposed project appear feasible from the point of view of:

a) Available manpower **Yes. Proposed drilling to be contracted.**

b) Equipment and supplies **Yes. Furnished by contractor**
(Question 14 plus general knowledge of availability)*

c) Accessibility (question 12)* **Yes. Railroad and connecting improved highway**

d) Water (question 13)* **Yes. available from nearby Buffalo River.**

e) Power (question 13)* **Yes. Power line crosses property**

Is a field check needed on any of these points? **No.**

9. Does the experience of the applicant appear to be adequate to assure that he can properly conduct the proposed project? (question 4)* **Applicant is an Attorney at Law with no previous mining experience. By contracting work to be performed applicant no doubt qualified to properly conduct the proposed project.**
Is a field check needed on this point? **No**

10. Exhibit A. (questions 21 and 22)*

a) Is the project adequately described? **Yes**

If not, are there sufficient data given so that you can describe the project? _____ If so, attach a draft.

b) Is there an adequate map or sketch of the proposed work? **Yes**

_____

c) Is the proposed work "exploration" under the definition of Section 8, MO-5? **Yes**

If not, what part of it is? _____

_____

_____

_____

Is this part a worthwhile exploration project?_____

d) Are the cost estimates detailed? **Sufficient in that contract price is stated by applicant.**

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data? **No** If so, attach a draft.

e) Are the cost estimates reasonable? **Yes**

f) Should more information be requested from applicant? **No**

g) Is a field examination necessary to complete Exhibit A? **No**

11. Exhibit B (question 23-d)*

a) Is it applicable? **No**

b) If so, are sufficient data furnished?_____ If so, attach a draft.

c) Is a field check needed?_____

12. Exhibit C (question 23-e, f and g)*

a) Is it applicable? **No**

b) Sufficient data?_____ If so, attach a draft.

c) Are rents and charges reasonable?_____

d) Is a field check needed?_____

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

a) Are there sufficient data? **Yes (contract job)**

b) Is the schedule adequate for the work proposed? **Yes**

c) Is the schedule excessive for the work proposed? **No**

d) Are the proposed wages and salaries reasonable? **Not applicable**

e) Is a field check needed? **No**

14. Exhibit E (question 23-c)*

a) Is it applicable? **No**

b) Sufficient data?

c) Reasonable?

d) Field check needed?

15. In your judgment, can the proposed work be done in the proposed time? **No schedule given. Work can be completed well within two years.**

(All exploration must be completed within two years)

16. If field examination is not needed, attach your recommendation. **See attached**

17. If field examination is needed, do you have any special instructions for the field team not indicated by your answers to the foregoing question?

Reviewed by: **A. J. Bodenlos - GS**

T. P. Billings - DMA

Date **6-27-51**

97692

16. On the basis of statement 4 (a), it is recommended that the application be approved.

NOTE: Although detailed cost estimates are not given, E. T. McKnight stated that they are sufficient in view of the general nature of the proposed exploration.

A. J. Bodenlos - GS

Approved: T. P. Billings - DMA

Brokaw for McKnight
Heares
Mote 6/5/51

Defense Minerals Administration

Review of Application for Exploration Assistance

Docket No. 1252X

To: Director, Production Expansion Division

Commodity Zinc

From: Director, Supply Division

Total Amount $12,000

Govt. Participation 50% - $6,000

1. Name and Address of Applicant Raymond S. Roberts, Farmers Bank Building, Farmington, Missouri

2. Location of Property SE 1/4 and NE 1/4 of SE 1/4, Section 11, and SW 1/4 of NW 1/4 and NW 1/4 of SW 1/4, Section 12, R. 16 N, R. 16 W., 10-12 miles south of Yellville, Arkansas

3. Mineral or metal Zinc Is it listed in Section 9 of MO-5?

If not, application will be rejected.

4. Geologic probability of discovery—based on data in application (question #16, 17, 18, 20 and 22)*

Mines or Survey reports, etc., do you rate chances:

a) Good See attached statement

b) Poor

c) None

d) Don't know—needs field examination

e) Is there an alternative and favorable project? No
(If so, attach an explanation)

5. Is the applicant's right to the property clearly stated? Yes
(question 5, 6, 7)*

6. If applicant is a lessee, is a copy of the lease attached? Yes

Does the lease have sufficient time to run to cover a future productive period? Yes, but lease has clause requiring start of exploration prior to August 1st.

*question numbers are those of MF-103

4. (a) The zinc ore at this property occurs in the Everton formation, known to carry the majority of the deposits of this area. Previous mining showed that the mineral deposits occur in shatter zones cemented by dolomite and containing sphalerite. Drilling in 1906-07 disclosed the presence of from 4 to 10 per cent sphalerite in several horizons over an area 1900 by 250 feet and at depths ranging from 85 to 190 feet (as well as at depths from 45-49 feet in a limited area). Owing to these discoveries of mineralization in favorable strata and containing favorable structures, geologic indications are considered moderately good for the proving of sphalerite reserves.

7. Are subordination agreements necessary? _____

a) MF-201? _____

b) MF-202 _____

8. From the data presented, does the proposed project appear feasible from the point of view of:

a) Available manpower Yes. Proposed drilling to be contracted.

b) Equipment and supplies Yes. Furnished by contractor
(Question 14 plus general knowledge of availability)*

c) Accessibility (question 12)* Yes. Railroad and connecting improved highway

d) Water (question 13)* Yes. available from nearby Buffalo River.

e) Power (question 13)* Yes. Power line crosses property

Is a field check needed on any of these points? No.

9. Does the experience of the applicant appear to be adequate to assure that he can properly conduct the proposed project? (question 4)* Applicant is an Attorney at Law with no previous mining experience. By contracting work to be performed applicant no doubt qualified to properly conduct the proposed project.
Is a field check needed on this point? No

10. Exhibit A. (questions 21 and 22)*

a) Is the project adequately described? Yes

If not, are there sufficient data given so that you can describe the project? _____ If so, attach a draft.

b) Is there an adequate map or sketch of the proposed work? Yes

c) Is the proposed work "exploration" under the definition of Section 8, MO-5? Yes

If not, what part of it is? _____

Is this part a worthwhile exploration project?_____

d) Are the cost estimates detailed? Sufficient in that contract price is stated by applicant.

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data? No If so, attach a draft.

e) Are the cost estimates reasonable? Yes

f) Should more information be requested from applicant? No

g) Is a field examination necessary to complete Exhibit A? No

11. Exhibit B (question 23-d)*

a) Is it applicable? No

b) If so, are sufficient data furnished?_____ If so, attach a draft.

c) Is a field check needed?_____

12. Exhibit C (question 23-e, f and g)*

a) Is it applicable? No

b) Sufficient data?_____ If so, attach a draft.

c) Are rents and charges reasonable?_____

d) Is a field check needed?_____

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

a) Are there sufficient data? Yes (contract job)

b) Is the schedule adequate for the work proposed? Yes

c) Is the schedule excessive for the work proposed? No

d) Are the proposed wages and salaries reasonable? Not applicable

e) Is a field check needed? No

14. Exhibit E (question 23-c)*

a) Is it applicable? No

b) Sufficient data?

c) Reasonable?

d) Field check needed?

15. In your judgment, can the proposed work be done in the proposed time? No schedule given. Work can be completed well within two years.

(All exploration must be completed within two years)

16. If field examination is not needed, attach your recommendation. See attached

17. If field examination is needed, do you have any special instructions for the field team not indicated by your answers to the foregoing question?

Reviewed by: A. J. Bodenlos - GS

T. P. Billings - DMA

Date 6-27-51

97692

16. On the basis of statement 4 (a), it is recommended that the application be approved.

NOTE: Although detailed cost estimates are not given, E. T. McKnight stated that they are sufficient in view of the general nature of the proposed exploration.

A. J. Bodenlos - GS

Approved: T. P. Billings - DMA

approved
Tom Lyon

Defense Minerals Administration
Reference Slip

Date 5/25/51

To: 1. Mr. Henry

2.

3.

4.

DMA 1252

For Action
Reply
Information
Remarks:

Sender LANDON F. STROBEL

3
Mr. Strobel

DMA 1252X

Forwarded to

Branch

Date

Sender

2
Mr. Strobel

DMA 1252X

Forwarded to

Branch

Date

Sender

Docket No. DMA 1252 X
Raymond S. Roberts
Exploration Proj. Appl.

TELEPHONED Mr Roberts - 8-1-51 Requesting the following:

1. Landlord's Subordination Agreements from property owners. Letter sent transmitting Forms MF 202 - Landlord's Subordination Agreement Dated Aug. 8.

2. Location of drill holes (on map) and quantity of drilling proposed to be done. Together with detailed breakdown of cost/ft of drilling.

3. Will applicant employ engineers & supervise drilling, sampling, and mapping?

4. Period of time required to complete programs.

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

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

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

DO NOT FILL IN THIS BLOCK

Docket No. DMA-1252X

Date received 5/25/51

Participation

[redacted]

Name and address of applicant

Date May 10, 1951

FILL IN THIS BLOCK

Date of application May 10, 1951

Estimated cost $10,000.00 to $12,000.00

Mineral or metal zinc

Percentage of Government participation 90%

Location of mine Lonoke, Arkansas

Date of filing MF-100

DMA Docket Number, if available DMA-1252X

INSTRUCTIONS

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

THE APPLICANT

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

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

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

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

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.

    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

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

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

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

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

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

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

*16. History:

    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.

    (*b*) State briefly the known history and production of adjoining and neighboring properties.

    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

*17. Production:

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

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

*18. Ore or mineral reserves: (If property is or has been operating.)

    (*a*) Describe the ore or mineral deposits briefly.

    (*b*) Submit available maps and assay data.

    (*c*) Give estimated tonnage and grade of each class of ore reserves.

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

THE EXPLORATION

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

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

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

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

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:

    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.

    (*b*) Supervisors, by numbers and positions, with salaries of each.

    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.

    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.

    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.

    (*f*) Cost of rental for equipment which the operator proposes to rent.

    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.

    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.

    (*i*) Cost of power, water, utilities, and any other items not provided for above.

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

CERTIFICATION

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

Raymond Roberts
(Name of company)

By _____
(Signature of authorized official)

Nov 10, 1951
(Date)

_____
(Title)

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

*Same as footnote on page 1.

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

Ima - 1252X

May 10, 1951

U. S. Department of the Interior
Defense Minerals Administration

Gentlemen:

Attached hereto find application for exploration on leased property at Sauco, Arkansas.

A reading of the attached exhibits to the application will show that a number of years ago, in fact around 1906 and 1907, some sixteen drill holes (churn drills) were sunk on this property, covering a distance from north and south of about 1200 feet and in the center thereof a distance east and west of about 250 to 300 feet. A reading of the log kept by the drillers at the time, is accurate, shows sufficient zinc sulphide to make mining operations profitable, provided the zinc sulphide area covers sufficient area. At one time a small mill was built on this property and some zinc concentrate was mined, milled and shipped. However, the old mill burned and no operation has been carried on on the property except that the now present owner, M. P. Sayce, sunk a shaft in 1946.

The writer has the mind the following plan of operation. It is proposed that if this application is approved, that a competent mining engineer be employed and sent down to this property with a good drill contractor and that some five or six holes be drilled up and down the valley for the purpose of testing and proving that the old sixteen drill holes are approximately accurate. In other words, if the five or six well-placed drill holes for testing purposes show that the old sixteen drill hole logs were accurate, then the drills would be moved east and west and north and south in accordance with the geological outlay of the land and some ten or twelve additional drill holes would be sunk to determine the extent and direction of the main body of ore. However, on the other hand, if the drilling of the five or six test holes up and down the valley, as above outlined, should prove that the old drill logs are inaccurate and that there is insufficient zinc sulphide to make mining profitable, then the operation would cease and no further drilling would be attempted.

The basis of the figure of $10,000.00 to $12,000.00 with the writer to spend 50% thereof, would cover the entire operation and the writer is prepared to enter into a contract with a competent drilling operator to drill only the five or six holes for testing purposes first and then if, as above stated, it was considered feasible at that time, then to drill the remaining.

You will note from the lease that the writer has only approximately three months from this date in which to start drilling operations. It is requested that this application be acted upon at an early date, if approved, so that drilling operations may actually start as quickly as possible and certainly before the expiration date of the lease.

Respectfully submitted,

Raymond S. Rohrbach

RSR/elh
Enclosures

1. Individual - Raymond S. Roberts
Farmers Bank Building
Farmington, Missouri

2. no

3. no

4. No previous mining experience - Attorney at Law for 22 years.

5. Lessee

6. No claims or encumbrances.

7. Copy attached. Lease in good standing.

8. Financial Statement attached.

9. $6,000.00 - This amount is sufficient to pay half of the costs of the project.

10a. SE¼ of NE¼, NE¼, NE¼ of SE¼, all of 11-16-16, the NW¼, N½ of SW¼, SW¼ of SW¼, S½ of NW¼, N½ of NW¼, all of 12-16-16, N½ of SW¼, S½ of NW¼, SW¼ of SW¼, N½ of NW¼, all of 14-16-16, S½ of SW¼, S½ of NW¼, N½ of SW¼, all in 7-16-15. (Surface rights has been sold to some of the above acreage.)

10b. SW¼ of NE¼ and the NW¼ of the NW¼ of Section 11, Township 16 North, Range 16 West. S½ of the NW¼ and the NW¼ of the SW¼ of Section 12, Township 16 North, Range 16 West.

11. This property has been known for many years and is still known as the Harmee Mining Property.

12. The property is located about ten to twelve miles South of Yellville, Arkansas which is on the Missouri Pacific Railroad and the road from the mine to Yellville is about half Federal and State maintained highway and half hard surface. The roads are all-weather, all-condition roads.

13. The Buffalo River is less than half a mile from this property and water for normal mining operations is available in all seasons - a power line runs through the property with sufficient power available.

14. There are no useable facilities or equipment or structures now on the property that can be devoted to exploration work.

15. The ore could be shipped from Yellville, Arkansas to Fort Smith, Arkansas, Bartelsville, Illinois or East St. Louis, Illinois for smelting. If ore in sufficient

quantities is found, the milling would be done on the property.

16a. See copy of letter attached from C. L. Bilharz to Dwight A. Jones, President, St. Joe Lead Company.

16b. No knowledge of production of adjoining and neighboring properties other than zinc carbonate.

16c. See attached reports.

17. Mine is not in production.

18. See copy of former drill hole reports attached.

19. The purpose of this application is to secure government help in drilling - first to check the sixteen drill holes as the reports attached hereto show and, secon , if drill holes are found accurate, to drill east and west and north of present drill holes to determine how wide an area the zinc sulphide ore body covers.

20. The exploration will be to discover zinc.

21. It is proposed to test drill the present sixteen known drill holes by placing drill holes at five or six well selected spots to determine if the old drill holes are accurate and if the old drill holes are found to be accurate, to then drill east and west and north to determine the width and extent of the ore body by placing some twelve to sixteen well located drill holes.

22. See attached statements and maps which show the amount of zinc sulphide and zinc carbonate as reported by the drill holes and engineering reports.

23. Churn drill or diamond drill operators for the purpose of this drilling operation can be contracted at the rate of $2.00 per foot for the drilling. It is estimated that the complete cost of drilling, together with engineering and assay work, will run between $10,000.00 and $12,000.00. These are the same types of drills that are now operating for the St. Joe Lead Company in St. Francois County, Missouri.

24. The drilling can be completed within sixty days from the date of starting. It is estimated by a contract driller and by a retired geologist and mining engineer for the St. Joe Lead Company, Mr. E. P. Pressler, who has seen the property and a report of which is attached herein, that it will cost, for all purposes, to complete all the drilling, between $10,000.00 and $12,000.00.

It is understood, however, that if the drill holes placed to prove the old sixteen drill holes should not show ore present, then drilling operations would, of course, be immediately stopped.

MINING LEASE

This indenture made this 1st day of May, 1951, by and between M. P. Cayce, hereinafter referred to as the Lessor, and Raymond S. Roberts, hereinafter referred to as the Lessee.

WITNESSETH:

1. That in consideration of the covenants and agreements hereinafter set out, to be kept and performed by Lessee, the Lessor does hereby lease unto Lessee for prospecting and mining for zinc, lead and other ores and minerals for ten years from the date hereof, the following described lands situated in Searcy County, State of Arkansas, to-wit:

> SE ¼ of NW¼, NE¼, N½ of SE¼, all of 11-16-16 the NW¼, N½ of SW¼, SW¼ of SW¼, S½ of NE¼, NE¼ of SE¼, all of 12-16-16, N½ of SW¼, S½ of NW¼, SW¼ of SE¼, N½ of NE¼, all of 18-16-16, S½ of SW¼, S½ of SE¼, N½ of SW¼, all in 7-16-15. (Surface rights have been sold to some of the above acreage.)

(It is mutually understood and agreed by and between the parties that neither party is to be bound by the above description but that the intention of both parties is to include in this indenture all of the lands now owned by M. P. Cayce in Searcy County, Arkansas.

2. The Lessor hereby gives and grants unto Lessee for said term the exclusive right and license to prospect and mine said land for zinc, lead and other ores and minerals, together with the right and license to prepare for market on said premises and remove and sell all zinc and lead and other ores and mineral concentrates produced from said ores, with the right to construct buildings or other structures and power lines and to make excavations, openings, stock-piles, dumps, ditches, drains and tailing dams and ponds, roads and other improvements upon said premises, including the use of water on and from such lands in such operations and to place such machinery thereon as Lessee may deem necessary for efficiently prospecting and mining said land and treating the ores mined therefrom, with the right in Lessee to remove all property so placed thereon at any time during the term hereof or within one year after the termination of this lease.

3. IN CONSIDERATION WHEREOF, Lessee agrees to pay unto Lessor at Farmington, Missouri, on or before the tenth day of each month a royalty of five per centum (5%) of all moneys received for the zinc, lead and other ores and mineral concentrates produced and sold from said land during the preceding month with the privilege to Lessee to consume such concentrates and pay Lessor said percentage of the market price thereof at the concentration mill as royalty thereon. For the protection of the Lessor and to the end that there may be no dispute as to the market price of concentrates so consumed, it is expressly agreed that if Lessor be not satisfied with the market price used in making royalty settlements, Lessor shall have and hereby agrees to take said percentage of said concentrates, or concentrates of like quality, in lieu of said royalty, at the bins where stored and further agrees to give written notice at once in the event Lessor is not satisfied as aforesaid.

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

5. The Lessee shall keep accurate books showing quantities and kinds of concentrates produced from said lands and sold or consumed, when and to whom sold, and the moneys received from sales and such

books of account shall be open to inspection by Lessor at all reasonable hours.

6. All mining operations shall be carried on in a miner-like and workman-like manner as the same are usually conducted in the district and the Lessee agrees to hold the Lessor harmless from any claims, suits for injuries or other type of claims or damages caused by Lessee's operations.

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

8. If the ores mined and raised from the lands herein leased are treated and cleaned at a Central Concentrating Plant, whether located on this or other lands, separately or with other ores as above provided, the tailings, sands, rock and other by-products resulting from the treatment of said ores shall thereupon become the sole property of and belong to the owner of the land upon which same are deposited by Lessee; that is to say, if ores and rock from the lands covered hereby are milled on other lands, the tailings, rock and other by-products resulting therefrom shall belong to the owner of such other lands or of the lands upon which same are deposited and if the ores and rocks from this or other lands are milled upon the lands covered hereby, all such materials shall belong to the Lessor; provided, however, Lessee shall at all times during the life of this lease have the right to re-mill said tailings and other by-products materials and during the period of said re-milling operations, Lessee shall be relieved from the obligation to conduct prospecting and mining operations.

9. The Lessor shall have the right to enter upon said land for the purpose of inspecting and examination, not unnecessarily interferring with the prospecting and mining operations of Lessee.

10. The Lessee shall commence prospecting or mining upon said lands within three months from the date hereof; such prospecting or mining shall be carried on continuously and shall not be suspended at any time for longer than thirty days except on account of unavoidable accidents, strikes or other conditions beyond the control of Lessee and except that when the sale value of concentrates produced from said premises shall be such that mining thereof cannot be profitably carried on by Lessee, operations may be suspended until prices improve so that the mining can be profitably conducted, provided suspension of operation from said last mentioned cause shall not continue longer than six months without the written consent of the Lessor.

11. The Lessee shall furnish Lessor a true copy of the log of each drill hole put down on said land by Lessee showing any assays made or cuttings therefrom and shall, upon request of Lessor, furnish print of any underground workings on said land at least once every three months period.

12. After the expiration of the term hereof fixed, this lease shall continue in force and effect so long thereafter as ore shall

be produced therefrom by the Lessee or Lessee shall continue prospecting or mining operations of said lands or any part thereof in good faith.

13. Lessor hereby warrants and agrees to defend the title to the lands herein described and agrees that the Lessee shall have the right at any time to redeem for Lessor by payment, any mortgages, taxes or other liens on the above described lands in the event of default of payment by Lessor.

14. The Lessee shall have the right to assign or sublet this lease.

15. The Lessee shall pay for damages caused by operations hereunder to growing crops and/or any improvements on said lands.

16. In case of failure of Lessee to keep and perform the terms of this lease, Lessor may give thirty days written notice of the violation complained of and if such violation or default is not removed within said thirty day period, thix lease shall be thereupon terminated at the option of the Lessor which remedy shall be exclusive. Lessee may at any time, if Lessee desires to do so, pay all royalties then due together with $25.00 surrender and terminate this lease by giving seven days written notice of intention to do so and thereupon Lessee shall be relieved from all obligations hereunder with like effect as if this lease had not been made.

17. In consideration of the sum of $1.00 paid b Lessee to Lessor, the receipt of which is hereby acknowledged, and other good and valuable considerations, the Lessor does hereby give and grant to Lessee the exclusive right and option to purchase all of the land and all other mineral and underground rights thereto in and of the above described land within six months from the date hereof for the sum of $40,000.00 in cash to Lessor, less the amount of royalties and rentals paid and due at the time of notice to purchase. Notice of intention to purchase the surface rights, mineral and underground rights shall be in writing and shall be given to Lessor at least thirty days before the expiration of said such option period and Lessor within ninety days shall furnish to Lessee an abstract of title showing the Lessors an indefeasible perfect title in fee simple, free and clear from all liens, incumbrances, claims, burdens and obligations; conveyance to be by general warranty deed, including the covenant to defend. Lessor shall within ninety days correct any defect appearing in the abstract and in the event of Lessor's failure to do so within said time, Lessee at his option may proceed to correct the same, charging Lessor with all costs and expenses in relation thereto, including attorneys' fees.

18. Any notice herein authorized or required to be given Lessor must be in writing and may be served by mailing the same by registered mail, postage prepaid, addressed to Lessor or Lessor's heirs, legal representatives, successors or assigns at Farmington, Missouri. Any notice herein authorized or required to be given Lessee shall be in writing and may be served by mailing the same by registered mail, postage prepaid, addressed to Lessee or Lessee's legal representatives, successors or assigns, at Farmers Bank Building, Farmington, Missouri.

19. The terms and conditions of this lease shall be binding upon and inure to the benefit of the heirs, successors, legal representatives and assigns of the parties hereto.

IN WITNESS WHEREOF, the parties hereto have duly executed this indenture the day and year first above written.

_____
Lessor

_____
Lessee

ACKNOWLEDGMENT

STATE OF MISSOURI)
(SS
COUNTY OF ST. FRANCOIS)

On this, the 1st day of May, 1951, before me personally appeared M. P. Cayce and Raymond S. Roberts, to me known to be the persons who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal at my office in Farmington, Missouri, the day and year last above written.

My term expires _____.

_____
Notary Public

FINANCIAL STATEMENT

RAYMOND S. ROBERTS
ATTORNEY AT LAW
FARMERS BANK BUILDING
FARMINGTON, MISSOURI

May 10, 1951

ASSETS

Cash on hand and in bank	$ 750.00
Accounts due me (good)	2500.00
Stocks and bonds (including U. S. Securities)	13500.00
Law library and office equipment	5000.00
Real estate (jointly owned with wife), including household fixtures and furniture	25000.00
Cash surrender insurance policies	6500.00
50% stock Roberts-Lloyd Company, Inc. (total appraised value - $120,000.00)	60000.00
	$ 113250.00

LIABILITIES

Notes owed by me without security	$ 3000.00
Notes owed by me with security (including real estate)	8000.00
Indebtedness Roberts-Lloyd Company, Inc. (total indebtedness - $41,000.00)	41000.00
	$ 49900.00

TOTAL ASSETS	$113,250.00
TOTAL LIABILITIES	49,900.00
	$ 63,350.00

The undersigned, in connection with Form DF 103, Defense Minerals Administration, Mineral Order No. 5, under Defense Production Act of 1950, submits herewith a financial statement as of the date of May 10, 1951.

Raymond S. Roberts

Raymond S. Roberts

Rivermines, Mo., July 21st, 1913.

Dwight A. Jones, Esq.,

[illegible] Nassau Street,

New York City.

Dear Sir: -

Under separate cover I have mailed you the plan showing Mine Workings and Drill Holes on the Mauze Property.

After about four weeks of pumping, which was however frequently interrupted by break-downs of the pumping machinery available, we succeeded On July 5th., to unwater the mine so far that an inspection of the workings was possible.

As mentioned before - the whole plant is in very bad condition. With a few exceptions, nothing but second hand machinery was originally installed. Since the plant has been idle for several years, the machinery has deteriorated to such an extent that it required considerable time and work to put the plant in a fairly safe operating condition.

No repair work was undertaken on the Shaft proper, as it would have taken considerable time and money to do so. As I have stated before, the shaft was found to be in an exceedingly dangerous condition due to the rotting of the wooden cribbing, on which the entire Shaft Building with pump and hoisting machinery rests; so that a caving of the Shaft can be expected to occur at any time.

The Mine Workings proper were found to be in safe condition. They consist of a drift started from the bottom of the shaft in a Southeasterly direction a distance of 150 feet, which then widens out into an opening of 108 feet in length, 50 feet in width and 12 feet average height, which I estimate to have contained about 4,000 tons of Ore. I am informed that in all 360,000 pounds of concentrates were made from this ore during the operation of the Mill.

Considering that the recovery in the Mill could not have been more than 65%, due to the insufficient sand and slime treatment and other defects in the mill, the mine must have furnished an ore containing not less than 6 per-cent in concentrates; however, of a

low grade, since only $37.50 per ton was obtained for them.

On examination of the mine workings it was found that the Drift at Point X (see map) entered from a solid strata of limestone into a disturbed and brecciated formation interwoven with numerous streks and seams of Pink Spar or Dolomite. The whole formation after its original deposition from the sea was no doubt subjected to heavy down and lateral movement, possibly due to dissolution and breaking down of the lower stratas. This caused the fracturing and displacement of the rocks of the upper stratas in various directions. As more or less space was left between the broken and fractured rock in the form of seams and cracks easy circulation of the waters coming from the over or underlying formations was made possible. These waters were in this case heavily charged with Magnesia which was precipitated as Magnesium Carbonate, thus filling up the crevices between the broken rocks, binding and cementing them together again into a solid mass.

Associated with the Magnesium Carbonate, Zinc was also carried in solution and precipitated in the form of Zinc Oxide or Zinc Sulphide in greater or less quantities.

The quality of this Zinc ore when in form of concentrates is of exceptional purenss and the mines commands the highest price on the ore market.

The above described brecciated formation extends in the mine from Point X all along the mine workings to Point Y (see map), a distance of 120 feet, principally along the south side of the workings.

Whilst it was a very difficult matter to determine by sight the contents of mineral in the ore in the various stopes, one cannot hesitate to say that the mineralization is of such extent and character that it appears that the mining of the ore as shown along the faces should be profitable. Its extent, if the diamond drill records were made by reliable and experienced men, appears to be assured over an area of about 10 acres, of a formation similar to that exposed in the Mine.

Since, however, no other information except a record of the drill holes (which are platted on the Map) is the only basis on which

an opinion as to the value of the area for future mining operations can be formed, it appears highly advisable to appropriate a certain amount of money; not along in order to verify the old drill records, but to conduct drilling beyond the at present known mineral bearing area in order to determine its extent. Twelve or sixteen drill holes placed in well selected places, which can be drilled at an expense of about $2500.00 will prove of great benefit in the determination of the value and extent of the Lower Ore Horizon. In the meantime some exploration work should be started on the Oxidized or Carbonate ores exposed in many places on the surface along the bluffs where, I am of the opinion that, with a small expenditure of money, ore could be mined of high enough grade to be marketable without concentration. This has been done in previous years and can, no doubt, be done in the future.

After a few drill holes have been put down into the Sulphide Ore Body a decision can be reached either as to the repair of the present mill which is, as previously mentioned, not along of small capacity; but a badly constructed affair; or as to the erection of a welldesigned new Mill of larger capacity.

I would advise, also, to at once repair the present Shaft and put it in safe condition; and also consider the sinking of a second Shaft as soon as drilling has progressed far enough to warrant it. The location of this shaft should be determined by the extent of the Main Ore Body and the location of the Mill, so that all unnecessary haulage below, as well as on the surface, is avoided.

The following estimate may give you an idea of the profits that can be expected by the operation of a Mill of 200 Tons capacity.

200 Tons Ore of 6% Concentrates equals with 80% Recovery a Production of 19,200 Pounds, or 9.6 tons of Concentrate containing 63 per-cent Zn. valued at $44.00 Per Ton.

Value of 9.6 Tons Concentrate ----------$422.40

Production Cost would be as follows:

Mining Per Ton Ore--------- 90 cents.

Milling " " " --------- 25 cents.

Genl. Exp. " " " --------- 15 cents.

$1.30 Per Ton of Ore.

200 Tons Ore @ $1.30 per Ton ---------- 260.00

Haulage & Freight per ton)
of Concentrate @ $4.50 X (---------- 43.20
9/6 Tons ofConcentrate)

Production Cost (total)

Value of Concentrates--------$422.40

Cost of Concentrates--------- 302.20

Profits----------$119.20 per day

$119.20 per day equals $2990.00 per month.

The profits realized at the present market price per ton of Concentrates would be $18.40 per ton. A reduction can, no doubt, be made in the cost of Haulage to railroad by River transportation, which is possible during 9 months of the year.

The transportation of powder and other supplies could also be done in the same manner with considerable saving.

Respectfully,

C. L. Silharz

DRILL LOG OF PROSPECT DRILL HOLES

OF NORTH ARKANSAS MINING & INVESTING COMPANY.

Drill Hole #1:

Open ground at 26 ft. to 38. sand and lime with some tiff and spar, at 38 ft. struck opening with water carrying away cuttings, 39 ft. sand and lime, 41 ft. sand and lime and spar and some jack, same to 44 ft. after which no more ore was found, formation being lime and spar and sand, until 51 ft., from 51 ft. to 71 ft. desceminated ore, in blue shale and flinty lime, and spar, the ore running about 4% zinc blende, from 71 ft. to 101 the formation was black lime and sand some quartz, very hard drilling, 101 to 110 ft. zinc blende, jack, desceminated in flinty lime and spar, same running 3 to 4% zinc blende, from 110 to 144 ft. formation was lime and spar and sand, very hard, from 144 to 150 ft. zinc blende in a softer rock being a bluish lime shale, with spar and tiff, hole finished at 150 ft. formation continuing carrying ore.

Singledecker Driller; 1903

Drill Hole #2:

Rock at 5 ft. soft black lime and sand, same continuing to 38 ft., struck opening with water 39 to 44 ft. formation being same as above, 44 to 51 ft. spar and sand and lime, some ore possibly 3%, this hole seems to have been drilled direct in fault, rock very much disturbed, this disturbance continuing to different depths, no more ore was encountered until 157 ft. when ore was again encountered, to 163 ft. same being a bluish lime and spar, and some mundic, after this depth no more ore was encountered the hole being drilled to a depth of 200 ft. the rock continuing changeable, from lime and flint to sand quartz and spar and tiff.

Tom Matlock Driller
January 16, 1906.

Hole #3:

Open ground to 26 ft., 26 ft. to 38 ft., lime and sand with some spar, 39 to 41 ft., same, 42 to 45 some nice ore (jack) same to 50 ft., being in light colored lime and sand and shale. 53 dark lime and sand, same to 55 ft. same to 60 ft., 60 ft. to 69 ft., continuing same being lime and sand, except some quartz, at 69 ft., struck opening, opening being about 6 inches, formation continuing to be lime and sand, formation continuing to be lime and sand until 83 ft., 83 to 87 ft., bluish lime and sand, same to 87 ft., then hard sand and lime and spar to 95 ft., blue lime and sand to 105 ft., 105 ft., sacharoidal sand to 108, from 108 to 114 bluish shale and soft bluish lime, some mundic rock having a coarse granular quartz similar to that found at Hazel Dell. 114 no change to 116 ft., 116 to 119 ore, same being in bluish shale and lime, 119 to 125 ft., the ore increases, running to about 6 to 10% blende, 125 to 128 ft. rock changing to flanky lime with plenty of spar, but not so much ore, after 128 ft., no more to 147 ft. when hole was bottomed.

Feb. 19, 1906.

Hole #4:

Dirt to 6 ft., then 4 ft. rock, then open ground to 13 ft., and not real solid formation to 24 ft., at 28 ft. went into opening 2 ft., the formation continuing as before striking an opening being a lime and a sand, and continuing to 37 ft., same to 45 ft., when another opening was struck, the formation being from 45 to 63 ft., being in a dark lime and sand and spar, 63 to 72 ft., dark lime and spar, 72 to 78 ft., dark lime and sand and spar, 78 ft., shows a 6" opening with tallow clay then sacharoidal sand to 81 ft., 81 ft. to 84 ft., pluish lime and shale with ore, 87 same with ore running about 4%, 88 ft. to 90 ft., bluish lime and shale and spar, 94 same, 96 to 98 and to 102 rock is streaked with spar and sand of light color same continuing to 112 ft., then 112 to 115 ft., sacharoidal sand 116 to 119 bluish lime and shale with ore, looks fine, 119 to 124 same, formation being same as Hole #3, after this hole showed no more ore. It was bottomed at 150 ft.

March 30, 1906.

Hole #5:

Dirt to 10 ft., loose boulders to 14 ft., 15 ft. solid rock, 20 ft., struck small opening rock to 37 ft., being in light colors lime and sand, 40 ft., light colored lime and sand and sand and spar, 43 lime and gravel continuing together with sacharoidal sand and spar, same continuing to 63 ft., 63 ft., to 73 ft., tallow clay and shale, shale being bluish color, 77 ft. to 83 ft., soft gray lime and sand some tiff and spar, same continuing to 92 ft., 93 to 95 ft., spar and bluish lime and sand, 98 ft., same continuing to 104 ft., from 104 to 112 bluish shale and lime and sand carrying ore, ore being desceminated, 116 sacharoidal sand and bluish shale, some spar same continuing to 125 to 142, streaks of spar and bluish lime shale carrying considerable ore, rock soft and mushy, best ore being from 130 to 140 at 143 the rock changed to a harder and hole bottomed at 144 ft.

April 26, 1906.

Hole #6:

The record of this hole (lost) showed ore about the same as No. 5.

Hole #7:

Open ground to 26 ft., from 26 to 50 dark lime and sand, at 50 struck open ground for 6 ft., 60 ft., sand and lime, 62 same, 66 sand and light colored quartz, same formation continuing to 89, 92 gray sand, 95 gray sand and lime and spar, 97 lime and spar, 100 same to 106, with a slight opening, 190 to 11, dark lime, 116 gray lime and sand and quartz, same to 124, same to 126, 129 dark lime and sand, same to 137, 138 sacharoidal sand cap rock, 143 gray and blue lime and shale with ore, looks good. Sand at 145, 149 formation same but carrying more ore, 153 formation same but not so much ore, 154 more ore, 156 same as 154, 157 not so much ore, 161 very rich ore, 162 same, quit hole.

Hole #8:

Struck solid rock at 18 ft., 20 gray sand, 22 sand and lime, 26 same formation same formation but some spar mixed with the sand and lime, 28 same, 34 same formation, dark sand and lime, 37 to 44 same, 50 white sand and some lime, 53 gray lime and spar and sand, 56 same, 60 same, 63 dark lime and sand with some spar, 69 same, 72 to 75 same, 78 dark lime and sand, 84 gray sand and lime and sacharoidal sand, 88 same with some quartz, seemingly a mixture, 90 ft., lime and sand, same continuing to 96, 99 same but streaked with quartz, 102 same, 105 dark lime and spar, 108 gray lime and sand, 110 same, 113 grayish lime and spar, same to 119, 122 same, 125 dark lime and sand, 128 same, 131 dark lime and spar, 134 same, 137 lime and spar (and ore), 140 same, 143 same, 146 same except formation softer being bluish lime, 149 formation seemingly same but no ore, ore being from 137 to 146, 153 blue lime and sand, 156 same, 158 same, 163 dark sand and lime with some quartz, same to 170, 173 hard sand and lime, 173 to 176 sacharoidal sand, 178 same, 181 bluish lime with ore, 184 to 187 same, 190 more ore, 191 not so much ore, 193 to 196 no ore, hole bottomed.

Hole #9:

Solid rock at 19 ft., 25 lime and sand, 28 dark and gray lime and sand, 32 same, 39 same except harder, 44 same as 39, 49 same with some spar, 55 dark lime and spar and clay seams, 60 ft. dark slatey lime, 63 same, 66 same, 73 dark lime and sand and spar, 77 same, 81 bluish shale and lime, 85 same, 90 the rock is principally blue lime and shale and some sand, 92 same, same to 98, 99 is sacharoidal sand, 101 gray lime with some spar, 103 a mixture of blue and dark lime and shale, 105 same, 106 same with ore, seemingly desceminated, formation being soft, same to 114, carrying ore about 5% blende, hole bottomed at 120 ft.

Hole #10:

Solid formation at 10 ft., being dark sand and lime, same at 14 same to 24 ft., 25 dark lime and sand and some clay, 28 same, 31 dark lime and sand, this formation continues to 64 ft., 67 seams of spar in the lime, 69 dark gray lime with streaks of spar, and some quartz, 72 same, 74 slatey lime, same to 80 ft., when sacharoidal sand is struck, continuing to 83 ft., 86 blue lime and shale with ore, 88 same as 86, but formation softer, 90 a mixture of flint, lime and spar with ore, no change to 96, ore running about 4% blende, 99 same,

102 same, 106 to 108 still carries ore but more spar, 110 rock changes to dark lime, not so much ore, 111 to 115 rock harder no ore quit hole.

Hole #11:

Solid rock at 12 ft., being dark lime and sand, continuing to 18, 22 hard lime and some sand, 25 lime and gray sand, 28 sand with very little lime, 30 same with clay seam, 33 to 35 dark lime and sand, 37 same, 40 grayish lime and some sand, 42 dark lime, 45 dark and light lime, and some sand not very hard, 48 same, 52 to 55 same, 57 soft black lime, 60 dark lime and spar with some quartz, 61 lime, 63 hard grayish lime and spar with some blue shale, 71 hard grayish lime and sand and some spar, 76 same, 78 and 79 sacharoidal sand, 80 dark lime and spar, with ore, 82 same, 84 dark lime and blue shale, 86 to 89 same carrying ore, same to 95, at 96 ore increases to at least 10% blende, 97 to 98 about 5% ore, 102 about 5% ore, 104 changing to desceminated ore running about 4% blende, 106 formation same still carrying ore, 109 same, this ore continues to 120 ft., at 102 no ore being found hole is bottomed.

Hole #12:

Solid formation at 5ft., being dark lime and sand, same continuing to 27, I will say in the beginning this hole is a blank, seemingly having been drilled on a bar, barren of ore, 31 to 44 dark sand and lime, 35 gray sacharoidal sand, same to 53, 59 gray lime and sand, sand at 60, 70 dark sticky lime, 77 same, 81 dark gray lime but soft, 86 to 89 same, 93 dark lime and sand continuing to 100, 103 bluish lime and sacharoidal sand, 106 same, 109 same, 112 lime looks beaded with sand and clay, 117 light sand and lime, 119 same to 125, 128 soft mushy lime, same at 129, same at 133, same at 139, 142 same except some spar, no change to 147, formation continues lime until 156, where hole is bottomed.

Hole #13:

Solid formation at 18 ft., formation from 18 to 39 being a dark lime and sand and a clay seam, 42 dark lime, 47 lime and sand and tallow clay, 50 dark lime and sand, 53 same, 57 same, 60 bluish shale and lime, 64 no change, 69 same, 72 same, 75 dark sticky lime and spar, 80 same, 85 bluish sacharoidal sand and lime, 88 same, 91 some spar and blue lime and shale, 94 same, 97 light lime and shale, 100 light lime and shale carrying ore, 103 same the ore being desceminated, 104 same, 106 not so much ore, 109 formation is light lime and spar, 112, more ore, 113 not so much ore, possibly 3%, 114 same, 116 no more ore formation changing to dark lime, hole bottomed at 130 ft.

Hole #14:

Solid rock at 14 ft., dark lime and spar to 21, 24 gray lime and sand and spar, 28 dark lime, 29 to 45 soft formation with clay and spar, 45 to 47 jack, ore about 4%, 49 same formation, but not so much ore, 50 lime and sand, 52 same, 55 bluish sand and lime, 60 dark lime, 64 same, 70 same, at 70 grayish lime and some sand, same to 82, at 82 sacharoidal sand continuing to 85, 85 to 87 sacharoidal sand and bluish lime, 90 soft bluish lime carrying ore, same continuing to 102, from 102 to 111 no ore, hole bottomed at 111.

Hole #15:

Solid formation at 12 ft., being in beaded lime and sand to 22 ft., 24 to 26 gray lime and sand, 30 dark bluish sand also sacharoidal sand, 32 dark gray lime, 36 colored lime, and sand, 40 same, 47 same, 52 dark lime and sand, 55 same, 60 dark lime and spar, 63 same, 67 dark sticky lime with spar, 72 dark gray lime beaded with spar some ore, 75 dark gray lime with sacharoidal sand, same at 82, with some ore, 89 formation is dark gray lime, 93 dark gray lime and spar, 95 light lime and sacharoidal sand, 101 same, 104 a bright bluish lime and ore, about 5%, same to 109, 110 same, 112 not so much ore, 115 no ore, hole bottomed at 115 ft.

Hole #16:

Solid rock 17 ft., formation to 30 being a dark gray lime and spar, 32 dark sticky lime, 35 same, 40 grayish lime and sand, 42 same, 45 same, to 47, 52 dark lime, 55 grayish lime with beaded sand, 60 gray lime with spar, 65 disturbed formation, with veins of

red spar and lime and spar being pocketed, 71 sacharoidal sand with shale, 74 mixture of rock all broken, shale with bluish lime and sand beaded, 78 brown sand in broken mixture, 80 same, 83 to 86 lime and sand with spar mixture, 89 sacharoidal sand with a mushy mixture of mushy granular dolomite spar, 90 light lime and spar, and soft, carrying ore, 92 same to 95, ore being desceminated and running about 10% blende, 96 to 102 same formation, but not so much ore, 106 to 108 more ore, 10% or better, 109 not so much ore, 112 flinty lime carrying not very much ore, 114 flinty lime no more ore to 122, where hole is bottomed.

Hole #17:

Record so mutilated could not read correctly so am not giving the record.

North Arkansas Mining & Investment Company.
By Ed Zimmerman,
Vice President and General Manager.

C O P Y

Flat River, Mo., Sept. 21, 1937.

Mr. L. P. Cayce,
Farmington, Mo.

Dear Sir:

You have asked me to pass on the merits of mining property located in the zinc fields of Northwestern Arkansas and I herewith give the following summary of my findings.

L O C A T I O N

The property, consisting of about 1100 acres, is included in the general Maumee - Water Creek District, which lies partly in Marion County, partly in Searcy County, along the middle stretch of the county line and within the drainage basins of Green Saw, Hollow, North Star and Maumee Creeks, which empty into Buffalo River, South of the mineral lands. The claims lie in Sections 11 and 12, Twp. 16 N. R. 16 West and in Sections 7 and 18, Twp. 16 N. R. 15 West, all of which comprising what is locally known as the Maumee Mines of the North Arkansas Mining and Investment Company and includes the town of Maumee and power site on Buffalo River. Maumee is on a fairly good wagon road about 5 miles North East of the town of Gilbert located on the Missouri and N. A. Railroad and the nearest shipping point.

G E O L O G Y

The rocks of this district belong to the sedimentary series of Lower Ordovician and consist mostly of Everton Formation which is a compact bluish gray limestone and sandy limestones with friable white to buff sandstones sandy gray dolomite and dolomite all interbedded and of about 400 feet in thickness. It is one of the principal sources of zinc and lead ores in Northern Arkansas as practically all the producing mines so far discovered in Marion, Searcy and Boone Counties were developed on ore deposits in the Everton formation. It is overlain by the St. Peters Sandstone which is the overlying formation in the normal stratographic section. The ore deposits also occur chiefly in the fine-to-medium grained dolomites and sometimes in dolomite sandstones. The ore deposits consist mainly of zinc sulphides and some zinc carbonates in the higher horizons. The principal ore however is the zinc sulphide Rosin Jack and occurs associated with pink spar in seams and shallow cracks chiefly in a fine grained dark gray dolomite, to a less extent in a medium grained dolomite or in a greenish sandstone.

MINE WORKINGS

A. A shaft 130 feet deep from which depth point is a drift extending eastward 150 feet widening out into a stope 68 feet in length 50 feet in width and about 12 feet in height which is said to have mined about 4000 tons of ore averaging about 6% zinc metal. This shaft was originally sunk in a promising location from a drilling campaign of 17 drill holes put down along the hollow over a length of 1900 feet, the lowermost hole 800 feet downstream from the site of the shaft, all these drilled holes reported ores except two, one of which lies on the east side of the hollow about 350 feet east of the shaft. The ore occurs approximately in the same level in all holes, and runs in thickness from 6 to 40feet and averages about 3 to 10% zinc content. These drill holes show a mineralized area of about 10 acres. The drill hole, #11, penetrating the richest ore lies practically in the bed of the branch, 250 feet east Southeast from the shaft and the hole is 120 feet deep containing ore in the bottom 40 feet, the richest ore occurring in the upper half of this ore zone, workings from the shaft are on this level. Most of the drill logs show the ore to be only a few feet below a sugary sandstone 4 to 6 feet thick.

B. A 70 feet tunnel driven into the hill 19 feet vertically above the shaft collar is absolutely barren. Near the top of the hill considerable open cut work has been done at a horizon 30 feet below the St. Peter formation and over an outcrop 190 feet in length. The largest cut is 70 feet in diameter. Although no ore now shows in this series of cuts, it has been reported to have produced considerable carbonate. Another group of diggings in located up the hollow almost a half mile above Maunce shaft and a quarter of a mile below a small fault that runs east and west across a hollow, a shaft estimated to be 30 feet deep is on the top of the ridge containing some ore.

All of these workings apparently were sunk on Shear zones in the original limestone and thru which solutions of zinc mineral came and made runs of ore in favorable depositing shots. There seems to be evidence that mineralization covered a wide range and extended along the area from the town of St. Joe, Arkansas to the Rush Creek district, a distance of 25 miles. There are several Northwesterly Southeasterly shearing zones in the area, showing much disturbance and indications of ore which would be interpolated

that the ore would occur in the immediate vicinity of these breaks and parallel to each other. The few drill holes corroborate this view.

The mine workings are now inaccessible. See attached log of the drilling; also maps showing location of mines and geology. There was at one time a small mill at the shaft, but all plant equipment is now obsolete.

RECOMMENDATIONS:

More drilling is necessary to develop adequate ore reserves before a method of mining or milling can be arranged. The holes should be systematically placed so ore reserves can be consistently calculated and the future value of the property ascertained. All drilling completed so far should be checked, and if these results are corroborated and new drilling develops more ore, the mining problem can be started.

Looking at this area from a broad viewpoint, I would say that there is now enough evidence to interest some reputable mining concern on a lease and option basis. The value of the holdings, as is, can be conservatively placed at about $50,000. A lease and option to buy could be arranged on a 10 year period with a $5000.00 per year payment with a certain amount of stock in the enterprise as interest money, stipulating that a vigorous chain drilling campaign be completed in two years time. Drilling the area is not very difficult as the cost per foot should not exceed $1.50 and 300 feet is the maximum depth of the area to be explored.

The value of the present shaft is about $10,000 as as much rehabilitation must be done to place same in working condition. The ore is easily milled.

The approximate cost of mining and milling on a 500 ton daily basis will approximate about $2.00 per ton, everything considered.

The cost of equipment for a 500 ton mill using tables and flotation units would require about $75,000.00 and another $75,000.00 for mining equipment.

The ore reserves to handle such an expenditure for plant would have to total at least 500,000 tons of 3% zinc content, and the set up would be about as follows:

Ore Reserves, 500,000 tons 3% zinc	- 30,000.00 lbs. zinc	
less 20% loss - net of	24,000.00 lbs. zinc	
total value @ 5¢ per lb.	$1,200,000.00	~~lbs. zinc~~
mining and milling @ $2.00	1,000,000.00	
Plant a/c	150,000.00	
Total Cost	1,150,000.00	

Profit over 3 1/3 years -- $50,000.00

From the records of the drill holes so far outlined, 500,000 tons ore may be developed. The $2.00 per ton cost should cover transportation and other expenses.

Yours very truly,

(signed) L. F. Pressler

ENGINEERING
INSPECTIONS and TESTS

The Bruce Williams Laboratories

ESTABLISHED 1898
MAIN OFFICES
620 Joplin Street
JOPLIN, MISSOURI

INDUSTRIAL and ANALYTICAL
CHEMISTS

Ed Zimmerman 7/1/46

109 S. Connell Street
Picher, Oklahoma
25M 7-43 186994

423 East Main Street
Batesville, Arkansas

OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE
488574		Sample Maumee Shaft 90'-92 level	11.20%				

THE BRUCE WILLIAMS LABORATORIES

BY Bruce Williams

ENGINEERS
INSPECTIONS and TESTS

The Bruce Williams Laboratories

ESTABLISHED 1898
Main Office 620-622 Joplin Street Telephone 556
JOPLIN, MISSOURI

CHEMISTS
INDUSTRIAL and ANALYTICAL

109 S. Connell Street
Picher, Oklahoma
Telephone 110

Ed. Zimmerman 4/27/46

1297 N. 51st Street
East St. Louis, Ill.
Telephone Hemlock 2940

OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE
497281	Nauree Shaft	100 Ft. Depth	11.56				

ENGINEERING
INSPECTIONS and TESTS

The Bruce Williams Laboratories

ESTABLISHED 1898
MAIN OFFICES
620 Joplin Street
JOPLIN, MISSOURI

CHEMISTS

109 S. Connell Street
Picher, Oklahoma
25M 7-43 186994

Mr. Ed Zimmerman 7-11-46

423 East Main Street
Batesville, Arkansas

OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE
488973		Sample by Zimmerman Fine Dirt 90-92'	2.76				

THE BRUCE WILLIAMS LABORATORIES
BY Bruce Williams

ENGINEERING
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JOPLIN, MISSOURI

INDUSTRIAL and ANALYTICAL
CHEMISTS

109 S. Connell Street
Picher, Oklahoma
25M 7-43 186994

Ed Zimmerman 7/22/46
Maumee Shaft

423 East Main Street
Batesville, Arkansas

OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE
489141	95-97'		13.60				

Mr M. P. Bayce
Farmington Mo
Copy to Zimmerman

ENGINEERS
INSPECTIONS and TESTS

The Bruce Williams Laboratories

ESTABLISHED 1898
Main Office 620-622 Joplin Street Telephone 556
JOPLIN, MISSOURI

CHEMISTS
INDUSTRIAL and ANALYTICAL

109 S. Connell Street
Picher, Oklahoma
Telephone 110

Ed Zimmerman 9/2/46

1297 N. 51st Street
East St. Louis, Ill.
Telephone Hemlock 2940

OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE
491594		Sample 96-98 Foot level or shaft	16.94				

MINER MILL & ZINC SULPHIDES AREA
NO RECORD
715 ft elevation
MAP
SHOWING MINE WORKINGS,
LOCATION AND CROSS SECTIONS OF
CHURN DRILL HOLES ON THE PROPERTY
OF THE
NORTH ARKANSAS MINING & INVESTMENT CO.

Dma-1252X

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
P. O. BOX 136
ROLLA, MISSOURI

May 21, 1951

Dr. James Boyd
Administrator
Defense Minerals Administration
New Interior Building
Washington 25, D. C.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
MAY 25 1951
L. A. STROBEL
Executive Secretary

Dear Dr. Boyd:

Enclosed are four copies of an application for exploration aid, which were mailed to this office by Raymond S. Roberts, Farmer's Bank Building, Farmington, Mo., lessee of the Maumee mining property in Searcy County, Ark.

The application consists of form MF-103 (MO-5) and pertinent documents and reports. The applicant proposes to explore, by churn drilling, a partly explored zinc sulfide deposit, to a maximum expenditure of $12,000, 50 percent of which is to be borne by the Federal Government.

The work is to be done on the SE¼ NE¼ and NE¼ SE¼ sec. 11, and SW¼ NW¼ and NW¼ SW¼ sec. 12, all in T. 16 N., R. 16 W., M. P. Cayce, lessor.

No explanatory letter accompanied the remission to this office but it is presumed that Mr. Roberts wants the application to be processed through regular channels.

Sincerely yours,

T. R. Graham

T. R. Graham for
R. G. Knickerbocker

Enclosures 4

5

RAYMOND S. ROBERTS
ATTORNEY AT LAW
FARMER'S BANK BUILDING
FARMINGTON, MISSOURI

May 10, 1951

BUREAU OF MINES
ROLLA, MO.
DIVISION
MET BR.
MIN BR.
ADM BR
REPLY FOR SIG. OF
DATE MAY 18 1951

U. S. Department of the Interior
Defense Minerals Administration

Gentlemen:

Attached hereto find application for exploration on leased property at Maumee, Arkansas.

A reading of the attached exhibits to the application will show that a number of years ago, in fact around 1906 and 1907, some sixteen drill holes (churn drills) were sunk on this property, covering a distance from north and south of about 1900 feet and in the center thereof a distance east and west of about 250 to 300 feet. A reading of the log kept by the drillers at the time, if accurate, shows sufficient zinc sulphide to make mining operations profitable, provided the zinc sulphide area covers sufficient area. At one time a small mill was built on this property and some zinc concentrate was mined, milled and shipped. However, the old mill burned and no operation has been carried on on the property except that the now present owner, M. P. Cayce, sunk a shaft in 1946.

The writer has the mind the following plan of operation. It is proposed that if this application is approved, that a competent mining engineer be employed and sent down to this property with a good drill contractor and that some five or six holes be drilled up and down the valley for the purpose of testing and proving that the old sixteen drill holes are approximately accurate. In other words, if the five or six well-placed drill holes for testing purposes show that the old sixteen drill hole logs were accurate, then the drills would be moved east and west and north and south in accordance with the geological outlay of the land and some ten or twelve additional drill holes would be sunk to determine the extent and direction of the main body of ore. However, on the other hand, if the drilling of the five or six test holes up and down the valley, as above outlined, should prove that the old drill logs are inaccurate and that there is insufficient zinc sulphide to make mining profitable, then the operation would cease and no further drilling would be attempted.

RAYMOND S. ROBERTS
ATTORNEY AT LAW
FARMER'S BANK BUILDING
FARMINGTON, MISSOURI

437-Tel

The basis of the figure of $10,000.00 to $12,000.00 with the writer to spend 50% thereof, would cover the entire operation and the writer is prepared to enter into a contract with a competent drilling operator to drill only the five or six holes for testing purposes first and then if, as above stated, it was considered feasible at that time, then to drill the remaining.

You will note from the lease that the writer has only approximately three months from this date in which to start drilling operations. It is requested that this application be acted upon at an early date, if approved, so that drilling operations may actually start as quickly as possible and certainly before the expiration date of the lease.

Respectfully submitted,

Raymond S. Roberts

RSR/elh
Enclosures

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 25 1951
[illegible] F. STREBEL
Executive Secretary

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

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

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

DO NOT FILL IN THIS BLOCK

Docket No. Dma-1252X

Date received 5/25/51

Participation

RAYMOND S. ROBERTS
FARMERS BANK BUILDING
FARMINGTON, MISSOURI

Name and address of applicant

Date May 10, 1951

FILL IN THIS BLOCK

Date of application May 10, 1951

Estimated cost $10,000.00 to $12,000.00

Mineral or metal zinc

Percentage of Government participation 50%

Location of mine Maumee, Arkansas

Date of filing MF-100

DMA Docket Number, if available Dma-1252X

INSTRUCTIONS

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

THE APPLICANT

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

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

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

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

16—64067-1

THE PROPERTY

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

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

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

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

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

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

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

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

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

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

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

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

THE EXPLORATION

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

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

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

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

THE REQUIREMENTS AND COSTS

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

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

CERTIFICATION

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

Raymond S. Roberts
(Name of company)

By _____
(Signature of authorized official)

May 10, 1951
(Date)

_____
(Title)

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

*Same as footnote on page 1.

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

C O P Y

Flat River, Mo., Sept. 21, 1937.

Mr. M. P. Cayce,
Farmington, Mo.

Dear Sir:

You have asked me to pass on the merits of mining property located in the zinc fields of Northwestern Arkansas and I herewith give the following summary of my findings.

L O C A T I O N

The property, consisting of about 1100 acres, is included in the general Maumee - Water Creek District, which lies partly in Marion County, partly in Searcy County, along the middle stretch of the county line and within the drainage basins of Green Haw, Hollow, North Star and Maumee Creeks, which empty into Buffalo River, South of the mineral lands. The claims lie in Sections 11 and 12, Twp. 16 N. R. 16 West and in Sections 7 and 18, Twp. 16 N. R. 15 West, all of which comprising what is locally known as the Maumee Mines of the North Arkansas Mining and Investment Company and includes the Town of Maumee and power site on Buffalo River. Maumee is on a fairly good wagon road about 5 miles North East of the town of Gilbert located on the Missouri and N. A. Railroad and the nearest shipping point.

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mining and milling @ $2.00	1,000,000.00	
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Profit over 3 1/3 years -- $50,000.00

From the records of the drill holes so far outlined, 500,000 tons ore may be developed. The #2.00 per ton cost should cover transportation and other expenses.

Yours very truly,

(signed) L. P. Pressler

ANNUAL AREA REPORT-FINAL
ADVANCE SUMMARY

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

REGION VI

James Boyd,
Director

C. W. Seibel
Regional Director

For release: June 18, 1951

GOLD, SILVER, COPPER, AND LEAD PRODUCTION IN TEXAS, 1950

The mine output of gold, silver, copper, and lead in Texas in 1950 was valued altogether at $39,598 compared with $55,003 in 1949, according to the Amarillo office of the Bureau of Mines, United States Department of the Interior. The producing mine in 1950 was the R. I. Carr leased property near Shafter in Presidio County.

Gold produced in 1950 totaled 49 fine ounces valued at $1,715; silver, 2,454 fine ounces valued at $2,221; copper 2 short tons valued at $832; and lead, 129 short tons valued at $34,830. Comparable figures for 1949 were; gold, 40 ounces (value $1,400); silver, 2,691 ounces ($2,435); copper, 24 short tons ($9,456); and lead, 132 short tons ($41,712).

Average metal prices in 1950 were; $35 an ounce for gold, $0.9050505 an ounce for silver, $0.208 a pound for copper, and $0.135 a pound for lead. In 1949 the prices were the same for gold and silver, $0.197 a pound for copper, and $0.158 a pound for lead.

Newly mined Texas ores yielded no recoverable zinc in 1949 or 1950. Some of the old zinc-bearing slag accumulated in earlier years at the El Paso Smelting Works of the American Smelting & Refining Co. was retreated along with current hot slag in the company slag-fuming plant put in operation in 1948. Specific data on the quantity of metals (principally zinc) recovered from the old slag are not available, and this output is not included in the mine production statistics. Metals recovered from domestic current hot slag are credited to the various shipping mines on the basis of the assay content of the ore and are thus apportioned to the States from which they came.

Prepared by F. F. Netzeband and Alice Feltch, Economics Division, Region VI, Amarillo, Texas

Mine production of gold, silver, copper, and lead in Texas in 1950, by months, in terms of recoverable metals

Month	Gold (fine ounces)	Silver (fine ounces)	Copper (short tons)	Lead (short tons)
January	3	139	-----	6
February	9	551	1	21
March	8	446	-----	16
April	3	124	-----	8
May	4	324	-----	17
June	8	230	-----	20
July	2	144	-----	7
August	4	160	-----	10
September	2	135	-----	6
October	2	89	-----	5
November	1	65	-----	5
December	3	47	1	8
Total: 1950	49	2,454	2	129
1949	40	2,691	24	132

1. Individual - Raymond S. Roberts
Farmers Bank Building
Farmington, Missouri

2. no

3. no

4. No previous mining experience - Attorney at Law for 22 years.

5. Lessee

6. No claims or encumbrances.

7. Copy attached. Lease in good standing.

8. Financial Statement attached.

9. $6,000.00 - This amount is sufficient to pay half of the costs of the project.

10a. SE¼ of NW¼, NE¼, N½ of SE¼, all of 11-16-16, the NW¼, N½ of SW¼, SW¼ of SW¼, S½ of NE¼, NE¼ of SE¼, all of 12-16-16, N½ of SW¼, S½ of NW¼, SW¼ of SE¼, N½ of NE¼, all of 18-16-16, S½ of SW¼, S½ of SE½, N½ of SW½, all in 7-16-15. (Surface rights has been sold to some of the above acreage.)

10b. SE¼ of NE¼ and the NE¼ of the SE¼ of Section 11, Township 16 North, Range 16 West. SW¼ of the NW¼ and the NW¼ of the SW¼ of Section 12, Township 16 North, Range 16 West.

11. This property has been known for many years and is still known as the Maumee Mining Property.

12. The property is located about ten to twelve miles South of Yellville, Arkansas which is on the Missouri Pacific Railroad and the road from the mine to Yellville is about half Federal and State maintained highway and half hard surface. The roads are all-weather, all-condition roads.

13. The Buffalo River is less than half a mile from this property and water for normal mining operations is available in all seasons - a power line runs through the property with sufficient power available.

14. There are no useable facilities or equipment or structures now on the property that can be devoted to exploration work.

15. The ore could be shipped from Yellville, Arkansas to Fort Smith, Arkansas, Bartelsville, Illinois or East St. Louis, Illinois for smelting. If ore in sufficient

quantities is found, the milling would be done on the property.

16a. See copy of letter attached from O. M. Bilharz to Dwight A. Jones, President, St. Joe Lead Company.

16b. No knowledge of production of adjoining and neighboring properties other than zinc carbonate.

16c. See attached reports.

17. Mine is not in production.

18. See copy of former drill hole reports attached.

19. The purpose of this application is to secure government help in drilling - first to check the sixteen drill holes as the reports attached hereto show and, second, if drill holes are found accurate, to drill east and west and north of present drill holes to determine how wide an area the zinc sulphide ore body covers.

20. The exploration will be to discover zinc.

21. It is proposed to test drill the present sixteen known drill holes by placing drill holes at five or six well selected spots to determine if the old drill holes are accurate and if the old drill holes are found to be accurate, to then drill east and west and north to determine the width and extent of the ore body by placing some twelve to sixteen well located drill holes.

22. See attached statements and maps which show the amount of zinc sulphide and zinc carbonate as reported by the drill holes and engineering reports.

23. Churn drill or diamond drill operators for the purpose of this drilling operation can be contracted at the rate of $2.00 per foot for the drilling. It is estimated that the complete cost of drilling, together with engineering and assay work, will run between $10,000.00 and $12,000.00. These are the same types of drills that are now operating for the St. Joe Lead Company in St. Francois County, Missouri.

24. The drilling can be completed within sixty days from the date of starting. It is estimated by a contract driller and by a retired geologist and mining engineer for the St. Joe Lead Company, Mr. L. P. Pressler, who has seen the property and a report of which is attached herein, that it will cost, for all purposes, to complete all the drilling, between $10,000.00 and $12,000.00.

It is understood, however, that if the drill holes placed to prove the old sixteen drill holes should not show ore present, then drilling operations would, of course, be immediately stopped.

DRILL LOG OF PROSPECT DRILL HOLES

OF NORTH ARKANSAS MINING & INVESTING COMPANY.

Drill Hole #1:

Open ground at 26 ft. to 38. sand and lime with some tiff and spar, at 38 ft. struck opening with water carrying away cuttings, 39 ft. sand and lime, 41 ft. sand and lime and spar and some jack, same to 44 ft. after which no more ore was found, formation being lime and spar and sand, until 51 ft., from 51 ft. to 71 ft. desceminated ore, in blue shale and flinty lime, and spar, the ore running about 4% zinc blende, from 71 ft. to 101 the formation was black lime and sand some quartz, very hard drilling, 101 to 110 ft. zinc blende, jack, desceminated in flinty lime and spar, same running 3 to 4% zinc blende, from 110 to 144 ft. formation was lime and spar and sand, very hard, from 144 to 150 ft. zinc blende in a softer rock being a bluish lime shale, with spar and tiff, hole finished at 150 ft. formation continuing carrying ore.

Singledecker Driller; 1903

Drill Hole #2:

Rock at 5 ft. soft black lime and sand, same continuing to 38 ft., struck opening with water 39 to 44 ft. formation being same as above, 44 to 51 ft. spar and sand and lime, some ore possibly 3%, this hole seems to have been drilled direct in fault, rock very much disturbed, this disturbance continuing to different depths, no more ore was encountered until 157 ft. when ore was again encountered, to 163 ft. same being a bluish lime and spar, and some mundic, after this depth no more ore was encountered the hole being drilled to a depth of 300 ft. the rock continuing changeable, from lime and flint to sand quartz and spar and tiff.

Tom Matlock Driller
January 16, 1906.

Hole #3:

Open ground to 26 ft., 26 ft. to 38 ft., lime and sand with some spar, 39 to 41 ft., same, 42 to 45 some nice ore (jack) same to 50 ft., being in light colored lime and sand and shale. 53 dark lime and sand, same to 55 ft. same to 60 ft., 60 ft. to 69 ft., continuing same being lime and sand, except some quartz, at 69 ft., struck opening, opening being about 6 inches, formation continuing to be lime and sand, formation continuing to be lime and sand until 83 ft., 83 to 87 ft., bluish lime and sand, same to 87 ft., then hard sand and lime and spar to 95 ft., blue lime and sand to 105 ft., 105 ft., sacharoidal sand to 108, from 108 to 114 bluish shale and soft bluish lime, some mundic rock having a coarse granular quartz similar to that found at Hazel Dell. 114 no change to 116 ft., 116 to 119 ore, same being in bluish shale and lime, 119 to 125 ft., the ore increases, running to about 6 to 10% blende, 125 to 128 ft. rock changing to flanky lime with plenty of spar, but not so much ore, after 128 ft., no more to 147 ft. when hole was bottomed.

Feb. 19, 1906.

Hole #4:

Dirt to 6 ft., then 4 ft. rock, then open ground to 13 ft., and not real solid formation to 24 ft., at 28 ft. went into opening 2 ft., the formation continuing as before striking an opening being a lime and a sand, and continuing to 37 ft., same to 45 ft., when another opening was struck, the formation being from 45 to 63 ft., being in a dark lime and sand and spar, 63 to 72 ft., dark lime and spar, 72 to 78 ft., dark lime and sand and spar, 78 ft., shows a 6" opening with tallow clay then sacharoidal sand to 81 ft., 81 ft. to 84 ft., pluish lime and shale with ore, 87 same with ore running about 4%, 88 ft. to 90 ft., bluish lime and shale and spar, 94 same, 96 to 98 and to 102 rock is streaked with spar and sand of light color same continuing to 112 ft., then 112 to 115 ft., sacharoidal sand 116 to 119 bluish lime and shale with ore, looks fine, 119 to 124 same, formation being same as Hole #3, after this hole showed no more ore. It was bottomed at 150 ft.

March 30, 1906.

Hole #5:

Dirt to 10 ft., loose boulders to 14 ft., 15 ft. solid rock, 20 ft., struck small opening rock to 37 ft., being in light colors lime and sand, 40 ft., light colored lime and sand and sand and spar, 43 lime and gravel continuing together with sacharoidal sand and spar, same continuing to 63 ft., 63 ft., to 73 ft., tallow clay and shale, shale being bluish color, 77 ft. to 83 ft., soft gray lime and sand some tiff and spar, same continuing to 92 ft., 93 to 95 ft., spar and bluish lime and sand, 98 ft., same continuing to 104 ft., from 104 to 112 bluish shale and lime and sand carrying ore, ore being desceminated, 116 sacharoidal sand and bluish shale, some spar same continuing to 125 to 142, streaks of spar and bluish lime shale carrying considerable ore, rock soft and mushy, best ore being from 130 to 140 at 143 the rock changed to a harder and hole bottomed at 145 ft.

April 26, 1906.

Hole #6:

The record of this hole (lost) showed ore about the same as No. 5.

Hole #7:

Open ground to 26 ft., from 26 to 50 dark lime and sand, at 50 struck open ground for 8 ft., 60 ft., sand and lime, 62 same, 66 sand and light colored quartz, same formation continuing to 89, 92 gray sand, 95 gray sand and lime and spar, 97 lime and spar, 100 same to 106, with a slight opening, 190 to 11, dark lime, 118 gray lime and sand and quartz, same to 132, same to 126, 129 dark lime and sand, same to 135, 139 sacharoidal sand cap rock, 143 gray and blue lime and shale with ore, looks good. Sand at 145, 149 formation same but carrying more ore, 153 formation same but not so much ore, 154 more ore, 156 same as 154, 157 not so much ore, 161 very rich ore, 162 same, quit hole.

Hole #8:

Struck solid rock at 18 ft., 20 gray sand, 22 sand and lime, 26 same formation same formation but some spar mixed with the sand and lime, 28 same, 34 same formation, dark sand and lime, 37 to 44 same, 50 white sand and some lime, 53 gray lime and spar and sand, 56 same, 60 same, 63 dark lime and sand with some spar, 69 same, 72 to 75 same, 78 dark lime and sand, 84 gray sand and lime and sacharoidal sand, 88 same with some quartz, seemingly a mixture, 90 ft., lime and sand, same continuing to 96, 99 same but streaked with quartz, 102 same, 105 dark lime and spar, 108 gray lime and sand, 110 same, 113 grayish lime and spar, same to 119, 122 same, 125 dark lime and sand, 128 same, 131 dark lime and spar, 134 same, 137 lime and spar (and ore), 140 same, 143 same, 146 same except formation softer being bluish lime, 149 formation seemingly same but no ore, ore being from 137 to 146, 153 blue lime and sand, 155 same, 158 same, 163 dark sand and lime with some quartz, same to 170, 173 hard sand and lime, 173 to 176 sacharoidal sand, 178 same, 181 bluish lime with ore, 184 to 187 same, 190 more ore, 191 not so much ore, 193 to 196 no ore, hole bottomed.

Hole #9:

Solid rock at 19 ft., 25 lime and sand, 28 dark and gray lime and sand, 33 same, 39 same except harder, 44 same as 39, 49 same with some spar, 55 dark lime and spar and clay seams, 60 ft. dark slatey lime, 63 same, 66 same, 73 dark lime and sand and spar, 77 same, 81 bluish shale and lime, 85 same, 90 the rock is principally blue lime and shale and some sand, 92 same, same to 98, 99 is sacharoidal sand, 101 gray lime with some spar, 103 a mixture of blue and dark lime and shale, 105 same, 106 same with ore, seemingly desceminated, formation being soft, same to 114, carrying ore about 5% blende, hole bottomed at 120 ft.

Hole #10:

Solid formation at 10 ft., being dark sand and lime, same at 14 same to 24 ft., 25 dark lime and sand and some clay, 28 same, 31 dark lime and sand, this formation continues to 64 ft., 67 seams of spar in the lime, 69 dark gray lime with streaks of spar, and some quartz, 72 same, 74 slatey lime, same to 80 ft., when sacharoidal sand is struck, continuing to 85 ft., 86 blue lime and shale with ore, 88 same as 86, but formation softer, 90 a mixture of flinty lime and spar with ore, no change to 96, ore running about 4% blende, 99 same,

102 same, 106 to 108 still carries ore but more spar, 110 rock changes to dark lime, not so much ore, 111 to 115 rock harder no ore quit hole.

Hole #11:

Solid rock at 12 ft., being dark lime and sand, continuing to 18, 22 hard lime and some sand, 25 lime and gray sand, 28 sand with very little lime, 30 same with clay seam, 33 to 35 dark lime and sand, 37 same, 40 grayish lime and some sand, 42 dark lime, 45 dark and light lime, and some sand not very hard, 48 same, 52 to 55 same, 57 soft black lime, 60 dark lime and spar with some quartz, 61 lime, 63 hard grayish lime and spar with some blue shale, 71 hard grayish lime and sand and some spar, 76 same, 78 and 79 sacharoidal sand, 80 dark lime and spar, with ore, 82 same, 84 dark lime and blue shale, 86 to 89 same carrying ore, same to 95, at 96 ore increases to at least 10% blende, 97 to 98 about 5% ore, 102 about 5% ore, 104 changing to desceminated ore running about 4% blende, 106 formation same still carrying ore, 109 same, this ore continues to 120 ft., at 102 no ore being found hole is bottomed.

Hole #12:

Solid formation at 5ft., being dark lime and sand, same continuing to 27, I will say in the beginning this hole is a blank, seemingly having been drilled on a bar, barren of ore, 31 to 44 dark sand and lime, 35 gray sacharoidal sand, same to 53, 55 gray lime and sand, sand at 60, 70 dark sticky lime, 77 same, 81 dark gray lime but soft, 86 to 89 same, 93 dark lime and sand continuing to 100, 103 bluish lime and sacharoidal sand, 106 same, 109 same, 112 lime looks beaded with sand and clay, 115 light sand and lime, 119 same to 125, 128 soft mushy lime, same at 129, same at 133, same at 139, 142 same except some spar, no change to 147, formation continues lime until 158, where hole is bottomed.

Hole #13:

Solid formation at 18 ft., formation from 18 to 35 being a dark lime and sand and a clay seam, 42 dark lime, 47 lime and sand and tallow clay, 50 dark lime and sand, 53 same, 57 same, 60 bluish shale and lime, 64 no change, 69 same, 72 same, 75 dark sticky lime and spar, 80 same, 85 bluish sacharoidal sand and lime, 88 same, 91 some spar and blue lime and shale, 94 same, 97 light lime and shale, 100 light lime and shale carrying ore, 103 same the ore being desceminated, 104 same, 106 not so much ore, 109 formation is light lime and spar, 112, more ore, 113 not so much ore, possibly 3%, 114 same, 116 no more ore formation changing to dark lime, hole bottomed at 130 ft.

Hole #14:

Solid rock at 14 ft., dark lime and spar to 21, 24 gray lime and sand and spar, 28 dark lime, 29 to 45 soft formation with clay and spar, 45 to 47 jack, ore about 4%, 49 same formation, but not so much ore, 50 lime and sand, 52 same, 55 bluish sand and lime, 60 dark lime, 64 same, 70 same, at 70 grayish lime and some sand, same to 82, at 82 sacharoidal sand continuing to 85, 85 to 87 sacharoidal sand and bluish lime, 90 soft bluish lime carrying ore, same continuing to 102, from 102 to 111 no ore, hole bottomed at 111.

Hole #15:

Solid formation at 12 ft., being in beaded line and sand to 22 ft., 24 to 26 gray lime and sand, 30 dark bluish sand also sacharoidal sand, 32 dark gray lime, 36 colored lime, and sand, 40 same, 47 same, 52 dark lime and sand, 55 same, 60 dark lime and spar, 63 same, 67 dark sticky lime with spar, 72 dark gray lime beaded with spar some ore, 75 dark gray lime with sacharoidal sand, same at 82, with some ore, 89 formation is dark gray lime, 93 dark gray lime and spar, 95 light lime and sacharoidal sand, 101 same, 104 a bright bluish lime and ore, about 5%, same to 109, 110 same, 112 not so much ore, 115 no ore, hole bottomed at 115 ft.

Hole #16:

Solid rock 17 ft., formation to 30 being a dark gray lime and spar, 32 dark sticky lime, 35 same, 40 grayish lime and sand, 42 same, 45 same, to 47, 52 dark lime, 55 grayish lime with beaded sand, 60 gray lime with spar, 65 disturbed formation, with veins of

red spar and lime and spar being pocketed, 71 sacharoidal sand with shale, 74 mixture of rock all broken, shale with bluish lime and sand beaded, 78 brown sand in broken mixture, 80 same, 83 to 86 lime and sand with spar mixture, 89 sacharoidal sand with a mushy mixture of mushy granular dolomite spar, 90 light lime and spar, and soft, carrying ore, 92 same to 95, ore being desceminated and running about 10% blende, 96 to 102 same formation, but not so much ore, 106 to 108 more ore, 10% or better, 109 not so much ore, 112 flinty lime carrying not very much ore, 114 flinty lime no more ore to 122, where hole is bottomed.

Hole #17:

Record so mutilated could not read correctly so am not giving the record.

North Arkansas Mining & Investment Company.
By Ed Zimmerman,
Vice President and General Manager.

Lma-1252X

MINING LEASE

This indenture made this 1st day of May, 1951, by and between M. P. Cayce, hereinafter referred to as the Lessor, and Raymond S. Roberts, hereinafter referred to as the Lessee.

WITNESSETH:

1. That in consideration of the covenants and agreements hereinafter set out, to be kept and performed by Lessee, the Lessor does hereby lease unto Lessee for prospecting and mining for zinc, lead and other ores and minerals for ten years from the date hereof, the following described lands situated in Searcy County, State of Arkansas, to-wit:

> SE ¼ of NW¼, NE¼, N½ of SE¼, all of 11-16-16 the NW¼, N½ of SW¼, SW½ of SW¼, S½ of NE¼, NE¼ of SE¼, all of 12-16-16, N½ of SW¼, S½ of NW¼, SW¼ of SE¼, N½ of NE¼, all of 18-16-16, S½ of SW¼, S½ of SE¼, N½ of SW¼, all in 7-16-15. (Surface rights have been sold to some of the above acreage.)

(It is mutually understood and agreed by and between the parties that neither party is to be bound by the above description but that the intention of both parties is to include in this indenture all of the lands now owned by M. P. Cayce in Searcy County, Arkansas.

2. The Lessor hereby gives and grants unto Lessee for said term the exclusive right and license to prospect and mine said land for zinc, lead and other ores and minerals, together with the right and license to prepare for market on said premises and remove and sell all zinc and lead and other ores and mineral concentrates produced from said ores, with the right to construct buildings or other structures and power lines and to make excavations, openings, stock-piles, dumps, ditches, drains and tailing dams and ponds, roads and other improvements upon said premises, including the use of water on and from such lands in such operations and to place such machinery thereon as Lessee may deem necessary for efficiently prospecting and mining said land and treating the ores mined therefrom, with the right in Lessee to remove all property so placed thereon at any time during the term hereof or within one year after the termination of this lease.

3. IN CONSIDERATION WHEREOF, Lessee agrees to pay unto Lessor at Farmington, Missouri, on or before the tenth day of each month a royalty of five per centum (5%) of all moneys received for the zinc, lead and other ores and mineral concentrates produced and sold from said land during the preceding month with the privilege to Lessee to consume such concentrates and pay Lessor said percentage of the market price thereof at the concentration mill as royalty thereon. For the protection of the Lessor and to the end that there may be no dispute as to the market price of concentrates so consumed, it is expressly agreed that if Lessor be not satisfied with the market price used in making royalty settlements, Lessor shall have and hereby agrees to take said percentage of said concentrates, or concentrates of like quality, in lieu of said royalty, at the bins where stored and further agrees to give written notice at once in the event Lessor is not satisfied as aforesaid.

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

5. The Lessee shall keep accurate books showing quantities and kinds of concentrates produced from said lands and sold or consumed, when and to whom sold, and the moneys received from sales and such

books of account shall be open to inspection by Lessor at all reasonable hours.

6. All mining operations shall be carried on in a miner-like and workman-like manner as the same are usually conducted in the district and the Lessee agrees to hold the Lessor harmless from any claims, suits for injuries or other type of claims or damages caused by Lessee's operations.

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

8. If the ores mined and raised from the lands herein leased are treated and cleaned at a Central Concentrating Plant, whether located on this or other lands, separately or with other ores as above provided, the tailings, sands, rock and other by-products resulting from the treatment of said ores shall thereupon become the sole property of and belong to the owner of the land upon which same are deposited by Lessee; that is to say, if ores and rock from the lands covered hereby are milled on other lands, the tailings, rock and other by-products resulting therefrom shall belong to the owner of such other lands or of the lands upon which same are deposited and if the ores and rocks from this or other lands are milled upon the lands covered hereby, all such materials shall belong to the Lessor; provided, however, Lessee shall at all times during the life of this lease have the right to re-mill said tailings and other by-products materials and during the period of said re-milling operations, Lessee shall be relieved from the obligation to conduct prospecting and mining operations.

9. The Lessor shall have the right to enter upon said land for the purpose of inspecting and examination, not unnecessarily interferring with the prospecting and mining operations of Lessee.

10. The Lessee shall commence prospecting or mining upon said lands within three months from the date hereof; such prospecting or mining shall be carried on continuously and shall not be suspended at any time for longer than thirty days except on account of unavoidable accidents, strikes or other conditions beyond the control of Lessee and except that when the sale value of concentrates produced from said premises shall be such that mining thereof cannot be profitably carried on by Lessee, operations may be suspended until prices improve so that the mining can be profitably conducted, provided suspension of operation from said last mentioned cause shall not continue longer than six months without the written consent of the Lessor.

11. The Lessee shall furnish Lessor a true copy of the log of each drill hole put down on said land by Lessee showing any assays made or cuttings therefrom and shall, upon request of Lessor, furnish print of any underground workings on said land at least once every three months period.

12. After the expiration of the term hereof fixed, this lease shall continue in force and effect so long thereafter as ore shall

be produced therefrom by the Lessee or Lessee shall continue prospecting or mining operations of said lands or any part thereof in good faith.

13. Lessor hereby warrants and agrees to defend the title to the lands herein described and agrees that the Lessee shall have the right at any time to redeem for Lessor by payment, any mortgages, taxes or other liens on the above described lands in the event of default of payment by Lessor.

14. The Lessee shall have the right to assign or sublet this lease.

15. The Lessee shall pay for damages caused by operations hereunder to growing crops and/or any improvements on said lands.

16. In case of failure of Lessee to keep and perform the terms of this lease, Lessor may give thirty days written notice of the violation complained of and if such violation or default is not removed within said thirty day period, this lease shall be thereupon terminated at the option of the Lessor which remedy shall be exclusive. Lessee may at any time, if Lessee desires to do so, pay all royalties then due together with $25.00 surrender and terminate this lease by giving seven days written notice of intention to do so and thereupon Lessee shall be relieved from all obligations hereunder with like effect as if this lease had not been made.

17. In consideration of the sum of $1.00 paid by Lessee to Lessor, the receipt of which is hereby acknowledged, and other good and valuable considerations, the Lessor does hereby give and grant to Lessee the exclusive right and option to purchase all of the land and all other mineral and underground rights thereto in and of the above described land within six months from the date hereof for the sum of $40,000.00 in cash to Lessor, less the amount of royalties and rentals paid and due at the time of notice to purchase. Notice of intention to purchase the surface rights, mineral and underground rights shall be in writing and shall be given to Lessor at least thirty days before the expiration of said such option period and Lessor within ninety days shall furnish to Lessee an abstract of title showing the Lessors an indefeasible perfect title in fee simple, free and clear from all liens, incumbrances, claims, burdens and obligations; conveyance to be by general warranty deed, including the covenant to defend. Lessor shall within ninety days correct any defect appearing in the abstract and in the event of Lessor's failure to do so within said time, Lessee at his option may proceed to correct the same, charging Lessor with all costs and expenses in relation thereto, including attorneys' fees.

18. Any notice herein authorized or required to be given Lessor must be in writing and may be served by mailing the same by registered mail, postage prepaid, addressed to Lessor or Lessor's heirs, legal representatives, successors or assigns at Farmington, Missouri. Any notice herein authorized or required to be given Lessee shall be in writing and may be served by mailing the same by registered mail, postage prepaid, addressed to Lessee or Lessee's legal representatives, successors or assigns, at Farmers Bank Building, Farmington, Missouri.

19. The terms and conditions of this lease shall be binding upon and inure to the benefit of the heirs, successors, legal representatives and assigns of the parties hereto.

IN WITNESS WHEREOF, the parties hereto have duly executed this indenture the day and year first above written.

_____
Lessor

_____
Lessee

ACKNOWLEDGMENT

STATE OF MISSOURI)
(SS
COUNTY OF ST. FRANCOIS)

On this, the 1st day of May, 1951, before me personally appeared M. P. Cayce and Raymond S. Roberts, to me known to be the persons who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal at my office in Farmington, Missouri, the day and year last above written.

My term expires _____.

_____
Notary Public

FINANCIAL STATEMENT

RAYMOND S. ROBERTS
ATTORNEY AT LAW
FARMERS BANK BUILDING
FARMINGTON, MISSOURI

May 10, 1951

A S S E T S

Cash on hand and in bank	$ 750.00
Accounts due me (good)	2500.00
Stocks and bonds (including U. S. Securities)	13500.00
Law library and office equipment	5000.00
Real estate (jointly owned with wife), including household fixtures and furniture	25000.00
Cash surrender insurance policies	6500.00
50% stock Roberts-Lloyd Company, Inc. (total appraised value - $120,000.00)	60000.00
	$ 113250.00

L I A B I L I T I E S

Notes owed by me without security	$ 2900.00
Notes owed by me with security (including real estate)	6000.00
Indebtedness Roberts-Lloyd Company, Inc. (total indebtedness - $41,000.00)	41000.00
	$ 49900.00

TOTAL ASSETS	$113,250.00
TOTAL LIABILITIES	49,900.00
	$ 63,350.00

The undersigned, in connection with Form MF 103, Defense Minerals Administration, Mineral Order No. 5, under Defense Production Act of 1950, submits herewith a financial statement as of the date of May 10, 1951.

Raymond S. Roberts

Raymond S. Roberts

Rivermines, Mo., July 21st, 1913.

Dwight A. Jones, Esq.,
#5 Nassau Street,
New York City.

Dear Sir: -

Under separate cover I have mailed you blue print showing Mine Workings and Drill Holes on the Maumee Property.

After about four weeks of pumping, which was however frequently interrupted by break-downs of the pumping machinery available, we succeeded On July 5th., to unwater the mine so far that an inspection of the workings was possible.

As mentioned before - the whole plant is in very bad condition. With a few exceptions, nothing but second hand machinery was originally installed. Since the plant has been idle for several years, the machinery has deteriorated to such an extent that it required considerable time and work to put the plant in a fairly safe operating condition.

No repair work was undertaken on theShaft proper, as it would have taken considerable time and money to do so. As I have stated before, the shaft was found to be in an exceedingly dangerous condition due to the rotting of the wooden cribbing, on which the entire Shaft Building with pump and hoisting machinery rests; so that a caving of the Shaft can be expected to occur at any time.

The Mine Workings proper were found to be in safe condition. They consist of a drift started from the bottom of the shaft in a Southeasterly direction a distance of 150 feet, which then widens out into an opening of 88 feet in length, 50 feet in width and 12 feet average height, which I estimate to have contained about 4,000 tons of Ore. I am informed that in all 360,000 pounds of concentrates were made from this ore during the operation of the Mill.

Considering that the recovery in the Mill could not have been more than 65%, due to the insufficient sand and slime treatment and other defects in the mill, the mine must have furnished an ore containing not less than 6 per-cent in concentrates; however, of a

low grade, since only $37.50 per ton was obtained for them.

On examination of the mine workings it was found that the Drift at Point X (see map) entered from a solid strata of limestone into a disturbed and brecciated formation interwoven with numerous streks and seams of Pink Spar or Dolomite. The whole formation after its original deposition from the sea was no doubt subjected to heavy down and lateral movement, possibly due to dissolution and breaking down of the lower stratas. This caused the fracturing and displacement of the rocks of the upper stratas in various directions. As more or less space was left between the broken and fractured rock in the form of seams and cracks easy circulation of the waters coming from the over or underlying formations was made possible. These waters were in this case heavily charged with Magnesia which was precipitated as Magneisum Carbonate, thus filling up the crevices between the broken rocks, binding and cementing them together again into a solid mass.

Associated with the Magnesium Carbonate, Zinc was also carried in solution and precipitated in the form of Zinc Blende or Zinc Sulphide in greater or less quantities.

The quality of this Zinc ore when in form of concentrates is of exceptional pureness and therefore commands thehighest price on the ore market.

The above described brecciated formation extends in the mine from Point X all along the mine workings to Point Y (see map), a distance of 150 feet, principally along the South side of the workings.

Whilst it was a very difficult matter to determine by sight the contents of mineral in the ore in the various stopes, one cannot hesitate to say that the mineralization is of such extent and character that it appears that the mining of the ore as shown along the faces should be profitable. Its extent, if the diamond drill records were made by reliable and experienced men, appears to be assured over an area of about 10 acres, of a formation similar to that exposed in the Mine.

Since, however, no other information except a record of the drill holes (which are platted on the Map) is the only basis on which

an opinion as to the value of the area for future mining operations can be formed, it appears highly advisable to appropriate a certain amount of money; not along in order to verify the old drill records, but to conduct drilling beyond the at present known mineral bearing area in order to determine its extent. Twelve or sixteen drill holes placed in well selected places, which can be drilled at an expense of about $2500.00 will prove of great benefit in the determination of the value and extent of the Lower Ore Horizon. In the meantime some exploration work should be started on the Oxidized or Carbonate ores exposed in many places on the surface along the bluffs where, I am of the opinion that, with a small expenditure of money, ore could be mined of high enough grade to be marketable without concentration. This has been done in previous years and can, no doubt, be done in the future.

After a few drill holes have been put down into the Sulphide Ore Body a decision can be reached either as to the repair of the present mill which is, as previously mentioned, not along of small capacity; but a badly constructed affair; or as to the erection of a welldesigned new Mill of larger capacity.

I would advise, also, to at once repair the present Shaft and put it in safe condition; and also consider the sinking of a second Shaft as soon as drilling has progressed far enough to warrant it. The location of this shaft should be determined by the extent of the Main Ore Body and the Location of the Mill, so that all unnecessary haulage below, as well as on the surface, is avoided.

The following estimate may give you an idea of the Profits that can be expected by the operation of a Mill of 200 Tons capacity.

200 Tons Ore of 6% (Concentrates crude ore) equals with 80% Recovery a Production of 19,200 Pounds, or 9.6 tons of Cencentrate containing 63 per-cent Zn. valued at $44.00 Per Ton.

Value of 9.6 Tons Concentrate ----------$422.40

Production Cost would be as follows:

Mining Per Ton Ore--------- 90 cents.

Milling " " " --------- 25 cents.

Genl. Exp. " " " --------- 15 cents.

$1.30 Per Ton of Ore.

200 Tons Ore @ $1.30 per Ton ---------- 260.00

Haulage & Freight per ton)
of Concentrate @ $4.50 X (---------- 43.20
9/6 Tons ofConcentrate)

Production Cost (total)

Value of Concentrates-------$422.40

Cost of Concentrates-------- 302.20

Profits----------$119.20 per day

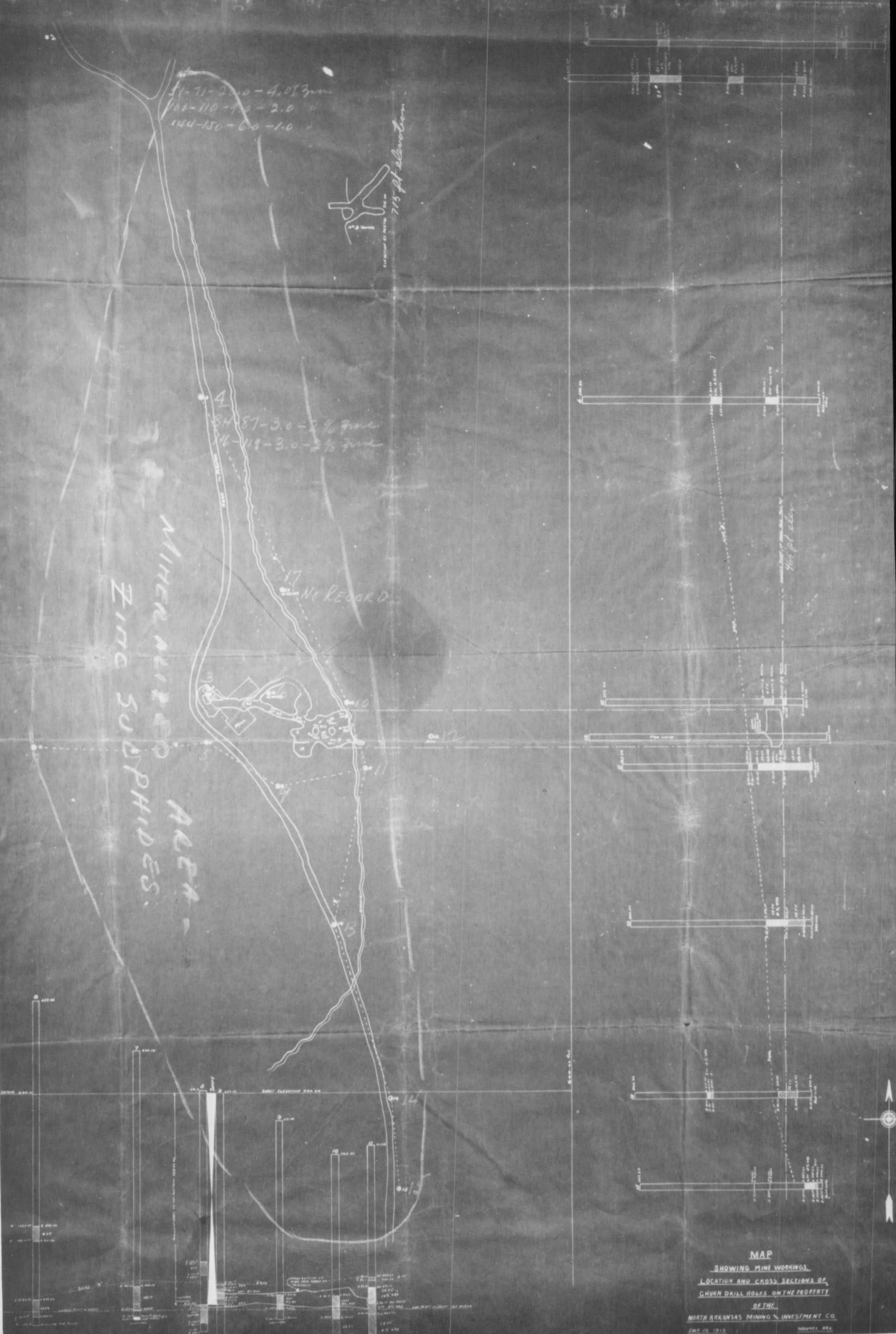
$119.20 per day equals $2990.00 per month.

The profits realized at the present market price per ton of Concentrates would be $12.40 per ton. A reduction can, no doubt, be made in the cost of Haulage to Railroad by River transportation, which is possible during 9 months of the year.

The transportation of powder and other supplies could also be done in the same manner with considerable saving.

Respectfully,

O. M. Bilharz



MINERALIZED AREA - ZINC SULPHIDES.
NO RECORD
715 ft elevation
84-87-3.0-2½% zinc
116-119-3.0-2½% zinc
51-71-20.0-4.0% zinc
101-110-9.0-2.0 "
144-150-6.0-1.0 "
MAP
SHOWING MINE WORKINGS,
LOCATION AND CROSS SECTIONS OF
CHURN DRILL HOLES ON THE PROPERTY
OF THE
NORTH ARKANSAS MINING & INVESTMENT CO.
JULY 10, 1913

Dma-1352X

May 10, 1951

U. S. Department of the Interior
Defense Minerals Administration

Gentlemen:

Attached hereto find application for exploration on leased property at Maumee, Arkansas.

A reading of the attached exhibits to the application will show that a number of years ago, in fact around 1906 and 1907, some sixteen drill holes (churn drills) were sunk on this property, covering a distance from north and south of about 1900 feet and in the center thereof a distance east and west of about 250 to 300 feet. A reading of the log kept by the drillers at the time, if accurate, shows sufficient zinc sulphide to make mining operations profitable, provided the zinc sulphide area covers sufficient area. At one time a small mill was built on this property and some zinc concentrate was mined, milled and shipped. However, the old mill burned and no operation has been carried on on the property except that the now present owner, M. P. Cayce, sunk a shaft in 1946.

The writer has the mind the following plan of operation. It is proposed that if this application is approved, that a competent mining engineer be employed and sent down to this property with a good drill contractor and that some five or six holes be drilled up and down the valley for the purpose of testing and proving that the old sixteen drill holes are approximately accurate. In other words, if the five or six well-placed drill holes for testing purposes show that the old sixteen drill hole logs were accurate, then the drills would be moved east and west and north and south in accordance with the geological outlay of the land and some ten or twelve additional drill holes would be sunk to determine the extent and direction of the main body of ore. However, on the other hand, if the drilling of the five or six test holes up and down the valley, as above outlined, should prove that the old drill logs are inaccurate and that there is insufficient zinc sulphide to make mining profitable, then the operation would cease and no further drilling would be attempted.

Approved for release
Release of Document
MAY 2 1 2010
Classified
Declassified
Downgraded
Unclassified
Unclassified and 50 Unlimited

The basis of the figure of $10,000.00 to $12,000.00 with the writer to spend 50% thereof, would cover the entire operation and the writer is prepared to enter into a contract with a competent drilling operator to drill only the five or six holes for testing purposes first and then if, as above stated, it was considered feasible at that time, then to drill the remaining.

You will note from the lease that the writer has only approximately three months from this date in which to start drilling operations. It is requested that this application be acted upon at an early date, if approved, so that drilling operations may actually start as quickly as possible and certainly before the expiration date of the lease.

Respectfully submitted,

Raymond S Roberts

RSR/elh
Enclosures

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 25 1951
LAWSON F. STUDEL
Executive Secretary

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

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

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

DO NOT FILL IN THIS BLOCK

Docket No. dma-1252 X

Date received 5/25/51

Participation

RAYMOND S. ROBERTS
FARMERS BANK BUILDING
FARMINGTON, MISSOURI

Name and address of applicant

Date May 10, 1951

FILL IN THIS BLOCK

Date of application May 10, 1951

Estimated cost $10,000.00 to $12,000.00

Mineral or metal zinc

Percentage of Government participation 50%

Location of mine Maumee, Arkansas

Date of filing MF-100

DMA Docket Number, if available dma-1252 X

INSTRUCTIONS

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

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.

See Separate Sheet Annexed.

*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

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

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

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

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.

(*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

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

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

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

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

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

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

*16. History:

(*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.

(*b*) State briefly the known history and production of adjoining and neighboring properties.

(*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

*17. Production:

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

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

*18. Ore or mineral reserves: (If property is or has been operating.)

(*a*) Describe the ore or mineral deposits briefly.

(*b*) Submit available maps and assay data.

(*c*) Give estimated tonnage and grade of each class of ore reserves.

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

THE EXPLORATION

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

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

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

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

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:

(*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.

(*b*) Supervisors, by numbers and positions, with salaries of each.

(*c*) Cost of necessary repairs to existing facilities, structures, and buildings.

(*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.

(*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.

(*f*) Cost of rental for equipment which the operator proposes to rent.

(*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.

(*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.

(*i*) Cost of power, water, utilities, and any other items not provided for above.

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

CERTIFICATION

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

Raymond Shoberg
(Name of company)

By _____
(Signature of authorized official)

May 10, 1951
(Date)

_____
(Title)

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

*Same as footnote on page 1.

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

dma-1252X

1. Individual - Raymond S. Roberts
Farmers Bank Building
Farmington, Missouri

2. no

3. no

4. No previous mining experience - Attorney at Law for 22 years.

5. Lessee

6. No claims or encumbrances.

7. Copy attached. Lease in good standing.

8. Financial Statement attached.

9. $6,000.00 - This amount is sufficient to pay half of the costs of the project.

10a. SE¼ of NW¼, NE¼, N½ of SE¼, all of 11-16-16, the NW¼, N½ of SW¼, SW¼ of SW¼, S½ of NE¼, NE¼ of SE¼, all of 12-16-16, N½ of SW¼, S½ of NW¼, SW¼ of SE¼, N½ of NE¼, all of 18-16-16, S½ of SW¼, S½ of SE½, N½ of SW½, all in 7-16-15. (Surface rights has been sold to some of the above acreage.)

10b. SE¼ of NE¼ and the NE¼ of the SE¼ of Section 11, Township 16 North, Range 16 West. SW¼ of the NW¼ and the NW¼ of the SW¼ of Section 12, Township 16 North, Range 16 West.

11. This property has been known for many years and is still known as the Maumee Mining Property.

12. The property is located about ten to twelve miles South of Yellville, Arkansas which is on the Missouri Pacific Railroad and the road from the mine to Yellville is about half Federal and State maintained highway and half hard surface. The roads are all-weather, all-condition roads.

13. The Buffalo River is less than half a mile from this property and water for normal mining operations is available in all seasons - a power line runs through the property with sufficient power available.

14. There are no useable facilities or equipment or structures now on the property that can be devoted to exploration work.

15. The ore could be shipped from Yellville, Arkansas to Fort Smith, Arkansas, Bartelsville, Illinois or East St. Louis, Illinois for smelting. If ore in sufficient

quantities is found, the milling would be done on the property.

16a. See copy of letter attached from O. M. Bilharz to Dwight A. Jones, President, St. Joe Lead Company.

16b. No knowledge of production of adjoining and neighboring properties other than zinc carbonate.

16c. See attached reports.

17. Mine is not in production.

18. See copy of former drill hole reports attached.

19. The purpose of this application is to secure government help in drilling - first to check the sixteen drill holes as the reports attached hereto show and, second, if drill holes are found accurate, to drill east and west and north of present drill holes to determine how wide an area the zinc sulphide ore body covers.

20. The exploration will be to discover zinc.

21. It is proposed to test drill the present sixteen known drill holes by placing drill holes at five or six well selected spots to determine if the old drill holes are accurate and if the old drill holes are found to be accurate, to then drill east and west and north to determine the width and extent of the ore body by placing some twelve to sixteen well located drill holes.

22. See attached statements and maps which show the amount of zinc sulphide and zinc carbonate as reported by the drill holes and engineering reports.

23. Churn drill or diamond drill operators for the purpose of this drilling operation can be contracted at the rate of $2.00 per foot for the drilling. It is estimated that the complete cost of drilling, together with engineering and assay work, will run between $10,000.00 and $12,000.00. These are the same types of drills that are now operating for the St. Joe Lead Company in St. Francois County, Missouri.

24. The drilling can be completed within sixty days from the date of starting. It is estimated by a contract driller and by a retired geologist and mining engineer for the St. Joe Lead Company, Mr. L. P. Pressler, who has seen the property and a report of which is attached herein, that it will cost, for all purposes, to complete all the drilling, between $10,000.00 and $12,000.00.

It is understood, however, that if the drill holes placed to prove the old sixteen drill holes should not show ore present, then drilling operations would, of course, be immediately stopped.

MINING LEASE

This indenture made this 1st day of May, 1951, by and between M. P. Cayce, hereinafter referred to as the Lessor, and Raymond S. Roberts, hereinafter referred to as the Lessee.

WITNESSETH:

1. That in consideration of the covenants and agreements hereinafter set out, to be kept and performed by Lessee, the Lessor does hereby lease unto Lessee for prospecting and mining for zinc, lead and other ores and minerals for ten years from the date hereof, the following described lands situated in Searcy County, State of Arkansas, to-wit:

> SE ¼ of NW¼, NE¼, N½ of SE¼, all of 11-16-16 the NW¼, N½ of SW¼, SW¼ of SW¼, S½ of NE¼, NE¼ of SE¼, all of 12-16-16, N½ of SW¼, S½ of NW¼, SW¼ of SE¼, N½ of NE¼, all of 18-16-16, S½ of SW¼, S½ of SE¼, N½ of SW¼, all in 7-16-15. (Surface rights have been sold to some of the above acreage.)

(It is mutually understood and agreed by and between the parties that neither party is to be bound by the above description but that the intention of both parties is to include in this indenture all of the lands now owned by M. P. Cayce in Searcy County, Arkansas.

2. The Lessor hereby gives and grants unto Lessee for said term the exclusive right and license to prospect and mine said land for zinc, lead and other ores and minerals, together with the right and license to prepare for market on said premises and remove and sell all zinc and lead and other ores and mineral concentrates produced from said ores, with the right to construct buildings or other structures and power lines and to make excavations, openings, stock-piles, dumps, ditches, drains and tailing dams and ponds, roads and other improvements upon said premises, including the use of water on and from such lands in such operations and to place such machinery thereon as Lessee may deem necessary for efficiently prospecting and mining said land and treating the ores mined therefrom, with the right in Lessee to remove all property so placed thereon at any time during the term hereof or within one year after the termination of this lease.

3. IN CONSIDERATION WHEREOF, Lessee agrees to pay unto Lessor at Farmington, Missouri, on or before the tenth day of each month a royalty of five per centum (5%) of all moneys received for the zinc, lead and other ores and mineral concentrates produced and sold from said land during the preceding month with the privilege to Lessee to consume such concentrates and pay Lessor said percentage of the market price thereof at the concentration mill as royalty thereon. For the protection of the Lessor and to the end that there may be no dispute as to the market price of concentrates so consumed, it is expressly agreed that if Lessor be not satisfied with the market price used in making royalty settlements, Lessor shall have and hereby agrees to take said percentage of said concentrates, or concentrates of like quality, in lieu of said royalty, at the bins where stored and further agrees to give written notice at once in the event Lessor is not satisfied as aforesaid.

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

5. The Lessee shall keep accurate books showing quantities and kinds of concentrates produced from said lands and sold or consumed, when and to whom sold, and the moneys received from sales and such

books of account shall be open to inspection by Lessor at all reasonable hours.

6. All mining operations shall be carried on in a miner-like and workman-like manner as the same are usually conducted in the district and the Lessee agrees to hold the Lessor harmless from any claims, suits for injuries or other type of claims or damages caused by Lessee's operations.

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

8. If the ores mined and raised from the lands herein leased are treated and cleaned at a Central Concentrating Plant, whether located on this or other lands, separately or with other ores as above provided, the tailings, sands, rock and other by-products resulting from the treatment of said ores shall thereupon become the sole property of and belong to the owner of the land upon which same are deposited by Lessee; that is to say, if ores and rock from the lands covered hereby are milled on other lands, the tailings, rock and other by-products resulting therefrom shall belong to the owner of such other lands or of the lands upon which same are deposited and if the ores and rocks from this or other lands are milled upon the lands covered hereby, all such materials shall belong to the Lessor; provided, however, Lessee shall at all times during the life of this lease have the right to re-mill said tailings and other by-products materials and during the period of said re-milling operations, Lessee shall be relieved from the obligation to conduct prospecting and mining operations.

9. The Lessor shall have the right to enter upon said land for the purpose of inspecting and examination, not unnecessarily interferring with the prospecting and mining operations of Lessee.

10. The Lessee shall commence prospecting or mining upon said lands within three months from the date hereof; such prospecting or mining shall be carried on continuously and shall not be suspended at any time for longer than thirty days except on account of unavoidable accidents, strikes or other conditions beyond the control of Lessee and except that when the sale value of concentrates produced from said premises shall be such that mining thereof cannot be profitably carried on by Lessee, operations may be suspended until prices improve so that the mining can be profitably conducted, provided suspension of operation from said last mentioned cause shall not continue longer than six months without the written consent of the Lessor.

11. The Lessee shall furnish Lessor a true copy of the log of each drill hole put down on said land by Lessee showing any assays made or cuttings therefrom and shall, upon request of Lessor, furnish print of any underground workings on said land at least once every three months period.

12. After the expiration of the term hereof fixed, this lease shall continue in force and effect so long thereafter as ore shall

be produced therefrom by the Lessee or Lessee shall continue prospecting or mining operations of said lands or any part thereof in good faith.

13. Lessor hereby warrants and agrees to defend the title to the lands herein described and agrees that the Lessee shall have the right at any time to redeem for Lessor by payment, any mortgages, taxes or other liens on the above described lands in the event of default of payment by Lessor.

14. The Lessee shall have the right to assign or sublet this lease.

15. The Lessee shall pay for damages caused by operations hereunder to growing crops and/or any improvements on said lands.

16. In case of failure of Lessee to keep and perform the terms of this lease, Lessor may give thirty days written notice of the violation complained of and if such violation or default is not removed within said thirty day period, this lease shall be thereupon terminated at the option of the Lessor which remedy shall be exclusive. Lessee may at any time, if Lessee desires to do so, pay all royalties then due together with $25.00 surrender and terminate this lease by giving seven days written notice of intention to do so and thereupon Lessee shall be relieved from all obligations hereunder with like effect as if this lease had not been made.

17. In consideration of the sum of $1.00 paid b Lessee to Lessor, the receipt of which is hereby acknowledged, and other good and valuable considerations, the Lessor does hereby give and grant to Lessee the exclusive right and option to purchase all of the land and all other mineral and underground rights thereto in and of the above described land within six months from the date hereof for the sum of $40,000.00 in cash to Lessor, less the amount of royalties and rentals paid and due at the time of notice to purchase. Notice of intention to purchase the surface rights, mineral and underground rights shall be in writing and shall be given to Lessor at least thirty days before the expiration of said such option period and Lessor within ninety days shall furnish to Lessee an abstract of title showing the Lessors an indefeasible perfect title in fee simple, free and clear from all liens, incumbrances, claims, burdens and obligations; conveyance to be by general warranty deed, including the covenant to defend. Lessor shall within ninety days correct any defect appearing in the abstract and in the event of Lessor's failure to do so within said time, Lessee at his option may proceed to correct the same, charging Lessor with all costs and expenses in relation thereto, including attorneys' fees.

18. Any notice herein authorized or required to be given Lessor must be in writing and may be served by mailing the same by registered mail, postage prepaid, addressed to Lessor or Lessor's heirs, legal representatives, successors or assigns at Farmington, Missouri. Any notice herein authorized or required to be given Lessee shall be in writing and may be served by mailing the same by registered mail, postage prepaid, addressed to Lessee or Lessee's legal representatives, successors or assigns, at Farmers Bank Building, Farmington, Missouri.

19. The terms and conditions of this lease shall be binding upon and inure to the benefit of the heirs, successors, legal representatives and assigns of the parties hereto.

IN WITNESS WHEREOF, the parties hereto have duly executed this indenture the day and year first above written.

_____
Lessor

_____
Lessee

ACKNOWLEDGMENT

STATE OF MISSOURI)
) SS
COUNTY OF ST. FRANCOIS)

On this, the 1st day of May, 1951, before me personally appeared M. F. Cayce and Raymond S. Roberts, to me known to be the persons who executed the foregoing instrument and acknowledged that they executed the same as their free act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal at my office in Farmington, Missouri, the day and year last above written.

My term expires _____.

_____
Notary Public

FINANCIAL STATEMENT

RAYMOND S. ROBERTS
ATTORNEY AT LAW
FARMERS BANK BUILDING
FARMINGTON, MISSOURI

May 10, 1951

A S S E T S

Cash on hand and in bank	$ 750.00
Accounts due me (good)	2500.00
Stocks and bonds (including U. S. Securities)	13500.00
Law library and office equipment	5000.00
Real estate (jointly owned with wife), including household fixtures and furniture	25000.00
Cash surrender insurance policies	6500.00
50% stock Roberts-Lloyd Company, Inc. (total appraised value - $120,000.00)	60000.00
	$ 113250.00

L I A B I L I T I E S

Notes owed by me without security	$ 2900.00
Notes owed by me with security (including real estate)	6000.00
Indebtedness Roberts-Lloyd Company, Inc. (total indebtedness - $41,000.00)	41000.00
	$ 49900.00

TOTAL ASSETS	$113,250.00
TOTAL LIABILITIES	49,900.00
	$ 63,350.00

The undersigned, in connection with Form LF 103, Defense Minerals Administration, Mineral Order No. 5, under Defense Production Act of 1950, submits herewith a financial statement as of the date of May 10, 1951.

Raymond S. Roberts

Raymond S. Roberts

Rivermines, Mo., July 21st, 1913.

Dwight A. Jones, Esq.,
#5 Nassau Street,
New York City.

Dear Sir: -

Under separate cover I have mailed you blue print showing Mine Workings and Drill Holes on the Maumee Property.

After about four weeks of pumping, which was however frequently interrupted by break-downs of the pumping machinery available, we succeeded On July 5th., to unwater the mine so far that an inspection of the workings was possible.

As mentioned before - the whole plant is in very bad condition. With a few exceptions, nothing but second hand machinery was originally installed. Since the plant has been idle for several years, the machinery has deteriorated to such an extent that it required considerable time and work to put the plant in a fairly safe operating condition.

No repair work was undertaken on theShaft proper, as it would have taken considerable time and money to do so. As I have stated before, the shaft was found to be in an exceedingly dangerous condition due to the rotting of the wooden cribbing, on which the entire Shaft Building with pump and hoisting machinery rests; so that a caving of the Shaft can be expected to occur at any time.

The Mine Workings proper were found to be in safe condition. They consist of a drift started from the bottom of the shaft in a Southeasterly direction a distance of 150 feet, which then widens out into an opening of 88 feet in length, 50 feet in width and 12 feet average height, which I estimate to have contained about 4,000 tons of Ore. I am informed that in all 360,000 pounds of concentrates were made from this ore during the operation of the Mill.

Considering that the recovery in the Mill could not have been more than 65%, due to the insufficient sand and slime treatment and other defects in the mill, the mine must have furnished an ore containing not less than 6 per-cent in concentrates; however, of a

low grade, since only $37.50 per ton was obtained for them.

On examination of the mine workings it was found that the Drift at Point X (see map) entered from a solid strata of limestone into a disturbed and brecciated formation interwoven with numerous streks and seams of Pink Spar or Dolomite. The whole formation after its original deposition from the sea was no doubt subjected to heavy down and lateral movement, possibly due to dissolution and breaking down of the lower stratas. This caused the fracturing and displacement of the rocks of the upper stratas in various directions. As more or less space was left between the broken and fractured rock in the form of seams and cracks easy circulation of the waters coming from the over or underlying formations was made possible. These waters were in this case heavily charged with Magnesia which was precipitated as Magneisum Carbonate, thus filling up the crevices between the broken rocks, binding and cementing them together again into a solid mass.

Associated with the Magnesium Carbonate, Zinc was also carried in solution and precipitated in the form of Zinc Blende or Zinc Sulphide in greater or less quantities.

The quality of this Zinc ore when in form of concentrates is of exceptional pureness and therefore commands thehighest price on the ore market.

The above described brecciated formation extends in the mine from Point X all along the mine workings to Point Y (see map), a distance of 150 feet, principally along the South side of the workings.

Whilst it was a very difficult matter to determine by sight the contents of mineral in the ore in the various stopes, one cannot hesitate to say that the mineralization is of such extent and character that it appears that the mining of the ore as shown along the faces should be profitable. Its extent, if the diamond drill records were made by reliable and experienced men, appears to be assured over an area of about 10 acres, of a formation similar to that exposed in the Mine.

Since, however, no other information except a record of the drill holes (which are platted on the Map) is the only basis on which

an opinion as to the value of the area for future mining operations can be formed, it appears highly advisable to appropriate a certain amount of money; not along in order to verify the old drill records, but to conduct drilling beyond the at present known mineral bearing area in order to determine its extent. Twelve or sixteen drill holes placed in well selected places, which can be drilled at an expense of about $2500.00 will prove of great benefit in the determination of the value and extent of the Lower Ore Horizon. In the meantime some exploration work should be started on the Oxidized or Carbonate ores exposed in many places on the surface along the bluffs where, I am of the opinion that, with a small expenditure of money, ore could be mined of high enough grade to be marketable without concentration. This has been done in previous years and can, no doubt, be done in the future.

After a few drill holes have been put down into the Sulphide Ore Body a decision can be reached either as to the repair of the present mill which is, as previously mentioned, not along of small capacity; but a badly constructed affair; or as to the erection of a welldesigned new Mill of larger capacity.

I would advise, also, to at once repair the present Shaft and put it in safe condition; and also consider the sinking of a second Shaft as soon as drilling has progressed far enough to warrant it. The location of this shaft should be determined by the extent of the Main Ore Body and the Location of the Mill, so that all unnecessary haulage below, as well as on the surface, is avoided.

The following estimate may give you an idea of the Profits that can be expected by the operation of a Mill of 200 Tons capacity.

200 Tons Ore of 6% Concentrates equals with 80% Recovery a Production of 19,200 Pounds, or 9.6 tons of Cencentrate containing 63 per-cent Zn. valued at $44.00 Per Ton.

Value of 9.6 Tons Concentrate ----------$422.40

Production Cost would be as follows:

Mining Per Ton Ore---------	90 cents.
Milling " " " ---------	25 cents.
Genl. Exp. " " " ---------	15 cents.
	$1.30 Per Ton of Ore.

200 Tons Ore @ $1.30 per Ton ---------- 260.00

Haulage & Freight per ton)
of Concentrate @ $4.50 X (---------- 43.20
9/6 Tons ofConcentrate)

Production Cost (total)

Value of Concentrates-------$422.40

Cost of Concentrates-------- 302.20

Profits----------$119.20 per day

$119.20 per day equals $2990.00 per month.

The profits realized at the present market price per ton of Concentrates would be $12.40 per ton. A reduction can, no doubt, be made in the cost of Haulage to Railroad by River transportation, which is possible during 9 months of the year.

The transportation of powder and other supplies could also be done in the same manner with considerable saving.

Respectfully,

O. M. Bilharz

DRILL LOG OF PROSPECT DRILL HOLES

OF NORTH ARKANSAS MINING & INVESTING COMPANY.

Drill Hole #1:

Open ground at 26 ft. to 38, sand and lime with some tiff and spar, at 38 ft. struck opening with water carrying away cuttings, 39 ft. sand and lime, 41 ft. sand and lime and spar and some jack, same to 44 ft. after which no more ore was found, formation being lime and spar and sand, until 51 ft., from 51 ft. to 71 ft. desceminated ore, in blue shale and flinty lime, and spar, the ore running about 4% zinc blende, from 71 ft. to 101 the formation was black lime and sand some quartz, very hard drilling, 101 to 110 ft. zinc blende, jack, desceminated in flinty lime and spar, same running 3 to 4% zinc blende, from 110 to 144 ft. formation was lime and spar and sand, very hard, from 144 to 150 ft. zinc blende in a softer rock being a bluish lime shale, with spar and tiff, hole finished at 150 ft. formation continuing carrying ore.

Singledecker Driller; 1903

Drill Hole #2:

Rock at 5 ft. soft black lime and sand, same continuing to 38 ft., struck opening with water 39 to 44 ft. formation being same as above, 44 to 51 ft. spar and sand and lime, some ore possibly 3%, this hole seems to have been drilled direct in fault, rock very much disturbed, this disturbance continuing to different depths, no more ore was encountered until 157 ft. when ore was again encountered, to 163 ft. same being a bluish lime and spar, and some mundic, after this depth no more ore was encountered the hole being drilled to a depth of 300 ft. the rock continuing changeable, from lime and flint to sand quartz and spar and tiff.

Tom Matlock Driller
January 16, 1906.

Hole #3:

Open ground to 26 ft., 26 ft. to 38 ft., lime and sand with some spar, 39 to 41 ft., same, 42 to 45 some nice ore (jack) same to 50 ft., being in light colored lime and sand and shale. 53 dark lime and sand, same to 55 ft. same to 60 ft., 60 ft. to 69 ft., continuing same being lime and sand, except some quartz, at 69 ft., struck opening, opening being about 6 inches, formation continuing to be lime and sand, formation continuing to be lime and sand until 83 ft., 83 to 87 ft., bluish lime and sand, same to 87 ft., then hard sand and lime and spar to 95 ft., blue lime and sand to 105 ft., 105 ft., sacharoidal sand to 108, from 108 to 114 bluish shale and soft bluish lime, some mundic rock having a coarse granular quartz similar to that found at Hazel Dell. 114 no change to 116 ft., 116 to 119 ore, same being in bluish shale and lime, 119 to 125 ft., the ore increases, running to about 6 to 10% blende, 125 to 128 ft. rock changing to flanky lime with plenty of spar, but not so much ore, after 128 ft., no more to 147 ft. when hole was bottomed.

Feb. 19, 1906.

Hole #4:

Dirt to 6 ft., then 4 ft. rock, then open ground to 13 ft., and not real solid formation to 24 ft., at 28 ft. went into opening 2 ft., the formation continuing as before striking an opening being a lime and a sand, and continuing to 37 ft., same to 45 ft., when another opening was struck, the formation being from 45 to 63 ft., being in a dark lime and sand and spar, 63 to 72 ft., dark lime and spar, 72 to 78 ft., dark lime and sand and spar, 78 ft., shows a 6" opening with tallow clay then sacharoidal sand to 81 ft., 81 ft. to 84 ft., plnish lime and shale with ore, 87 same with ore running about 4%, 88 ft. to 90 ft., bluish lime and shale and spar, 94 same, 96 to 98 and to 102 rock is streaked with spar and sand of light color same continuing to 112 ft., then 112 to 115 ft., sacharoidal sand 116 to 119 bluish lime and shale with ore, looks fine, 119 to 124 same, formation being same as Hole #3, after this hole showed no more ore. It was bottomed at 150 ft.

March 30, 1906.

Hole #5:

Dirt to 10 ft., loose boulders to 14 ft., 15 ft. solid rock, 20 ft., struck small opening rock to 37 ft., being in light colors lime and sand, 40 ft., light colored lime and sand and sand and spar, 43 lime and gravel continuing together with sacharoidal sand and spar, same continuing to 63 ft., 63 ft., to 73 ft., tallow clay and shale, shale being bluish color, 77 ft. to 83 ft., soft gray lime and sand some tiff and spar, same continuing to 92 ft., 93 to 95 ft., spar and bluish lime and sand, 98 ft., same continuing to 104 ft., from 104 to 112 bluish shale and lime and sand carrying ore, ore being desceminated, 116 sacharoidal sand and bluish shale, some spar same continuing to 125 to 142, streaks of spar and bluish lime shale carrying considerable ore, rock soft and mushy, best ore being from 130 to 140 at 143 the rock changed to a harder and hole bottomed at 145 ft.

April 26, 1906.

Hole #6:

The record of this hole (lost) showed ore about the same as No. 5.

Hole #7:

Open ground to 26 ft., from 26 to 50 dark lime and sand, at 50 struck open ground for 8 ft., 60 ft., sand and lime, 62 same, 66 sand and light colored quartz, same formation continuing to 89, 92 gray sand, 95 gray sand and lime and spar, 97 lime and spar, 100 same to 106, with a slight opening, 190 to 11, dark lime, 118 gray lime and sand and quartz, same to 132, same to 126, 129 dark lime and sand, same to 135, 139 sacharoidal sand cap rock, 143 gray and blue lime and shale with ore, looks good. Sand at 145, 149 formation same but carrying more ore, 153 formation same but not so much ore, 154 more ore, 156 same as 154, 157 not so much ore, 161 very rich ore, 162 same, quit hole.

Hole #8:

Struck solid rock at 18 ft., 20 gray sand, 22 sand and lime, 26 same formation same formation but some spar mixed with the sand and lime, 28 same, 34 same formation, dark sand and lime, 37 to 44 same, 50 white sand and some lime, 53 gray lime and spar and sand, 56 same, 60 same, 63 dark lime and sand with some spar, 69 same, 72 to 75 same, 78 dark lime and sand, 84 gray sand and lime and sacharoidal sand, 88 same with some quartz, seemingly a mixture, 90 ft., lime and sand, same continuing to 96, 99 same but streaked with quartz, 102 same, 105 dark lime and spar, 108 gray lime and sand, 110 same, 113 grayish lime and spar, same to 119, 122 same, 125 dark lime and sand, 128 same, 131 dark lime and spar, 134 same, 137 lime and spar (and ore), 140 same, 143 same, 146 same except formation softer being bluish lime, 149 formation seemingly same but no ore, ore being from 137 to 146, 153 blue lime and sand, 155 same, 158 same, 163 dark sand and lime with some quartz, same to 170, 173 hard sand and lime, 173 to 176 sacharoidal sand, 178 same, 181 bluish lime with ore, 184 to 187 same, 190 more ore, 191 not so much ore, 193 to 196 no ore, hole bottomed.

Hole #9:

Solid rock at 19 ft., 25 lime and sand, 28 dark and gray lime and sand, 33 same, 39 same except harder, 44 same as 39, 49 same with some spar, 55 dark lime and spar and clay seams, 60 ft. dark slatey lime, 63 same, 66 same, 73 dark lime and sand and spar, 77 same, 81 bluish shale and lime, 85 same, 90 the rock is principally blue lime and shale and some sand, 92 same, same to 98, 99 is sacharoidal sand, 101 gray lime with some spar, 103 a mixture of blue and dark lime and shale, 105 same, 106 same with ore, seemingly desceminated, formation being soft, same to 114, carrying ore about 5% blende, hole bottomed at 120 ft.

Hole #10:

Solid formation at 10 ft., being dark sand and lime, same at 14 same to 24 ft., 25 dark lime and sand and some clay, 28 same, 31 dark lime and sand, this formation continues to 64 ft., 67 seams of spar in the lime, 69 dark gray lime with streaks of spar, and some quartz, 72 same, 74 slatey lime, same to 80 ft., when sacharoidal sand is struck, continuing to 85 ft., 86 blue lime and shale with ore, 88 same as 86, but formation softer, 90 a mixture of flinty lime and spar with ore, no change to 96, ore running about 4% blende, 99 same,

102 same, 106 to 108 still carries ore but more spar, 110 rock changes to dark lime, not so much ore, 111 to 115 rock harder no ore quit hole.

Hole #11:

Solid rock at 12 ft., being dark lime and sand, continuing to 18, 22 hard lime and some sand, 25 lime and gray sand, 28 sand with very little lime, 30 same with clay seam, 33 to 35 dark lime and sand, 37 same, 40 grayish lime and some sand, 42 dark lime, 45 dark and light lime, and some sand not very hard, 48 same, 52 to 55 same, 57 soft black lime, 60 dark lime and spar with some quartz, 61 lime, 63 hard grayish lime and spar with some blue shale, 71 hard grayish lime and sand and some spar, 76 same, 78 and 79 sacharoidal sand, 80 dark lime and spar, with ore, 82 same, 84 dark lime and blue shale, 86 to 89 same carrying ore, same to 95, at 96 ore increases to at least 10% blende, 97 to 98 about 5% ore, 102 about 5% ore, 104 changing to desceminated ore running about 4% blende, 106 formation same still carrying ore, 109 same, this ore continues to 120 ft., at 102 no ore being found hole is bottomed.

Hole #12:

Solid formation at 5ft., being dark lime and sand, same continuing to 27, I will say in the beginning this hole is a blank, seemingly having been drilled on a bar, barren of ore, 31 to 44 dark sand and lime, 35 gray sacharoidal sand, same to 53, 55 gray lime and sand, sand at 60, 70 dark sticky lime, 77 same, 81 dark gray lime but soft, 86 to 89 same, 93 dark lime and sand continuing to 100, 103 bluish lime and sacharoidal sand, 106 same, 109 same, 112 lime looks beaded with sand and clay, 115 light sand and lime, 119 same to 125, 128 soft mushy lime, same at 129, same at 133, same at 139, 142 same except some spar, no change to 147, formation continues lime until 158, where hole is bottomed.

Hole #13:

Solid formation at 18 ft., formation from 18 to 35 being a dark lime and sand and a clay seam, 42 dark lime, 47 lime and sand and tallow clay, 50 dark lime and sand, 53 same, 57 same, 60 bluish shale and lime, 64 no change, 69 same, 72 same, 75 dark sticky lime and spar, 80 same, 85 bluish sacharoidal sand and lime, 88 same, 91 some spar and blue lime and shale, 94 same, 97 light lime and shale, 100 light lime and shale carrying ore, 103 same the ore being desceminated, 104 same, 106 not so much ore, 109 formation is light lime and spar, 112, more ore, 113 not so much ore, possibly 3%, 114 same, 116 no more ore formation changing to dark lime, hole bottomed at 130 ft.

Hole #14:

Solid rock at 14 ft., dark lime and spar to 21, 24 gray lime and sand and spar, 28 dark lime, 29 to 45 soft formation with clay and spar, 45 to 47 jack, ore about 4%, 49 same formation, but not so much ore, 50 lime and sand, 52 same, 55 bluish sand and lime, 60 dark lime, 64 same, 70 same, at 70 grayish lime and some sand, same to 82, at 82 sacharoidal sand continuing to 85, 85 to 87 sacharoidal sand and bluish lime, 90 soft bluish lime carrying ore, same continuing to 102, from 102 to 111 no ore, hole bottomed at 111.

Hole #15:

Solid formation at 12 ft., being in beaded lime and sand to 22 ft., 24 to 26 gray lime and sand, 30 dark bluish sand also sacharoidal sand, 32 dark gray lime, 36 colored lime, and sand, 40 same, 47 same, 52 dark lime and sand, 55 same, 60 dark lime and spar, 63 same, 67 dark sticky lime with spar, 72 dark gray lime beaded with spar some ore, 75 dark gray lime with sacharoidal sand, same at 82, with some ore, 89 formation is dark gray lime, 93 dark gray lime and spar, 95 light lime and sacharoidal sand, 101 same, 104 a bright bluish lime and ore, about 5%, same to 109, 110 same, 112 not so much ore, 115 no ore, hole bottomed at 115 ft.

Hole #16:

Solid rock 17 ft., formation to 30 being a dark gray lime and spar, 32 dark sticky lime, 35 same, 40 grayish lime and sand, 42 same, 45 same, to 47, 52 dark lime, 55 grayish lime with beaded sand, 60 gray lime with spar, 65 disturbed formation, with veins of

red spar and lime and spar being pocketed, 71 sacharoidal sand with shale, 74 mixture of rock all broken, shale with bluish lime and sand beaded, 78 brown sand in broken mixture, 80 same, 83 to 86 lime and sand with spar mixture, 89 sacharoidal sand with a mushy mixture of mushy granular dolomite spar, 90 light lime and spar, and soft, carrying ore, 92 same to 95, ore being desceminated and running about 10% blende, 96 to 102 same formation, but not so much ore, 106 to 108 more ore, 10% or better, 109 not so much ore, 112 flinty lime carrying not very much ore, 114 flinty lime no more ore to 122, where hole is bottomed.

Hole #17:

Record so mutilated could not read correctly so am not giving the record.

North Arkansas Mining & Investment Company.
By Ed Zimmerman,
Vice President and General Manager.

C O P Y

Flat River, Mo., Sept. 21, 1937.

Mr. M. P. Cayce,
Farmington, Mo.

Dear Sir:

You have asked me to pass on the merits of mining property located in the zinc fields of Northwestern Arkansas and I herewith give the following summary of my findings.

L O C A T I O N

The property, consisting of about 1100 acres, is included in the general Maumee - Water Creek District, which lies partly in Marion County, partly in Searcy County, along the middle stretch of the county line and within the drainage basins of Green Haw, Hollow, North Star and Maumee Creeks, which empty into Buffalo River, South of the mineral lands. The claims lie in Sections 11 and 12, Twp. 16 N. R. 16 West and in Sections 7 and 18, Twp. 16 N. R. 15 West, all of which comprising what is locally known as the Maumee Mines of the North Arkansas Mining and Investment Company and includes the Town of Maumee and power site on Buffalo River. Maumee is on a fairly good wagon road about 5 miles North East of the town of Gilbert located on the Missouri and N. A. Railroad and the nearest shipping point.

G E O L O G Y

The rocks of this district belong to the sedimentary series of Lower Orduvician and consist mostly of Everton Formation which is a compact bluish gray limestone and sandy limestones with friable white to buff sandstones, sandy gray dolomite and dolomite all interbedded and of about 400 feet in thickness. It is one of the principal sources of zinc and lead ores in Northern Arkansas as practically all the producing mines so far discovered in Marion, Searcy and Boone Counties were developed on ore deposits in the Everton formation. It is overlain by the St. Peters Sandstone which is the overlying formation in the normal stratographic section. The ore deposits also occur chiefly in the fine-to-medium grained dolomites and sometimes in dolomite sandstones. The ore deposits consist mainly of zinc sulphides and some zinc carbonates in the higher horizons. The principal ore however is the zinc sulphide Rosin Jack and occurs associated with pink spar in seams and shallow cracks chiefly in a fine grained dark gray dolomite, to a less extent in a medium grained dolomite or in a greenish sandstone.

MINE WORKINGS

A. A shaft 130 feet deep from which depth point is a drift extending eastward 150 feet widening out into a stope 88 feet in length 50 feet in width and about 12 feet in height which is said to have mined about 4000 tons of ore averaging about 6% zinc metal. This shaft was originally sunk in a promising location from a drilling campaign of 17 drill holes put down along the hollow over a length of 1900 feet, the lowermost hole 800 feet downstream from the site of the shaft, all these drilled holes reported ores except two, one of which lies on the east side of the hollow about 350 feet east of the shaft. The ore occurs approximately in the same level in all holes, and runs in thickness from 8 to 40feet and averages about 3 to 10% zinc content. These drill holes show a mineralized area of about 10 acres. The drill hole, #11, penetrating the richest ore lies practically in the bed of the branch, 250 feet east Southeast from the shaft and the hole is 120 feet deep containing ore in the bottom 40 feet, the richest ore occurring in the upper half of this ore zone, workings from the shaft are on this level. Most of the drill logs show the ore to be only a few feet below a sugary sandstone 4 to 6 feet thick.

B. A 70 feet tunnel driven into the hill 15 feet vertically above the shaft collar is absolutely barren. Near the top of the hill considerable open cut work has been done at a horizon 30 feet below the St. Peter formation and over an outcrop 150 feet in length. The largest cut is 70 feet in diameter. Although no ore now shows in this series of cuts, it has been reported to have produced considerable carbonate. Another group of diggings is located up the hollow almost a half mile above Maumee shaft and a quarter of a mile below a small fault that runs east and west across a hollow, a shaft estimated to be 50 feet deep is on the top of the ridge containing some ore.

All of these workings apparently were sunk on Shear zones in the original limestone and thru which solutions of zinc mineral came and made runs of ore in favorable depositing shots. There seems to be evidence that mineralization covered a wide range and extended along the area from the town of St. Joe, Arkansas to the Rush Creek district, a distance of 25 miles. There are several Northwesterly Southeasterly shearing zones in the area, showing much disturbance and indications of ore which would be interpolated

that the ore would occur in the immediate vicinity of these breaks and parallel to each other. The few drill holes corroborate this view.

The mine workings are now inaccessible. See attached log of the drilling; also maps showing location of mines and geology. There was at one time a small mill at the shaft, but all plant equipment is now obsolete.

RECOMMENDATIONS:

More drilling is necessary to develop adequate ore reserves before a method of mining or milling can be arranged. The holes should be systematically placed so ore reserves can be consistently calculated and the future value of the property ascertained. All drilling completed so far should be checked, and if these results are corroborated and new drilling develops more ore, the mining problems can be started.

Looking at this area from a broad viewpoint, I would say that there is now enough evidence to interest some reputable mining concern on a lease and option basis. The value of the holdings, as is, can be conservatively placed at about $50,000. A lease and option to buy could be arranged on a 10 year period with a $5000.00 per year payment with a certain amount of stock in the enterprise as interest money, stipulating that a vigerous churn drilling campaign be completed in two years time. Drilling the area is not very difficult as the cost per foot should not exceed $1.50 and 300 feet is the maximum depth of the area to be explored.

The value of the present shaft is about $10,000 as as much rehabilitation must be done to place same in working condition. The ore is easily milled.

The approximate cost of mining and milling on a 500 ton daily basis will approximate about $2.00 per ton, everything considered.

The cost of equipment for a 500 ton mill using tables and flotation units would require about $75,000.00 and another $75,000.00 for mining equipment.

The ore reserves to handle such an expenditure for plant would have to total at least 500,000 tons of 3% zinc content, and the set up would be about as follows:

Ore Reserves, 500,000 tons 3% zinc -	30,000.00	lbs. zinc
less 20% loss - net of	24,000.00	lbs. zinc
total value @ 5¢ per lb.	$1,200,000.00	~~lbs. zinc~~
mining and milling @ $2.00	1,000,000.00	
Plant a/c	150,000.00	
Total Cost	1,150,000.00	

Profit over 3 1/3 years -- $50,000.00

From the records of the drill holes so far outlined, 500,000 tons ore may be developed. The $2.00 per ton cost should cover transportation and other expenses.

Yours very truly,

(signed) L. P. Pressler

MAP
SHOWING MINE WORKINGS,
LOCATION AND CROSS SECTIONS OF
CHURN DRILL HOLES ON THE PROPERTY
OF THE
NORTH ARKANSAS MINING & INVESTMENT CO.
MINERAL AREA
ZINC SULPHIDES
715 ft above Tram
Hoist 78 ft
17
No Record
A
64-57-3.0-2% Zinc
76-118-3.0-3% Zinc
41-71-3.0-4.0% Zinc
101-110-7.0-2.0
144-150-6.0-1.0

ANNUAL AREA REPORT-FINAL
ADVANCE SUMMARY

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

REGION VI

James E. Boyd
Director

C. W. Seibel,
Regional Director

For release: June 18, 1951

SILVER, COPPER, LEAD, AND ZINC PRODUCTION IN MISSOURI, OKLAHOMA, KANSAS, AND ARKANSAS, 1950

The 1950 mine production of lead and zinc-lead ores in Missouri, Oklahoma, Kansas, and Arkansas increased slightly in relation to the 1949 mine production, according to the Amarillo Region VI Office of the Bureau of Mines, United States Department of the Interior. This minor increase in crude ore tonnage accounted for something more than a proportional increase in both lead and zinc in terms of recoverable metals, indicating an improvement in the grade of the ore produced in 1950 over 1949. Concentrate prices in 1950 again fluctuated over a wide range, both lead and zinc prices continued low during the first quarter of the year, reflecting the unstable condition of the world metal market. This depressed metal price condition improved steadily after mid-year, culminating in maximum zinc prices in September and maximum lead prices in October, when self-imposed industry price controls became effective.

Prepared by F. F. Netzeband and Alice Feltch, Economics Division, Region VI, Amarillo, Texas

The Tri-State district remained the area's dominant zinc producer, accounting for 98 percent of the four-state total zinc production and 19 percent of its lead production. The district 1950 zinc production was 2 percent greater than in 1949 with lead production about 1 percent greater.

Southeastern Missouri disseminated-lead belt accounted for 81 percent of the four-state total lead production during 1950. This production was 6 percent more than in 1949. Silver and copper recoveries in Missouri, both of which are byproducts from smelting operations of southeastern Missouri lead and lead-copper concentrates amounted to 236,273 fine ounces and 2,982 tons, respectively, in 1950. Silver recovery increased markedly while copper decreased slightly in comparison to 1949 production.

Final 1950 figures show a total production (in terms of recoverable metals) for the four-state area of 164,846 tons of lead and 82,112 tons of zinc; compared with 157,153 and 79,378 tons, respectively, in 1949. The 1950 Missouri output of copper was 2,982 tons compared with 3,670 tons in 1949; and 236,273 fine ounces of silver, compared with 123,413 fine ounces in 1949.

The 1950 lead production by districts was: southeastern Missouri, 133,680 tons; Tri-State district, 31,157 tons, and Arkansas 9 tons.

The 1950 zinc production by districts was: Tri-State district, 80,558 tons; southeastern Missouri, 1,546 tons; and Arkansas 8 tons.

The total 1950 value of recovered metals, silver, copper, lead and zinc, for the four-state region was $69,282,579, compared to a total recovered metal value of $70,903,767 in 1949. Of this 1950 total value, lead accounted for $44,508,420; zinc, $23,319,808; copper, $1,240,512, and silver, $213,839. Average metal prices used in 1950 were $0.135 per pound for lead; $0.142 per pound for zinc; $0.208 per pound for copper; and $0.9050505 per fine ounce for silver. In 1949 these metal prices were $0.158 per pound for lead; $0.124 per pound for zinc; $0.197 per pound for copper, and $0.9050505 per ounce for silver.

TRI-STATE DISTRICT (Oklahoma, Kansas, and Southwestern Missouri)

In 1950, Tri-State production accounted for 150,019 tons of zinc concentrates, 145,801 tons from crude ore and 4,218 tons from tailings retreatment at a value of $13,934,927; and 40,714 tons of lead concentrates all but 55 tons from crude ore and valued at $6,245,660. The total value amounted to $20,180,587. In 1949, Tri-State zinc concentrate production amounted to 147,178 tons valued at $11,445,018 and lead concentrate production of 41,471 tons valued at $7,824,788 for a grand total of $19,269,806.

The weekly quoted zinc concentrate price (60-percent grade) at Joplin, Missouri, was $57.00 a ton from January 1 to 21, when it dropped to $55.00, remaining thus until March 18, when it again advanced to $57.00. From April 1, 1950, the price gradually increased from $59.00 to $99.00 on July 1, where it steadied until September 9, when the price

rose to $115.00 a ton. It remained at this figure for the balance of the year.

The weekly quoted lead concentrate price opened the year at $147.67, remaining at this figure until March 11, when it dropped to $133.27 and again on March 18, to $126.07. This was the lowest lead concentrate price for the entire year. It varied from this quotation to $147.67 through July 8, when, like zinc prices, it assumed a gradual rise to $218.42 on November 4, at which figure it remained through the balance of the year.

Monthly mine production from the Tri-State district lagged somewhat during the first quarter of 1950, reflecting the low concentrate price being received by the district producers, with production increasing slightly during the remainder of the year, as these prices advanced. Annual 1950 mine production from the Tri-State district increased slightly from that of 1949, amounting to 4,700,698 tons compared to 4,470,778 tons in 1949.

SOUTHEASTERN MISSOURI

The St. Joseph Lead Company was again the largest producer of lead in the United States. This company operated its mines and four mills in St. Francois County throughout the year as well as the Mine La Motte property and mill in Madison County.

The St. Louis Smelting & Refining Division of the National Lead Company also operated its mines and mill near Fredericktown, Mo., to contribute to the impressive mine production from this disseminated-lead ore region. Fredericktown Lead Company operated part of the year at its Catherine-Fleming mine and mill.

Mine production of lead and zinc in Arkansas, Kansas, Missouri, and Oklahoma, by states, 1949-50, in terms of recoverable metals

State	Lead				Zinc			
	1949		1950		1949		1950	
	Short Tons	Value	Short Tons	Value	Short Tons	Value	Short Tons	Value
Arkansas	1	$316	9	$2,430	1	$248	8	$2,272
Kansas	9,772	3,087,952	9,487	2,561,490	29,433	7,299,384	27,176	7,717,984
Missouri	127,522	40,296,952	134,626	36,349,020	5,911	1,465,928	8,189	2,325,676
Oklahoma	19,858	6,275,128	20,724	5,595,480	44,033	10,920,184	46,739	13,273,876
	157,153	49,660,348	164,846	44,508,420	79,378	19,685,744	82,112	23,319,808

Mine production of silver, copper, lead, and zinc in Arkansas, Kansas, Missouri, and Oklahoma in 1950, by months, in terms of recovered metals.

Month	Silver (fine ounces)	Copper (short tons)	Lead (short tons)	Zinc (short tons)
January	22,572	301	13,662	5,684
February	22,309	259	13,566	5,721
March	21,515	290	14,901	6,167
April	19,744	230	13,513	5,488
May	20,933	279	14,143	6,453
June	20,716	240	14,527	7,277
July	19,899	246	13,617	6,860
August	21,604	263	13,716	7,413
September	20,414	202	13,467	7,449
October	20,269	219	13,445	8,117
November	12,273	245	13,298	7,970
December	14,025	208	12,991	7,513
Total, 1950	236,273	2,982	164,846	82,112

Mine production of lead and zinc concentrates in the Tri-State region (final annual figures) 1950, by areas, in short tons

Area	Material Treated	Quantity Milled	Lead Concentrates		Zinc Concentrates	
			Quantity	Value	Quantity	Value
Kansas	Crude Ore	1,531,435	12,210	$1,832,599	50,038	$4,535,356
	Old Tailings	101,745	8	938	541	46,483
	Total	1,633,180	12,218	1,833,537	50,579	4,581,839
Southwestern Missouri	Crude Ore	318,383	1,233	192,847	12,222	1,097,129
	Old Tailings	10,500	2	396	102	8,617
	Total	328,883	1,235	193,243	12,324	1,105,746
Oklahoma	Crude Ore	2,850,880	27,216	4,213,552	83,541	7,941,124
	Old Tailings	855,681	45	5,328	3,575	306,218
	total	3,706,561	27,261	4,218,880	87,116	8,247,342
DISTRICT TOTAL		5,668,624	40,714	6,245,660	150,019	13,934,927

ANNUAL AREA REPORT
(ADVANCED SUMMARY)

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES - REGION V
2908 Colfax Avenue South
Minneapolis 8, Minnesota

For release Tuesday, June 26, 1951

METAL MINING IN THE STATES EAST OF THE MISSISSIPPI RIVER, 1950 - FINAL ANNUAL FIGURES

Final annual reports from producers of gold, silver, copper, lead and zinc in the States East of the Mississippi River show greater output in 1950 than in 1949 for all these metals except lead, according to the Minneapolis office of the Bureau of Mines, United States Department of the Interior.

Output in terms of recoverable metals was 2,090 fine ounces of gold, 113,355 fine ounces of silver, 40,105 short tons of copper, 8,178 short tons of lead, and 174,507 short tons of zinc. In 1949 the output was 1,967 ounces of gold, 101,612 ounces of silver, 32,955 tons of copper, 9,755 tons of lead, and 156,298 tons of zinc, indicating increases of 6 percent for gold, 12 percent for silver, 22 percent for copper, and 12 percent for zinc, and a decrease of 16 percent for lead. A total of 66 mines operated in the region in 1950 compared with 119 in 1949. This decrease in the number of mines is chiefly the result of the drop in the price of lead and zinc during the latter part of 1949, which continued into the first part of 1950. The lower prices made it uneconomical for many of the small companies and individuals to continue operation.

The prices used for calculating the value of the production in 1950 were $35 per fine ounce of gold and $0.9050505 per fine ounce of silver, and the average weighted yearly prices of $0.208 per pound of copper, $0.135 per pound of lead, $0.142 per pound of zinc. In 1949 the price used for gold was $35, silver $0.9050505, and the average weighted yearly price for copper was $0.197, lead $0.158 and zinc $0.124. The value of zinc output for New Jersey, the one exception to the foregoing statements, was the value of zinc recoverable as metal and oxide after adding transportation, smelting, and manufacturing charges. The value of the zinc production in New Jersey in 1950 was $17,258,637; in 1949 it was $14, 433,062.

Gold

In the States East of the Mississippi River most of the gold is recovered as a byproduct of mining copper and is recovered from slimes in the electrolytic refining of this copper. In 1950, production from the region was 2,090 fine ounces compared with 1,967 fine ounces in 1949. In Maryland one gold mine was operated intermittently during 1949 and 1950, producing 20 fine ounces of gold all of which was credited as 1950 production. The output of this mine constitutes all the production of gold from gold ores in the region during the year. No gold from placer operations was reported. In 1949 Georgia was credited with a production of 18 ounces of gold and North Carolina 13 ounces from gold mines. Of the total production of these two States 27 ounces were from placer mining operations and 4 ounces from lode mining.

Prepared by Samuel A. Gustavson, Economics Division, Region V, Minneapolis
Paul Zinner, Regional Director
Annual Area Report: Advanced Summary, No. 1.

Silver

Silver recovered from mines in States East of the Mississippi River totaled 113,355 fine ounces in 1950 compared with 101,612 fine ounces in 1949, an increase of 12 percent. All the silver was recovered as a byproduct of zinc-lead, lead-fluorspar, or copper ore. Producing states include Illinois (Southern), New York, Pennsylvania, Tennessee and Vermont. Small amounts of silver are contained in lead, zinc-lead, zinc or copper ores produced in other states in the region but this silver is not normally recovered.

Copper

The Calumet and Hecla Consolidated Copper Co., Copper Range Co., and Quincy Mining Co. in Michigan; Bethlehem Steel Co. in Pennsylvania; Tennessee Copper Co. in Tennessee; and the Vermont Copper Co. in Vermont, account for virtually all the copper produced in the States East of the Mississippi River. Total production in the region in 1950 was 40,105 short tons, an increase of 22 percent over the 32,955 tons produced in 1949. Continuous operation of mines in Michigan, chiefly those of Calumet and Hecla Consolidated Copper Co., accounted for much of this increase. During 1949 the Calumet and Hecla Consolidated Copper Co. ceased most of its operations for a portion of the year due to the relatively low price of copper. Output for Michigan increased 31 percent in 1950 over 1949. Output from Pennsylvania-Tennessee-Vermont increased 8 percent. The Copper Range Co. continued exploration and development of its White Pine ore body in Michigan. There were no labor strikes reported in this portion of the metal mining industry during the year. The annual weighted average price for copper was about 1.1 cents per pound higher in 1950 than in 1949.

Lead

Lead is produced in the region chiefly as a byproduct or coproduct of the mining for zinc or fluorspar. Output in 1950 was 8,178 short tons, a decrease of 16 percent from 1949. Most of the decrease can be attributed to a smaller output from fluorspar mines and the closing of the Patrick mine by the Alcoa Lead Corp. which went out of business in the latter part of 1949 in Southern Illinois. Zinc-lead mines in Wisconsin and Northern Illinois also recorded a decrease in production and some output was lost due to the closing on May 15 of the Universal Exploration Co. Hyatt mine in New York. However, increased output from the St. Joseph Lead Co. Balmat mine offset the loss from the Hyatt mine and the total output from New York state increased 13 percent. A labor strike at the Austinville mine of The New Jersey Zinc Co. from October 9 to November 23 resulted in a 2 percent decrease in the output of lead from mines in Virginia. Lead was produced from mines in Kentucky, Illinois, New York, Virginia and Wisconsin during 1950. Exploration resulted in the production of a small quantity of lead ore from mines near Embreeville, Tennessee.

Zinc

Zinc produced from mines in the States East of the Mississippi River increased 12 percent in 1950 over 1949. Output in 1950 was 174,507 short tons. In the region zinc was produced from mines in Kentucky, Illinois, New Jersey, New York, Tennessee, Virginia and Wisconsin. The principal producer was again The New Jersey Zinc Co., operating the Franklin and Sterling Hill mines in New Jersey and the Austinville mine in Virginia.

In Kentucky and Southern Illinois zinc is produced chiefly as a byproduct or coproduct with fluorspar. The principal producers in this area were the Ozark

Mahoning Co. and the Minerva Oil Co. During the latter part of the year the Alcoa Mining Co. began production and concentration of zinc ore from its newly developed Hutson mine in Kentucky. Output from the Kentucky-Southern Illinois area was 2 percent greater in 1950 than in 1949. New Jersey output was 8 percent greater than in 1949. The two producing mines, the Franklin and Sterling Hill operated continuously after resumption of work with the ending of the strike at the Palmerton, Pa. zinc smelter January 26. New York mines produced about the same quantity of zinc as in 1949, in spite of the closing of the Hyatt mine of the Universal Exploration Co. on May 15. The other producers in New York during 1950 were the Balmat and the Edwards mines operated by the St. Joseph Lead Co. Output of zinc from Tennessee mines increased 19 percent over 1949. This increase can be attributed to virtually continuous operation throughout the year by the leading producers and the reopening of the Athletic mine in August by the American Zinc Co. of Tennessee. The leading producers were the American Zinc Co. of Tennessee, operating the Athletic, Grasselli, Jarnigan and Mascot No. 2 mines; the Universal Exploration Co.; and the Tennessee Copper Co. Production of zinc decreased 6 percent in Virginia, chiefly due to a labor strike from October 9 to November 23 at the Austinville mine of The New Jersey Zinc Co. The Wisconsin and Northern Illinois area reported an increase of 50 percent in output of zinc in 1950 over 1949. Most of this increase can be attributed to the new operations of Calumet and Hecla Consolidated Copper Co. near Shullsburg, Wis. and the Eagle-Picher Mining & Smelting Co. near Galena, Ill. First shipments were made by these companies in September and April, 1949 respectively. Other producers in the area include the Dodgeville Mining Co., Dodgeville, Wis. (operations resumed in July); the Vinegar Hill Zinc Co., production at the company's new mill and mine near Shullsburg, Wis. and at the Andrews mine which began operation about December 10; and the Tri-State Zinc, Inc. in Illinois. The Eagle-Picher Mining & Smelting Co. and the Vinegar Hill Zinc Co. accept custom ore at their mills.

Mine production of gold, silver, copper, lead, and zinc in States East of the Mississippi River, 1950, by months, in terms of recoverable metals

Month	Gold (fine ounces)	Silver (fine ounces)	Copper (short tons)	Lead (short tons)	Zinc (short tons)
January	124	8,626	3,214	638	9,545
February	128	7,797	3,002	595	13,333
March	136	11,894	3,510	715	15,921
April	141	9,758	3,171	749	14,801
May	195	8,740	3,232	620	15,373
June	184	7,485	3,630	670	14,801
July	169	12,042	3,021	608	13,721
August	208	9,742	3,731	809	16,336
September	181	8,588	3,261	769	14,929
October	215	9,494	3,336	578	14,482
November	199	9,951	3,443	642	14,822
December	210	9,238	3,554	785	16,443
Total: 1950	2,090	113,355	40,105	8,178	174,507
1949	1,967	101,612	32,955	9,755	156,298

Mine production of gold, silver, copper, lead, and zinc in States east of the Mississippi River in 1950, by States, in terms of recoverable metals

State 1/	Mines producing		Ore and tailings (short tons)	Gold			Silver (all lode)	
				Fine ounces		Total value	Fine ounces	Value
	Lode	Placer		Lode	Placer			
Illinois	17	.....	2/756,010	.....	.....	.....	2,001	$1,811
Kentucky	7	.....	2/51,641	.....	.....	.....	.....	.....
Maryland	1	.....	55	20	.....	$700	.....	.....
Michigan	9	.....	4,386,474	.....	.....	.....	.....	.....
New Jersey	2	.....	376,600	.....	.....	.....	.....	.....
New York	3	.....	494,871	.....	.....	.....	32,628	29,530
Pennsylvania	1	.....	1,954,144	1,764	.....	61,740	10,563	9,560
Tennessee	12	.....	2,255,977	160	.....	5,600	39,958	36,164
Vermont	1	.....	245,350	146	.....	5,110	28,205	25,527
Virginia	2	.....	426,432	.....	.....	.....	.....	.....
Wisconsin	11	.....	205,727	.....	.....	.....	.....	.....
Total: 1950	66	.....	11,153,281	2,090	.....	73,150	113,355	102,592
1949	119	2	9,624,995	1,940	27	68,845	101,612	91,964

State 1/	Copper		Lead		Zinc		Total Value
	Short tons	Value	Short tons	Value	Short tons	Value	
Illinois	.....	.....	2,729	$736,830	26,982	$7,662,888	$8,401,529
Kentucky	.....	.....	66	17,820	731	207,604	225,424
Maryland	.....	.....	.....	.....	.....	.....	700
Michigan	25,608	$10,652,928	.....	.....	.....	.....	10,652,928
New Jersey	.....	.....	.....	.....	55,029	3/17,258,637	3/17,258,637
New York	.....	.....	1,484	400,680	38,321	10,883,164	11,313,374
Pennsylvania	(4)	(4)	.....	.....	.....	.....	4/71,300
Tennessee	4/14,497	4/6,030,752	113	30,510	35,326	10,032,584	4/16,135,610
Vermont	(4)	(4)	.....	.....	.....	.....	4/30,637
Virginia	.....	.....	3,254	878,580	12,396	3,520,464	4,399,044
Wisconsin	.....	.....	532	143,640	5,722	1,625,048	1,768,688
Total: 1950	40,105	16,683,680	8,178	2,208,060	174,507	51,190,389	70,257,871
1949	32,955	12,984,270	9,755	3,082,580	156,298	40,560,934	56,788,593

1/Total for 1949 includes 18 ounces of gold ($630) from Georgia and 13 ounces of gold ($455) from North Carolina; no production in Georgia or North Carolina in 1950.

2/Excludes lead-bearing material mined with fluorspar and from which some lead was recovered as a byproduct of the mining and milling of the fluorspar.

3/Estimated smelting value of recoverable zinc content of ore after freight, haulage, smelting, and manufacturing charges are added.

4/Data for copper in Pennsylvania and Vermont included with Tennessee; Bureau of Mines not at liberty to publish separate figures.

MINERAL INDUSTRY SURVEYS

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF MINES

OSCAR L. CHAPMAN, Secretary JAMES A. BOYD, Director

FINAL ANNUAL FIGURES - PLEASE FILE FOR REFERENCE UNTIL PRINTED REPORT IS AVAILABLE

FOR RELEASE JUNE 25, 1951

Annual Area Report
Advance Summary

METAL MINING IN COLORADO, 1950 - FINAL ANNUAL FIGURES

Although fewer mines producing gold, silver, copper, lead, and zinc operated in Colorado in 1950 than in 1949, the average output per mine, measured in value of recovered metals, was the highest since the counting of mines on a comparable basis began in 1904, according to the Denver Office of the Bureau of Mines, United States Department of the Interior. With 232 mines producing in 1950, the total value of the output of the five metals was $29,323,268 compared with 282 mines and $27,474,322 in 1949 and a yearly average of 688 mines and $25,070,753 from 1904 to 1948.

The value of each metal in 1950, with comparable figures for 1949 in parentheses, was as follows: Gold, $4,563,650 ($3,591,630); silver, $3,160,688 ($2,620,018); copper, $1,306,656 ($946,782); lead, $7,291,890 ($8,485,548); and zinc, $13,000,384 ($11,830,344). The prices used per ounce of gold and silver were $35 and $0.9050505, respectively, in both years. The average weighted yearly price per pound of copper increased from $0.197 in 1949 to $0.208 in 1950; lead decreased from $0.158 to $0.135; and zinc increased from $0.124 to $0.142 (highest on record). The highest official prices quoted during 1950, which were also the year-end quotations, were $0.245 for copper (delivered), $0.170 for lead (New York), and $0.175 for zinc (East St. Louis).

The quantity of gold produced increased from 102,618 fine ounces in 1949 to 130,390 in 1950, silver from 2,894,866 fine ounces to 3,492,278, copper from 2,403 short tons to 3,141, and lead from 26,853 short tons to 27,007; zinc production decreased from 47,703 short tons to 45,776 tons.

Except for two placer operations, continuous mining centered in the areas producing chiefly base metals or gold and silver along with base metals. Output from the famous Cripple Creek gold district was the smallest since mining began there in 1891, and several other important gold districts had little or no output.

Prepared by A. J. Martin, Economics Division, Region IV.

Mine production of gold, silver, copper, lead, and zinc in Colorado in 1950, by months, in terms of recovered metals

Month	Gold (fine ounces)	Silver (fine ounces)	Copper (short tons)	Lead (short tons)	Zinc (short tons)
January.....	7,258	235,788	233	1,921	3,484
February.....	8,321	231,238	222	2,136	4,003
March.....	10,139	258,814	234	1,963	3,892
April.....	10,897	312,340	305	2,237	3,650
May.....	13,730	352,846	285	2,007	3,728
June.....	10,902	322,370	285	2,027	3,167
July.....	9,118	254,629	223	2,120	3,028
August.....	12,463	336,642	322	2,355	3,821
September.....	12,091	329,404	295	2,501	4,190
October.....	12,136	297,565	270	2,651	4,231
November.....	11,758	290,359	234	2,528	4,321
December.....	11,577	270,283	233	2,561	4,261
Total: 1950.....	130,390	3,492,278	3,141	27,007	45,776
1949.....	102,618	2,894,886	2,403	26,853	47,703

Mine production of gold, silver, copper, lead, and zinc in Colorado in 1950, by counties, in terms of recovered metals

	Mines producing		Ore sold or treated (short tons)	Gold (lode and placer)		Silver (lode and placer	
	Lode	Placer		Fine ounces	Value	Fine ounces	Value
Adams.....	----	3	----------	909	$31,815	137	$124
Boulder.....	10	1	9,968	1,653	57,855	76,526	69,260
Chaffee.....	7	------	528	217	7,595	2,801	2,535
Clear Creek..	30	------	34,008	3,298	115,430	84,245	76,246
Custer.....	3	------	33	1	35	348	315
Dolores.....	5	------	14,424	71	2,485	72,735	65,829
Eagle.....	3	------	224,376	5,636	197,260	669,461	605,896
Fremont.....	1	------	33	1	35	21	19
Gilpin.....	7	12	110	84	2,940	315	285
Gunnison.....	11	------	12,970	95	3,325	73,281	66,323
Hinsdale.....	6	------	183	23	805	1,717	1,554
Jefferson....	----	5	----------	137	4,795	21	19
Lake.....	18	2	160,622	21,008	735,280	280,633	253,937
La Plata.....	2	------	16	61	2,135	1,443	1,306
Larimer.....	1	------	8	11	385	19	17
Mineral.....	2	------	47,072	803	28,105	345,247	312,466
Montezuma....	1	------	111	215	7,525	1,180	1,068
Ouray.....	18	------	49,827	5,000	175,000	238,021	215,421
Park.....	6	3	1,891	16,321	571,235	11,363	10,284
Pitkin.....	4	------	3,204	14	490	30,869	27,938
Saguache.....	6	------	21,967	689	24,115	30,342	27,461
San Juan.....	25	------	278,152	13,902	486,570	596,149	539,545
San Miguel...	9	1	464,384	53,618	1,876,630	820,132	742,261
Summit.....	23	3	46,203	844	29,540	153,334	138,775
Teller.....	4	------	2,654	5,779	202,265	1,938	1,754
Total: 1950.	202	30	1,372,744	130,390	4,563,650	3,492,278	3,160,688
1949.	255	27	1,262,355	102,618	3,591,630	2,894,886	2,620,018

Mine production by counties - continued

County	Copper		Lead		Zinc		Total value
	Short tons	Value	Short tons	Value	Short tons	Value	
Adams.....	-------	---------	--------	---------	--------	---------	$ 31,939
Boulder....	14	$5,824	155	$41,850	3	$852	175,641
Chaffee....	1	416	79	21,330	2	568	32,444
Clear Creek	13	5,408	314	84,780	152	43,168	325,032
Custer.....	-------	---------	5	1,350	--------	---------	1,700
Dolores....	35	14,560	1,138	307,260	1,365	387,660	777,794
Eagle.....	326	135,616	2,110	569,700	19,956	5,667,504	7,175,976
Fremont....	-------	---------	--------	---------	4	1,136	1,190
Gilpin.....	-------	---------	3	810	--------	---------	4,035
Gunnison...	20	8,320	697	188,190	995	282,580	548,738
Hinsdale ..	1	416	23	6,210	5	1,420	10,405
Jefferson..	-------	---------	--------	---------	--------	---------	4,814
Lake.....	152	63,232	6,392	1,725,840	7,392	2,099,328	4,877,667
La Plata...	-------	---------	--------	---------	--------	---------	3,441
Larimer....	-------	---------	--------	---------	--------	---------	402
Mineral....	34	14,144	1,422	383,940	873	247,932	986,587
Montezuma..	1	416	--------	---------	--------	---------	9,009
Ouray.....	190	79,040	1,100	297,000	909	258,156	1,024,617
Park.....	14	5,824	58	15,660	255	72,420	675,423
Pitkin.....	-------	---------	67	18,090	21	5,964	52,482
Saguache...	24	9,984	404	109,080	232	65,888	236,528
San Juan...	345	143,520	3,392	915,840	1,295	367,780	2,453,255
San Miguel.	1,953	812,448	7,937	2,142,990	8,881	2,522,204	8,096,533
Summitt....	18	7,488	1,711	461,970	3,436	975,824	1,613,597
Teller.....	-------	---------	--------	---------	--------	---------	204,019
Total: 1950	3,141	1,306,656	27,007	7,291,890	45,776	13,000,384	29,323,268
1949	2,403	946,782	26,853	8,485,548	47,703	11,830,344	27,474,322

LEADING COUNTIES

San Miguel County ranked first in production of gold, silver, copper, and lead, and second in zinc; its output of the three base metals was higher than in any previous year, and that of gold and silver was the largest in more than 20 years. The total value of the five metals was $8,096,533 compared with $5,597,424 in 1949. The principal producers were the Treasury Tunnel-Black Bear-Ajax group of the Idarado Mining Co. and the Smuggler Union-Montana group of Telluride Mines, Inc., both of which expanded operations in 1950. The Silver Bell Mines Co. group was a substantial producer.

Eagle County ranked first in zinc production and second in silver. The total value of the county output of the five metals under review was $7,175,976 compared with $5,135,622 in 1949. The large Eagle mine of the New Jersey Zinc Co., Empire Zinc Division, operated continuously.

Lake County ranked second in lead and gold production and third in zinc; its output of gold, silver, copper, lead, and zinc was valued at $4,877,667 compared with $4,083,288 in 1949. The Resurrection Mining Co. group of mines opened by the Yak tunnel was much the largest producer of all five metals.

San Juan County's output of the five metals was valued at $2,453,255 compared with $2,559,262 in 1949. The Shenandoah-Dives Mining Co., operating its Shenandoah-Dives-Mayflower group and the leased Silver Lake group, continued to be the largest producer in this county.

In Summit County the Lucky Strike-Victory-Wilson McKinley group at Kokomo, operated continuously by the American Smelting & Refining Co. since September 1944, closed April 19, 1950 but was still the largest producer of gold, silver, copper, lead, and zinc in the county in 1950. The county output of the five metals was valued at $1,613,597 compared with $4,303,073 in 1949.

In Ouray County, which produced metals valued at $1,024,617 in 1950 compared with $1,175,434 in 1949, the King Lease, Inc., operating the Camp Bird mine, was the largest producer.

Other counties producing gold, silver, copper, lead, and zinc valued altogether at more than $500,000 in 1950, with the name of the principal producer in parentheses, were: Mineral, $986,587 (Emperius Mining Co. group); Park, $675,423 (South Platte Dredging Co. gold dredge); Dolores, $777,794 (Rico Argentine Mining Co. group); and Gunnison, $548,738 (Callahan Zinc-Lead Co. Akron-Erie group).

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1297 N. 51st Street
East St. Louis, Ill.
Telephone Hemlock 2940

OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE
491594		Sample 96-98 Foot level of shaft	16.94				

ENGINEERING
INSPECTIONS and TESTS

The Bruce Williams Laboratories

ESTABLISHED 1898
MAIN OFFICES
620 Joplin Street
JOPLIN, MISSOURI

INDUSTRIAL and ANALYTICAL
CHEMISTS

Ed Zimmerman 7/1/46

109 S. Connell Street
Picher, Oklahoma
25M 7-43 186994

423 East Main Street
Batesville, Arkansas

OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE
488574		Sample Maumee Shaft 90'-92 level	11.20%				

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OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE
488574		Sample Maumee Shaft 90'-92 level					11.20%

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109 S. Connell Street
Picher, Oklahoma
Telephone 110

~~Ed Zimmerman~~ ~~11/27/46~~

1297 N. 51st Street
East St. Louis, Ill.
Telephone Hemlock 2940

OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE
497281	Naumee Shaft	100 Ft. Depth	11.56				

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Mr. Ed Zimmerman 7-11-46

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Picher, Oklahoma
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423 East Main Street
Batesville, Arkansas

OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE
488973		Sample by Zimmerman Fine Dirt 90-92'	2.76				

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Ed Zimmerman 7/22/46
Maumee Shaft

423 East Main Street
Batesville, Arkansas

OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE
489141	95-97'		13.60				

Mr M. P. Cayce
Farmington Mo
Copy to Zimmerman

ENGINEERS
INSPECTIONS and TESTS

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Ed Zimmerman 9/2/46

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OUR NO.	MARK	DESCRIPTION	ZINC	IRON	LEAD	LIME	MOISTURE
491594		Sample 96-98 Foot level of shaft	16.94				