DMEA Form 9
Rev. 6/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE — Idm-E NO. 936 — DMEA NO. 4119

Application
- [ ] Denied
- [ ] Withdrawn

Contract
- [X] Terminated - Not Certified
- [ ] Terminated - Certified
- [ ] Cancelled
- [X] Royalty Agreement

The records contained in this file are marked (x) and arranged in this order:

Folder No. 1:

Left Side

- [X] Royalty Audits
- [ ] Certification of Discovery
- [X] Closing Letter 5-21-58
- [X] Cost Audits - 5-13-57
- [ ] Termination Notice or Agreement 2-28-57
- [ ] Recision Notice
- [ ] Assignment of Contract
- [X] Contract Amendments
- [X] Contract with all exhibits and annexes
- [X] Owner's Consent to Lien and Subordination Agreement
- [X] Application and attachments

Right Side

- [X] Project summary (final) 3-18-59
- [X] Work Completed analysis (final)
- All other material filed in chronological order including the following reports if checked:
- [ ] Field Team Semi-Annual Report for Certified Project
- [X] Final Field Team Report (Tab) 12-18-58
- [X] Operator's Final Report (Tab) 4/16/57
- [ ] Interim Field Team Reports
- [ ] Operator's monthly reports and all attachments
- [X] On-site Exam Report (Tab)
- [ ] Settlement Sheets
- [ ] Drill Logs

Additional Folders:

Left Side

Folders No. "2" : Reports
- [ ] Analysis of Semi-Annual Inspection Reports
- [ ] Project Summary (Interim) by DMEA Engineers

Right Side

- [X] Field Team Semi-Annual Report for Certified Project
- [X] Field Team Interim Reports
- [X] Operator's Monthly Reports with transmittal, narrative and maps.
- [X] - 1986 Write off - Closing Records

Folders No. _____ : Maps (Use pocket folder or envelope)

Folders No. _____ : Settlement Sheets

Folders No. _____ : Drill Logs

Folders No. _____ : Royalty material

17963

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
5/16	Arimel	500
5/16	Talbot	800
5/21	Jeffrey	130
5/19	Jones	130
5/21	Jones	110
	Mittendorf	100
		220
		500

5/19 Kiilsgaard (130)

INTERIOR DEPT.
MAY 20 1958
SOLICITOR

MAY 21 1958

Mr. S. S. Goodwin, Vice President
and Manager of Mines
The New Jersey Zinc Company
160 Front Street
New York 38, New York

App'd. Sol. Off.

Re: Docket No. DMEA-4119 (Zinc)
The New Jersey Zinc Company
Talbot Area
Jefferson and Hamblen Counties,
Tennessee
Contract No. Idm-E936

Dear Mr. Goodwin:

Reference is made to your terminated exploration contract with the Government.

We sincerely regret that the work performed did not result in a certification of discovery or development under the provisions of the contract. Your attention is called to item 4 of the Termination Agreement dated April 19, 1957, covering reacquisition of lands covered by the contract. Also to the contract provisions which require the Operator to keep and preserve records for the period indicated.

Your interest in the Defense Minerals Exploration Administration exploration program and participation therein are fully appreciated.

Sincerely yours,

C. O. Mittendorf

Administrator

WRGriswold/er 5/16/58
Copy to: Docket
Amdr R File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Mr. Chambers, DMEA
Region V (2)
Chron.

8623

OFFICE OF MINERALS EXPLORATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF ROYALTY REVIEW

I have reviewed the files of the Washington office pertaining to Contract Idm-E936, Docket DMEA-4119 (zinc), dated March 30, 1956, with

The New Jersey Zinc Company
160 Front Street
New York 38, New York
and
Jefferson City, Tennessee

for the purpose of determining the amount of royalty payable to the U. S. Government on sales of minerals from property referred to as the Morristown Sector-Talbott Area located in Jefferson and Hamblen Counties, Tennessee, during the period March 30, 1956, through June 30, 1959.

In accordance with paragraph 4 of a Termination Agreement dated April 19, 1957, royalty is payable on all minerals produced from the land described in Article 2 of the contract, should the Operator or any affiliate or subsidiary hold or reacquire an interest in any of such land or production therefrom, for a period of 30 years from the date of the contract or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first. A Report of Review dated May 13, 1957, indicated accepted costs under the exploration contract amounting to $71,331.62 with the Government's contribution on a 50 percent basis being $35,665.81.

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

This review established no sales subject to the Government's royalty for the period. Accordingly, as of June 30, 1959, the royalty account of this project was found to be:

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

March 20, 1962

E. D. Talbert, OME Auditor

STATUS OF PROJECT, SCOPE OF REVIEW
AND REASONS THEREFOR

Paragraph 4 of the Termination Agreement provides that, should the Operator or an affiliate or subsidiary hold or reacquire an interest in any of the land under the contract or any production of minerals therefrom, the Operator shall pay, as principal if the producer or as surety if not the producer, a percentage royalty on all minerals mined therefrom. The minerals specifically include limestone and dolomite products resulting from the processing of ore.

At the time the contract was executed the Operator was in possession of the mineral rights in the land thereunder by virtue of options to purchase such rights in 21 tracts aggregating 2,244 acres. Amendments Nos. 1 and 3 added 21 tracts aggregating 1,185.6 acres. Generally, such options were for a period of one year with extension privileges. The usual requirement for execution of Consents to Lien was waived.

Exploration work under the contract was terminated on February 28, 1957, and the Operator allowed its options to expire. No ores were produced during the period of the exploration work and examinations of the property by field representatives through the period covered by this review disclosed no further activity on the property.

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

(1) No ores were produced during the period covered by this review;

(2) The property has been inactive since February 1957; and

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF REVIEW

I have reviewed the Monthly Reports of:

The New Jersey Zinc Company
Jefferson City, Tennessee
and
160 Front Street
New York 38, New York

pertaining to Exploration Project Contract No. Idm-2936, DMEA No. 4119, including Amendment Nos. 1, 2, and 3, and a Termination Agreement dated April 19, 1957, for the months of May 1956 to February 1957, inclusive, covering a project for the exploration of zinc on property, known as the Morristown Sector, Talbott Area, located in Jefferson and Hamblen Counties, Tennessee.

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

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

(a) the Monthly Reports were supported by documentary proof of that portion ($61,945.70) of the costs which covered work performed at unit rates under independent contract (per summary attached);
(b) the balance ($9,385.92) of the costs incurred were under a contract provision for payment by the Government on the basis of fixed unit costs of work actually performed; and
(c) the administrative cost to the Government of an audit would be excessive in relation to the estimated amount of possible disallowances thereunder.

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

Total cost as billed by Contractor		$71,331.62
Exceptions:		
Prior to this review	$ -0-	
Herewith	-0-	-0-
Total Accepted Cost		$71,331.62

The contract calls for a 50 percent participation of exploration expenses by the United States Government. Therefore, payment to the contractor by the Government in the amount of Thirty-five thousand six hundred sixty-five and 81/100 Dollars

$35,665.81

is considered valid and proper, provided that the Regional Executive Officer, the Administrator, or other competent official has accepted or will accept the project as having otherwise met the terms of the contract.

May 13, 1957

E. D. Talbert, Auditor

Summary of L. J. Longyear Company's Invoices

[illegible]

Idaho-5236 | **The New Jersey Zinc Company** | **DMEA-4119**

	Drilling Feet	Drilling Rate	Water Supply Feet	Water Supply Rate	Total Costs
Overburden	439	$2.00	251	$.05	
			10	.10	$ 863.55
NX to 1000'	95	2.00	41	.05	
			10	.10	193.05
BX to 1000'	231	2.00	117	.05	
			14	.10	469.25
NXWL to 1000'	20,287	2.00	10,121	.05	
			847	.10	41,164.75
AXWL to 1000'	950	2.00	-	-	1,900.00
BX 1000' - 1500'	58	2.50	58	.05	147.90
NXWL 1000' - 1500'	5,108	2.25	2,893	.05	12,637.65
AX 1000' - 1500'	86	2.25	-	-	194.00
	379	2.50	379	.05	966.45
AXWL 1000' - 1500'	119	2.25	-	-	267.75
NXWL over 1500'	1,269	2.50	1,180	.05	3,232.50
AX over 1500'	287	3.00	297	.05	875.85
Sub-totals*	29,306		16,218		$61,945.70
Hauling and Capping					152.75
Hole Survey					5.00
Total					$62,103.45

*Claimed by Operator and accepted by this review.

Office of the Sec'y
DMEA
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Government's copy

Peter
Dunger
Amend
Talbut
Selfridge
Johnson

TERMINATION AGREEMENT

It is agreed this 19th day of April, 1957, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and The New Jersey Zinc Company, hereinafter called the "Operator," parties to that certain Exploration Project Contract Idm-E936 (Docket No. DMEA-4119), dated March 30, 1956, as amended, hereinafter called the "Contract," that:

1. Effective February 28, 1957, the Contract and all obligations of the parties thereunder, except as otherwise herein expressly provided, shall be and are hereby terminated.

2. The Government shall contribute only to the allowable costs and fixed unit costs of work performed prior to said effective date.

3. The Operator shall promptly perform all winding-up and settlement actions provided for in the Contract, including the rendering of the final report and final account, and shall keep and preserve records as required by the Contract.

4. Should the Operator or any affiliate or subsidiary hold or reacquire an interest in any of the land described in Annex I of the Contract or any production of minerals therefrom, the Operator shall pay royalty to the Government as set forth in Article 8 of the Contract, as amended by provisions (d) and (e) of Article 13, on any production made from the date such interest is acquired, to the extent of the interest held, the same as though certification of discovery or development had been made by the Government.

5. The Operator hereby releases and agrees to save the Government harmless from all claims or demands under or arising out of said Contract, except as otherwise provided in this termination agreement.

IN WITNESS WHEREOF, these parties have executed this agreement as of the day and year first above written.

THE UNITED STATES OF AMERICA

By C. Mittendorf
Administrator, Defense Minerals
Exploration Administration

THE NEW JERSEY ZINC COMPANY

By Lindsay F. Johnson

Title Vice President

Docket Copy

EXPLORATION PROJECT CONTRACT
THE NEW JERSEY ZINC COMPANY
DOCKET No. DMEA-4119

AMENDMENT No.3

It is agreed this 15th day of November, 1956, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and the New Jersey Zinc Company, that Exploration Project Contract Idm-E936 (Docket No. DMEA-4119), dated March 30, 1956, and amended May 7 and June 1, 1956 is further amended as follows:

Effective as of the date of the original contract, March 30, 1956, there is hereby added to the land referred to in Article 2 of the contract form, and described in Annex I by reference to the property map, Figure 2, the following parcels of land similarly held under option agreement:

Name of Property Owner	Acreage
Greene, Horace	19
Breeden, Mrs. Oma	76
Massengill, W. C.	45
Massengill, Mrs. Roe	9
Haag, Frank	15
Ford, Mrs. Mamie	50
Kinsler, Edward	15
Kinsler, Mrs. Fannie	20
Moore, Austin B.	18
Smith, Lee	30

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

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By: _____
Executive Officer, Defense Minerals Exploration Administration, Region V

THE NEW JERSEY ZINC COMPANY

By: _____

Title: VICE PRESIDENT

Exhibit "A"

Copies of Option Contract and Agreement

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DATE	INITIALS	CODE

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 30th day of July, 1956, by and between [illegible], [illegible] and husband, [illegible], and [illegible] [illegible], individually, and as mother and natural guardian for and on behalf of [illegible] and [illegible], minors, of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

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WITNESSETH

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond July 30, 1959, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises:

SITUATED in the Ninth Civil District of Jefferson County, Tennessee, adjoining the lands of Walker, Lagrone, Robert Smith, Hugh Sullivan, Watkins and possibly others, and more particularly described as follows:

[illegible] pile of a rock planted in the form of the [illegible] leading left to Walcott and West to Jefferson City, the same is L. T. Watkins' and Mr. Sunderland's rock corner; thence with Sunderland's line North 3 deg. and 45' West 73 [illegible] to a stake [illegible] (referred to as the "pine" corner in the Sunderland [illegible]); thence [illegible] 45 deg. and 30' East about 25½ rods to a pile of rock [illegible] Brown's line; thence 23-3/4 deg. East 37 rods and 20 links to a [illegible] in the aforesaid line and corner in the dividing line between lots 5 and 6 of the Crawford survey; thence with said dividing line between L. to 5 and 6 South 45½ deg. East 47-3/4 rods to a planted rock in L. T. Watkins' line and corner to lot 5 of the survey of Bruce W. L. G. Watkins' 12 acre tract 3 deg. and 45' East 29½ rods to the [illegible], containing 19-1/8 acre, more or less. [illegible] and 4 acres thereof to be reserved to Walter [illegible] Cooper Rosenfeld.

We are acquired title to the above described premises by the following deeds, of record in the Cole County Recorder's Office, respectively: (1) Deed of Exchange L. Bryan Bruce, et vir, dated January 20, 1953 deed book 107, page 3; and (2) Deed of [illegible] Brown, et al, dated July 17, 1955, deed book [illegible], page [illegible]. Also, George [illegible] J. Brown, also acquired interest in Inheritance from Odom Brown, deceased.

Together with the right to prospect for, mine, mill and remove the said water rights, the free and uninterrupted [illegible] of express and express, in accordance with the terms of an agreement of even date herewith, a copy thereof to be attached hereto.

And the parties of the first part also grant to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned agreement.

The terms [illegible] subscription contract and [illegible] are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and inure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

[illegible] NOW, the minors are parties of the first part [illegible] executed set their signatures this day, [illegible] first above written.

Horace Brown
PARENT PARENT

Eugene Greene Lowe
PARENT PARENT

Clarence Lowe
PARENT PARENT

Fanny L. Brown
Fanny L. Brown, [illegible] individually, also as natural guardian for [illegible] minor children and [illegible] minors.

STATE OF [illegible]

COUNTY OF [illegible]

Personally appeared before me, Ben Callaet, a notary public in and for said County and State, the [illegible] named Horace Brown, Parent Brown, Eugene Greene Lowe and Clarence Lowe and husband Fanny L. Brown, [illegible] individually and as natural guardian for and on behalf of minor children and [illegible] minors, [illegible] who I am personally acquainted, and who acknowledged that they executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 8th day of Sept., 1966.

Ben Callaet
Notary Public.

Commission Expires: 4-16-58

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 27th day of August, [illegible], by and between [illegible] and [illegible], of Jefferson County, Tennessee, hereinafter called the [illegible], [illegible] party of the first part, and [illegible], [illegible] to do business in the State of [illegible], [illegible] party of the second part, hereinafter called the [illegible].

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WITNESSETH

That for and in consideration of the sum of [illegible] Dollars and other good and valuable consideration to them in hand paid, the receipt of which is hereby acknowledged, the parties of the first part have this day granted unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for a further period not to extend beyond August 27, 19[illegible], upon payment of a sum of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including zinc, lead, [illegible], in, under or on the following described premises:

SITUATED in the ninth civil district of Jefferson County, Tennessee, consisting of two separate tracts of land, and bounded and described as follows:

TRACT ONE: [illegible] on a rock on the road [illegible] 1. [illegible]; thence [illegible] 3-3/4 [illegible] 3-1/2 poles to a rock [illegible] [illegible]; thence [illegible] 13-1/2 [illegible] 1 [illegible] to a [illegible] post oak, [illegible] and [illegible] corner; thence [illegible] 30-3/4 poles [illegible] post; thence [illegible] 20 poles to a post [illegible] 10-1/2 poles to a post, [illegible] 4-3/4 [illegible] 16-1/2 [illegible] 20 poles to a [illegible] 31-1/2 [illegible] 22-3/4 [illegible] 27 [illegible] 22-1/2 [illegible] 4-3/4 [illegible] 13-3/4 [illegible] 15-3/4 [illegible] 1.1 [illegible] 10-3/4 poles to a post [illegible] 20-1/2 [illegible] 75.1 acres.

[illegible] the same property conveyed to [illegible] by [illegible] F. Hunt and wife, Anna Hunt, by deed dated March 11, 1919, recorded March 12, 1919, in deed [illegible] Page 195, of Rusk [illegible] Jefferson County, [illegible] which deed [illegible] reference is made [illegible].

TRACT TWO: [illegible] 200 [illegible] 10-3/4 [illegible] 15-1/2 poles to a rock in [illegible] line; thence [illegible] 4-1/2 feet to a post in the northeastern [illegible] of the [illegible] 17 poles to a post; thence [illegible] 17 poles 13-2/3 feet to a rock corner at the [illegible] of the [illegible] Thence [illegible] said [illegible] 4-1/2 [illegible] in the [illegible] of the [illegible]; thence [illegible] corner, containing [illegible] acre, be the same more or less.

[illegible] the same property conveyed to [illegible] by [illegible] F. [illegible] and wife, [illegible], by deed dated December 11, 1920, recorded [illegible] 2, in deed [illegible] Page 27, of the [illegible] Jefferson County, [illegible] to which deed specific reference is hereby made.

[illegible] is excluded, however, from the above described property by deeds more in [illegible], conveyed to [illegible].

2. Together with the right to prosecute for, have, hold and enjoy the same; under rights, the free and uninterrupted right of ingress and egress, in accordance with the terms of an agreement of even date herewith entered into between the parties hereto.

The two parties of the first part are also given to the party of the second part during said period the right to prospect for, explore and drill for the minerals, metals, oil, gas, sub-surface storage and rocks on any land, including streams, at, under or on all of said premises, including the land or water boundaries, as may be reserve as rights, in accordance with the terms of the last mentioned agreement. The terms of this option contract and agreement are fully set out in the agreement of even date herewith which is here referred to and made a part hereof as fully set out at length.

This contract and agreement shall be binding and inure to the benefit of the parties hereto, their heirs, successors, executors and assigns.

In witness whereof, the owners and parties of the first part have hereunto set their hands and seals the day and date first above written.

Ona Dawe Breeden
Ona Dawe Breeden

Beal H. Breeden
Beal H. Breeden

[illegible]

[illegible]

Personally appeared before me, B. J. Kennedy Jr.
a notary public in and for said County and State, the officers
herein mentioned, [illegible] [illegible], [illegible]
with who[illegible]. I am personally acquainted, and [illegible] acknowledged,
that they executed the foregoing [illegible] and [illegible] for the
purposes therein mentioned and [illegible].

Witness my hand and official seal on office on this 4th
day of September 1956.

B. J. Kennedy Jr.
Notary Public.

Commission expires: apr-20, 1957

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 1st day of September, 1956, by and between W. C. MASSINGILL and wife, ELSIE MASSINGILL, of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

WITNESSETH

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant to the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond September 1, 1959, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in under or on the following described premises:

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DATE	INITIALS	CODE

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, adjoining the lands of W. B. Watkins, Roe Massingill, Robert Smith, Sherman Hazelwood, J. C. Cline and Porter Massingill, and more particularly described as follows:

> BEGINNING on a cedar on the northwest corner; thence S. 85-3/4 E. 54 poles to a rock corner to Garrett; thence S. 1-1/2 W. 129 poles to a stake in E. R. Walker's line; thence S. 82 deg. W. 52-1/2 poles to a rock, corner to D. L. Butler; thence N. 1-1/2 deg. 53 poles to a planted rock; thence S. 71 deg. W. 2-1/2 poles to a planted rock; thence N. 1-1/2 deg.

L. 56 [illegible] to the BEGINNING, containing 18 acres, more or less.

Owners acquired title to the above described premises by Deed of Paul McCurry and wife, Queenie McCurry, dated January 18, 1944, and of record in the Register's Office for Jefferson County, Tennessee, in Deed Book 45, Page 91.

Together with the right to prospect for, mine, drill and remove the sand, water rights, the land and mineral space right of ingress and egress, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto.

And the parties of the first part also grant to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including Manganese, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples in accordance with the terms of the last mentioned agreement. The terms of this option lease and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures the day and date first above written.

W. C. Massingill
W. C. Massingill

Elsie Massingill
Elsie Massingill

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett a Notary Public in and for said County and State, the within named bargainors, W. C. MASSENGILL and wife, ELSIE MASSENGILL, with whom I am personally acquainted, and who acknowledged that they executed the foregoing instrument for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 1st day of September, 1956.

Ben S Catlett
Notary Public.

Commission Expires: 4-16-58

OFFICIAL FILE COPY
D M E A
RECEIVED MAY 3 1957

DATE	INITIALS	CODE

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into upon this 8th day of September, 1956, by and between, MRS. ROB F. (MARTHA) MASENGILL, of Jefferson County, Tennessee, hereinafter called the Owner, party of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

OFFICIAL FILE COPY
DMEA
RECEIVED MAY 3 1957

DATE	INITIALS	CODE

WITNESSETH

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the party of the first part grants unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond September 8th 1958, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or upon the following described premises:

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, and being a certain tract of land lying and being on the North side of a public road leading from Chuckey Pike to the William Chandler, formerly T. C. Barker, home farm, and being all of the land owned by the party of the first part, located on the north side of the said road, bounded and described as follows:

On the North by the lands of Britt Watkins;
On the East by the property of Mrs. Bertie Cameron;
On the South by the center of the aforesaid road, the line of Robert E Smith and wife; and
on the West by the land of Will C. Masengill

Owner acquired title by Deed of Robert L. Smith and wife, Willie Mae Smith, dated April 15, 1946, and of record in the Register's Office for Jefferson County, Tennessee, in Deed Book 93, Page 541.

Together with the right to prospect for, mine, mill and remove the same; water rights, the free and unimpeded right of ingress and egress, in accordance with the terms of an agreement of even date herewith entered into between the parties hereto.

And the party of the first part also grants to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples in accordance with the terms of the last mentioned agreement. The terms of this option Contract and Agreement are fully set out in an Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof, shall be binding, upon and inure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owner and party of the first part has hereunto set her signature on the day and date first above written.

Mrs. Rae N. Carter Massengill

Mrs. Rae N. (Carter) Massengill

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, _____, a Notary Public in and for said County and State, the within named bargainor, MRS. ROSE M. (CARTER) MASENGILL, with whom I am personally acquainted and who acknowledged that she executed the foregoing instrument for the purposes therein contained and expressed.

Witness my hand and official seal at office on this _____ day of September, 19__.

Notary Public.

Commission Expires:

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 15th day of September, 1956, by and between FRANK HAAG and wife, OMA HAAG, of Jefferson County, Tennessee, hereinafter called the Owners parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

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DATE	INITIALS	CODE

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond September 15, 1959, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rock of any kind, including limestone, in, under or on the following described premises:

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, and bounded and described as follows:

> BEGINNING on a rock near roaring cave, a corner with J. P. Knowling; thence S. 47-1/2 deg. W. running through the Elm Sink 65 P. to a rock, corner with Knowling with his line N. 28-3/4 degrees E. 40 P. to a hickory and rock, corner with same, with same N. 52-1/4 degrees E. 53 P. to a rock in a road, with road N. 81-1/2 degrees 15 P. and 9 links to a rock in same a corner with Lot No. 2; thence with line of same S. 51 degrees E. 54-1/4 P. to a rock in James Knight's line; thence with his line S. 47-1/2 W. 22 P. to rock his corner with his line N. 31-1/2 W.

10 P. to a pine stump and rock on a ridge; thence S. 8[illegible] degrees W. 41 P. to a post-oak [illegible]rowling's corner; thence N. 30-1/4 degrees W. 13-3/4 P. to the BEGINNING, containing 15 acres, more or less. Being the lot of land run off and platted by E. Horner the 20th day of August, 1904.

Being the same property conveyed to Frank Haag and wife, Oma Haag, by Deed of Mary E. Walker Smith, et al., dated August 9, 1956, and of record in the Register's Office for Jefferson County, Tennessee, in Deed Book 112, Page 193, to which reference is here made.

2. Together with the right to prospect for, mine, mill and remove the same; water rights, the free and uninterrupted right of ingress and egress, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto.

And the parties of the first part also grant to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned Agreement. The terms of this option Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures the day and date first above written.

Frank Haag

Frank Haag

Oma Haag

Oma Haag

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, B. J. Ramsey Jr., a Notary Public, in and for said County and State, the within named bargainors, FRANK HAAG AND WIFE, OMA HAAG, with whom I am personally acquainted, and who acknowledged, that they executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 15-th day of September, 1956.

B. J. Ramsey Jr.
Notary Public.

Commission Expires: 4-20-57

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DATE	INITIALS	CODE

CONTRACT AND AGREEMENT

This CONTRACT and AGREEMENT made and entered into on this [illegible] day of [illegible], by and between [illegible] (FILLOWS), [illegible] party of [illegible] [illegible] party, [illegible] party [illegible] Company.

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DATE	INITIALS	CODE

[illegible]

[illegible] receipt of [illegible] [illegible] exclusive right and option to purchase [illegible] materials, and rights in and to [illegible] under or on the following described premises:

SITUATED in the [illegible] Civil District of Jefferson County, Tennessee, bounded and described as follows:

> BEGINNING at a rock planted near the Roaring Cave formerly a white oak; thence S. 9- [illegible] poles to a rock planted; thence S. 65 E. 7.50 poles to a rock planted; thence S. 4-30 W. [illegible] poles to a rock planted on the North side of the Talbott and White Pine Pike Road; thence with the North side of said road N. 69-40 E. 24.[illegible] poles to a rock planted; thence still with said road S. 65 E. [illegible].50 poles to a rock planted; thence leaving said road with J. T. Myers line and partition fence S. 42-30 W. 37-1/2 poles to a rock, planted corner to Tropia Quarries; thence

with her line and partition fence N. 52 W. 46 1/4 poles to a rock planted; thence still with same N. 46-45 W. 65.15 poles to a rock planted; thence still with same S. 19-31 W. 22.90 poles to a rock planted; thence still with same S. 82 E. 4.54 poles to a rock planted; thence still with same S. 14-50 E. 8.3/4 poles to a rock planted corner to quarter and on Marshall Hagg line; thence with said Hagg line and partition fence N. 57-10 W. 29.57 poles to a rock planted corner to Mrs. J. D. Kilbourne; thence with her line and Robert Hagg N. 8-50 W. 6.60 poles to a rock planted, corner to Robert Hagg; thence with Robert Hagg, T. H. Lawving, M. L. Ward and C. C. Lamb line and partition fence about N. 19-15 E. 204 poles to the BEGINNING, containing 50-1/4 acres, tale land sold by the boundary and not by the acre.

Mamie L. Ford acquired title to the above described premises by operation of law, as the surviving spouse of W. H. Ford, deceased, they having acquired title as tenants by the entirety by Deed of J. A. Line (single), dated March 27, 1941, and of record in the Register's Office for Jefferson County, Tennessee, in Deed Book 85, Page 77.

Together with the right to prospect for, mine, mill and to remove the same; water rights, the free unhindered egress, right of ingress and egress, and the right to purchase ten acres of the surface of the above described premises, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto.

And the party of the first part also grants to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, or associated materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned Agreement. The terms of this option Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and inure to the benefit of the parties hereto, their heirs, successors, administrators, executors and assigns.

IN WITNESS WHEREOF, the owner and party of the first part has hereunto set his signature the day and date first above written.

Mamie O. Ford
Mamie O. Ford

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, B. J. Ramsey Jr., a Notary Public in and for said County and State, the within named bargainor, Mamie O. Ford (widow), with whom I am personally acquainted, and who acknowledges that she executed the foregoing instrument of agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office this 2nd day of September, 1956.

B. J. Ramsey Jr.
Notary Public.

Commission expires: 4-20-57

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DATE	INITIALS	CODE

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 22nd day of February, 1956, by and between EDWARD KINSLER and wife, MARY KINSLER, of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

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DATE	INITIALS	CODE

WITNESSETH

That for and in consideration of the sum of Ten Dollars ($10.00), cash and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond September 22, 1959, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rock of every kind, in, under or on the following described premises:

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, being all the lands formerly jointly owned by Isaac Kinsler and Edward Kinsler, lying East of the Public Road, on which is located a house and barn, containing fifteen acres, more or less, being all of the lands of the Grantors and bounded generally as follows:

On the North by the lands of John Quarrels;
On the East by the lands of John Quarrels;
On the South by the lands of John Quarrels; and
On the West by the Public Road.

Owners acquired title to the above described premises by Deed of Isaac Kinsler, et ux., dated February 20, 1951, and of Record in the Register's Office for Jefferson County, Tennessee, in Deed Book 108, Page 235.

Together with the right to prospect for, mine, mill and remove the same; water rights, the right of ingress and egress, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto. And the parties of the first part also grant to the party of the second part during said period the right to prospect for, explore and examine all minerals, metals, ores, fuel-burning materials, and rock of every kind, in, under or on all of said premises, including the right to drill shafts, tunnels, to use such labor and to remove samples, in accordance with the terms of the last mentioned Agreement. The terms of said written contract are hereunto and fully set out in the Agreement of even date herewith. Which is here referred to and made a part hereof as if fully set out at length.

This Contract and is made out and each and every provision thereof shall be binding upon and inure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures the day and date first above written.

Edward Kinsler
Edward Kinsler

Mary Kinsler
Mary Kinsler

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, B. J. Ramsey Jr., a Notary Public in and for said County and State, the within named bargainors, HOWARD KESSLER AND WIFE, Anna Kessler, with whom I am personally acquainted, and who acknowledged that they executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 23rd day of September, 1956.

B. J. Ramsey Jr.
Notary Public.

My Commission Expires: 4-20-57

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DATE	INITIALS	CODE

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 22nd day of [illegible], [illegible] by and between [illegible] (Publisher), of [illegible], [illegible], hereinafter called the Owner, party of the first part, and [illegible] New Jersey Corporation, hereinafter called the Lessee, party of the second part, hereinafter called the Company.

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DATE	INITIALS	CODE

WITNESSETH:

That [illegible] DOLLAR and other good and valuable consideration to the said party of the first part in hand paid, the receipt of which is hereby acknowledged, the said party of the first part does grant unto the said party of the second part, for a period of one year from the date hereof, with the privilege of extension for [illegible] years beyond [illegible], [illegible] and upon the exclusive right and option of prospecting, mining, [illegible], ore-bearing materials, and rocks of any kind, including [illegible], in, under or upon the following described premises:

All that [illegible] in the [illegible] Township of [illegible], and bounded as follows:

The conveyance covers the west end of the farm which was owned by Isaac Kinsey and wife, and Minerva Kinsey and wife, and bounded as follows:

On the North by the Public Road;
On the East by the Public Road;
On the South by the lands of Charlie Smith; and
On the West by a small tract of land this day conveyed
to I. J. Kinsler

The above described property contains twenty acres, more or less.

Fanny Kinsler acquired unto the above described premises as the surviving spouse of Isaac Kinsler, deceased, they having acquired title as tenants by the entirety by deed of Edward Kinsler, et ux., dated February 20, 1951, and of Record in the Registers' Office for Jefferson County, Tennessee, in Deed Book 101, Page 371.

Together with the right to prospect for, mine, mill and remove the same; water rights, the free and uninterrupted right of ingress and egress, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto.

And the party of the first part also grants to the party of the second part during said period the right to prospect for, explore and examine all minerals, metals, oil, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereon, to use available water and to remove samples in accordance with the terms of the last mentioned agreement. The terms of this Option Contract and Agreement are fully set out in an Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof, shall be binding upon and inure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owner and party of the first part has hereunto set her signature on the day and date first above written.

Fanny Kinsler

STATE OF TENNESSEE

JEFFERSON COUNTY

[illegible] E. Ramsey Jr.

[illegible]

[illegible]

[illegible] 22nd

day of February, 1957.

E. Ramsey Jr.

Notary Public

Commission Expires: 4-20-57

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RECEIVED MAY 3 1957

DATE	INITIALS	CODE

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 4th day of October, 1956, by and between ANNIE L. WOOD, and wife, VANDIE WOOD, of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

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RECEIVED MAY 3 1957

DATE	INITIALS	CODE

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond October 4, 1959, upon payments of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises:

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, bounded and described as follows:

BEGINNING on a dead black oak, corner to same and Quarles, the old A. A. Carter corner, it is in Colbert's line; then with Colbert's line and other N. 26-1/2 deg. West 55 poles to a stake in the edge of (rock bed) of Talbott and Dandridge Pike (eastern edge); thence with the line of the aforesaid "rock bed" North 9-3/4 deg. East 2 poles and 5 links to a stake in the eastern edge of said pike; thence with Watkin's line North 68-1/2 deg East 61 poles and 1 link to a rock in J. K. Duncan's line; thence with J. K. Duncan's line South 20 deg. 15 min. East 39 poles to a rock corner to

[illegible] and [illegible] thereto with [illegible] [illegible] to day. [illegible] [illegible] are beginning, containing by estimate 18-1/16 acres, more or less.

Whereas acquired title to the above described premises by deed of [illegible] Davis and wife, Annie Lane Davis, dated January 9, 1941, and of record in the Register's office in Jackson County, Texas, in Deed Book [illegible], page 574.

Together with the right to prospect for, mine, mill and remove the same; water rights, the free and unencumbered right of ingress and egress, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto.

And the parties of the first part also grant to the party of the second part during said periods the right to prospect for, explore and exploit all minerals, metals, oil, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned agreement. The terms of this Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and inure to the benefit of the parties hereto, their heirs, successors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures on the day and date first above written.

Austin B. Moore
AUSTIN B. MOORE

Willie Moore
WILLIE MOORE

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainors, AUSTIN B. MOORE AND WIFE, FALLIE MOORE, with whom I am personally acquainted, and who acknowledged that they executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 18th day of October, 1956.

Ben S Catlett
Notary Public.

Commission Expires: 4-16-58

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DATE	INITIALS	CODE

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 28th day of October, 1956, by and between LEE SMITH and wife, VIRGINIA ANDERSON SMITH, of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company:

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DATE	INITIALS	CODE

WITNESSETH

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond October 28, 1959, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or upon the following described premises:

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, consisting of three adjoining tracts of land, on the Talbott Road, containing 50 acres, more or less, bounded generally as follows:

On the North by the lands of Miller, Richard, Lon and Newman;
On the East by the lands of Charlie Smith;
On the South by the lands of Lloyd Burnett; and

On the West by the lands of Ray Hazelwood.

Owners acquired title to the above premises by the following deeds of record in the Register's Office for Jefferson County, Tennessee: (a) Deed of Henry Smith, et ux., dated January 17, 1916, Deed Book 81, Page 247; (b) Deed of Marion Smith, et ux., et al., dated January 21, 1916, Deed Book 81, Page 248; and (c) Deed of Annie Rodgers, Clerk and Master, dated July 16, 1949, Deed Book 112, Page 18.

Together with the right to prospect for, mine, drill and remove the coal, water rights, the free and uninterrupted right of ingress and egress, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto.

And the parties of the first part also grant to the party of the second part during said period the right to prospect for, explore and exploit all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned Agreement. The terms of this Grant, Lease and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Grant and Agreement and each and every provision thereof shall be binding upon and inure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures the day and date first above written.

Lee Smith
LEE SMITH

Virginia Anderson Smith
VIRGINIA ANDERSON SMITH

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, B. F. Ramsey, Jr. a Notary Public in and for said County and State, the within named bargainors, LEE SMITH AND WIFE, VIRGINIA ANDERSON SMITH, with whom I am personally acquainted and who acknowledged that they executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 20th day of October, 1956.

B. F. Ramsey, Jr.
Notary Public.

Commission Expires: 4-20-57

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DATE	INITIALS	CODE

Docket copy

Robert Dwyer
"Appd. Sol. Off."
Francis Falkut
Norrin
Johnson

EXPLORATION PROJECT CONTRACT
THE NEW JERSEY ZINC COMPANY
DOCKET NO. DMEA-4119

AMENDMENT NO. 1

It is agreed this 1st day of June, 1954, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and The New Jersey Zinc Company that Exploration Project Contract No. Idm-8934 (Docket No. DMEA-4119), dated March 30, 1954, as amended, is further amended as follows:

1. In the fourth paragraph of Exhibit "A", the second sentence is revised to read as follows:

> All core containing significant mineralization shall be properly sampled and the samples assayed for zinc.

2. In Exhibit "A", the second item under "Fixed Unit Costs" is revised to read as follows:

> 450 samples to be assayed @ $1.00/sample 450.00

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

Executed in counterpart the day and year first above written.

THE UNITED STATES OF AMERICA

By C V Mitteudorf
Administrator, Defense Minerals
Exploration Administration

THE NEW JERSEY ZINC COMPANY

By J Boodwin

VICE PRESIDENT

Title

Docket Copy

EXPLORATION PROJECT CONTRACT
THE NEW JERSEY ZINC COMPANY
DOCKET NO. DMRA-4119

AMENDMENT No. 1

It is agreed this 7th day of May 1956, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and The New Jersey Zinc Company, that Exploration Project Contract Idm-8936 (Docket No. DMRA-4119), dated March 30, 1956, be amended as follows:

Effective as of the date of the original contract, March 30, 1956, there is hereby added to the land referred to in Article 2 of the contract form, and described in Annex I by reference to the property map, Figure 2, the following parcels of land similarly held under option agreement:

Name of Property Owner	Acreage
J. T. Cline, Mayne Cline, Jack F. Cline and Agnes Cline	312
Helen Quarles James, Sam H. James	102
Lloyd Welch and Edna Welch	30
J. S. Walker and Myrtle Pearl Walker	45
Robert E. Smith and Willie Mae Smith	43
Charlie J. P. Smith and Lizzie Smith	100
Henry Hopkins and Viola S. Hopkins	52.6
J. A. Eller and Nell Eller	13.5
Nellie Carmichael	40.5
Raymond E. Smith and Farrie Smith	120
Olive Smith	30

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

Executed in sextuplicate the day and year first above written.

THE NEW JERSEY ZINC COMPANY

By J. B. Baudouin

Title VICE PRESIDENT

THE UNITED STATES OF AMERICA

By Robert A. Lawson
Executive Officer, Defense Minerals Exploration Administration, Region V

RECEIVED
MAY 17 1956

EXHIBIT "A"

RECEIVED
MAY 17 1956

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 1st day of June, 1951, by and between J. T. CLEM and wife, MARY CLEM, JACK P. CLEM and wife, ROSE CLEM of Jefferson County, Tennessee, hereinafter called the Grantors, parties of the first part, and THE ZINC DEVELOPMENT CORPORATION, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company:

WITNESSETH

That for and in consideration of the sum of Ten ($10.00) Dollars and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for a further period not to extend beyond June 1st, 1956, upon payment of sums as hereinafter agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises:

SITUATED in the Fourth and Ninth Civil Districts of Jefferson County, Tennessee being all the farm lands of the Grantors, containing 312 acres, more or less, and bounded generally as follows:

On the North by Smith, Tyler, Underwood and Whitley;
On the East by Porter Lancaster, Bill Lancaster, and Shannon Lancaster;
On the South by J. K. King, A. J. Hays, T. L. Hay and Lorenzo; and
On the West by Louis Murph and Lardenbach.

Owners acquired title to the above described premises by deed of Lufen McMahney and wife, dated April 24, 1957 and recorded in Deed Book 24, page 454-55, Register's Office for Morgan County, Tennessee.

Together with the right to prospect for, mine, mill and remove the coal, water rights, the right of ingress and egress, and the right to purchase surface acreage to the extent of twenty acres, in accordance with the terms of an agreement of even date herewith entered into between the parties hereto. and the parties of the first part also grant to the party of the second part during said period the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereon, to use available water and to remove samples, in accordance with the terms of the last mentioned agreement. The terms of this option contract and agreement are fully set out in the agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and inure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the parties and persons of the first part have hereunto set their signatures the day and year first above written.

J. J. Cline.

Wayne Cline.

Jack N. Cline.

Agnes Cline.

STATE OF MONTANA,

COUNTY OF [illegible]

Personally appeared before me, B. J. Kinney Jr., a notary public in and for said County and State, the parties named hereinbefore, J. J. Cline and wife, Agnes Cline, Jack N. Cline and Wayne Cline, when I am personally acquainted, and who acknowledged that they executed the foregoing instrument for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 1st day of June, 1954.

B. J. Kinney Jr.
Notary Public.

Commission expires Apr. 20, 1957

STATE OF MONTANA

COUNTY OF FERGUS

Personally appeared before me, Ray L. McKinnon a Notary Public in and for said County and State, the parties named hereinbefore, JACK N. CLINE and WAYNE CLINE, when when I am personally acquainted, and who acknowledged that they executed the foregoing instrument for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 5th day of June, 1954.

Ray L. McKinnon
Notary Public.

Commission expires Sept. 19, 1954
Residing at Lewistown, Montana

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 12th day of April, 1956, by and between J. T. CLINE and wife, MAYNE CLINE, JACK F. CLINE and wife, AGNES CLINE, of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company:

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of one year from June 1, 1956 with the privilege of extension for a further period not to extend beyond June 1, 1958, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises.

SITUATE in the Fourth and Ninth Civil Districts of Jefferson County, Tennessee being all the farm lands of the Owners, containing 512 acres, more or less, and bounded generally as follows:

On the North by Swann, Kyle, Underwood and Miller;
On the East by Porter Massengill, Bill Massengill
and Sherman Hazelwood;
On the South by J. R. Line, R. J. May, H. L. May
and Newman; and
On the West by Lewis Murph and Lauderback.

Owners acquired title to the above described premises by Deed of Rufus McElhaney and wife, dated April 24, 1947 and of Record in the Register's Office for Jefferson County, Tennessee in Deed Book 94, Pages 454-55.

Together with the right to prospect for, mine, mill and remove the same; water rights, the right of ingress and egress, and the right to purchase surface acreage to the extent of twenty acres, in accordance with the terms of an agreement of even date herewith entered into between the parties hereto. And the parties of the first part also grant to the party of the second part during said period the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, all accordance with the terms of the last mentioned agreement. The terms of this option Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and inure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures the day and year first above written.

J. T. Cline
J. T. Cline

Wayne Cline
Wayne Cline

Chuck F. Cline
Chuck F. Cline

Agnes Cline
Agnes Cline

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainors, J. T. CLINE AND WIFE, MAYNE CLINE, with whom I am personally acquainted, and who acknowledged that they executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 16th day of April, 1956.

Ben S. Catlett
Notary Public.

Commission Expires: 4-16-58

STATE OF MONTANA

COUNTY OF FERGUS

Personally appeared before me, Charles W. Lelek, a Notary Public in and for said County and State, the within named bargainors, JACK F. CLINE AND WIFE, AGNES CLINE, with whom I am personally acquainted, and who acknowledged that they executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 23rd day of April, 1956.

Charles W. Lelek
Notary Public.

Commission Expires: 10-22-57
Residing at Lewistown, Montana

EXTENSION CONTRACT AND AGREEMENT

THIS EXTENSION CONTRACT AND AGREEMENT made and entered into on this 28th day of May, 1955, by and between JOHN CARTER (MIDOWER), NELLIE CARTER MORRIS, JAMES B. CARTER and wife, ETHEL PATE CARTER and DAVID C. CARTER, of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Zinc Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company:

W I T N E S S E T H

WHEREAS, the Owners and the Zinc Company entered into a certain Contract and Agreement under date of September 24th, 1952. The short form thereof of even date between the parties appears of Record in the Register's Office for Jefferson County, Tennessee in Misc. Book 6, Page 17. Both are incorporated by reference, and made a part hereof, as fully as if copied verbatim herein, with respect to certain farm lands of the Owners Situate in the Fourth Civil District of Jefferson County, Tennessee and bounded generally as follows:

On the North by the lands of Mrs. C. C. James and Mrs. D. M. Henry;
On the East by the lands of Kyle Heirs;
On the South by the lands of R. T. Jones; and
On the West by the lands of Williams, containing 47 acres, more or less.

For title reference see the following deeds of conveyance of record in the Register's Office for Jefferson County, Tennessee: Deed Book 55, Page 505; Deed Book 97, Page 98; Deed Book 97, Page 99.

WHEREAS, said Contract and Agreement expires on September 26th, 1955 and the parties have mutually agreed to an extension of the terms and provisions thereof.

NOW, THEREFORE, in consideration of the sum of ONE ($1.00) DOLLAR cash and other good and valuable considerations, the Owners grant an extension of said Contract and Agreement of September 26th, 1952 for an additional period of two years, expiring on September 26th 1957.

The terms of this Extension Contract and Agreement are fully set out in an agreement of even date hereewith, which is here referred to and made a part hereof as if fully set out at length. Otherwise than specified therein all the provisions of the aforesaid Contract and Agreement of September 26, 1952 shall be in full force and effect during said extended period.

This Extension Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures the day and year first above written.

Witness Mark:
Ben L. Catlett
Nellie Carter Morris

John Lee Carter
John Carter.

Nellie Carter Morris
Nellie Carter Morris.

James B. Carter
James B. Carter.

Ethel Pate Carter
Ethel Pate Carter.

David C. Carter
David C. Carter.

STATE OF TENNESSEE

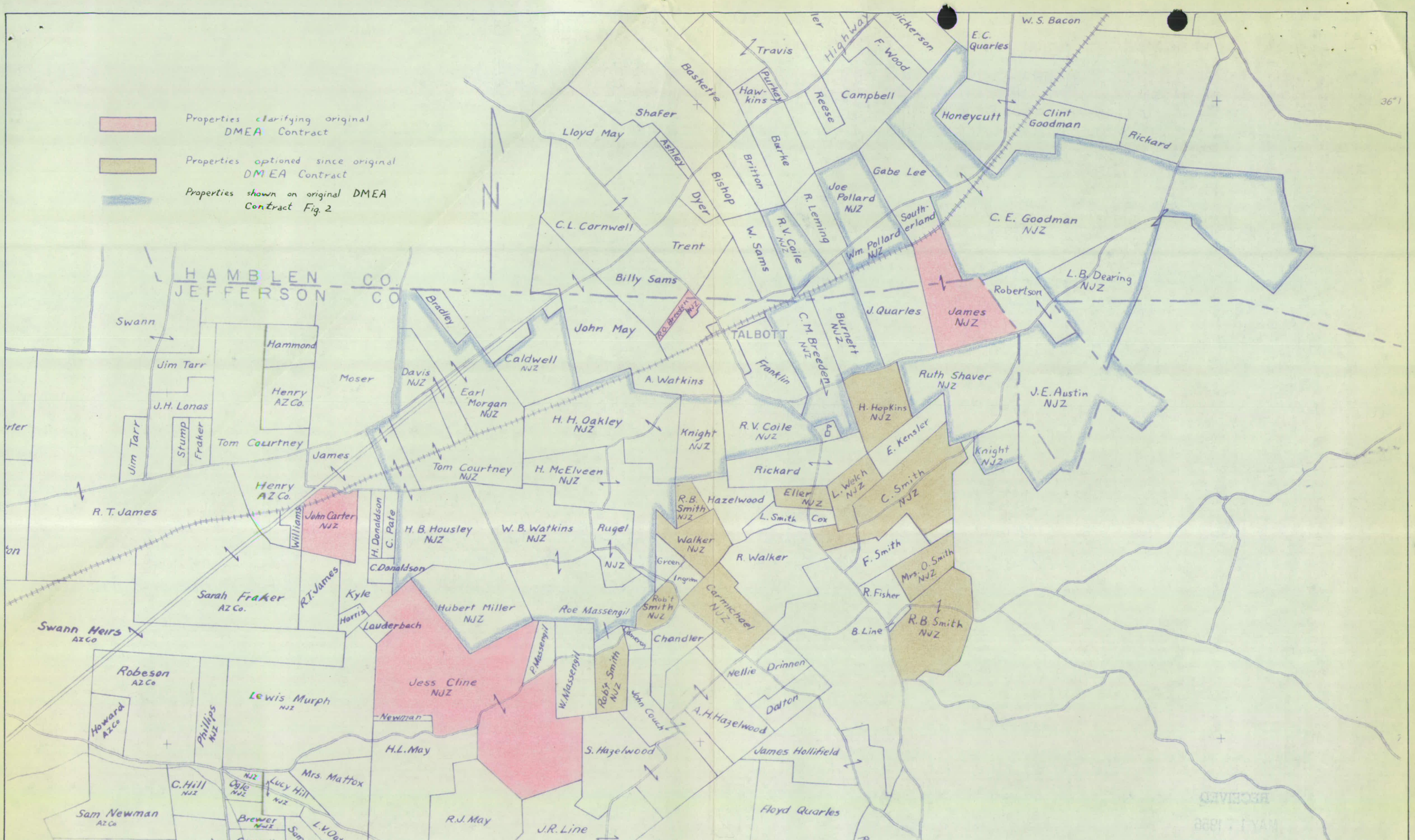
JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainors, JOHN CARTER (WIDOWER), NELLIE CARTER MORRIS, JAMES E. CARTER AND WIFE, ELNEE PATE CARTER AND DAVID C. CARTER (SINGLE), with whom I am personally acquainted, and who acknowledged that they executed the foregoing instrument for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 28th day of May, 1955.

Ben S. Catlett
Notary Public.

Commission Expires: 4-16-58



POSTED TO DATE

THE NEW JERSEY ZINC COMPANY
JEFFERSON CITY TENNESSEE

DRAWN DATE
TRACED P.H.L. SCALE 1"=2000'

PROPERTY MAP
MORRISTOWN SECTOR - TALBOTT AREA

JEFFERSON & HAMBLEN CO'S TENN.
FILE NO FROM AX TENN D-472

FIGURE 1

EXHIBIT "B"

RECEIVED
MAY 17 1956

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 21st day of February, 1956, by and between LLOYD WELCH and wife, EDNA WELCH, of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in theState of Tennessee, party of the second part, hereinafter called the Zinc Company.

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond February 21, 1959, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises:

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, consisting of two certain tracts of land, adjoining each other and the lands of Mel Rickard, Bert Moore, Henry Hopkins, Cansler and Charlie Smith, more particularly described as follows:

TRACT ONE:

BEGINNING at a black oak in the "Grant Old Line"; thence N. 30 W. 55 poles to a rock in said line Now A. A. Carter's corner; thence W. 21 poles to a rock in Carter's and Julia E. Bacon's line; thence S. 30 E. 7 poles to a rock in J. E. Bacon's line, and in the line of the 159-1/2 acre survey; thence N. 67 deg. E. 18-7/8 poles to the BEGINNING, containing 8 acres more or less.

TRACT TWO: BEGINNING on a stone, a corner of "First Tract; and in the division line of Abram Watkins and O. R. Watkins; thence S. 45 deg. West with the line of Charlie Smith the distance of 1214 feet to a rock, a corner this day established by the parties hereto; thence in a Northernly direction, a new line this day established by the parties hereto, with the line of A. H. Hazelwood the distance of 750-1/2 feet to a rock; thence N. 45 E. with the old A. G. Watkins or A. J. Duncan and A.P.C. Bettis line, the distance of 1035 feet to a stone in the division line of the old A. G. Watkins and O. R. Watkins line; thence S. 30 E. to a rock, the Northwest corner of "First Tract", thence continuing S. 30 E. with the Eastern boundary of First Tract to the point of BEGINNING, containing 22 acres more or less.

Owners acquired title to the above described premises by Deed of A. H. Hazelwood (widower), dated February 26, 1946, of Record in the Register's Office for Jefferson County, Tennessee in Deed Book 95, Page 442.

Together with the right to prospect for, mine, mill and remove the same; water rights, the free and uninterrupted right of ingress and egress, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto.

And the parties of the first part also grant to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned agreement. The terms of this option Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures the day and date first above written.

Witness Mark:

B. J. Ramsey Jr.

Elizabeth Moreland

his
Lloyd X Welch
Lloyd Welch mark

Edna Welch
Edna Welch.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, B. J. Ramsey Jr. ~~[illegible]~~, a Notary Public in and for said County and State, the within named bargainors, LLOYD WELCH AND WIFE, EDNA WELCH, with whom I am personally acquainted, and who acknowledged that they executed the foregoing instrument for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 21st day of February, 1956.

B. J. Ramsey Jr.
Notary Public.

Commission Expires: ~~[illegible]~~ 4-20-57

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 10th day of February, 1956, by and between J. S. WALKER and wife, MYRTLE PEARL WALKER of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond February 10, 1959, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises:

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, being the homeplace of the Grantors and where they now reside, containing 45 acres more or less and bounded generally as follows:

On the North by the lands of Raymond Smith;
On the East by the lands of Ray Hazelwood and Lloyd Burnett;
On the South by the lands of Malcom, Roy Walker and Olen Carmichael; and
On the West by the lands of Floyd Ingram and Greene.

Owners acquired title to the above described premises by four certain Deeds of conveyance of Record in the Register's Office for Jefferson County, Tennessee as follows: (1) Deed of G. W. Bacon and wife, dated June 13, 1919, Deed Book 62, Page 64; (2) Deed of G. W. Masengill and wife, dated November 22, 1927, Deed Book 71, Page 71; (3) Deed of Floyd Ingram and wife, dated October 18, 1924, Deed Book 72, Page 218 and (4) Deed of Mrs. Julia E. Bacon, dated September 25, 1925, Deed Book 78, Page 375.

Together with the right to prospect for, mine, mill and remove the same; water rights, the free and uninterrupted right of ingress and egress, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto.

And the parties of the first part also grant to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned agreement. The terms of this option Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures the day and date first above written.

J. S. Walker

J. S. Walker.

Myrtle Pearl Walker

Myrtle Pearl Walker.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainors, J. S. WALKER AND WIFE, MYRTLE PEARL WALKER, with whom I am personally acquainted, and who acknowledged that they executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 10th day of February, 1956.

Ben S. Catlett
Notary Public.

Commission Expires: 4-16-58

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 21st day of February, 1956, by and between ROBERT E. SMITH and wife, WILLIE MAE SMITH, OF Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond February 21. 1959, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises:

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, consisting of two separate tracts of land, and bounded and described as follows:

TRACT ONE : Adjoining the lands of Bill Massengill, three acre tract of Mrs. Cameron, Mrs. George Massengill and described as follows:

BEGINNING on a rock, Stevenson's corner, with old line S. 85-3/4 E. 46 poles to a rock; thence S. 9 E. 37-1/2 poles to a rock, a ledge of rock; thence S. 1-1/2 W. 80-1/2 poles to a rock; thence S. 81-1/2 W. 48-1/2 poles to Stevenson's corner; thence N. 1-1/2 E. 129 poles to the BEGINNING, containing 28 acres more or less.

TRACT TWO: BEGINNING on a rock near a cedar, on the Massengill line, corner to Floyd Ingram; thence with the public Road S. 20 deg. 30' E. 30 poles to the intersection of the cross road; thence with the cross Road S. 35 deg. 30' W. 36-1/2 poles to the corner of Lots 3 and 4; thence still with said road S. 63 deg. 15' W. 25-1/2 poles to a stake in the road; thence S. 84 deg. W. 25-2/3 poles with Wm. Massengill line to a stake; thence with Watkins Bros., line N. 16 deg. 40' E. 19-1/3 poles to a stake, corner to Watkins Bros; thence with their line and the line of Massengill N. 48 deg. E. 68.7 poles to the BEGINNING containing 18 acres, more or less.

Owners acquired title to the above described premises by the following Deeds of conveyance of Record in the Register's Office for Jefferson County, Tennessee as follows: Tract One by Deed of E. R. Walker and wife, dated January 12, 1944, Deed Book 93, Page 83, and Tract Two by Deed of J. L. Burchfield and wife, dated December 5, 1944, Deed Book 93, Page 548.

Together with the right to prospect for, mine, mill and remove the same; water rights, the free and uninterrupted right of ingress and egress, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto.

And the parties of the first part also grant to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned agreement. The terms of this option Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto,

their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures the day and date first above written.

Robert E. Smith
Robert E. Smith.

Willie Mae Smith
Willie Mae Smith.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainors, ROBERT E. SMITH AND WIFE, WILLIE MAE SMITH, with whom I am personally acquainted, and who acknowledged, that they executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 21st day of February, 1956.

Ben S. Catlett
Notary Public.

Commission Expires: 4-16-58

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 13th day of March, 1956, by and between CHARLIE J. P. SMITH and wife, LIZZIE SMITH of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond March 13, 1959, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises.

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, bounded generally as follows:

On the North by the lands of Welch, Keusler and Cox;
On the East by the lands of Ruth Shaver;
On the South by the lands of Trent and Smith; and
On the West by the lands of Lloyd Burnett, containing 100 acres, more or less.

Owners acquired title to the above described property by the following deeds of conveyance of Record in the Register's Office for Jefferson County, Tennessee as follows: (1) Deed of G. P. Smith and wife, dated December 17, 1931, Deed Book 76, Page 403; (2) Deed of Mrs. G. P. Smith, et al., dated July 3, 1933, Deed Book 77, Page 462 and Deed of J. T. Owen, et al., dated August 10, 1921, Deed Book 63, Page 304.

Together with the right to prospect for, mine, mill and remove the same; water rights, the free and uninterrupted right of ingress and egress, and the right to purchase twenty acres of the surface of the above described premises, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto.

And the parties of the first part also grant to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned agreement. The terms of this option Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures the day and date first above written.

Charlie J. P. Smith

Charlie J. P. Smith

Lizzie Smith

Lizzie Smith

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainors, CHARLIE J. P. SMITH and wife, LIZZIE SMITH, with whom I am personally acquainted, and who acknowledged that they executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 13th day of March, 1956.

Ben S. Catlett
Notary Public.

Commission Expires: 4-16-58

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 2nd day of March, 1956, by and between HENRY HOPKINS and wife, VIOLA C. HOPKINS, of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company:

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of two years from the date hereof, with the privilege of extension for a further period not to extend beyond March 2, 1959, upon payment of sums of money agreed upon, the exclusive right and option to purchase the fee simple title to the following described premises:

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, and bounded and described as follows:

> BEGINNING on a stake in the center of the road and the Northern corner of Lot No. 19 in the Subdivision of the J. W. Duncan farm, thence with the road South 62-3/4 West 356 feet, South 80 West 343 feet, South 73-1/2 W. 507 feet South 53-3/4 West 178 feet to a stake in the fork of the road South 20 deg. 20' East 1963 feet, stake at the bend of the road, South 48 deg. 25' East 1428 feet to center of a solid rock in the road, then with the subdivision line, North 19 deg. 05' West 1430 feet to the BEGINNING containing 52.6 acres more or less.

Owners acquired title to the above described premises by Deed of Sherman Hazelwood and wife, dated March 3, 1942 and of Record in the Register's Office for Jefferson County, Tennessee in Deed Book 85, Page 383, to which reference is made.

The parties of the first part also grant to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rock of any kind, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto. The terms of this option Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures the day and year first above written.

Henry Hopkins
Henry Hopkins.

Viola S. Hopkins
Viola S. Hopkins.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben L. Catlett, a Notary Public in and for said County and State, the within named bargainors, HENRY HOPKINS AND WIFE, VIOLA S. HOPKINS, with whom I am personally acquainted, and who acknowledged that they executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 2nd day of March, 1956.

Ben L. Catlett
Notary Public.

Commission Expires: 4-16-58

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 16th day of February, 1956, by and between J. A. ELLER and wife, NELL ELLER, of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant to the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond February 16, 1959, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises:

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, being the homeplace of the Owners, more particularly described as follows:

> BEGINNING on a rock in J. W. Collett's line, a corner to A. H. Hazelwood, formerly C. T. Quarles; thence West 72 poles to a rock near a pine in J. W. Collett's formerly in P. V. Colle's line; thence South 25 East 33 poles and 7 links to a rock in a field, in Lee Smith's line, formerly C. P. Smith; thence North 84-1/2 E. 72 poles to a rock, Lloyd Welch's corner formerly Sam Knight thence North 2[illegible]/2 West 26 poles and 14 links to the BEGINNING corner, containing 13.5 acres more orless.

Owners acquired title to the above described premises by Clerk & Master's Deed dated July 23, 1941 and of Record in the Register's Office for Jefferson County, Tennessee in Deed Book 84, Page 440.

Together with the right to prospect for, mine, mill, and remove the same; water rights, the free and uninterrupted right of ingress and egress, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto.

And the parties of the first part also grant to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned agreement. The terms of this option Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.'

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures the day and date first above written.

J. A. Eller

J. A. Eller.

Nell Eller

Nell Eller.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Helen L. Burchfiel Notary Public in and for said County and State, the within named bargainors, J. A. ELLER AND WIFE, NELL ELLER, with whom I am personally acquainted, and who acknowledged that they executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 16th day of February, 1956.

Com. Expires 7-14-59 Helen L. Burchfiel

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 28th day of February, 1956, by and between NELLIE CARMICHAEL (Widow), of Jefferson County, Tennessee, hereinafter called the Owner, party of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company:

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the party of the first part grants unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond February 28, 1959, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises.

SITUATE in the Ninth Civil District of Jefferson County, Tennessee and bounded and described as follows:

> BEGINNING on a rock in the junction of the Talbotts road, corner with Burnett and Ingram, thence with the road and Ingram's line N. 45-30 E. 1039 feet to a rock in the road, Ingrams corner; thence S. 53 E. with Bacon and G. P. Smith line 647 feet to a rock, G. P. Smiths Corner; thence with Smiths line S. 45-30 W. 183 feet to a rock, corner of a 16 acre tract and corner of a 23 acre tract; thence continued with G. P. Smiths line S. 52-45 E. 1190 feet to a rock in a sink, near old well, corner with said Smith and T. O. Breeding thence with Breedings line S. 39-30 W. 967 feet to a rock in the Talbotts road; thence with the Road N. 49-30 W. passing the corner of the 23 acre tract at 1300 feet, in all 1938 feet to the BEGINNING containing 40.51 acres.

Olen Carmichael and wife, Nellie Carmichael acquired title to the above described property as an estate by the entirety by Deed of the Morristown Trust Company, dated February 1, 1930 and of Record in the Register's Office for Jefferson County, Tennessee in Deed Book 73, Page 162, to which reference is made. The said Olen Carmichael being now deceased, leaving Nellie Carmichael sole owner as surviving tenant of an estate by the entirety.

Together with the right to prospect for, mine, mill and remove the same; water rights, the free and uninterrupted right of ingress and egress, and the right to purchase the entire surface area of the above described premises, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto.

And the party of the first part also grants to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned agreement. The terms of this option Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owner and party of the first part has hereunto set her signature the day and date first above written.

Nellie Carmichael

Nellie Carmichael.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainor, NELLIE CARMICHAEL (WIDOW), with whom I am personally acquainted, and who acknowledged that she executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 28th day of February, 1956.

Ben S. Catlett
Notary Public

Commission Expires: 4-16-58

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 17th day of April, 1956, by and between RAYMOND B. SMITH and wife, FARRIE SMITH of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond April 17, 1959, upon payment of sums of money agreed upon the exclusive right and option to purchase all minerals, morals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises:

SITUATE in the Ninth Civil District of Jefferson County, Tennessee consisting of three tracts of land described as follows:

TRACT ONE : BEGINNING on a post planted, corner to tract of land conveyed to Gertie Collett, in the line of Stoke Walker, thence with cross fence and line of tract conveyed to said Collett, to a stake in the line of Knight, corner to said Collett; thence with the line of Knight to the line of Oakley to the line of Walker; thence with the line of Walker to the point of BEGINNING containing 16 acres more or less.

TRACT TWO BEGINNING on a stone in the center of the pike near the pond; N. 3-3/4 W. 30 poles to a stone; thence N. 21-1/2 W. 19 poles to a stone, S. 42 W. 1-1/2 poles to the center of the pike; then S. with the center of the pike 45 poles and 11-1/2 poles to the BEGINNING, 1 acre more or less.

TRACT THREE : BEGINNING at a rock set in the ground on the West edge of the Talbott's road, a short distance Northwest of the widow Line's dwelling; thence with her line S. 88-1/2 E. 24-4/5 poles to a rock, corner with same; thence S. 72 E. 2 poles to a rock; thence along a road and her line S. 52 E. 20 poles to a rock; thence with the same S. 30-1/2 E. 15 poles to a rock, corner of W. F. Breeden; then with his line N. 65 E. 45 poles to a rock; N. 12-4/5 poles to a rock in J. A. Line's line; then with his line West 20 links to a rock; then N. 15-1/2 E. 135 poles and 17 links to a rock, corner to J. F. Knowling; thence with his line N. 77 W. 61 poles to a rock, his corner; thence with same S. 53-3/4 W. 68-1/2 poles to a rock, Collett's corner; thence with his line S. 19 E. 11 poles to a rock, his corner; thence with same S. 48-1/2 W. 44 poles to a rock in center of Dandridge Road, S. 20-1/4 E. 11 poles to a rock; S. 3-3/4 E. 35 poles to a rock; S. 25 E. 27 poles to the BEGINNING, containing 103-1/4 acres.

From tract Two there is excluded 10 acres hereto fore sold and conveyed to Bob Haag under date of June 10, 1937, also 3 acres heretofore sold and conveyed to Robert Estes.

Except fro said exclusions being the same property conveyed to the Owners by the following deeds of conveyance of Record in the Register's Office for Jefferson County, Tennessee as follows: (1) Deed of Oma Davis Breeden, et vir, et al., dated October 21, 1944, Deed Book 94, Page 339-40; and (2) Deed of C. C. Line, et ux., dated January 30, 1947, Deed Book 96, Page 410.

Together with the right to prospect for, mine, mill and remove the same; water rights, the right of ingress and egress, and the right to purchase the surface area to Tract One, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto. And the parties of the first part also grant to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials and rocks of any kind, including limestone, in, under or on all of said premises,

including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned agreement. The terms of this option Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures the day and year first above written.

Raymond B. Smith

Raymond B. Smith.

Farrie Smith

Farrie Smith.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainors, RAYMOND B. SMITH AND WIFE, FARRIE SMITH, with whom I am personally acquainted, and who acknowledged that they executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 17th day of April, 1956.

Ben S. Catlett

Notary Public.

Commission Expires: 4-16-58

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 18th day of April, 1956 by and between OLIVE SMITH (one and the same person as Olive Midkiff Smith), of Jefferson County, Tennessee, hereinafter called the Owner, party of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the party of the first part grants unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond April 18, 1959, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including lime stone, in, under or on the following described premises.

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, consisting of two tracts, both adjoining and making up one boundary, described as follows:

TRACT ONE : BEGINNING on a rock, corner with J. B. Line's corner to Collett's line, thence with Collett and J. W. Smith line Easterly course 56 poles to a rock corner in J. W. Smith line, Northerly course 20 poles to J. P. Knowling line with a fence,

Northerly course 70 poles to a rock corner in said line, thence Westerly course with Smith line 53 poles to a rock corner in J. B. Lines line, thence with Line's line Southeasterly course 22 poles to the BEGINNING, containing seven acres, more or less.

TRACT TWO: BEGINNING on a rock J. B. Lines corner, thence Easterly course 104 poles to a rock in G. P. Smith line and Jess Cline line; thence with Cline's and T. H. Knowling's line 54 poles South to a rock Line Brothers corner and T. H. Knowling corner; thence with Line Bros. line 25 poles Westerly course to a rock corner of Sherman Smith's; thence with Sherman Smith's line 20 poles Northerly course with Sherman Smith's line to a rock corner; thence with Sherman Smith's line Westerly course 52 poles to a rock in J. B. Line's line; thence with said Line's line 35 poles to the BEGINNING, containing 23 acres more or less.

Owner acquired title to the above described premises by the following deeds of conveyance of Record in the Register's Office for Jefferson County, Tennessee as follows: (1) Deed of Sherman Smith, dated March 26, 1931, Deed Book 75, Page 394; and (2) Deed of Sherman Smith dated August 11, 1932, Deed Book 76, Page 238.

Together with the right to prospect for, mine, mill and remove the same; water rights, the free and uninterrupted right of ingress and egress, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto.

And the party of the first part also grants to the party of the second part during said periods the rights to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned agreement. The terms of this option Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owner and party of the first part has hereunto set her signature the day and date first above written.

Olive Smith

Olive Smith.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben L Catlett, a Notary Public in and for said County and State, the within named bargainor, OLIVE SMITH (one and the same person as Olive Midkiff Smith) with whom I am personally acquainted, and who acknowledged that she executed the foregoing Contract and Agreement for thepurposes therein contained and expressed.

Witness my hand and official seal at office on this 12th day of April, 1956.

Ben L Catlett

Notary Public.

Commission Expires: 4-16-58

Docket copy RECEIVED

APR 1 3 1956

MF-200
(Revised June 1954)

Docket No. DMEA - 4119

Commodity Zinc

Contract No. Idm-E - 936

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

EXPLORATION PROJECT CONTRACT[1]

It is agreed this MAR 3 0 1956 day of ....., 195...., between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and [2] The New Jersey Zinc Company, a New Jersey corporation, whose mailing address is 160 Front Street, New York 38, New York, hereinafter called the "Operator," as follows:

ARTICLE 1. *This contract* is entered into under the authority of the Defense Production Act of 1950, as amended. It consists of this form (MF-200), the attached Exhibit "A," Annex I, and 2 maps, Figures 2 and 3.

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

ARTICLE 2. *Operator's property rights.*—(a) The land which is the subject of this contract (hereinafter called "the land") is in the State of Tennessee, County(ies) of Jefferson and Hamblen, and is described in Annex I.[3]

(b) The Operator represents and undertakes that:

(1) The Operator is the [4] optionee (see Annex I) of [5] ..... in the land, in possession and entitled to possession for all of the purposes of this contract, under and by virtue of a [6] ....., [7] ..... recorded in Book ....., page ....., official records of said County; and

(2) The Operator's right, title, or interest (whether as owner, lessee, or otherwise) is subject only to the following claims, liens, or encumbrances: None

(c) The Subordination Agreement of the holder of any claim, lien, or encumbrance listed above, and (if the Operator does not hold the legal title) the Consent to Lien of any holder of the legal title

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] Insert name, and if an organization, its nature (corporation and place of incorporation, partnership with names of partners, etc.).
[3] State on a separate sheet marked "Annex I" the legal description or enough to identify the property, particularly excluding any areas from which the production is not to be subject to the Government's percentage royalty.
[4] Insert "owner," "lessee," "contract purchaser," "locator," etc.
[5] Insert "the entire interest," "the mineral rights," "an undivided one-third," etc.
[6] Insert "deed," "lease," "contract," "location notice," "patent," etc.
[7] If not recorded, so indicate by inserting "un."

of the land (lessor, seller, optionor, etc.), are attached, as follows: Consents to Lien waived.

(d) The Operator shall preserve and maintain his right, title, and interest in the land and his right to the possession thereof for the purposes of this contract, and shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of this contract. Until the lapse of the time within which the Government may make a certification of discovery or development without any such certification having been made, and after any such certification has been made, the Operator shall neither transfer, convey, nor surrender the land nor any right, title, or interest therein, nor permit nor suffer any claim, lien, or encumbrance thereon, without expressly referring to and providing in the instrument of conveyance, lien, or encumbrance for the preservation of the Government's right to a percentage royalty on production and lien for the payment thereof. If the Government makes no certification of discovery or development within the time limited in Article 8, it shall thereafter have no claim against the land or any production therefrom except for any production referred to in Article 8(b)(1).

ARTICLE 3. *The exploration project.*—The project is a search for indicated or undeveloped deposits of zinc. The work to be performed is described in Exhibit "A." The Operator on or before June 1, 1956, shall commence the work, and on or before September 1, 1957 (unless the Operator's obligation to prosecute the work is terminated—see Article 10) shall either have completed the work or shall have incurred allowable costs (see Article 6) in a sum not less than the estimated total allowable cost set forth in Exhibit "A."

ARTICLE 4. *Performance of the work.*—(a) *Operator's responsibility.*—The work shall be performed with reasonable diligence, efficiently, expertly, in a workmanlike manner, in accordance with good mining standards and State regulations for health and safety and for liability insurance covering employment; and with suitable and adequate equipment, facilities, materials, supplies, and labor, to bring it to completion within the time fixed.

(b) *Independent contracts.*—To the extent that the allowable costs are estimated in Exhibit "A" with express reference to performance by independent contractors on a unit-price basis (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations), the work may be so performed; but if the reference in Exhibit "A" to any such independent contract requires the Government's approval thereof, payments under such contract will not be allowable costs unless the Government gives its written approval of the contract. Any such independent contract shall refer to some specific and identifiable part of the work, and shall be subject to all of the pertinent terms and conditions of this exploration contract; but the Government shall not be considered a party thereto, and its rights under this contract, including the right to terminate its contributions, shall not be affected thereby. Regardless of the provisions of any such independent contract and regardless of the Government's approval thereof, the Government will participate in payments to the independent contractor only on account of work performed in accordance with the provisions of this exploration project contract, and only to the extent that the Government deems the unit prices for the work under the independent contract to be reasonable.

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

ARTICLE 5. *Contribution by the Government.*—The estimated total allowable cost of the project, set forth in Exhibit "A," is the sum of $156,250.00 The Government shall contribute 50 percent of the allowable costs as they are incurred in a total sum not in excess of $78,125.00: *Provided,* That until the Operator has rendered to the Government his final report, and any final auditing required by the Government has been made, and a final settlement of the contract has been made, the Government may withhold from the last

voucher or vouchers such sums as it sees fit not in excess of 10 percent of the estimated total cost of the work or not in excess of the amount of the Government's contribution to the cost of property which is or may become subject to disposal as provided in Article 9(c), whichever is greater. The Government will make its contribution on the basis of the monthly vouchers referred to in Article 7(b), but all payments by the Government are provisional only, subject to audit, until the account between the Operator and the Government is finally audited and settled. "Costs incurred" mean costs that have been paid or have become due and payable, or that in the opinion of the Government have become an obligation. The Government may make payments directly to independent contractors and suppliers for the account of the Operator rather than to the Operator.

ARTICLE 6. *Estimated costs.*—(a) *Categories of costs.*—The allowable costs of the work to which the Government shall contribute are limited to those that are direct, reasonable, necessary, and that are estimated in Exhibit "A" by categories as specified in this article. If any category or subcategory is omitted from the estimate of costs, or if the word "none" is annexed to the listing thereof, costs under such category or subcategory are not allowable. Any excess over any estimate which is indicated as the maximum of any category, subcategory, or item, either as to requirement or related cost, and any excess over the estimated total allowable cost of the work, shall not be allowable. Any excess over the estimate of any category, subcategory, or item, either as to requirement or related cost, not indicated as a maximum shall be allowable within the limit of the estimated total allowable cost of the work. To the extent that excesses over maximums other than the estimated total allowable cost of the work may be necessary for the performance of the work, the Operator shall incur such excesses for his own account without contribution by the Government; but except for any such necessary excesses in categories, subcategories, or items thereunder the Operator is not obligated to incur more than his agreed percentage of the estimated, total allowable cost of the work. **See Article 13**

To the extent specified in this article or in Exhibit "A" the following categories, subcategories, and elements thereof are maximums; but if not so specified either here or in Exhibit "A" they are not maximums, and may be exceeded within the limit of the estimated total allowable cost of the work:

CATEGORY (1)—INDEPENDENT CONTRACTS.—Work to be performed under independent contracts (see Article 4(b)). The estimated total amount of this category and the estimated cost of each unit of work for performance under an independent contract are maximums.

CATEGORY (2)—PERSONAL SERVICES.

Subcategory (a)—Supervision.—All elements of this subcategory (number of supervisors, periods of employment, rates of pay, and total) are maximums.

Subcategory (b)—Technical services.—All elements of this subcategory (number of technicians, periods of employment, rates of pay, and total) are maximums.

Subcategory (c)—Labor.

CATEGORY (3)—OPERATING MATERIALS AND SUPPLIES.—Includes such items as drill bits and steel, explosives, fuel, pipe, power, small tools costing less than $50 each, timber, track.

CATEGORY (4)—OPERATING EQUIPMENT.

Subcategory (a)—Rental.—The number of each object to be rented [6 mine cars, 1 truck], the rate of rental [$100 per month, $5 per hour], and the total of this subcategory are maximums.

Subcategory (b)—Purchases.—The estimated total of this subcategory is a maximum.

Subcategory (c)—Depreciation.—All elements of this subcategory (time periods, rate of depreciation, and subcategory total) are maximums.

CATEGORY (5)—INITIAL REHABILITATION AND REPAIRS.—Estimates under this category include all requirements and related costs, such as labor, materials and supplies, and supervision at a rate not higher than provided for in Category (2), and shall not be duplicated under any other category. The estimated total of this category is a maximum.

Subcategory (a)—Initial rehabilitation and repairs of existing buildings, fixtures, and installations (exclusive of mine workings).—The estimated total of this subcategory is a maximum.

Subcategory (b)—Initial rehabilitation and repairs of operating equipment.—The estimated total of this subcategory is a maximum.

CATEGORY (6)—NEW BUILDINGS, FIXTURES, AND INSTALLATIONS (EXCLUSIVE OF MINE WORKINGS).—Estimates under this category include all requirements and related costs, such as labor, materials and supplies, and supervision at a rate not higher than provided for in Category (2), and shall not be duplicated under any other category. The estimated total of this category is a maximum.

CATEGORY (7)—MISCELLANEOUS.—Repairs and maintenance (other than initial) of operating equipment, analytical work, prints and other reproductions, accounting, Operator's share of payroll taxes, liability insurance covering employment, travel, communications, and any other items of requirement or cost that do not fall within any of the first 6 categories.

THE ESTIMATED TOTAL ALLOWABLE COST of the work is a maximum.

(b) *Nonallowable costs.*—The following costs are not allowable for contribution by the Government:

(1) *Costs of the land,* such as rental, depreciation, depletion, or other cost of acquiring, owning, or holding possession;

(2) *Indirect costs,* such as general overhead, corporate management, interest, taxes (other than payroll and sales taxes), insurance (other than liability insurance covering employment), damages to persons, damages to property (other than necessary repairs or replacements of equipment or other property used in the work);

(3) *Previous work* performed or costs incurred before the date of this contract; and

(4) *Deferred payments.*—Any costs incurred by the Operator under any rental-purchase agreement, installment-purchase agreement, or any agreement for the purchase of goods under the provisions of which payment of the full purchase price is deferred more than 90 days from the delivery of the goods; unless the purchase agreement is approved by the Government in writing.

(c) *Reductions in costs.*—The Operator shall account for and give the Government credit for any incidental benefits, credits, or money received in the ordinary course of business in prosecuting the work (as by salvage or sale of materials or equipment, furnishing of room or board, furnishing of power or services to third persons, rebates or discounts on purchases, etc.), in the same ratio in which the Government contributes to costs; and such amounts shall be treated as a reduction in costs incurred so that they are available for use within the limit of the original estimated total cost. This provision does not apply to receipts from production which are subject to the Government's percentage royalty under the provisions of Article 9.

See Article 13.

ARTICLE 7. *Reports, accounts, audits.*—(a) *Operator's records.*—The Operator shall keep suitable records and accounts of the work performed and of any production in which the Government may have an interest; and shall preserve those with respect to work performed for at least three years after final payment by the Government, and those with respect to production for at least three years after any obligation to pay royalties to the Government has terminated. The Government may inspect and audit said records and accounts at any time, either by itself or by a certified public accountant. If the Government elects to audit said records and accounts relating to the exploration work by certified public accountant, it may do so as a cost of the work to which the Operator shall contribute. The Comptroller General of the United States or his representative, until the expiration of said three-year periods, shall have access to and the right to examine any pertinent books, documents, papers, and records of the Operator. All of the Operator's vouchers and records and accounts relating thereto and the Government's payments thereof remain subject to adjustment until final audit by the Government. If work under this contract is carried on in conjunction with any other operations, or if labor, supervision, services, materials, supplies, equipment, facilities, or other requirements for carrying on the work are also used in connection with other operations, the costs shall be segregated and accounted for on a basis and by methods and accounts that are satisfactory to and approved by the Government.

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

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

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

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

ARTICLE 8. *Repayment by Operator.*—(a) *Certification.*—If the Government considers that a discovery or development from which production may be made has resulted from the work, the Government, at any time not later than six months after a sufficient final report and final account (see Article 7) has been rendered, may so certify in writing to the Operator. Such certification shall describe broadly or indicate the nature of the discovery or development.

(b) *Royalty on production.*—The Operator, as principal if the Operator is the producer, or as surety if the Operator is not the producer, shall pay to the Government a royalty on all minerals mined or produced from the land, as follows: (1) regardless of any certification of discovery or development, from the date of the contract until the lapse of the time within which the Government may make such certification, or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first; or (2) if the Government makes a certification of discovery or development, within a period of [illegible] years from the date of the contract, or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first. **See Article 13.**

(c) *Basis for computation.*—The Government's royalty shall be a percentage of the gross proceeds (including any bonuses, premiums, allowances, or other benefits) from the production sold, in the form sold (ore, concentrates, metal, or equivalent), at the point of delivery (the f. o. b. point); *except,* that charges of *the buyer* arising in the regular course of business, and shown as deductions on the buyer's settlement sheets, on account of the cost of treatment processes performed by *the buyer,* sampling and assaying to determine the value of the production sold, and freight paid by *the buyer* to a carrier (not the Operator), shall be allowed as deductions in arriving at the "gross proceeds" as that term is used herein. Any costs of treatment processes, sampling or assaying, or transportation, performed or paid by the Operator or by anyone other than the buyer, are not deductible in arriving at the "gross proceeds" as that term is here used. The term "treatment processes," as here used, means those processes (such as milling, concentrating, smelting, refining, or equivalent) applied to the crude ore or other production after it is extracted from the ground, to put it into a commercially marketable form; excluding fabricating or manufacturing. **See Article 13.**

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

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

One and one-half (1½) percent of amounts ("gross proceeds" or "value") not in excess of eight dollars ($8.00) per ton of production in the form in which sold, held, or used, plus one-half (½)

percent for each additional full fifty cents ($0.50) by which such amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) percent of such amounts.

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

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

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

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

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

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

ARTICLE 9. *Interests in purchased property.*—(a) *Title and ownership.*—All costs under this contract shall be incurred by the Operator in the Operator's own name and for the Operator's own account; but any property acquired to the cost of which the Government contributes shall belong to the Operator and the Government jointly in proportion to their respective contributions, although title thereto shall be taken in the name of the Operator.

(b) *Preservation of property.*—Until the final disposal of any property in which the Government has an interest the Operator shall preserve and protect same for the best interest of the Government, any reasonable and necessary costs thereof to be treated as an allowable cost of the project. After the completion of the work or termination of the Government's obligation to contribute, or when such property is not in use for or needed for the work, the Operator shall neither use it without the written consent of the Government nor without paying a reasonable rental to be fixed by the Government for its interest.

(c) *Disposal of property.*—Upon the completion of the work or termination of the Government's obligation to contribute to costs, or when the property is no longer needed for the work, the Operator shall promptly dispose of salable or salvageable property in which the Government has an interest for the joint account of the Government and the Operator, either by return to the vendor, by sale to others, or purchase by the Operator or the Government at a price at least as high as could be obtained from others, unless the Government in writing waives its interest in any such property. Without advance approval of the sales price by the Government the Operator shall not sell at any price any item of property the cost of which was more than $500, and shall not sell at less than 25 percent of the purchase price any item of property which cost $500 or less. The Government, in lieu of approving the sales price for any such item, may itself purchase the item at the best price which the Operator is able to obtain or himself cares to give. Property remaining upon any termination of the work shall be considered in groups or categories (such as drill steel, or explosives, or pipe, or rails), and if the original cost of the remaining unexpended portion of any such group or category is less than $50, the Government waives its interest therein. If necessary to accomplish the disposal of any item the Operator shall dismantle and sever it from the land, the cost thereof to be treated as a cost of the project.

(d) *Default of the Operator re disposal.*—If within 90 days after the completion of the work or termination of the Government's obligation to contribute to costs, or after the property is no longer needed for the work, or after such further time as the Government may in writing allow, the Operator has failed to sell or otherwise liquidate or dispose of any property in which the Government has an interest, the Government, at any time prior to final settlement under the contract, may pursue one of the following two courses: (1) the Government, by written notice to the Operator, may place upon such property what in its opinion is a fair valuation thereof, not in excess of the cost less 1.66 percent per month from the

date such property was purchased under this contract to the termination of said 90-day period; and such property shall thereupon be considered and accounted for as having been purchased by the Operator at the valuation so fixed by the Government; or (2) the Government may enter and take possession of such property wherever it may be found, and remove and dispose of it for the joint account of the parties.

ARTICLE 10. *Termination of the Government's obligations.*—(a) If in the opinion of the Government operations at any time have failed to achieve anticipated results that indicate the probability of making a worthwhile discovery, and in the opinion of the Government further operations are not justified, the Government may give the Operator written notice thereof, and thereupon: (1) the Government shall be free of all obligation to contribute to costs not then incurred other than such as may be allowable under the provisions of the contract as necessary and incidental to winding up, reporting, and accounting; and (2) the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting.

(b) If in the opinion of the Government the Operator is in any manner in default under the terms of the contract, the Government may give the Operator written notice of such default with a specification of reasonable time within which the default must be cured; and if the Operator fails to cure such default as required, thereupon: (1) the Government shall be relieved of all obligation to contribute to costs not incurred when the notice was given, other than such as may be allowable by the provisions of the contract as necessary and incidental to winding up, reporting, and accounting; and (2) the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting. The remedy provided for the Government in this paragraph "(b)" is in addition to any other remedy provided in this contract, and in addition to any other remedy the law may provide for breach of contract.

(c) The giving of any notice by the Government under the provisions of this Article 10 shall not affect the Government's rights as provided for in the contract with respect to a percentage royalty, and such rights shall be fully preserved.

ARTICLE 11. *Notices to be given by the Government* may be delivered to the Operator, or may be sent by registered mail addressed to the Operator at his mailing address stated in this contract. If mailed, notices are deemed to have been delivered five days after the date of mailing.

ARTICLE 12. *Officials not to benefit.*—No member of or delegate to Congress or resident commissioner shall be admitted to any share or part of this contract or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

ARTICLE 13. *Changes and added provisions.*— **(a) Categories (2) through (7) of Article 6(a) are deleted. (b) To the extent that costs are set forth in Exhibit "A" as "Fixed Unit Costs" they are in lieu of the actual costs that otherwise would be allowable costs of the project under Article 6 of the contract. The Government will contribute to the fixed unit costs as they accrue, on the basis of units of work actually performed. The fixed unit costs include all costs of the work necessary to complete the project. (c) That part of the last sentence in the first paragraph of Article 6(a) commencing after the semicolon, is deleted. (d) In Article 8(b): (1) the word "minerals" includes limestone and dolomite products produced in processing ore; and (2) the words "ten years" are changed to "thirty years." (e) The following clause is added to Article 8(c): "Provided, however, That so long as the Operator operates smelting facilities as an integrated part of its business, the settlement made by the Operator's smelter to its mine or mill on the ore or concentrates subject to the Government's royalty shall be, for the purpose of calculating the royalty payable to the Government under this contract, on the same settlement basis that the said smelter makes to its independent suppliers under the schedule most favorable to any independent supplier, or should gross income from mining operations for percentage depletion purposes in Federal income tax determination show a greater value for ore or concentrate sales than that value which would result from applying the smelter schedule most favorable to an independent supplier, the greater value would be used as the basis for calculating royalty payable to the Government."**

Executed in sextuplicate the day and year first above written.

"Appd. Sol. Off."

THE UNITED STATES OF AMERICA

By O P Mitchendorf

Administrator, Defense Minerals Exploration Administration

Approved as to form

THE NEW JERSEY ZINC COMPANY

(Operator)

By J B Goodwin

Title VICE PRESIDENT

I, Walter R. Angus, certify that I am the secretary of the corporation named as Operator herein; that J. B. Goodwin who signed this contract on behalf of the Operator, was then VICE PRESIDENT of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

Walter R. Angus

[CORPORATE SEAL]

U. S. GOVERNMENT PRINTING OFFICE 16—70617-1

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EXPLORATION PROJECT CONTRACT
THE NEW JERSEY ZINC COMPANY
DOCKET NO. NMRA-4119

ANNEX I

The land referred to in Article 2 of the Contract consists of various privately owned tracts of land which are held by the Operator pursuant to option contracts, which permit it to purchase all mineral and mining rights on such tracts. Such land areas are outlined in blue on the attached map entitled "The New Jersey Zinc Company, Jefferson City, Tennessee, Property Map, Morristown Sweetwater-Talbot Area, Figure 2" which is hereby made a part of this Contract.

The various land parcels are identified as follows:

Name of Property Owner	Acreage
Mitchell Moseley, Pearl Moseley and Herman Moseley	127
Hattie Miller	78
Earl Morgan and Sadie Marie Morgan	76
W. B. Watkins, Wilma B. Watkins and I. N. Watkins	176
Annette McElveen	135
Miriam M. Caldwell	75
John Carter	47
Joe Pollard and Cardie Pollard	42
Thomas Courtney	30
H. H. Oakley	137
William Pollard and Jessie Pollard	28
C. M. Breeden and Martha Breeden	81
Roy O. Breeden and Anna Lee Breeden	8
C. E. Goodman and Martha Goodman	400
H. V. Gaile and Florence Franklin Gaile	109
Hilda Knight and Maude Knight	80
John Austin and Jennie Lee Austin	182
Leonard B. Deering	230
Jessie G. Burnett	59
Elam Davis, Vrela Davis, and Ray F. Davis	42
W. B. Bugal, Earl Bugal and Pauline Bugal	42

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SPECIAL AGREEMENT CONCERNING LAND

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

2. It is further agreed that the Operator may, at any time before the expiration of thirty days following the completion or termination of exploration work under this Contract, request the Government to delete from this Contract such lands described in the Option Contracts listed in this Annex I, or by any amendments thereto, as have no known value for mineral production. The Government will promptly prepare amendments removing the specified lands from the Contract which amendments shall provide that the Operator:

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

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

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

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

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EXPLORATION PROJECT CONTRACT
THE NEW JERSEY ZINC COMPANY
PROJECT NO. [illegible]-4119

EXHIBIT "A"

Description of the Work

The purpose of the project is to explore for ores of zinc by diamond drilling (plus necessary overburden drilling). The preliminary drilling to be done under the Contract is roughly indicated on the attached map entitled "Fig. 5, The New Jersey Zinc Company, Morristown Quarry, Talbot Area."

The intent of the work is to investigate the ore potential of the Kingsport limestone and dolomite which is the ore-bearing formation of the district. It is anticipated that drill holes will range from [illegible] to 1,700 feet in depth, with a probable average depth of 1,[illegible] feet.

The project is not intended to accomplish the detailed outlining of individual ore bodies. Drill holes will not be located on closer spacing than 600 feet, except by special arrangement with the Government. All diamond drilling, including location of holes and depths, will be subject to prior Government approval.

All drill holes shall be logged geologically and all drill core will be made available to the Government for examination. All mineralized core will be properly sampled and assayed for zinc and iron. Such assays, together with proper geological logs of drill holes, will be reported to the Government, together with proper plot maps and sections showing the progress of the work. Diamond drilling will be done with AX size, or larger, core recovery drills and coring bits.

The project work shall be supervised at all times by competent engineers or geologists.

It is estimated that 50,000 feet of drilling will be required to test the gross ore potential of the area.

Estimated Cost of the Project

Actual Costs

Category (1) Independent Contracts

Overburden drilling and diamond drilling to 1,000 ft. depth
48,000 feet @ $2.16/ft. $103,680.00

Diamond drilling 1,000 ft. to 1,500 ft. depth
10,000 feet @ $2.66/ft. 26,600.00

Diamond drilling over 1,500 ft. depth
2,000 feet @ $3.16/ft. 6,320.00 $136,600.00

The above rates cover charges for running, cementing, water supply, casing, changing of locations, and all charges which may be incurred by the diamond drill contractor. 1/

Categories (2) through (7)

None

Fixed Unit Costs (See Article 13)

Incidental allowance for each foot of drilling completed
60,000 feet @ $0.32/ft. $ 19,200.00

300 samples to be assayed @ $4.30/sample 490.00 $ [illegible]

Estimated Total Cost of Project [illegible]

Government Participation @ 50% $ [illegible]

1/ Casing left in drill holes at option of Operator will not be accepted as a charge to the Contract.

Area in which NJZ Option negotiations are in progress

New Jersey Zinc Option

New Jersey Zinc Owned

N

HAMBLEN COUNTY

JEFFERSON COUNTY

Area A

Area B

TALBOT

MORRISTOWN

SOUTHERN R.R.

US 11E

Old US 11E

JARNAGIN MINE

Swann
Jim Torr
Hammond
Maser
Davis
Caldwell
John May
Breeden
Miller
Masengill
Punkey
Travis
Dickerson
Frank Wood
Shafer
Lloyd May
Ashley
Burke
Reece
Campbell
Goodman
Britton
Bishop
Dyer
Lee
Southerland
C.L. Cornwell
Trent
Billy Sams
R.E. Smith
R.V. Coile
J. Knight
Wm Pollard
J. Pollard
Lenning
Franklin
Burnett
M. Breeden
Mary Quarles
James
Robertson
E.C. Quarles
W.S. Bacon
R.L. Wood
C.L. Porter
J. Wood & J. Rickard
ALPHA
Bell
Honeycutt
Clint Goodman
V. Rickard
Mrs A M. Curry
C.E. Goodman NJZ
L.B. Dearing NJZ
Collins
W.D. Kenner
H. Pollard
Nolen
J.E. Austin NJZ
Knight
Ruth Shover
Hopkins
A. Watkins
Earl Morgan NJZ
HH Oakley NJZ
Knight NJZ
R.V. Coile NJZ
Rickard
E. Ronalet
G. Smith
T.H. Knowling
W.M. Hopkins
County
G. Elliet
Hatley
Hazlewood
Mrs B. Breeden
Mrs W. Ford
Fain Smith
Mrs S. Smith
R. Fisher
R. Smith
Lloyd Burnett
Carmichael
Collett
Chandler
Drinnion
Green
Engram
R. Smith
R.B. Hazelwood
Eller
Lee Smith
Cox
J.S. Walker
Rugel NJZ
WB Watkins NJZ
Housley NJZ
Tom Courtney NJZ
McElveen NJZ
Tom Courtney
Henry
O. Jones
H. Donaldson
Pate
C. Donaldson
Carter NJZ
Smith
Williams
P. Jones
Kyle
Harris
Lauderbach
Hubert Miller NJZ
R. Massengill
Massengill
W. Massengill
R. Smith
Jess Cline NJZ
Fraker
Swann Heirs
Robeson
Murphy NJZ
Butcher
Franklin
Tallent
A.D. Carter
R.T. James
J.H. Lonas
Stump
Fraker A.E.Co
Tom Courtney
Torr
Henry
Old Dk
Old Dk
Old Dk

POSTED TO DATE
12-55

THE NEW JERSEY ZINC COMPANY
JEFFERSON CITY TENNESSEE

DRAWN JFP DATE 9-30-52
TRACED JFP SCALE 1"=2000'

PROPERTY MAP
MORRISTOWN SECTOR-TALBOT AREA

JEFFERSON & HAMBLEN CO'S, TENN
FILE NO AX-TENN 247

DMEA 4119

Figure 2

FIG. 5

DMEA 9112

THE NEW JERSEY ZINC
JEFFERSON CITY, TENNESSEE

DATE: Feb. 1956 | SCALE: 1" =

Morristown Sector – Talbot

Proposed Drilling

THE NEW JERSEY ZINC COMPANY
(ESTABLISHED 1848)

HORSE HEAD PRODUCTS ®

OFFICE OF THE
VICE PRESIDENT

100 FRONT STREET

NEW YORK 38, N.Y.

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January 9, 1956

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

Morristown Sector, Tennessee
DMEA Exploration Project
The New Jersey Zinc Company

Dear Sirs:

Submitted herewith in quadruplicate is a short form option contract for the W. B. Rugel 42 acre property in the Morristown Sector, Tennessee which The New Jersey Zinc Company has recently secured.

This agreement is a part of Exhibit "A" of our application mailed to you January 6, 1956, and is the last property listed on Sheet No. 2 of our application for aid in an exploration project to DMEA Order I. Through an oversight, the attached agreement was not submitted with the others on January 6.

Very truly yours,

S. S. Goodwin
Vice President
and
Manager of Mines

SSGei

Encl. (4)

Phone - Whitehall 3-5700

THE NEW JERSEY ZINC COMPANY
(ESTABLISHED 1848)

HORSE HEAD PRODUCTS ®

OFFICE OF THE
VICE PRESIDENT

160 FRONT STREET

NEW YORK 38, N.Y.

January 6, 1956

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

Dear Sirs:

Submitted herewith on behalf of The New Jersey Zinc Company is an application for aid in an exploration project pursuant to DMEA Order I, under the Defense Production Act of 1950, as amended, and prepared in accordance with Form MF-103 in quadruplicate.

Pending your acceptance and approval of this application, we are ready to proceed with the project. Therefore, your attention to this matter at some early date would be very much appreciated.

Very truly yours,

S. S. Goodwin
Vice President
and
Manager of Mines

SSGei

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J. B. Cornelia, Engr.
Home office

ATTACHMENTS

Form MF - 103

Sheet #1 - CORPORATION OFFICERS

Sheet #2 - APPLICANT'S PROPERTY RIGHTS

Sheet #3 - PHYSICAL DESCRIPTION

Sheet #4 - DESCRIPTION OF THE EXPLORATION PROJECT

Sheet #5 - ESTIMATED COSTS

ENCLOSURES

Exhibit A - Contract agreements with property owners

Exhibit B - Diamond drilling company quotation and proposed exploratory drilling

Figure 1 - MAP - Eastern Tennessee District

Figure 2 - PROPERTY MAP - Morristown Sector, Talbot Area

Figure 3 - MAP - Morristown Sector, Talbot Area - geology, geochemistry and drill hole map

Figure 4 - Geologic sections

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MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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

Not to be filled in by applicant

Docket No. DMEA 4119
Metal or Mineral Zinc
Date Received 1-9-56
Estimated Cost $170,000.00
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: The New Jersey Zinc Company
160 Front Street
New York 38, New York.

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

(*c*) If a corporation, add to above statement, titles, names and addresses of officers. See sheet No.1 attached

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract
See sheet No. 2 attached

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

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise
See Sheet No. 2 attached

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property. See Exhibit "A" and Sheet No. 2

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

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

4. *Physical description.*—(*a*) Describe in detail any mining or exploration operations which have been or now are being conducted upon the land, including existing mine workings and production facilities. State your interest, if any, in such operations. Also describe accessibility of mine workings for examination purposes. See Sheet No. 3 attached

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. See Sheet No. 3

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay maps, or other technologic information you may have, indicating on each whether you require its return to you. See sheet No. 3 attached

(*d*) State the facts with respect to the accessibility of the project: Access roads, distances to shipping, supply and residence points. See sheet No. 3 attached

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power.
See sheet No. 3 attached.

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5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore This exploration seeks to discover zinc ore bodies

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc. See sheet No. 4 attached

(*c*) The work will start within 10 days and be completed within 24 months from the date of an exploration project contract.

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations. See sheet No. 4 attached

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

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

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

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

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

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

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

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

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

NOTE.—No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs. See sheet No. 5 attached

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

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

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

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated _____, 195__

_____
(Applicant)

By_____

_____

_____

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

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

Sheet No. 1

1 (c) of instructions

Names, Titles, and addresses of Officers.

Mr. R. L. McCann, President	160 Front St., New York
Mr. C. Howard George, Executive Vice President	ditto
Mr. S. S. Goodwin, Vice President	ditto
Mr. Walter R. Anyan, Secretary	ditto
Mr. E. E. Schwegler, Comptroller	ditto
Mr. Samuel Riker, Treasurer	ditto
Mr. R. G. Kenly, Vice President	ditto
Mr. F. J. Baxter, Vice President	ditto
Mr. L. F. Johnson, Vice President	ditto
Mr. P. M. Ginder, Vice President	ditto
Mr. R. A. Oberfell, Assistant Secretary	ditto
Mr. W. L. Brookfield, Assistant Secretary	ditto
Mr. W. W. Gamwell, Assistant Treasurer	ditto

Sheet No. 2

No. 3 of Instructions - Applicant's Property Rights.

(a) The land under consideration consists of a group of properties as outlined on the accompanying map. Figure 2 - The area outlined in blue is controlled by the option contracts summarized below. The area outlined in brown involves properties on which negotiations for option control are currently in progress. The legal description of each tract is included in the contract and agreement under which the property is controlled by this Company. Copies of each of these contracts are attached to this application (Exhibit "A"). A summary listing of the properties and pertinent data follows:

Name of Property Owner	Acreage	Expiration date of option
Herman Housley	127	9/8/57
Hattie Miller	78	9/8/57
Earl Morgan	76	9/23/57
W. B. Watkins	176	9/23/57
Annetta McElveen	135	9/20/57
Miriam M. Caldwell	75	9/25/57
John Carter	47	9/26/57
Joe Pollard	42	9/30/57
Thomas Courtney	90	10/6/57
H. H. Oakley	137	10/15/57
William Pollard	28	10/17/57
C. M. Breeden	81	10/22/57
Roy O. Breeden	8	10/22/57
C. E. Goodman	400	10/28/58
R. V. Coile	109	10/29/57
Elihu Knight	80	10/29/57
Jake Austin	182	12/6/58
Leonard B. Dearing	230	12/6/58
Jessie Q. Burnett	59	12/13/58
Elen Davis	42	12/20/57
W. B. Rugel	42	11/25/57

(c) The New Jersey Zinc Company holds options for the purchase of all mineral and mining rights on each of these properties,

and has limited purchase privileges. This Company holds the exclusive right to prospect and explore for minerals on these properties.

No. 4 of Instructions - Physical Description

(a) The only activities on the land have consisted of a small number of churn drill holes put down in 1928 to 1940 by American Zinc Company and by U. S. Steel Corporation, and 20 diamond drill holes put down by this Company in 1953 and 1954. All of the previous drilling was done in that part of the land under which the favorable Kingsport formation lies at a shallow depth. The diamond drilling was practically confined to the northwest 10% of the area presently under consideration. There are no mine workings on the land.

(b) There has been no production from this property. The previous drilling has indicated mineralization. No ore has been encountered to date, but one hole has shown a vertical thickness of 26 feet of 4.4% zinc at a depth of 845 to 871 feet.

(c) The area under consideration would be expected to contain any northeast extension of the Jefferson City zinc district. See area outlined in blue, figure 1. It is underlain by Kingsport limestone and dolomite which are the ore-bearing formations of of the district, at depths from 800 to 2000 feet. These beds are dipping at an angle of about 10 degrees to the southeast. Reference is made to 1: 24000 scale geologic sections AA' BB' and CC' shown on Fig. 4.

The ore bodies of the Jefferson City district consist of very pure sphalerite deposited as large replacements of the Kingsport Limestone. The existance of the favorable formation, and the

proximity to known large orebodies makes this property an attractive exploration project. Further, its location on the northeast projection of an apparent alignment of orebodies, plus the known mineralization encountered in previous limited drilling programs add materially to the attractiveness of the exploration possibilities. Geochemical prospecting along the outcrop area has revealed the presence of zinc in the residual clay which is undoubtedly related to zinc mineralization in the rocks from which the clays have been derived. (See plan, fig. 3 and sections, fig. 4).

(d) The property is located about four miles northeast of Jefferson City. It is crossed by the Southern Railway, and is served by a network of rural roads, as well as U. S. Highway 11 E. The small village of Talbott lies in the center of the area. (See Figure 1).

(e) Manpower, supplies, and power are readily available in the area.

No. 5 of Instructions - The Exploration Project

(b) The proposed work consists of a widespaced grid of diamond drill holes located in such a manner as to provide a gross screening of the potential ground. Any ore penetrations or other favorable indications (alteration, structures, etc) made by this first screening will be followed by a somewhat closer grid to outline the gross ore potential. No effort will be made to determine detailed ore outlines. The drill holes will be spaced originally at about 1/4 and 1/2 mile intervals, and will range in depth, depending on distance from the outcrop, from 800 to possibly more than 1700 feet. Area "A" shown on Fig. 3 will be initially investigated by holes drilled on 1/4 mile spacing. Area "B" shown on Fig. 3 will be initially investigated by holes drilled on approximately 1/2 mile spacing.

The ore-controlling structures in the district (gentle flexures, faults, of very minor displacements, original sedimentary structures) are of such subtle character that they are not reflected in the sparse outcrops at the surface. Moreover, the subject area lies within the influence of the Koppick Knob thrust fault, a dominating structure of the Jefferson City district, and surface outcrop largely shows disturbance from this fault. The formations which we propose

to explore lie beneath this fault. Thus, surface geologic data are of only limited value and wide-spaced exploratory drilling is required to obtain any information respecting the ore potential.

(d) The New Jersey Zinc Company has had wide experience in large-scale exploration programs in the Jefferson City district, as well as many other mining districts in the U. S. This project will be under the supervision of Johnson Crawford, Superintendent for Tennessee operations, who has been active in the Jefferson City district for over 25 years.

Sheet No. 5

No. 6 of Instructions - Estimated Costs

Category 1. Independent Contracts
Diamond drilling 60,000' @ 2.35/ft $141,000

See Exhibit "B"

Proposal from E. J. Longyear Company on which estimate of drilling cost is based.

$2.11	av.depth
.10	water
.10	service
.04	casing
$2.35	per ft. av. hole

Category 2.

a. Supervision

1 geologist - - - full time 24 mos.	10,000
1 Asst. geologist half " " "	5,000

b. Technical Services

2 Surveyors - - -30% full-time 24 mos.)	7,000
1 Draftsman - - - " " " " ")	

c. Operating Materials & Supplies 2,675
Core boxes, etc.

d. Operating Equipment
Cars 7,000 mi. @ .08 560

e. Rehabilitation & Repairs - None

f. New buildings, improvements - None

g. Miscellaneous

Chemical assays	- - 150 assays @ 1.50	225
Accounting Chgs.)	- 30.00/mo. x 24	720
Secretarial Chgs.)		
Workmen's Comp. Insurance	- - 1% x 22,000	220
Payroll Taxes	- - - 5% x 22,000	1,100
Core Storage	- - - 60,000 @ 2.5	1,500
		$170,000

Exhibit "A"

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 6th day of December, 1955, by and between JAKE AUSTIN and wife, JENNIE LEE AUSTIN, of Hamblen County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond December 6, 1958, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises:

TRACT 1: Situated in the Second (Old Fifth) Civil District of Hamblen County, Tennessee, bounded and described as follows:

BEGINNING on a stone set in old Tan Kiln on the North edge of a road, a corner with John Quarles and the A. P. C. Bettis Farm; thence North 76-3/4 deg. West 12-4/5 poles to a rock in front of dwelling; thence North 40 deg. West 21 poles and 2 links to a rock, Roberts, corner; thence South

38-1/2 deg. East 39-2/5 poles with Roberts' line to a rock; thence North 65-1/2 deg. East 29-4/5 poles with Roberts' line to a rock in Miller's line; thence South 38-1/2 deg. East 76 poles with Miller to a solid rock and cedar stump; thence North 19 deg. East 23-39/25 poles to a chinquapin oak stump; thence South 42-1/4 deg. East 45 poles to a spanish oak, Campbell's corner, thenceSouth 54 deg. East 65 poles with Campbell's line to a black oak; thence South 46 deg. West 59 poles with Pollard and Ingram to white oak; thence North 51-1/4 deg. West 76 poles with Ingram to a rock in gulley; thence South 19 deg. West 111 poles and 19 links to a rock at a road in front of John Walker's barn; thence North 76-1/2 deg. West 16 poles and 9 links to a rock; thence South 52-1/4 deg. West 4 poles and 8 links to a rock, Eugene Hunter's corner; thence North 30 deg. West 94 poles with Eugene Hunter's line to a rock; thence West 16 poles to rock in Quarels line; thence North 3 deg. East 133 poles with Quarels line to the BEGINNING, containing 152 acres and 65 square poles be the same, more or less.

TRACT II: Situated in the Ninth Civil District of Jefferson County, Tennessee, bounded and described as follows:

BEGINNING at two small post oaks in the East edge of a road in the line of John Quarles; thence with his line and the line of J. P. Knowling South 3 deg. East 146 poles to a rock corner to said Knowling; thence South 26 poles to a rock in Knowling's field; thence South 42 East 42 poles to a rock in the road; corner to said Knowling; thence North 47-1/2 East 44 poles with said road to a rock in same; thence North 30 West 94 poles to a rock; thence West 10 poles to a small cedar; thence North 3 West 76 poles to a rock; thence North 32-1/2 West 18 poles to the BEGINNING, containing 30 acres, more or less.

Owners acquired title to the above described property by Deed of Lea King Donaldson, dated October 5, 1949 and of Record in the Register's Office for Hamblen County, Tennessee in Deed Book 52, Page 288, and of Record in the Register's Office for Jefferson County, Tennessee in Deed Book 100, Page 443, to which reference is made.

Together with the right to prospect for, mine, mill and remove the same; water rights, the free and uninterrupted right of ingress and egress, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto.

And the parties of the first part also grant to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including

the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned agreement. The terms of this option Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures the day and date first above written.

Jake Austin
Jake Austin.

Jennie Lee Austin
Jennie Lee Austin.

STATE OF TENNESSEE

HAMBLEN COUNTY

Personally appeared before me, B. J. Kinsey Jr., a Notary Public in and for said County and State, the within named bargainors, JAKE AUSTIN AND WIFE, JENNIE LEE AUSTIN, with whom I am personally acquainted, and who acknowledged that they executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 6th day of December, 1955.

B. J. Kinsey Jr.
Notary Public.

Commission Expires: Apr. 20, 1957
Probate in Hamblen County under the provisions of Tennessee Code Section 5704.1 et seq.

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 22nd day of October, 1955, by and between C. M. BREEDEN and wife, BERTHA BREEDEN, of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part and THE NEW JERSEY ZINC COMPANY a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company:

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for a further period not to extend beyond October 22, 1957, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises:

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, containing 81 acres, more or less, and bounded generally as follows:

On the North by the Southern Railroad Right-of-way;
On the East by the lands of Burnett and Hopkins;
On the South by Talbott School property and lands of John Parks; and
On the West by the lands of R. V. Coile and Benny Franklin.

Owners acquired title to the above described premises by Deed of H. A. Estes, et ux., dated January 5, 1945 and of Record in the Register's Office for Jefferson County, Tennessee in Deed Book 93, Page 492, to which reference is made.

Together with the right to prospect for, mine, mill and remove the same; water rights, the right of ingress and egress, and the right to purchase surface acreage to the extent of twenty acres, in accordance with the terms of an agreement of even date herewith entered into between the parties hereto. And the parties of the first part also grant to the party of the second part during said periodthe right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned agreement. The terms of this option Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures the day and year first above written.

C. M. Breeden
C. M. Breeden.

Bertha S. Breeden
Bertha Breeden.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainors, C. M. BREEDEN AND WIFE, BERTHA BREEDEN, with whom I am personally acquainted, and who acknowledged that they executed the foregoing instrument for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 22nd day of October, 1955.

Ben S. Catlett
Notary Public.

Commission Expires: 4-16-58

EXTENSION CONTRACT AND AGREEMENT

THIS EXTENSION CONTRACT AND AGREEMENT made and entered into on this 10th day of June, 1955, by and between ROY O. BREEDEN and wife, ANNA LEE BREEDEN, of Hamblen County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

W I T N E S S E T H

WHEREAS, the Owners and the Zinc Company entered into a certain Contract and Agreement under date of October 22nd, 1952 with respect to the following described property:

SITUATE in the Ninth Civil District of Jefferson County, Tennessee and the Second Civil District of Hamblen County, Tennessee, known as the "W. E. Dyer Residence Property", containing 6 acres, more or less and bounded generally as follows:

On the North by the lands of Sams;
On the East by the lands of Treat;
On the South by the lands of Bowlin; and
On the West by the lands of May.

Owners acquired title to the above described premises by Deed of W. E. Dyer and wife, dated April 22, 1950 and of Record in the Register's Office for Hamblen County, Tennessee in Deed Book 85, Page 75, to which reference is here made.

Said Contract and Agreement of October 22, 1952 and the short form thereof of even date between the parties as appears of record in the Register's Office for Hamblen County, Tennessee in Misc Book _____, Page _____ are incorporated by reference, and made a part hereof, as fully as if copied verbatim herein. And;

WHEREAS, by the terms and provisions thereof said Contract and Agreement expires on October 22, 1955. And in the event the Zinc Company elects to exercise its right and option to purchase thereunder there is remaining due and unpaid purchase money for the mineral and mining rights fully described in paragraph "Two" the sum of ONE THOUSAND ($1000.00) DOLLARS. And;

WHEREAS, the Owners and the Zinc Company have mutually agreed to extend said option Contract and Agreement.

NOW, THEREFORE, in consideration of SEVENTY FIVE ($75.00) DOLLARS cash in hand paid to the Owners, receipt of which is hereby acknowledged, said Contract and Agreement is hereby extended until October 22, 1957. Otherwise than above specified all the provisions of the aforesaid Contract and Agreement of October 22, 1952 shall be in full force and effect during said extended period.

The parties hereto agree that the whole of said Extension Contract and Agreement between them is written herein and in a short form Agreement of even date herewith which is intended to be recorded, and the parties hereto are not bound by any agreements, understandings or conditions otherwise than as set forth herein and said short form agreement.

This Extension Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the parties of the first part have hereunto set their signatures on this the day and date first above written.

Roy O. Breeden

Roy O. Breeden.

Anna Lee Breeden

Anna Lee Breeden.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainors, ROY O. BREEDEN AND WIFE, ANNA LEE BREEDEN, with whom I am personally acquainted, and who acknowledged that they executed the foregoing Extension Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 10th day of June, 1955.

Ben S. Catlett

Notary Public.

Commission Expires: 4-16-58

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 13th day of December, 1955, by and between JESSIE QUARLES BURNETT, of Jefferson County, Tennessee, hereinafter called the Owner, party of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the party of the first part grants unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond December 13, 1958, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone in, under or on the following described premises.

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, and being a certain farm known as the "Eller or Duncan Lands" and bounded and described as follows:

> BEGINNING on an iron pin on the South side of the Southern Railway Company, running thence North 49-30' E. 68.8 poles; thence leaving the Southern Railway Company's right-Of-way and running S. 20-20' 134.8 poles to a stake in public road; thence with said public road S. 50 W. 68.5 poles to a stake, corner with John Bettis; thence with said Bettis line N. 20-20' W. 142.4 poles to the BEGINNING,

containing 59.4 acres, more or less, and a perpetual right of way 25 feet wide is hereby dedicated and set out for the use and benefit for the said party of the second part and other owners of said Duncan lands said right of way crosses the Southern Railway and extends to the old railway bed or county road between Lots 12 and 13 of the sub-division of said Duncan Lands.

Owner acquired title to the above described property by Deed of Helen Quarles James, et al., dated May 1, 1950 and of Record in the Register's Office for Jefferson County, Tennessee in Deed Book 102, Page 231. See also will Book 12, Page 204, County Court Clerk's Office.

Together with the right to prospect for, mine, mill and remove the same; water rights, the free and uninterrupted right of ingress and egress and the right to purchase the entire surface of the above described premises, in accordance with the terms of an agreement of even date herewith entered into between the parties hereto.

And the party of the first part also grants to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon to use available water and to remove samples, in accordance with the terms of the last mentioned agreement. The terms of this option Contract and Agreement are fully set out in the agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owner and party of the first part has hereunto set her signature the day and date first above written.

Jessie Quarles Burnett

Jessie Quarles Burnett.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainor, JESSIE QUARLES BURNETT, with whom I am personally acquainted and who acknowledged that she executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 13th day of December, 1955.

Ben S. Catlett
Notary Public.

Commission Expires: 4-16-58

EXTENSION CONTRACT AND AGREEMENT

THIS EXTENSION CONTRACT AND AGREEMENT made and entered into on this 24th day of May, 1955, by and between MIRIAM M. CALDWELL (Single), of Hamblen County, Tennessee, hereinafter called the Owner, party of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

W I T N E S S E T H

WHEREAS, the Owner and the Zinc Company entered into a certain Contract and Agreement under date of September 25, 1952. The short form thereof of even date between the parties appears of Record in the Register's Office for Jefferson County, Tennessee in Misc. Book 6, Page 14. Both are incorporated by reference, and made a part thereof, as fully as if copied verbatim herein, with respect to certain farm lands of the Owner, Situate in the Fourth Civil District of Jefferson County, Tennessee and being Lots Nos. Thirteen (13), Fourteen (14), Fifteen (15), Sixteen (16), Twenty Three (23), Twenty Four (24), Twenty Five (25), Twenty Six (26), Twenty Seven (27), Twenty Eight (28), Twenty Nine (29) and Thirty (30) as shown by the Plat of the Boyle Byrd Farm as surveyed by O. O. Graham, which Plat appears of record in the Register's Office for Jefferson County, Tennessee in Plat Book 2, Page 238 to which reference is here made, containing 75 acres, more or less, and more particularly described as follows:

BEGINNING on a stake set in the Southern side of U. S. Highway 11-E; thence North 50 deg. 45' East 613.6 feet to a stake on the South side of said Highway, corner to Lot No. 17; thence with the Western line of Lot No. 17 South 34 deg. 45' East 310 feet to a stake in the Northern line of Lot No. 23; thence North 53 deg. 48' East 539 feet to a stake in the line of John A. May; thence with the line of May South 7 deg. 30' East 1,946 feet to an iron pin; thence South 74 deg. 30' West 1,523 feet to a rock; thence North 43 deg. 00' West 1,168 feet to a stake, corner to Lot No. 1; thence North 50 deg. 45' East 1,223 feet, crossing the roadway as shown on the above Plat, to a stake, Northwest corner of Lot No. 23; thence North 13 deg. 12' West 220 feet to a stake; thence North 25 deg. 15' West 115 feet to the BEGINNING.

Owner acquired title to the above described premises by Deed of Doyle Byrd and wife, dated March 19, 1951 and of Record in the Register's Office for Jefferson County, Tennessee in Deed Book 103, Page 329, to which reference is here made.

WHEREAS, said Contract and Agreement expires on September 25, 1955 and the parties have mutually agreed to an extension of the terms and provisions thereof.

NOW, THEREFORE, in consideration of the sum of ONE ($1.00) DOLLAR cash and other good and valuable considerations, the Owner grants and extension of said Contract and Agreement of September 25th, 1952 for an additional period of two years, expiring on September 25, 1957.

The terms of this Extension Contract and Agreement are fully set out in an agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length. Otherwise than specified therein all the provisions of the aforesaid Contract and Agreement of September 25, 1952 shall be in full force and effect during said extended period.

This Extension Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owner and party of the first part has hereunto set her signature the day and year first above written.

Miriam M. Caldwell

Miriam Caldwell
M.

STATE OF TENNESSEE
JEFFERSON
~~[illegible]~~ COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainor, MIRIAM M. CALDWELL (SINGLE), with whom I am personally acquainted, and who acknowledged that she executed the foregoing Extension Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 26th day of May, 1955.

Ben S. Catlett
Notary Public.

Commission expires: 4-16-58

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 29th day of October, 1955, by and between R. V. COILE and wife, FLORENCE FRANKLIN COILE, of Hamblen County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company:

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for a further period not to extend beyond October 29, 1957, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises:

SITUATE in the Second Civil District of Hamblen County, Tennessee and Ninth Civil District of Jefferson County, Tennessee being three certain tracts of land, containing in all 109 acres, more or less, (tracts Two and Three adjoin), more particularly described as follows:

TRACT ONE : Situate in the Second Civil District of Hamblen County Tenressee, adjoining the lands of Britton, Leming, Sams, and possibly others, and described as follows:

BEGINNING at a stake in the Northern margin of the Southern Railway Company's right of way and running North 17 deg. 20' West 2065 feet to a stake; thence North 74 deg. East 737 feet to a rock; thence South 24 deg. 20' East 1680 feet to a stake in a road; thence with said road South 49 deg. 25' West 824 feet to a stake; thence South 52 deg. 20' West 178 feet; thence South 63 deg. West 42 feet to the BEGINNING, containing 37.85 acres, more or less.

R. V. Coile acquired title to Tract One by Deed of W. C. Watkins, et ux., dated July 22, 1919, and recorded in Deed Book 41, Page 392, Register's Office for Hamblen County, Tennessee.

TRACTS TWO AND THREE :

Situate in the Ninth Civil District of Jefferson County, Tennessee, Tract two containing 70 acres, more or less, and Tract three containing 1 acre, more or less, both tracts adjoining and making up one boundary, bounded generally as follows:

On the North by the lands of Benny Franklin;
On the East by the lands of C. M. Breeden;
On the South by the lands of Rickard; and
On the West by the lands of Knight.

Florence Franklin Coile acquired title to tract two by Deed of J. H. Brown, dated December 5, 1906, recorded in Deed Book 36, Page 423, Register's Office for Jefferson County, Tennessee, and to Tract Three by Deed of John M. Watkins, dated April 17, 1907, Recorded in Deed Book 37, Page 178 of said Register's Office, to which deeds reference is here made.

Together with the right to prospect for, mine, mill and remove the same; water rights, the right of ingress and egress, and the right to purchase the surface area of Tract One, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto. And the parties of the first part also grant to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water

and remove samples, in accordance with the terms of the last mentioned agreement. The terms of this option Contract and Agreement are fully set out in the agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs and executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures the day and date first above written.

Witness Mark:
Elizabeth Moreland
Ben S. Catlett

R. V. Coile
R. V. Coile.

Florence Franklin her X Coile
Florence Franklin Coile. mark

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainors, R. V. COILE AND WIFE, FLORENCE FRANKLIN COILE, with whom I am personally acquainted, and who acknowledged that they executed the foregoing instrument for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 29th day of October, 1955.

Ben S. Catlett
Notary Public.

Commission Expires: 4-16-58

EXTENSION CONTRACT AND AGREEMENT

THIS EXTENSION CONTRACT AND AGREEMENT made and entered into on this 1st day of June, 1955, by and between THOMAS COURTNEY (WIDOWER), of Jefferson County, Tennessee, hereinafter called the Owner, party of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

W I T N E S S E T H

WHEREAS, the Owner and the Zinc Company entered into a certain Contract and Agreement under date of October 6th, 1952 with respect to the following described property:

SITUATE in the Fourth Civil District of Jefferson County, Tennessee, adjoining the lands of Davis, Moser, Oakley, McElveen, Watkins and Housley, containing 90 acres, more or less and more particularly described as follows:

> BEGINNING at a stake in the Highway, corner to R. F. Brown; thence West with the said Highway a distance of 954 feet to a stake; thence South 24-50 East 1911 feet to a stake in the center of a public road; thence with said Public Road North 1-1/2 East 1060 feet to a stake corner to I. G. Watkins land; thence North 86-1/4 West 69 poles to a stake; thence Northerly direction with the old Talbott line to the right of way of the Southern Railway Company; thence Westerly with the Southern Railway right of way a distance of 110-1/2 poles to a stake opposite Brown's corner; thence with Brown's line 1470 feet to the BEGINNING.

Owner acquired title to the above described premises by Deed of J. B. Huff and wife, dated September 24, 1926, and of Record in the Register's Office for Jefferson County, Tennessee in Deed Book 70, Page 99, to which reference is here made.

Said Contract and Agreement of October 6, 1952 and the short form thereof of even date between the parties as appears of record in the Register's Office for Jefferson County, Tennessee in Misc. Book 6, Page 23 are incorporated by reference, and made a part hereof, as fully as if copied verbatim herein. And;

WHEREAS, by the terms and provisions thereof said Contract and Agreement expires on October 6, 1955. And in the event the Zinc Company elects to exercise its right and option to purchase thereunder there is remaining due and unpaid purchase money for the mineral and mining rights fully described in paragraph "Two" the sum of THIRTEEN THOUSAND FIVE HUNDRED ($13,500.00) DOLLARS. And;

WHEREAS, the Owner and the Zinc Company have mutually agreed to extend said option Contract and Agreement.

NOW, THEREFORE, in consideration of NINE HUNDRED ($900.00) DOLLARS cash in hand paid to the Owner, receipt of which is hereby acknowledged, said Contract and Agreement is hereby extended until October 6, 1957. Otherwise than above specified all the provisions of the aforesaid Contract and Agreement of October 6, 1952 shall be in full force and effect during said extended period.

The parties hereto agree that the whole of said Extension Contract and Agreement between them is written herein and in a short form Agreement of even date herewith which is intended to be recorded, and the parties hereto are not bound by any agreements, understandings or conditions otherwise than as set forth herein and said short form agreement.

This Extension Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the party of the first part has hereunto set his signature on this the day and date first above written.

Thomas Courtney

Thomas Courtney.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainor, THOMAS COURTNEY (WIDOWER), with whom I am personally acquainted, and who acknowledged that he executed the foregoing Extension Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 10th day of June, 1955.

Ben S. Catlett

Notary Public.

Commission Expires: 4-16-58

EXTENSION CONTRACT AND AGREEMENT

THIS EXTENSION CONTRACT AND AGREEMENT made and entered into on this 29th day of July, 1958, by and between ELEN DAVIS (SINGLE), TRULA DAVIS (Single) and ROY F. DAVIS of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company .

W I T N E S S E T H

WHEREAS, the Owners and the Zinc Company entered into a certain Contract and Agreement under date of December 20, 1952 with respect to the following described property:

SITUATE in the Fourth Civil District of Jefferson County, Tennessee, adjoining the lands of Moser, Morgan, and Courtney, containing 42 acres, more or less, and more particularly described as follows:

> BEGINNING on a stake in the Northerly right-of-way line of the Southern Railway, being the original corner in the deed to said Brown; thence with the right of way North 68 deg. 21' East 550 feet to a stake; thence with the division line between lots No. 2 and 3 North 31 deg. 21' West 1658 feet to a stake in the center of the highway; thence with the division line between lots Nos. 7 and 8 North 29 deg. 5' West 1436 feet to the line of Lot No. 11; thence South 69 West 141 feet to the public road on the outside line; thence with the main road and old line South 3 deg. 50' West 2102 feet to the highway; thence with said highway North 63 deg. 30 East 330 feet; thence North 42 deg. 35 East 604 feet to a stake, corner to Lots 4 and 6; thence South 24 deg. 35 East 1460 feet to the BEGINNING, being Lots Nos. 3 and 4, 5, 6 and 7 in the Subdivision of the R. F. Brown farm as shown on plat by George Zirkle.

For title to the above described premises see deed of J. T. Hodge and wife, dated November 20, 1935 and of Record in the Register's Office for Jefferson County, Tennessee in Deed Book 78, Page 329, to which reference is here made. Mrs. J. B. Davis having died intestate subsequent to the execution of the original contract and her 1/3 undivided interest was thereupon vested in the Owners each taking a 1/9 interest therein by descent caste as her children and sole heirs at law.

Said Contract and Agreement of December 20, 1952 and the short form thereof of even date between the parties as appears of record in the Register's Office for Jefferson County, Tennessee in Misc. Book 6, Page 148 are incorporated by reference, and made a part hereof, as fully as if copied verbatim herein. And;

WHEREAS, by the terms and provisions thereof said Contract and Agreement expires on December 20, 1955. And in the eventthe Zinc Company elects to exercise its right and option to purchase thereunder there is remaining due and unpaid purchase money for the mineral and mining rights fully described in paragraph "two" the sum of SIXTY ONE HUNDRED ($6100.00) DOLLARS. And;

WHEREAS, the Owners and the Zinc Company have mutually agreed to extend said option Contract and Agreement,

NOW, THEREFORE, in consideration of TWO HUNDRED ($200.00) DOLLARS cash in hand paid to the Owners, receipt of which is hereby acknowledged, said Contract and Agreement is hereby extended until December 20, 1957. Otherwise than above specified all the provisions of the aforesaid Contract and Agreement of December 20, 1952 shall be in full force and effect during said extended period. In the event the Zinc Company exercises its right and option to purchase said TWO HUNDRED ($200.00) DOLLARS paid hereunder shall apply upon and go to reduce the purchase price of SIXTY ONE HUNDRED ($6100.00) DOLLARS.

The parties hereto agree that the whole of said Extension Contract and Agreement between them is written herein and in a short form Agreement of even date herewith which is intended to be recorded, and the parties hereto are not bound by any agreements, understandings or conditions otherwise than as set forth herein and said short form agreement.

This Extension Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the parties of the first part have hereunto set their signatures on this the day and date first above written.

Elen Davis
Elen Davis.

Trula Davis
Trula Davis

Roy F. Davis
Roy F. Davis.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett a Notary Public in and for said County and State, the within named bargainors, ELEN DAVIS (SINGLE), TRULA DAVIS (SINGLE), and ROY F. DAVIS, with whom I am personally acquainted, and who acknowledged that they executed the foregoing instrument for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 29th day of July, 1955.

Ben S. Catlett
Notary Public.

Commission Expires: 4-16-58

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 6th day of December, 1955, by and between LEONARD B. DEARING (WIDOWER), of Hamblen County, Tennessee, hereinafter called the Owner, party of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the party of the first part grants unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond December 6, 1958, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises:

FIRST TRACT : Situated in the Second Civil District of Hamblen County, and in the Ninth Civil District of Jefferson County, Tennessee, described as follows:

> BEGINNING on a walnut tree in the line of J. H. Mills; thence N. 63 deg. E. 51 poles to a black oak near the barn; thence N. 65 deg. E. 9 poles and 17 links to a hickory; thence N. 61 deg. E. 121 poles and 7 links to a rock post; thence S. 88-1/2 E. 15 poles to a rock east side of road, corner with M. Carmichael; thence S. 20 deg. W. 78 poles to a pine stump; thence S. 18 deg. W. 146 poles to a rock, Hunter's corner; thence N. 38-1/2 W. 86 poles and 16 links to a rock, J. H. Mill's corner;

thence N. 31-1/2 deg. W. 81 poles with Mill's line to the BEGINNING, containing 100 acres.

SECOND TRACT: Situated in the Second Civil District of Hamblen County, Tennessee and described as follows:

BEGINNING on a rock, corner to W. A. Bowers and T. H. Newman; thence S. 88 deg. E. 124 poles to a rock on Bower's corner; thence S. 45 E. 18 poles to a stake, McClannahan's line and a corner to Alex Cocke; thence S. 65 W. 100 poles to a rock corner to Aaron Smith and Alex Cocke; thence W. with said Smith's corner 41 poles to a rock in the original Watkin's line; thence N. 19-1/2 E. with said original Watkin's line to the BEGINNING, containing by estimation 40 acres more or less.

THIRD TRACT: Situated in District Number Two of Hamblen County, Tennessee, adjoining lands of Jesse Cline, Cluck and others, and described as follows:

BEGINNING on a rock set in the ground, a corner of the Aaron Smith (now Smith) land; thence with said line N. 65 deg. E. 140 poles to a spanish oak, same being a corner to Cluck; thence with said line S. 13 deg. E. 120 poles to a rock; thence E. 21 poles and 14 links to a stake and pointer Cluck corner; thence with the Cluck line S. 41-1/2 deg. W. 71 poles to a rock, formerly a postoak, containing 90 acres, more or less.

Owner acquired title to the above described property by Deed of Bankers Trust Company, dated January 1, 1934, of Record in the Register's Office for Jefferson County, Tennessee in Deed Book 77, Page 440-7 and by Deed of Hubert Hickey and wife, Lola Hickey dated March 14, 1938, of Record in the Register's Office for Hamblen County, Tennessee in also Deed Book 60, Page 559, to both of which reference is hereby made Deed Book 55, Page 55, Register's Office for Hamblen County, Tennessee.

Together with the right to prospect for, mine, mill and remove the same; water rights, the free and uninterrupted right of ingress and egress, and the right to purchase twenty acres of the surface of the above described premises, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto.

And the party of the first part also grants to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned

agreement. The terms of this option Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owner and party of the first part has hereunto set his signature the day and date first above written.

Leonard B. Dearing

Leonard B. Dearing.

STATE OF TENNESSEE

HAMBLEN COUNTY

Personally appeared before me, B. J. Ramsey, Jr., a Notary Public in and for said County and State, the within named bargainor, LEONARD B. DEARING (WIDOWER), with whom I am personally acquainted, and who acknowledged that he executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 6th day of December 1955.

B. J. Ramsey Jr.

Notary Public.

Commission Expires: Apr. 20, 1957

Notary Public in Hamblen County under the provisions Tennessee Code Section 5904.1 et seq.

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 28th day of October, 1955, by and between C. E. GOODMAN and wife, MARTHA GOODMAN of Hamblen County, Tennessee hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company:

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of one year from the date hereof with the privilege of extension for further periods not to extend beyond October 28, 1958, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises:

SITUATE in the Fifth (formerly Second) Civil District of Hamblen County, Tennessee, consisting of three adjoining parcels of land, containing in all 400 acres, more or less, adjoining the lands of Campbell, Frank Wood, Dickerson, Ray Wood, E. C. Quarles, Honeycutt, Clint Goodman, James and possibly others, and more particularly bounded and described as follows:

PARCEL ONE : Consisting of two tracts, described as follows:

TRACT ONE : BEING tract No. 4 of the sub-division of the Martha Sunderland farm, bounded and described as follows: BEGINNING on an iron pin in Roberson's West line and in the middle of the Talbott Road; thence with his line and the line of William Woods North 45 deg. 30' West 149-1/2 poles to a rock planted, the Northeast corner of Tract No. 3; thence with the line of Tract No. 3 South 44 deg. 30' West 35.4 poles to a rock planted, Northeast corner to Tract No. 5; thence with the line of Tract No. 5 South 45 deg. 30' East 137.20 poles to an iron pin in the middle of the Talbott Road and the Southeast corner of Tract No. 5; thence with said road 6 courses as follows: North 67 deg. East 7.09 poles; thence North 63 deg. 40' East 10 poles; thence North 60 deg. 30' East 10 poles; thence North 57 deg. East 10 poles; thence North 54 deg. 10' East 10 poles; thence North 45 deg. 15' East 10 poles to the BEGINNING, containing 50 acres, more or less.

TRACT TWO: Being Tract No. 1 of the sub-division of the J. W. Wood farm, according to the survey of E. C. Brown, C. E.; BEGINNING at a rock planted, corner to Honeycutt and Whitmarsh; thence with Whitmarsh line North 45 deg. 30' West 44.85 poles to a rock planted, corner to Whitmarsh, Cottrell and Tract No. 2; thence North 47 deg. 15' East 101.10 poles with lines of tracts Nos. 2, 3 and 4 to the middle of a lane or right-of-way; thence with the center of said lane and the line of Mary F. Wood South 30 deg. East 20.25 poles to a rock planted in the center of said right of way or lane and corner to Mary F. Wood and Mrs. George Quarrells; thence South 8 deg. East with the Quarrells line 46.25 poles to a large post, corner to Honeycutt; thence South 31 deg. 45' West 69.84 poles with the Honeycutt line to an iron pin and rock planted, the BEGINNING corner, containing 28.20 acres, more or less.

PARCEL TWO: BEGINNING at a stake in the center of the pike road leading from Talbott to Alpha at the intersection of a private road leading into the property herein described; thence with the center of said private road as it meanders South 32 deg. East 222 feet to a stake (about 17 feet North from the center of the Southern Railway); thence still with said private road South 49-1/2 East 400 feet to an iron pin at the forks of said road; thence leaving the private road South 45 deg. East 786 feet to an iron pin; thence South 34 deg. East 511 feet to a stake; thence South 32 deg. East 1000 feet to a stake; thence North 63 deg. 30' East 1000 feet to a stake; thence North 61 deg. 00' East 2000 feet to a stake; thence North 89 deg. West 249 feet to a stone; thence North 29 deg. 00' East 1700 feet to a stake; thence

North 78 deg. West 3100 feet to a stake; thence South 4 deg. West 645 feet to a stake; thence South 72 deg. 30' West 975 feet to a stake; thence South 36 deg. 30' West 905 feet to a stake; thence North 46 deg. 30' West 455 feet (crossing the Southern Railway) to a stake in said pike road leading from Talbott to Alpha; thence with said road South 40 deg. West 100 feet to a stake; thence South 56 deg. 30' West 525 feet to the BEGINNING, containing 247 acres, more or less.

PARCEL THREE: BEGINNING in the cow gap of the old ETV&CA Ry. Co. now abandoned track of the Southern Railway Co. the same being a corner to the A. A and T. H. Newman land; thence a Southeast course with the Newman line to the Patterson line, now the M. A. Roberts line; thence with this line to a stone erected by the parties hereto, same being about midway between the cow gap named and the corner at the Barney Rice line, now owned by J. P. Hunter; thence in a Southwesterly direction according to a conditional line made between the parties hereto to a stone in the Bettis line; about 210 feet South of a stone corner, Bettis and Hunter; thence West to a stone corner, Bettis and Hunter; thence North to the BEGINNING corner, containing by estimation 50 acres, more or less. And being tract 2 in the deed from C. E. Goodman, et ux to John W. Brooks et ux., dated November 29, 1946 and of Record in the Register's Office of Hamblen County, Tennessee in Deed Book 76, Page 159.

Owners acquired title to the above described premises by the following deeds of conveyance, of Record in the Register's office for Hamblen County, Tennessee: (1) Parcel One by Deed of Mae W. Whitmarsh (widow), dated June 30, 1945, Recorded in Deed Book 71, Page 184; (2) Parcel Two by Deed of John W. Brooks (widower), dated September 16, 1950, Deed Book 85, Page 136; and (3) Parcel Three by Deed of John W. Brooks (widower) dated January 28, 1951, Deed Book 86, Page 465.

Together with the right to prospect for, mine, mill and remove the same; water rights, the right of ingress and egress, and the right to purchase surface acreage to the extent of twenty acres, off the Southeast portion of the farm adjacent to the public road, in accordance with the terms of an agreement of even date herewith entered into between the parties hereto. And the parties of the first part also grant to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing

materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned agreement. The terms of this option Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

In Witness Whereof, the Owners and parties of the first part have hereunto set their signatures the day and date first above written.

C. E. Goodman
C. E. Goodman.

Martha Goodman
Martha Goodman.

STATE OF TENNESSEE

COUNTY OF Jefferson

Personally appeared before me, B. J. Kimsey Jr. a Notary Public in and for said County and State, the within named bargainors, C. E. GOODMAN AND WIFE, MARTHA GOODMAN, with whom I am personally acquainted, and who acknowledged that they executed the foregoing instrument for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 28th day of October, 1955.

B. J. Kimsey Jr.
Notary Public.

Commission Expires: April 20, 1957

EXTENSION CONTRACT AND AGREEMENT

THIS EXTENSION CONTRACT AND AGREEMENT made and entered into on this 13th day of May, 1955, by and between MITCHELL HOUSLEY (SINGLE), and PEARL HOUSLEY, individually and as legal Guardian of Herman Housley, of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company:

W I T N E S S E T H

WHEREAS, the Owners and the Zinc Company entered into a certain Contract and Agreement under date of September 18, 1952 with respect to the following described property:

SITUATE in the Fourth and Ninth Civil Districts of Jefferson County, Tennessee, consisting of two tracts, adjoining and bounded generally as follows:

On the North by Federal Highway 11-E;
On the East by Davis, Courtney and W. B. Watkins;
On the South by Hubert Miller and Jess Cline; and
On the West by Kyle, Mbnaldson, James and possibly others, containing 127 acres more or less.

For title reference see Warranty Deed, Book 70, Page 116, and Warranty Deed, Book 70, Page 98, Register's Office for Jefferson County, Tennessee. Also See Last Will and Testament of Effie Housley, deceased.

Said Contract and Agreement of September 18th, 1952 and the short form thereof of even date between the parties as appears of record in the Register's Office for Jefferson County, Tennessee in Misc. Book 6, Page 6 are incorporated by reference, and made a part hereof, as fully as if copied verbatim herein, And;

WHEREAS, by the terms and provisions thereof said Contract and Agreement expires on September 18, 1955. And in the event the Zinc Company elects to exercise its right and option to purchase thereunder there is remaining due and unpaid purchase money for the mineral and mining rights fully described in paragraph "Two" the sum of FIFTEEN THOUSAND TWO HUNDRED SEVENTY FIVE ($15,275.00) DOLLARS. And;

WHEREAS, the Owners and the Zinc Company have mutually agreed to extend said option Contract and Agreement.

NOW, THEREFORE, in consideration of SIX HUNDRED ($600.00) DOLLARS cash in hand paid to the Owners, receipt of which is hereby acknowledged, said Contract and Agreement is hereby extended until September 18, 1957. Otherwise than above specified all the provisions of the aforesaid Contract and Agreement of September 18, 1952 shall be in full force and effect during said extended period. In the event the Zinc Company exercises its right and option to purchase said SIX HUNDRED ($600.00) DOLLARS paid hereunder shall apply upon and go to reduce the purchase price of FIFTEEN THOUSAND TWO HUNDRED SEVENTY FIVE ($15,275.00) DOLLARS.

The parties hereto agree that the whole of said Extension Contract and Agreement between them is written herein and in a short form Agreement of even date herewith which is intended to be recorded, and the

parties hereto are not bound by any agreements, understandings or conditions otherwise than as set forth herein and said short form agreement.

This Extension Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the parties of the first part have hereunto set their signatures on this the day and date first above written.

Mitchell Housley
Mitchell Housley.

Pearl Housley
Pearl Housley.

Pearl Housley Guardian
Pearl Housley, individually and as Legal Guardian of Herman Housley.

STATE OF TENNESSEE
JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainors, MITCHELL HOUSLEY (SINGLE) and PEARL HOUSLEY, individually and as Legal Guardian of Herman Housley, with whom I am personally acquainted, and who acknowledged that they executed the foregoing Extension Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 13th day of May, 1955.

Ben S. Catlett
Notary Public.

Commission Expires: 4-16-58

Seal

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 29th day of October, 1955, by and between ELIHU KNIGHT and wife, MAUDE KNIGHT of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company:

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for a further period not to extend beyond October 29, 1957, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises:

SITUATE IN THE Ninth Civil District of Jefferson County, Tennessee, consisting of two separate tracts of land, containing in all 80 acres more or less and more particularly described as follows:

TRACT ONE : Adjoining the lands of Albert Watkins, R. V. Coile, Hazelwood, Smith and H. H. Oakley, more particularly described as follows:
BEGINNING at a stake in the edge of the public road leading from Talbott to Mrs. Myrtle L. Burnett's home place where the Roy Coile line intersects said road; thence with the Coile line South 4 deg. and 45' West 2011 feet to a stone corner to C. P. Smith; thence South 84 deg. 55' West 1278 feet to a stone, corner of G. P. Smith and Mrs. Myrtle L. Burnett; thence North 5 deg. 30' East 2188 feet with the old A. A. Carter line, now Mrs. Myrtle Burnett to a stone corner of the Mrs. Burnett farm with this tract; thence South 87 East with said old Talbott to Dandridge Road 947 feet to the BEGINNING corner, containing 53.9 acres be the same more or less.

There is excepted from the above tract approximately six acres heretofore conveyed by Hal Brown and wife to Karl Rugle, leaving 47.9 acres, more or less conveyed by this instrument.

Owners acquired title to tract one by deed of L. L. Millis et ux., dated March 20, 1944, and Recorded in the Register's Office for Jefferson County, Tennessee in Deed Book 93, Page 157.

TRACT TWO : Adjoining the lands of Mary Quarles, Hunter and J. P. Knowling, more particularly described as follows:

BEGINNING at a post oak stump, Eugene Hunters line; thence South 71-1/2 West with Quarrels line until it strikes the road; thence with said road to Thomas Knowling line; thence South 32" East with his line to a rock, his corner, in J. P. Knowling's original line; thence with same North 61" East 28-2/5 poles to a cedar and post oak, same course continued to Hunter's line and to the BEGINNING, containing 32 acres, more or less.

Owners acquired title to tract two by Deed of Mrs. H. S. Williams and husband, dated May 21, 1930, and of Record in the Register's Office for Jefferson County, Tennessee in Deed Book 74, Page 341.

Together with the right to prospect for, mine, mill and remove the same; water rights, the free and uninterrupted right of ingress and egress, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto. And the parties of the first part also grant to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including

limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned agreement. The terms of this option Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

In Witness Whereof, the Owners and parties of the first part have hereunto set their signatures the day and date first above written.

Elihu Knight
Elihu Knight.

Maude Knight
Maude Knight.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainors, ELIHU KNIGHT AND WIFE, MAUDE KNIGHT, with whom I am personally acquainted, and who acknowledged that they executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 29th day of October, 1958

Ben S. Catlett
Notary Public.

Commission Expires: 4-16-58

EXTENSION CONTRACT AND AGREEMENT

THIS EXTENSION CONTRACT AND AGREEMENT made and entered into on this 21st day of May, 1955, by and between ANNETTA McELVEEN (Single), of Jefferson County, Tennessee, hereinafter called the Owner, party of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company:

W I T N E S S E T H

WHEREAS, Hugh R. McElveen and the Zinc Company entered into a certain Contract and Agreement under date of September 20, 1952, which contract and agreement was ratified, approved and adopted by the Owner under date of September 19, 1953, with respect to the following described premises:

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, consisting of four adjoining tracts of land making up one boundary, containing 135 acres, more or less, adjoining the lands of Oakley, Smith, Walker, Watkins, Courtney and possibly others, as fully described in Deed of William Sunderland, et al dated September 21, 1923 and of Record in Deed Book 63, Page 297 and in that certain Deed of conveyance of Hugh R. McElveen to Annetta McElveen, dated March 24, 1951 of Record in Deed Book 103, Page 350, Register's Office for Jefferson County, Tennessee, to both of which conveyances reference is here made.

Said Contract and Agreement of September 20, 1952 and the short form thereof of even date between Hugh R. McElveen and the Zinc Company as appears of record in the Register's Office for Jefferson County, Tennessee in Misc. Book 6, Page 7 and the adoption agreement of the Owner of September 19, 1953 as appears of Record in Misc. Book 6, Page 255 are both incorporated by reference and made a part hereof as fully as if copied verbatim herein, And;

WHEREAS, by the terms and provisions thereof said Contract and Agreement expires on September 20, 1953. And in the event the Zinc Company elects to exercise its right and option to purchase thereunder there is remaining due and unpaid purchase money for the mineral and mining rights fully described in paragraph "two" the sum of FIFTEEN THOUSAND EIGHT HUNDRED SEVENTY FIVE ($15,875.00) DOLLARS. And;

WHEREAS, the Owner and the Zinc Company have mutually agreed to extend said option Contract and Agreement.

NOW, THEREFORE, in consideration of ONE THOUSAND ($1,000.00) DOLLARS cash in hand paid to the Owner, receipt of which is hereby acknowledged, said Contract and Agreement is hereby extended until September 20, 1957. Otherwise than above specified all the provisions of the aforesaid Contract and Agreement of September 20, 1952 shall be in full force and effect during said extended period. In the event the Zinc Company exercises its right and option to purchase said ONE THOUSAND ($1,000.00) DOLLARS paid hereunder shall apply upon and go to reduce the purchase price of FIFTEEN THOUSAND EIGHT HUNDRED SEVENTY FIVE ($15,875.00) DOLLARS.

The parties hereto agree that the whole of said Extension Contract and Agreement between them is written herein and in a short form Agreement of even date herewith which is intended to be recorded, and the parties hereto are not bound by any agreements, understandings or conditions otherwise than as set forth herein and said short form agreement.

This Extension Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the party of the first part has hereunto set her signature on this the day and date first above written.

Annetta McElveen

Annetta McElveen.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainor, ANNETTA McELVEEN (SINGLE), with whom I am personally acquainted, and who acknowledged that she executed the foregoing Extension Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 21st day of May, 1955.

Ben S. Catlett

Notary Public.

Commission Expires: 4-16-58

EXTENSION CONTRACT AND AGREEMENT

THIS EXTENSION CONTRACT AND AGREEMENT made and entered into on this 18th day of May, 1955, by and between HATTIE MILLER (WIDOW), of Jefferson County, Tennessee, hereinafter called the Owner, party of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the state of Tennessee, party of the second part, hereinafter called the Zinc Company:

W I T N E S S E T H

WHEREAS, the Owner and the Zinc Company entered into a certain Contract and Agreement under date of September 18, 1952, which agreement was also executed by Hubert Miller, now deceased, with respect to the following described property:

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, known as the A. A. Newman lands, adjoining the lands of Housley, Watkins, Cline and possibly others, and more particularly described as follows:

> BEGINNING on a rock in the road in the line of the old Sawyers tract, a corner to J. B. Huff; thence South 80 West 62 poles to a stake; thence N. 81 W. 61 poles to a post oak, the old Talbott corner, now Huffs; thence with the old Talbott line S. 47-1/2 W. 22-1/2 poles to a stake at a marked ash corner with James Hill; thence with the said Hill line S. 36-3/4 E. 138 poles to a rock; thence N. 62 E. 101 poles to a rock, the old I. G. Watkins corner; thence with the old Watkins line N. 24-1/2 W. 84-1/2 poles to the BEGINNING containing 78-1/4 acres, more or less.

Hubert Miller and wife, Hattie Miller acquired title to the above described premises by Deed of Sam Hubbard and wife, dated March 5, 1941, and of Record in the Register's Office for Jefferson County, Tennessee in Deed Book 85, Page 54, to which reference is here made. Hubert Miller being now deceased, leaving Hattie Miller as sole owner as surviving tenant by the entirety.

Said Contract and Agreement of September 18th, 1952 and the short form thereof of even date between the parties as appears of record in the Register's Office for Jefferson County, Tennessee in Misc. Book 6, Page 15 are incorporated by reference, and made a part hereof, as fully as if copied verbatim herein. And;

WHEREAS, by the terms and provisions thereof said Contract and Agreement expires on September 18, 1955. And in the event the Zinc Company elects to exercise its right and option to purchase thereunder there is remaining due and unpaid purchase money for the mineral and mining rights fully described in paragraph "two" the sum of NINE THOUSAND THREE HUNDRED EIGHTY TWO ($9,382.00) DOLLARS. And;

WHEREAS, the Owner and the Zinc Company have mutually agreed to extend said option Contract and Agreement.

NOW, THEREFORE, in consideration of FOUR HUNDRED ($400.00) DOLLARS cash in hand paid to the Owner, receipt of which is hereby acknowledged, said Contract and Agreement is hereby extended until September 18, 1957. Otherwise than above specified all the provisions of the aforesaid Contract and Agreement of September 18, 1952 shall be in full force and effect during said extended period. In the event the Zinc Company exercises its right and option to purchase said FOUR HUNDRED ($400.00) DOLLARS paid hereunder shall apply upon and go to reduce the purchase price of NINE THOUSAND THREE HUNDRED EIGHTY TWO ($9,382.00) DOLLARS.

The parties hereto agree that the whole of said Extension Contract and Agreement between them is written herein and in a short form Agreement of even date herewith which is intended to be recorded, and the parties hereto are not bound by any agreements, understandings or conditions otherwise than as set forth herein and said short form agreement.

This Extension Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the party of the first part has hereunto set her signature on this the day and date first above written.

Hattie Miller

Hattie Miller.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainor, HATTIE MILLER (Widow), with whom I am personally acquainted, and who acknowledged that she executed the foregoing Extension Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 18th day of May, 1953.

Ben S. Catlett

Notary Public.

Commission Expires: 4-16-58

EXTENSION CONTRACT AND AGREEMENT

THIS EXTENSION CONTRACT AND AGREEMENT made and entered into on this 14th day of May, 1956, by and between EARL MORGAN and wife, SADIE MARIE MORGAN, of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

W I T N E S S E T H

WHEREAS, the Owners and the Zinc Company entered into a certain Contract and Agreement under date of September 23rd, 1952, with respect to the following described property:

SITUATE in the Fourth and Ninth Civil Districts of Jefferson County, Tennessee, adjoining the lands of Housley, Courtney, Caldwell and possibly others, more particularly described as follows:

> BEGINNING on a stake in the public road, a corner to tract sold by R. F. Brown and wife, to James M. Silver and wife; thence North 3 deg. 50' East 47.36 poles to a stake in the line of J. S. Bradley, a corner to Z. T. Godwin; thence with the line of Bradley, South 86 deg. 45' East 31.98 poles to a stake in the fence, a corner to the tract sold by R. F. Brown and wife to Bradley; thence with the Bradley line South 10 deg. 25' East 30.30 poles to a stake; thence still with Bradley, South 25 deg. 29' East 71.27 poles to a stake in the

highway; thence with highway North 42 deg. 35' East 27.57 poles, corner to the Lula Robeson farm; thence with the Robeson line South 41 deg. East 126 poles to rock; thence South 4 deg. West 10 poles to a stake in the Southern Railway; thence with the same South 58 deg. 21' West 76.92 poles to a stake in same, corner to the Silver tract; thence with the Silver tract, North 31 deg. 12' West 190.5 poles to a stake in the highway; thence still with the Silver tract North 29-1/2 West 87.03 poles, corner to the Silver tract; thence with same South 69 West 8.55 poles to the BEGINNING, containing about 75.87 acres.

Owners acquired title to the above described premises by deed of The Equitable Life Assurance Society of the United States dated April 1, 1939 and of Record in the Register's Office for Jefferson County, Tennessee in Deed Book 32, Page 590, to which reference is here made.

Said Contract and Agreement of September 23rd, 1952 and the short form thereof of even date between the parties as appears of record in the Register's Office for JeffersonCounty, Tennessee, in Misc. Book 6, Page 18 are incorporated by reference, and made a part hereof, as fully as if copied verbatim herein. And;

WHEREAS, by the terms and provisions thereof said Contract and Agreement expires on September 23rd, 1955. And in the event the Zinc Company elects to exercise its right and option to purchase thereunder there is remaining due and unpaid purchase money for the mineral and mining rights fully described in paragraph "two" the sum of ELEVEN THOUSAND ($11,000.00) DOLLARS. And;

WHEREAS, the Owners and the Zinc Company have mutually agreed to extend said option Contract and Agreement.

NOW, THEREFORE, in consideration of FOUR HUNDRED ($400.00) DOLLARS cash in hand paid to the Owners, receipt of which is hereby acknowledged, said Contract and Agreement is hereby extended until September 23, 1957. Otherwise than above specified all the provisions of the aforesaid Contract and Agreement of September 23, 1952 shall be in full force and effect during said extended period. In the event the Zinc Company exercises its right and option to purchase said FOUR

HUNDRED ($400.00) DOLLARS paid hereunder shall apply upon and go to reduce the purchase price of ELEVEN THOUSAND ($11,000.00) DOLLARS.

The parties hereto agree that the whole of said Extension Contract and Agreement between them is written herein and in a short form Agreement of even date herewith which is intended to be recorded, and the parties hereto are not bound by any agreements, understandings or conditions otherwise than as set forth herein and said short form agreement.

This Extension Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the parties of the first part have hereunto set their signatures on this the day and date first above written.

Earl Morgan
Earl Morgan

Sadie Marie Morgan
Sadie Marie Morgan.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainors, EARL MORGAN and wife, SADIE MARIE MORGAN, with whom I am personally acquainted, and who acknowledged that they executed the foregoing Extension Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 14th day of May, 1955.

Ben S. Catlett
Notary Public.

Commission Expires: 4-16-58

EXTENSION CONTRACT AND AGREEMENT

THIS EXTENSION CONTRACT AND AGREEMENT made and entered into on this 15th day of June, 1953 by and between H. H. OAKLEY (WIDOWER) of Sevier County, Tennessee, hereinafter called the Owner, party of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company:

W I T N E S S E T H

WHEREAS, the Owner and the Zinc Company entered into a certain Contract and Agreement under date of October 15, 1952, which agreement was also executed by Sarah Oakley, now deceased, with respect to the following described property:

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, adjoining the lands of Caldwell, John May, Albert Weddns, Knight, McElveen, and Tom Courtney, containing 137 acres, more or less and more particularly described as follows:

> BEGINNING on a stone in the corner of a lane; thence North 71 East 125-2/3 poles to a stone at the end of said lane; thence South 6-1/2 East 18 poles to a stone; thence North 71 East 12 poles to a stone; thenceSouth 6-1/2 East 45-1/2 poles to a stone, passing near and East of the Chas. Jolley house; thence East 55 poles to a stone in A. A. Carter's line near three post oaks; thence South 30 poles; thence East 30 poles to a rock; thence North 139 poles to a rock, old Carter and Talbott's corner; thence West 30 poles to a stake, corner to Elizabeth Jolley lands in John C. Talbott's line; thence North 87-1/2 West 104-5/10 poles to three small black oaks near the railroad; thence South 69 West 90 poles to a stone; thenceSouth 2 West 63-1/2 poles to the BEGINNING.

H. H. Oakley and wife, Sarah Oakley acquired title to the above described premises by Deed of City National Bank, a corporation, dated November 27, 1929 and of Record in the Register's Office for Jefferson County, Tennessee in Deed Book 75, Page 87 to which reference is here made. Sarah Oakley being now deceased, leaving H. H. Oakley sole owner as surviving tenant by the entirety.

Said Contract and Agreement of October 15, 1952 and the short form thereof of even date between the parties as appears of Record in the Register's Office for Jefferson County, Tennessee in Misc. Book 6, Page 79 are incorporated by reference, and made a part hereof, as fully as if copied verbatim herein. And;

WHEREAS, by the terms and provisions thereof said Contract and Agreement expires on October 15, 1955. And in the event the Zinc Company elects to exercise its right and option to purchase thereunder there is remaining due and unpaid purchase money for the mineral and mining rights fully described in paragraph "two" the sum of SIXTEEN THOUSAND FOUR HUNDRED TWENTY FIVE ($16,425.00) DOLLARS. And;

WHEREAS, the Owner and the Zinc Company have mutually agreed to extend said option Contract and Agreement.

NOW, THEREFORE, in consideration of SEVEN HUNDRED ($700.00) DOLLARS cash in hand paid to the Owner, receipt of which is hereby acknowledged, said Contract and Agreement is hereby extended until October 15, 1957. Otherwise than above specified all the provisions of the aforesaid Contract and Agreement of October 15, 1952 shall be in full force and effect during said extended period. In the event the Zinc Company exercises its right and option to purchase said SEVEN HUNDRED ($700.00) DOLLARS paid hereunder shall apply upon and go to reduce the purchase price of SIXTEEN THOUSAND FOUR HUNDRED TWENTY FIVE ($16,425.00) DOLLARS.

The parties hereto agree that the whole of said Extension Contract and Agreement between them is written herein and in a short form Agreement of even date herewith which is intended to be recorded, and the parties hereto are not bound by any agreements, understandings or conditions otherwise than as set forth herein and said short form agreement.

This Extension Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the party of the first part has hereunto set his signature on this the day and date first above written.

A. J. Oakley
Nicholas Oakley

H. H. Oakley
H. H. Oakley

STATE OF TENNESSEE

SEVIER COUNTY

Personally appeared before me, Rellie D. Dodson, a Notary Public in and for said County and State, the within named bargainor, H. H. OAKLEY (WIDOWER), with whom I am personally acquainted, and who acknowledged that he executed the foregoing Extension Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 17 day of June, 1955.

Rellie D. Dodson
Notary Public.

Commission Expires:
Feb. 13, 1957

EXTENSION CONTRACT AND AGREEMENT

THIS EXTENSION CONTRACT AND AGREEMENT made and entered into on this 30th day of August, 1955, by and between JOE POLLARD and wife, CORDIE POLLARD, of Hamblen County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company:

W I T N E S S E T H

WHEREAS, the Owners and the Zinc Company entered into a certain Contract and Agreement under date of September 30, 1952, with respect to the following described property;

SITUATE in the Second Civil District of Hamblen County, Tennessee, adjoining the lands of Campbell, Lee, Pollard and Leming, and more particularly described as follows:

> BEGINNING at a rock planted in the Talbott Station Road Southwest corner to Ray Wood's land; thence with his line N. 27 deg. 50' W. 46-55/100 poles to a rock planted Wood's corner; thence still with same N. 25 deg. 40' W. 44-10/100 poles to a rock planted corner to said Wood's land and corner to Tract No. 8; thence with the South line of Tracts No. 8 and 7, South 61 deg. 20' W. 69.20 poles to an original planted rock, corner to Tracts 6 and 7; thence S. 25 deg. 5' E. 105.5 poles with Walter Sams line, to an iron pin in the Talbott Station road; thence with the middle of said road N. 49 deg. 40' E. 68 poles to an iron pin; thence N. 52 deg. 35' E. 6.2 poles to the BEGINNING, containing 42.05 acres, more or less.

Owners acquired title to the above described premises by Deed of Daniel Ryan and wife, dated September 17, 1926 and of Record in the Register's Office for Hamblen County, Tennessee in Deed Book 48, Page 368, to which reference is here made.

Said Contract and Agreement of September 30, 1952 and the short form thereof of even date between the parties as appears of Record in the Register's Office for Hamblen County, Tennessee in Misc. Book _____, Page _____ are incorporated by reference, and made a part hereof, as fully as if copied verbatim herein, And;

WHEREAS, by the terms and provisions thereof said Contract and Agreement expires on September 30th, 1955. And in the event the Zinc Company elects to exercise its right and option to purchase thereunder there is remaining due and unpaid purchase money for fee title the sum of TWENTY NINE THOUSAND SEVEN HUNDRED ($29,700.00) DOLLARS. And;

WHEREAS, the Owners and the Zinc Company have mutually agreed to extend said option Contract and Agreement.

NOW, THEREFORE, in consideration of THREE HUNDRED ($300.00) DOLLARS cash in hand paid to the Owners, receipt of which is hereby acknowledged, said Contract and Agreement is hereby extended until September 30, 1957. Otherwise than above specified all the provisions of the aforesaid Contract and Agreement of September 30, 1952 shall be in full force and effect during said extended period. In the event the Zinc Company exercises its right and option to purchase said THREE HUNDRED ($300.00) DOLLARS paid hereunder shall apply upon and go to reduce the purchase price of TWENTY NINE THOUSAND SEVEN HUNDRED ($29,700.00) DOLLARS.

The parties hereto agree that the whole of said Extension Contract and Agreement between them is written herein and in a short form agreement of even date herewith which is intended to be recorded, and

the parties hereto are not bound by any agreements, understandings or conditions otherwise than as set forth herein and said short form agreement.

This Extension Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the parties of the first part have hereunto set their signatures on this the day and date first above written.

Witness Mark
Ben S. Catlett
William Pollard

his
Joe X Pollard
Joe Pollard, Jr.

Cordie Pollard
Cordie Pollard.

STATE OF TENNESSEE
HAMBLEN COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainors, JOE POLLARD AND WIFE, CORDIE POLLARD, with whom I am personally acquainted, and who acknowledged that they executed the foregoing instrument for the purposes therein contained and expressed.

Witness my hand and official seal at office on this ~~30th~~ 3rd day of ~~August~~ September, 1955.

Ben S. Catlett
Notary Public.

Commission Expires: 4-16-58
Qualified in Hamblen County
under the provisions of Tennessee
Code, Section 5904, et seq.

EXTENSION CONTRACT AND AGREEMENT

THIS EXTENSION CONTRACT AND AGREEMENT made and entered into on this 27th day of September, 1955, by and between WILLIAM POLLARD and wife, JESSIE POLLARD of Hamblen County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company:

W I T N E S S E T H

WHEREAS, the Owners and the Zinc Company entered into a certain Contract and Agreement under date of October 17, 1952, with respect to the following described property:

SITUATE in the Second Civil District of Hamblen County, Tennessee, containing 28 acres, more or less, and bounded and described as follows:

On the North by the lands of Joe Pollard and Leming;
On the East by the lands of Southerland;
On the South by the Southern Railway; and
On the West by the lands of Knight.

Being Lots Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 of the Subdivision of the J. W. Duncan farm a blue print of which is on file in the Register's Office for Hamblen County, Tennessee in Plat Book 1, Page 112.

Owners acquired title to the above described premises by Deed of R. L. Reams, et ux., dated March 2, 1935, and of Record in the Register's Office for Hamblen County, Tennessee in Deed Book 56, Page 196, to which reference is here made.

Said Contract and Agreement of October 17, 1952 and the short form thereof of even date between the parties as appears of record in the Register's Office for Hamblen County, Tennessee, in Misc Book _____, Page _____ are incorporated by reference, and made a part hereof, as fully as if copied verbatim herein. And;

WHEREAS, by the terms and provisions thereof said Contract and Agreement expires on October 17, 1955. And in the event the Zinc Company elects to exercise its right and option to purchase thereunder there is remaining due and unpaid purchase money for the mineral and mining rights fully described in paragraph "two" the sum of THIRTY THREE HUNDRED ($3300.00) DOLLARS. And;

WHEREAS, the Owners and the Zinc Company have mutually agreed to extend said option Contract and Agreement.

NOW, THEREFORE, in consideration of TWO HUNDRED ($200.00) DOLLARS cash in hand paid to the Owners, receipt of which is hereby acknowledged, said Contract and Agreement is hereby extended until October 17, 1957. Otherwise than above specified all the provisions of the aforesaid Contract and Agreement of October 17, 1952 shall be in full force and effect during said extended period. In the Event the Zinc Company exercises its right and option to purchase, said TWO HUNDRED ($200.00) DOLLARS paid hereunder shall apply upon and go to reduce the purchase price of THIRTY THREE HUNDRED ($3300.00) DOLLARS.

The parties hereto agree that the whole of said Extension Contract and Agreement between them is written herein and in a short form Agreement of even date herewith which is intended to be recorded, and the parties hereto are not bound by any agreements, understandings, or conditions otherwise than as set forth herein and said short form agreement.

This Extension Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the parties of the first part have hereunto set their signatures on this the day and date first above written.

William Pollard

William Pollard.

Jessie Pollard

Jessie Pollard.

STATE OF TENNESSEE

HAMBLEN COUNTY

Personally appeared before me, B. J. Ramsey, Jr., a Notary Public in and for said County and State, the within named bargainors, WILLIAM POLLARD AND WIFE, JESSIE POLLARD, with whom I am personally acquainted, and who acknowledged that they executed the foregoing Extension Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 27th day of September, 1955.

B. J. Ramsey, Jr.

Notary Public.

Commission Expires:

Qualified in Hamblen under the provisions of Tennessee Code, Section 5904.1 et seq.

EXTENSION CONTRACT AND AGREEMENT

THIS EXTENSION CONTRACT AND AGREEMENT made and entered into on this 12th day of May, 1955, by and between W. B. WATKINS and wife, WILMA B. WATKINS, and I. R. WATKINS (single) of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company:

W I T N E S S E T H

WHEREAS, the Owners and the Zinc Company entered into a certain Contract and Agreement under date of September 23rd, 1952, with respect to the following described property:

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, described as follows:

> BEGINNING on a rock in the turn of the road, a corner to Julia Rugle, in the line of the Malcom tract; thence with the road and Rugle's line South 2-1/2 East 56 poles to a rock; thence North 82 West 7 poles to a rock a corner to Rugle; thence continued with Rugle South 9 poles to a walnut; thence S. 48 East 27-3/4 poles to a rock; thence South 10 East 39 poles to a rock; thence South 88-1/2 East 17-4/5 poles to a rock, corner to Rugle; thence South 26-1/2 East 70 poles to a rock, old Malcom corner; thence with the old line South 85 West 165 poles to a post oak; thence North 5 East 19 poles to a rock; thence North 24 West 203 poles to a rock on the West side of the Chuckey road; thenceSouth 85 East 70 poles to a rock; thence North 5-1/2 poles to a black oak, a corner to the J. B. Huff farm; thence with the same South 85 East 45-1/2 poles to a rock corner to Malcom; thence with the same South 14 West 32-4/5 poles to a rock a corner of the same; thence South 85 East 62 poles to the BEGINNING, containing 176 acres, more or less.

For title reference see Warranty Deed, Book No. 103, Page 189, in the Register's Office, Jefferson County, Tennessee.

Said Contract and Agreement of September 23rd, 1952 and the short form thereof of even date between the parties as appears of record in the Register's Office for Jefferson County, Tennessee, in Misc. Book 6, Page 10 are incorporated by reference, and made a part hereof, as fully as if copied verbatim herein. And;

WHEREAS, by the terms and privisions thereof said Contract and Agreement expires on September 23, 1955. And in the event the Zinc Company elects to exercise its right and option to purchase thereunder there is remaining due and unpaid purchase money for the mineral and mining rights fully described in paragraph "two" the sum of TWENTY ONE THOUSAND FIVE HUNDRED ($21,500.00) DOLLARS. And;

WHEREAS, the Owners and the Zinc Company have mutually agreed to extend said option Contract and Agreement.

NOW, THEREFORE, in consideration of ONE THOUSAND ($1,000.00) DOLLARS cash in hand paid to the Owners, receipt of which is hereby acknowledged, said Contract and Agreement is hereby extended until September 23, 1957. Otherwise than above specified all the provisions of the aforesaid Contract and Agreement of September 23, 1952 shall be in full force and effect during said extended period. In the event the Zinc Company exercises its right and option to purchase said ONE THOUSAND ($1,000.00) DOLLARS paid hereunder shall apply upon and go to reduce the purchase price of TWENTY ONE THOUSAND FIVE HUNDRED ($21,500.00) DOLLARS.

The parties hereto agree that the whole of said Extension Contract and Agreement between them is written herein and in a short form Agreement of even date herewith which is intended to be recorded, and the parties hereto are not bound by any agreements, understandings or

conditions otherwise than as set forth herein and said short form agreement.

This Extension Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the parties of the first part have hereunto set their signatures on this the day and date first above written.

W. B. Watkins
W. B. Watkins.

Wilma B. Watkins
Wilma B. Watkins.

I. R. Watkins
I. R. Watkins.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainors, W. B. WATKINS AND WIFE, WILMA B. WATKINS AND I. R. WATKINS, (SINGLE), with whom I am personally acquainted, and who acknowledged that they executed the foregoing Extension Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office in Jefferson City, Tennessee on this 14th day of May, 1955.

Ben S. Catlett
Notary Public.

Commission Expires: 4-16-58

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 22nd day of December, 1955, by and between HELEN QUARLES JAMES and husband, SAM H. JAMES, of Hamblen County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company.

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of one year from the date hereof, with the privilege of extension for further periods not to extend beyond December 22, 1958, upon payment of sums of money agreed upon, the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises:

The First Tract of land is situated in the Ninth Civil District of Jefferson County, Tennessee and the Second Tract or parcel of land is situated in the Second Civil District of Hamblen County, Tennessee, both of which are more particularly described and bounded as follows:

FIRST TRACT: Situated in Jefferson County. BEGINNING on the North side of the public road at Quarles line at a stake; thence Northwardly to a marked line; thence with said marked line East to the Roberts line; thence with the said Roberts line to the Public Road; thence with the said road to the BEGINNING, being that portion of the lands contained in said Mountcastle deed situated in Jefferson County, Tennessee, the said lands being in both Jefferson and Hamblen Counties, containing by estimation 68 acres, more or less.

SECOND TRACT: Situated in the Second Civil District of Hamblen County, Tennessee, being a portion of the 89 acre tract of land deeded to J. H. Baker by Clay Trent and wife, Bessie Trent on March 4, 1944. The portion herein conveyed being 34 acres, more or less. BEGINNING on a black oak tree on the West side of said tract, a corner on the agreed line between the said J. H. Baker and Rufus Baker, running North with John Quarles line to the Southern Railroad; thence with said Railroad Eastwardly to J. W. Brooks line; thence with said J. W. Brooks line Southwardly to Roberts corner, the agreed corner between J. H. Baker and Rufus Baker; thence with said agreed line between J. H. Baker and Rufus Baker Westwardly to the BEGINNING.

Helen Quarles James acquired title to the above described property by Quit-Claim Deed of Jessie Quarles Burnett, et al., dated May 1, 1950 and of Record in the Register's Office for Jefferson County, Tennessee in Deed Book 102, Page 247 and of Record in the Register's Office for Hamblen County, Tennessee in Deed Book 84, Page 15. Reference is also made to the Last Will and Testament of John W. Quarles, of Record in Will Book 12, Page 204-5, County Court Clerk's Office for Jefferson County, Tennessee.

Together with the right to prospect for, mine, mill and remove the same; water rights, the free and uninterrupted right of ingress and egress, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto.

And the parties of the first part also grant to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned

agreement. The terms of this option Contract and Agreement are fully set out in the agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures the day and date first above written.

Helen Quarles James
Helen Quarles James.

Sam H. James
Sam H. James.

STATE OF TENNESSEE

HAMBLEN COUNTY

Personally appeared before me, W. J. Barron, a Notary Public in and for said County and State, the within named bargainors, HELEN QUARLES JAMES AND HUSBAND, SAM H. JAMES, with whom I am personally acquainted, and who acknowledged that they executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this 22nd day of December, 1955.

W. J. Barron
Notary Public.

Commission Expires:
4-21-57
Qualified in Hamblen County
under the provisions of Tennessee Code,
Section 5904. 1 et seq.

THE NEW JERSEY ZINC COMPANY
160 FRONT ST., NEW YORK 38, N. Y.

RECEIVED
JAN 11 1956

CONTRACT AND AGREEMENT

THIS CONTRACT AND AGREEMENT made and entered into on this 28th day of November, 1955, by and between W. B. RUGEL (WIDOWER) EARL RUGEL and wife, PAULINE RUGEL of Jefferson County, Tennessee, hereinafter called the Owners, parties of the first part, and THE NEW JERSEY ZINC COMPANY, a New Jersey Corporation, authorized to do business in the State of Tennessee, party of the second part, hereinafter called the Zinc Company:

W I T N E S S E T H

That for and in consideration of the sum of ONE ($1.00) DOLLAR and other good and valuable considerations in hand paid, the receipt of which is hereby acknowledged, the parties of the first part grant unto the party of the second part for a period of two years from the date hereof (said period expiring on November 25, 1957), the exclusive right and option to purchase all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on the following described premises:

SITUATE in the Ninth Civil District of Jefferson County, Tennessee, containing 42 acres, more or less and bounded generally as follows:

On the North by the lands of McElveen;
On the East by the lands of McElveen;
On the South by the lands of Green and Watkins; and
On the West by the lands of Watkins.

THE NEW JERSEY ZINC COMPANY
160 FRONT ST., NEW YORK 38, N. Y.

RECEIVED
JAN 11

More particularly described as follows:

BEGINNING on a rock set at Northeast corner of barn lot;

thence N. 2-1/4 W. with a fence 56 poles to a rock in widow Malcom's line; thence with her line S. 85-1/2 E. 62 poles to a rock in Sunderland's line; thence with same S. 5 W. 70 poles to a rock, formerly a hickory, corner with Sunderland; thence with same S. 45 E. 39-1/4 poles to a rock and small post oak; thence S. 60 W. 35 poles with a fence to a post and stump and rock pile; thence with a fence S. 80 E. 13 poles to a rock; thence with and near said fence S. 88-1/2 W. 17 poles and 22 links to a rock; thence N. 10 W. with a fence 39 poles to a rock; thence North 48 W. 27-3/4 poles crossing a road to a small walnut tree on the North edge of said road; thence North 9 poles to a rock; thence S. 82 E. 7 poles to the BEGINNING.

Owners acquired title to the above described premises as follows: Earl Rugel a one-third undivided interest by inheritance from his mother, Julia E. Rugel, deceased, who acquired title by deed of Mrs. N. E. Watkins, dated November 22, 1904, Recorded in Deed Book 33, Page 294, Register's Office for Jefferson County, Tennessee; Earl Rugel and wife, Pauline Rugel acquired a two-thirds undivided interest by the following deeds recorded in said Register's Office: (1) Deed of W. B. Rugel, dated September 17, 1946, Deed Book 96, Page 165, and (2) Deed of Karl Rugel and wife, dated July 8, 1942, Deed Book 88, Page 172. W. B. Rugel holds a curtesy estate in said premises.

Together with the right to prospect for, mine, mill and remove the same; water rights, the free and uninterrupted right of ingress and egress, in accordance with the terms of an Agreement of even date herewith entered into between the parties hereto.

And the parties of the first part also grant to the party of the second part during said periods the right to prospect for, explore and examine all minerals, metals, ores, ore-bearing materials, and rocks of any kind, including limestone, in, under or on all of said premises, including the right to enter thereupon, to use available water and to remove samples, in accordance with the terms of the last mentioned agreement. The terms of this option Contract and Agreement are fully set out in the Agreement of even date herewith, which is here referred to and made a part hereof as if fully set out at length.

THE NEW JERSEY ZINC COMPANY
160 FRONT ST., NEW YORK 38, N. Y.

This Contract and Agreement and each and every provision thereof shall be binding upon and enure to the benefit of the parties hereto, their heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the Owners and parties of the first part have hereunto set their signatures the day and date first above written.

W. B. Rugel
W. B. Rugel.

Earl Rugel
Earl Rugel.

Pauline Rugel
Pauline Rugel.

STATE OF TENNESSEE

JEFFERSON COUNTY

Personally appeared before me, Ben S. Catlett, a Notary Public in and for said County and State, the within named bargainors, W. B. RUGEL (WIDOWER), EARL RUGEL AND WIFE, PAULINE RUGEL, with whom I am personally acquainted, and who acknowledged that they executed the foregoing Contract and Agreement for the purposes therein contained and expressed.

Witness my hand and official seal at office on this ~~25th~~ 30 day of ~~November~~ DECEMBER, 1955.

Ben S. Catlett
Notary Public.

Commission Expires: 4-16-58

Exhibit "B"

E. J. LONGYEAR COMPANY

DIAMOND DRILL MANUFACTURERS
CORE DRILLING CONTRACTORS
MINING ENGINEERING AND
GEOLOGICAL CONSULTANTS

GENERAL OFFICE
FOSHAY TOWER
MINNEAPOLIS 2, MINNESOTA
TELEPHONE: MAIN 2447
CABLE: LONGCO

November 15, 1955

The New Jersey Zinc Company
160 Front Street
New York, New York

Attention: Mr. A. E. Turner
Assistant Manager of Purchasing

Gentlemen:

Diamond Drilling - 1-X-52h
Jefferson City District, Tennessee

1. In response to your letter of October 20th, we are pleased to submit below a proposal for your contemplated exploratory drilling program which is to be carried out in the above-mentioned area.

2. We understand that the work as now planned will consist of a series of vertical holes to a maximum depth of 2,000 feet, with a minimum aggregate footage of 10,000 feet; and that the formation to be drilled consists mainly of Mascot dolomite and limestone. We further understand that the distance to water may range up to 8,000 feet at one or more of the drill hole locations; and that the drilling will be confined to the Talbot area.

3. For this work we propose to furnish two complete Longyear diamond core drill units, together with the necessary accessory equipment required to accomplish the work as planned. We further propose to supply all service equipment required for moving the equipment from one location to another, and other services and facilities needed in connection with supplying water for drilling purposes. We also propose to operate the drill on a two shift basis.

4. We will carry public liability insurance covering personal injury and property damage, and Workmen's Compensation insurance, and also, all-risk insurance on the drilling equipment protecting against loss by theft, fire, flood, land-slides and other similar hazards.

We will also assume and pay any and all Old Age Benefit, Unemployment and Social Security taxes and contributions imposed by federal or state authorities.

Certificates showing the coverage referred to will be furnished upon request.

5. Based upon the conditions as outlined above, we are pleased to quote as follows:

a) Overburden Drilling

0 - 100 feet in depth, measured from the collar of the hole ..... $ 2.00 per foot

b) Diamond Core Drilling

0 - 1,000 feet in depth, measured from the collar of the hole -

EX standard tools, recovering core approximately 7/8" in diameter..$ 2.00 per foot

BX wire line and/or AX standard tools, recovering core approximately 1-1/8" in diameter .....$ 2.00 per foot

1,000 - 1,500 feet in depth -

EX standard .....$ 2.50 per foot

AX standard .....$ 2.50 per foot

BX wire line .....$ 2.25 per foot

1,500 - 2,000 feet in depth -

EX standard .....$ 3.00 per foot

AX standard .....$ 3.00 per foot

BX wire line .....$ 2.50 per foot

2000
1250
900
4150
1500
$2.31

2000
500
2500
1200

c) Drill Hole Surveying with Maas compass ...$ 5.00 per hour

d) Delays for your convenience or for which you are responsible .....$ 5.00 per hour

e) Hauling drill core from drill hole locations to core storage shed.....$ 3.25 per hour

f) Casing left in drill holes at your request:

EX-size .....$ 1.47 per foot
AX-size .....$ 1.54 per foot
BX-size .....$ 1.96 per foot

g) Cleaning up of drill hole locations will be carried out at the sole expense of the Longyear Company.

h) Reaming, Casing and Cementing, when required, will be carried out at the sole expense of the Longyear Company

6. In addition to the above footage rates, it is agreed that, for drill hole locations in excess of 2500 feet from source of water supply, the following allowances will be made:

a) Water supply allowance for each drill hole which is in excess of 2500 feet but not more than 5,000 feet from an adequate source of water supply .....$ 0.05 per foot drilled

b) Water supply allowance for drill holes which are in excess of 5,000 feet but not more than 7500 feet from an adequate source of water supply .....$ 0.10 per foot drilled

c) Water supply allowance for drill holes which are in excess of 7500 feet but not more than 10,000 feet from an adequate source of water supply .....$ 0.20 per foot drilled

7. It is further agreed and understood that the sources of water supply to be considered for the purpose of computing the distance allowance are those which are at present available or which are made available at the Company's expense, and do not include wells which may be drilled at the contractor's expense.

8. Drill cores are to be placed in receptacles furnished by you at each drill hole location and transported to point of permanent storage as provided for herein.

9. Invoices covering work performed will be prepared in accordance with your instructions.

10. We very much appreciate being afforded the opportunity to consider this work. Should our proposal be found acceptable, we are prepared to furnish the equipment from our Max Meadows warehouse and commence the drilling operations promptly after receipt of official notice to proceed.

Yours very truly,

E. J. LONGYEAR COMPANY

M. J. Gleason, Manager
Contract Drilling Division

MJG:bal

ACCEPTED:

THE NEW JERSEY ZINC COMPANY

By:_____

Date:_____

NOV 17 1955

United States Department of the Interior

GEOLOGICAL SURVEY
BOX 25046 M.S. 939
DENVER FEDERAL CENTER
DENVER, COLORADO 80225

IN REPLY REFER TO:

BRANCH OF CENTRAL MINERAL RESOURCES

July 31, 1986

Mr. T. J. Montgomery
Property Superintendent
Inspiration Mines, Inc.
P.O. Box 1559
Claypool, Arizona 85532

Re: DMEA 4119 (zinc)
New Jersey Zinc Company
Morristown Sector
Talbott Area
Jefferson and Hamblen Counties
Tennessee
Contract Idm E-936

Dear Mr. Montgomery:

Under the terms of DMEA contract Idm E-936 and the Certification of Possible Production dated March 30, 1956, the period which production was subject to payment of royalty to the Government ended May 30, 1986.

According to present records, the Government retains no claims or liens against the property subject to the contract or any production therefrom. Therefore, we are closing our books and records on this contract.

Sincerely yours,

J. William Hasler

J. William Hasler, Chief
Office of Minerals Exploration

JWHasler:js

Copies to: G. H. Allcott
H. A. Tourtelot
C. H. Thorman
Robert Edwards

United States Department of the Interior

GEOLOGICAL SURVEY
BOX 25046 M.S. 939
DENVER FEDERAL CENTER
DENVER, COLORADO 80225

IN REPLY
REFER TO:

BRANCH OF CENTRAL MINERAL RESOURCES

July 31, 1986

Memorandum

To: Branch of Financial Reports

From: Chief, Office of Minerals Exploration

Subject: Recording of realized loss under DMEA contract

Write-off of realized loss on the contract listed below is hereby authorized:

Contract	Docket	Operator	Loan
936	4119	New Jersey Zinc Company Morristown Sector Jefferson & Hamblen Cos. Tennessee	$35,665.81
		Total write-off	$35,665.81

J. William Hasler

J. William Hasler

JWH:js

cc: G. H. Allcott
H. A. Tourtelot
C. H. Thorman

PROJECT SUMMARY REPORT

By: J. W. Alt

March 18, 1959

1. Docket No. DMEA-4119 (Zinc)
Contract No. Idm-E936
Property: Talbott Area
Jefferson and Hamblen Counties, Tennessee

Operator: The New Jersey Zinc Company
160 Front Street
New York 38, New York

Operator's Property Rights: Optionee - Option Contracts Which permits the New Jersey Zinc Company to purchase all mineral rights and mining rights on tracts as listed in Annex I of the Contract.

2. Contract date March 30, 1956. To complete - September 1, 1957.

Contains a 30 years royalty payment period.

Work Authorized

The purpose of the project is to explore for ores of zinc by diamond drilling (plus necessary overburden drilling).

The intent of the work is to investigate the ore potential of the Kingsport limestone and dolomite which is the ore-bearing formation of the district. It is anticipated that drill holes will range from 800 to 1,700 feet in depth, with probable average depth of 1,250 feet. It is estimated that 60,000 feet of drilling will be required.

Estimated Cost of the Project

Actual Costs

Category (1) Independent Contracts

Overburden drilling and diamond to 1000-foot depth, 48,000 feet @ $2.16/ft.	$103,680.00	
Diamond drilling, 1000-foot to 1500-foot depth, 10,000 feet @ $2.66/ft.	26,600.00	
Diamond drilling over 1,500-foot depth, 2,000 feet @ $3.16/ft.	6,320.00	$136,600.00

Fixed Unit Costs

Incidental allowance for each foot of drilling completed, 6,000 feet @ $0.32/ft.	$ 19,200.00	
300 samples to be assayed @ $1.50/ea	450.00	19,650.00
Estiamted Total Cost of Project		$156,250.00
Government's Participation, 50%		$ 78,125.00

Amendments

No. 1 Agreed May 7, 1956, effective as of date of contract.

Adds 11 parcels of land with Contract and Agreements.

No. 2 Agreed June 1, 1956.

1. In the fourth paragraph of Exhibit "A", the second sentence is revised to read as follows:

   All core containing significant mineralization shall be properly sampled and the samples assayed for zinc.

2. In Exhibit "A", the second item under "Fixed Unit Costs" is revised to read as follows:

   450 samples to be assayed @ $1.00/sample $450.00

Amendments (continued)

No. 3 Agreed November 15, 1956.

Adds 10 parcels of land with Contract and Agreements

Work Completed

Diamond drilling, overburden and to 1000-foot depth, 21,988 feet	$44,590.60
Diamond drilling, 1000-foot to 1500-foot, 5,752 feet	13,217.75
Diamond drilling over 1500-foot, 1,566 feet	4,137.35
Incidental allowance for each of drilling completed, 29,306 feet @ $0.32/ft.	9,377.92
8 Assays @ $1.00/each	8.00
Total cost of the Project	$71,331.62

Work was started on April 19, 1956 and was stopped on February 21, 1957. Termination Agreement dated April 19, 1957, effective date of February 28, 1957.

3. Audit - Report of Review dated May 13, 1957.

Total cost as billed by Contractor	$71,331.62
No Execptions	
Total Accepted Cost of Project	$71,331.62
Government's participation, 50%	$35,665.81

Operator's final report - Received April 29, 1957.
Field Team's final report dated December 18, 1958.

4. Certification of Discovery or Development - None issued.

No certification was made but in the Termination Agreement contained the royalty payment clause in it.

5. Comments:

The contract was operated by the New Jersey Zinc Company personnel at Jefferson City in an efficient manner. Accounts of finance expended and of progress of work were accurate and promptly submitted. Cooperation between the local staff of the Operator and the Field Team personneal was excellent.

The exploration consisted of 23 holes spaced generally on 1/4 - or 1/2 mile intervals. The hole depths ranged from 731 feet to 1,990 feet, averaging 1,274 feet. Sphalerite was found in 12 of the 23 holes, but nothing of minable grade and thickness was encountered. The best core runs were 12, 11, and 9 feet containing 1.68, 2.05, and 1.79 per cent zinc respectively.

The generally unsuccessful results of this widely-spaced drilling has considerably reduced the gross ore potential of the project area. As it appeared unlikely, at the recess of drilling in February 1957, that any large, favorably situated ore bodies of the size, grade, and type normally found in the Mascot - Jefferson City zinc district would be discovered, if the remainder of the authorized drilling were carried to completion, the Operator and the Field Team both recommended of the project as unsuccessful.

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

J. W. Alt

J. W. Alt

JWAlt/er
CC: Docket
Dir Read File
Chron.

☒ Audited 5/13/57 WORK ANALYSIS SHEET - DMEA PROJECT ☒ Actual Cost

☐ Certified Analysis as of _____ * ☒ Agreed Unit Costs

Incl. Voucher for Feb. 1957

Name THE NEW JERSEY ZINC COMPANY Docket No. 4,119

State TENNESSEE Commodity ZINC Idm-E No. 936

OPERATION	AUTHORIZED Units	AUTHORIZED Cost	COMPLETED Units	COMPLETED Cost	NET COST
Drifting & Crosscutting					
Raising	Total	Drilling	29,306'	$71,331.62	$71,331.62
~~XXXXXX~~ Diamond drilling overburden and to 1,000 foot depth (AX)	48,000' @ $2.16	$ 103,680.00	21,988'	44,590.60	
~~XXXXXX~~ Diamond drilling 1,000' to 1,500'	10,000' @ $2.66	26,600.00	5,758'	13,214.75	
Drilling (Specify) Diamond, over 1,500' depth	2,000' @ $3.16	6,320.00	1,566'	4,137.35	
Surface Excavation					
Underground Excavation					
Incidental allowances for each foot of ~~XXXXXXXXXXXXXX~~ drilling completed 60,000 feet @ $0.32/ft/ *		19,200.00	29,306'	9,377.92	
Operating Equipment Purchased					
Surface Rehabilitation & Repairs					
Underground Rehabilitation					
New Building, Improvements, etc.					
Other (Specify) ~~300~~ 450 assays @ ~~$1.50~~ 1.00 *		450.00	8	8.00	
Totals		$ 156,250.00		71,331.62	

Date of Contract--March 30,1956. Checks Report of Review

Expiration date for Royalty payments--March 30,1986.

Amendment No.1--Adds a number ofparcels of land.

Amendment No. 2--A cost change noted.

Amendment No. 3--Adds more or less 297 acres of land to the contract.

Termination Agreement dated April 19, 1957.

Prepared by W. P. Klugescheid

71626

Actual Costs.

Category (1.) Independent Contracts.

Overburden drilling and diamond drilling to 1000' depth. 48,000 feet @ $2.16 — $103,680.00

Diamond Drilling 1000' to 1500' depth 10,000' @ $2.66 — 26,600.00

D.D. over 1,500' depth, 2,000' @ $3.16 — 6,320.00

Covers charges for reaming, cementing, water supply, casing, change of locations

Fixed Unit Costs.

Incidental allowances 60,000' drilling @ $0.32 — 19,200.00

~~300~~ 450 Assays @ $~~1.50~~ 1.00 — 450.00

Total — 156,250.00

Spent 1958 May June July August Sept. Oct. Nov Dec 1957 Jan Feb.

14,000' 14,881' 16,743' 20,167' 21,988'
~~2000'~~ ~~4000'~~ ~~9,000'~~ ~~11,000'~~
~~2000'~~ @ (2.16 max) (0'-1000')

(1000'-1500') @ (2.66 max) ~~871'~~ ~~1835'~~
~~2,862'~~ ~~3081'~~ 3,951' ~~4,796'~~ ~~5,896'~~
~~5,410'~~ ~~5,752'~~

44,590.60 ~~40,948.60~~ ~~39,974.10~~
~~30,200.10~~ ~~28,350.00~~ ~~22,200.00~~
~~14,150.00~~ ~~8,100.00~~
~~18,150.00~~ ~~4,050.00~~
~~6,508.05~~ ~~4,167.80~~
~~7,000.80~~ ~~7,978.30~~
11,036.05 ~~9,092.55~~
13,217.75 ~~12,748.25~~ ~~12,186.05~~

(1500'-2000') @ (3.16 max) ~~89~~ ~~194'~~ ~~340'~~ ~~637'~~ ~~1,076'~~
1566'

~~862.55~~ ~~235.25~~
~~1,768.40~~ ~~222.50~~
4,137.35 ~~2887.85~~

~~5,927'~~ ~~10,202'~~ ~~12,421'~~ ~~19,872'~~ ~~23,605'~~ ~~24,143'~~
~~2,960'~~ @ ~~$0.32~~ ~~15,588'~~ ~~20,753'~~ ~~29,306'~~

~~8,685.76~~ ~~7,553.60~~ ~~6,640.96~~
9,377.92 ~~6,359.04~~ ~~4,988.16~~
~~5,174.72~~ ~~1896.64~~
~~3,664.64~~ ~~4,447.20~~

Samples 8 @ 1, 8.00

Total,

~~14,399.69~~ ~~7,198.00~~
~~28,408.07~~ ~~24,785.24~~
~~38,049.11~~ ~~46,632.94~~
~~66,227.96~~ ~~50,772.96~~
71,331.62 57,859.10

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
		110
4/12/66	Rodgers	120K
4/12	Crall	220

APR 12 1966

Mr. Johnson Crawford
Manager - Tennessee Operations
The New Jersey Zinc Company
Jefferson City, Tennessee

Re: DMEA-4119 (Zinc)
New Jersey Zinc Company
Morristown Sector
Talbott Area
Jefferson & Hamblen Counties, Tennessee
Contract Idm-E936

Dear Mr. Crawford:

Thank you for completing and returning our Form 63's on various New Jersey Zinc Company projects.

We are returning the Form 63, in duplicate, on the subject property as question No. 1 has not been answered. Will you please check the appropriate box and return the forms to us.

Sincerely yours,

FRANK E. JOHNSON

Frank E. Johnson
Chief, Office of
Minerals Exploration

Enclosures

cc: Director's Reading File
Division File
Economic Geology File
OME Reading File
120M

MMerrithew/mm (4/12/66)

23263

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
4/9	GCS	120
		225

APR 9 1962

Memorandum

To: Chief, Fiscal Section, Division of Administrative Services, Office of the Secretary

From: Chief, Division of Field Operations, OME

Subject: DMEA-4119 (Zinc)
The New Jersey Zinc Company
Morristown Sector-Talbott Area
Jefferson and Hamblen Counties, Tennessee
Contract Idm-E936

Enclosed for your files is the original of a Report of Royalty Review on the subject contract.

George C. Selfridge

(HB)

Enclosure

GCSelfridge/hb (4/9/62)
cc to: Docket DMEA-4119
Director's Reading File
CA&A Division
G. C. Selfridge
R. A. Laurence, Reg. IV, w/cy of Report of Royalty Review dtd 3/20/62 & orig. cy of memo dtd 4/9/62 to Chf., Div. of Field Operations from CA&A Division.
Avery Reed, USBM, Reg. IV, w/cy of ea. item sent to Mr. Laurence.

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
		220

APR 9 1962

Memorandum

To: Chief, Division of Field Operations

From: E. D. Talbert, Acting Chief (Signed) E. D. Talbert
Contract Administration and Audit Division

Subject: DMEA-4119 (Zinc)
The New Jersey Zinc Company
Morristown Sector-Talbott Area
Jefferson and Hamblen Counties, Tennessee
Contract Idm-E936

Enclosed are the original and two copies of a Report of Royalty Review covering the subject Region IV contract. If you concur in the facts stated therein, please make the following distribution:

(a) Original to the Fiscal Section, Division of Administrative Services, Office of the Secretary; and

(b) Two copies to Region IV files.

This report is for OME record purposes only; therefore, no copy has been provided for the Operator.

As evidence of your concurrence, a copy of your memorandum transmitting the original of the report to the Department's Fiscal Section should be furnished this Division. If for any reason you do not concur, the original and both copies should be returned to this Division with your comments.

Enclosures

EDTalbert/ama 4-9-62

cc:
Docket
Director's Reading File
CA & A Division
Mr. Rothrock

43683

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

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1-13	C	220
1-14	copy	500

January 13, 1959

Re: DMEA 4119; Contract Idm E-936
The New Jersey Zinc Co.
Talbott Area,
Jefferson & Hamblen Counties
Tennesse, $71,332; Zinc

Memorandum

To: W. R. Griswold, Office of Mineral Exploration, Commodity Specialist, Branch of Base Metals

From: Commodity Specialist, Branch of Base Metals

Subject: Review of Field Team final report of December 18, 1958 on exploration.

I have reviewed the field team report, prepared by Wedow of the Survey and Shirley of the Bureau of Mines. The report amply states the findings in the 23 hole, 29,306-foot exploration project, appraises the results fairly and gives adequate maps and logs.

The drilling failed to reveal ore-bodies of large-size and of the grade and type found elsewhere in the Tennessee area and no certification of discovery was made. It was recognised that some part of the 3430 acre area might yet be the site of a smaller discovery, therefore a pseudo-certification was recommended and made part of the Termination agreement to protect the Government's interest. This action seems well justified by the facts presented.

O. M. Bishop

O. M. Bishop

Copy To: Division of Minerals
Mr. Kiilsgaard
Mr. Lamb
Mr. Bishop
F I L E S

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

December 18, 1958

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12/23	C	220
12/30	JHB	130
12/31	C	220
1/2	[illegible]	500

Memorandum

To: Operating Committee, OME - Washington, D. C.

From: OME Field Team, Region V - Knoxville, Tennessee

Subject: Field Team Final Report - DMEA-4119, Idm-E936, zinc. The New Jersey Zinc Co., Talbott Area, Jefferson and Hamblen Counties, Tennessee

Transmitted are the original and two copies of the subject report with maps attached.

The project was terminated effective February 28, 1957.

Robert A. Laurence

Robert A. Laurence
Executive Officer, OME
Region V

V. J. Lynch

V. J. Lynch, Member
Bureau of Mines

z

Reviewed by
OME OPERATING COMMITTEE
12-30-58
(date)

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DATE	INITIALS	CODE
12/30	2/B	130
		220

FILE TM
FINAL REPORT

UNITED STATES
DEPARTMENT OF THE INTERIOR

OFFICE OF MINERALS EXPLORATION

FINAL REPORT

DMEA-4119, Idm-E936(zinc) TALBOTT AREA
Jefferson and Hamblen Counties
Tennessee

Helmuth Wedow, Jr., Geologist
U. S. Geological Survey

and

L. E. Shirley, Mining Engineer
U. S. Bureau of Mines

December 18, 1958

Reviewed by
OME OPTIMIZING COMMITTEE
12-30-58
(date)

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DATE	INITIALS	CODE

FINAL REPORT

DMEA-4119, Idm-E936(zinc) TALBOTT AREA
Jefferson and Hamblen Counties,
Tennessee

Operator: The New Jersey Zinc Company, 160 Front St., New York 38,

SUMMARY AND RECOMMENDATIONS

DMEA-assisted exploration for ore bodies of the types found in the Mascot-Jefferson City (Tennessee) zinc district was conducted in the Talbott area, Jefferson and Hamblen Counties, Tennessee from April 1956 through February 1957. Although the contract called for 60,000 feet of diamond drilling, it was terminated by mutual agreement with the completion of 29,306 feet or 49 percent of the authorized footage. The total cost of the completed program amounted to $71,331.62 of which 50 percent or $35,665.81 was the cost to the Government.

The exploration consisted of 23 holes spaced generally on 1/4 - or 1/2 mile intervals. The hole depths ranged from 731 feet to 1,990 feet, averaging 1,274 feet. Sphalerite was found in 12 of the 23 holes, but nothing of minable grade and thickness was encountered. The best core runs were 12, 11, and 9 feet containing 1.68, 2.05, and 1.79 percent zinc respectively. Most of the mineralization occurs in the lower part of the Kingsport formation ("R" and "S" Beds) although some is found in the Longview dolomite ("U" Bed) and trace amounts in the upper Kingsport and Mascot dolomites.

The generally unsuccessful results of the Talbott drilling, as far as it was carried, have considerably reduced the gross ore potential of the area. As it appeared unlikely that any large favorably situated ore bodies of the Jefferson City type would be found by further drilling, the project was terminated by mutual agreement in advance of completion. However, the wide-spacing of the drilling does not preclude the possibility for the discovery of significant but smaller ore bodies in the future. Consequently, the Field Team recommended that the project be "pseudo-certified" as a provision of the termination. This action was taken to protect the Government's interest in case the Operator subsequently discovers and mines ore within the contract area, particularly as exploration for such ore would use the DMEA drilling data as a point of departure.

INTRODUCTION

The Talbott area (figs. 1 and 2) in Jefferson and Hamblen Counties, Tennessee was explored for zinc deposits by the New Jersey Zinc Company with DMEA assistance under Contract No. Idm-E936 (Docket No. DMEA4119). The primary purpose of the exploration was to test the gross potential of the area for zinc ore bodies of the same habit as those occurring at the New Jersey Zinc's Jefferson City mine, American Zinc's Coy and Jarnigan mines, and U. S. Steel's Davis-Bible mine, lying but several miles to the west and southwest. The exploration consisted entirely of diamond drilling from the surface and was carried out in the period April 1956 through February 1957.

The property controlled (by option agreements) at the close of drilling amounted to 3,429.6 acres. Of this total, 2,244 acres were included in the original contract. The remainder was added in lots of 888.6 acres and 297 acres by Amendments No.1 and No. 3, respectively.

The contract authorized 60,000 feet of diamond drilling in which individual holes were anticipated to range from 800 feet to 1,700 feet in depth and average 1,250 feet. The maximum gross cost of the contract, including assays and an incidental allowance (geological, engineering, cost accounting services, etc.), was not to exceed $156,250.00, of which the Government share (at 50 percent) would be $78,125.00. Geologic guidance of the project for the Operator was maintained by

Messrs. J. W. Phillips and R. E. Tutweiler, geologists, under the supervision of Mr. A. D. Hoagland, Assistant to the Superintendent and Mr. Johnson Crawford, Superintendent, Tennessee Division, The New Jersey Zinc Company. Actual drilling was contracted by the Operator to the E. J. Longyear Company, Minneapolis, Minnesota.

WORK ACCOMPLISHED

Drilling on the Talbott project was initiated on April 19, 1956 and recessed February 21, 1957. The project was terminated by mutual agreement as of February 28, 1957 with the completion of 29,306 feet, or about 49 percent of the authorized drilling. The footage drilled consisted of 23 holes ranging from 731 feet to 1,990 feet, averaging 1,274 feet, in depth (table 1). These holes were spaced, for the most part, at one-fourth to one-half mile intervals in an area about 4-miles long and 1 mile wide. (see figs. 2 and 3.)

The generally unsuccessful results of this widely-spaced drilling has considerably reduced the gross ore potential of the project area. As it appeared unlikely, at the recess of drilling in February 1957, that any large, favorably situated ore bodies of the size, grade, and type normally found in the Mascot-Jefferson City zinc district would be discovered, if the remainder of the authorized drilling were carried to completion, the Operator and the Field Team both recommended termination of the project as unsuccessful. Consequently, the project was

terminated, effective February 28, 1957, and the Operator's property options were allowed to expire. No certificate of discovery was issued, but the project was "pseudo-certified." This "pseudo-certification" provided that (Article 4, Termination Agreement):

> "Should the Operator or any affiliate or subsidiary hold or reacquire any interest in the land.... of the Contract or any production of minerals therefrom, the Operator shall pay royalty to the Government.....on any production made from the date such interest is acquired, to the extent of the interest held, the same as though certification of discovery or development had been made by the Government."

"Pseudo-certification" was recommended by the Field Team because the drilling was not completed, and, although the gross ore potential of the area was tested, the wide-specing of the drill holes does not preclude the possibility for the discovery of significant but smaller ore bodies, particularly if future exploration is based on the results of drilling done under the Talbott DMEA contract.

The location (collar coordinates), collar elevation, and total depth of each of the 23 holes completed are given in Table 1. The average depth of the holes is 1,274 feet. If 260 days were the actual number of days worked with two drills on the project, then the drilling advanced at the average rate of about 56 feet per day per drill or 28 feet per shift per drill. Thus, 23 holes were drilled at the average rate of about 23 working days per hole, including all down-time

(moving, setting-up, and repairs). BX-wireline equipment was used for the bulk (26,664 feet) of the diamond drilling. The remainder consisted of the following: (1) Overburden, 425 feet; (2) NX-size, 95 feet; (3) Standard BX-size, 289 feet; (4) Standard AX-size, 764 feet; and (5) AX-wireline, 1,069 feet. It appears to be the consensus of those concerned with efficiency of drilling operations that BX-wireline equipment, though generally faster for many types of operations, is slowed down in the East Tennessee zinc districts. Apparently the cherty zones encountered in the Mascot and Kingsport formations require frequent bit changes, thus offsetting the speed advantage gained by the cable-hoisting of the wire-line core barrel.

The contract authorized a maximum of 450 assays for zinc (changed from 300 to 450 by Amendment No.2). However, of such runs of mineralized rock recovered, few were of sufficient thickness and estimated grade to warrant assaying. Consequently, only eight assays were made. These were as follows:

Hole No.	Depth	Core length	Percent Zn
T-47	1778-1782	4'	2.22
	1782-1787	5'	1.45
T-48	967-968	1'	6.72
	977-981	4'	3.03
	984-988	4'	2.60
	1013-1017	4'	3.59
	1020-1025	5'	1.19
T-51	863-867	4'	2.44

EXPENDITURES

The Report of Review of the Talbott contract, issued by DMEA on May 13, 1957, shows that a total cost of $71,331.62 as billed by the Operator, was acceptable to the Government with no exceptions. A summary breakdown of costs allowable under the contract follows:

	Total cost	Average cost per foot	Average cost per hole
Drilling	$61,945.70	$2.114	$2,693.29
Assays	8.00	-	0.35
Incidentals	9,377.92	0.320	407.74
	$71,331.62	2.434	$3,010.38

Note: Average cost per foot based on 29,306 feet; average cost per hole based on 23 holes. The cost of assays per foot of drilling is omitted from summary as it is essentially infinitesimal ($0.00027).

The cost of Government participation at 50 percent amounted to $35,665.81. No production was obtained during the life of the contract. Because of termination prior to completion, the project was "pseudo-certified," as discussed above. Thus, royalty payments will be due the Government only if the Operator reacquires interest in mineral production from the contract area, as specified in the termination agreement.

EFFICIENCY OF OPERATIONS

The Talbott contract was operated by the New Jersey Zinc Company personnel at Jefferson City in an efficient manner. Accounts of finances expended and of progress of work were accurate and promptly submitted. Cooperation between the local

staff of the Operator and Field Team personnel was excellent.

GEOLOGY

The Talbott area lies at the northeast end of the well-known, highly productive Mascot-Jefferson City zinc district of East Tennessee. The Ordovician host rocks of the zinc deposits are the Longview dolomite, the Kingsport formation, and the Mascot dolomite. The areal distribution of these formations, as well as the superjacent Moshiem and Lenoir limestones, in the Talbott area are shown on figure 3. Also sketched on figure 3 are the major structural features of the area, namely, the Rocktown and Koppick Knob overthrust faults. The Koppick Knob fault is generally synonymous with the Rocky Valley fault (Bridge, 1956) the prominent overthrust of the West New Market area (DMEA-2546). However, the Rocky Valley (Koppick Knob) fault as shown in the Talbott drilling (fig.3), has proven to be the next major fault northwest of the one labelled the Rocky Valley fault on Bridge's map (1956, plate 1).

Stratigraphic control of the drilling was generally excellent. Most of the strata underlying the thrust faults are essentially flat lying (average dip about 9°SE). Almost all of the marker beds used in the Mascot-Jefferson City district were recognizable. Chief among these markers are the chert-matrix sandstone at the base of the Mascot dolomite, the "108" Bed (minus C oolite at Mascot), and the "28" Bed (base of the upper Kingsport or top of the "R" Bed), and the "T", "U" and "V"

Beds--the top most beds of the Longview dolomite. Depth data on these markers are given by hole in table 1. They are also plotted on figure 4 with a X10 vertical exaggeration, using the "U", "V" contact as a zero datum. Such a plot is made to emphasize the stratigraphic position of the zinc occurrences. Thus, as can be seen in figure 4 and table 1, the major portion of the zinc occurrence occur in the lower Kingsport member ("R" and "S" Beds), some were found in the upper part of the Longview dolomite ("U"-Bed), and a few in the upper Kingsport member and the Mascot dolomite.

A classification of the holes by degree or amount of mineralization is as follows:

Type of hole	No. of holes	Percent of total
Ore (a minable thickness containing 50 ft. x percent units or more.....	0	0
Sub-ore(minable thickness containing less than 50 ft x percent units).....	3	13
"Shine"(strong showing of sphalerite but considerably less than minable thickness..	5	22
Trace (traces or scattered traces of sphalerite).....	4	17
Barren (no zinc minerals visible).....	11	48
Total.....	23	100

In conclusion, though the widely spaced drilling in the Talbott area does not preclude the occurrence of minable

commercial grade zinc ore bodies, it is believed that sufficient drilling has been completed to have essentially eliminated the gross potential for ore bodies of the size of that at the Jefferson City mine of the Operator.

On the other hand, review of the data leads to certain features related to the occurrence of the sections of stronger mineralization encountered. These are:

1) The Kingsport is generally thinner in the sub-ore holes than in the "shine", trace, or barren holes, for example, Holes T-37 and 48 (fig.4).

2) Where little or no mineralization occurs, the interval between the top of the Kingsport and the "U"-"V" contact maintains essentially the same thickness (sec. C. fig.4).

3) The occurrence of mineralization in the upper part of the Longview dolomite appears to be related either to areas where the "T" Bed thins over a relatively thicker "U" Bed (Hole T-37), or where the "U" Bed itself is thinner than normal (Hole T-51).

REFERENCE CITED

Bridge, Josiah, 1956, Stratigrophy of the Mascot-Jefferson City Zinc District, Tennessee:
U. S. Geol. Survey Prof. Paper 277.

Helmuth Wedow, Jr., Geologist
U. S. Geological Survey

L. E. Shirley, Mining Engineer
U. S. Bureau of Mines

Dec. 18, 1958

HOLE NO.	T-36	T-37	T-38	T-39	T-40	T-41	T-42	T-43	T-44	T-45	T-46	T-47	T-48	T-49	T-50
COLLAR COORDINATES NORTH	18,908-N	20,028-N	19,597-N	19,347-N	17,468-N	20,710-N	20,346-N	21,418-N	17,774-N	22,031-N	19,901-N	16,655-N	21,721-N	21,245-N	16,165-N
COLLAR COORDINATES EAST	25,581-E	24,901-E	26,716-E	23,744-E	23,373-E	26,003-E	27,837-E	27,117-E	26,335-E	28,230-E	29,646-E	26,957-E	30,051-E	31,676-E	27,265-E
COLLAR ELEVATION	1269	1247	1288	1291	1271	1237	1246	1264	1301	1264	1255	1334	1263	1254	1288
TOTAL DEPTH	1589	1371	1462	1505	1746	1207	1322	1162	1797	1067	1370	1939	1110	1235	1990
DEPTHS TO: CHERT-MATRIX SS	1171	987	1104	1151	1418	855	973	803	1427	700	1020	1532	758	857	1620
DEPTHS TO: "108" BED	1301; 1372	1159	1246	1281	1553	983	1105	930	NOT	827	1146	1669	886(?)	973	1754
DEPTHS TO: "28" BED	1453	1235	1315	1371	1618	1065	1188	1013	RECOG-	912	1226	1736 (?)	966	1054	1849
DEPTHS TO: TOP OF "T" BED	1543	1331	1426	1471	1717	1169	1279	1123	NIZED	1018	1329	NOT —	1053	1165	1920
DEPTHS TO: TOP OF "U" BED	1550	1337	1438	1480	1725	1180	1286	1134	—	1028	1336	RECOGNIZED	1065	1177	1931
DEPTHS TO: TOP OF "V" BED	1565	1368	1454	1503	1742	1200	1300	1157	1771	1048	1365	1876	1081	1198	1945
MINERALIZATION (NO COLOR) MASCOT; UPPER KINGSPORT; LOWER KINGSPORT; LONGVIEW	BARREN	TRACES: 308-312, 314, 584, 624, 1320-1328; 1328-29 1' 6% ZN; 1338-1340 2' 4% ZN	BARREN	TRACES: 342, 1163-1164; 1348-1349 1' 12% ZN	TRACES: 1722-1723, 1726, 1730, 1735	BARREN	1188-1190 2' 8.83% ZN; 1190-1193 3' 1% ZN	BARREN	WEAK TRACE AT 1028	BARREN	BARREN	TRACES: 1774, 1794, 1797, 1815, 1859, 1860; SHINE: 1828; 1778-1787 9' 1.79% ZN	967-968 1' 6.72% ZN; 977-988 11' 2.05% ZN; 1013-1025 12' 1.68% ZN; TRACES: 1029-1030, 1065-1066	TRACE: 598; SHINE: 1190-1191	BARREN

HOLE NO.	T-51	T-52	T-53	T-54	T-55	T-56	T-57	T-58
COLLAR COORDINATES NORTH	23,205-N	24,565-N	22,726-N	25,777-N	26,370-N	28,090-N	29,400-N	27,620-N
COLLAR COORDINATES EAST	32,211-E	34,569-E	34,136-E	36,660-E	34,710-E	37,030-E	39,950-E	41,330-E
COLLAR ELEVATION	1265	1301	1270	1326	1335	1310	1320	1315
TOTAL DEPTH	881	862	1114	894	731	799	821	1342
DEPTHS TO: CHERT-MATRIX SS	551	510	760	534	383	438	465	974
DEPTHS TO: "108" BED	674	634	889	659	509	570	592	1117
DEPTHS TO: "28" BED	750	714	968	739	588	653	676	1202
DEPTHS TO: TOP OF "T" BED	851	822	1075	843	681	756	782	1305
DEPTHS TO: TOP OF "U" BED	863	833	1086	856	693	766	795	1315
DEPTHS TO: TOP OF "V" BED	876	855	1103	875	705	782	811	1333
MINERALIZATION	SHINE: 732; TRACES: 732-735, 763-767; 863-867 4' 2.44% ZN	BARREN	BARREN	BARREN	565-566 1' 4% ZN; TRACES: 589-590, 666-669, 685, 686, 692, 693, 696, 697	TRACES: 714-715, 718-723; SHINE: 723-725; TRACES: 725-726, 730, 738, 740, 795	BARREN	1216-1218 2' 2% ZN; TRACES: 1224, 1228

TABLE 1.-- LOCATION, SELECTED STRATIGRAPHIC DATA, AND MINERALIZATION OF DIAMOND-DRILL HOLES IN THE TALBOTT AREA, JEFFERSON AND HAMBLEN COUNTIES, TENNESSEE (DMEA-4119, IDM-E936: ZINC)

NOTES: (1) THE COLLAR COORDINATES AND ELEVATIONS OF HOLES T-55, -56, -57, AND -58 WERE NOT GIVEN IN THE OPERATOR'S FINAL LOGS AND ARE ESTIMATED FROM THE BEST AVAILABLE DATA.

(2) UNDER "MINERALIZATION" TRACES AND SHINES REFER TO OCCURRENCES OF SPHALERITE (ZnS)

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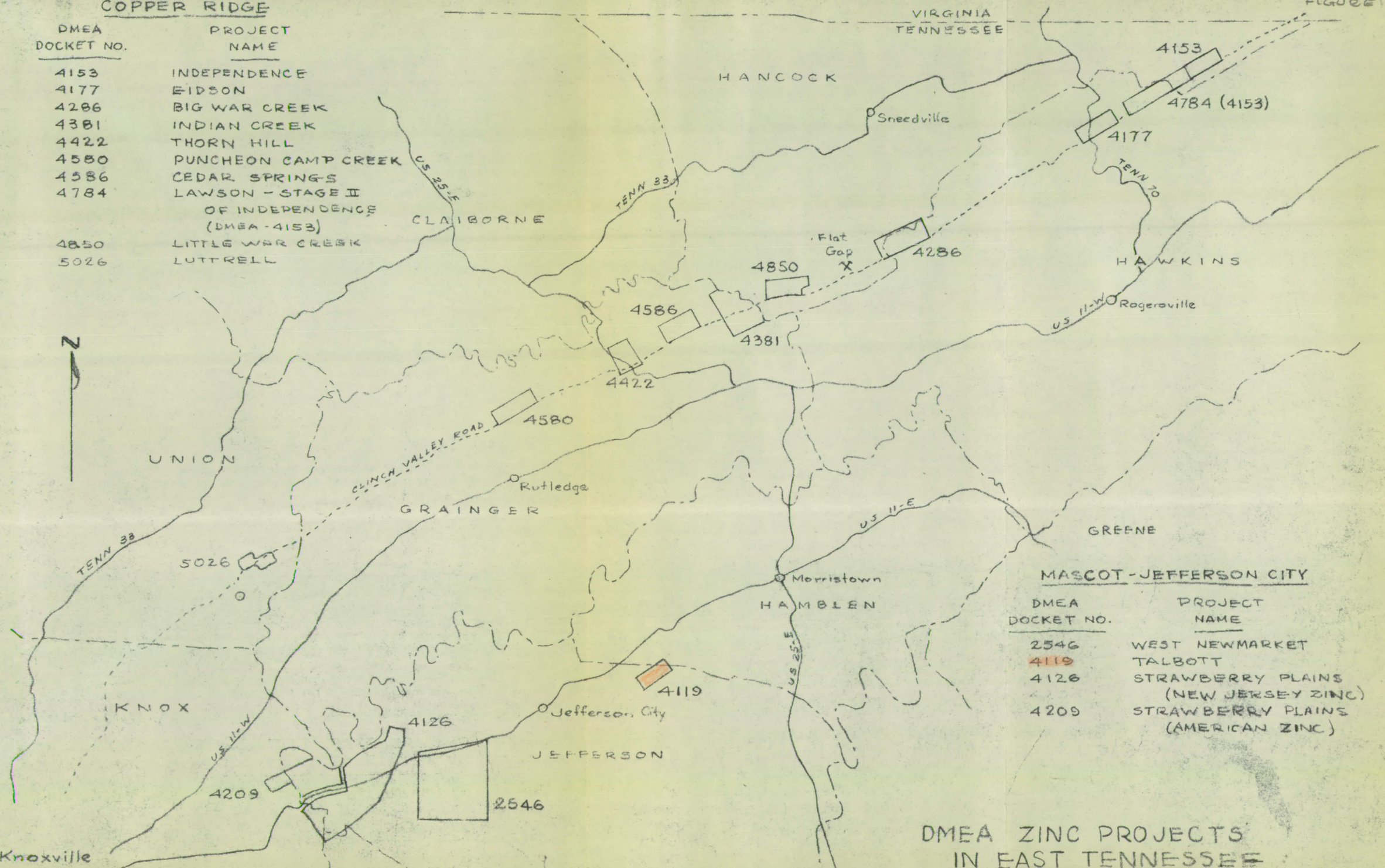
FIGURE 1

COPPER RIDGE

DMEA DOCKET NO.	PROJECT NAME
4153	INDEPENDENCE
4177	EIDSON
4286	BIG WAR CREEK
4381	INDIAN CREEK
4422	THORN HILL
4580	PUNCHEON CAMP CREEK
4586	CEDAR SPRINGS
4784	LAWSON - STAGE II OF INDEPENDENCE (DMEA-4153)
4850	LITTLE WAR CREEK
5026	LUTTRELL



MASCOT-JEFFERSON CITY

DMEA DOCKET NO.	PROJECT NAME
2546	WEST NEWMARKET
4119	TALBOTT
4126	STRAWBERRY PLAINS (NEW JERSEY ZINC)
4209	STRAWBERRY PLAINS (AMERICAN ZINC)

DMEA ZINC PROJECTS IN EAST TENNESSEE

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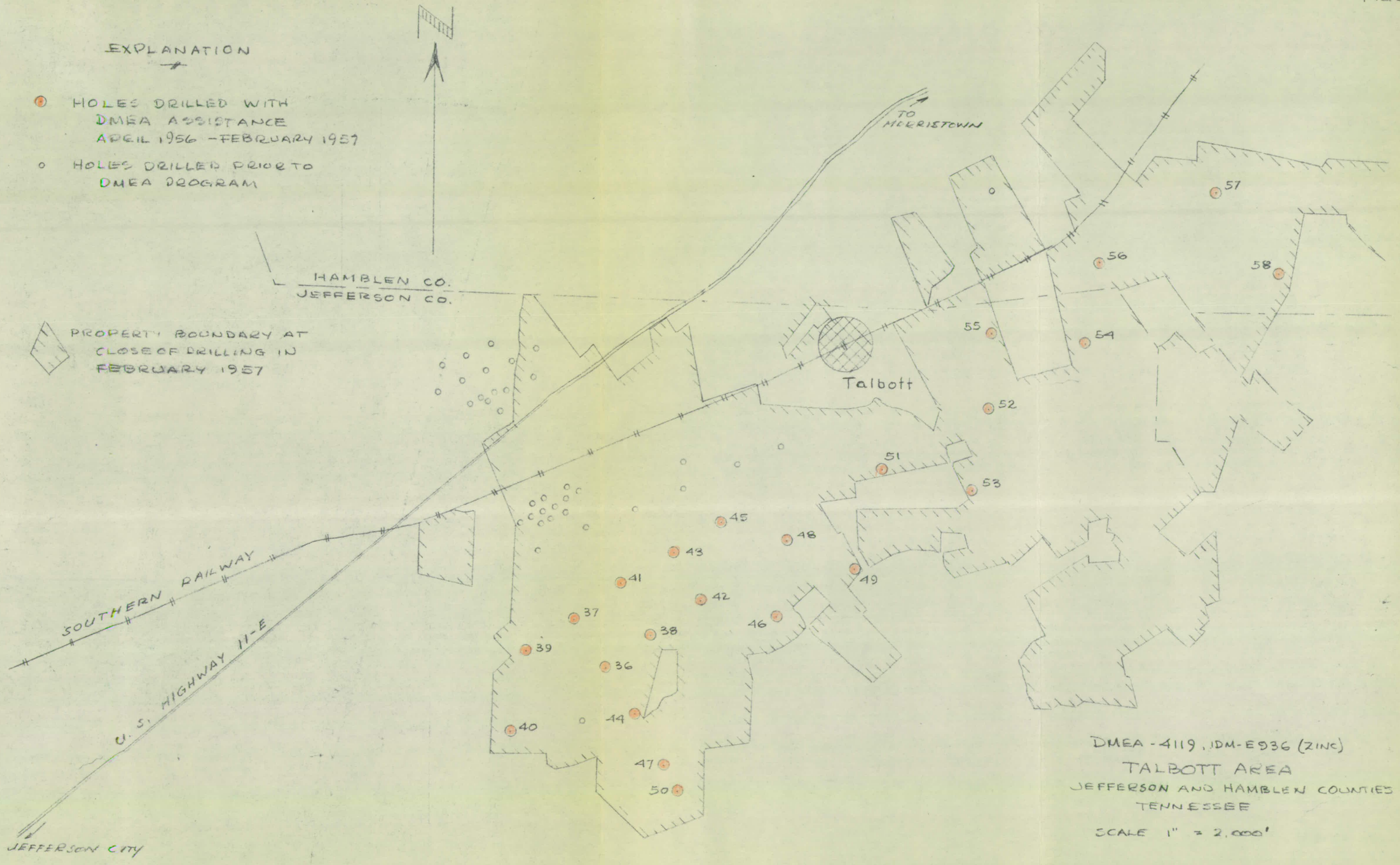
FIGURE 2



DMEA - 4119, IDM-E936 (ZINC)

TALBOTT AREA

JEFFERSON AND HAMBLEN COUNTIES

TENNESSEE

SCALE 1" = 2,000'

HW-17158

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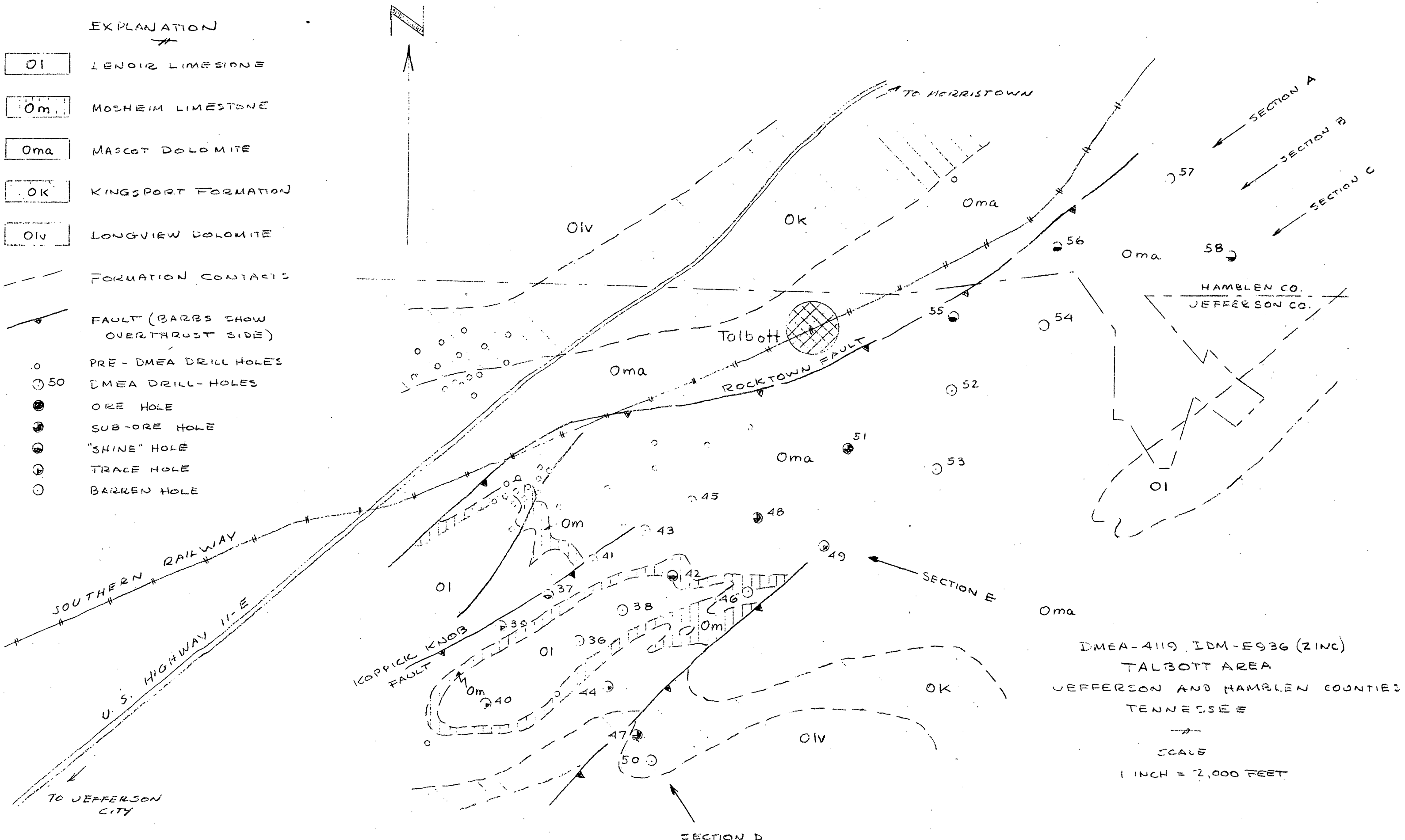
FIGURE 3



HW-12/59

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Tables &
maps for
DMEA-4119-
Final Field Trip
Report,
12-18-58

July 16, 1958

Memorandum

To: Mr. Wingfield H. Chamberlain
Division of Operation Control & Statistics

From: Director, Division of Base Metals

Subject: Semi-Annual Reports of Certified projects for the period January 1, 1958 thru June 30, 1958.

The following projects were inactive during the cited period.

Docket No.	Contract No.	Name
DMEA-113	Idm-E265	New Quincy Mining Company
DMEA-2546	Idm-E676	American Zinc Company of Tennessee
DMEA-2707	Idm-E429	Belville Gold Mines Limited (Virginia Mining Corporation)
DMEA-4119	Idm-E936	The New Jersey Zinc Company
DMEA-4242	Idm-E1009	Privateer Mining Company
DMEA-4681	Idm-E1102	The New Jersey Zinc Company

WRG/er
Copy to: Dockets (6)
Admr R File
Chron.

W. R. Griswold

W. R. Griswold

DMEA Form 7
(12-56)

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Date	Surname	Code
5/16	Griswold	500
5/21	[illegible]	130
"	Johnson	110
"	[illegible]	100
5/22	C	220
		500

500

MAY 21 1958

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Bldg.
Knoxville 2, Tennessee

Re: Docket No. DMEA-4119 (Zinc)
The New Jersey Zinc Company
Talbot Area
Jefferson and Hamblen Counties,
Tennessee
Contract No. Idm-E939

Dear Mr. Laurence:

We are still lacking the final Field Team Report on the cited terminated project, though we received the Operator's Final Report a year ago.

Will you kindly let us have this report as soon as is convenient.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (HB)

WRGriswold/er 5/16/58
Copy to: Docket
Admr R File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron.

APPROVED:

P. F. Yopes
Member, Bureau of Mines (HB)

Thor H. Kiilsgaard
Member, Geological Survey (HB)

8623

NOV 25 1957 Docket No. DMEA-4119

Mr. Stanley S. Miller
Legal Department
The Eve Survey Mine Company
[illegible] Street
New York 38, New York

Re: Docket No. DMEA-4119 (Mine)
The Eve Survey Mine Company
Beaver Creek Area
Boyle County, Virginia
Contract No. [illegible]

Dear Mr. Miller:

In refer to your letter to Mr. Kingsbrick, dated October 24, 1957, in which you mentioned that you had returned all the copies of a proposed termination agreement to Mr. Robert A. Lawrence, and which he has since forwarded to us.

The paragraph 4 used in the termination agreement for Docket No. DMEA-4119, Eaton Area, Jefferson and Madison Counties, Tennessee, was particularly applicable to this case. There we have a considerable area which had been drilled but the drill holes were widely spaced, and, although the results were disappointing, it cannot be said that the discovery of smaller but significant ore bodies is not a possibility.

The project represented by Docket No. DMEA-4119, Beaver Creek Area, Boyle County, Virginia, is very different. In this case the two drill producing areas were drilled and the drill holes were quite close together. The results were disappointing and the probability of finding any bodies is rather remote.

If the paragraph 4 which you prefer were used in this case, it would mean that the mined district would remain in our active file indefinitely as your company might wish to complete the property at some future time.

Since little possibility exists that the project will be certified, we prefer to permanently close the docket at the end of the six-month period mentioned in Article 8 of the contract. We are, therefore, returning the original and four copies of the proposed termination agreement for execution by an authorized representative of your company. Kindly return all the copies, except the Operator's copy to this office.

Regarding the conference which you mentioned in the last paragraph of your letter, we will be pleased to arrange one at your convenience.

Sincerely yours,

C. O. Mittendorf

Administrator

Enclosures

WPKlugescheid/er 11/20/57
Copy to: Docket (2) - 4119
Admr R File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Region V (2)
Chron.

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code

October 16, 1957

Memorandum for the Files

From: W. P. Klugescheid, Division of Base Metals

Subject: Phone Conversation on Docket Nos. DMEA-4119, DMEA-4174, and DMEA-4178, The New Jersey Zinc Company, Virginia Area, concerning Termination Agreements and Special Agreement Concerning Land, Zinc.

On this date, I called Mr. Lindley G. Miller, of the Legal Deaprtment of The New Jersey Zinc Company.

Mr. Miller made it clear that The New Jersey Zinc Company prefers paragrah 4 of the Termination Agreement for DMEA-4119, to the ones which have been sent out for DMEA-4174 and DMEA-4178. This clause is to the advantage of the Government, and Mr. Miller stated that his company considered the conditions of this paragraph as just and right. Mr. Miller said that they would return the Termination Agreements for DMEA-4178 and also DMEA-4590 (which belongs to the Rare Metals Division).

Mr. Miller was informed that I could not promise the use of paragraph from DMEA-4119 in all cases as this would be at the discretion of the Legal Division and the Administrator.

In the Special Agreement Concerning Land, Mr. Miller considers that part (c) of paragraph 2 is superfluous. He was a little in doubt as to the complete meaning of paragraph 2(d). He does however interprete this as meaning that any land deleted and then taken up again in future years would be subject to any certification which may have been made on <u>any part</u> of the land included in the contract.

The New Jersey Zinc Company knows that land may be deleted from the time that the contract is signed until 60 days after the work is completed or terminated, and then it cannot be dropped until six months after the Operator's final report has been received by the Government. If land is dropped during this period it is at the risk and responsibility of the Operator as it is in default of the contract.

Mr. Griswold is of the opinion that all the contracts where there is a large land area involved should contain the paragraph 4 as in DMEA-4119.

Mr. Miller still hopes that the Legal Division will review the recommendations which he wrote to Mr. Griswold and which he discussed with Mr. Griswold. I informed him that due to press of other work this has not been possible to date.

W. P. Klugescheid

W. P. Klugescheid

WPK/er
Copy to: Docket (3)
Admr R File
Chron.

September 20, 1957

Memorandum for the Files

From: W. P. Klugescheid, Division of Base Metals

Subject: Phone conversation on Docket Nos. DMEA-4119, 4174, 4178, and 4675, The New Jersey Zinc Company, Lead-Zinc-Copper.

On this date, Mr. Lindley G. Miller, of the legal department called me on the phone from New York City, to inform me that the proposed contract for DMEA-4675, was being returned to us unsigned and with an accompanying letter stating their objections thereto.

Mr. Miller also wished to know why clause 4, in the Mutual Termination Agreement of DMEA-4119 was different from DMEA-4174 and DMEA-4178. I informed him that I would look them up and would advise him. He also wished to know how it is possible to delete land after a termination agreement has been signed. They have already deleted land prior to termination so there should be no great difficulty about this. (4178 is a case in point.)

W.P. Klugescheid

W. P. Klugescheid

WPK/er
Copy to: Dockets (4)
Admr R File
Chron.

Form 7
-56)

OFFICIAL FILE COPY

Date	Surname	Code
	Talbert	800
5/15	C	220
		~~500~~
5/15	~~WRU~~	500

14 MAY 1957

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team, Region V
Room 14, Post Office Building
Knoxville 2, Tennessee

Re: Docket No. DMEA-4119 (Zinc)
The New Jersey Zinc Company
Jefferson and Hamblen Counties,
Tennessee
Contract No. Idm-E936

Dear Mr. Laurence:

Enclosed are the original and two copies of a Report of Review, in lieu of a final audit, covering the referenced project. If you concur with the facts stated therein, the original and one copy of the report should be forwarded to the Certifying Officer and one copy should be retained in your files. If, for any reason, the report does not have your concurrence please return all copies to this Division.

The regional finance officer's file on this project, which was submitted to this Division by memorandum dated May 6, 1957, is being returned by registered mail with copy of this letter to Mrs. Helen R. Miller, Administrative Assistant, Electrotechnical Experiment Station, Norris, Tennessee.

Sincerely yours,

(Signed) E. D. Talbert

E. D. Talbert, Acting Chief
Contract Administration
and Audit Division

Enclosure

EDTalbert/wb
May 13, 1957

Copy to: Docket
Admr. Reading File
Helen R. Miller
Mr. Chambers

8623

MA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
5/3	Talbert	800
5/6	C	220
5/6	~~[illegible]~~	~~225~~
		500

MAY - 3 1957

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team, Region V
Room 13 Post Office Building
Knoxville 2, Tennessee

Re: Docket No. DMEA-4119 (Zinc)
The New Jersey Zinc Co.
Talbot Area - Tennessee
Contract No. Idm-E936

Dear Mr. Laurence:

By memorandum dated May 1, 1957, you have confirmed the work performed under the referenced contract and advised that a Report of Review in lieu of a final audit is in order.

As this contract provides, in part, for Government contribution on the basis of actual costs incurred, the audit review must include an examination of the documents substantiating such costs. Therefore, it will be appreciated if arrangements are made with the regional finance officer to forward to this Division the copies of the independent contractor's invoices, as attached to the originals of forms MF-104 submitted by the Operator. No other documents will be necessary as the copies of forms MF-104 submitted to the Washington office were accompanied by other required supporting data.

The copies of the invoices will be returned promptly after examination.

Sincerely yours,

(Signed) J. L. Chambers

Jay L. Chambers, Chief
Contract Administration
and Audit Division

EDTalbert/wb
May 3, 1957

Copy to: Docket
Admr. Reading File
Helen R. Miller
Mr. Chambers
Mr. Talbert

8623

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

OFFICIAL FILE COPY
DMEA
RECEIVED 1957

DATE		CODE
5/3	C	220
5/3	~~[illegible]~~	500
	Klug	
	C	

May 1, 1957

Memorandum

To: Operating Committee, DMEA - Washington

From: Executive Officer, DMEA - Region V - Knoxville, Tenn.

Subject: Termination Agreement- Idm-E936, DMEA-4119(zinc)
The New Jersey Zinc Company, Jefferson and
Hamblen Counties, Tennessee (Talbot Area)

Attached are three signed copies of the subject termination agreement. The usual distribution of the other copies has been made by this office.

Robert A. Laurence
Robert A. Laurence

M

Terminations

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

OFFICIAL FILE COPY
DMEA
RECEIVED APR 29 1957

DATE	INITIALS	CODE
4/29	C	220
5/1	[illegible]	800
5/1	[illegible]	500

April 26, 1957

Memorandum

To: Operating Committee, DMEA, Washington, D. C.

From: Acting Executive Officer, DMEA, Region V

Subject: Final Report - DMEA-4119, Idm-E936 - Zinc
New Jersey Zinc Company, New York, New York
Talbot Area, Jefferson and Hamblen Counties, Tennessee

Enclosed are three copies of the Company's final engineering and geological report covering work completed under subject contract.

One copy of the report has been retained for use of the Field Team.

V. J. Lynch

V. J. Lynch

Enclosures 3

1086G 24M 1-54

COPY

THE NEW JERSEY ZINC COMPANY

Jefferson City, Tennessee

EXPLORATION DEPARTMENT

EXTRA COPY
DMEA
RECEIVED 1957

DATE	INITIALS	CODE

Jefferson City, Tennessee
April 16, 1957

Mr. R. A. Laurence, Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville 2, Tennessee

Dear Mr. Laurence:

We are enclosing, herewith, four copies of our final report on the work done under DMEA No. 4119 - Idm - E 936. This report, by Mr. J. W. Phillips, is titled, Exploration Morristown Sector - Talbott Area, Jefferson and Hamblen Counties, Tennessee.

The report contains a factual account of the geology with supporting maps and typical sections. The detailed logs of all holes drilled under the project are in the envelope at the back of the report.

The conclusion reached through the work accomplished by the Morristown Sector Project is that the chances are remote that there are significant orebodies of the Jefferson City Mine type in the area tested. Further work in the area appears unwarranted at this time. It is recommended that all property interests in the project area be terminated, and that the project be classified as non-productive.

Very truly yours,

THE NEW JERSEY ZINC COMPANY

Johnson Crawford

Superintendent for Tennessee

A.D.Keagland/jf
In Quadruplicate

APR 25 1957

OPERATION
FINAL
REPORT

EXTRA COPY.
DMEA
RECEIVED APR 29 1957

DATE	INITIALS	CODE

EXTRA COPY
DMEA
RECEIVED APR 29

DATE	INITIALS	CODE

MORRISTOWN SECTOR - TALBOTT AREA

JEFFERSON AND HAMBLEN COUNTIES, TENNESSEE

DMEA DOCKET NO. 4119 - CONTRACT NO. E 936 - ZINC

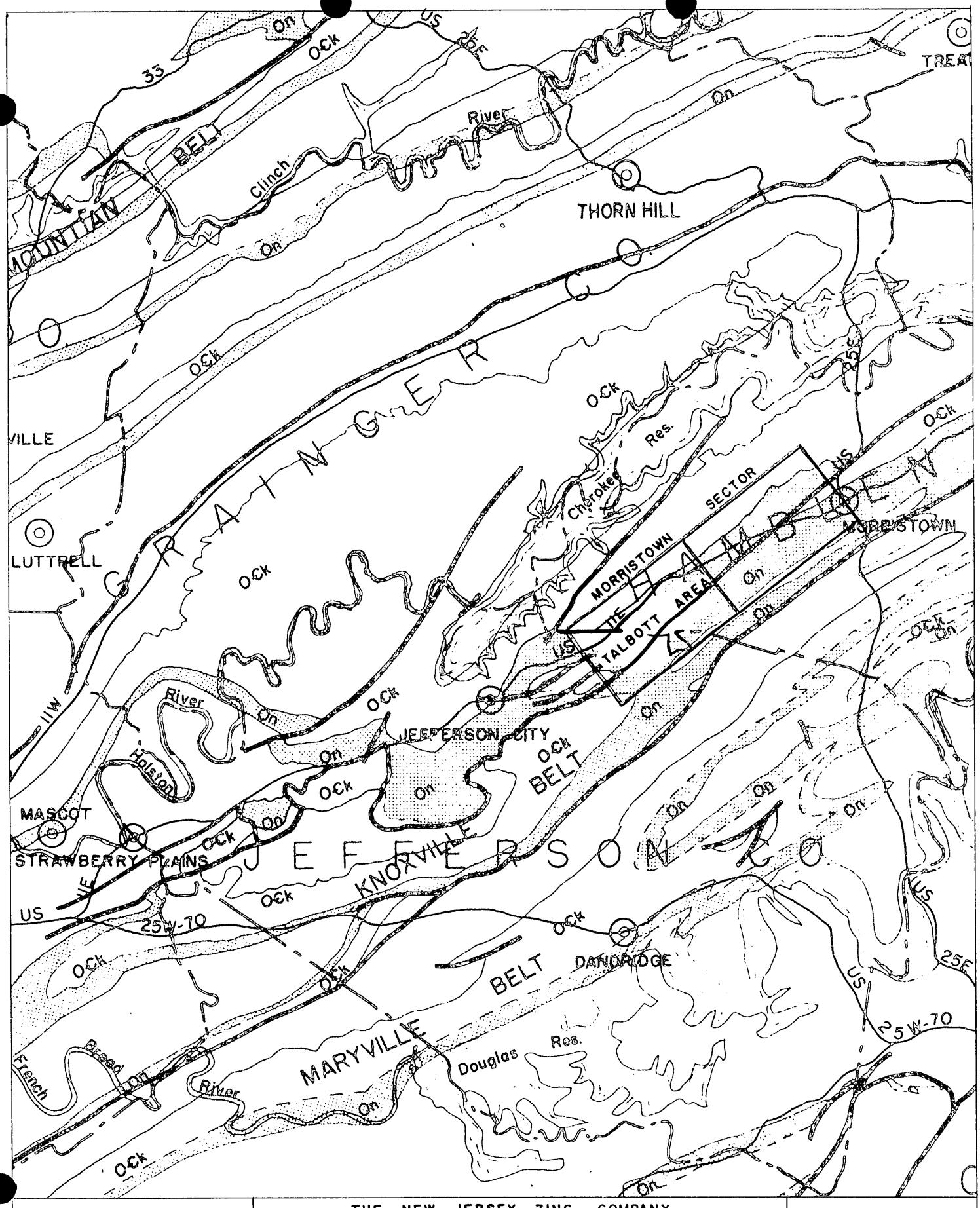
Summary

Exploration in the Talbott Area of the Morristown sector has been conducted during the period from 1952 to 1957. It is now concluded that the chances for an ore occurrence within the area, of the magnitude of the Jefferson City mine, appear to be remote.

The most recent test, conducted with Defense Minerals Exploration Administration assistance, included 23 drill holes covering an area of 2600 acres. Nine of these holes encountered sphalerite mineralization of sub ore grade. Data from this drilling program and a previous program lead to the conclusion that the Company's interests in the Talbott area should be terminated.

Introduction

The Morristown sector of the Jefferson City belt is located in Jefferson and Hamblen Counties, Tennessee, adjacent to and northeast of the Jefferson City mining district. The sector is bounded on the southwest by the properties of the American Zinc Company and The New Jersey Zinc Company, and on the northeast by the city of Morristown. The Talbott area, with which this report is primarily concerned, comprises the southwest half of the sector.



DRAWN USGS	THE NEW JERSEY ZINC COMPANY Jefferson City, Tenn.	SCALE 1" = 4 Miles
DATE 4-57	Jefferson City District — Index Map	AX-Tenn A-1260

The Talbott area has warranted investigation due to its adjacency to the Jefferson City mining district and the presence of outcrops showing mineralization in the Mascot and Kingsport formations.

The current drilling program was designed as a gross test of a 2600 acre area down dip from known mineralization. The drilling pattern was oriented to cover 3-3/4 miles strike distance of the Kingsport formation. Drill hole depths varied from 900 to 2000 feet.

History

No production has been recorded from the Talbott area. Two prospect pits which expose zinc carbonate mineralization are known.

The American Zinc Company and Universal Exploration Company have drilled in the area north of the Southern Railroad. Upon completion of their exploration programs they withdrew from the area.

Exploration by The New Jersey Zinc Company started in the Morristown sector in 1952 with a soil sampling program which covered the Kingsport - Longview contact from the southwest end of the sector to the city of Morristown.

A drilling program in the Talbott area was started in December 1952. Thirty-five holes were drilled. The program was recessed in February 1954 owing to the depressed zinc market.

The current drilling program with Defense Minerals Exploration Administration assistance started in April 1956. The drilling was terminated in February 1957, upon completion of twenty-three holes.

Property

The extent of the property controlled during the current project was 3611 acres, located as shown on accompanying map, AX-TENN-B-247a.

Geology

Topography

The topography of the Morristown sector is characterized by gently rolling hills with a local relief of from 20 to 60 feet. Sink holes are abundant. Drainage over the entire area is subterranean. The only prominent topographic feature in the sector is a ridge of Lenoir limestone which extends from Talbott to Morristown. This ridge marks the southeast border of the project area.

Structural Setting of the Area

The Talbott area is situated at the northeast end of the Koppick Knob (or Bays Mountain) overthrust fault and its associated Rocky Valley anticline. The central and northeast portions of the area are composed of formations striking northeast and folded in a homocline dipping 9 degrees to the southeast.

Structure Within the Area

The formations of the Rocky Valley anticline (or Koppick Knob overthrust slice) are faulted onto the Lenoir and Mascot formations. The displacement on the overthrust fault is diminishing as it enters the Talbott area from the southwest. Results of the current drilling project reveal that the fault terminates in the area as a series of minor high angle reverse faults within the Mascot formation.

A secondary overthrust fault, called the Rocktown fault, is present approximately 200 feet beneath and parallel to the Koppick Knob fault. The slice between the two faults is a zone of structurally disturbed Mascot formation. The Rocktown fault thrusts Mascot on to Mascot. This fault continues to the northeast beyond the area drilled.

The sediments underlying the Rocktown fault are relatively undisturbed except for a bedding plane fault (the Pebble Conglomerate fault) which is present in the Jefferson City district and terminates in the southwest part of the Talbott area. Displacement on this fault is not known.

Of interest is a post Koppick Knob high angle reverse fault in the vicinity of drill holes T-47 and T-50, shown on map AX-TENN-B-1261 and section I-Ia. This fault has approximately 200 feet vertical displacement. It is possible that

more of these reverse faults are present east of the T-47, T-50 locations, accompanying the transition from the Rocky Valley anticline to the homoclinal structure (or gentle synclinal structure) to the northeast.

Stratigraphy

The rocks of the Talbott area are lower middle Ordovician and lower Ordovician limestone and dolomite. Formations exposed are as follows:

Lenoir limestone
Mascot dolomite
Kingsport limestone
Longview dolomite

A detailed description of these formations may be found in the Stratigraphy of the Mascot - Jefferson City Zinc District, Tennessee, by Josiah Bridge; Geological Survey Professional Paper 277.

Marker Beds

The most important of the Mascot, Kingsport and Longview formations' marker beds of the Jefferson City district occur in the Talbott area. Stratigraphic control of the drilling was, therefore, quite good. The more prominent markers are as follows:

Formation	Marker Name	Distance from Chert Matrix	Remarks
Mascot	Wispy bed, pebble conglomerate (Pb Cg)	+ 190'	1 to 3 foot limestone bed with wavy straticulate black or green shale partings. Pebble conglomerate below 1 to 2 foot limestone bed with numerous shell fragments and limestone pebbles.

Formation	Marker Name	Distance from Chert Matrix	Remarks
Kingsport	Chert Matrix (Ce Mtx)	0	Mascot-Kingsport contact. Abundant sandgrains in light gray fine dolomite. Locally, sandgrains in a matrix of white chert. Characteristic black shale parting at top.
Kingsport	108 bed	-133'	Oolitic blue to brownish bedded chert and green shale. Chert may be absent.
Kingsport	28 bed	-219'	Contact between dark Grasselli dolomite and underlying limestone. Rare sandgrains and local greenish shale.
Kingsport	S sandgrains (S Sgs)	-317'	Rare to abundant sandgrains usually with abundant shale partings. 4 feet above the base of the Kingsport fm.
Longview	T bed	-321 to -332	Light to medium gray fine dolomite. Chert at top, rare sandgrains at base, locally limestone.
Longview	U bed	-332 to -352	Light grey, dense limestone or medium to coarse dolomite.
Longview	V bed	-352 to -367	Interbedded light grey fine dolomite and limestone. Abundant chert nodules and sandgrains.

Drilling

The location of drill holes is shown on maps AX-TENN-B-247a (property); B-1261 (surface geology) and B-1259 (structural contour). The spacing of holes was based on the premise that an orebody of the Jefferson City mine type may be present in the Talbott area. A 1/4 mile grid was employed in the south-

west half of the area. This spacing was expanded to a 1/2 mile in the northeast half.

Nine of the twenty-three holes (T-36 through T-58) encountered sphalerite mineralization of sub ore grade in the favorable horizons of the Kingsport and Longview formations. Data from the mineralized holes are tabulated below:

Hole No.	Footage	Thickness	% Zn	Stratigraphic Horizon
T-37	1320-28	8'	Scattered traces	S sandgrain -1 to + 7'
	1328-29	1'	6% Estimated	S " -1 to - 2'
	1338-40	2'	4% "	U Bed
T-42	1188-90	2'	8.83%	S sandgrain + 83 to 85'
	1190-93	3'	1% Estimated	S " + 80 to 83'
T-47	1778-87	9'	1.79%	S " + 69 to 78'
T-48	977-88	11'	2.05%	S " + 59 to 70'
	1013-25	12'	1.68%	S " + 22 to 34'
T-49	1190-91	1'	3% Estimated	U Bed
T-51	863-67	4'	2.44%	U Bed
T-55	666-97	-	Local traces	S sandgrain -21 to + 10'
T-56	714-40	-	" "	S sandgrain + 14 to 40'
T-58	1216-18	2'	2% Estimated	S sandgrain + 84 to 86'

Cross sections (looking NE) I, II and III and longitudinal sections (looking NW) 1, 2 and 3 show the structural and stratigraphic relationships. Drill logs are included in the map pocket.

Conclusions and Recommendations

The current drilling program with wide spaced holes does not provide a conclusive answer to the question of ore occurrences in the Talbott area. However, the evidence is strong in support of the view that the area recently tested is similar to the more thoroughly tested areas of earlier studies. The chances for an ore occurrence within the project area of the

magnitude of the Jefferson City mine appear to be remote. Small orebodies may exist in the area but they are unattractive targets in view of the depth to the ore horizon.

The data collected in the Talbott area in the last five years lead to the recommendation that the Company's interest in the area be terminated.

J. W. Phillips

J. W. Phillips/jf

LEGEND --- [illegible] DRILL LOGS

A ---- Grade "A" -- 1-5% Zn, Pb
Abu --- Abundant
Ac --- Acyon
Alt --- Altered
Ang --- Angle, Angular
App --- Apparent
Apr --- Approaching
Argil - Argillaceous
Att --- Attitude
Av --- Average

B ---- Grade "B" 5-10% Zn, Pb
Bd --- Bed, Bedding, Bedded
Bear -- Bearing
Bkn --- Broken
Bl ---- Black
Blu --- Blue
Bn ---- Band-ed
Bot --- Bottom
Br ---- Brecciated
Brm --- Mosaic Breccia
Brn --- Brown
Bro --- Rosette Breccia
Brr --- Rubble Breccia
Bt ---- Barite
Btwn -- Between
Bu ---- Buff
Blc --- Bleached-ing

C ---- Grade "C" -- 10% & Up Zn, Pb
Cb ---- Cambrian
Ccr --- Copper Ridge Dolomite
Cm --- Maryville Ls
Cn --- Nolichucky Shale
Cnrdl - Maynardville Dolomite
Cnmls - Maynardville Ls
Cr ---- Rome Shale
Crg --- Rogersville Shale
Crgc -- Craig Ls Member
Crt --- Rutledge Ls
Cs ---- Shady Dolomite
Ca ---- Calcite

Ch --- Chert
Cm --- Cemented
Cr --- Carnotite
Calc -- Calcareous
Cg --- Conglomerate
Cp --- Chalcopyrite
Chalcod Chalcedony
Cm --- Calamine
Comp -- Composite
Conc -- Concretion
Conc -- Concentrated
Cndn - Condition
Cons -- Considerable-y
Cont -- Contrated
Cr --- Cream-y
Crs --- Coarse
Crs --- Crushed
Crypt - Cryptozoon
Ct --- Contact
Crv -- Curved

D & Dk- Dark-Prefix to color
Decalc- Decalcified
Dis --- Disseminated
Disc -- Discontinuous
Displ - Displacement
Dist -- Distance
Dl-z -- Dolomite-zed
Dlic -- Dolomitic
Dlztion - Dolomitization
Dn --- Dense
Dol --- Dolomite (Mineral)

Ed --- Edgewise
Eff --- Effervescence
Ellip - Ellipsoidal

Fa-ng - Fault-ing
Fi --- Fine
Fl --- Fluorite
Fm --- Formation
Fn --- Faint
Fos --- Fossil-iferous
Fr-d-ng - Fracture-ed-ing
Frag -- Fragment

Fret --- Fretwork
Fuz --- Fuzzy Metamorphism
Fb --- Football

G ---- Ground
Ga ---- Galena
Gd ---- Gradational
Gg ---- Gouge
Gm ---- Groundmass
Gos ---- Gossan
Gran --- Granular, Granule
Grn, Grnsh - Green-ish
Gy ---- Grey

Horiz --- Horizon
He ---- Hematite
Hily --- Highly
Hvy --- Heavy
Hw ---- Hanging Wall

I & Inter - Interbedded
Inclin -- Inclination
Incip --- Incipient
Irreg --- Irregular

K ---- Kaolin
KKnFa --- Koppick Knob Fault

L ---- Light
Le ---- Leached
Lg-er --- Large-r
Lim-ic -- Limonite-ic
Lo ---- Local-ly
Ls ---- Limestone

M ---- Medium
Mal --- Malachite
Mash --- Mashed
Mass --- Massive
Md ---- Moderate
MF ---- Mud Flakes
Min ---- Mineralized (0-1% Zn, Pb)
Mkr --- Marker
Mt --- Mottled

Mt --- Metamorphism, Metamorphosed
Mtx --- Matrix
Mylon - Mylonite

Nil --- None
Nod --- Nodule-ar
Nu --- Numerous

Oc --- Occasional
Co --- Oolite-ic
Or --- Orange
Oxid -- Oxidized-ation

Pk --- Pink
P --- Pseudo
Pb, Peb- Pebble
Piso -- Pisolite-ic
Por --- Porphyritic
Pig --- Pseudo Sand Grain
Pt --- Parting
Py-ic - Pyrite-ic

Q --- Quartz
Qt, Qtzt - Quartzite

Rd --- Red
Rbn-y --- Ribbon-y
Ra --- Rare
RC --- Red Clay
Reg --- Regular
Rem --- Remnant
Repl -- Replacement
Rk --- Rock
Rnd --- Round

S --- Siliceous
Sach -- Saccharodial
San --- Sandy
Sc --- Scattered
Sch --- Schard
Sec --- Secondary
Sed --- Sediment-ary
Sg --- Sand Grain
Sh-y --- Shale-y
Shat-ng - Shattered-ing
Sho --- Shear
Sil --- Silic

Si --- Silica
Sx --- Specified
Sl --- Slight
Sm --- Smithsonite
Sml --- Small
Sp --- Sphalerite
Ss --- Sandstone
St --- Strong
Stn --- Stain
Stp --- Steep
Strat - Straticulate
Sty-ic- Stylolite-ic
Sug --- Sugrertive
Sul --- Sulphide

TB --- Thin-bedded
Tk-ns - Thick-ness
Tn --- Tein
Tp --- Top
Tr --- Trace
Trans - Transitional
Text -- Texture

Vn --- Vein
Var --- Varied-iour-iable
Vnl --- Veinlet
Vug --- Vugy, Vug
Vy --- Very

Wd --- Width, Wide
WB --- Well-bedded
We --- Weathered
Wh --- White
Wk --- Weak

Xl --- Crystal
Xln --- Crystalline

Yel --- Yellow

Zn --- Zinc
Zo --- Zone

Cc --- Chemulteec
Cl --- Lenoir
Clv --- Longview
Ck --- Kingsport
Cm --- Mosteil
Cma --- Mascot

ELEVATION 1267.46
COORDINATES 18,907.25N 25,530.87E
BEARING
INCLINATION

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 4-20-56 BOTTOMED 5-29-56
LOGGED BY JWP, REF

DRILL HOLE NO. T-36
SECTOR Morristown
AREA Talbott
PROPERTY Hubert Miller

DEPTH FROM	DEPTH TO	DIST.	CORE	ANALYSES % ZN					FM.	ROCK TYPE	COLOR	TEXTURE	APP. DIP	MKRS.	MINERALS	REMARKS
0	8	8	—						RC							NX to AX 12
8	94	86	86						Ol	Ls		Abu Sh Ptgs				St Hi Ang Cleav w/Var Dip 8-94 Abu Fos Bd 86-88
94	204	110	110						Om	Ls		Abu Ac	25°			Wk Lo Ang Fa, Ox 127 Fr'g 138-141 Wk Lo Ang Fa 173
204	263	59	59						Om Trans	Ls, Dl						Frg 193, 212 Lo Abu Ac 221-263 Wk Fa 263
263	564	301	301						Oma	Ls, Dl		Ry Ls & Dl				Sed Br 262-263 Wk Fa 275 Fr'd Zo 322- 25° Fa 361 Lo Ang Fa 405 Bl Sh 430 Wk Fa 435 Bl Sh 448 Wispy
														Pb Cgl 474		Bd 473 Sgs 556 St Lo Ang Fa 564-573 (K Kn Fa) Hily
564	573	9	5						Fa	Mylon				K Kn Fa		Dist Zo 573-621 Fr'g 619
573	1033	460	460						Oma	Ls, Dl				564		Vert Fa 634 Abu Sgs 640-643 Sgs 652 Fr'g 709-714 Sgs 726 Ce 732 Fa 738, 756 Lo Ang Fa 786 Fr'g 795, 818
													90°-835 30°-40° 871	Rt Fa 865		Fa 738 Vert Bdg 835-846 50° Fa 865 Sgs 872-873, 907 Sgs, Cg 934-935 Sgs 939 Ce Nod 945 Lo Ang Fa 959-960
														Pb Cg 965		Wispy Bd 964-965 Pb Cg 965 Abu Sgs (Qtzt) 982 Sed Br Zo 995-998, 1001 St Fa Zo
1033	1038	5	4						Fa	Mylon						1033-1038 Sc Sgs 1029
1038	1171	133	128						Oma	Ls, Dl						Sgs 1052 Sgs, Cg 1055 Sgs 1058, 1092 Sh'g Zo 1082-1078 Cg, Sgs 1096 57 Sgs
1171	1301	130	130						Ok	Dl				Ce Mtx 1171		1116 47 Sgs 1126 40 Oo Ce 1132 30 Sgs 1143 Cg 1151
																Buff Diag 1187 Sgs 1218 K Sgs 1222 Ce Nod 1221 Sgs, Wvy Strat 1232 Ce Nod 1236 Sed
														111 Sgs 1298		Br 1268 Bnd Sgs 1270 Fa, Sc Sgs 1291 111 Sgs 1298
1301	1348	47	17	Soft Rock, Broken Core 1332-1353					Ok	Dl			20°-1343	108 Bd 1301		Blu Ce Nods 1302, 1304 Fi Blk Sgs 1310 Fa 1312 V St
1348	1349	1	1						Fa	Mylon						Lo Ang Fa 1348-1349 Blu Ce
1349	1372	23	21						Ok	Dl						1349, 1352 Wk Ble 1302-1342 Ra Sc Sgs 1362 Tn Bnd Sgs
			—											111 Sgs 1371		1368 Bnd Sgs & Sc 1369 111 Sgs 1371 108 Bd, Sh, Oo

ELEVATION 1269.46

COORDINATES 18,907.72N 25,580.87E

BEARING

INCLINATION

THE NEW JERSEY ZINC CO.

STARTED BOTTOMED

LOGGED BY

DRILL HOLE NO. T-36 (cont'd)

SECTOR Morristown

AREA Talbott

PROPERTY Hubert Miller

DEPTH FROM	DEPTH TO	DIST.	CORE	% ZN	ANALYSES				FM.	ROCK TYPE	COLOR	TEXTURE	APP. DIP	MKRS.	MINERALS	REMARKS
1372	1453	81	81						OK	Dl, Ls				108 Bd 1372		Ce 1372 Oo Ce, Sh 1374 Wk Ble 1374-1382, 1387-1400 Ce Nod 1376 Sc-Bnd Sgs, Grn Sh at base 1385-1386 Ce Nod 1386 Blk Sh 1390 Ce Nod 1392 Sc Ra Crs Sgs 1397 67 Sgs 1415 64 Bd 1418
														64 Bd 1418		
1453	1458	5	5						OK	Ls				28 Bd 1453		28 Bd 1453
1458	1459	1	1							Dl		Fi - Fi Xln				23-25 Bd 1458 - 1459
1459	1465	6	6							Ls						
1465	1466	1	1							Dl		M Xln		17 Bd 1465		17 Bd 1465
1466	1484	18	18							Ls						Oo Ce, Ce Nod 1477
1484	1485	1	1							Dl		Fi - Fi Xln				
1485	1486	1	1							Ls						
1486	1490	4	4							Dl		M Xln ↓ Fi - Fi Xln				
1490	1493	3	3							Ls						75 Ce 1492
1493	1495	2	2							Dl		Fi - Fi Xln				69-70 Bd 1493 - 1495
1495	1503	8	8							Ls				65 Ce 1499		65 Ce 1499
1503	1505	2	2							Dl		Crs Ra Xln				
1505	1508	3	3							Ls						52-56 Bd 1508 - 1513
1508	1513	5	5							Dl		Fi - Fi Xln				52 Ce 1513
1513	1536	23	23							Ls						Sc Sgs, Blk Sh 1521
1536	1537	1	1							Dl		Fi - Fi Xln				20-21 Bd 1536 - 1537
1537	1543	6	6							Ls				S Sgs 1541		6" Sh, Sc Sgs (S Sgs) 1541 Ce, Tn Bn
1543	1550	7	7						Olv	Ls				T Bd		Sgs at Bot 1543 T Sgs 1550
1550	1565	15	15							Ls				U Bd		"O" Oo Ce 1553 Ra Sgs 1560
1565	1589	24	24							Dl		Fi - Fi Xln		V Bd		Lo Ce Nods 1569 - 1589 V. Sg 1581
	1589	Bottom														
																Elev 28 Bd - 184' Elev S Sgs - 272' Int 88' Dlz 15% Ble 61 Wk O St
																Core Stored in Shed B-4 Core Discarded 0-1125'

ELEVATION 1297.26
COORDINATES 26,027.65N 29,7[illegible].19E
BEARING
INCLINATION

THE NEW JERSEY ZINC CO.

Jefferson City

STARTED 4-21-56 BOTTOMED 5-18-56
LOGGED BY JWP, REF

DRILL HOLE NO. T-37
SECTOR Morristown
AREA Talbott
PROPERTY Hubert Miller

DEPTH FROM	DEPTH TO	DIST.	CORE	ANALYSES % ZN					FM.	ROCK TYPE	COLOR	TEXTURE	APP. DIP	MKRS.	MINERALS	REMARKS
0	29	29	—						RC							NX to BX 31. Bx to Ax 82
29	55	26	15						Ol	Ls		Abu Sh Ptgs				
55	86	31	24						Om	Ls		Abu Ca Ae				
86	157	71	71						OmTrans	Ls, Dl		Lo Ry Ls & Dl	25°			Lo Abu Ca Ae 138-158 St Fr'g 151-162 V St 75°? Fa
157	454	297	297						Oma	Ls, Dl						157 Fr'g 189, 197 Wk Lo Ang Fa 257, 273 30° Fa 302
															Tr Sp in Fr'd Dl 308-312, 314	Blu Ce 313 Fr'g 324-326, 331-333 Bl Sh 340 Wk Lo Ang Fa 375, 379 Wk Fr'g
														Rt Fa 454		404-429, 435-440, 445-449
454	987	533	533						Oma	Ls, Dl						V St 15° Fa 454 Wk 35° Fa 467 St Ce 502 Wk Lo Ang Fa 503 St Fr'g 526-530 St 50° Fa 529 Bl Sh 543 Wk Fr'g
															Tr Sp in Styl 584	567 Vert Wk Fa 570-572
													60°-600		Tr Sp in Styl 624	Stply Dip Bds 586-700 Sgs
													15°-715			660 Fa 669 St Fr'g 689-701
																25° Fa 715 Wk Fa 725 Sgs
														PbCg Fa 751		726 Lo Ang Fa 751 Fr'g
														PbCgl 803		760, 776 Abu Sgs (Qtzt)
																787-800 Wispy Bd, PbCgl
																802-803 Sgs 819 Hi Ang Fr,
																Br 861 Sgs 873 Abu Sgs
																874-875 Hi Ang Fr'g
																879-884 Sgs 896 Cg 898
																Sgs 905, 913 Cg 922-924
																Abu Sgs 932-933 Sgs 942
																Ce Nod 943 Sed Br 944
987	1035	48	48						Ok	Dl				Ce Mix 987		Abu Sgs 957 Buff Diag 1006
																K Sgs 1027 60° Fa 1027
1035	1040	5	4						Ok	Mylon				K Sgs 1027		V St Fa Zo 1035-1040 Fr'g
1040	1082	42	42						Oma?	Dl						1046, 1050, 1051 Sgs, Fa
																1058 Fr'g 1060, 1062 Fa
																1070 Fr'g 1074- Abu Sgs
																1077-1079 1' Sgs w/Ce at Top
														Ce Mix 1082		1081-1082 Sed Br 1101-1102
1082	1121	39	39						Ok	Dl						Ox 1107 Wh Ce Nod 1113 Bkn
1121	1127	6	6						Fa	Mylon						Core 1023-1153 Fr'g 1113-1115
1127	1144	17	17						Ok	Dl				108 Bd 1159		St Fa Zo 1121-1127 Fr'g 1127-
1144	1153	9	8						Fa	Mylon						1151 St Fa 1144 St Fa Zo
1153	1235	82	82						Ok	Dl		Fi - Fi Xln		28 Bd 1235		1144-1153 111 Sgs 1157
																Ra Sgs 117[illegible] Ce 11[illegible] 165 Ce 1182

ELEVATION 1247.26
COORDINATES 20,027.65N 24,900.89E
BEARING
INCLINATION

THE NEW JERSEY ZINC CO.

STARTED BOTTOMED
LOGGED BY

DRILL HOLE NO. T-37 (cont'd)
SECTOR Morristown
AREA Talbott
PROPERTY Hubert Miller

DEPTH FROM	DEPTH TO	DIST.	CORE	ANALYSES % ZN					FM.	ROCK TYPE	COLOR	TEXTURE	APP. DIP	MKRS.	MINERALS	REMARKS
1235	1244	9	9						OK	Ls						WK Fa 1178 Sgs 1194 1199,
1244	1247	3	3							Dl		Fi - Fi Xln		17 Bd		1201 Ce 1212, Sgs 1229
1247	1264	17	17							Ls				1247		Lt Gy Ce 1237 Ce, Sc Sgs 1233
1264	1265	1	1							Dl		Fi - Fi Xln				Ra Sgs, Lt Gy Ce 1247 Py, Sc
1265	1266	1	1							Ls						Sgs 1249 Lt Gy Ce 1270 Ce
1266	1272	6	5							Dl		Fi - Fi Xln		65 Ce		Nod 1283 Bd Ce 1290
1272	1276	4	4							Ls				1270		
1276	1281	5	5							Dl						
1281	1282	1	1							Ls						
1282	1284	2	2							Dl		Fi - Fi Xln				
1284	1288	4	4							Ls						
1288	1289	1	1							Dl		Crs Xln				
1289	1294	5	5							Ls						
1294	1296	2	2							Dl		Fi - Fi Xln				
1296	1298	2	2							Dl		Crs Xln				
1298	1320	22	22							Ls						
1320	1328	8	8	Trs						Dl		Crs Xln			Sc Trs Sp 1320-1328	
1328	1329	1	1	6%						Dl		Crs Xln			Dis Sp	
1329	1331	2	2							Dl		Crs Xln				
1331	1337	6	6						Olv	Dl				T Bd		T Sgs 1337
1337	1338	1	1							Ls				U Bd		
1338	1340	2	2	4%						Dl		Crs Xln		U Bd	Dis, Bnd Sp	
1340	1358	18	18							Dl		Crs Xln		U Bd		
1358	1368	10	10							Ls				U Bd		
1368	1371	3	3							Dl		Fi Xln		V Bd		V, Sgs 1371
	1371	Bottom														

Elev 28 Bd 12'
Elev T Sgs -90'
28 Bd-S Sgs? Int 99' ?
Dlz 44%
Ble 0 WK 0 St

Core stored in Shed B-4
Core discarded 0-956'

ELEVATION 1,288.17
COORDINATES 2,596.73N 26,715.88E
BEARING
INCLINATION

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 4-24-56 BOTTOMED 6-2-56
LOGGED BY JWP, REF

DRILL HOLE NO. T-38
SECTOR Morristown
AREA Talbott
PROPERTY Hubert Miller

DEPTH FROM	DEPTH TO	DIST.	CORE	ANALYSES % ZN					FM.	ROCK TYPE	COLOR	TEXTURE	APP. DIP	MKRS.	MINERALS	REMARKS
0	9	9	—						RC							NX to AX 13
9	23	14	11						Cl	Ls		Abu Sh Ptgs				Cavity 15, 52-54 WK Lo Ang
23	57	34	30						Om	Ls		Abu Ca Ac				Fa Lo Ox 81-82 Cavity 92-94
57	203	146	136						Om Trans	Ls, Dl		Lo Shy Ptgs				St 42° Fa 100 Ca Ac 111-203
203	322	119	119						Oma		Rdi Grn	Bnd Fi Xln Dl 212-216				WK Fr'g 125 WK Fa 208, 216
																Bl Sh 256 Grn Sh [illegible] Ce 275
																WK Fr'g 296 Ce 299 St Fr'g
322	327	5	5						Fa	Nylon		Fa Zo		Kkn Fa		321-328 V St Lo Ang Fa 322
327	881	554	554						Oma	Ls, Dl				322		V St Hi Ang Fa 327 Fr'g
													30-35			327-354 St Fa 350, 354 Fr'd
																Zo 322-404 Ox 409 Cg 440 Sgs 444
														Pb Cg		1" Bl Sh 461 Wispy Bd 487
														488		Ra Sgs 511, 519 Fr'g 424
																Sgs 572, 577, 582, 612,
																622-623 Ce 627, 640
																Sgs 643 Abu Sgs 652
													30-40	Rd Fa		50° Fa 663 Sgs 689 Pb Cg
														663		715 Ce Nod 777 Sgs 788
																Diag Br 840 Fa on Bd 843
881	1104	223	205						Oma	Ls, Dl				Pb Cg Fa		Fr'g 858-863, 877-882 St
														881		Fa on Bd, Nylon 881 Abu Sgs (Qtzt)
														Pb Cg		901-903 Wispy Bd, Pb Cg 907
														907		Sgs 925, 989 Lo Abu Fos
																1021-1027 Abu Fi Blk Bn'd
																Sgs 1028-1029 Abu Sc-Bnd
																DK Sgs (57 Sgs) 1049-1050 Bnd
																Sgs (47 Sgs) 1058 40 Oo Ce 1063
1104	1315	211	211						Ok	Dl				Ce Mtx		5 Ce 1097 Ce Mtx 1104 Bnd
														1104		Diag 1122 Sc Fi-Crs Sgs 1129
																K Sgs (Bn'd Sgs + Tn Sh at Bot)
																1140 Oo Ce, Sh 1150 Sc Sgs, Qtz
																Pbs 1152 Bn'd Sgs 1155 Ce Nod
																1169, 1185 Sc Sgs 1210, 1225
																Sc DK Sgs 1234 Sc Ra Sgs + Abu
														108 Bd		Sgs (111 Sgs?) 1245-1246 108 Bd
														1246		1246 5' WK Ble 67 Sgs 1274
														64 Bd		64 Bd 1276 Sc Sgs 1278 Oo Ce
														1276		1280 50-55 Bd 1286-1290
																39 DK Zo 1305 Grasselli Dl 1309-
1315	1320	5	5						Ok	Ls				28 Bd		1315 28 Bd 1315 Ce Nod 1320
1320	1321	1	1							Dl		Fi - Fi Xln		1315		23-25 Bd 1320-1321
1321	1327	6	6							Ls				17 Bd		17 Bd 1327
1327	1328	1	1							Dl		Fi - Fi Xln		1327		

ELEVATION
COORDINATES
BEARING
INCLINATION

THE NEW JERSEY ZINC CO.

STARTED BOTTOMED
LOGGED BY

DRILL HOLE NO. T-38 (cont'd)
SECTOR Morristown
AREA Talbott
PROPERTY Hubert Miller

DEPTH FROM	DEPTH TO	DIST.	CORE	ANALYSES % ZN					FM.	ROCK TYPE	COLOR	TEXTURE	APP. DIP	MKRS.	MINERALS	REMARKS
1328	1352	24	24						OK	Ls						
1352	1354	2	2							Dl		Fi - Fi Xln				69 - 70 Bd 1352 - 1354
1354	1380	26	26							Ls						56 Ce 1369 Ce 1376
1380	1384	4	4							Dl		Fi - Fi Xln				
1384	1426	42	42							Ls				S Sgs 1420		Blu Ce 1426
1426	1438	12	12						Olv	Dl		Fi - Fi Xln		T Bd		T Sgs 1438
1438	1454	16	16							Ls				U Bd		"O" Oo Ce 1441
1454	1462	8	8							Dl		Fi - Fi Xln		V Bd		Ce Nods 1459, 1460, 1462
																Vi Sgs 1462
	1462	Bottom														

Elev 28 Bd - 27'
Elev S Sgs - 132'
Int 105'
Dlz 14%
Ble 5 WK O St

Core Stored in Shed B-3 & 4
Core Discarded 0 - 1116'

ELEVATION 1290.75
COORDINATES 12,346.78N 23,743.78E
BEARING
INCLINATION

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 5-21-56 BOTTOMED 6-20-56
LOGGED BY JWP, REF

DRILL HOLE NO. T-39
SECTOR Morristown
AREA Talbott
PROPERTY J.T. Cline

DEPTH FROM	DEPTH TO	DIST.	CORE	ANALYSES % ZN					FM.	ROCK TYPE	COLOR	TEXTURE	APP. DIP	MKRS.	MINERALS	REMARKS
0	30	30	—						RC							BX - AX 44
30	173	143	143						Ol	Ls						
173	268	95	95						Om	Ls						
268	281	13	13						Omt	Ls, Dl		Lo Ry				
281	417	136	136						Oma	Ls, Dl					Trs Sp in Frd Ce 342	Wk Fa 343 Wk Hi Ang Fr'g 371 Bd'd Ce 377 Fa 377 Sed Br 390 St Fa 418 Fi Sgs 440 St Fr'g 467-476 Fa 476, 480 Blu Ce 506 Fr'g 565-594 Wh Ce 571 V St Fa Zo 594-597 Fr'g 597-603 V St Lo Ang Fa 603-604 Fr'g 604-613 Sc Sgs 625 Sc-Bnd Sgs 640 Wispy Bd, Pb Cg 684-685 Fr'g 704-710 V St Lo Ang Fa 710 Fr'g 710-720 50° Fa 720 60° Fa 761 Ce, Sc Sgs 841 Fr'g 865 ½" Bnd Crs Sgs 878 60° Fa 911 Oxid, Fr'g 947-952 St Lo Ang Fa 950 Fr'g 962-970 Abu Sgs, Qtzt 976-977 Wispy Bd, Pb Cg 980-981 Flat Pb Cg 990 Lo Ang Frg 1002 Fa 1005 Ra Sc Sgs 1017 Sc ↓ Abu Sgs 1045-1046 30 Bd Sc-Bnd Sgs 1117-1120 Sc-Bnd Sgs 1128-1131 1" Sc Sgs 1140 Ce Mtx 1151 Buff Diag 1167 K Sgs 1181 Sc Sgs 1196, 1200 Sc-Abu Sgs 1202-1203 Sc Sgs 1225 Frg, Wk Bdg Fa 1238 Ce Nod 1250 ½" Bn Sgs, Sh below 1251 Sc Sgs 1257 Blu Ce, Sh 1262 Sc-Abu Bnd Sgs 1269 Sc Sgs 1277-1279 111 Sgs 1279 108 Bd 1281 Sc Ce Nods 1284- Sc-Abu Sgs 1295 94 Ce 1296 Wk Ble 8' Ce Nod, 2" Sh 1301 Sgs 1309 Sc Sgs, Sh 1321 Sc Sgs 1326 60° Fa 1330 64 Bd, Sgs, Sh 1331 Sc Sgs 1333 Grn Sh 1359 Frg 1345
417	421	4	3						Fa	Mylon						
421	594	173	173						Oma	Ls, Dl						
594	597	3	3						Fa	Mylon						
597	603	6	6						Oma	Dl						
603	604	1	1						Fa	Mylon						
604	709	105	105						Oma	Ls, Dl				Pb Cg 685		
709	710	1	1						Fa	Mylon						
710	1151	441	441						Oma	Ls, Dl			60°-70° 823 55°-889'	Rt Fa 710		
														Pb Cg Fa 950		
													30°-998'	Pb Cg 981		
1151	1281	130	130						Ok	Dl				Ce Mtx 1151	Trs Sp 1163-1164	
														K Sgs 1181		
1281	1348	67	67						Ok	Dl				108 Bd 1281		
														64 Bd 1331		

ELEVATION 1270.75
COORDINATES 19,346.78N 23,743.78E
BEARING
INCLINATION

THE NEW JERSEY ZINC CO.

STARTED BOTTOMED
LOGGED BY

DRILL HOLE NO. T-39 (cont'd)
SECTOR Morristown
AREA Talbott
PROPERTY J.T. Cline

DEPTH FROM	DEPTH TO	DIST.	CORE	ANALYSES % ZN					FM.	ROCK TYPE	COLOR	TEXTURE	APP. DIP	MKRS.	MINERALS	REMARKS
1348	1349	1	1	12% Est											Sp in Crs Xln Dl	
1349	1371	22	22						Ok	Dl, Ls						39 Dk Zo 1359 1" Sh w/ Sgs 1360 34 Sgs 1364 Grasselli
1371	1373	2	2						Ok	Dl		Crs Xln		28 Bd		Dl 1364-1371 28 Bd 1371
1373	1380	7	7							Dl		Fi - Fi Xln		1371		Ce Nods 1373 Ce Frags 1376
1380	1391	11	11							Ls						Bdd Ce 1380 Ce 1391, 1392
1391	1392	1	1							Dl		Fi - Fi Xln				
1392	1405	13	13							Ls						
1405	1406	1	1							Dl		Fi - Fi Xln				
1406	1417	11	11							Ls						
1417	1419	2	2							Dl		Fi - Fi Xln				62-65 Bd 1417-1419
1419	1429	10	10							Ls						
1429	1433	4	4							Dl		Fi - Fi Xln		S Sg		47 Ce 1436
1433	1471	38	38							Ls				1467		Crs Sgs 1465 "S" Sgs 1467
1471	1473	2	2						Olv	Dl		Fi - Fi Xln		T Bd		T Bd Ce 1471
1473	1480	7	7							Ls				T Bd		
1480	1503	23	23							Ls				U Bd		"O" Ce 1485
1503	1505	2	2							Dl		Fi - Fi Xln		V Bd		Ce Nods 1503, 1504
	1505	Bottom														

Elev 28 Bd -80'
Elev S Sgs -176'
Int 96'
Dlz 14%
Ble 8 Wk 0 St

Core Stored in Shed B-3
Core Discarded 0-1135'

ELEVATION 1270.97
COORDINATES 17,468.37N 23,372.90E
BEARING
INCLINATION

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 6/5/56 BOTTOMED 7/18/56
LOGGED BY JWP, REF

DRILL HOLE NO. T-40
SECTOR Morristown
AREA Talbott
PROPERTY J. T. Cline

DEPTH FROM	DEPTH TO	DIST.	CORE	ANALYSES % ZN					FM.	ROCK TYPE	COLOR	TEXTURE	APP. DIP	MKRS.	MINERALS	REMARKS
0	5	5	–						RC							NX to AX 12
5	198	193	193						Ol	Ls		Shy Ls				
198	231	33	33						Om	Ls						Oxid 203-204, 221
231	830	599	599						Oma	Ls, Dl						Fa 247 Frg 299-310 St 60° Fa,
																Oxid 304-305 Frg 335 Ce 351,
													20°-30° 357			353 Frg 394-410 St Lo Ang Fa
																406 Bdg Fa 426 Ce Nods 443, 446
																St Lo Ang Fa 456 Frg 461-463
														Pb Cg		Sc-Abu Sgs 520 Wispy Bd, Pb Cg
														578		577-578 Frg 632, St Lo Ang
																Fa 649, 650 Sc-Abu Sgs 677
830	842	12	11						Fa Zo					KKn Fa		Wk Frg 741 V St Fa Zo 830-842
842	1418	576	576						Oma	Ls, Dl				842		St Frg 842-847 Fa 847 Frg
																847-853 St Fa 853 St Frg 853-
																860 Fa 878 Ce 884 Fa 888
																Hi Ang Fa 892, 895 St 80° Fa,
																Bnd Sgs 904 Frg 919-929 Sc-
																Bnd Sgs 932 1" Grn Sh 963
																Wispy 992 Abu Sgs 1015 Frg
														Rt Fa		1067, 1075 Sgs 1088 Sc-Bnd
														1149		Sgs 1094 Sgs 1129, 1139 Lo Ang
																Fa 1149 Abu Sc Sgs 1158 Abu Sgs,
																Qtzt 1168 Sc Sgs 1177 Fa 1178
																Sc Sgs 1178-1179 St Lo Ang Fa
														Pb Cg Fa		1212 ½" Bn Crs Sgs 1221 Abu
														1212		Sc-Bnd Sgs, Qtzt 1234-1236
														Pb Cg		Wispy, Pb Cg 1237-1239 Dk Dl,
														1239		Abu Ae 1252-1254 Ra-Sc Sgs
																1262 Dk Bnd Sgs 1306 Abu Sgs,
																Dl Pebs 1308-1309 Sc-Bnd
																Sgs 1339 Sgs, Sed Br, Pb Cg
																1342-1346 Lo Ce Nods 1366-
																1377 Abu Sgs, Qtzt 1374
																1' Abu Sgs 1387-1388 Ce Nod
1418	1618	200	200						OK	Dl				Ce Mtx		1414 Ce Mtx Sgs 1418 Buff Diag
														1418		1435 K Sgs 1455 Bl, Ce 1464
																Sc Sgs 1465, 1477 Ce Nod 1480
																Sc Sgs, Sh 1491 Ce Nods 1492-
																1494 Abu Sgs, 1" Qtzt 1508
																Sc Sgs 1520 Sgs, Sh 1524 Sc-
																Bnd Sgs 1539-1541 Ce Nods
														108 Bd		1543-1547 111 Sgs 1552
														1553		108 Bd, Ce 1553 73 Sgs 1582

ELEVATION
COORDINATES
BEARING
INCLINATION

THE NEW JERSEY ZINC CO.

STARTED BOTTOMED
LOGGED BY

DRILL HOLE NO. T-40 (cont'd)
SECTOR Morristown
AREA Talbott
PROPERTY J.T. Cline

DEPTH FROM	DEPTH TO	DIST.	CORE	ANALYSES % ZN					FM.	ROCK TYPE	COLOR	TEXTURE	APP. DIP	MKRS.	MINERALS	REMARKS
1418	1618	200	200						OK	DI				64 Bd 1590		67 Sgs 1588 64 Bd 1590 Grasselli DI 1613-1618
1618	1623	5	5							LS				28 Bd 1618		28 Bd 1618
1623	1630	7	7							DI		Fi, Lo Med Xln		1618		Ce Nod 1623, 1630
1630	1648	18	18							LS						
1648	1654	6	6							DI		Fi-Fi Xln				
1654	1660	6	6							LS						
1660	1667	7	7							DI		Fi-Fi Xln		65 Ce		69-70 Bd 1660-1662
1667	1676	9	9							LS				1666		65 Bd Ce 1666
1676	1681	5	5							DI		Fi-M Xln		Ssgs		
1681	1717	36	36							LS				1713		Blu OoCe 1682 Ce, Ssgs
1717	1722	5	5						Olv	LS				T Bd	Trs Sp in Ls & Blk	1712, 1713 Bd Blu Ce 1717
1722	1725	3	3							DI		M Xln		T Bd	Ce 1722-1723	T Sgs 1725
1725	1729	4	4							DI		M-Crs Xln		U Bd	Trs Sp in Blu Ce	OoCe 1726, 1727 Wh Ce
1729	1740	11	11							LS				U Bd	1726 Trs Sp in	1746
1740	1742	2	2							DI		Crs Xln		U Bd	Crs Xln DI 1730	
1742	1746	4	4							DI		Fi-Fi Xln		V Bd	Trs Sp 1735	
	1746	Bottom														

Core Disc: 0-1403'
Stored: Shed B-3

Elev 28 Bd -347
Elev Ssgs -442
Int 95'
Dir 27½
Ble O Wk O St

Note: The Trs of Sp in this hole appear to be sedimentary in origin.

ELEVATION 1237.03
COORDINATES 20,710.11 N 26,003.33 E
BEARING
INCLINATION

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 6/11/56 BOTTOMED 7/18/56
LOGGED BY JWP, REF

DRILL HOLE NO. T-41
SECTOR Morristown
AREA Talbott
PROPERTY H. Housley

DEPTH FROM	DEPTH TO	DIST.	CORE	ANALYSES % ZN					FM.	ROCK TYPE	COLOR	TEXTURE	APP. DIP	MKRS.	MINERALS	REMARKS
0	36	36	—						RC							BX to EX 50 AX 1119-1207
36	855	814	798						Oma	Ls, Dl			60°-70° 65			Abu Frg 36-45 St Frg 49-58 Fa? 54 Frg 71-78 St 40° Fa 73 VSt Frg, Fa? 78-82 Frg 89-162 40° Fa 94 15° Fa 106 St 30° Fa 127 Hi Ang Fa 145 St Fa 150-151 Frg 173 Ce 177, 179 St Lo Ang Fa 201 55° Fa 210 Oxid 210, 212, 215 Ce Nods 221, 223 60°-70° Fa, Oxid 226 WK Bdg Fa 281 St Frg 254 VSt Frg 307-313 St Lo Ang Fa 346-348 Ce 364 50° Fa 372 Frg 372-392 Abu Sgs 401 Undisturbed Ground btw 392 Ce 474, 519 Fa 643 Hi Ang Fa 614 Abu Sgs, Qtzt 663-668 ½" Bn Sgs 676 Lo Ang Fa 720 1" Bn Sgs 739 Sc ↓ Abu Bnd Sgs 741-742 Sed Br 775-776, 787 Sc-Bnd Sgs 807 Abu Sc-Bnd Sgs 821-824 Wispy? Pb Cg 833-834
											Rd & Grn 206-211		20°-165			
													60°-80° 134			
													45°-231	Rt Fa Fa 348		
														Pb Cg 834		
855	1065	210	210						OK	Dl				Ce Mtx 855		Abu Sgs, Dl Pbs 852 Ce Mtx 854-855 K Sgs 890 Sc Sgs, Stylo at Bot 903 Wh Ce Nod 903 Bnd ↓ Sc Sgs 905-906 Sc Sgs 915-916 Wh Ce Nod 918 T Bnd Sgs 929 Sc Sgs 974 Stylo, Sgs Belo (111 Sgs) 980-982 Oo Ce, Sh (108 Bd) 983 Lo Ce Nods 988-1009 94 Ce 1000 80 Bd Ce, Sgs 1009 Stylo, Sgs Belo 1022 1" Sh, Sgs 1026 Sc Sgs 1027 50-55 Bd 1033-1038 34 Sgs 1059 Grass Hi Dl 1059-1065 28 Bd Sgs 1065 Ce 1069, 1102
														108 Bd 983		
														64 Bd 1026		
1065	1073	8	8							Ls				28 Bd 1065		
1073	1075	2	2							Dl		Fi-FiXln				
1075	1099	24	24							Ls						
1099	1103	4	4							Dl		Fi-FiXln				
1103	1108	5	5							Ls						
1108	1111	3	3							Dl		MXln		65 Ce 1114		69-70 Bd 1108-1111
1111	1117	6	6							Ls						
1117	1120	3	3							Dl		Fi-FiXln				

LOCATION

THE NEW JERSEY ZINC CO.

HOLE NO. T-41 (Cont'd)

ELEVATION 1237.03

STARTED BOTTOMED LOG BY JWP COORDS.

PROPERTY SHED NO. B-3 DISCARDED C-561 BRG. INCL.

DEPTH FROM	DEPTH TO	DIST.	CORE	FM.	MKRS.	ROCK	REMARKS	MINERALIZATION	ANALYSES SMPL. NO.	FROM	TO			
1120	1126	6	6	OK		Ls								
1126	1130	4	4		Ssg	Dl	Fi-Fi Xln 52-56 Bd 1126-1130 Ce 1130							
1130	1169	39	39		1162	Ls	S sgs, Sh 1162							
1169	1178	9	9	Olv	TBd	Dl	TBd Ce 1169							
1178	1180	2	2		TBd	Ls								
1180	1200	20	20		UBd	Ls	Zero Ce 1184							
1200	1207	7	7		VBd	Dl	Fi-Fi Xln							
	1207	Bottom					Ce 1200, 1207							

Elev 28 Bd 172'
Elev S sg 75'
Int 97'
Dlr 18%
Ble 0 Wk 0 St

LOCATION Morristown Sector
Talbott Area

PROPERTY W. B. Watkins

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn

STARTED 6-21-56 BOTTOMED 7-14-56 LOG BY J.W.P., R.E.F.

SHED NO. B-3 DISCARDED C-961'

HOLE NO. T-42

ELEVATION 1245.97

COORDS. 20,345.52 N 27,837.06 E

BRG. INCL.

DEPTH FROM	DEPTH TO	DIST.	CORE	FM.	MKRS.	ROCK	REMARKS	MINERALIZATION	ANALYSES SMPL. NO.	FROM	TO		
0	13	13	—	R.C.			BX to Ax 51						
13	27	16	10	Um		Ls							
27	66	37	25	Omt		Ls							
66	973	907	907	Oma	K Kn Fa	Ls, Dl	Ox 70 40° Fa 92 30°-40° dip 115 40° Fa 120 Frg 135-138						
					138		St Lo Ang Fa 138 St 60° Fa 149 60° Fa 162 Frg 161-168						
							50° Fa 181 Frg 181-185, 189-197 St Lo Ang Frg, Fa 290-291						
					Pb Cg		Wispy, Pb Cg 443-444 St 30° Fa 547 Sc ↓ Brd Sgs 576						
					444		Abu Sc ↓ Brd Sgs 585-586 St Hi? Ang Fa 616 Brd Sgs 621-						
					Pb Cg Fa?		621 Sc Sgs 629 1" Brd Abu Sgs 635 Sc Sgs 637 wh Ce Nod 641						
					736		Oo Ce 642 Lo Ang Fa 652 Sc Sgs 654 Hi? Ang Fa 736 Sc Ra Sgs						
					Pb Cg		747 Abu Sgs, Lo Qtzt 766-769 wispy, Pb Cg 773-774 Sc Sgs						
					774		805, 817 Lo Ang Fa 827-829 Sc ↓ Abu Sgs 850-851 Sgs 857						
973	1188	215	215	Ok	Ce Mtx	Dl	Sgs, St, lo 927 Ce 933, 968 Ce Mtx Sgs 983 Sgs 984 K Sgs						
					973		1004 Frg 1008 Sc Sgs 1016 Lo Ang Fa 1018 Frg 1018-1020						
							Sc Sgs 1033, 1077 Blu Ce 1077 Lt Gy Ce 1080 Sc Sgs 1080						
					108 Bd		Lo Ang Fa 1087 Sgs 1092 111 Sgs 1102-1103 108 Bd, Oo Ce						
					1105		1104 Lo Ang Fa 1105 108 Bd 1105 Ce Nods 1109-1125 Sgs 1116						
					64 Bd		1" Sh 1121, 1125 Bdd Brn Ce 1131 Sc Sgs 1145 64 Bd, Sh w/ Ls						
					1146		Belo 1146 Sc Sgs 1150, 1153, 1164 34 Sgs 1181 Grasselli Dl						
					28 Bd		1189-1190 28 Bd, Sgs 1188						
					1188								
1188	1190	2	2	Ok		Dl	Crs Xln Dl	Disem Sp	9538	1188	1190	2	8.83
1190	1197	7	7			Dl	Fi Xln Dl Ce 1191	Trs Sp		1190	1193	3	1%
1197	1214	17	17			Ls	Sc Sgs 1201						
1214	1215	1	1			Dl	Fi Xln Dl (67-70 Bd)						
1215	1219	4	4			Ls	65 Ce 1219						
1219	1220	1	1			Dl	Fi Xln (62-65 Bd)						
1220	1238	18	18			Ls							
1238	1242	4	4			Dl	Fi-Fi Xln						
1242	1246	4	4			Dl	M-Crs Xln						
1246	1269	23	23			Ls							
1269	1270	1	1		Ssg	Dl	M Xln						
1270	1279	9	9		1273	Ls	S sgs 1273						
1279	1282	3	3	Ok	T Bd	Dl	Fi-Fi Xln Ra Sc Sgs 1280	Elev. 28 Bd 58'					
1282	1286	4	4		T Bd	Ls	Sc Sgs 1281	Elev. Sgs -27'					
1286	1295	9	9		U Bd	Ls	Lc Pd Ce 1289-1292 Zerc Co Ce 1293-1294	Int 85'					
1295	1306	5	5		U Bd	Dl	Crs Xln	Dlz 25%					
1306	1322	22	17		V Bd	Dl	Fi-Fi Xln, Lc Ce Neds, Bd Ce 1306 1322 Sgs 1315	Bk OWKOst					
	1322	End of Hole											

LOCATION Morristown Sector
Talbott Area

PROPERTY W. B. Watkins

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 7-19-56 BOTTOMED 8-9-56 LOG BY JWP
SHED NO. B-3 DISCARDED 0-787

HOLE NO. T-43
ELEVATION 1263.58
COORDS. 21,418.41 N 27,116.65 E
BRG. INCL.

DEPTH FROM	DEPTH TO	DIST.	CORE	FM.	MKRS.	ROCK	REMARKS	MINERALIZATION	ANALYSES SMPL. NO.	FROM	TO			
0	32	32	—	RC			Bx-Ax 38							
32	803	771	771	Omd		Dl, Ls	Sc-Bnd Sgs, 25° Dip 34 Cavity 40-43 Frg, Oxid 52, 55, 56							
					Pb Cg		Sc Sgs, Oxid 75 Wispy Bd 78-80 Pb Cg 80-81 Oxid 103 Cavity							
					81		87-88 Fa, Oxid 110 Ce, Oxid 117 Frg 124 Sgs, Oxid 129 Oxid 133,							
							149 Ce Nod 167, 168 Frg, Oxid 168, 171-172 Abu Dk Sgs 174-175							
							Sc-Bnd Sgs 180-181 Lo Ang Fa 212 40° Fa 240 Sc Sgs 242-243							
							60° Fa 267 Frg 267-269 Sgs, Qtzt 323-325 Frg 330-332							
					Rt Fa ✓		65° Fa 332 Sgs, Qtzt Repeated 336 Sgs 371 Wh Ce Nod 374							
					449		WK Lo Ang Fa 397 Fa 423 St Lo? Ang Fa 449 Frg 450-450							
							Abu Sc-Bnd Sgs 554 Bnd Sgs 585 Abu Sgs, Lo Qtzt 612-							
					Pb Cg		617 Wispy Bd Pb Cg 619-620 Ra Sc Sgs 647 Lo Ang Fa 670 Abu							
					620		Sc-Bnd Sgs 690-691 Crs Sgs 712, 726 Sc + Bnd Sgs 745 Sgs							
803	1013	210	210	OK	Ce Mtx	Dl	Filling Hi Ang Fr 753-754 Sc + Bnd Crs Sgs 755 40 Oo Ce 762							
					803		Ce Mtx Sgs 803-804 Buff Diag 818 Sc-Bnd Sgs 828 Ra Sgs 832							
							K Sgs 835-836 ½" Bnd Sgs 841 K-15 Sc Sgs 847-848 Ra Sgs 857,							
					108 Bd		865 WK Lo Ang Fa 889 Oo Ce 892 Ra Sgs 900 Brn Ce 907, 913							
					930		Sc-Bnd Sgs 920 Ra Sgs 926 111 Sgs 929 108 Bd Sh, Ce 930 Ce 931							
					64 Bd		Sc Sgs 940 80 Bd 956 67 Sgs 969 64 Bd Sh 972 Sgs 975							
					972		Oo Ce 977 50-55 Bd 983-988 46 Sgs 991 Ble 6 WK O St							
1013	1017	4	4		28 Bd	Ls	28 Bd Sh 1013							
1017	1018	1	1		1013	Dl	23-25 Bd 1017-1018							
1018	1022	4	4			Ls								
1022	1026	4	4			Dl	Fi Xln 17 Bd Ce 1026							
1026	1047	21	21			Ls	Ce 1038							
1047	1054	7	7			Dl	Fi - Fi Xln							
1054	1080	26	26			Ls	65 Ce 1067							
1080	1083	3	3			Dl	Fi - Fi Xln							
1083	1123	40	40		S Sgs	Ls	S Sgs 1116							
					1116									
1123	1126	3	3		T Bd	Dl	Fi Xln Ce 1123							
1126	1134	8	8		T Bd	Ls	T Sgs 1134							
1134	1153	19	19		U Bd	Ls	"O" Ce 1138-1139	Elev. 28 Bd 261'						
1153	1157	4	4		U Bd	Dl	Fi Xln	Elev. 6 Sgs 148'						
1157	1162	6	6		V Bd	Dl	Fi Xln Lo Ce V, Sgs 1161	Int. 103'						
								Dlz 15%						
	1162	Bottom						Ble 6 WK O St						

LOCATION Morristown Sector
Talbott Area

PROPERTY J. T. Cline

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 7-21-56 BOTTOMED 9-13-56 LOG BY J. W. P.
SHED NO. B-3 DISCARDED 0-861

HOLE NO. T-44
ELEVATION 1300.73
COORDS. 17,746.77N 26,335.20E
BRG. INCL.

DEPTH FROM	DEPTH TO	DIST.	CORE	FM.	MKRS.	ROCK	REMARKS	MINERALIZATION	ANALYSES SMPL. NO.	FROM	TO
0	6	6	—	RC			Nx - Ax 14 Bx WL 14-1063 Ex 1063-1121 Ax 1121-1797				
6	575	569	569	Oma		Dl, Ls	Abu Sgs, 35° Dip 17 St 60° Fa, Ls Fa on Ls 37 Oxid 57				
							65° Dip 60-132 Oxid 80, 82 Frg, Oxid 121 Oxid, Cg, 30° Dip				
					Pb Cg		162 Ce 182 20° Fa 209 Bnd Dk Sgs 222 Wispy Bd, Pb Cg				
					320		319-321 Bd Ce 353 Frg 359-377 St Lo Ang Fa 367-369				
					Pb Cg		Hi Ang Fa 407-408 Ra Sgs 443 Wispy, Pb Cg 445-446				
					446		Abu Sc Sgs 520, 551 Sc-Bnd Sgs 559				
575	588	13	13	Fa		Mylon	V St Lo Ang Fa Zo 575-588 Frd & Disturbed Zo 588-622				
588	1427	839	808	Oma		Dl, Ls	St Lo Ang Fa Zo 624-629 Wavy Bnd Sgs 633 Sc-Bnd Sgs				
							663 Sc + Bnd Sgs 672-673 Frg 684-685 Sgs 685 Sc + Bnd Sgs				
							694-696 Abu Crs Sgs 708 Ra Sgs 712, 715 40? Oo Ce 719 St Lo?				
							Ang Fa 723-724 Crs Sgs 724 Sc-Bnd Sgs 735 Crs Sgs 742 Abu				
							Crs Sgs (Repeated from 708) 747 Ce 750 Sgs, Cg 765 Lo Ang Fa				
							Zo 765-766 Sc-Bnd, Abu Sgs 768 Abu Crs Sgs (Repeated from				
							747) 793 Ce 798 Wh Oo Ce 803 Sc Sgs 819-821 Frg 825-848				
							Cavity 842-848 Abu Crs Sgs (Repeated from 793) 850 Abu Sgs				
							868-870 Oxid 872-874 Lt Gy Ce 889 Sc Sgs, Oxid 895 6" Ce 897				
					K Kn Fa		70° Fa 903 Sc-Bnd Sgs 907 Abu Crs Sgs 922-926 App Dip 70°				
					965		940 Bd Pl Fa 963-965 Frg 965-978 App Dip 90° 975, 55° 1024	Wk Tr Sp 1028			
							Abu Sgs 1028 Sc Sgs 1032-1035 Sgs 1048 Ce 1050 Frg 1061				
					Pb Cg		Fa 1090 Ax to Ex 1063 Crs Sgs 1101 Abu Dk Sgs, Lo Qtzt				
					1124		1116-1119, 1119-1121 Ex to Ax 1121 Wispy Bd, Pb Cg 1123-1124				
					Pb Cg		Wk Frg 1129 30° Fa 1135 Frg, Fa? 1153 Abu Sgs, Lo Qtzt				
					1168		1160-1163 Wispy Bd, Pb Cg 1166-1168 App Dip 35° 1197 Sc Crs				
					Rt Fa		Sgs, Wk Fa 1199 Wispy Bd, Pb Cg 1212-1213 Wk Fa Zo 1212				
					1199		45° Fa 1248 Bnd Sgs 1251 Frg 1261, 1267-1271 Fa 1269				
					Pb Cg		App Dip 70°-80° 1269 Bd Fa 1290, 1292 Bnd Sgs 1305 Sc Sgs				
					1213		1310 Abu Sc-Bnd Sgs (118 Sgs) 1313-1314 Sc Crs Sgs 1318				
							Wk Fa 1331 Crs Bnd Sgs (85 Sgs) 1344 Crs Bnd Sgs 1351-1352				
							57 Sgs 1370-1372 Sc Sgs 1377 47 Sgs 1380-1381 40 Oo Ce				
1427	1771	344	319	Ok, Olv	Ce Mtx	Dl	1385 Abu Sc Sgs 1397-1401 (30-35 Sgs) Ce Mtx 1427				
					1427		Crs Xln Dl 1440-1444 Buff Diag 1444 K Sgs 1462 K-15 Sgs				
							1475 Sc-Bnd Sgs 1482-1483 Bd Fa, Sgs 1489 Crs Sc-Bnd Sgs				
							1490, 1491 Abu Br w/ Wh Gangue Dl Filling 1492-1719 Sgs in				
							Sed Br 1521, 1524 Sc Sgs 1585 Abu Sgs 1591 Wk Fa 1595				
							Ce Nod 1615 Sh, Sgs ↓ 1634 Sc Sgs 1642 App Dip 40° 1642				
							Sgs 1646, 1649, 1652 Sed Br, Sc Sgs 1658 Stylo, Sgs ↓ 1659				
							Sc Sgs 1677 Ra Sc Sgs 1718 Sc Sgs 1727 Blu Ce 1719, 1730-1732				
							Ce Frags 1734 Blu Ce 1741 L Gy Ce 1747-1748 Fi Sgs 1752,	Elev 28 Bd ?			
							1754, 1755 Blu Ce 1759, 1760 Grn Sh, Crs Sgs 1769 Crs Xln	Elev 5 Sgs ?			
1771	1797	26	21	Olv	V Bd	Dl	Dl 1760-1771 Blu Ce 1771 Fi Dl, Lo Abu Ce Nods 1771-1777	Int. —			
							Crs Sgs 1774 App Dip 30° 1755	Dolz 100%			
	1797	Bottom						Ble O Wk O St	Note: Dry Br	1492-	1719

LOCATION Morristown Sector
Talbott Area

PROPERTY H. R. Mc Elveen

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 8-10-56 BOTTOMED _____ LOG BY JWP, REF

SHED NO. B-3 DISCARDED 0-481

HOLE NO. T-45

ELEVATION 1263.63

COORDS. 22,030.83 N 28,230.43 E

BRG. _____ INCL. _____

DEPTH FROM	DEPTH TO	DIST.	CORE	FM.	MKRS.	ROCK	REMARKS	MINERALIZATION	ANALYSES SMPL. NO.	FROM	TO
0	12	12	—	OB			Nx to Bx 16 Bx to Ax 23				
12	700	688	677	Oma	Pb Cg	Dl, Ls	Bnd Sgs 23 Wispy, PbCg 27-28 Hi Ang Frg 43-45 Frg 60-61				
					28		Cavity 71-76 St Frg 76-86 VSt Fa 86-89 St Frg 89-93 Oxid 106				
							Frg 116-122 Lo Ang Fa Zo 122-126 Abu Sgs, 50° Fa 127 Sc Sgs 131				
							Wk 50° Fa 133 Frg 152-163 Sc Sgs 162-163 Cavity 164-167				
							Sc Sgs 181 Fa 185, 187 Fi Sgs 188-189 Abu Bnd Sgs 210-212				
							V St Fa, Oxid 235-237 St Frg 241-243 Lo Ang Fa 242 M Gy				
					Rt Fa		Ce 277, 306, 310 30°-40° Dip 335 St Lo Ang Fa 356 Bd Ce				
					407		360 Abu Sgs 387 Wk Fa 388 Sg Strgs 390 St Lo Ang Fa 406-407				
							Lo Ang Fa 440 Frg 445-447, 449-450 Fi Dl, Dist Strat				
					Pb Cg		473-476 V Abu Sgs, Qtzt 497-505 M Xln Dl 505 Wispy				
					508		507-508 PbCg 508 Wk Lo Ang Fa 560 Sgs in Ls (118 Sg) 583				
					Ce Mtx		85 Sg 615 57 Sg 642-644 47 Crs Sg 653 40 OoCe 660				
					700		Bnd DK Sgs 669 Sc Sgs 670 Ce Mtx 700				
700	912	212	212	Ok		Dl	Crs Xln Dl 712-716 Sc Sgs 724, 726 K Sgs 734 Sc Sgs 747, 749				
					108 Bd		K-15 Sgs 750 Rd Sc Sgs 760 Wk Frg 789 Sc Sgs 797 Sc Crs Sgs 816				
					827		Sc-Bnd Sgs (111 Sgs) 824-826 Brn OoCe (108 Bd) 827 Sc-Bnd Crs				
							Sgs 838 94 Ce 840 83 Sgs 848 80 Ce 852 73 Sgs 859 64 Bd 869				
					28 Bd		Sc Sgs 871 Sc Crs Sgs 873 50-55 Bd 879-884 39 DK Zo 899-900				
					912		34 Sgs 905 Grasselli Dl 906-912 28 Bd 912				
912	921	9	9				Ls				
921	924	3	3				Fi - Fi Xln - Crs Xln Dl 17 Bd 924				
924	934	10	10				Ls Sc Crs Sgs 930				
934	949	15	15				Crs Xln Dl M-Fi Dl				
949	954	5	5				Ls				
954	957	3	3				Med-Fi-Fi Xln DK Mot Dl w/ Wh Ae 69-70 Bd				
957	1009	52	52				Ls 65 Ce 962				
1009	1011	2	2				Fi-Fi Xln Dl Sc-Bnd Sgs 1010-1011				
1011	1018	7	7				Ls S Sgs 1011				
1018	1028	10	10	O/V	T Bd		Ls Ce 1019 T Sgs 1028				
1028	1033	5	5		U Bd		Ls				
1033	1034	1	1		U Bd		Fi-Fi Xln Dl	Elev. 28 Bd 352'			
1034	1048	14	14		U Bd		Ls Sc Crs Sgs 1038	Elev. S Sgs 253'			
1048	1057	9	9		V Bd		M-Fi-Fi Xln Dl w/ Abu Ce Nods	Int. 99'			
								Dolz. 18%			
	1057	Bottom						Ble O Wk O St			

LOCATION Morristown Sector
Talbott Area

PROPERTY W. B. Watkins

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 9-4-56 BOTTOMED 9-25-56 LOG BY JWP, REF
SHED NO. B-3 DISCARDED 0-725

HOLE NO. T-46
ELEVATION 1254.66
COORDS. 19,900.56 N 29,646.27 E
BRG. INCL.

DEPTH FROM	DEPTH TO	DIST.	CORE	FM.	MKRS.	ROCK	REMARKS	MINERALIZATION	ANALYSES SMPL. NO.	FROM	TO			
0	14	14	—	OB		RC	Nx - Bx 20 Bx - Ax 41							
14	81	67	55	Om		Ls	Cavity 64 - 68							
81	1020	939	938	Oma		Dl, Ls	Wk Fa, Oxid 109 St Oxid 259-260 Wk Bdg Fa 294 Dk Sgs w/							
							Vert Strgs 354 Lo Ang Fa 357-358 Sgs, Dl Pbs 396 Oxid 427, 431							
							Frg 443-446 Oxid 445 Fa, Oxid 450 Sc Sgs 487 Fi Dk Sgs, ½" Sh ↓							
							548-549 Lo Ang Fa 569 Bnd Sgs 577 Frd Zo 595-629 30° Fa 621							
					Rt Fa		St Fa Zo 621-632 Wk Fa 662, 692 Bnd Sgs 699 Sc-Abu Sgs, Lo							
					632		Qtzt 727-731 St Lo Ang Fa (Cuts out Wispy Bd?) 733 Hi Ang Fa							
							742 Sc-Abu Sgs, Lo Qtzt (Repeated from 727-731) 765-769							
					Pb Cg		Hi Ang Fa (Cuts out Wispy Bd?) 769 Sc-Abu Sgs, Lo Qtzt (Repeated							
					783		from 765-769) 775-779 Wispy Bd 782-783 Pb Cg 783 Flat Pb							
							Cg 799 Ra Dk Sgs 825 30° Fa 861 Fi Dk Sgs 884 Sgs in Ls (118 Sgs)							
							886-887 Sc Sgs 891-892 Fi Dk Sgs (85 Sgs) 918 57 Sgs, Sc-							
					Ce Mtx		Bnd 946 47 Sgs, V Crs Bnd 956 40 Oo Ce 961 Sc Sgs in Dl							
1020	1226	206	206	Ok	1020	Dl, Ls	970-971 Fa? 1004-1005 Ce Mtx 1020							
					108 Bd		Buff Diag 1036 Ra Sgs 1044 Sc Sgs 1051 K Sgs 1053 Sc Sgs 1063							
					1146		K-15 Sgs 1070 111 Sgs 1145 108 Bd 1146 Lo Ce Nods 1146-1151							
							83 Sgs 1169 80 Ce 1173 64 Bd 1187 Sc Sgs 1190 50-55 Bd							
					28 Bd		1196-1201 46-50 Bd 1201-1205 46 Sgs 1205 39 Bd 1215							
					1226		34 Sgs 1218 Grasselli Dl 1221-1226 28 Bd 1226							
1226	1227	1	1				Ls							
1227	1237	10	10				Fi - Fi Xln Dl Lo Bd Ce 1227-1230 17 Bd 1237							
1237	1256	19	19				Ls							
1256	1257	1	1				Fi Dl							
1257	1260	3	3				Ls							
1260	1264	4	4				Fi - Fi Xln Dl							
1264	1269	5	5				Ls							
1269	1272	3	3				Fi - Fi Xln Dk Dl 69-70 Bd							
1272	1286	14	14				Ls 65 Ce 1276							
1286	1291	5	5				Fi - M Xln Dl 52-56 Bd							
1291	1317	26	26				Ls							
1317	1318	1	1				Fi Xln Dl							
1318	1322	4	4		S Sgs		Ls							
1322	1324	2	2		1324		Fi Dl S Sgs 1324							
1324	1329	5	5				Ls							
1329	1336	7	7	Olv	T Bd	Ls, Dl	Ls T Sgs 1336	Elev 28 Bd -29'						
1336	1365	29	29		U Bd		Ls Oo Ce 1344, 1345	Elev S Sgs -69'						
1365	1370	5	5		V Bd		Fi Dl V, Sgs 1367	Int. 98'						
								Dlz 19%						
	1370	Bottom						Ble O Wk O St						

LOCATION Morristown Sector
Talbott Area

PROPERTY J. T. Cline

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 4-17-56 BOTTOMED 10-25-56 LOG BY JWP
SHED NO. B-3 DISCARDED None

HOLE NO. T-47
ELEVATION 1333.41
COORDS. 16,655.03 N 26,957.20 E
BRG. INCL.

DEPTH FROM	DEPTH TO	DIST.	CORE	FM.	MKRS.	ROCK	REMARKS	MINERALIZATION	ANALYSES SMP. NO.	FROM	TO			
0	33	33	—	OB		RC	Nx - Bx WL 33 Fa 39 Abu Sgs 51 Ra Sc Sgs 64-65 Frg 68-105							
33	389	356	356	Oiv			Fi Dk Sgs 83-84 Fa 84 Fi Dk Sgs 87-88 (Rptd from 83-84) Fa, Oxid 89							
				(Dist)			Oxid 94 Bdg Pln Fa 100 Sc-Bnd Sgs 110 Sc-Bnd Crs Sgs 147-149							
							Wh Ce Nods 156, 167 Th Bns Sgs 169-171 Abu Crs Sgs 175 Fa 180							
							Th Bns Sgs (82-184 (Rpd from 169-171) Abu Crs Sgs 188 (As above)							
							Sc-Abu Sgs 195 Qtzt ↓ Sc Sgs 215-216 Lo Ang Fa, Oxid 227-228							
							Abu Sgs 244 Sc Sgs 271 Ce Nod w/ Sgs, Sc-Abu Sgs 280-281							
							Sc Sgs 292 Abu Sc Sgs 295-296 Sc Dk Sgs 305 Ra Sgs 312-314							
							Frg 323-326 Fa ? 323 Sc Sgs 324 Frg 336 Ra Sgs 360, 365							
					Fa 389		Sc Crs Sgs 377 Frg 381-389 St 70° Fa 389							
389	507	118	118	Ok		Ls, Dl	39 Dk Zo 394-396 Ra Sgs 396 34 Sgs 400 Grasselli Dl 400-406							
							28 Bd 406 23-25 Bd 409-411 17 Bd 418 L Gy Ce, M Xln Dl 432							
					S Sgs 501		65 Ce 455 62-65 Bd 455-458 Sgs 494, 498 S Sgs 501							
507	518	11	11	Oiv	T Bd	Ls	T Bd Ce 507 T Sgs 518							
518	537	19	19		U Bd	Ls	"O" Oo Ce 522, 524							
537	550	13	13		V Bd	Dl	V_1 Sgs 542 Lo Ce Nods 537 Sgs 546, 548 V_2 Sgs 550							
550	788	233	233			Dl, Ls	Crs Sgs 553 1' recov. 556-564 Ce Nod 571 Crs Sgs 583, 584,							
							596, 607, 612 Ra Sgs 617, 618 Abu Sc-Bnd Sgs 621-622							
							Sc Sgs 625, 627, 639, 651 Abu Crs Sgs 662-664 Ra Sgs 672							
							Wk Hi Ang Fa 673-674 Sc-Bnd Sgs 679-681 Hi Ang Fa 688-690							
							Sc-Bnd Sgs 693-694 (Rptd from 679-681) Sc-Bnd Sgs 709-710							
							Sc Sgs 714 Ra Sgs 720 Sc Sgs 722 Fi Sgs 739-740 Abu Dk Sgs							
788	1221	433	433	Oc		Dl, Ls	743-744 Lo Sc Sgs 753-779 Rk change to Dk Dl, Lo Ls 788							
							Wk Frg 812-814 Sc Sgs 829, 868-869 Dip 20°-30° 911 Abu Dk							
					K Kn Fa 1221		Sgs 998 Sgs 1149 Lo Ang Fa 1221, 1238, 1239, 1242-43, 1248, 1261, 1266							
1221	1532	311	311	Oma		Ls, Dl	Ra Sgs 1269 Abu Sgs ↓ Qtzt 1290-1291 Abu Sc Sgs 1293							
					Pb Cg 1296		Wispy Bd, Pb Cg 1295-1296 Hi ? Ang Fa 1312 Abu Sgs, Qtzt (Rptd							
					Pb Cg 1318		from 1291) 1312-1315 Wispy Bd, Pb Cg 1317-1318 Red Mot 1338-							
					Rt Fa 1312		1341 Sc Sgs 1360 V St Fa Zo 1375-1383 Abu Sgs, Ce 1410							
							Sc ↓ Abu Sgs 1413-1414 Sc Sgs 1418-1419 Lo Ang Fa 1428 Sc-							
							Abu Sgs 1452 Th Qtzt 1454 Sc ↓ Abu Sgs 1460 Sgs 1470 S Sgs							
							1479-1480 Bnd Sgs (47 Sgs) 1492 Fa 1495 30-35 Sgs 1501-1503	Elev 28 Bd - 422'						
					Ce Mtx 1532		Ra Sgs 1514 5 Ce 1530 Ce Mtx 1532	Elev 5 Sgs - 508'?						
1532	1876	344	344	OK		Dl, Ls	1' Crs Xln Dl 1545-1547 Buff Diag 1547 K Sgs 1556 Sgs	Int 86'?						
							1583 Bnd Sgs 1585-1586 Bnd Sgs 1596, 1602 Sc Sgs 1612	Dl 2 100%						
					108 Bd 1669		111 Sgs 1668 108 Bd 1669 94 Ce Sgs 1683 83 Sgs 1693	Ble 0 wk 0 st						
							80 Ce 1696 67 Sgs 1711 64 Bd 1714 39 Dk Zo 1739-1742							
					28 Bd ? 1756		34 Sgs 1747 28 Bd ? 1756							
							Abu Frg w/ Wh Gng Dl 1730-1843	Tr Sp 1774, 1794		1778	1782	4	2 22	1 29
							Ce 1760 St Lo Ang Fa 1792-1793	1797, 1815		1782	1787	5	1 45	
							Crs Xln Dl 1843-1886	Shi Sp 1828						
1876	1939	63	63	Oiv	V Bd	Dl	V_2 Sgs 1886 Ce, Sgs 1900 Sgs 1906, 1907-1908, 1910 Lo Sgs to 1939	Tr Sp 1859, 1860						
	1939	Bottom												

LOCATION Morristown Sector
Talbott Area

PROPERTY J. S. Walker

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 9-26-56 BOTTOMED 10-12-56 LOG BY J.W.P.
SHED NO. B-3 DISCARDED 0-739

HOLE NO. T-48
ELEVATION 1263.29
COORDS. 21,720.91 N 30,050.78 E
BRG. INCL.

DEPTH FROM	DEPTH TO	DIST.	CORE	FM.	MKRS.	ROCK	REMARKS	MINERALIZATION	ANALYSES SMPL. NO.	FROM	TO			
0	5	5	–	OB		RC	NX – BX 10 BX-BXWL 20							
5	758	753	733	Oma		Ls, Dl	Dip 60°-70° Cavity 22-65 Frg 136-137 Pb Cg 150 Sc-Bnd Sgs							
							176 Bnd Fi Sgs 209 Crs Sgs 224 St Fa 234 Abu Sgs 239-240							
					Pb Cg		Wispy Bd 243-244 Pb Cg 244-245 St Frg 282-283 Bnd Sgs 305							
					245		Sc ↓ Abu Sgs 306-307 Sgs 313 40° Fa 318 Sc ↓ Abu Sgs 342							
							Sgs 346 (Repeated from 313) App Dip 28° 336 Lo Ang Fa 374							
							Fi Sgs 389 Fi Dk Sgs 414 45° Fa 419 Sgs 418 Sc Sgs 427-428							
					Rt Fa.		Sgs 432 Ce Nod Zo 434-438 Fa 442 Abu Frg 442-449 V St							
					449		Lo Ang Fa 449 Sc Sgs ↓ Abu 473-474 Sc-Abu Crs Sgs 485,							
					Pb Cg		487 Lo Ang Fa 515 Fi Sgs 519 Fa 520 Fi Sgs 522 Sc-Abu Sgs,							
					571		Lo Qtzt 562-567 Wispy Bd 570-571 Pb Cg 571 Sc ↓ Abu Sgs							
758	966	208	208	OK	Ce Mtx	Dl, Ls	646-647 Sgs 669, 676 Abu Bnd Sgs 703 Sgs 727-729							
					758		T Bnd Sgs 713 Ce Mtx 758 Buff Diag 776 Crs Xln Dl 783-785							
					108 Bd?		K Sgs 793 Sgs 802, 806 K-16 Sgs 808 Sc Sgs 876, 884-885 108 Bd ?							
					886		886 Ble 14 Wk O St 67 Sg 930 64 Bd 934 Sgs 935, 937 34 Sgs 958							
					28 Bd		28 Bd 966							
966	968	2	2		966	Dl	Crs Xln Dl 23-25 Bd 967-969	V St Shi Sp	9630	967	968	6.72%		
968	980	12	12			Dl	Fi Dl, Wh Ga Strgs Sgs 980	Lo Sp Dissem in		968	977	Nil		
980	988	8	8			Dl	Crs Xln Dl	Crs Dl 977-989	9626	977	981	3.03%		
988	994	6	6			Dl	Fi Dl			981	984	Nil	11' @	2.05%
994	996	2	2			Ls			9627	984	988	2.60%		
996	1001	5	5			Dl	Fi – M Xln							
1001	1005	4	4			Ls								
1005	1013	8	8			Dl	Fi – M Xln							
1013	1018	5	5			Dl	Crs Xln Dl	Dissem Sp	9628	1013	1017	3.59%		
1018	1025	7	7			Dl	Fi Dl, Lo Crs Xln	Dissem Sp		1017	1020	Nil	12' @	1.68%
1025	1046	21	21			Ls		Trs Sp in Ls	9629	1020	1025	1.19%		
1046	1047	1	1		S Sgs	Dl	Fi Dl S Sgs 1047	1029 – 1030						
1047	1053	6	6		1047	Ls								
1053	1055	2	2	Olv	T Bd	Dl	Fi Dl							
1055	1058	3	3		T Bd	Ls		Shi Dissem Sp in						
1058	1065	7	7		T Bd	Dl	T Sgs 1065	Ls 1065-1066						
1065	1066	1	1		U Bd	Dl	"O" Oo Ce 1066							
1066	1081	15	15		U Bd	Ls		Elev 28 Bd 297'						
1081	1110	29	29		V Bd	Dl	Fi Dl, Lo Ce, Sgs V₂ Sgs 1095	Elev S Sgs 216'						
								Int. 81'						
	1110	Bottom						Dlz 56%						
								Ble 14 Wk O St						

LOCATION Morristown Sector
Talbott Area

PROPERTY J. S. Walker

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 10-13-56 BOTTOMED 10-31-56 LOG BY J.W.P.
SHED NO. B-3 DISCARDED 0-1002

HOLE NO. T-49
ELEVATION 1253.95
COORDS. 21,245.00 N 31,676.49 E
BRG. INCL.

DEPTH FROM	DEPTH TO	DIST.	CORE	FM.	MKRS.	ROCK	REMARKS	MINERALIZATION	ANALYSES SMPL. NO.	FROM	TO
0	4	4	–	OB		RC	NX 4-10 BX 10-21				
4	857	853	850	Oma		Dl, Ls	Cavity 16-17 Oxid 29 Cavity 43-45 40°-55° Dip 60 65° Fa 88				
							Lo Ang Fa 157 10° Dip 180 Wk Frg 228 Fi Dk Sgs 254 Abu Sc-				
					PbCg 299		Bnd Sgs, Lo Qtzt 293-295 Wispy Bd, PbCg 297-299 St Lo Ang				
					Rt Fa?		Fa 334, 362 Sgs 369 Frg 392 Fa 426 Fi Dk Sgs 431 Sgs, Lo Ang				
					585		Fa 489 Sc Sgs 497 Fa 516 40°-50° Dip 530 Crs Xln Dl 553-				
							557 Sgs 562 Sgs, Frg 566 Sc Sgs 575, 581 Lo Ang Fa 585				
							614 Sgs 598 Sc Sgs 622 Abu Sgs, Qtzt 661-662 Wispy Bd,	Tr Sp 598			
					PbCg		PbCg 669-670 Sc-Abu Sgs (118 Sgs) 745-746 Abu Sgs (85 Sgs)				
					670		778 57 Sgs 804 47 Sgs 813 Ce Nods (40 Ce) 816-820				
					Ce Mtx		Sc-Abu Sgs, Qtzt (30-35 Sgs) 827-829 Ce Mtx 857				
857	1054	197	197	OK	857	Dl	Ce Nods 873-875 Ra Sgs, Buff Diag 882 Sgs 885 Ra Sgs 892				
					108 Bd 973		Sc Sgs 900 K Sgs 903 Sc Sgs 907 111 Sgs 972 108 Bd 973				
					64 Bd 1016		94 Ce 987 83 Sgs 996 67 Sgs 1013 64 Bd 1016 Sgs 1019,				
							1021 50-55 Bd 1028-1032 Crs Xln Dl 1035-1047				
					28 Bd		28 Bd 1054				
1054	1064	10	10		1054	Ls	Ce 1060				
1064	1067	3	3			Fi Dl					
1067	1090	23	23			Ls	Crs Sgs 1074				
1090	1093	3	3			Fi Dl					
1093	1100	7	7			Ls					
1100	1109	9	9		65 Ce 1106	Fi Dl	69-70 Dk Zo 1100-1103 65 Ce 1106 62-65 Bd 1106-1109				
1109	1118	9	9			Ls					
1118	1121	3	3			Fi Dl	52-56 Bd 1118-1121				
1121	1165	44	44		5 Sgs 1159	Ls	5 Sgs 1159 Ra Sgs 1135, 1147				
1165	1177	12	12	Olv	T Bd	Fi Dl	T Sgs 1177				
1177	1190	13	13		U Bd	Ls	"O" Ce 1179				
1190	1191	1	1		U Bd	Crs Dl		St Sh Sp 1190-1191			
1191	1198	7	7		U Bd	Ls					
1198	1235	37	37		V Bd	Fi Dl	V_1 Sgs 1202 V_2 Sgs 1209 Lo Ce Nods 1198-1209 Lo Sgs 1209-				
							1235				
	1235	Bottom						Elev 28 Bd 200'			
								Elev 5 Sgs 95'			
								Int 105'			
								Dlz 22%			
								Ble 0 Wk 0 St			

LOCATION Morristown Sector
Talbott Area

PROPERTY J. T. Cline

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 10-26-56 BOTTOMED 12-6-56 LOG BY JWP
SHED NO. B-3 DISCARDED None

HOLE NO. T-50
ELEVATION 1387.77
COORDS. 16,165.32 N 27,265.14 E
BRG. INCL.

DEPTH FROM	DEPTH TO	DIST.	CORE	FM.	MKRS.	ROCK	REMARKS	MINERALIZATION	ANALYSES SMP. NO	FROM	TO
0	54	54	—	OB			BX - BXWL 80				
54	264	210	208	Ok	108 Bd 81 64 Bd 130 28 Bd 165	Ls, Dl	111 Sgs 78 108 Bd 81 Wk Ble 81-94 Sgs 98 94 Ce 100 83 Sgs 110 80 Bd 114 64 Bd 130 Sgs 132 28 Bd 165 Crs Xln Dl 165-169 17 Bd 177 65 Ce 215 M Xln Dl 215-225				
264	463	199	199	Olv	S Sgs 263	Dl	Crs Xln Dl 258-264 S Sgs 263 T Sgs 274 U Bd (Crs Xln Dl) 274-285 Wk Fa 294 Lo Sc Sys 293-454 St Fa Zo -				
463	1042	579	579	Oc		Dl	Chng in Rk Tp Belo 463-466 Fa 487 Hvy Sgs 511-512 Sgs 536 25° App Dip 514 Abu Sc-Bnd Sgs 591-596 Sl Orid 776-778 Fry, Fi Sgs 989 Abu Fi Sgs 1001-1005 Fi Sgs 1025, 1027 30°-40° App Dip 1046 Chng in Rk Ty				
1042	1061	19	19	Ecr?		Dl	to Dk Dl Belo 1042 Crs Xln Dl 1052-1056 V St Fa Zo				
1061	1072	11	11	Fa Zo	K Kn Fa?		1061-1072				
1072	1620	548	548	Oma		Ls, Dl	Crs Xln Dl 1077-1081, 1091-1095 Lo Ang Fa 1088 60° Fa 1143 50° Fa 1162 Wk Lo Ang Fa 1168 Sgs 1175 Sc Sgs 1178 Red Mott 1194-1202 Abu Sgs, Lo Qtzt 1202-1204 Hi Ang Fa 1204 Wispy Bd, PbCg 1207-1208 Abu Sgs 1126				
					Rt Fa 1237		Red & Grn Mott 1231-1235 Lo Ang Fa 1237 Bnd Sgs 1248 Bnd ↓ Sc Sgs 1266-1267 Wispy Bd, PbCg? 1270-1271 Red Mott 1293-1294 Sgs 1293, 1319 50° Fa 1332 Hi Ang Fa 1336 Vert Bdy 1337 45° Fa 1341 Fry 1369 Sc Sgs 1423, 1425 V St Lo Ang Fa 1426 Sc-Abu Sgs, Lo Qtzt 1485-1488 Bn Fi Sgs, Sh Belo 1511 Bnd ↓ Sc Sgs 1518 Sc Sys 1523-1524 Abu Sys 1546 Abu Sc-Bnd Sgs 1557 Ce 1561, 1571-1572	Tr Flu 1415			
					Ce Mtx 1620		Ce Sgs 1599 Abu Sc Sgs 1612-1613 Ce Mtx 1620				
1620	1849	229	229	Ok		Dl, Ls	Butt Diag 1636 Sc Sys 1647 Bnd Sgs 1653 K Sgs 1656 Sc Sgs 1667 K-15 1671 Sc Sgs 1730 Ce Nods 1735-1737				
					108 Bd 1754		111 Sys 1751 108 Bd 1754 Ble 0 St 10 Wk Sc ↓ Abu Sgs, 94 Ce 1769-1770 83 Sgs 1783 80 Bd 1786 67 Sgs 1803 64 Bd 1806 Sc Sys 1808, 1810 39 Dk Zo 1829-1831 Grass				
1849	1860	11	11		28 Bd 1844	Ls	Dl 1842-1849 28 Bd 1849 Ce 1852, 1853, 1855				
1860	1861	1	1			Dl	17 Bd 1860-1861				
1861	1883	22	22			Ls					
1883	1888	5	5			Dl	Fi - M Xln				
1888	1841	3	3			Ls					
1841	1896	5	5			Dl	Fi, Lo M Xln Dl				
1896	1898	2	2			Dl	Crs Xln 65 Ce 1898				
1898	1899	1	1			Dl	Fi Xln				
1899	1902	3	3			Ls	Sh, Sys, Ce 1917	Elev 28 Bd -461'			
1902	1912	10	10			Dl	Fi Xln Ce 1902	Elev S Sys -529'			
1912	1918	6	6		S Sgs 1917	Ls	Ra Sys 1918	Int 68'			
1918	1920	2	2			Dl	Fi - M Xln	Dlz 53%			
1920	1931	11	11	Olv	T Bd	Dl	Fi - M Xln T Sgs 1931 Ce 1932	Ble 10 Wk 0 St			
1931	1945	14	14		U Bd	Dl	Fi - M Xln, Lo Crs Xln "O" Ce 1932 Grn Sh, Ce 1945				
1945	1990	45	45		V Bd	Dl	Fi - M Xln V. Sgs 1949 Sc Ce Nods 1950-1957 Sgs 1963, -67, -68, -86				
	1990	Bottom									

LOCATION Morristown Sector
Talbott Area

PROPERTY R. V. Coile

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 11-2-56 BOTTOMED 11-23-56 LOG BY JWP, REF

SHED NO. B-3 DISCARDED 0-495

HOLE NO. T-51

ELEVATION 1265.01

COORDS. 23,204.97 N 32,210.18 E

BRG. - INCL.

DEPTH FROM	DEPTH TO	DIST.	CORE	FM.	MKRS.	ROCK	REMARKS	MINERALIZATION	ANALYSES SMPL. NO.	FROM	TO		% Zn
0	10	10	-	OB			NX-BX 18 BX-BXWL 34						
10	551	541	541	Oma		Ls, Dl	Oxid 38, 41 Frg 79 St 30° Fa 82-83, 137 Sc-Abu Sgs, Lo						
					Pb Cg 168		Qtzt 160-163 Wispy Bd, Pb Cg 167-168 Oxid 191 Cav 191-196						
							Cav 203-207 Fi Sgs 252 Sgs 267 St 40° Fa 283 Abu Sgs 289						
					Pt Fa 317		V St Lo Ang Fa Zo 315-317 Abu Sgs, Lo Qtzt 366-369						
					Pb Cg 373		Wispy Bd, Pb Cg 372-373 Lo Ang Fa 422 Ra Sgs 447						
					Ce Mtx 531		80° Fa 456 Sgs 471 47 Sgs 507 40 Ce 512 Ce Mtx 550-551						
551	750	199	199	Ok		Dl, Ls	Bnd Sgs 578 K Sgs 585 Sc Sgs 595 K-15 Sgs 599 Sc Crs						
							Sgs 607 Crs Xln Dl 612-615 Sc Crs Sgs 664 WK 60° Fa 669						
					108 Bd 674		111 Sgs 672-673 108 Bd 674 94 Bd 686 83 Sgs 694						
							80 Ce 697 73 Sgs 704 67 Sgs 713 64 Bd 715 50-55 Bd						
							724-728 Sc Fi Sgs 729 46 Sgs 733 39 DK Zo 739-740	Shi Sp 732					
					28 Bd 750		34 Sgs 744 28 Bd 750	Sc Tr Sp 732-735					
750	752	2	2			Ls							
752	762	10	10			Dl	Fi Xln Sc Ce Nods						
762	800	38	38			Dl	M-Crs Xln - Fi 65 Ce 797	Sc Tr Sp in Crs Xln 763-767					
800	845	45	45			Ls							
845	847	2	2		S Sgs 847	Dl	Fi S Sgs 847						
847	851	4	4			Ls							
851	863	12	12	Olv	T Bd	Dl	Fi Ce Nod 851 Sc Fi Sgs 854						
863	867	4	4		U Bd	Dl	Fi "O" Ce 864 Sc Sgs 867	2-3% Zn Est 863-867	4537	863	867	4'	2.44
867	876	9	9		U Bd	Ls							
876	881	5	5		V Bd	Dl	Fi Dl w/ Abu Sc Ce Nods						
	881	Bottom											
								Elev 28 Bd 515'					
								Elev S Sgs 418'					
								Int 97'					
								Dlz 52%					
								Ble 0 WK 0 St					

LOCATION Morristown Sector
Talbott Area

PROPERTY Henry Hopkins

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 11-29-56 BOTTOMED 12-13-56 LOG BY JWP, REF
SHED NO. B-3 DISCARDED 0-464

HOLE NO. T-52
ELEVATION 1300.86
COORDS. 24,565.25 N 34,568.82 E
BRG. INCL.

DEPTH FROM	DEPTH TO	DIST.	CORE	FM.	MKRS.	ROCK	REMARKS	MINERALIZATION	ANALYSES SMP. NO.	FROM	TO
0	16	16	—	OB			NX - BXWL 20				
16	510	494	494	Oma		Ls, Dl	Oxid 30, 38 VSt Fa Zo 41-45 Sc-Abu Sgs, Lo Qtzt 52-59				
					Pb Cg 61		wispy Bd, Pb Cg 60-61 Sc Sgs 103 Wk Fa 122 Fi Dk Sgs 144-145				
							Sgs 166, 181 Sc - Bnd Sgs 208-210 Abu Sgs 221 45° Fa, Sgs				
							225 Abu Sgs (Rpld from 221) 225 Sc Sgs 230-231 St Lo				
					Rt Fa 243		Ang Fa 243 Lo Ang Fa 253, 260, 283 Abu Sgs, Lo Qtzt				
					Pb Cg 328		323 Wispy Bd, Pb Cg 327-328 118 Sgs 402 85 Sgs 430				
					Ce Mtx 510		57 Sgs 456 47 Sgs 466 Abu Sgs 470 Ce Mtx 510				
510	714	204	204	Ok		Dl, Ls	Ce Nod 528 Sc Sgs 537 K Sgs 540 Br Zo, Fa? 543 Ra Sgs				
							556 K-15 Sgs 559 Sc Sgs 582 Sc Crs Sgs 611, 624				
					108 Bd 634		Ra Sgs (111 Sgs) 632 108 Bd 634 Abu Sgs 646 94 Ce 650				
					64 Bd 680		83 Sgs 657 80 Bd 661 67 Sgs 674 64 Bd 680 39 Dk Zo				
					28 Bd		700-703 34 Sgs 707 28 Bd 714				
714	726	12	12		714	Dl	Crs - Fi Xln Dl 23-25 Bd 717-719 17 Bd 725				
726	742	16	16			Ls	Sc - Abu Bnd Sgs 733-735				
742	743	1	1			Dl	Fi Dl				
743	745	2	2			Ls					
745	753	8	8			Dl	Fi - Crs Xln Dl				
753	756	3	3			Ls					
756	766	10	10			Dl	Fi Dl 65 Ce 763				
766	775	9	9			Ls					
775	778	3	3			Dl	Fi Dl				
778	822	44	44		S Sgs 816	Ls	Ra Sgs 805 Abu Sc Sgs 815 S Sgs 816				
822	833	11	11	Olv	T Bd	Dl	Fi Dl				
833	835	2	2		U Bd	Dl	Fi Dl				
835	838	3	3		U Bd	Ls	"O" Oo Ce 836				
838	839	1	1		U Bd	Dl	Fi Dl				
839	852	13	13		U Bd	Ls		Elev 28 Bd 587'			
852	855	3	3		U Bd	Dl	Fi Dl	Elev S Sgs 485'			
855	862	7	7		V Bd	Dl	Fi Dl w/ Abu Ce Nods V, Sgs 859	Int 102'			
								Dlz 36%			
	862	Bottom						Ble 0 Wk 0 St			

LOCATION Morristown Sector
Talbott Area

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

HOLE NO. T-53

ELEVATION 1270.26

STARTED 12-10-56 BOTTOMED 1-4-57 LOG BY JWP, REF COORDS. 22,726.18N 34,136.13 E

PROPERTY Austin B. Moore SHED NO. B-3 DISCARDED 0-734 BRG. INCL.

DEPTH FROM	DEPTH TO	DIST.	CORE	FM.	MKRS.	ROCK	REMARKS	MINERALIZATION	ANALYSES SMF NO	FROM	TO
0	11	11	—	OB		RC	BX - BXWL 14				
11	759	748	738	Oma		Ls, Dl	51 Oxid 12 Oxid 32, 53 St Lo Ang Fa 110 Bnd Sgs 143				
							St 60° Fa 163 Frg, Fa Zo 163-171 30° Fa 226 Sc-Bnd				
							Sgs 230 Wk Fa 231 Sc Sgs 242 Sc Crs Sgs 259 Sc-Abu				
					Pb Cg 280		Sgs, Lo Qtzt 269-276 Wispy Bd. Pb Cg 278-280				
							Sc Sys 300 4' recov 316-323 Frg 316-326 St 40° Fa				
							326 Sgs 407 30° Fa 481 Blu Ce 497 V St Lo Ang Fa 508				
					Rt Fa ? 530		Frg 508-530 V St Lo Ang Fa 530 Th Bnd Dk Sgs 534				
							Sgs, Sed Br 544 Sgs, Lo Qtzt 571-572 Wispy Bd,				
					Pb Cg 578		Pb Cg 576-578 Lo Ang Fa 624 Sc Sgs, Pb Cg 534				
					Ce Mtx 760		Th Bnd Sgs 706 Bnd Sgs 717 Abu Sgs 731 Ce Mtx 760				
759	968	209	209	Ok		Dl, Ls	Buff Diag 776 Sgs 788 K Sgs 793 Sc-Bnd Sgs 803				
					108 Bd 889		Ra Sgs 806 Sgs 859 111 Sgs 885 108 Bd 889 Abu Sgs,				
							Ce 900 Blk 6 Wk 0 St 67 Sys 928 64 Bd 932				
					28 Bd 968		Ra Sgs 936 50-55 Bd 941-945 34 Sgs 963 28 Bd 968				
968	969	1	1			Ls					
969	974	5	5			Dl	Fi-M Xln Sc Ce (23-25 Bd)				
974	976	2	2			Ls					
976	981	5	5			Dl	Fi-M Xln				
981	993	12	12			Ls	Sc-Abu Crs Sgs 987-988				
993	994	1	1			Dl	Fi Ce Nod 994				
994	1001	7	7			Ls					
1001	1002	1	1			Dl	Fi Dk				
1002	1005	3	3			Ls					
1005	1008	3	3			Dl	M-Fi Xln				
1008	1012	4	4			Ls					
1012	1016	4	4			Dl	Fi Dk 69-70 Bd				
1016	1017	1	1			Ls					
1017	1021	4	4		65 Ce 1019	Dl	Fi 65 Ce 1019				
1021	1030	9	9			Ls	Ce Nod 1025				
1030	1032	2	2			Dl	Fi				
1032	1067	35	35			Ls	Sc Ce Nods 1035-1036 Sc Sgs 1059				
1067	1068	1	1			Dl	Fi				
1068	1075	7	7		5 Sgs 1070	Ls	5 Sgs 1070				
1075	1086	11	11	Olv	T Bd	Dl	Fi-M Xln Ce Nod 1078 T Sgs 1086	Elev 28 Bd 302'			
1086	1103	17	17		U Bd	Ls	"O" Oo Ce 1087	Elev 5 Sys 200'			
1103	1114	11	11		V Bd	Dl	M-Fi Xln Abu Ce Nods 1105-1113	Int 102'			
								Dlz 27%			
	1114	Bottom						Blk 6 Wk 0 St			

LOCATION Morristown Sector
Talbott Area

PROPERTY Sam James

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 12-17-56 BOTTOMED 1-7-57 LOG BY JWP, REF
SHED NO. B-3 DISCARDED 0-532

HOLE NO. T-54

ELEVATION
COORDS.
BRG. INCL.

DEPTH FROM	DEPTH TO	DIST.	CORE	FM.	MKRS.	ROCK	REMARKS	MINERALIZATION	ANALYSES SMP. NO.	FROM	TO
0	9	9	–	OB		RC	NX-BX 20 BX-BXWL 28				
9	534	525	516	Omd		Ls, Dl	2' recov 9-20 Lo Ang Fa 76 Bnd Sgs 82 Sc Sgs 87 Sgs, Fa 89 Sc Sgs 91, 95 WK Fa 107 WK Lo Ang Fa 110 Sc Sgs 123, 132-134, 162-163 Hi Ang Fa 181 Abu Sgs 196-198 Lo Ang Fa 198 Abu Sgs 203-205 Sgs 208 Fa 209, 211, 212 Lo Ang Fa 305 Sc Sgs 309 Th Bnd Sgs 335 Sgs 345 Wispy Bd, PbCg 349-350 St Lo Ang Fa 381 Sc Sgs 388 Abu Sgs 421-422 Fi Sgs 426-427 40° Fa 435 St Hi Ang Fa 441 Bnd Sgs 452 Sc Sgs 458 Abu ↓ Sc Sgs 476-477				
					Rt Fa 305 PbCg 350						
534	739	205	205	OK		Dl, Ls	Ce Mtx 534-535 Baff Diag 552 Sc Sgs 577 Bnd Sgs 583-584 Sc Sgs 635 Crs Xln Dl 558-560, 640-642 Sc Sgs 649 Th Bn Sgs 655 111 Sgs 657-658 108 Bd 659 Sc-Bnd Sgs 669 67 Sgs 699 84 Bd 703 Ble 10 WK 0 St Sgs 704, 706 50-55 Bd 710-715 46 Sgs 717 Grass. Dl 733-739 28 Bd 739				
					108 Bd 659						
					28 Bd 739						
739	744	5	5			Ls	23-25 Bd 743-744				
744	751	7	7			Dl	Fi-M Xln				
751	763	12	12			Ls					
763	778	15	15			Dl	Fi-M Xln				
778	781	3	3			Ls					
781	785	4	4			Dl	Fi DK Dl 69-70 Bd				
785	788	3	3			Ls					
788	791	3	3		65 Ce 788	Dl	F. 65 Ce 788				
791	798	7	7			Ls					
798	803	5	5			Dl	F.				
803	816	13	13			Ls					
816	817	1	1			Dl	F. Xln				
817	836	19	19			Ls					
836	838	2	2		5 Sgs 838	Dl	F. Xln 5 Sgs 838				
838	842	4	4			Ls					
842	843	1	1			Dl	M Xln				
843	846	3	3	Olv	T Bd	Dl	Fi T Bd Ce 844				
846	848	2	2		T Bd	Dl	Crs Xln				
848	856	8	8		T Bd	Dl	Fi Xln				
856	875	19	19		U Bd	Ls	"O" Ooce 857	Elev 28 Bd [illegible]			
875	892	17	17		V Bd	Dl	Fi Xln Abu Ce Nods 876-884 V, Sgs 879	Elev 5 Sgs [illegible]			
892	894	2	2			Ls		Int 99'			
								Dlz 37%			
	894	Bottom						Ble 10 WK 0 St			

LOCATION Morristown Sector
Talbott Area

PROPERTY Jessie Q. Burnett

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 1-8-57 BOTTOMED 1-21-57 LOG BY JWP, REF
SHED NO. B-3 DISCARDED 0-383

HOLE NO. T-55

ELEVATION
COORDS.
BRG. INCL.

DEPTH FROM	DEPTH TO	DIST.	CORE	FM	MKRS.	ROCK	REMARKS	MINERALIZATION	ANALYSES SMP. NO.	FROM	TO
0	44	44	-	OB		RC	BX - BXWL 54				
44	383	339	339	Oma	Rt Fa 154 Pb Cg 201	Ls, Dl	Bnd Sgs 143 WK Lo Ang Fa 148 Lo Ang Fa 154 Bnd Sgs 188, 196 Wispy Bd, Pb Cg 200-201 Sgs 225 Sc Sgs in Ce ↓ Abu Sgs (118 Sgs) 274 Sc Sgs 278-279 85 Sgs 303 57 Sgs 334 47 Sgs 338-339 40 Ce 345 30-35 Sgs 353-354 Ce Mtx 383				
383	588	205	205	OK	Ce Mtx 383 108 Bd 509 64 Bd 549 28 Bd 588	Dl, Ls	Sc Sgs 410 K Sgs 418 K-15 Sgs 429-430 Hi Ang Fa 491 Ra Sgs 501 Ce Nod 505 111 Sgs 507 108 Bd 509 Ble 2 WK 0 St 94 Ce, Sgs 519 83 Sgs 528 80 Ce 530 64 Bd 549 Sc Sgs 551 50-55 Bd 558-563 39 DK Zo 573-574 28 Bd 588	4% Zn Est 565-566			
588	589	1	1			Dl	Fi Xln				
589	590	1	1			Dl	Crs Xln Ce Nod 590	Dissem Sp 589-590			
590	604	14	14			Dl	M - Crs Xln Ce Nod 604				
604	609	5	5			Dl	Crs Xln				
609	614	5	5			Dl	Fi - M Xln				
614	616	2	2			Dl	Crs Xln				
616	620	4	4			Dl	Fi Xln Ce Nods 618, 619				
620	626	6	6			Ls					
626	629	3	3			Dl	M DK, Fi Xln (69-70 Bd)				
629	645	16	16			Ls	65 Ce 632				
645	650	5	5			Dl	M Xln				
650	666	16	16			Ls					
666	669	3	3			Dl	Crs Xln	Dissem Sp 666-669			
669	678	9	9		S Sgs 676	Ls	S Sgs 676				
678	681	3	3			Dl	Fi Xln				
681	693	12	12	Olv	T Bd	Dl	Fi Xln Ce Nod 681 Sc Sgs 684 T Sgs 693	Sc Tr Sp 685, 686, 692, 693			
693	694	1	1		U Bd	Dl	Fi Xln				
694	701	7	7		U Bd	Dl	Crs Xln "O" Ce 695				
701	705	4	4		U Bd	Dl	Fi Xln	Sc Tr Sp 696, 697			
705	731	26	26		V Bd	Dl	Fi Xln w/ Abu Ce Nods. V_1 Sgs 710 V_2 Sgs 716 Crs Sgs 718				
	731	Bottom									
								Elev 28 Bd Elev S Sgs Int 88' Dlz 60% Ble 2 WK 0 St			

LOCATION Morristown Sector
Talbott Area

PROPERTY C.E. Goodman

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 1-8-57 BOTTOMED 1-24-57 LOG BY JWP, REF

SHED NO. B-3 DISCARDED None

HOLE NO. T-56

ELEVATION

COORDS.

BRG. INCL.

DEPTH FROM	DEPTH TO	DIST.	CORE	FM.	MKRS.	ROCK	REMARKS	MINERALIZATION	ANALYSES SMP. NO.	FROM	TO
0	30	30	—	OB		RC	BX - BXWL 40				
30	438	408	408	Oma		Ls, Dl	Frg 36 Sgs 67 Wk 30° Fa 83 Wk Lo Ang Fa 92 Lo Ang				
					Rt Fa? 201		Fa 107 St Lo Ang Fa 117 Frg 170-180 50° Fa 176				
					Pb Cg 248		V St Lo Ang Fa Zo 198-201 Fi Dk Sgs 209 Sc-Bnd Sgs				
							243 Wispy Bd, Pb Cg 247-248 118 Sgs 321-322				
							Sc-Abu Bnd Sgs 326-327 85 Sgs 356 Pb Cg 360-362				
					Ce Mtx 438		57 Sgs 383-384 47 Sgs 393 Ce Mtx 437-438				
438	653	215	215	Ok		Dl, Ls	Ce Nod 450 Abu Frg, V St Fa Zo 453-479 K Sgs				
							467-468 Sc Sgs 479 K-15 Sgs 484 111 Sgs 568				
					108 Bd 570		108 Bd 570 94 Bd 582 83 Sgs 593 80 Bd 595				
							73 Sgs 603 67 Sgs 612 64 Bd 616 Sc Sgs 618, 619				
							50-55 Bd 624-629 Crs Xln Dl 639-642 Sc Sgs 651				
					28 Bd 653		28 Bd 653				
653	709	56	56			Dl	Fi Gr to Fi - Crs Xln, Abu Br 17 Ce 664 Ce Nods 682				
							69-70 Bd 702-705				
709	710	1	1			Ls					
710	712	2	2			Dl	M Xln				
712	713	1	1			Sh	Dn Blk Sh				
713	715	2	2			Dl	Crs Xln	Sc Tr Sp 714-715			
715	718	3	3			Ls					
718	736	18	18			Dl	Crs Xln	Sc Tr Sp 718-723			
736	756	20	20		S Sgs 754	Dl	Fi Xln, Abu Frg Ce Nod 738 Sc Sgs 742 S Sgs 754-756	St Shi Sp 723-725			
756	762	6	6	Olv	T Bd	Dl	Crs Xln Abu Frg & Br	Sc Tr Sp 725-726,			
762	766	4	4		T Bd	Dl	Fi Xln	730, 738, 740			
766	782	16	16		U Bd	Dl	Fi Xln "O" Ce, Sc Crs Sgs 769 Abu Crs Sgs 775 Sc Crs Sgs 776, 777				
782	788	6	6		V Bd	Dl	Fi - Crs Xln w/ Abu Ce Nods Sc Crs Sgs 782, 788				
788	795	7	7			Ls	Abu Sc Sgs 794-795				
795	799	4	4			Dl	Fi - M Xln	Tr Sp 795			
	799	Bottom									
								Elev. 28 Bd			
								Elev. S Sgs			
								Int. 101'			
								Dlz. 97%			
								Ble 0 Wk 0 St			

LOCATION Morristown Sector
Talbott Area

PROPERTY C. E. Goodman

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

STARTED 1-24-57 BOTTOMED 2-6-57 LOG BY JWP, REF
SHED NO. C-9 DISCARDED None

HOLE NO. T-57
ELEVATION
COORDS.
BRG. INCL.

DEPTH FROM	DEPTH TO	DIST.	CORE	FM.	MKRS.	ROCK	REMARKS	MINERALIZATION	ANALYSES SMPL. NO.	FROM	TO
0	3	3	–	OB		RC	NX - BX 4 BX - BXWL 10				
3	465	462	462	Oma	Rt Fa 237	Ls, Dl	St Fa 5-7 30° Fa 73 St 45° Fa 150 VSt Fa 20 226-237				
					PbCg 283		Abu Sgs 279 Wispy Bd, PbCg 282-283 Ra Sgs 358 Sed Br,				
					Ce Mtx 465		Sgs 392-393 Ce Mtx 465				
465	676	211	211	Ok		Dl, Ls	Ce 484 Sc Sgs 491-495 Ce, K Sgs 501 Sh, Ra Sgs 510				
							Sgs 513 K-15 Sgs 517 Ra Sgs 540 111 Sgs 590				
					108 Bd 592		108 Bd 592 94 Ce, Sgs 607 83 Sgs 617 80 Bd 622				
							67 Sgs 634 64 Bd 637 Sgs 640, 642 Crs Xln Dl 642-643				
					28 Bd 676		39 Dk 20 661-665 34 Sgs 669 28 Bd 676				
676	681	5	5			Ls					
681	691	10	10			Dl	Fi-M Xln 23-25 Bd 680-682 17 Ce 688				
691	709	18	18			Ls					
709	716	7	7			Dl	Fi-M Xln				
716	727	11	11			Ls					
727	729	2	2			Dl	Fi-M Xln 65 Ce 727 62-65 Bd 727-729				
729	738	9	9			Ls					
738	743	5	5			Dl	Fi-M Xln 52-56 Bd 738-740				
743	782	39	39		S Sgs 778	Ls	Sc Sgs 776 S Sgs 778				
782	795	13	13	Olv	T Bd	Dl	Fi-M Xln T Sgs 795	Elev 28 Bd			
795	811	16	16		U Bd	Ls	"O" Ce 798	Elev 5 Sgs			
811	821	10	10		V Bd	Dl	Fi-M Xln w/ Abu Ce Nods V, Sgs 814	Int 102'			
								Dlz 27%			
	821	Bottom						Ble 0 Wk 0 St			

LOCATION Morristown Sector
Talbott Area

PROPERTY L. B. Dearing

THE NEW JERSEY ZINC CO.

Jefferson City, Tenn.

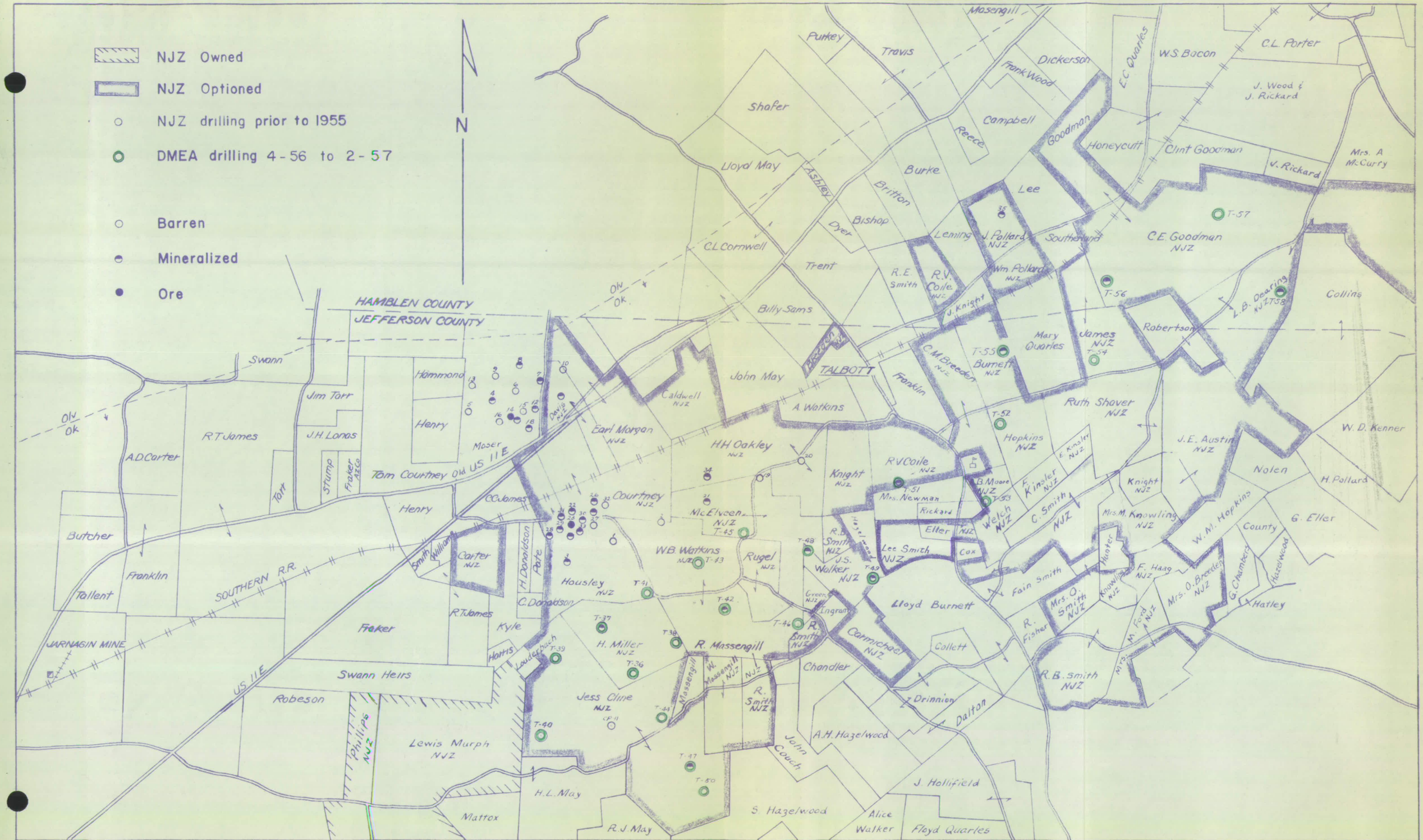
STARTED 1-28-57 BOTTOMED 2-21-57 LOG BY JWP, REF
SHED NO. C-9 DISCARDED None

HOLE NO. T-58
ELEVATION
COORDS.
BRG. INCL.

DEPTH FROM	DEPTH TO	DIST.	CORE	FM.	MKRS.	ROCK	REMARKS	MINERALIZATION	ANALYSES SMPL. NO.	FROM	TO
0	8	8	—	OB		RC.	Nx - Bx 20 Bx - BxWL 25				
8	974	966	962	Oma		Ls, Dl	Cavity 37-41 Oxid 218 St Lo Ang Fa 237 40° Fa 252				
							St Lo Ang Fa 263 Oxid 266 Lo Ang Fa 302, 318 Wispy				
					PbCg 407		Bd, PbCg 406-407 Sc-Abu Sgs 481, 487-488, 522 Fa 558				
							1" Bn Crs Sgs 561 Fa 583 Ra Sgs 601-602 Sc-Bnd Sgs				
					Rt Fa? 739		625-626 Sc Sgs 630 St Lo Ang Fa 639, 739 Sc-Abu Sgs	Py 700			
					PbCg 786		780 Wispy Bd, PbCg 784-786 118 Sgs 853 Sc Fi Sgs				
							863-864 85 Sgs 892 57 Sgs 919 47 Sgs 929 Abu Sgs				
					Ce Mtx 974		933-934 40 Ce 934 30-35 Sgs 942-944 Ce Mtx 973-74				
974	1202	228	216	OK		Dl, Ls	Buff Diag ? 997 Ra Sgs 1001 K Sgs 1010 K-15 Sgs 1026				
							Hi Ang Fa 1044 1 ft recov 1052-1065 111 Sgs 1115				
					108 Bd 1117		108 Bd 1117 94 Bd 1130 83 Sgs 1142 80 Bd 1146				
							73 Sgs 1154 67 Sgs 1163 64 Bd 1168 WK 45° Fa 1176				
					28 Bd 1202		28 Bd 1202				
1202	1305	103	103			Dl	Fi - Crs Xln 23-25 Bd 1203-1204	Shi Sp 1216-1218 - 2% Est			
							Lo Wh Gangue Dl & Sed Br 1202-1302	Tr Sp 1224, 1228			
							Sgs 1264 Ce Nods 1298-1299				
					S Sgs? 1302		Crs Sgs (S Sgs ?) 1302 Sgs 1304				
1305	1315	10	10	Olv	T Bd	Dl	Fi Sgs 1310	Elev 28 Bd			
1315	1333	18	18		U Bd	Dl	Fi Ce 1318, 1320	Elev S Sgs			
1333	1342	9	9		V Bd	Dl	V, Sgs 1339 Sgs 1341	Int 100'			
								Dlz 100%			
	1342	Bottom						Ble 0 Wk 0 St			

EXTRA C
D M E A
RECEIVED APR 2

DATE	INITIALS	COL

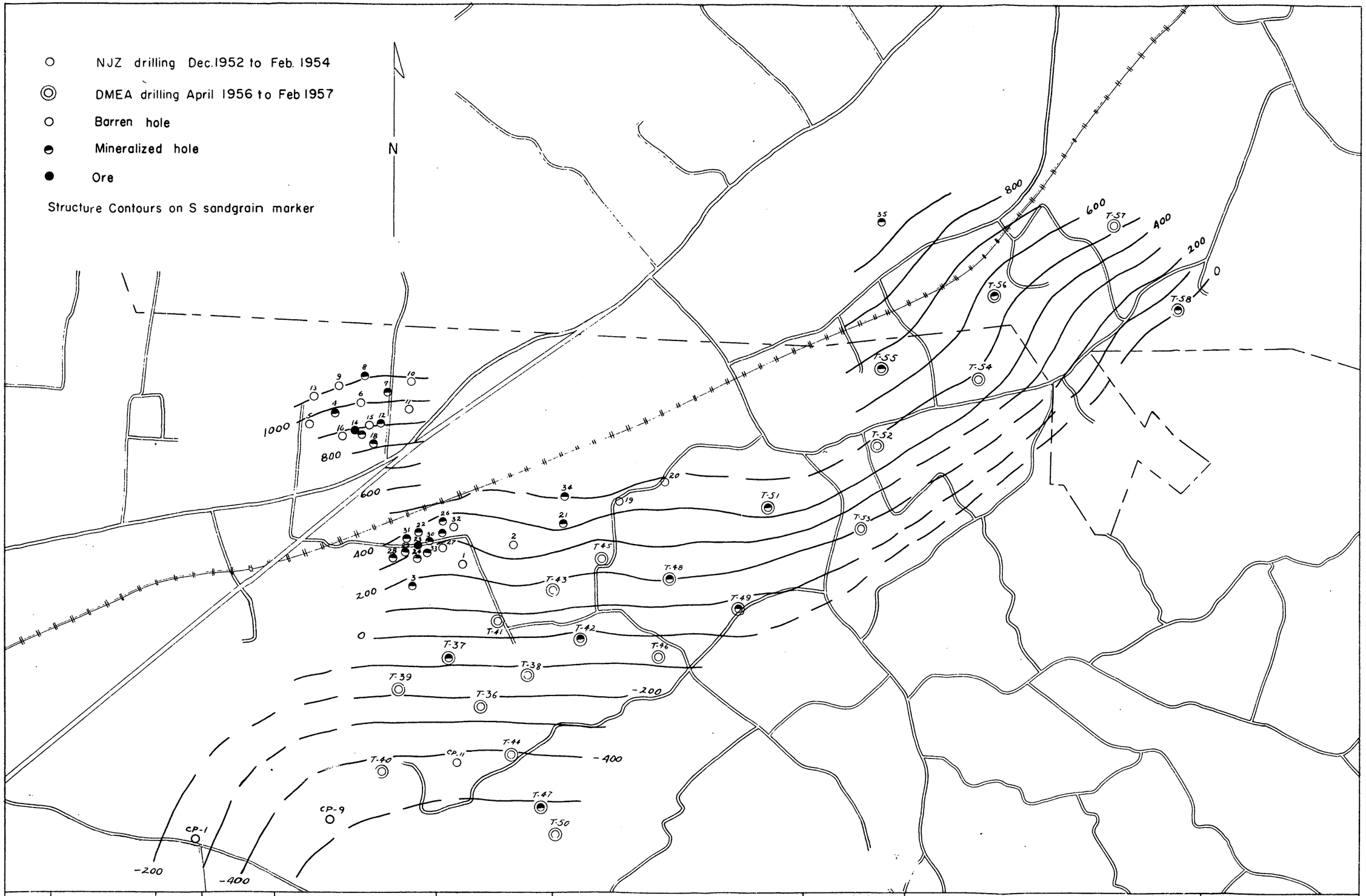


POSTED TO DATE 11-1-56	THE NEW JERSEY ZINC COMPANY JEFFERSON CITY TENNESSEE	DRAWN NJZ DATE 6/56 TRACED JWP SCALE 1"=2000'	PROPERTY MAP MORRISTOWN SECTOR - TALBOTT AREA
			JEFFERSON & HAMBLEN Cos., TENN FILE NO. AX-TENN-B 247a

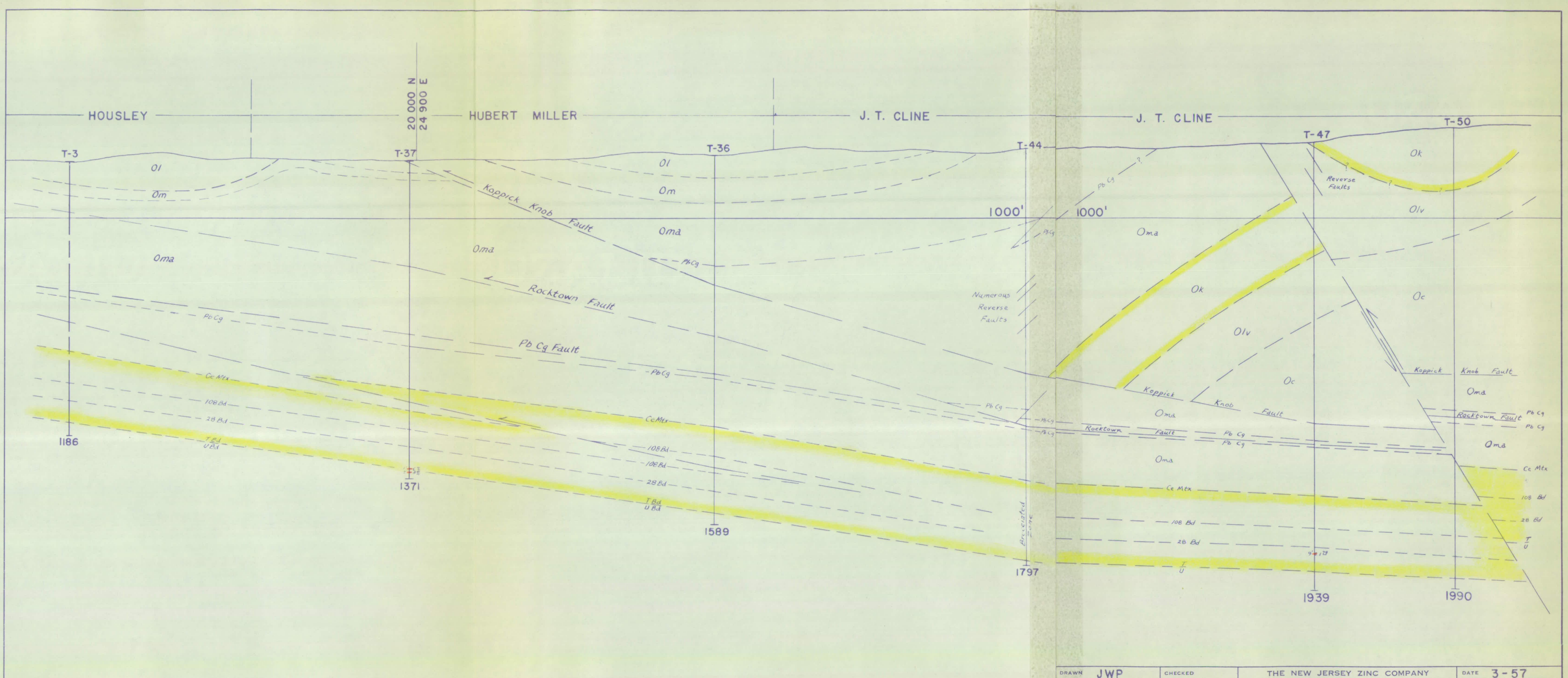
SERIAL NUMBER		DATE ISSUED		REFERENCE DRAWINGS	REVISIONS	THE NEW JERSEY ZINC COMPANY JEFFERSON CITY, TENN.	DRAWN USGS TRACED RCM, REF CHECKED APPROVED	MORRISTOWN SECTOR TALBOTT AREA GEOLOGIC MAP	DATE 3-21-57 SCALE 1"=2000' AX-TENN B-1261

THIS DRAWING IN DESIGN AND DETAIL IS OUR PROPERTY AND MUST NOT BE USED EXCEPT IN CONNECTION WITH OUR WORK. ALL RIGHTS OF DESIGN AND INVENTION ARE RESERVED. THIS DRAWING MUST BE RETURNED TO THE NEW JERSEY ZINC COMPANY.

TEMPLATE NO. AX-TENN B-1258 X54538 1M 11-54



SERIAL NUMBER		DATE ISSUED		REFERENCE DRAWINGS	REVISIONS	THE NEW JERSEY ZINC COMPANY	DRAWN JWP	MORRISTOWN SECTOR	DATE 3-57
THIS DRAWING IN DESIGN AND DETAIL IS OUR PROPERTY AND MUST NOT BE USED EXCEPT IN CONNECTION WITH OUR WORK. ALL RIGHTS OF DESIGN AND INVENTION ARE RESERVED. THIS DRAWING MUST BE RETURNED TO THE NEW JERSEY ZINC COMPANY.						JEFFERSON CITY, TENN.	TRACED	TALBOTT AREA	SCALE 1" = 2000'
							CHECKED	STRUCTURAL CONTOUR MAP	AX-TENN B-1259
							APPROVED		



SERIAL NUMBER	DATE ISSUED	REFERENCE DRAWINGS	REVISIONS	THE NEW JERSEY ZINC COMPANY JEFFERSON CITY, TENN	DRAWN JWP / TRACED / CHECKED / APPROVED	MORRISTOWN SECTOR TALBOTT AREA SECTION I	DATE 7-56 / SCALE 1" = 300' / AX-TENN-B1182

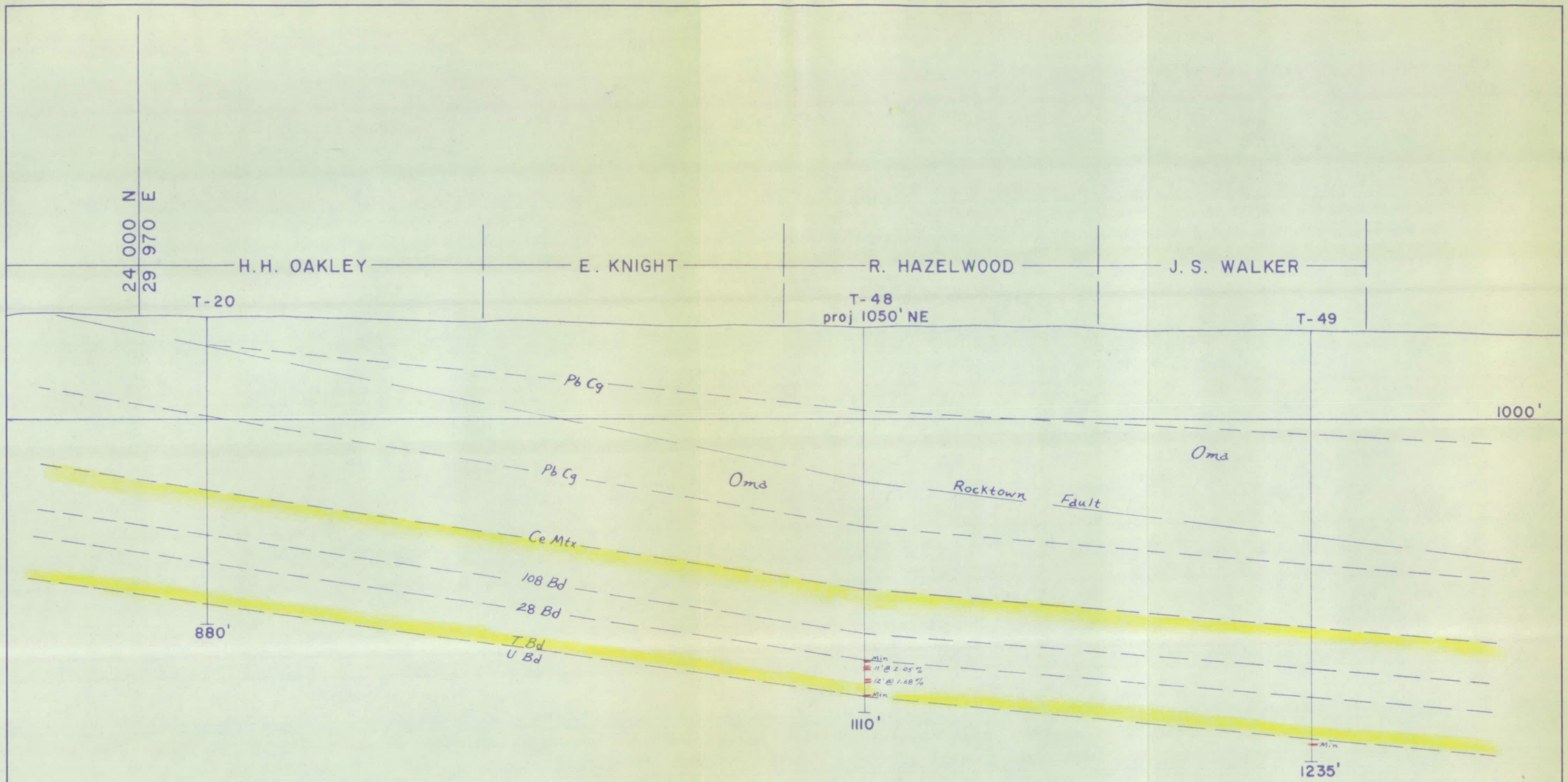
THIS DRAWING IN DESIGN AND DETAIL IS OUR PROPERTY AND MUST NOT BE USED EXCEPT IN CONNECTION WITH OUR WORK. ALL RIGHTS OF DESIGN AND INVENTION ARE RESERVED. THIS DRAWING MUST BE RETURNED TO THE NEW JERSEY ZINC COMPANY.

X5453B 1M 11-54

DRAWN JWP / TRACED / REVISED	CHECKED / APPROVED	THE NEW JERSEY ZINC COMPANY JEFFERSON CITY, TENN.	DATE 3-57 / SCALE 1" = 300'
		MORRISTOWN SECTOR TALBOTT AREA SECTION Ia	AX-TENN A1254

THIS DRAWING IN DESIGN AND DETAIL IS OUR PROPERTY AND MUST NOT BE USED EXCEPT IN CONNECTION WITH OUR WORK. ALL RIGHTS OF DESIGN AND INVENTION ARE RESERVED. THIS DRAWING MUST BE RETURNED TO THE NEW JERSEY ZINC COMPANY.

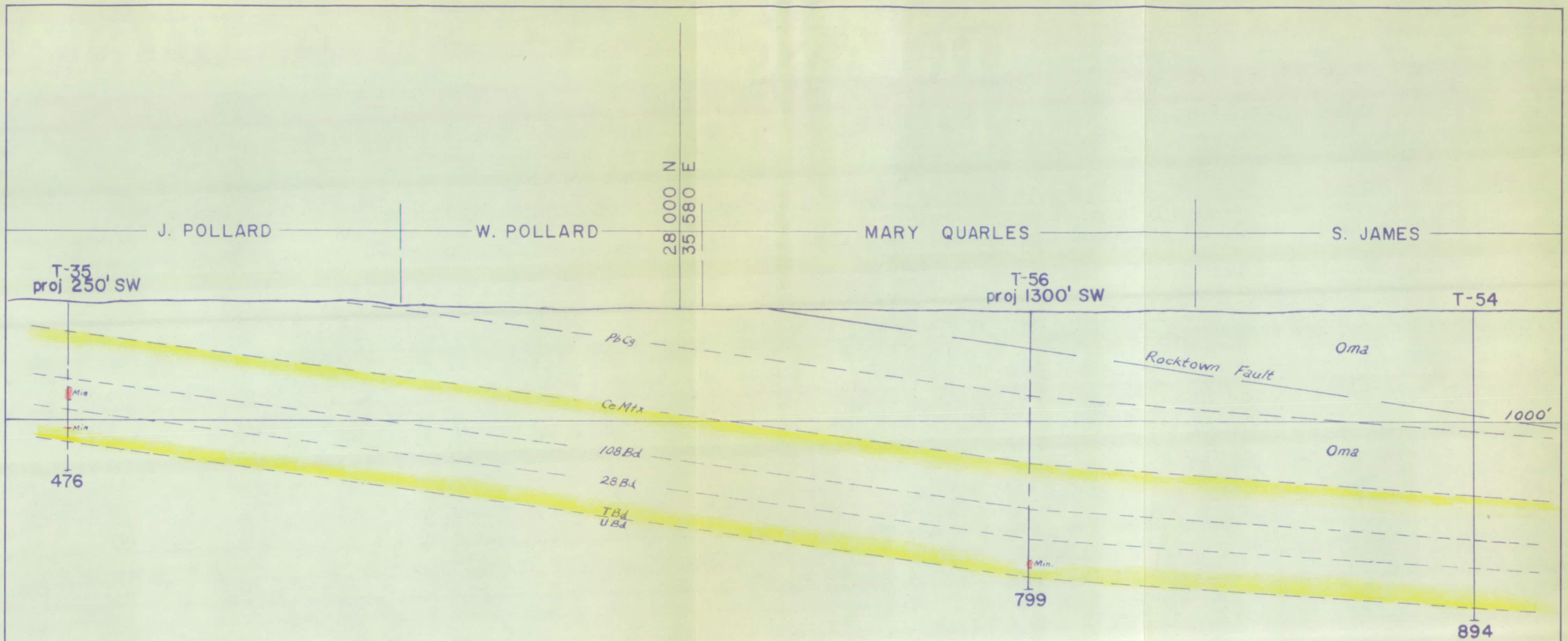
X5453A 1M 11-54



SERIAL NUMBER		DATE ISSUED		REFERENCE DRAWINGS	REVISIONS	THE NEW JERSEY ZINC COMPANY	DRAWN JWP	MORRISTOWN SECTOR	DATE 3 - 57
							TRACED	TALBOTT AREA	SCALE 1" = 300'
						JEFFERSON CITY, TENN.	CHECKED	SECTION II	AX- TENN B-1257
							APPROVED		

THIS DRAWING IN DESIGN AND DETAIL IS OUR PROPERTY AND MUST NOT BE USED EXCEPT IN CONNECTION WITH OUR WORK. ALL RIGHTS OF DESIGN AND INVENTION ARE RESERVED. THIS DRAWING MUST BE RETURNED TO THE NEW JERSEY ZINC COMPANY.

X5453B 1M 11-54



SERIAL NUMBER		DATE ISSUED		REFERENCE DRAWINGS	REVISIONS	THE NEW JERSEY ZINC COMPANY	DRAWN JWP	MORRISTOWN SECTOR	DATE 3-57
THIS DRAWING IN DESIGN AND DETAIL IS OUR PROPERTY AND MUST NOT BE USED EXCEPT IN CONNECTION WITH OUR WORK. ALL RIGHTS OF DESIGN AND INVENTION ARE RESERVED. THIS DRAWING MUST BE RETURNED TO THE NEW JERSEY ZINC COMPANY.						JEFFERSON CITY, TENN.	TRACED CHECKED APPROVED	TALBOTT AREA SECTION III	SCALE 1" = 300' AX-TENN B-1256

X5453B 1M 11-54

EXTRA COPY
D M E A
RECEIVED APR 29 1957

DATE	INITIALS	CODE

Map of operator's
Final Report.

also
Drill Corp'

April 16, 1957.

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
4/24	Frawley	500
4-24	Chambers	800
		130
4/26	Johnson	180
		~~400~~
4/29	C	255
		500.

500

APR 26 1957

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Bldg.
Knoxville 2, Tennessee

Re: Docket No. DMEA-4119 (Zinc)
The New Jersey Zinc Company
Talbot Area
Jefferson and Hamblen Counties,
Tennessee
Contract No. Idm-E936

Dear Mr. Laurence:

It is noted that final payment on the cited project was made prematurely.

Final payments, or reasonable portions thereof, should be retained until receipt of the Operator's Final Report and the release of the Government's Final Audit or Report of Review. This should apply to all contracts.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (GCS)

WRGriswold/er 4/24/57

Copy to: Docket
Admr R File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Mr. Jay Chambers, DMEA
Chron.

APPROVED:

Frank D. Lamb (GCS)
Member, Bureau of Mines

W. P. Williams (GCS)
Member, Geological Survey

8623

DMEA
(12 7

OFFICIAL FILE COPY

500

Date	Surname	Code
4/17	Trisuvel	500
4/18	Talbot	800
4/19	Selfridge	120
"	Johnson	110
"	Battendorf	100
4/22	C	221

500.

APR 22 1957

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Bldg.
Knoxville 2, Tennessee

Re: Docket No. DMEA-4119 (Zinc)
The New Jersey Zinc Company
Talbot Area
Jefferson and Hamblen Counties,
Tennessee
Contract No. Idm-E936

Dear Mr. Laurence:

In accord with your memorandum of March 19, we are enclosing the original and five copies of a proposed Termination Agreement for the cited contract, signed by the Administrator.

If the agreement meets with your approval, please present it to the Operator for signature and, when completed, distribute the copies in the usual manner. Otherwise, and if any proposed changes should lie beyond your delegated authority, all copies should be returned to us with your comments.

We are fully in accord with your recommendation for termination of the project. Obviously, the drilling has been disappointing and probably the Operator has reasonable grounds for its contention that an ore body of large magnitude is not present within the area tested.

Nevertheless, a glance at the map shows that the area is far from having been disproven conclusively, certainly substantial areas are still untested. Furthermore, little drilling has been done near "mineralized" holes.

8623

All in all, it is within the realm of possibility that this company might, at some later date, desire to further test the properties in question. We have therefore covered such a contingency by Item "4" of the Termination Agreement. In the event that the Operator should desire to do more drilling in this area at a later date, it is no more than fair that the Government should receive royalty on any production which might result therefrom.

Two extra copies of the agreement are enclosed for use of the Field Team.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (GB)

Enclosures

APPROVED:

Frank D. Lamb

Member, Bureau of Mines (GB)

Thor H. Kiilsgaard

Member, Geological Survey (GB)

WRGriswold/er 4/17/57

Copy to: Docket
Admr R File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron.

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

April 17, 1957

Memorandum for the Files

From: Chief, Base Metals Division

Subject: Termination Agreement for Docket No. DMEA-4119, The New Jersey Zinc Company, Talbot Area, Jefferson and Hamblen Counties, Tennessee, Contract No. Idm-E936, Zinc.

The cited project is about half complete; 23 holes have been drilled with a total footage of 29,306.

Results have been negative, no commercial ore has been found, though a few holes showed indicative mineralization.

The Operator desires to terminate the project due to disappointing results, in which the Field Team concurs. Actually, it appears that the point is well taken and that further work would not have much chance of success; hence, we concur.

W. R. Griswold

W. R. Griswold

WRG/er
Copy to: Docket
Chron.

P.S. Of the ten holes which encountered a little zinc mineralization, six are worth noting, as follows:

#T36 - 1 ft. 6% Zn
2 ft. 4% Zn

#T37 - 1 ft. 6% Zn
2 ft. 4% Zn

#T42 - 2 ft. 10% Zn

#T47 - 9 ft. 1.79% Zn

#T48 - 11 ft. 2.05% Zn

#T51 - 4 ft. 2.44% Zn

We do not know the cut-off used by this company, but it is probably around 35 foot units (10 ft. of 3.5% ore, or equivalent).

The American Zinc Co. of Tennessee, who sink-float prior to grinding and flotation, use a cut-off of 25 foot units. Their crude ore has an average grade of around 3.4%, whereas the other operators are averaging around two per cent higher, or slightly better.

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

500

Date	Surname	Code

March 28, 1957

Memorandum

To: Associate Solicitor, Division of Mineral Resources

From: Chief, Base Metals Division

Subject: Preparation of Agreement of Mutual Termination for Docket No. DMEA-4119, New Jersey Zinc Company, Talbot Area, Jefferson and Hamblen Counties, Tennessee, Contract No. Idm-E969 (Zinc)

Will you kindly prepare an agreement for mutual termination of the cited contract.

The project is about half complete and has been so disappointing that it would appear futile to carry the work to conclusion.

We cannot certify nor do we have very good grounds to make a pseudo. The Operator plans to drop all of his options, as permitted under the contract. Nevertheless, in view of the size of the land area and the wide spacing of the drill holes, we cannot truly say that all of the ground was fully disproved. Theoretically, small ore bodies could exist which might someday be mined. It is not completely impossible that the Operator might someday reacquire such lands, or a part thereof, for further exploration.

Therefore, we request that, in the Agreement of Mutual Termination, you include something along the following format, which we have prepared by rephrasing Item (d) of the "Special Agreement Concerning Land" in the contract.

Mr. Rubin:
Please surname if O.K. & give to Mr. Dwyer

end

8623

"It is agreed that if the Operator or any of its subsidiaries should reacquire any interest, title, or equity in the lands under the Contract or any minerals produced therefrom, before the expiration of thirty years from the date of this Contract; any minerals produced therefrom shall be deemed subject to royalty payments from the date that the Operator or its subsidiaries reacquired such interest, title, or equity until the expiration of thirty years from the date of the Contract, or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first."

W. R. Griswold

WRG/er

Copy to: Docket
Chron.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 25 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

WASHINGTON OFFICE

OFFICIAL FILE COPY
DMEA
RECEIVED MAR 21 1957

DATE	INITIALS	CODE
3/21	C	220
3/22	WRG	500

March 19, 1957

Memorandum

To: Operating Committee, DMEA - Washington

From: DMEA Field Team, Region V - Knoxville, Tennessee

Subject: DMEA-4119, Idm-E936(zinc) The New Jersey Zinc Co. N. Y. Talbot Area, Jefferson & Hamblen Counties, Tennessee

Enclosed are four copies of the latest interim report, and four copies of a letter from the Operator, requesting termination of the project.

Although it is entirely possible that ore-grade material may be present in the areas between the drill holes, it seems unlikely that mineable orebodies would be found by more closely spaced drilling. Attempts by other companies to extend the Jefferson City district eastward, by drilling updip from the Talbot area, have also failed to locate mineable orebodies. Thus, we are in agreement with the recommendation in the interim report, and we request permission to terminate by mutual agreement, effective February 28, 1957.

As it seems possible that a pseudo-certification may be recommended, this termination should be treated as though it might be certified.

Robert A. Laurence

Robert A. Laurence, Executive Officer
DMEA Field Team, Region V

V. J. Lynch

V. J. Lynch, Member
Bureau of Mines

See Reports Folder for Interim Rept.

THE NEW JERSEY ZINC COMPANY
(ESTABLISHED 1848)

CABLE ADDRESS
"JERSEZINC"

100 FRONT STREET

NEW YORK 38, N.Y.

HORSE HEAD PRODUCTS ®

OFFICIAL FILE COPY
DMEA
RECEIVED MAR 21 1957

DATE	INITIALS	CODE

PLEASE ADDRESS REPLY TO
JEFFERSON CITY, TENNESSEE

February 27, 1957

RECEIVED
MAR 1 - 1957
U. S. Geological Survey
Geologic Division
Knoxville, Tenn.

Mr. R. A. Laurence, Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville, Tennessee

Subject: DMEA 4119; IDM E-936 (ZINC)
THE NEW JERSEY ZINC COMPANY
MORRISTOWN SECTOR - TALBOTT AREA
JEFFERSON-HAMBLEN COUNTIES, TENNESSEE

Dear Mr. Laurence:

Drilling on the Talbot Area, Morristown Sector Project was terminated on February 21, 1957, with the completion of drill hole T-58. Twenty-three holes were drilled on this project during the period from April 1956 to February 1957 for a total of 29,306 feet. Of these holes, 11 were drilled on 1/4 mile spacing and 12 were drilled on a 1/2 mile face centered grid. The drill holes spanned a strike distance of 19,800 feet and a maximum dip distance of 4,600 feet.

Nine drill holes encountered zinc mineralization within the Kingsport-Longview favorable horizon. No particular stratigraphic zone seemed to be persistently mineralized, and no ore grade mineralization was found.

A gross test of the project area has been accomplished. Although spacing of the holes is on too wide a spread to show conclusively that no ore is present, it now appears very unlikely that an ore occurrence of the magnitude of the Jefferson City Mine is present within the area tested. The results of the wide spaced drilling do not appear to warrant more closely spaced drilling at this time.

This is to advise you of our desire to terminate the subject DMEA Contract (No. E-936) with no further exploration drilling. We consider that the results of the project were unsuccessful, no ore having been found. A final report on the project is in preparation.

Yours very truly,

THE NEW JERSEY ZINC COMPANY

Johnson Crawford

Superintendent for Tennessee

A. D. Hoagland/dm
In Quadruplicate

220

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

January 24, 1957

Memorandum

To: Catherine Curtin, Statistics and Control Division

From: Hazel Berry, Operating Committee

Subject: Amendment to Contract

Attached is the following docket copy of an amendment to a contract which has been reviewed and approved by the commodity division and the Contract Administration and Audit Division. No clearance by Legal appears necessary.

The New Jersey Zinc Co., DMEA-4119, Idm-E936,
Amendment No. 3.

Attachment-3

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 1, POST OFFICE BLDG.
KNOXVILLE 2, TENNESSEE

WASHINGTON 25, D. C.

December 4, 1956

RECEIVED 6 DEC 1956 D.M.E.A.

Memorandum

To: Operating Committee, DMEA - Washington

From: DMEA Field Team, Region V - Knoxville, Tennessee

Subject: Amendment No.3. DMEA-4119, Idm-E936-Zinc.
The New Jersey Zinc Co., Jefferson City, Tenn.

Attached are three signed copies of the subject Amendment listing additional property held under option agreement.

The usual distribution of the other copies has been made.

Robert A. Laurence
Robert A. Laurence
EXECUTIVE OFFICER
DMEA REGION V

V. J. Lynch
V. J. LYNCH
MEMBER, BUREAU OF MINES

X 10866 24M 1-54

COPY

THE NEW JERSEY ZINC COMPANY

Jefferson City, Tennessee
EXPLORATION DEPARTMENT

Jefferson City, Tennessee
November 2, 1956

OFFICIAL FILE COPY
D M E A
RECEIVED MAY 3 1957

DATE	INITIALS	CODE
5/3	C	220
5/3	~~[illegible]~~	500

Mr. R. A. Laurence, Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville, Tennessee

Subject: DMEA 4119; Idm E-936 (ZINC)
THE NEW JERSEY ZINC COMPANY
MORRISTOWN SECTOR - TALBOTT AREA
JEFFERSON-HAMBLEN COUNTIES, TENNESSEE

Dear Mr. Laurence:

We submit, herewith, a list of properties in the subject area which have been optioned by the Company since the execution of Amendment No. 1 to the subject contract. We request that an amendment be made to the contract, adding these properties to the project area. The locations of these properties are shown in red on the accompanying map, AX-TENN-B247a.

Name of Property Owner	Acreage
Greene, Horace	19
Breeden, Mrs. Oma	76
Massengill, W. C.	45
Massengill, Mrs. Roe	9
Haag, Frank	15
Ford, Mrs. Mamie	50
Kinsler, Edward	15
Kinsler, Mrs. Fannie	20
Moore, Austin B.	18
Smith, Lee	30

Leave with Amdmt II 3/1

Attached (Exhibit A) are copies of the option contracts for each property.

Yours very truly,

THE NEW JERSEY ZINC COMPANY

Johnson Crawford
Superintendent for Tennessee

J.W. Phillips
J.W.Phillips/jf
In Quadruplicate

NJZ Owned

NJZ Optioned

NJZ Optioned since May 7, 1956

Barren

Mineralized

Ore

N

HAMBLEN COUNTY

JEFFERSON COUNTY

TALBOTT

SOUTHERN R.R.

US 11E

Old US 11E

JARNAGIN MINE

Punkey
Travis
Frank Wood
Dickerson
E.C. Quarles
W.S. Bacon
C.L. Porter
J. Wood & J. Rickard
Shafer
Campbell
Reece
Goodman
Honeycutt
Clint Goodman
V. Rickard
Mrs. A. McCurry
Lloyd May
Ashley
Burke
Britton
Lee
Bishop
Dyer
Leming
J. Pollard NJZ
Southerland
C.E. Goodman NJZ
C.L. Cornwell
Trent
R.E. Smith
R.V. Coile NJZ
Wm. Pollard NJZ
J. Knight
Billy Sams
L.B. Dearing NJZ
Collins
Robertson
Mary Quarles
James NJZ
C.M. Breeden NJZ
Burnett NJZ
John May
Franklin
Caldwell NJZ
A. Watkins
Ruth Shover NJZ
W.D. Kenner
Hammond
Henry
Jim Torr
J.H. Lanas
Moser
Earl Morgan NJZ
H.H. Oakley NJZ
Hopkins NJZ
J.E. Austin NJZ
A.D. Carter
R.T. James
Tom Courtney
Knight NJZ
R.V. Coile NJZ
B. Moore NJZ
F.&E. Kinder NJZ
Nolen
H. Pollard
Torr
Stump
Fraker Acc.
Courtney NJZ
Mrs. Newman
Rickard
Eller
Welch NJZ
C. Smith NJZ
T.H. Knowling
W.M. Hopkins
G. Eller
County
Butcher
C. Williams
McElveen NJZ
T-45
R.E. Smith NJZ
Hazelwood
Lee Smith NJZ
Cox
Knight NJZ
Hunter
Smith
Wilson
Carter NJZ
H. Donaldson
Pope
W.B. Watkins NJZ
T-43
Rugel NJZ
T-48
J.S. Walker NJZ
Green NJZ
Ingram
Fain Smith
Mrs. O. Smith NJZ
F. Haag NJZ
Mrs. O. Breeden NJZ
G. Chambers
Hazelwood
Hatley
Tallent
Franklin
Housley NJZ
T-41
T-42
C. Donaldson
R. Williams
Kyle
Fraker
T-37
H. Miller NJZ
T-36
T-46
R. Smith NJZ
Lloyd Burnett
Carmichael NJZ
Knowling
Collett
R. Fisher
R.B. Smith NJZ
Hartis
Lauderbach
T-39
Swann Heirs
Robeson
R. Massengill
W. Massengill NJZ
Massengill
Chandler
Jess Cline NJZ
T-44
R. Smith NJZ
Drinnion
Dalton
T-40
Phillips NJZ
Lewis Murph NJZ
John Couch
A.H. Hazelwood
T-47
J. Hollifield
H.L. May
Mattox
S. Hazelwood
Alice Walker
Floyd Quarles
R.J. May

POSTED TO DATE	THE NEW JERSEY ZINC COMPANY JEFFERSON CITY TENNESSEE	DRAWN NJZ DATE 6/56 TRACED JWP SCALE 1"=2000'	PROPERTY MAP MORRISTOWN SECTOR - TALBOTT AREA	JEFFERSON & HAMBLEN Cos., TENN FILE NO. AX - TENN - B 247a

OFFICIAL FILE COPY
D M E A
RECEIVED MAY 3 1967
DATE | INITIALS | CODE

File Copy
Surname
Griswold
Martin
Jefferson
Rottendorf

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

JUN 1 8 1956

Mr. Robert A. Lawrence
Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Bldg.
Knoxville 2, Tennessee

Re: Docket No. DMEA-4119 (Zinc)
The New Jersey Zinc Company
Talbot Area
Jefferson and Hamblen Counties,
Tennessee
Contract No. Ida-8936

Dear Mr. Lawrence:

Referring to the cited project, we are enclosing the Finance Office and Field Team copies of Amendment No. 2 to the contract. Two extra copies are also enclosed for use of the Field.

Sincerely yours,

W. S. Martin
ACTING Chairman, Operating Committee (WB)

WRGriswold/er 6/11/56
Copy to: Docket
Admr R File
Op. Committee
Base Metals
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron.

Enclosures

APPROVED:

/s/ Robert W. Geehan (WB)
Member, Bureau of Mines

Thor H. Kiilsgaard (WB)
Member, Geological Survey

R.G.G.

THE NEW JERSEY ZINC COMPANY
(ESTABLISHED 1848)
100 FRONT STREET
NEW YORK 38, N.Y.

OFFICE OF THE
VICE PRESIDENT

HORSE HEAD PRODUCTS ®

RECEIVED
JUN - 8 1956

June 6, 1956

Mr. C. O. Mittendorf
Administrator
Defense Minerals Exploration Administration
United States Department of the Interior
Washington 25, D. C.

DOCKET #DMEA-4119 (Zinc)
The New Jersey Zinc Company
Talbot Area
Jefferson and Hamblen Counties
Tennessee

Dear Sir:

Returned herewith are the original and four copies of Amendment #2 to Contract #IDM-E936, duly signed. We have retained the Operator's Copy.

Very truly yours,

S. S. Goodwin
Vice President

WTP/alb
enc.

File Copy
Surname

Surname
Talbot
Kiilsgaard
Geehan
Martin
Hz Johnson

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

500

JUN - 4 1956

Mr. S. S. Goodwin, Vice President
and Manager of Mines
The New Jersey Zinc Company
160 Front Street
New York 38, New York

Re: Docket No. DMEA-4119 (Zinc)
The New Jersey Zinc Company
Talbot Area
Jefferson and Hamblen Counties,
Tennessee
Contract No. Idm-X936

Dear Mr. Goodwin:

Referring to the April 17 letter of Mr. John B. Canada, regarding the cited project, we are enclosing the original and five copies of Amendment No. 2 to the contract, signed by the Government. The amendment provides, as requested, that significantly mineralized core will be assayed for zinc only.

If the amendment meets with your approval, please sign all copies, retain the "Operator's Copy" for your files, and return the rest to us. Otherwise, all copies should be returned to us, with your comments.

Sincerely yours,

SIGN

Administrator

WRGriswold/er 6/1/56
Copy to: Docket
Adm R File
Op. Committee
Base Metals
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Region V (2)
Chron.

Enclosures

File Copy
Surname

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

May 25, 1956

Memorandum

To: Associate Solicitor, Division of Mineral Resources

From: Chief, Base Metals Division

Subject: Preparation of Amendment No. 2 for The New Jersey Zinc Company, Talbot Area, Jefferson and Hamblen Counties, Tennessee, Contract No. Idm-R936, Docket No. DMRA-4119

Will you kindly prepare an Amendment No. 2 to the cited contract which will make the following changes:

The fourth paragraph of "Exhibit A" of the contract contains the statement:

"All mineralized core will be properly sampled and assayed for zinc and iron."

This should be amended to read:

"All significantly mineralized core will be properly sampled and assayed for zinc."

Also, on page 2 of "Exhibit A", under the heading of fixed unit costs, we have an item:

300 samples to be assayed at $1.50 per sample.

This should be amended to read:

450 samples to be assayed at $1.00 per sample.

W. E. Griswold

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 4[illegible] POST OFFICE BLDG.
KNOXVILLE 2, TENN.

May 16, 1956

Memorandum

To: Operating Committee, DMEA - Washington

From: Acting Executive Officer, DMEA - Region V - Knoxville

Subject: Amendment No. 1, on DMEA-4119, Idm-E936 (Zinc) The New Jersey Zinc Company, Talbot Area, Jefferson and Hamblen Counties, Tenn.

Transmitted are three signed copies of the subject amendment for additional properties optioned in the subject area which were not included in the original contract.

V. J. Lynch

V. J. Lynch

RECEIVED
MAY 17 1956

X 10866 24M 1-54

COPY

THE NEW JERSEY ZINC COMPANY

Jefferson City, Tennessee

EXPLORATION DEPARTMENT

Jefferson City, Tennessee
May 2, 1956

Mr. R. A. Laurence, Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville, Tennessee

Subject: DOCKET NO. DMEA-4119 (ZINC)
THE NEW JERSEY ZINC COMPANY
TALBOTT AREA
JEFFERSON AND HAMBLEN COUNTIES, TENNESSEE

Dear Mr. Laurence:

We submit, herewith, information pertaining to the subject contract covering the following:

A. Clarification of certain points in the original contract.

B. Additional properties optioned in the subject area to be amended to the original contract.

Concerning the clarification of certain points raised by Mr. C. O. Mittendorf in his letter to Mr. S. S. Goodwin dated March 30, 1956, we, herewith, submit Exhibit "A", a map (Figure 1) and copies of pertinent option contracts.

1. Mr. Roy O. Breeden whose property was not shown on Figure 2 of the original contract is shown (colored red) on the accompanying map, Figure 1.

2. The Jess Cline property which was shown on Figure 2 of the original contract but was neither listed in Annex I, nor a copy of option contract included, is herewith listed and copies of the option contract included in Exhibit "A".

   J. T. Cline, Mayme Cline, Jack F. Cline, Agnes Cline - - 312 Acres

3. Copies of the John Carter option contract which was omitted from the original contract is, herewith, included in Exhibit "A".

4. The Helen Q. James property which was not listed in Annex I nor shown on the map (Figure 2) of the original contract is here listed and shown (colored red) on Figure 1.

   Helen Quarles James, Sam H. James - 102 Acres

Concerning part B, we, herewith, submit a list of properties and copies of the option contracts (Exhibit "B").

The locations of these properties are shown, colored brown, on Figure 1.

Name of Property Owner	Acreage
Lloyd Welch and Edna Welch	30
J. S. Walker and Myrtle Pearl Walker	45
Robert E. Smith and Willie Mae Smith	43
Charlie J. P. Smith and Lizzie Smith	100
Henry Hopkins and Viola S. Hopkins	52.6
J. A. Eller and Nell Eller	13.5
Nellie Carmichael	40.5
Raymond B. Smith and Farrie Smith	120
Olive Smith	30

Yours very truly,

THE NEW JERSEY ZINC COMPANY

Johnson Crawford

Superintendent for Tennessee

J.W.P.

J.W.Phillips/jf

In triplicate

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

RECEIVED
APR 23 1956

April 24, 1956

Memorandum

To: Operating Committee, DMEA, Washington, D. C.

From: Executive Officer, DMEA Field Team, Region V

Subject: DMEA-4119, Idm-E936 (Zinc)
The New Jersey Zinc Company
Talbot area, Jefferson and Hamblen Counties, Tennessee

Work on this project began on April 19.

Two drills are now operating on the Hubert Miller property. A third drill is expected to start this week. E. J. Longyear Company is the drilling contractor.

Robert A. Laurence
Robert A. Laurence

File Copy
Surname
Griswold
Selfridge
Johnson
Martenstyn

500

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

APR 19 1956

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Bldg.
Knoxville 2, Tennessee

Re: Docket No. DMEA-4119 (Zinc)
The New Jersey Zinc Company
Talbot Area
Jefferson and Hamblen Counties,
Tennessee
Contract No. Idm-2936

Dear Mr. Laurence:

We are enclosing the Finance Office and Field Team copies of the signed contract. The complete contract consists of Form MF-200, Annex I (two pages), Exhibit A (two pages), and two maps.

Please note our letter of March 30 to the Operator, citing certain points which require clarification. We note in your memorandum of April 11 that the Jess Cline tract is being picked up. Undoubtedly, there will be many other tracts to be incorporated into the contract from time to time.

There is one point which we have mentioned before, but is nevertheless worth repeating; the Government cannot participate in the cost of drilling on lands which have not been added to the contract prior to such work.

We are enclosing one extra copy of Annex I, Exhibit A, and the maps for use of the Field Team.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (GCS)

Enclosures

WRGriswold/er 4/16/56
Copy to: Docket
Admr R File
Op. Committee
Base Metals
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron.

APPROVED:

/s/ Robert W. Geehan (GCS)
Member, Bureau of Mines

Thor H. Kiilsgaard (GCS)
Member, Geological Survey

R.C.L.

THE NEW JERSEY ZINC COMPANY
(ESTABLISHED 1848)
CABLE ADDRESS
"JERSEZINC"
100 FRONT STREET
NEW YORK 38, N.Y.

HORSE HEAD PRODUCTS ®

RECEIVED
APR 18 1956

April 17, 1956

Dmea - 4119

Mr. W. R. Griswold
United States Dept. of the Interior
Defense Minerals Exploration Administration
Washington 25, D. C.

DMEA APPLICATIONS
THE NEW JERSEY ZINC COMPANY

Re: Docket DMEA - 4153 Tenn.
" " - 4177 Tenn.
" " - 4178 Virginia
" " - 4173 "
" " - 4174 "

Dear Sir:

In our DMEA contracts, No. 4119, Talbott Area, Tenn., and No. 4126, Strawberry Plains Area, Tenn. paragraph 4 states "All mineralized core will be properly sampled and assayed for zinc and iron".

We do not normally make a practice of assaying for iron, and suggest, therefore, that the requirements for iron assays be deleted from the above listed Docket Applications pending. This matter was discussed with Mr. Robt. A. Laurence, and he indicated that the Government does not care whether iron is determined or not. Also we do not want to be obligated to assay all core, but only that core which is significantly mineralized.

Wednesday, 11 April, we mailed in to Mr. Mittendorf the completed DMEA 4119 and 4126 contracts.

Very truly yours,

John B. Canada

John B. Canada
for Manager of Exploration

JBC/alb

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM ASH POST OFFICE BLDG.
KNOXVILLE 2, TENN.

RECEIVED
APR 13 1956

April 11, 1956

Memorandum

To: Operating Committee, DMEA - Washington

From: Executive Officer, DMEA - Region V - Knoxville, Tenn.

Subject: DMEA-4119 (zinc) The New Jersey Zinc Co., New York, N.Y.
Morristown Sector, Talbot Area, Jefferson Counties, Tenn.

I have just been advised, in a telephone call from Mr. Hoagland, New Jersey Zinc Company geologist at Jefferson City, Tennessee that the Company has signed the subject exploration contract, and that drilling will probably begin next Monday.

One drill is available, and will be moved onto the Miller Tract. Additional drill rigs will be available within the next 30 to 60 days. E. J. Longyear Company will be the drilling contractor.

An amendment will be prepared in the near future to include the Jess Cline tract in the contract. The Company has negotiated a 2-year extension of this option, to June 1, 1958.

Robert A. Laurence

Robert A. Laurence

RECEIVED
APR 13 1956

THE NEW JERSEY ZINC COMPANY

(ESTABLISHED 1848)

HORSE HEAD PRODUCTS ®

100 FRONT STREET

NEW YORK 38, N.Y.

OFFICE OF THE
VICE PRESIDENT

April 10, 1956

Mr. C. O. Mittendorf, Administrator
United States Department of the Interior
Defense Minerals Exploration Administration
Washington 25, D. C.

Dear Sir:

Re: Docket No. DMEA-4119 (Zinc)
The New Jersey Zinc Company
Talbot Area
Jefferson and Hamblen Counties,
Tennessee

Returned herewith are the original and four copies, all signed, of the subject contract. We have retained the "Operator's Copy".

We have noted the several points in your March 30, 1956 communication on which you require clarification, and concur that the best arrangement will be to have Mr. Robert A. Laurence, Executive Office, Region V, contact our Tennessee office regarding the amendment making the necessary adjustments.

Very truly yours,

S. S. Goodwin
Vice President

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

File Copy
Surname

1958 WRGriswold/er Rm. 4444, Ext. 3669

Base Metals Division, DMEA

14X4401(01) Revolving Fund, Defense Production Act, Interior (allocated Working Fund to Office of Secy.)

TELETYPE
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
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XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Date:

To: Mr. Robert A. Lawrence, Executive Officer, DMEA Field Team, Region V, Knoxville, Tennessee

Reurlet March 27, Dockets DMEA 4153 and 4177, The New Jersey Zinc Company. All applications of this company except DMEA 4119 and 4126 must include three bids for the drilling work. This is our established practice and has been explained to Mr. Gallahan at the New York office of this company. He has stated that the necessary bids will be submitted.

George G. Selfridge
Chairman, Operating Committee

WRG/er

Copy to: Docket (4)
Admr R File
Op. Committee
Base Metals (4)
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Sharon.
Confirmation Copy

File Copy
Surname
Fiswold
Chambers
Williams
Kuhn
Selfridge
Fjornes

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

MAR 30 1956

Mr. S. S. Goodwin, Vice President
and Manager of Mines
The New Jersey Zinc Company
160 Front Street
New York 38, New York

Re: Docket No. DMEA-4119 (Zinc)
The New Jersey Zinc Company
Talbot Area
Jefferson and Hamblen Counties,
Tennessee

Dear Mr. Goodwin:

As requested in your application of January 6, 1956, we are enclosing the original and five copies of a contract, signed by the Government, for the cited exploration project. The complete contract includes the contract form, Annex I, Exhibit "A", and two maps.

If the contract meets with your approval please sign all copies, retain the "Operator's Copy" for your files, and transmit the others to this office. In case it should not meet with your approval, please return all copies to us with your comments.

There are certain points which require clarification, as follows:

1. Annex I lists Roy O. Breeden and his wife, and an option contract by them appears in the file, but the map does not show the area owned by them.

2. The map shows an area owned by one Jess Cline as covered by the contract, but Annex I does not list such land, nor is an option contract by him included in the file.

3. The map and Annex I include the land of one John Carter, but the file does not contain a copy of his option contract.

4. There is present in the file a copy of an option contract by one Helen Quarles James and her husband, but their land is not listed in Annex I nor shown on the map.

These discrepancies need not delay the execution of the contract. Upon receipt of the signed contract copies from you, we shall advise Mr. Robert A. Lawrence, Executive Officer, Region V, to contact your Tennessee office regarding an amendment making the necessary adjustments.

We must point out that much of the preliminary drilling shown for "Area B" on the maps falls within ground which is not included in the contract. Such ground is classified as "area in which R/I option negotiations are in progress". However, the Government cannot participate in the cost of such drilling until option negotiations have been completed and the lands incorporated into the contract by amendment.

Sincerely yours,

C. O. Mittenhof (for)

Administrator

Enclosures

WRGriswold/er 3/12/56
Copy to: Docket
Admr R File
Op. Committee
Base Metal s
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Region V (2)
Chron.

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

March 28, 1956

Memorandum

To: Chairman, Operating Committee

From: Chief, Base Metals Division

Subject: Docket No. DMEA-4119, The New Jersey Zinc Company, Talbot Area, Jefferson and Hamblen Counties, Tennessee, Zinc.

and

Docket No. DMEA-4126, The New Jersey Zinc Company, Strawberry Plains Area, Jefferson, Sevier and Knox Counties, Tennessee, Zinc.

The cited contracts have been rewritten, the significant changes being:

Short form to long form contract.

Contiguous lands, if picked up within 10 years, must go into contract, instead of 30 years.

Drilling reimbursements broken into classifications, instead of having a lumped average.

Overall cost changes.

DMEA-4119 - (60,000 feet of drilling, with extra water expense) reduced from $2.67 to $2.60 per foot.

DMEA-4126 - (90,000 feet of drilling, holes a little deeper but no water expense) reduced from $2.58 to $2.53 per foot.

In both contracts, the descriptive features of Exhibit "A" have been made more detailed.

W. R. Griswold

W. R. Griswold

Also a little change of wording in Article 13

File Copy

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

500

March 26, 1956

Memorandum

To: Associate Solicitor, Mineral Resources Division

From: Chief, Base Metals Division

Subject: Preparation of Contract for Docket No. DMEA-4119, The New Jersey Zinc Company, Talbot Area, Jefferson and Hamblen Counties, Tennessee, Zinc.

It has been decided that we should revise the cited proposed contract. Changes are as follows:

1. New contract form, as attached.

2. Rewrite of Exhibit "A", as attached.

3. Annex I remains the same, except that, under "Special Agreement Concerning Land" in the second line we should say ten years instead of thirty years.

W. R. Grimwold

W. R. Grimwold

WRG/er

Copy to: Docket
Base Metals
Chron.

Received

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D.C.~~
Room 13, Post Office Bldg.
Knoxville 2, Tenn.

C
O
P
Y

March 16, 1956

Docket

Memorandum

To: Mr. C. O. Mittendorf, Administrator, DMEA - Washington

From: D.M.E.A. Field Team, Region V - Knoxville, Tennessee

Subject: Time for Repayment on Tennessee and Virginia Zinc Contracts.

As you know, we now have, in various stages of processing, 8 applications, from two different companies for drilling in Tennessee and Virginia for replacement-type zinc sulfide ore bodies. Total cost of these proposals is $1,611,677.00. In addition, we anticipate receipt of two more applications, for areas in Tennessee. A map being mailed under separate cover shows the locations of all these proposals, as well as mines now in operation and mills in operation or under construction, and of the current project, DMEA-2546.

Although we haven't any ore reserve figures to prove it, it is our opinion that none of the ore in any of these exploration areas is likely to be mined within the next ten years. The contract now in force with American Zinc Company of Tennessee (Idm-E676) contains a clause providing 30 years for repayment. It is our understanding that this term was based on the Operator's statement that they have now at least 30 years' reserves at their present milling capacity.

We recommended 30 years for the first two New Jersey Zinc projects because they are in the same general area as the West New Market project of American Zinc and one almost adjoins it. We do not know what New Jersey Zinc's reserves at Jefferson City are, but they are obviously quite substantial. American Zinc's new application is in this same area and should be treated the same as the others.

The second pair of New Jersey Zinc applications (DMEA-4153 and 4177) are in an outlying district. Although that Company is now developing a mine and building a mill at Flat Gap, in Hancock County, Tennessee the distance of these new applications from Flat Gap and the absence of railroads makes it seem quite probable that no ore discovered at Independence

or Edison is likely to be developed until enough is discovered to justify a separate mill in that area.

In Virginia, New Jersey Zinc's Beaver Creek application (DMRA-4172) is in an entirely new area. It is only four miles from a railroad, but is 100 miles by rail from the Company's Austinville mill. The other two Virginia areas (DMRA-4173 and 4174) proposed by this Company are 6 and 10 miles respectively from the railroad, and 18 and 25 miles from Austinville by road and 65 and 80 miles by rail.

It is our opinion that all these Tennessee applications, and probably the Virginia ones (if approved) as well, should be subject to a longer period of repayment than 10 years. We have no way of knowing what a correct period should be, in order to be consistent with contracts in other regions. Sales of crushed and ground limestone as by-products of zinc ore milling should also be subject to royalty repayment.

Robert A. Laurence
Executive Officer, DMRA
Field Team, Region V

V. J. Lynch, Member
Bureau of Mines

RAL/zm
cc:
Cop. Com.-2
Griswold
Kiilsgaard,
Lynch
Files

File Copy
Surname

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

500

March 16, 1956

Memorandum

To: Associate Solicitor, Division of Mineral Resources

From: Chief, Base Metals Division

Subject: Docket No. DMEA-4119, The New Jersey Zinc Company, Talbot Area, Jefferson and Hamblen Counties, Tennessee, Zinc

and

Docket No. DMEA-4126, The New Jersey Zinc Company, Strawberry Plains Area, Jefferson, Sevier and Knox Counties, Tennessee, Zinc.

It is believed that certain changes are desirable before the cited contract is submitted to the Applicant for signature.

These changes are:

Rewrite Exhibit "A" as per pencilled changes.

Also, since the Applicant may sell its waste products from the milling of the zinc ores, we desire to secure royalty on any such sales. Therefore, we should use some such phrase as follows:

"Minerals", as that word is used in Article 7(b), includes limestone and dolomite products produced in processing ore."

Likewise, a possibility exists that this company might see fit to give its mine operating with extra-favorable smelter schedules. In this manner they would increase the mine gross income base for depletion purposes with reference to income tax exemptions. Therefore, to protect the Government in such a case, we should add to the typed notation at the bottom of Article 11, something as follows:

"However, if the Gross income from mining operations for percentage depletion purposes is income for determination, should show a higher rate of return on ore and concentrate mine, such return would be used as basis for calculating royalty payable to the Government."

W. R. Griswold
W. R. Griswold

WRG/er
Copy to: Docket (2)
Base Metals (2)
Chron.

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

March 13, 1956

Memorandum

To: Mr. George C. Selfridge, Chairman
Operating Committee

From: Jay L. Chambers, Chief
Contract Administration and Audit Division

Subject: Docket Nos. DMEA-4119 and DMEA-4126, The New Jersey Zinc Co.

I have surnamed project DMEA-4119, New Jersey Zinc Company contract in the amount of $160,950.00, however, I would like to call your attention to the following facts.

This project is largely in Jefferson County, Tennessee. It calls for 60,000 feet of diamond drilling at $2.67 a foot and 500 samples at $1.50 a sample. There is no differentiation between core and noncore drilling.

I have also surnamed project DMEA-4126, New Jersey Zinc Company contract in the amount of $232,950.00. The contract calls for 90,000 feet of diamond drilling at $2.58 a foot and 500 samples at $1.50 a sample. A good part of this work is also in Jefferson County, Tennessee. There is no differentiation made between core and noncore drilling.

These two contracts are on a repay period of 30 years, but there is no justification for the files.

In connection, your attention is called to Docket No. DMEA-2546 with the American Zinc Company of Tennessee who also is drilling in Jefferson County, Tennessee. This contract calls for 450,000 feet of core and noncore drilling at unit costs of $2.26 a foot for core and $1.26 for noncore. It appears to me, in the first place, that there should be a possible differentiation between core and noncore drilling in the first two contracts because the company may use noncore drilling for a large amount of the footage. Also, there were no bids required on the first two contracts to establish a footage cost.

It might be worthwhile to compare the stipulations in the contract with American Zinc Company of Tennessee, Docket No. DMEA-2546, with the stipulations in the two contracts with the New Jersey Zinc Company, Docket Nos. DMEA-4119 and DMEA-4126.

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

500

3/12/56

Memorandum for the Files

From: Chief, Base Metals Division

Subject: Docket No. DMEA-4119, The New Jersey Zinc Company, Talbot Area, Jefferson and Hamblen Counties, Tennessee, Zinc.

It will be noted that the allotted cost of diamond drilling under the contract for this project is $2.67 per foot. This price was arrived at without the submittal of competitive bids and represents some reduction of the Applicant's proposed cost figures.

The figure of $2.67 for all costs except assaying is closely in line with those presently being obtained by American Zinc Company of Tennessee under Docket No. DMEA-2546. In the latter case we have nine drills working (three shift basis) and we may assume that figures on this high-footage, highly efficient operation are just about bedrock.

We are advised by Mr. Laurence that the American Zinc Company of Tennessee costs are presently running about $2.51 per foot.

W. R. Griswold

W. R. Griswold

WRG/er

Copy to: Docket
Base Metals
Chron.

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

MAR - 9 1956

Memorandum

To: The Administrator, DMEA
Attention: Chief, Base Metals Division

From: Associate Solicitor, Division of Mineral Resources

Subject: The New Jersey Zinc Company, Docket No. DMEA-4119 (Zinc)

In accordance with your request, there is attached a draft of proposed contract. Your attention is invited to the following points:

1. Annex I lists Roy O. Breeden and his wife, and an option contract by them appears in the file, but the map does not show the area owned by them.

2. The map shows an area owned by one Jess Cline as covered by the contract, but Annex I does not list such land, nor is an option contract by him included in the file.

3. The map and Annex I include the land of one John Carter, but the file does not contain a copy of his option contract.

4. There is present in the file a copy of an option contract by one Helen Quarles James and her husband, but her land is not listed in Annex I nor shown on the map.

It is suggested that these discrepancies be resolved.

R. P. Dwyer

Attachments

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 1, POST OFFICE BLDG.
KNOXVILLE 2, TENN.

WASHINGTON 25, D. C.

RECEIVED
MAR 12 1956

March 8, 1956

Mr. Johnson Crawford
New Jersey Zinc Company
Jefferson City, Tennessee

Re: DMEA-4119 - Zinc
Morristown Sector,
Talbot Area, Jefferson and
Hamblen Counties, Tennessee

Dear Mr. Crawford:

We have received the four copies of your option contract covering the J. T. Cline property.

We will prepare an amendment adding this property to the contract, and will submit it to the Company for signature at the same time we submit the original contract. Work under the contract may therefore begin as soon as the Company has approved and executed both the contract and the amendment. The amendment will bear the same effective date as the contract.

Sincerely yours,

Robert A. Laurence
Executive Officer, DMEA
Region V

RAL/am.
sc:
Cpr. Com.
Lynch
Files

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Surname

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

February 20, 1956

Memorandum

To: Associate Solicitor, Division of Mineral Resources

From: Chief, Base Metals Division

Subject: Preparation of Contract for Docket No. DMEA-4119, The New Jersey Zinc Company, Morristown Sector, Talbot Area, Jefferson and Hamblen Counties, Tennessee

Will you kindly prepare a short form contract along the lines outlined in the attached rough draft.

Maps to go with contract are attached.

W. R. Griswold

W. R. Griswold

WRG/er

Copy to: Docket
Chron.
Base Metals

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

February 16, 1956

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: W. P. Williams, U. S. Geological Survey

Subject: Review of Field Team Report, DMEA 4119 (zinc), The New Jersey Zinc Company, Morristown Sector, Talbot Area, Jefferson and Hamblen Counties, Tennessee.

After conference with field personnel of the applicant company, the Field Team recommends approval of a short form DMEA contract which would provide for 60,000 feet of drilling to be completed in 15 months, at a unit cost of $2.783 per foot.

Neither the applicant nor the Field Team have submitted maps showing the location of the proposed holes. The Field Team states that "precise sites . . . of initial drilling will depend largely on access." Such procedure would give the Operator a free hand in choosing hole locations. Such is probably permissible in this case, however, as the applicant is a large, successful, responsible mining company.

Inasmuch as the New Jersey Zinc Company is now entering into the DMEA program for the first time on a large scale, I recommend that the Field Team deliver personally to the Operator any forthcoming DMEA contracts so that complete mutual understanding is achieved at the outset concerning contract provisions, monthly reports, interim inspections, and other considerations.

The subject property has many favorable features with regard to possible new ore deposits. I agree with the Field Team that DMEA participation in exploration on the property is warranted.

WPWilliams

W. P. Williams

RECEIVED
FEB 17 1956

Memo:

To: W.R. Griswold, D-M-E-A—

From: W.P. Williams, U.S.G—S—

Subject: Review of Field Team Report, DMEA 4119 (zinc) The New Jersey Zinc Company, Morristown sector, Talbot Area, Jefferson and Hamblen Counties, Tennessee.

(1) After conference with field personnel of the applicant company the Field Team recommends approval of a short form DMEA Contract which would provide for 60,000 feet of drilling, to be completed in 15 months, at a unit cost of $2.783 per foot.

(4) The subject property has many favorable features with regard to possible new ore deposits. I agree with the Field Team that DMEA participation in exploration on the property is warranted.

(3) Inasmuch as the New Jersey Zinc Company is now entering into the DMEA program for the first time on a large scale I recommend that the Field

Team deliver personally to the operator any forthcoming DMEA contracts so that complete mutual understanding is achieved at the outset concerning contract provisions, monthly reports, interim inspections, and other considerations.

(2) Neither the applicant nor the Field Team have submitted maps showing the location of the proposed holes. The Field Team states that "precise sites --- of initial drilling will depend largely on access." Such procedure would give the Operator a free hand in choosing hole locations. Such is probably permissible in this case, however, as the applicant is a large, successful, responsible, mining company.

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

February 15, 1956

Memorandum for the Files

From: Chief, Base Metals Division

Subject: Telephone conversation about the following Dockets.

Docket No. DMEA-4119 (Zinc), The New Jersey Zinc Company, Morristown Sector, Talbot Area, Jefferson and Hamblen Counties, Tennessee

Docket No. DMEA-4126 (Zinc), The New Jersey Zinc Company, Mascot Sector, Strawberry Plains Area, Jefferson, Sevier and Knox Counties, Tennessee

The undersigned had a phone conversation with Mr. J. B. Canada, engineer located at the New York office of the cited company.

The following arrangements were made:

The Applicant, under any contract which might be given, would be allowed to drop options and delete land from a contract which had no known mineral value.

Royalties due the Government under a certification would be on a base of concentrate sold to its smelter by an independent supplier, using a schedule most favorable to any supplier.

Royalty repayment period would be 30 years.

W. R. Griswold

WRG/er 2/16/56
Copy to: Docket (2)
Base Metals (2)
Chron.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

RECEIVED
FEB 15 1956

February 14, 1956

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: J. W. Pennington, Branch of Base Metals

Subject: Review of Field Team Examination Report, Docket No. DMEA 4119 (zinc) New Jersey Zinc Co., New York, Morristown Sector, Talbot Area, Jefferson and Hamblen Counties, Tennessee

The Field Examination Report of this property by Robert A. Laurence, Geological Survey, and Victor J. Lynch, Bureau of Mines, has been reviewed.

The exploration proposed for this property consists of 60,000 feet of drilling, approximately 50 holes, to be done in 15 months. The cost of drilling is estimated at $2.783 per foot. The holes will be at 1,320 foot intervals, 1,320 feet apart and approximately perpendicular to the strike of the ore zone. The results of the drilling will be plotted on a 1" = 660 foot scale map.

This area offers an excellent target for exploration work and is favorably situated for supply of labor, materials, and other necessary items.

The details of the DMEA contracts are not familiar enough to me to permit any comments. However, I do agree with the recommendations of the Field Team that the application should be approved.

J. W. Pennington

J. W. Pennington

Copy to: Division of Minerals
Branch of Base Metals (2)
Thor Kiilsgaard, U.S.G.S.
R. W. Geehan
F i l e s

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

RECEIVED
FEB 13 1956

February 10, 1956

Memorandum

To: Operating Committee, DMEA, Washington, D. C.

From: Field Team, DMEA, Region V, Knoxville, Tennessee

Subject: DMEA-4119 (Zinc), The New Jersey Zinc Company
Morristown Sector, Talbot Area
Jefferson and Hamblen Counties, Tennessee

Enclosed are six copies of a map showing approximate locations of initial holes. Areas "A" and "B" on this map are the same areas as those shown on figure 3 of the application. Holes marked "a" are planned for the first round of drilling, with three drill rigs in use. Holes marked "b" are proposed additional holes. All locations are approximate and subject to revision as the work progresses.

Robert A. Laurence
Robert A. Laurence
Executive Officer
DMEA Field Team, Region V

A. L. Peyton
A. L. Peyton for V. J. Lynch
U. S. Bureau of Mines

Enclosures 6

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
~~WASHINGTON 25, D. C.~~
ROOM 13 POST OFFICE BLDG
KNOXVILLE 2, TENN.

February 10, 1956

Memorandum

To: Operating Committee, DMEA, Washington, D. C.

From: Field Team, DMEA, Regiom V, Knoxville, Tennessee

Subject: DMEA-4119 and DMEA-4126 (Zinc) Tennessee
The New Jersey Zinc Company

In our field examination report on this contract, we neglected to discuss the item of non-coring drilling.

No non-coring drilling (except in overburden) is planned in connection with this project. Experience in the district has shown that in most areas, non-coring drilling is about as expensive as coring, and it is standard practice in this district to core from the top of rock. Drilling on this contract will be with Longyear's wire-line core drill.

However, in the new application which American Zinc Company is preparing, for the area adjacent to the Strawberry Plains area on the north, where there is a considerable thickness of shale above the Knox dolomite, it is possible that there will be a considerable footage of non-coring drilling. Discussion with American Zinc Company geologists, based on their talks with Joy Manufacturing Company, suggests that the non-coring drilling will be much nearer the cost of core-drilling than the $1.26 figure used in DMEA-2546, which was apparently based on southeast Missouri data.

We recommend that no specific cost should be set in the New Jersey Zinc contracts for non-coring drilling, as there are no data on which to base such a cost. The New Jersey Zinc Company geologists stated specifically that no non-coring drilling is planned, and that they have considered this item thoroughly, in connection with earlier drilling projects in East Tennessee, and rejected it as unsuitable.

Robert A. Laurence
Robert A. Laurence
Executive Officer
DMEA Field Team, Region V

A. L. Peyton
A. L. Peyton for V. J. Lynch
U. S. Bureau of Mines

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

February 7, 1956

Memorandum for the Files

From: Chief, Base Metals Division

Subject: Docket No. DMEA-4119, New Jersey Zinc Company, Talbot Area, Jefferson and Hamblen Counties, Tennessee

Docket No. DMEA-4126, New Jersey Zinc Company, Strawberry Plains Area, Jefferson, Sevier and Knox Counties, Tennessee

On February 7, a phone conversation was had with Mr. Laurence, Region V, relative to details of the cited applications. We advised him that we would require maps that indicated at least the initial drilling outlines. We also advised him that, if unit cost short form contracts were desired, we would have to eliminate the "Contingency" items from the cost estimates.

Mr. Laurence requested that we check this matter with the New York Office of the Applicant. This was done and after consultation with Mr. J. B. Canada, engineer for the company, it was decided that the contracts would be set up on a unit cost base, eliminating the "Contingency" items.

W. R. Griswold

W. R. Griswold

WRG/er 2/8/56

Copy to: Docket (2)
Base Metals (2)
Chron.

RECEIVED
FEB - 3 1956

Griswold

ON SITE REPORT

FIELD EXAMINATION REPORT

REPORT ON: DMEA-4126, NEW JERSEY ZINC CO.,

has been combined with the Report on DMEA-4119.

Reviewed by
DMEA OPERATING COMMITTEE
2/8/56
(date)

RECEIVED
FEB - 3 1956

February 1, 1956

Memorandum

To: Operating Committee - DMEA - Washington

From: DMEA Field Team, Region V - Knoxville, Tennessee

Subject: DMEA-4119 (Zinc) New Jersey Zinc Company, New York, N.Y.
Morristown Sector, Talbot Area, Jefferson and Hamblen Counties, Tennessee

DMEA-4126 (Zinc), New Jersey Zinc Company, New York, N.Y.
Mascot Sector, Strawberry Plains Area, Jefferson, Sevier and Knox Counties, Tennessee

Enclosed are four copies of a Field Team Report which includes both the subject applications. We think both these areas are well worth exploring and we strongly recommend approval of both contracts, as outlined in the report.

The recommendations outlined in our report are acceptable to the applicant. In order to save time in preparing a contract, we suggest that any changes should be discussed directly with Mr. S. S. Goodwin, Vice-President of New Jersey Zinc Company, instead of re-referring them back to us to discuss with the Applicant's field staff., before the contract is actually drafted and submitted for our review. Items which should be presented for Mr. Goodwin's consideration are:

1. The royalty repayment period, if it is to be more than ten years.

2. Any provision for contingencies other than the 4% figure provided in the report.

3. Short-form vs long-form contract. Because of the saving in paper work, the Company (and the Field Team) would prefer the short form contract.

4. Any other items which would make appreciable changes in the unit costs as presented in our report.

Reviewed by
DMEA OPERATING COMMITTEE
2-8-56
(date)

It may be of interest to note that this company is now preparing to submit two more applications for drilling in Hawkins County, Tennessee and three in Virginia. We are familiar with the two Tennessee areas and consider them good possibilities, but we do not yet know just where the Virginia areas are.

Robert A. Laurence
Executive Officer, DMEA
Field Team, Region V

V. J. Lynch, Member
Bureau of Mines

RAL/sm
cc:
Opr. Gen.-3
Lynch
Beck
Files

RECEIVED
FEB - 3 1956

UNITED STATES

DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

FIELD EXAMINATION REPORT
BY
FIELD TEAM, REGION V

On

DMEA-4119 (Zinc) NEW JERSEY ZINC CO.
Morristown Sector, Talbot Area
Jefferson and Hamblen Counties,
Tennessee

and

DMEA-4126 (Zinc) NEW JERSEY ZINC CO.
Mascot Sector, Strawberry Plains Area
Jefferson, Sevier and Knox Counties,
Tennessee

By

Robert A. Laurence, Geologist
U. S. Geological Survey

and

Victor J. Lynch, Mining Engineer
U. S. Bureau of Mines

January 30, 1956

Reviewed by
DMEA OPERATING COMMITTEE
2-8-56
(date)

FIELD EXAMINATION REPORT

RECEIVED
FEB - 3 1956

DMEA-4119 (Zinc) and DMEA-4126 (Zinc)

The New Jersey Zinc Company, New York, N. Y.

Morristown Sector, Talbot Area,
Jefferson and Hamblen Counties, Tenn.
and
Mascot Sector, Strawberry Plains Area,
Jefferson, Sevier and Knox Counties, Tenn.

The writers spent one-half day in conference with Mr. Johnson Crawford, Superintendent of Tennessee operations and Mr. Al Hoagland, Geologist, New Jersey Zinc Company, on January 30, 1956.

Approval of both applications is recommended. They should be separate contracts.

The areas discussed in this report are adequately described in the applications. Geologic data are based on published maps of the Federal and State Geological Surveys, with modifications by Company Geologists. We did not visit the project sites during this review, as we are quite familiar with both areas and have long considered them as logical areas for probable extensions of the Mascot-Jefferson City zinc district.

Few mining districts are better situated as to accessibility, availability of supplies, labor, etc. The substantial discoveries of ore in this district by New Jersey Zinc Company, American Zinc Company, and U. S. Steel Corporation since 1946, are eloquent testimony as to the probability of additional discoveries.

The applicant originally planned each of these as 2-year projects. However, they now propose to begin with 3 drills, 12 shifts each per week at the Morristown area, and complete the 60,000 feet of

drilling (approximately 50 holes) in 15 months. They would simultaneously begin at Strawberry Plains with 4 drills, 12 shifts each per week and complete 90,000 feet of drilling there (also approximately 50 holes) in 20 months.

We do not consider permanent storage of core to be a proper function of DMEA, and therefore suggest elimination of that item from both contracts. The Company men say they will assume this cost, as it is their policy to preserve all cores. All core which is to be assayed is split longitudinally, one half being retained in the core box, and no sample exceeds 5 feet of core length. Ore is considered to be "50 units of zinc," i. e. 10 feet of 5%, 12 1/2 feet of 4%, etc. In general, 4% is the lower limit, but this is not a firm cut-off.

The Company has included an item of approximately 4% of all costs for contingencies. This is chiefly to provide for a possible increase in the contracter's charge for drilling in the event of a general increase in labor rates or other costs, as provided in the Company's contracts with E. J. Longyear and Company.

Following our conference, we have agreed to submit the following recommended costs, and the Company geologists are submitting the same figures to their New York office:

Item	DMEA-4119 (Talbot)	DMEA-4126 (Strawberry Plains)
Time of project	15 Mos.	20 Mos.
Total Footage	60,000 ft.	90,000 ft.
Contract drilling	$141,000	$207,000
Geologist- full time	7,500	10,000
Geologist, half time	3,750	5,000
Surveying, drafting, etc.	4,375	6,000
Core boxes, supplies, etc.	1,500	1,675
Transportation	560	720
Assays (500 @ $1.50)	750	750
Accounting, Secretarial	450	600
Workmens Compensation (1%)	156	210
Insurance, Payroll tax (5%)	780	1,050
Contingencies (4%)	6,179	8,995
TOTAL	$167,000	$242,000
Unit Cost, per ft.	$2.783	$2.689

The difference of 0.094 per foot can be ascribed to:

(1) 10¢ per foot water cost at Talbot, where surface water is practically non-existent. This is partly offset by an average of 4¢ per foot at Strawberry Plains due to greater average depth of holes there.

(2) Use of one more drill at Strawberry Plains is justified by the greater average depth of the holes. Also, area "A" at Talbot will be in a more advanced stage of exploration than the Strawberry Plains area, and selection of hole locations at Talbot will be dependent upon completion of current holes to a greater extent than at Strawberry Plains.

The difference between these unit costs and those in effect on Idm-E676, DMEA-2546 (American Zinc Co.) may be explained thus:

1. Idm-E676 was based on costs estimated nearly four years ago.

2. American Zinc Company is absorbing an increase in the drilling contract rate which recently became effective.

3. Different operating practice, salary rates, etc., of the two companies.

4. American Zinc underestimated the time required; the recent 6-month extension will result in their paying 100% of the geologists' and engineers' salaries for that period. It is probable that American Zinc, at completion of the West New Market contract, will have paid 55% or more of the total cost.

We consider New Jersey Zinc Company's proposed costs to be entirely reasonable.

Records of holes already drilled in the area by New Jersey Zinc Company will be provided. These holes are shown on maps accompanying the application, with standard symbols for ore, shine, and blank holes. Records of holes drilled by other companies are not available, although locations of these holes are shown on the maps, where known.

It is our understanding, from conversation with geologists of the other companies at the time (1940 to 1943), that shallow drilling in the Talbot Area located considerable mineralized ground but mostly of sub-ore grade. It is now thought that this area lies to the west of the extension of a not-too-well-defined structural trend suggested by results of post - 1946 drilling at Jefferson City and New Market, and that the area

outlined in this application is, therefore, more favorable. This is a reasonable inference.

The matter of a large-scale map was discussed. It is this Company's policy to plot results on a 1" = 660 ft. scale map such as Figure 3 in the DMEA-4119 application. They showed us such maps from their successful drilling project at Jefferson City and at Flat Gap, Hancock County, Tennessee. They prefer this scale for use in projects where hole spacing will be 1320 or 2640 feet. As this is standard practice with their Company, we do not think we should insist on a larger scale. A 1" = 660 ft map of the Strawberry Plains area will be prepared.

As to precise sites of initial drilling, these will depend largely on access. "Area A" of Figure 3, DMEA-4119 will be the site of beginning in the Talbot Area; holes will be at 1320-foot intervals on section lines 1320 feet apart and approximately perpendicular to the strike of the ore zone. In the Strawberry Plains area, initial drilling will be at 2640-foot intervals on section lines 2640 feet apart, with a fifth hole at the center of each square, beginning probably in the vicinity of section J-J', fig. 1, DMEA-4126 application.

We consider the usual 10-year period for royalty repayment to be too short for these projects, and recommend a 30-year period, as is provided in Idm-E676.

Based on experience with Idm-E676, we strongly recommend that these projects, if approved, be unit-cost, short-form contracts. However, if the long-form is used, then provisions for payment for contract drilling should not be on the average as figured in the application , but

on the specific costs for various depths, and other items, as quoted by the subcontractor in exhibit "B" to the DMEA-4119 application. Incidentally, it may be pointed out that this Company has had all its drilling in Tennessee done by E. J. Longyear Company, as a result of competitive bidding, and therefore has submitted only the figures of this contractor, in their application. Longyear's bid is reasonable, and their performance in the district has been comparable to that of other contractors operating in the area.

To sum up, we recommend:

1. Approval of both applications.

2. A short-form, unit-cost contract for DMEA-4119, for 60,000 feet of drilling in 15 months, at a unit cost of $2.783 per foot.

3. A short-form, unit-cost contract for DMEA-4126, for 90,000 feet of drilling in 20 months at a unit cost of $2.689 per foot.

4. A repayment period of 30 years, instead of the usual ten.

January 30, 1956

Robert A. Laurence, Geologist
U. S. Geological Survey

and

V. J. Lynch, Mining Engineer
U. S. Bureau of Mines

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 1 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

RECEIVED
JAN 23 1956

January 19, 1956

docket

Memorandum

To: Operating Committee, DMEA - Washington

From: DMEA Field Team, Region V - Knoxville, Tennessee

Subject: DMEA-4119 and DMEA-4126 (Zinc) The New Jersey Zinc Co.

The applicant did not designate any names for the two areas involved in these applications. To avoid confusion, we suggest that they be referenced as follows:

DMEA-4119, Talbot Area, Jefferson and Hamblen Counties, Tenn.

DMEA-4126, Strawberry Plains Area, Jefferson, Sevier and Knox Counties, Tennessee.

It is our understanding that American Zinc Company of Tennessee plans to submit an application for an area north of Strawberry Plains, Tennessee in the near future.

Robert A. Laurence
EXECUTIVE OFFICER
DMEA REGION V

RAL/mm
cc:
Lynch
Laurence

V. J. Lynch, Member
Bureau of Mines

File Copy
Surname

Griswold
Selfridge
Fitzhugh

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

JAN 18 1956

Mr. Robert A. Lawrence
Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville 2, Tennessee

Re: Docket No. DMEA-4119 (Zinc)
New Jersey Zinc Company
Morristown Sector
Jefferson and Hamblen Counties,
Tennessee

Dear Mr. Lawrence:

Referring to the cited application, we are enclosing copies of memorandums dated January 13 and 16, 1956, by O. M. Bishop, BOM, and W. P. Williams, USGS, respectively. The application is being referred to you for review and for such field examination and consultation as you consider necessary.

The Applicant has stated that it is ready to proceed with the project, subject to our approval, and requests an early consideration on our part. Hence, will you kindly let us have your recommendations as soon as possible.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee (GCS)

Enclosures

APPROVED:

/s/ O. M. Bishop (WB)
Member, Bureau of Mines

Thor H. Kiilsgaard (GCS)
Member, Geological Survey

WRGriswold/bjl (1/18/56)

Copy to: Docket
Admr. R. File
Op. Committee
Base Metals
Mr. Bishop
Mr. Kiilsgaard
Chron.

P. S. In case you should view this application favorably, please request this company to provide us with a large scale map of the project area which would at least indicate the holes to be drilled under the initial phase.

R.S.B.

File Copy
Surname

Griswold
Bishop
Kilsgaard
Selfridge
Johnson

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

JAN 18 1956

Mr. S. S. Goodwin, Vice President
The New Jersey Zinc Company
160 Front Street
New York 38, New York

Re: Docket No. DMEA-4119 (Zinc)
The New Jersey Zinc Company
Morristown Sector
Jefferson and Hamblen Counties
Tennessee

Dear Mr. Goodwin:

Your application for Government assistance to explore the cited group of properties has been reviewed by the Base Metals Division of the Defense Minerals Exploration Administration and has been referred for a field examination to:

Mr. Robert A. Lawrence
Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville 2, Tennessee

The Regional Office will contact your Tennessee office at an early date. Any assistance that your company may give the members of the Field Team during the examination will be greatly appreciated.

Sincerely yours,

C. O. Mittenhoff

Administrator

WRGriswold/bjl (1/18/56)

Copy to: Docket
Admr. R. File
Op. Committee
Base Metals
Mr. Bishop
Mr. Kiilsgaard
Region V (2)
Chron.

R.C.S.

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

RECEIVED
JAN 18 1956

January 16, 1956

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: W. P. Williams, U. S. Geological Survey

Subject: Review of application, DMEA 4119 (zinc), The New Jersey Zinc Company, Northeast Jefferson City District, Jefferson and Hamblen Counties, Tennessee.

The applicant proposes to diamond drill for sphalerite ore bodies in the Kingsport formation of Ordovician age. The project is described by the applicant, and rightly so, as an effort to discover a northeast extension of the well-known Jefferson City zinc district.

The proposed project would consist of an initial stage of drilling on 1/4 mile and 1/2 mile spacing. The initial stage would be followed by a second stage, on closer centers, with the holes located near previously-drilled mineralized holes or holes that encountered favorable geologic conditions. Depths of the holes would range from 800 feet to as much as 1,700 feet. The estimated total cost of the project is $170,000.00. The property is on strike with producing mines which are about 2 miles southwest.

Past exploration on the property consists of some old churn drill holes by American Zinc Company and 20 diamond drill holes by the applicant. The applicant states the drilling showed mineralization, and one hole penetrated ore.

The land under consideration appears to warrant further exploration with DMEA participation. The applicant has not, however, submitted maps or data that show the previous drilling and the results. Neither are the locations of proposed holes shown on a map.

I recommend that the application be referred to the Field Team. An examining team could obtain the necessary information and could discuss with the applicant such details as hole locations and spacing. If a DMEA contract appears appropriate to the Field Team also it would be advisable for the applicant to prepare large-scale maps of the exploration area. Such maps could show completed and proposed hole locations and could be brought up-to-date each month during the ensuing exploration project.

W P Williams

W. P. Williams

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

RECEIVED
JAN 13 1956
Griswold

January 13, 1956

Re: DMEA-4119 (Zinc; $170,000)
The New Jersey Zinc Company
2244 acre property, 3 miles
northeast of Jefferson City
Jefferson and Hamblen
Counties, Tennessee

Memorandum

To: W. R. Griswold, DMEA

From: O. M. Bishop, Branch of Base Metals

Subject: Referenced Application by The New Jersey Zinc Company, Received by DMEA January 9, 1956

I have reviewed the application covering 60,000 feet of diamond drill exploration on some 2,244 acres of optioned property three miles northeast of Jefferson City in Jefferson and Hamblen Counties, Tennessee.

Although the property has produced no ore, limited exploration in the extreme northwest part of the mine indicated mineralization and one hole showed 26 feet of 4.4 percent zinc. The present proposal provides for exploration of the Kingsport formation to the immediate northeast of the T.C.I., Athletic, Coy, Jarnagin and New Jersey Zinc mines. The presence of the favorable Northport formation in apparent allignment with known orebodies in an area of fracturing and faulting together with mineralization indicated in drilling to date and by geochemical prospecting point to the reasonableness of the program outlined.

I recommend that the application be referred to the field team for their consideration and recommendations. The estimated costs are reasonable although I should think an allowance for 150 assays might be on the low side.

O. M. Bishop
O. M. Bishop

Copy to - Division of Minerals
Branch of Base Metals
Mr. Kilsgaard, Room 5222
Mr. Geehan, Room 3608
O. M. Bishop
Files

January 11, 1956

New Jersey Zinc Company
160 Front Street
New York 38, New York

Subject: DMEA 4119
Re: Exploration Assistance

Gentlemen:

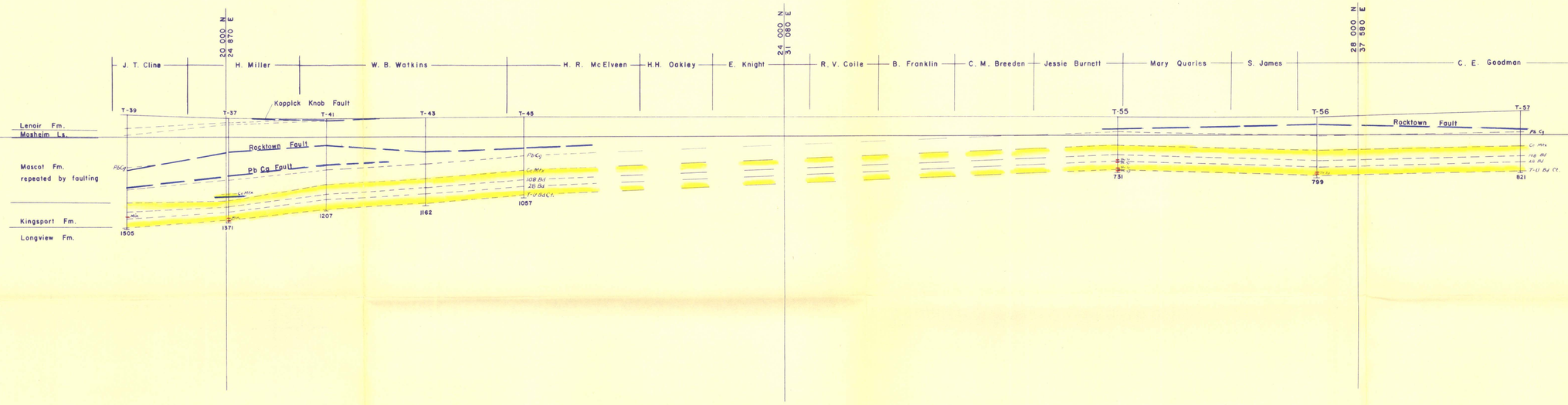
The receipt of your application dated (Undated) for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA 4119 and referred to the Base Metals Division.

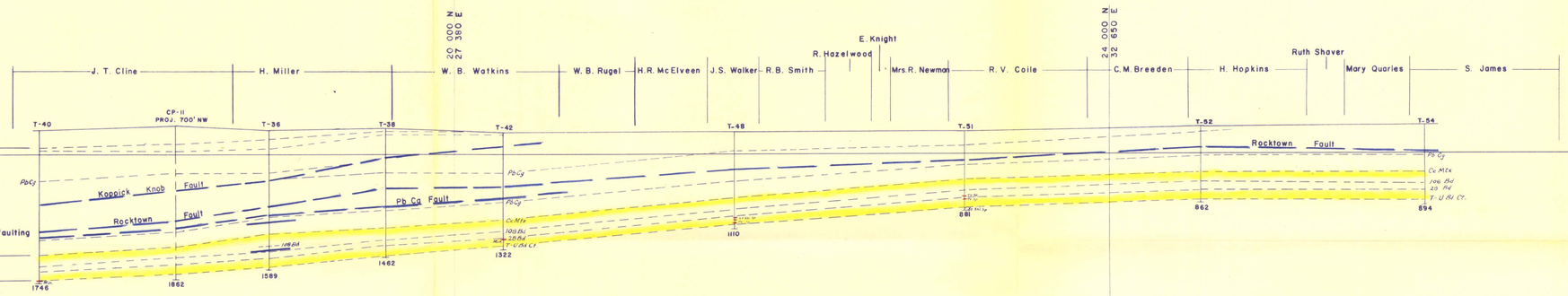
Kindly identify all future correspondence relating to your application by this docket number.

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division



SECTION 1



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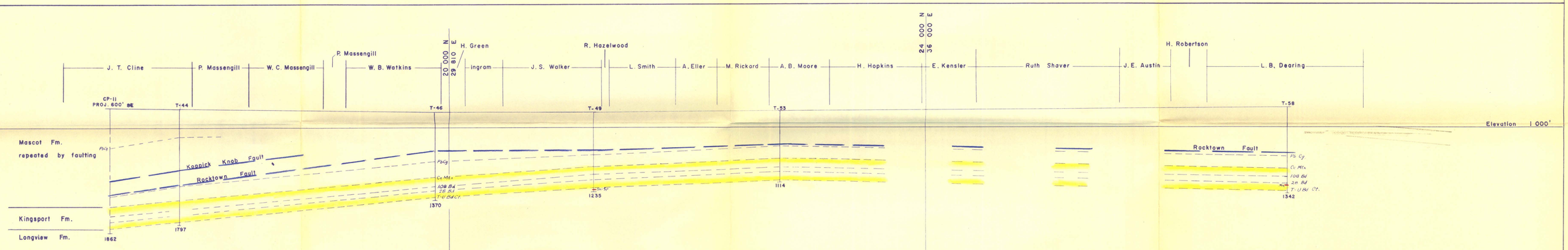
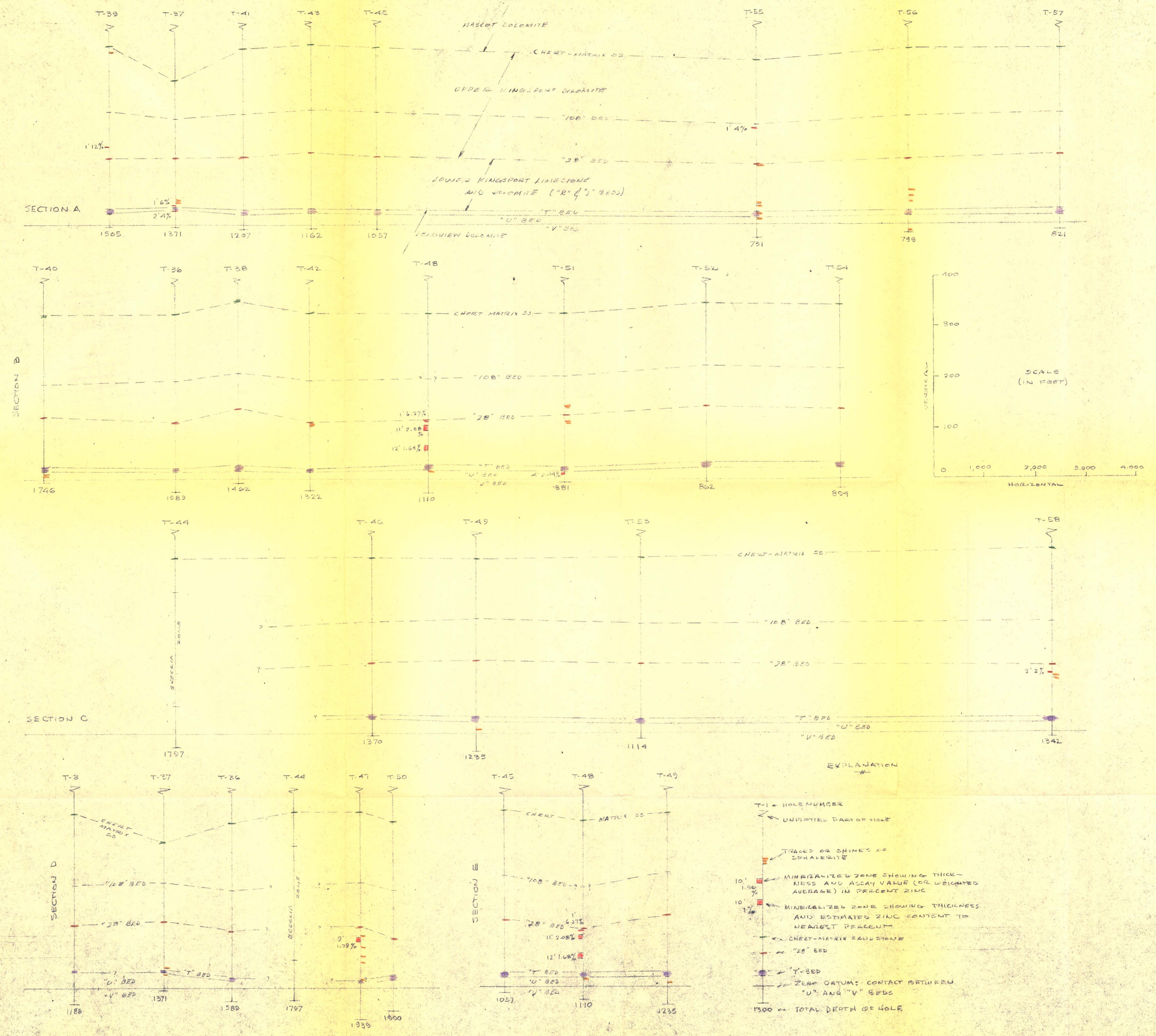


SECTION 3

POSTED TO DATE	THE NEW JERSEY ZINC COMPANY JEFFERSON CITY, TENNESSEE	DRAWN JWP TRACED	DATE 10 - 1 - 56 SCALE 1" = 660'	MORRISTOWN SECTOR TALBOTT AREA LONGITUDINAL SECTIONS	DISTRICT JEFFERSON CITY FILE NO. AX-TENN-D 1204

FIGURE 4



DMEA-4119, IDM-E936 (ZINC)
TALBOTT AREA
JEFFERSON AND HAMBLEN COUNTIES
TENNESSEE

CORRELATION CHART
SHOWING RELATIONSHIP OF KINGSPORT STRATIGRAPHIC UNITS AND OCCURRENCES OF ZINC MINERALIZATION IN DIAMOND-DRILL HOLES

HW-12/58