DMEA Form 9
Rev. 6/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE | Idm-E NO. 1204 | DMEA NO. 5008

Application
- [ ] Denied
- [ ] Withdrawn

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

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

Folder No. 1:

Left Side

- [ ] Royalty Audits
- [x] Certification of Discovery 3-15-60
- [ ] Closing Letter
- [x] Cost Audits 2-15-60
- [ ] Termination Notice or Agreement
- [ ] Recision Notice
- [ ] Assignment of Contract
- [ ] Contract Amendments
- [x] Contract with all exhibits and annexes
- [ ] Owner's Consent to Lien and Subordination Agreement
- [x] Application and attachments

Right Side

- [x] Project summary (final)
- [ ] 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
- [ ] Final Field Team Report (Tab)
- [x] Operator's Final Report (Tab) 1-27-60
- [ ] Interim Field Team Reports
- [ ] Operator's monthly reports and all attachments
- [x] On-site Exam Report (Tab) 5-23-58
- [ ] 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

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

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

Folders No. _____ : Settlement Sheets

Folders No. _____ : Drill Logs

Folders No. _____ : Royalty material

17863

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-81204, Docket DMEA-5008 (zinc-lead), dated June 12, 1958, with

The New Jersey Zinc Company
160 Front Street
New York 38, New York
and
Austinville, Virginia

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 Chaffin Tract located in the Austinville Area of Wythe County, Virginia, during the period June 12, 1958, through July 1, 1960.

A certification of discovery or development was issued on March 15, 1960, and, in accordance with Article 8 and Annexes I and II of the contract, royalty is payable on all minerals produced from the land described in Article 2 of the contract for a period of 30 years from the date of the contract or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first. A Report of Review dated February 15, 1960, indicated accepted costs under the exploration contract amounting to $64,418.00 with the Government's contribution on a 50 percent basis being $32,209.00.

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 July 1, 1960, the royalty account of this project was found to be:

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

E. D. Talbert

E. D. Talbert, OME Auditor

June 12, 1962

Idm-E1204 The New Jersey Zinc Company DMEA-5008

STATUS OF PROJECT, SCOPE OF REVIEW
AND REASONS THEREFOR

This contract provides that the Operator, as principal if the producer or as surety if not the producer, shall pay to the Government a percentage royalty on all minerals produced for a maximum of 30 years from (1) the land thereunder and (2) any lands within 1500 feet thereof, if the Operator or any subsidiary acquires any interest therein before June 12, 1968. The term "minerals" includes limestone and dolomite products derived from processing ores.

At the time this contract was executed, the land thereunder consisted of a tract of 970 acres, more or less, known as the Chaffin Mineral Reservation and located in the Lead Mine District. The Operator owned all of the mineral rights and limited surface rights in the property.

Exploration work under the contract was completed on November 12, 1959. No minerals were produced during the exploration period. Examinations of the property and consultations with the Operator's officials disclosed no production thereafter through the period under review.

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

(1) The files contain no evidence of production from the property under the contract during the period covered by this review; and

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

Docket copy

Murphy
Wharfield
J. Lynch

Fitzhugh
Selfridge

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

To: The New Jersey Zinc Company
160 Front Street
New York 38, New York

Pursuant to the provisions of Exploration Project Contract No. Idm-E1204, dated June 12, 1958, (Docket No. IMEA-5008), hereinafter called the "contract," between The New Jersey Zinc Company, a New Jersey corporation, and the United States of America, hereinafter called the "Government"; to establish and fix the Government's percentage royalty on production and its lien therefor and on the land described in the contract, the Government considers and therefore certifies that discovery or development from which production may be made has resulted from the exploration work.

The nature of said discovery or development is described broadly or indicated as follows:

Core drilling from the surface, performed under the contract, resulted in the discovery of significant zinc-lead ore deposits on three geological horizons in the Shady dolomite formation of Lower Cambrian age.

Dated: _____

THE UNITED STATES OF AMERICA

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

FMMurphy/gla 5-9-60
cc to: Director's Reading File
Frank E. Johnson
Operating Committee
Frank D. Lamb, USBM
Harold Kirkemo, USGS
Contract Adm. & Audit Division
OME Field Team, Region V (2)
~~Finance Office~~
Docket
Chron
Clarence A. Fredell, DMS, GSA

FROM SOLICITOR
MAY 4 1960
FOR SIGNATURE

March 9, 1960

Docket No. DMEA-5008 (Zinc)
Contract No. Idm-E1071
The New Jersey Zinc Company

JUSTIFICATION FOR CERTIFICATION

Before the contract drilling, no mineralization was known in the Chaffin Tract, comprising 970 acres. The project was based on the extrapolation of the en eschelon pattern of known Austinville ore bodies into the area. The Chaffin area is underlain by the Lower Cambrian Shady dolomite formation which contains the ore in the Austinville Mine.

Seventeen holes were drilled in the area. Seven of these holes penetrated ore grade mineralization. It is estimated that 425,000 tons of ore averaging 4.4% Zn and 0.9% Pb have been indicated by these holes.

The property was not fully explored by the contract drilling. Additional drilling has a good chance of increasing the indicated ore reserves.

F. M. Murphy

F. M. Murphy

OFFICE OF MINERALS EXPLORATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF REVIEW

I have reviewed the Monthly Reports of:

The New Jersey Zinc Company
Austinville, Virginia

pertaining to Exploration Project Contract No. Idm-81204, DMEA No. 5008, including Amendments Nos. 1 and 2, for August 1958 to October 1959 inclusive, covering a zinc-lead project in the Austinville District, Wythe County, Virginia.

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

This review was made in lieu of a final audit of the Operator's accounts and records for the reasons given in the attached schedule.

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

Total cost billed by Operator			$64,525.75
Exceptions:			
Prior to this review	$150.25		
Less: Reinstatements	42.50	$107.75	
Herewith		-0-	107.75
Total acceptable cost			$64,418.00

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

Payable on audited claim	$32,209.00
Paid to date	31,717.06
Balance due Operator	$ 491.94

Pd. to Oper 2/19/60 see Oct. '59 voucher

E. D. Talbert

E. D. Talbert, OME Auditor

February 15, 1960

Reasons for Report of Review in lieu of a final audit:

(a) The Monthly Reports were supported by documentary proof of that portion ($37,135.00) of the costs covering work performed at unit rates under independent contract, as well as the costs ($3,905.00) of assays and core boxes;

(b) the balance ($2,280.00) of the costs was under a contract provision for payment by the Government at fixed unit costs for work performed; and

(c) the administrative cost to the Government of an audit would be excessive in relation to the estimated amount of possible further disallowances.

Exceptions prior to this review:

(a) EX size core drilling in hole A-537 claimed at AX size unit costs. 431 feet @ $.25	$107.75
(b) Core boxes in excess of contract estimate, improperly disallowed in being in excess of contract maximum, reinstated by this review. 17 each @ $2.50	42.50
	$150.25

Acceptable costs:

Category (1) Independent Contracts -			
Drilling, to 1,000' depth	15,365' AX	@ $2.25	$34,571.25
	6' EX	@ $2.00	12.00
1,000' - 1,500' depth	6,037' AX	@ $2.50	15,092.50
	425' EX	@ $2.25	956.25
over 1,500' depth	2,167' AX	@ $3.00	6,501.00
Total (15 holes)	24,000'		57,133.00*
Category (2) Miscellaneous -			
Samples assayed	70 ea.	@ $2.00	140.00
Core boxes	739 ea.	@ $2.50	1,875.00
Incidental Allowance	24,000 ft.	@ $ .22	5,280.00
			$64,428.00

*Actual costs as invoiced by Joy Manufacturing Company:

Drilling -	0 - 1,000'	16,000'	@ $2.25	$36,000.00
	1,000 - 1,500'	6,962'	@ $2.50	17,405.00
	1,500 - 2,000'	2,072'	@ $3.00	6,216.00
	over 2,000'	163'	@ $3.50	1,284.00
		25,197'		60,905.00

Standby time	74 hrs.	@ $8.00	$ 592.00
Casing left in holes:			
BX casing	1,703'	@ $2.16	3,678.48
BX caps	2 ea.	@ $6.00	12.00
			$65,191.48

Government's copy

EXPLORATION PROJECT CONTRACT
THE NEW JERSEY ZINC COMPANY
DOCKET NO. DMEA-5008

AMENDMENT NO. 2

It is agreed this 24th day of July, 1959, between the United States of America, acting through the Department of the Interior, Office of Minerals Exploration, hereinafter called the "Government," and The New Jersey Zinc Company, hereinafter called the "Operator," that Contract No. Idm-E1204, Docket No. DMEA-5008, dated June 12, 1958, as amended, is further amended as of the date of the Contract as follows:

In Amendment No. 1: Delete Item 1, and substitute:

1. Paragraph 5 of Exhibit "A" is revised to read as follows:

5. It is estimated that approximately 16 holes will be required, having an average depth of approximately 1,500 feet, with a maximum depth for any hole of approximately 2,500 feet. Not more than 24,000 feet of drilling shall be performed.

Under Item 2, Exhibit "A", "Estimated Cost of the Project," delete:

Diamond drilling from 1,500- to 2,000-foot depth, AX size, 5,050 feet @ $3.00/ft.	$15,150.00
EX size @ $2.75/ft.	---

Substitute:

Diamond drilling in excess of 1,500-foot depth. AX size, 5,050 feet @ $3.00/ft.	$15,150.00
EX size @ $2.75/ft.	---

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate

RECEIVED
JUL 1959
MERCK & CO. INC.
RAHWAY, N.J.

RECEIVED
AUG 3
NEW JERSEY ZINC CO.
EXPLORATION DIV.
NEW YORK

total amount which the Government may be required to contribute, the amount of any item designated as "maximum", or the fixed unit cost of any item of work.

Executed in quintuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

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

THE NEW JERSEY ZINC COMPANY

By W F Johnson

Title VICE PRESIDENT

RECEIVED
AUG 3 1959
NEW JERSEY ZINC CO.
EXPLORATION DEPT.
NEW YORK

Governmen[illegible]s copy

EXPLORATION PROJECT CONTRACT
THE NEW JERSEY ZINC COMPANY
DOCKET NO. DMEA-5008

AMENDMENT NO. 1

It is agreed this 16th day of June, 1959, between the United States of America, acting through the Department of the Interior, Office of Minerals Exploration, and The New Jersey Zinc Company, that Contract No. Idm-E1204, Docket No. DMEA-5008, dated June 12, 1958, is amended effective as of the date of the Contract, as follows:

1. Paragraph 5 of Exhibit "A" is revised to read as follows:

5. It is estimated that approximately 16 holes will be required, having an average depth of approximately 1,500 feet, with a maximum depth for any hole of approximately 2,000 feet. Not more than 24,000 feet of drilling shall be performed.

2. Exhibit "A", "Estimated Cost of the Project", is revised to read as follows:

Estimated Cost of the Project

Actual Costs

Category (1) Independent Contracts (See Annex II)

Overburden drilling and diamond drilling to 1,000-foot depth. AX size, 12,000 feet @ $2.25/ft.	$27,000.00	
EX size @ $2.00/ft.	----	
Diamond drilling from 1,000- to 1,500-foot depth. AX size, 6,950 feet @ $2.50/ft.	17,375.00	
EX size @ $2.25/ft.	----	
Diamond drilling from 1,500- to 2,000-foot depth. AX size, 5,050 feet @ $3.00/ft.	15,150.00	
EX size @ $2.75/ft.	----	$59,525.00

Actual Costs, Category (1) Independent Contracts, cont'd.

The above rates include charges for reaming, cementing, water supply, casing, changing of locations, and all other charges by the diamond drill contractor.

Neither the cost nor the value of the casing left in drill holes at the option of the Operator will be accepted as a charge to the contract.

Category (2) through (6)	None	
Category (7) Miscellaneous None except:		
300 samples assayed @ $2.00*/each sample	$ 600.00	
Core boxes - 600 @ $2.50*/each box	1,500.00	2,100.00

Fixed Unit Costs (See Annex II)

Incidental allowance 1/ for each foot of drilling completed, 24,000 feet @ $0.22/ft.	5,280.00
Estimated Total Cost of the Project (rounded to)	$66,906.00
Government Participation @ 50%	$33,453.00

3. In Article 3 of the Contract the date for completion of the work is extended from "July 30, 1959" to "December 31, 1959".

4. In Article 5 of the Contract the estimated total allowable cost of the project is changed from "$44,920.00" to "$66,906.00", and the figure "$22,460.00" is changed to "$33,453.00".

*In addition to the maximum fixed in the contract form, an asterisk indicates maximum.

1/Includes all costs that might be allowable costs of the project under Categories (1) through (7) of Article 6(a) except as otherwise scheduled in Exhibit "A".

Hoffman
App'd. Sol. Off.
Klugeadland
Internal
Tolbert
Selfridge

Executed in quintuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

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

THE NEW JERSEY ZINC COMPANY

By J. Boardman

Title Vice President

Government's Copy

OFFICIAL FILE
DMEA
RECEIVED JUN 20 1958

DATE	INITIALS	CODE

MF-200
(Revised June 1954)

Docket No. DMEA-5008

Commodity Zinc-Lead

Contract No. Idm-E 1204

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

EXPLORATION PROJECT CONTRACT[1]

It is agreed this 12 JUN 1958 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~~ Annex II, and Map (Figure 2)

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 Virginia, County of Wythe, and is described in Annex I.[3]

(b) The Operator represents and undertakes that:

(1) The Operator is the [4] See Annex I of [5] See Annex I in the land, in possession and entitled to possession for all of the purposes of this contract, under and by virtue of a [6] See Annex I, [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: See Annex I

(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: None

(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 and Lead. The work to be performed is described in Exhibit "A." The Operator on or before July 30, 1958 shall commence the work, and on or before July 30, 1959 (unless the Operator's obligation to prosecute the work is terminated—see Article 10) shall ~~either~~ have completed the work ~~[illegible]~~ See Annex II.

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 $44,920.00. The Government shall contribute 50 percent of the allowable costs as they are incurred in a total sum not in excess of $22,460.00: *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 Annex II.

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. See Annex II.

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 8. See Annex II.

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 ~~ten~~ 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. See Annex II.

(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 Annex II.

(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.*—

See Annex II attached hereto as a part hereof.

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By O C Mittendorf
Administrator, Defense Minerals
Exploration Administration

THE NEW JERSEY ZINC COMPANY
(Operator)

By L F Johnson

Title VICE PRESIDENT

I, Samuel Riker, Jr, certify that I am the secretary of the corporation named as Operator herein; that L. F. Johnson 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.

[CORPORATE SEAL]

Long
Krueger
App'd. Sol. Off.
Klugescheid
Ensmann
Chambers
Selfridges
Johnson

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

35485

EXPLORATION PROJECT CONTRACT
THE NEW JERSEY ZINC COMPANY
DOCKET NO. DMEA-5008

ANNEX I

The land referred to in Article 2 of the contract consists of a tract known as the "Chaffin Mineral Reservation", which is shown outlined in blue on the map (Fig. 2) entitled "The New Jersey Zinc Company, Proposed Drilling, Chaffin Estate Tract, Austinville, Virginia, File No. 7GB-4367" attached to and made a part hereof.

The land is situate in Wythe County, Virginia, and is described as follows: "That tract containing 970 acres more or less being all the portion lying north of the Austinville-Poplar Camp road of that tract of land situated in the Lead Mine District of Wythe County, Virginia, which was devised by Elizabeth Chaffin to Alex N. Chaffin and Emily W. Crockett by will of record in Clerk's Office of Wythe County in Will Book 15, at page 532, and described in a plat of record in the Clerk's Office of Wythe County in Plat Book 2 at page 33 and title to which has been vested in The New Jersey Zinc Company by decree of the Circuit Court of Wythe County, dated May 5, 1958".

The Operator, by virtue of purchases and the above-identified court decree, has acquired all of the mineral rights and limited surface rights in the tract.

SPECIAL AGREEMENT CONCERNING LAND

1. In the event the Operator or any subsidiary thereof (whether wholly owned or otherwise), at any time during the period expiring ten years from the date of this contract acquires any interest, title, or equity (exclusive of agreements granting the rights to explore, purchase, or acquire leases) in or with respect to any land, including minerals therein, situate within 1500 feet of the land described in this contract, at the contract date and the right to make such acquisition postdates this contract, it is agreed that such land shall thereupon become subject to the provisions of this contract, and the parties hereto shall promptly execute amendments to this contract listing such land as land included in this contract.

2. It is further agreed that the Operator may, at any time prior to furnishing the Government with the final report, request the Government to delete from this contract such land listed in this Annex I, or in any amendments thereto, as has no known value for mineral production. The Government will, if it concurs that the land has no known value for mineral production, promptly prepare amendments removing the specified land from the contract, which amendments shall provide that the Operator:

(a) certifies the land has no known value for mineral production; and

(b) agrees that if the Operator or any subsidiary thereof (whether wholly owned or otherwise) acquires or reacquires any interest, title, or equity (exclusive of agreements granting rights to explore, purchase, or acquire leases) in such land or any minerals produced therefrom or derives any benefit therefrom, before the expiration of thirty years from the date of this contract, such land shall be deemed subject to this contract and any certification 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.

EXPLORATION PROJECT CONTRACT
THE NEW JERSEY ZINC COMPANY
DOCKET NO. DMEA-5008

ANNEX II

Article 13. Changes and Added Provisions--

1. In Article 3, the words following the reference to Article 10 are deleted, and the following words are substituted: "shall have completed the work."

2. In Article 6(a), that part of the last sentence in the first paragraph beginning after the semicolon is deleted.

3. Categories (2) through (6) of Article 6(a) are deleted.

4. In Article 6(c), the words "Article 9" are changed to "Article 8."

5. 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."

6. 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 will be used as the basis for calculating royalty payable to the Government.

7. In addition to the costs of work estimated in Exhibit "A" by categories of actual costs, the costs of work requirements specified in Exhibit "A" as "Fixed Unit Costs" are allowable costs of the project. The Government will contribute to the fixed unit costs as work units are performed. A "Fixed Unit Cost" is an agreed price for each unit of work to be performed regardless of costs incurred by the Operator. Costs set forth in Exhibit "A" include all allowable costs of the work to be performed under the contract.

8. Notwithstanding any other provisions of the contract, the allowable unit cost per foot of a drilling item is the average unit cost per foot computed on the basis of all actual unit costs of said drilling item incurred by the Operator: Provided, That the Government will not contribute to any portion of an average unit cost of a drilling item that exceeds the estimated unit cost of said item set forth in the contract.

EXPLORATION PROJECT CONTRACT
THE NEW JERSEY ZINC COMPANY
DOCKET NO. DMEA-5008

EXHIBIT "A"

Description of the Work

1. The purpose of the project is to explore for ores of zinc and lead by diamond drilling (and such churn drilling of overburden as may be required). Zinc-lead ores in the Austinville and Ivanhoe mines are fracture-filling and replacement bodies in the Lower Cambrian Shady dolomite. The ore deposits in this area are elongated shoots in the plane of the bedding and pitch gently to the northeast. They are generally parallel to strike faults and enlarged at fault intersections. Ore bodies in the Austinville-Ivanhoe district occur in a well-defined en echelon pattern.

2. A series of widely spaced dip and strike fences shall be drilled, with holes spaced at between 100-and 800-foot intervals on the fences.

3. The space intervals between the various fences shall not be less than 400 feet.

4. Drilling shall not be done at locations closer than 200 feet from property lines.

5. It is estimated that approximately 12 holes will be required, having an average depth of approximately 1,500 feet, with a maximum depth for any hole of approximately 2,000 feet. Not more than 16,000 feet of drilling shall be performed.

6. The tentative locations of the initial holes are shown on the attached map, but the actual locations, directions, inclinations and depths of all holes are subject to prior Government approval.

7. All diamond drilling shall be with AX, or larger, size coring bits, except that when it is not feasible to complete a hole with AX size, with Government approval, the hole may be reduced with EX casing and completed with EX size bits. Drill holes shall be reamed and cased or cemented and redrilled as necessary.

The Government will not contribute to the costs of drilling any hole which is not completed.

8. All drill holes shall be logged and all drill core shall be made available to the Government for examination. All significantly mineralized core shall be split and one half thereof shall be properly sampled and the samples assayed for zinc and lead. The remaining half of all significantly mineralized core samples shall be furnished to the Government upon request.

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

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

Estimated Cost of the Project

Actual Costs

Category (1) Independent Contracts (See Annex II.)

Overburden drilling and diamond drilling to 1,000-foot depth. AX size, 8,000 feet @ $2.25/ft.	$18,000.00	
EX size @ $2.00/ft.	- - - -	
Diamond drilling from 1,000- to 1,500-foot depth. AX size, 4,000 feet @ $2.50/ft.	10,000.00	
EX size @ $2.25/ft.	- - - -	
Diamond drilling from 1,500- to 2,000-foot depth. AX size, 4,000 feet @ $3.00/ft.	12,000.00	
EX size @ $2.75/ft.	- - - -	$40,000.00

The above rates include charges for reaming, cementing, water supply, casing, changing of locations, and all other charges by the diamond drill contractor.

Neither the cost nor the value of the casing left in drill holes at the option of the Operator will be accepted as a charge to the contract.

Categories (2) through (6)	None	
Category (7) Miscellaneous None except:		
200 samples assayed @ $2.00*/each sample	$ 400.00	
Core boxes - 400 @ $2.50*/each box	1,000.00	$ 1,400.00
Fixed Unit Costs (See Annex II.)		
Incidental allowance 1/ for each foot of drilling completed, 16,000 feet @ $0.22/ft.		3,520.00
Estimated Total Cost of the Project		$44,920.00
Government Participation @ 50%		$22,460.00

* In addition to the maximum fixed in the contract form, an asterisk indicates maximum.

1/ Includes all costs that might be allowable costs of the project under Categories (1) through (7) of Article 6(a) except as otherwise scheduled in Exhibit "A".

THE NEW JERSEY ZINC COMPANY
(ESTABLISHED 1848)

HORSE HEAD PRODUCTS ®

OFFICE OF THE
VICE PRESIDENT

100 FRONT STREET

NEW YORK 38, N.Y.

May 6, 1958

OFFICIAL FILE COPY
DMEA
RECEIVED MAY 8 1958

DATE	INITIALS	CODE

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

CHAFFIN ESTATE
WYTHE COUNTY, VIRGINIA
D.M.E.A. EXPLORATION PROJECT
THE NEW JERSEY ZINC COMPANY

Dear Sirs:

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

Pending your acceptance and approval of this application, we are ready to proceed with the project as per Paragraph 5-c on Form MF-103.

Very truly yours,

S. S. Goodwin
Vice President

SSG/JBC:alb
For attachments see
following page.

DMEA
RECEIVED MAY 8 1958
DATE | INITIALS | CODE

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

Map 7 GB - 4367 - Map showing Geology, Property, and Proposed Drilling, Chaffin Estate Tract, Austinville Area, Wythe County, Virginia.

Map 7 GB - 4353 - Vertical Section and Proposed Holes, Sect. 181

Map 7 GB - 4354 - Vertical Section at East End, Chaffin Est.

Exhibit "A" - Diamond Drilling Proposals (3)

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED MAY 8 1958 D.M.E.A.

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

Not to be filled in by applicant

Docket No. DMEA-5008
Metal or Mineral Lead-Silver
Date Received 5-8-58
Estimated Cost $48,183.00
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.

(*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.

(*e*) If you own the land, describe any liens or encumbrances on it NONE

(*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 #3

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. See Sheet #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 #3

(*d*) State the facts with respect to the accessibility of the project: Access roads, distances to shipping, supply and residence points. See Sheet #3

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power. See Sheet #3

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore It is desired to explore for zinc-lead 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 30 days and be completed within 12 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 4

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: Sheet 5

(*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.). See Sheet 5

(*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. See Sheet 5

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel. See Sheet 5

(*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. See Sheet 5

(*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. None

(*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. None

(*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. See Sheet 5

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

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

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

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

[X] Money [ ] 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 6 May, 1958

The New Jersey Zinc Company
160 Front St., New York 38, N. Y.

(Applicant)

By [signature]

VICE PRESIDENT

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

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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. E. E. Schwegler, Vice President & Comptroller	ditto
Mr. Samuel Riker, Secretary & Treasurer	ditto
Mr. R. G. Kenly, 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. W. Gamwell, Assistant Treasurer	ditto

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Sheet No. 2

No. 3 of Instructions

APPLICANT'S PROPERTY RIGHTS

(a) The land under consideration consists of a tract of 970 acres known as the Chaffin Mineral Reservation. It may be described as:

"That tract containing 970 acres more or less being all the portion lying north of the Austinville-Poplar Camp road of that tract of land situated in the Lead Mines District of Wythe County, Virginia, which was devised by Elizabeth Chaffin to Alex N. Chaffin and Emily W. Crockett by will of record in the Clerk's Office of Wythe County in Will Book 15, at page 532 and described in a plat of record in the Clerk's Office of Wythe County in Plat Book 2 at page 33 and title to which has been vested in The New Jersey Zinc Company by decree of the Circuit Court of Wythe County, dated May 5, 1958."

It lies about two miles east of Austinville and adjoins the main Austinville Mine tract. On the enclosed map 7GB-4367, the Chaffin estate boundaries and also the property of The New Jersey Zinc Company are shown. In her will, dated 1892, Elizabeth Chaffin separated the mineral rights from the surface of the tract.

Starting in 1948, The New Jersey Zinc Company began purchasing the mineral rights from the owners. Since one hundred percent of the mineral rights could not be purchased, partition proceedings were entered into and the remaining rights acquired.

On the map 7GB-4367 are shown the Chaffin Tract, the Austinville and Ivanhoe mine tracts and a number of other tracts owned in part or entirely by The New Jersey Zinc Company, which are part of the Austinville property. All except the Chaffin Tract are to be excluded from this contract.

The New Jersey Zinc Company
160 Front St., New York 38, N. Y.

(c) The New Jersey Zinc Company owns the mineral rights to this tract and has limited surface privileges either acquired through the Court proceedings or by individual negotiations with the surface owners.

The New Jersey Zinc Company
160 Front St., New York 38, N. Y.

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Sheet No. 3

No. 4 of Instructions

PHYSICAL DESCRIPTION

(a) So far as is known, no exploration has been done on the Chaffin tract. Limited and inconclusive exploration for Zinc-Lead ore has been carried on along strike to the northeast and southwest of this tract with widely spaced holes. The Chaffin tract is situated in the Austinville-Ivanhoe mining district which has been an important producer of zinc and lead ores for over 200 years. These sulphide deposits occur in a carbonate series of Cambrian age and are essentially unique as to stratigraphic position in the Appalachian province. Any extension of reserves in the area will constitute an important contribution to the maintenance of a healthy domestic mining industry.

(b) NONE

(c) The Chaffin tract lies on the southeast limb of the Austinville anticline and to the southeast of the Austinville mine. This limb is imbricated by a series of strike faults of intermediate dip and reverse displacement, which has resulted in a series of shingle blocks containing the beds favorable for ore within economic prospecting depths. The ore of the district extends over a stratigraphic range of 1900 feet, occurring in generally linear bodies with local bulges in the vicinity of strike and cross faults. These bodies are arranged en echelon across the grain of the country.

The New Jersey Zinc Company
160 Front St., New York 38, N. Y.

This tract is soil covered, with few outcrops. However, from the geology of the surrounding area and scanty outcrops the subsurface outcrop is known to be limestones and dolomites mainly of post-Ivanhoe Limestone age. These beds are in turn underlain by rocks containing the major ore bearing beds of the Austinville mine. The ore on the Austinville and Ivanhoe properties occurs over a stratigraphic range of 1900 feet. The uppermost ore is 700 feet above the base of the Taylor Marker, a prominent sand grain bed in the Austinville member 100 feet below the Ivanhoe Limestone member and 600 feet above the Ribbon member. The lowermost ore is in the Ribbon member, 600 feet below the Austinville contact. In this area the rocks strike northeast and dip to the southeast.

From outcrops exposed in Clear Branch to the southwest of the tract, it is evident that the area is broken by a series of reverse strike faults. A section (7GB-4353) through the northeast end of the Austinville mine and the Chaffin tract is enclosed. This interpolation of geologic structure supports the presence of such faulted blocks which would keep the favorable horizons closer to the surface than a straight dip projection would indicate.

As shown on this section and plan (7GB-4367) the ore in the Austinville mine occurs in linear bodies generally in the plane of bedding, pitching gently northeast. Known ore has local bulges in the vicinity of major strike and cross faults. The association of these faults with ore is not clearly known but it is probable that faulting contributed to the ultimate localization and shape of ore. Such being the case, the occur-

The New Jersey Zinc Company
160 Front St., New York 38, N. Y.

rence of strike faulted ground in the subject tract is regarded as a favorable exploration premise.

Orebodies in the Austinville-Ivanhoe district occur in a well defined en echelon pattern which crosses the regional grain of the area irrespective of folds or faults. The pattern can be extrapolated placing hypothetical ore locations on the Chaffin tract as indicated on plan (7GB-4367) to exemplify possibilities. Basis for this extrapolation rests in part on the indication of strike faulted blocks in the Chaffin tract and in part on space considerations. It was on the basis of these considerations that The New Jersey Zinc Company purchased outright the mineral and mining rights to this tract rather than obtaining a prospecting option thereon.

It is desirable that this area be explored because it contains a favorable structural pattern, which is underlain by a formation with a large productive history, adjacent and en echelon from zinc orebodies to the northwest and zinc mineralization to the northeast and southwest.

(d) The area is readily accessible. It is bounded on the south by a paved road which passes through Austinville two miles to the west. There the railroad, supplies and residences are available.

(e) Manpower, materials, equipment, and power are readily available and water can either be obtained from a spring branch within 2,000 feet or a water tank 5,000 feet distant.

The New Jersey Zinc Company
160 Front St., New York 38, N.

Sheet No. 4

No. 5 of Instructions

THE EXPLORATION PROJECT

(b) It is proposed to explore this area with the fence of holes labeled: DDH-1, 2, 3, and 4 on Section 181 on the plan 7GB-4367 and shown in section on 7GB-4353.

The fence of holes is an extension of Section 181 near the northeast end of the Austinville mine. It was chosen for exploration of the Chaffin Tract because it crossed two of the postulated areas of interest.

It is proposed to start with an 800 foot spacing and drill four holes. The remaining drilling will be concentrated in the area of best looking ground based on the presence of mineralization, metamorphism and light gray dolomites.

It has been discovered that certain types of alteration are associated with ore but cover a larger area. For this reason we are inclined to start the drilling with a very wide spacing, determine the favorable areas and then concentrate the drilling therein.

(d) The New Jersey Zinc Company has had wide experience in large scale exploration programs in the Austinville district, as well as many other mining districts in the United States. This project will be under the supervision of W. L. Albers, General Superintendent, and W. Horatio Brown, Chief Geologist, both of whom have been active in the Austinville district for 30 and 16 years respectively.

The New Jersey Zinc Company
160 Front St., New York 38, N. Y.

Sheet No. 5

No. 6 of Instructions

ESTIMATED COSTS

Category No. 1 - Independent Contracts Diamond Drilling	16,000' @ $2.50 -	$ 40,000

See Exhibit "A"

Bids from E. J. Longyear Co., Joy Mfg. Co., and Sprague & Henwood

Category No. 2

a. Supervision		
Geologist - half time 12 Mo.		3,000
Asst. Geologist-Surveyor - half time 12 Mo.		1,800
b. Technical Services		
Draftsman - one third time 12 Mo.		1,000
c. Operating Materials & Supplies Core boxes, etc.		1,000
d. Operating Equipment Cars 960 mi. @ 8¢		75
e. Rehabilitation & Repairs		
f. New buildings and improvements		
g. Miscellaneous		
Chemical Assays	200 @ $3.00 each sample ?	600
Accounting Charges	30.00/mo x 12	360
Secretarial Charges		
Workmen's Comp. Ins.	1% x $5800	58
Payroll Taxes	5% x $5800	290
		$ 48,183

(16000') 8,000 @ 0.50/ft too high

OMEA
RECEIVED MAY 8

The New Jersey Zinc Company
160 Front St., New York 38, N. Y.

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DATE | INITIALS | COPY

EXHIBIT "A"

The New Jersey Zinc Co
100 Front St., New York 8

JOY MANUFACTURING COMPANY
900 WOODLAND AVENUE
MICHIGAN CITY, INDIANA

EXECUTIVE OFFICES
HENRY W. OLIVER BUILDING
PITTSBURGH 22, PA.

April 9, 1958

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AIR MAIL

The New Jersey Zinc Company
160 Front Street
New York 38, New York

Attention: Mr. A. E. Turner
Assistant Manager of Purchasing

Subject: DIAMOND DRILLING
Chaffin Estate - Austinville, Va.-1-X-524

Gentlemen:

In accordance with your letter dated March 31 on the above subject, we set forth below prices and conditions under which we are prepaired to undertake, approximately 12,000 feet of core drilling on the Chaffin Estate near Austinville, Virginia.

AX - Core from surface to 1,000 ft.	@$2.25 per ft.
AX - Core from 1,000 ft. to 1,500 ft.	@$2.50 per ft.
AX - Core from 1,500 ft. to 2,000 ft.	@$3.00 per ft.
New Jersey Zinc Company to furnish core boxes.	
Joy to furnish water for drilling purposes.	

We will furnish for this proposed drilling one or two of our Joy Gasoline Driven Core Drills complete with operating equipment and will conduct the work on the basis of two 8-hour shifts per day and six days per week.

We have the necessary equipment and crews available at Jefferson City, Tennessee and can start the work on short notice.

Thanking you for giving us an opportunity of quoting on your requirements, and hoping that the above proposition will receive favorable consideration, we are,

Yours very truly,

JOY MANUFACTURING COMPANY

W. J. Pilarski

W. J. Pilarski, Manager
Contract Drill Division

WJP/vh

The New Jersey Zinc Company
160 Front St., New York 38,

SPRAGUE & HENWOOD, Inc.
Contractors for DIAMOND DRILLING
MINERAL EXPLORATION • SOIL SAMPLING • PRESSURE GROUTING
EXECUTIVE OFFICES & PLANT • SCRANTON, PENNSYLVANIA

PLEASE REPLY TO:
575 LINWOOD AVENUE, NORTHEAST
ATLANTA 6, GEORGIA
Telephone: TRinity 5-4901

April 15, 1958

The New Jersey Zinc Company
160 Front Street
New York 38, New York

RE: - Diamond Drilling
Chaffin Estate,
Austinville, Virginia - 1-X-524

Attention: Mr. A. E. Turner

Gentlemen:

Thank you for inviting us to submit our proposal for approximately 12,000 linear feet of AX drilling in vertical holes ranging in depth from 1,200 to 2,000 feet each on the Chaffin Estate that joins your Austinville, Virginia property and lies east of the Brown Ore Body and south of the Flatwoods section. Our proposal for this work follows:

Item 1 - For AX drilling	0	to	500 feet	----------	Two Dollars and Thirty-Five Cents ($2.35) per lin.ft.
	From 500	to	750 feet	----------	Two Dollars and Seventy Cents ($2.70) per lin.ft.
	From 750	to	1000 feet	----------	Two Dollars and Ninety-Five Cents ($2.95) per lin.ft.
	From 1000	to	1250 feet	----------	Three Dollars and Twenty Cents ($3.20) per lin.ft.
	From 1250	to	1500 feet	----------	Three Dollars and Forty-Five Cents ($3.45) per lin.ft.
	From 1500	to	1750 feet	----------	Three Dollars and Seventy Cents ($3.70) per lin.ft.
	From 1750	to	2000 feet	----------	Four Dollars and Twenty Cents ($4.20) per lin.ft.

Item 2 - For all casing left in holes at the request of the New Jersey Zinc Company -- AT COST.

All work is to be done in accordance with your letter of March 31, 1958.

Payment for this work is to be made on monthly estimates for all footage drilled the previous month, and payment is to be made within thirty (30) days after date of our invoice.

If awarded this work, we are prepared to start within one week after receipt of written notice to proceed.

Very truly yours,

SPRAGUE & HENWOOD, INC.

The New Jersey Zinc Com
160 Front St., New York

Kevin A. Fletcher

Kevin A. Fletcher, Assistant Vice-President

KaF:cgw
Enclosure: Bid in triplicate

Longyear

E. J. LONGYEAR COMPANY
General Offices, Foshay Tower
Minneapolis 2, Minnesota, U.S.A.
TELEPHONE: FEDERAL 2-2447 • CABLE LONGYE

OFFICIAL FILE COPY
DMEA
RECEIVED MAY 8 1958
DATE | INITIALS | CODE

April 15, 1958

The New Jersey Zinc Company
160 Front Street
New York 38, New York

Attention: Mr. A. E. Turner

DIAMOND DRILLING - CHAFFIN ESTATE - AUSTINVILLE, VIRGINIA 1-X-524

Gentlemen:

1. In response to your letter of March 31, 1958, we are pleased to submit below proposal for your contemplated exploratory drilling program which is to be carried out in the above-described area.

2. We understand that the program as now planned will consist of a minimum of four holes, with specifications as follows:

a) Depth of holes - minimum of 1200 feet to a maximum of 2000 feet
b) Angle of holes - vertical
c) Formation - Shady dolomite
d) Water supply - Water available within a maximum distance of 6000 feet of any proposed drill site.
e) Accessibility - All drill sites accessible by truck transportation.
f) Size of core - AX, with EX acceptable only when approved by you.

3. For this work we propose to furnish one Longyear gasoline-driven, truck-mounted diamond core drill, together with the necessary accessory equipment including BX wire line equipment, required to accomplish the work as now planned; and to furnish all other service equipment required for moving, and for supplying water for drilling purposes. We further propose to operate the drill on a double shift basis, six days per week.

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:

The New Jersey Zinc Co
160 Front St., New York

a) Overburden Drilling

0 to 100 feet in depth, measured from the collar of the hole.....$3.25 per ft.

Higher than [illegible]

b) Diamond Core Drilling

	AX standard and/or BX wire line tools (core approx. 1-1/8" in diameter)	EX standard recovering core approx. 7/8" in dia.
Top of Ledge to 1000' in depth, measured from collar of hole...	$ 3.25 per ft.	$3.15 per ft.
1000 to 1500 feet in depth.....	$ 3.50 per ft.	$3.40 per ft.
1500 to 2000 feet in depth.....	$ 3.85 per ft.	$3.75 per ft.

BX-size, recovering core approximately 1-5/8" in diameter -

Top of Ledge to 500 feet in depth, measured from the collar of the hole.....$3.50 per ft.

c) Drill hole surveying with Maas compass.....$5.75 per hour

d) Delays for your convenience or for which you are responsible.....$5.75 per hour

e) Hauling drill core from drill hole locations to core storage shed.....$4.00 per hour

f) Capping drill hole.....$4.00 per hour

g) Casing left in drill holes at your request -

AX-size.....$1.70 per ft.
BX-size.....$2.15 per ft.
NX-size.....$2.90 per ft.

h) Cleaning up of drill hole locations to be carried out at the sole expense of the Longyear Company.

i) Reaming and casing, when required, will be carried out at the sole expense of the Longyear Company.

6. The above-quoted drilling are based on wages currently being paid in the southeastern district. If during the life of this project it becomes necessary for us to adjust the wages being paid our workmen because of demands of labor union or otherwise, it is understood and agreed that the Longyear Company reserves the right to increase drilling rates to cover resultant additional operating expenses.

7. 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.

8. Invoices covering work performed will be prepared in accordance with your instructions.

The New Jersey Zinc Company
160 Front St., New York 38, N. Y.

The New Jersey Zinc Company April 15, 1958

9. We appreciate the opportunity to consider this program. If our proposal is found acceptable, we are prepared to furnish the equipment from our Max Meadows warehouse and to commence the drilling operations promptly after receipt of official notice to proceed.

Sincerely,

E. J. LONGYEAR COMPANY

M. J. Gleason

Manager
Contract Drilling Division

M.J.Gleason:bal

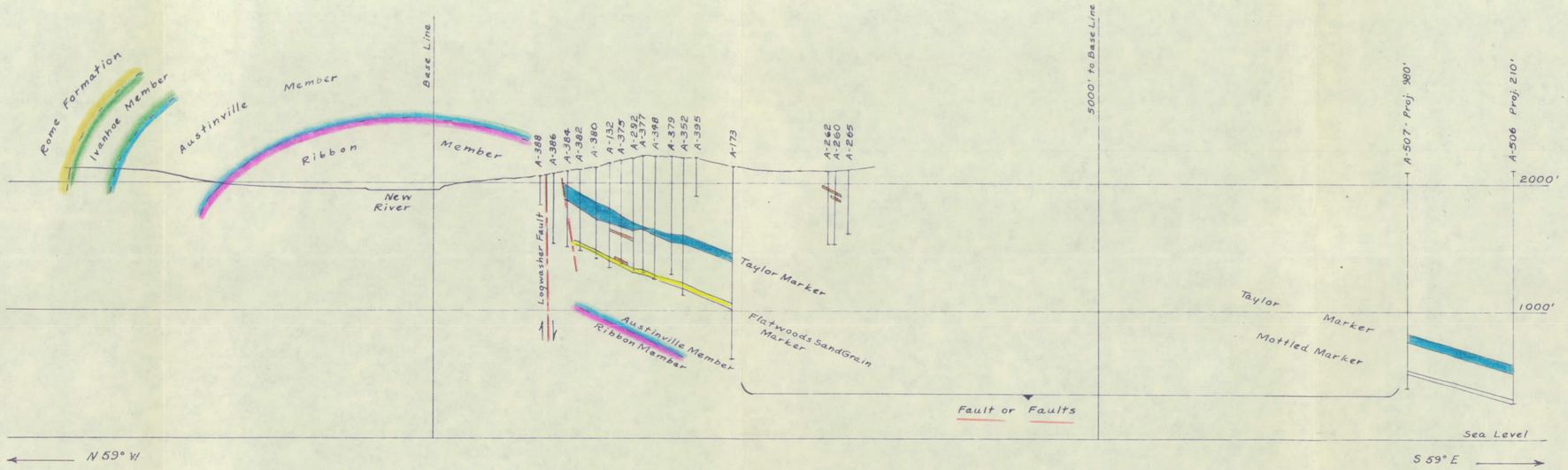
ACCEPTED:

THE NEW JERSEY ZINC COMPANY

By: _____

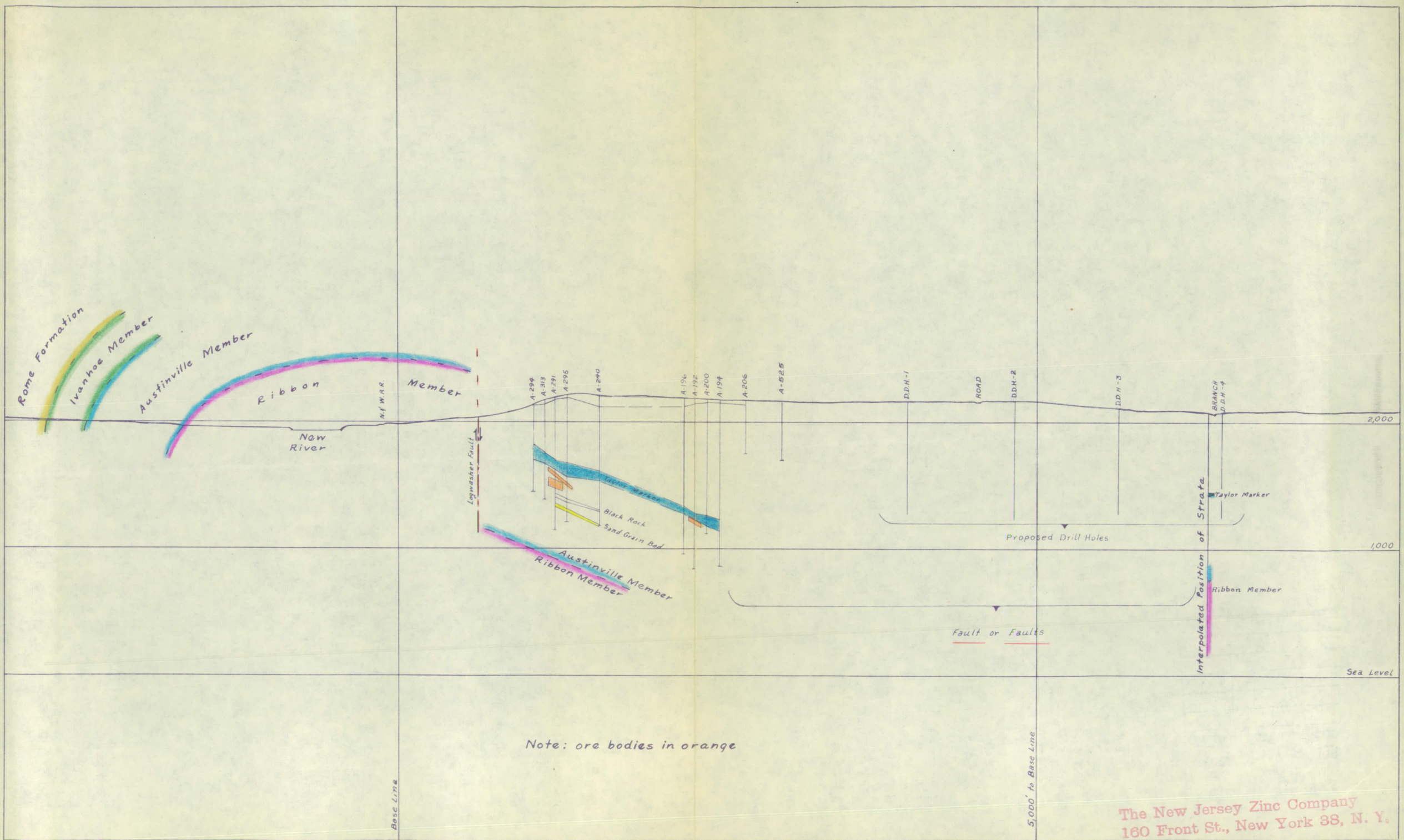
Date: _____

The New Jersey Zinc Com
160 Front St., New York 8



Note: ore bodies in orange

POSTED TO DATE	THE NEW JERSEY ZINC COMPANY AUSTINVILLE, VA.	DRAWN Staff DATE 4-22-58 TRACED SCALE 1" = 660'	SECTION AT EAST END CHAFFIN ESTATE	DISTRICT AUSTINVILLE FILE NO. 7GB-4354



The New Jersey Zinc Company
160 Front St., New York 38, N. Y.

POSTED TO DATE	THE NEW JERSEY ZINC COMPANY AUSTINVILLE, VA.	DRAWN Staff DATE 4-22-58 TRACED SCALE 1"=660'	SECTION OF PROPOSED HOLES CHAFFIN ESTATE, SECTION 181	DISTRICT AUSTINVILLE FILE NO. 7GB-4353

X 5407 B 1M 3-53

6

NAME OR TITLE		AND ROOM	
	STOP		RUN / STOP
	RUN / STOP		RUN / STOP
~~M. A. Benson~~ Room 139 Arlington Towers	RUN / STOP		RUN / STOP
Football Contest 4531 Int.	RUN / STOP		RUN / STOP
[illegible]	RUN / STOP		RUN / STOP
[illegible] MEA Rm-4454	RUN / STOP		RUN / STOP
	RUN / STOP		RUN / STOP
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	RUN / STOP		RUN / STOP

Use other side first

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U. S. Government Messenger Envelope

Standard Form No. 65 (Rev. 1/46)

1. Use blocks consecutively, one at a tim
2. Void previous block.
3. Write clearly.

NAME OR TITLE OF PERSON, DEPARTMENT, ADDRESS, AND ROOM		NAME OR TITLE OF PERSON, DEPARTMENT, ADDRESS, AND ROOM	
[redacted]	RUN / STOP	[redacted]	RUN / STOP
[redacted]	RUN / STOP	Mr. Cadlinate Room 2009 B.S. Bldg	RUN / STOP
[redacted]	RUN / STOP	[redacted]	RUN / STOP
[redacted]	RUN / STOP	[redacted]	RUN / STOP
[redacted]	RUN / STOP	~~Personnel Office~~ ~~(Daily Order)~~	RUN / STOP
[redacted]	RUN / STOP	[redacted]	RUN / STOP
[redacted]	RUN / STOP	[redacted]	RUN / STOP
[redacted]	RUN / STOP	~~2240~~	RUN / STOP
	RUN / STOP	~~Altman~~ ~~2452 Int.~~	RUN / STOP
[redacted]	RUN / STOP	~~Mr. Scherwood~~ ~~1242-C, GSA Bldg.~~	RUN / STOP

Send surplus envelopes to supply room for reissue.

Use other side

16—88940a—3

Use RUN and STOP only when messenger service between Government buildings in Washington is required.
Your mail room has RUN and STOP information.

0'-1000'

12,000' @ $2.25/ft. = $27,000.00

1,000'-1,500'

4,000' @ $2.50/ft = 10,000.00

1,500'-2,000'

932' @ $3.00/ft = 2,796.00

Total:

16,932' @ $0.22/ft = 3,725.04

200 Samples @ $2.00 ea = 400.00

400 Core Boxes @ $2.50 ea = 1,000.00

$44,920.00

$44,921.04

~~8,000' @ $2.25/ft. = $18,000.00~~

12,000' @ 2.25/ft = $27,000.00

1,000'-1500'
4,000' @ 2.50/ft. = 10,000.00

Incidentals
1,000' @ 0.22 = $220.00

1,000' @ 3.00 = 3,000.00

1500'-2000'
4,000' @ 3.00/ft = ~~12,000.00~~

17,000'

2.25 | 12,000 | 5,333

604'
321'
443'
384'
370'
369'
2,491'

2491'
1600
4091

3,000
220
3 | 3,780
925

12000
2.25
60000
24000
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27000.00

950
.22
1900
1900
$209.00

940
.22
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1880
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3 | 2,791
930

3,000
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931

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3 | 2,795
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1864
205.04

United States Department of the Interior

GEOLOGICAL SURVEY
BOX 25046 M.S. 922
DENVER FEDERAL CENTER
DENVER, COLORADO 80225

BRANCH OF CENTRAL MINERAL RESOURCES

IN REPLY REFER TO:
(303) 236-5608

February 6, 1989

Re: DMEA 5008 (lead-zinc)
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia
Contract Idm-E-1204

Mr. Earl Doppelt, Deputy General Counsel
Gulf and Western, Inc.
One Gulf and Western Plaza, 18th floor
New York, NY 10023

Dear Mr. Doppelt:

Our last communication to you was dated August 19, 1986, but we never received a reply.

Under the terms of the contract and the Certification of Possible Production, the certification period and royalty due if there had been production, has expired as of June 12, 1988.

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,

David A. Lindsey, for
J. William Hasler, Chief
Office of Minerals Exploration

DALindsey:js

Copies to G. H. Allcott
H. A. Tourtelot
D. A. Lindsey
Robert Edwards
J. W. Hasler

United States Department of the Interior

GEOLOGICAL SURVEY
BOX 25046 M.S. 939
DENVER FEDERAL CENTER
DENVER, COLORADO 80225

August 19, 1986

Re: DMEA 5008 (lead-zinc)
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia
Contract Idm E-1204

Mr. Earl Doppelt, Deputy General Counsel
Gulf and Western, Inc.
One Gulf and Western Plaza, 38th floor
New York, NY 10023

Dear Mr. Doppelt:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely,

J. William Hasler

J. William Hasler, Chief
Office of Minerals Exploration

JWH:js

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. Since May 16, 1983, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☐

Referring to the SPECIAL AGREEMENT CONCERNING LAND OF ANNEX 1 of the subject contract, since June 5, 1975, has any contiguous land been acquired or any abandoned land reacquired? If so, please give details.

2. Since May 16, 1983, has there been any production from the land subject to the contract? Yes ☐ No ☐

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser (*name and address*)	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity (*tons*)	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since May 16, 1983, has any production been transported through workings (*see* *of contract*)? Yes ☐ No ☐

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name	*Title*
Address	*Date*

Re Chaffin
Tract, N.J.
Zinc

Gulf & western
Robt Marshall (legal?) no Robt Marshall
NY 212 333 7000

New Jersey Zinc
Palmerton Pa
215 826 2111 (talked with Delores in Brown's office - personnel)

New Jersey Zinc bought out by
G & W

Names to locate
Roy E Thompson
Howell Rory
Samuel E J McDougall
Frederick H Main
John Ellis

Bill talked to
T J Montgomery
Inspiration Mines Inc
Claypool Ariz
602 - 473 - 7006 (gen mgrs office)

left ward on tel mach
w/ Wm T Hill
Hendersonville Tenn 37075
(615) 824 1798

orig call to GPW Natural Resources Grp

615 259 1000 (child to:)

256 6736.— now disconnected

United States Department of the Interior

GEOLOGICAL SURVEY
BOX 25046 M.S. ~~939~~ (939)
DENVER FEDERAL CENTER
DENVER, COLORADO 80225

rec'd both x
undeliverable

aug 6
~~July~~ 31, 1986

Re: DMEA 5008 (lead-zinc)
The New Jersey Zinc Company
Chaffin Tract
Wythe County Virginia
Contract IDME-1204

Mr. William T. Hill
Vice President Exploration
G+W Natural Resources Group
One Commerce Place
Nashville, Tennessee 37239

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely,

J. William Hasler, Chief
Office of Minerals Exploration

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. Since , has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☐

2. Since , has there been any production from the land subject to the contract? Yes ☐ No ☐

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser *(name and address)*	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity *(tons)*	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since , has any production been transported through workings *(see of contract)*? Yes ☐ No ☐

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name	*Title*
Address	*Date*

United States Department of the Interior

GEOLOGICAL SURVEY
BOX 25046 M.S. 939
DENVER FEDERAL CENTER
DENVER, COLORADO 80225

5/19/85

Re: DMEA 5008 (lead-zinc)
The New Jersey Zinc Company
Chaffin Tract
Wythe County Virginia
Contract IdME-1204

Mr. William T. Hill
Vice President Exploration
G+W Natural Resources Group
One Commerce Place
Nashville, Tennessee

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely,

J. William Hasler, Chief
Office of Minerals Exploration

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. Since May 16 1983, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☐

Referring to the SPECIAL AGREEMENT CONCERNING LAND OF ANNEX I of the subject contract, since June 5, 1975, has any contiguous land been acquired or any abandoned land reacquired? If so please give details.

2. Since May 16 1983, has there been any production from the land subject to the contract? Yes ☐ No ☐

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser (*name and address*)	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity (*tons*)	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since May 19 1983, has any production been transported through workings (*see of contract*)? Yes ☐ No ☐

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name	*Title*
Address	*Date*

United States Department of the Interior

GEOLOGICAL SURVEY
BOX 25046 M.S. 939
DENVER FEDERAL CENTER
DENVER, COLORADO 80225

August 6, 1986

Re: DMEA 5008 (lead-zinc)
The New Jersey Zinc Co.
Chaffin Tract
Wythe Co., Va.
Contract Idm E-1204

Mr. William T. Hill
Vice President, Exploration
G & W Natural Resources Group
One Commerce Place
Nashville, Tennessee 27239

Dear Mr. Hill:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely,

J. William Hasler

J. William Hasler, Chief
Office of Minerals Exploration

JWH:js

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. Since May 16, 1983, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☐

Referring to the SPECIAL AGREEMENT CONCERNING LAND OF ANNEX I of the subject contract, since June 5, 1975, has any contiguous land been acquired or any abandoned land reacquired? If so, please give details.

2. Since May 16, 1983, has there been any production from the land subject to the contract? Yes ☐ No ☐

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser (*name and address*)	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity (*tons*)	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since May 16, 1983, has any production been transported through workings (*see of contract*)? Yes ☐ No ☐

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name	*Title*
Address	*Date*

United States Department of the Interior

GEOLOGICAL SURVEY
BOX 25046 M.S. 939
DENVER FEDERAL CENTER
DENVER, COLORADO 80225

August 6, 1986

Re: DMEA 5008 (lead-zinc)
The New Jersey Zinc Co.
Chaffin Tract
Wythe Co., Va.
Contract Idm E-1204

Mr. William T. Hill
Vice President, Exploration
G & W Natural Resources Group
One Commerce Place
Nashville, Tennessee 27239

Dear Mr. Hill:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely,

J. William Hasler

J. William Hasler, Chief
Office of Minerals Exploration

JWH:js

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. Since May 16, 1983, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☐

Referring to the SPECIAL AGREEMENT CONCERNING LAND OF ANNEX I of the subject contract, since June 5, 1975, has any contiguous land been acquired or any abandoned land reacquired? If so, please give details.

2. Since May 16, 1983, has there been any production from the land subject to the contract? Yes ☐ No ☐

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser (*name and address*)	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity (*tons*)	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since May 16, 1983, has any production been transported through workings (*see of contract*)? Yes ☐ No ☐

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name	*Title*
Address	*Date*

United States Department of the Interior

GEOLOGICAL SURVEY
BOX 25046 M.S. 933
DENVER FEDERAL CENTER
DENVER, COLORADO 80225

May 9, 1983

Re: DMEA 5008 (lead-zinc)
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia
Contract Idm E-1204

Mr. Frederic H. Main
Vice President, Mining
G & W Natural Resources Group
One Commerce Place
Nashville, Tennessee 37239

Dear Mr. Main:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely,

J. William Hasler

J. William Hasler, Chief
Office of Minerals Exploration

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. Since April 26, 1982, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☒

Referring to the SPECIAL AGREEMENT CONCERNING LAND OF ANNEX I of the subject contract, since June 5, 1975, has any contiguous land been acquired or any abandoned land reacquired? If so please give details.

2. Since April 26, 1982, has there been any production from the land subject to the contract? Yes ☐ No ☒

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser (*name and address*)	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity (*tons*)	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since April 26, 1982, has any production been transported through workings (*see of contract*)? Yes ☐ No ☐

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name William T. Hill	Title U.P. Exploration
Address Natural Resources Group, G+W ONE COMMERCE PL. Nashville, Tn. 37239	Date 5/16/83

United States Department of the Interior

GEOLOGICAL SURVEY
BOX 25046 M.S. 933
DENVER FEDERAL CENTER
DENVER, COLORADO 80225

April 9, 1982

Re: DMEA-5008 (lead-zinc)
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia
Contract Idm E-1204

Mr. E. L. Weinberg
Regional Geologist
The New Jersey Zinc Company
Austinville, VA 24312

Dear Mr. Weinberg:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely,

J. William Hasler

J. William Hasler, Chief
Office of Minerals Exploration

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT
OR PROJECT UNDER ROYALTY AGREEMENT

1. Since July 1, 1981, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☒

Referring to the SPECIAL AGREEMENT CONCERNING LAND OF ANNEX I of the subject contract, since June 5, 1975, has any contiguous land been acquired or any abandoned land reacquired? If so, please give details.

2. Since July 1, 1981, has there been any production from the land subject to the contract? Yes ☐ No ☒

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser (*name and address*)	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity (*tons*)	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since workings (*see* , has any production been transported through *of contract*)? Yes ☐ No ☒

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name	Title
FREDERIC H. MAIN	VICE PRESIDENT - MINING
Address GHW NATURAL RESOURCES GROUP ONE COMMERCE PLACE, NASHVILLE, TN 37239	Date 4/26/92

United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092

IN REPLY REFER TO: Office of Minerals Exploration
Mail Stop 953

June 12, 1979

Re: DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia
Contract Idm-E1204

Mr. E. L. Weinberg
Regional Geologist
The New Jersey Zinc Company
Austinville, Virginia 24312

Dear Mr. Weinberg:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo, Chief
Office of Minerals Exploration

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. Since May 24, 1978, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☐

Referring to the SPECIAL AGREEMENT CONCERNING LAND of Annex I of the subject contract, since June 5, 1975, has any continugous land been acquired or any abandoned land reacquired? If so, please give details. Yes ___ No ___

2. Since May 24, 1978, has there been any production from the land subject to the contract? Yes ☐ No ☐

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser *(name and address)*	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity *(tons)*	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since workings *(see of contract)*, has any production been transported through Yes ☐ No ☐

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name	*Title*
Address	*Date*

United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092

IN REPLY REFER TO: Office of Minerals Exploration
Mail Stop 953

May 18, 1978

MAY 1978
RECEIVED
THE NEW JERSEY ZINC CO.
AUSTINVILLE, VA.

Re: DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia
Contract Idm-E1204

Mr. E. L. Weinberg
Regional Geologist
The New Jersey Zinc Company
Austinville, Virginia 24312

Dear Mr. Weinberg:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo, Chief
Office of Minerals Exploration

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. Since June 5, 1975, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☑

Referring to the SPECIAL AGREEMENT CONCERNING LAND of Annex I of the subject contract, since June 5, 1975, has any contiguous land been acquired or any abandoned land reacquired? If so, please give details. Yes ___ No ✓

2. Since June 5, 1975, has there been any production from the land subject to the contract? Yes ☐ No ☑

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser *(name and address)*	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity *(tons)*	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since workings *(see* , has any production been transported through *of contract)*? Yes ☐ No ☐

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name E. L. Wenberg	Title Regional Geologist
Address THE New Jersey Zinc Co. AUSTINVILLE, VA. 24312	Date 5/24/78

HK

United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092 22 MAY 1975

IN REPLY REFER TO: Office of Minerals Exploration

Re: DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia
Contract Idm-E1204

Mr. E. L. Weinberg
Regional Geologist
The New Jersey Zinc Company
Austinville, Virginia 24312

Dear Mr. Weinberg:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo, Chief
Office of Minerals Exploration

6/5/75

cc: (2)
F. H. Main, Pa
K. R. Winston, Tenn.
P. Tropucka, E. L. W.

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT
OR PROJECT UNDER ROYALTY AGREEMENT

1. Since June 15, 1973, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☑

Referring to the SPECIAL AGREEMENT CONCERNING LAND of Annex I of the subject contract, since June 15, 1973, has any contiguous land been acquired or any abandoned land reacquired? If so please give details. Yes ☐ No ☑

2. Since June 15, 1973, has there been any production from the land subject to the contract? Yes ☐ No ☐

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser *(name and address)*	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity *(tons)*	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since workings *(see* , has any production been transported through *of contract)*? Yes ☐ No ☐

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name E. L. Weinberg	Title Regional Geologist
Address The New Jersey Zinc Co Austinville, Va 24312	Date 6/5/75

United States Department of the Interior

GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

IN REPLY REFER TO: Office of Minerals Exploration

June 13, 1973

Re: DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia
Contract Idm-E1204

Mr. E. L. Weinberg
Regional Geologist
The New Jersey Zinc Company
Austinville, Virginia 24312

OFFICIAL COPY
A. M. E.
RECEIVED
JUN 20 1973

INITIALS	CODE
HK	~~120~~

Dear Mr. Weinberg:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

Copy to R-IV

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. Since June 16, 1972, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☑

Referring to the SPECIAL AGREEMENT CONCERNING LAND of Annex I of the subject contract, since June 16, 1972, has any contiguous land been acquired or any abandoned land reacquired? If so please give details. Yes ☐ No ☑

2. Since June 16, 1972, has there been any production from the land subject to the contract? Yes ☐ No ☑

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser *(name and address)*	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity *(tons)*	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since , has any production been transported through workings *(see of contract)*? Yes ☐ No ☑

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name E. L. Weinberg	*Title* Regional Geologist
Address The N. J. Zinc Company Austinville, Va 24312	*Date* 6/15/73

United States Department of the Interior

GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

IN REPLY REFER TO: Office of Minerals Exploration

June 13, 1972

Mr. E. L. Weinberg
Regional Geologist
The New Jersey Zinc Company
Austinville, Virginia 24312

Re: DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia
Contract Idm-E1204

OFFICIAL COPY
O. M. E.
RECEIVED
JUN 20 1972

INITIALS	CODE
[illegible]	130
HK	120

Dear Mr. Weinberg:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

Copy to Region IV

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. Since June 11, 1971, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☑

Referring to the SPECIAL AGREEMENT CONCERNING LAND of Annex I of the subject contract, since June 11, 1971, has any contiguous land been acquired or any abandoned land reacquired? If so, please give details. Yes ☐ No ☑

2. Since June 11, 1971, has there been any production from the land subject to the contract? Yes ☐ No ☑

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser (*name and address*)	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity (*tons*)	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since , has any production been transported through workings (*see* *of contract*)? Yes ☐ No ☑

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name C. L. Weinberg	Title Regional Geologist
Address The New Jersey Zinc Co., Austinville, Va 24312	Date June 16, 1972

United States Department of the Interior

GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

IN REPLY REFER TO: Office of Minerals Exploration

June 9, 1971

Mr. E. L. Weinberg
Regional Geologist
The New Jersey Zinc Company
Austinville, Virginia 24312

OFFICIAL COPY
O. M. E.
RECEIVED
JUN 14 1971

INITIALS	CODE
[illegible]	130
HK	120
	220

Re: DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia
Contract Idm-E1204

Dear Mr. Weinberg:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

copy to Region IV

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. Since June 17, 1970, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☑

Referring to the SPECIAL AGREEMENT CONCERNING LAND of Annex I of the subject contract, since June 17, 1970, has any contiguous land been acquired or any abandoned land reacquired? If so, please give details.

2. Since June 17, 1970, has there been any production from the land subject to the contract? Yes ☐ No ☑

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser (*name and address*)	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity (*tons*)	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since workings (*see* [illegible] *of contract*)? has any production been transported through Yes ☐ No ☑

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name: E. L. Weinberg	Title: Regional Geologist
Address: The New Jersey Zinc Co., Austinville Va 24312	Date: June 11, 1971

United States Department of the Interior

GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

IN REPLY REFER TO: Office of Minerals Exploration

June 12, 1970

Mr. E. L. Wienberg
Regional Geologist
The New Jersey Zinc Company
Austinville, Virginia 24312

Re: DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia
Contract Idm-E1204

COPY
O. M. E.
RECEIVED
JUN 19 1970
220

Dear Mr. Wienberg:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

Copy to P-IV

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. Since June 10, 1969, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☑

Referring to the SPECIAL AGREEMENT CONCERNING LAND of Annex I of the subject contract, since June 10, 1969, has any contiguous land been acquired or any abandoned land reacquired? If so, please give details.

2. Since June 10, 1969, has there been any production from the land subject to the contract? Yes ☐ No ☑

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser *(name and address)*	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity *(tons)*	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since workings *(see of contract)*, has any production been transported through Yes ☐ No ☑

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name E. L. Weinberg	Title Regional Geologist
Address The New Jersey Zinc Co, Austinville, Va 24312	Date June 17, 1970

IN REPLY REFER TO:
Office of Minerals Exploration

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

OFFICIAL COPY
O. M. E.
RECEIVED
JUN 12 1969

INITIALS	CODE
gla	130
HK	120
	220

JUN 3 1969

The New Jersey Zinc Company
160 Front Street
New York, New York 10038

Re: DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia
Contract Idm-E1204

Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

Copy to R-IV

MME Form 63
Revised 7-65

REQUEST FOR INFORMATION ON CERTIFIED PROJECT AND PROJECT UNDER ROYALTY AGREEMENT

1. Since July 8, 1968, has there been a change in ownership, lease, or sublease? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before. Yes ☐ No ☑
   Referring to the SPECIAL AGREEMENT CONCERNING LAND of Annex I of the subject contract, since July 8, 1968, has any contiguous land been acquired or any abandoned land reacquired? If so, please give details. Yes ☐ No ☑

2. Since July 8, 1968, has there been any production from the land subject to the contract? Yes ☐ No ☑

   A. If so and it was shipped, give quantity, value, and name and address of purchaser.

	Quantity	Value
	None	

   B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity		Estimated Grade	Location
Ore	None	Tons		
Concentrates		Tons		
Other		Tons		

3. Since through workings (see of contract)? Yes ☐ No ☑

   If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value
	None	

Submitted by:

Name E. L. Nenberg Title Regional Geologist

Address Austinville, Va. Date June 10, 1968

IN REPLY REFER TO:
Office of Minerals Exploration

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

July 1, 1968

The New Jersey Zinc Company
160 Front Street
New York, New York 10038

Re: DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia
Contract Idm-E1204

OFFICIAL COPY
O. M. E.
RECEIVED
JUL 10 1968

INITIALS	CODE
	130
	110
	220

Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Frank E. Johnson

Frank E. Johnson
Chief, Office of
Minerals Exploration

MME Form 63
Revised 7-65

REQUEST FOR INFORMATION ON CERTIFIED PROJECT AND PROJECT UNDER ROYALTY AGREEMENT

1. Since August 14, 1967, has there been a change in ownership, lease, or sublease? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before. Yes ☐ No ☑
   Referring to the SPECIAL AGREEMENT CONCERNING LAND of Annex I of the subject contract, since August 1967 has any contiguous land been acquired or any abandoned land reacquired? If so, please give details.

2. Since August 14, 1967, has there been any production from the land subject to the contract? Yes ☐ No ☑

   A. If so and it was shipped, give quantity, value, and name and address of purchaser.

	Quantity	Value
	None	

   B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity		Estimated Grade	Location
Ore	None	Tons		
Concentrates		Tons		
Other		Tons		

3. Since , has any production been transported through workings (see of contract)? Yes ☐ No ☑

   If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value
	None	

Submitted by:

Name E. L. Weinberg Title ~~Manager~~ Regional Geologist

Address Austinville, Va. Date July 8, 1968

Office of Minerals Exploration

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

August 9, 1967

OFFICIAL COPY
IN REPLY REFER TO:
AUG 16 1967
INITIALS | CODE
220

The New Jersey Zinc Company
160 Front Street
New York, New York 10038

Re: DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia
Contract Idm-E1204

WHC

Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Frank E. Johnson
Chief, Office of
Minerals Exploration

Copy to R-IV

MME Form 63
Revised 7-65

REQUEST FOR INFORMATION ON CERTIFIED PROJECT AND PROJECT UNDER ROYALTY AGREEMENT

1. Since August 1966, has there been a change in ownership, lease, or sublease? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before. Yes [ ] No [✓]

   Referring to the SPECIAL AGREEMENT CONCERNING LAND of Annex I of the subject contract, since August 1966 has any contiguous land been acquired or any abandoned land reacquired? If so, please give details. Yes [ ] No [✓]

2. Since August 1966, has there been any production from the land subject to the contract? Yes [ ] No [✓]

   A. If so and it was shipped, give quantity, value, and name and address of purchaser.

	Quantity	Value
	None	

   B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity		Estimated Grade	Location
Ore	None	Tons		
Concentrates		Tons		
Other		Tons		

3. Since , has any production been transported through workings (see of contract)? Yes [ ] No [✓]

   If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value
	None	

Submitted by:

Name K R Clearwater Title Superintendent

Address Austinville, Va Date August 14, 1967

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

August 17, 1966

The New Jersey Zinc Company
160 Front Street
New York 38, New York

OFFICIAL COPY
O. M. E.
RECEIVED
AUG 24 1966

INITIALS	CODE
8/24 m	120
	410
	220

Re: DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Co.
Chaffin Tract
Wythe County, Virginia
Contract Idm-E1204

Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Frank E. Johnson

Frank E. Johnson
Chief, Office of
Minerals Exploration

MME Form 63
Revised 7-65

REQUEST FOR INFORMATION ON CERTIFIED PROJECT AND PROJECT UNDER ROYALTY AGREEMENT

1. Since **September 1965**, has there been a change in ownership, lease, or sublease? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before. Yes ☐ No ☑

   Referring to the SPECIAL AGREEMENT CONCERNING LAND of Annex I of the subject contract, since September 1965 has any contiguous land been acquired or any abandoned land reacquired? If so, please give details. Yes/__/No/☑

2. Since **September 1965**, has there been any production from the land subject to the contract? Yes ☐ No ☑

   A. If so and it was shipped, give quantity, value, and name and address of purchaser.

	Quantity	Value

   B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity		Estimated Grade	Location
Ore	None	Tons		
Concentrates		Tons		
Other		Tons		

3. Since , has any production been transported through workings (see of contract)? Yes ☐ No ☑

   If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value
	None	

Submitted by:

Name K R Wenlem Title Superintendent

Address Austinville, Va Date August 19, 1966

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

September 7, 1965

The New Jersey Zinc Company
160 Front Street
New York 38, New York

Re: DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Co.
Chaffin Tract
Wythe County, Virginia
Contract Idm-E1204

Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Frank E. Johnson

Frank E. Johnson
Chief, Office of
Minerals Exploration

SEP 15 1965

FEJ ~~110~~
9/15 M 120 m
~~120~~
220

MME Form 63
Revised 7-65

REQUEST FOR INFORMATION ON CERTIFIED PROJECT AND PROJECT UNDER ROYALTY AGREEMENT

1. Since **April 1964**, has there been a change in ownership, lease, or sublease? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before. Yes [ ] No [✓]

   Referring to the SPECIAL AGREEMENT CONCERNING LAND of Annex I of the subject contract, since November 1959 has any contiguous land been acquired or any abandoned land reacquired? If so, please give details. Yes [ ] No [✓]

2. Since **April 1964**, has there been any production from the land subject to the contract? Yes [ ] No [✓]

   A. If so and it was shipped, give quantity, value, and name and address of purchaser.

	Quantity	Value
	None	

   B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity		Estimated Grade	Location
Ore	None	Tons		
Concentrates	None	Tons		
Other		Tons		

3. Since , has any production been transported through workings (see of contract)? Yes [ ] No [ ]

   If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value
	None	

Submitted by:

Name _____ Title Superintendent

Address Austinville, Va Date Sept. 13, 1965

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

April 14, 1964

OFFICIAL FILE COPY
O. M. E.
RECEIVED APR 23 1964

DATE	INITIALS	CODE
4/23	[illegible]	800
4/23	[illegible]	100
4/23	[illegible]	~~110~~
~~4/23~~	~~Murphy~~	~~500~~
		-
		320

Re: DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia
Contract Idm-E1204

The New Jersey Zinc Company
160 Front Street
New York 38, New York

Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

W. R. Griswold

W. R. Griswold, Chief
Division of Minerals

REFERRED TO	INFOR. MATION	ATTEND	COPY RETAINED BY	DATE	RETURN TO
SUPT.					
ASS'T.					
LIME					
PURCH.					
PERS'L.					
MINE CH.					
PLANT CH.					
GEOL. CH.					
COMMENTS REQUESTED					
ENCLOSURES RETAINED BY					

MME Form 63
Revised 3-62

REQUEST FOR INFORMATION ON CERTIFIED PROJECT AND PROJECT UNDER ROYALTY AGREEMENT

1. Since August 2, 1962 , has there been a change in ownership, lease, or sublease? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before. Yes ☐ No ☒

2. Since August 2, 1962 , has there been any production from the land subject to the contract? Yes ☐ No ☒

   A. If so and it was shipped, give quantity, value, and name and address of purchaser.

	Quantity	Value
	None	

   B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity		Estimated Grade	Location
Ore		Tons		
Concentrates		Tons		
Other		Tons		

3. Since , has any production been transported through workings (see of contract)? Yes ☐ No ☒

   A. If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value
	None	

Submitted by:

Name K R Wunslow Title Superintendent

Address Austinville, Va. Date April 21, 1964

4511

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

JUL 24 1962

Re: DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Co.
Chaffin Tract
Wythe County, Virginia
Contract Idm-E1204

The New Jersey Zinc Company
160 Front Street
New York 38, New York

OFFICIAL FILE COPY
O. M. E.
RECEIVED AUG 6 1962

DATE	INITIALS	CODE
8/6		800
		100
		110
		500
8/9	Murphy	500
		200

Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

W. R. Griswold, Chief
Division of Minerals

MME Form 63
Revised 3-62

REQUEST FOR INFORMATION ON CERTIFIED PROJECT AND PROJECT UNDER ROYALTY AGREEMENT

1. Since July 1, 1960 , has there been a change in ownership, lease, or sublease? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before. Yes ☐ No ☒

2. Since July 1, 1960 , has there been any production from the land subject to the contract? Yes ☐ No ☒

   A. If so and it was shipped, give quantity, value, and name and address of purchaser.

	Quantity	Value

   B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity	Estimated Grade	Location
Ore	Tons		
Concentrates	Tons		
Other	Tons		

3. Since , has any production been transported through workings (see of contract)? Yes ☐ No ☒

   A. If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name K. R. Winslow Title Superintendent

Address Austinville, Virginia Date August 2, 1962

4511

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
6/12	GCS	120
		225

JUN 12 1962

Memorandum

To: Chief, Fiscal Section, Division of Administrative Services, Office of the Secretary

From: Chief, Division of Field Operations, OME

Subject: DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia
Contract Idm-E1204

Enclosed for your files is the original of a Report of Royalty Review on the subject contract.

George C. Selfridge

(HB)

Enclosure

GCSelfridge/hb (6/12/62)
cc to: Docket DMEA-5008
Director's Reading File
CA&A Division
G.C.Selfridge
R. A. Laurence, USGS, Reg. IV, w/cy of Report of Royalty Review dtd 6/12/62 & orig. cy of memo dtd 6/12/62 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

JUN 1 2 1962

Memorandum

To: Chief, Division of Field Operations

From: E. D. Talbert, Acting Chief (Signed) E. D. Talbert
Contract Administration and Audit Division

Subject: OMA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia
Contract Idm-51204

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 OMA 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 6-12-62

cc:
Docket
Director's Reading File
CA & A Division
Mr. Rothrock

43683

Docket
Unused

PROJECT SUMMARY REPORT

By: F. M. Murphy June 9, 1960

1. Docket No. DMEA-5008 (Zinc-Lead)
   Contract No. Idm-E1204

   Operator: The New Jersey Zinc Company
   160 Front Street
   New York 38, New York

   Operator's Property Rights:

   Owner of mineral rights and limited surface rights on 970 acres of land. This is the portion of land lying north of the Austinville-Poplar Camp road described in a plat of record in book 2, page 33, in the Clerk's Office of Wythe County, Virginia. Note: The contract contains a special agreement wherein any other land situated within 1,500 feet of the above-mentioned land that may be acquired will also be subject to the terms of the contract.

2. Contract dated June 12, 1958

   Amendments -

   No. 1, dated June 16, 1959, revised the "Estimated Cost of the Project," and increased the total cost from $44,920 to $66,906.

   No. 2, dated July 24, 1959, increased the allowed maximum depth of holes from 2,000 to 2,500 feet.

SUMMARY OF COSTS (Actual Costs)

Item	Authorized		Accepted[1/]	
	Units	Cost	Units	Cost
Drilling to 1,000-foot depth @ $2.25/ft. AX, $2.00/ft. EX size	12,000 feet	$27,000	(AX 15,365 feet (EX 6 feet	$34,571.25 12.00
Drilling from 1,000 to 1,500-foot depth @ $2.50/ft. AX, $2.25/ft. EX size	6,950 feet	17,375	(AX 6,037 feet (EX 425 feet	15,092.50 956.25

Summary of Costs (continued)

Item	Authorized		Accepted 1/	
	Units	Cost	Units	Cost
Drilling in excess of 1500-foot depth @ $3.00/ft. AX, $2.75/ft. EX size	5,050 feet	$15,150	AX 2,167 feet	$6,501.00
Assaying samples @ $2.00 ea.	300	600	90	180.00
Incidental allowance for each foot drilled @ $0.22/ft.	24,000, feet	5,280	24,000	5,280.00
Core boxes @ $2.50 each	600	1,500	730	1,825.00
Total cost		$66,905		$64,418.00
Government participation @ 50%				$32,209.00

1/ The Operator drilled 17 holes aggregating 27,145 feet.

3. Audit Report of Review, dated February 15, 1960.

Total cost billed by Operator			$64,525.75
Exceptions:			
Prior to review	$150.25		
Reinstatements	42.50	$107.50	
Herewith		-0-	107.50
Total acceptable costs			$64,418.00

4. Certification issued March 15, 1960

5. Final Reports:

Operator's received February 3, 1960. The report meets the requirements of Article 7(e) of the contract, therefore, it is considered acceptable.

Field Team's Final Report and Summary not received to date. 1/

The Field Team and examiners recommend certification of project.

Excerpts from the Operator's final reports:

1/ See Lynch's Memo report, dated June 20, 1960, below.

The project area consists of 970 acres of land in a roughly rectangular shape adjoining the Operator's Austinville property on the northeast. The exploration was based on the extrapolation of the en echelon pattern of known ore bodies in the Austinville property.

Seventeen holes were drilled to penetrate the Lower Cambrian shady dolomite formation which contains the ore in the Austinville mine. Seven of these penetrated ore grade mineralization. It is estimated that 425,000 tons of ore averaging 4.4% zn and 0.9%Pb have been indicated by these holes.

The holes were widely spaced from 400 to 800 feet apart, moreover, all the area was not explored. Additional drilling on the property has an excellent chance of increasing the indicated ore reserves.

F M Murphy

Fred M. Murphy

FMMurphy:kb - June 10, 1960
cc to: Director's reading file
Mr. Johnson
Mr. Murphy
Chron.

Murphy
225

Memorandum Report

To: Lawrence G. Houk, Acting Field Officer, OME - Region IV

From: V. J. Lynch, U. S. Bureau of Mines, Knoxville, Tenn.

Subject: Comments on Ore Reserve Calculations--
DMEA-5008, Idm-E1204(zinc) Chaffin Estate,
Austinville Area, Wythe County, Virginia
Operator-The New Jersey Zinc Company
160 Front Street, New York 38, N.Y.

The subject contract called for 16,000 feet of diamond drilling with another 8,000 feet being added by amendment, bringing the total footage to 24,000 feet.

The drilling was done under the expert supervision of the Company geologists. The final report was written by their Chief Geologist. In making his estimate of ore reserves no consideration was given to the possibility of ore occurring between the sections. This reduced the estimated tonnage tremendously. While I would not want to change his figures I believe his estimate is much too conservative. At any rate 425,600 tons of 4.4% zinc ore is a pretty good small ore body.

June 20, 1960.

MME Form 7
(10-58)

MAR 15 1960

OFFICIAL FILE COPY

Date	Surname	Code
3/9	Murphy	500
	Murphy	500
3/10	J. Lynch	140
	Sollers	140
	Appr'd. Sol. On.	
3/14	Tuttle	800
3/15	Selbridge	130
3/15	Yokes	130
3/15	Williams	130
		~~110~~
3-15	gad	220
		500

The New Jersey Zinc Company
160 Front Street
New York 38, New York

INTERIOR DEPT.
MAR 10 1960
SOLICITOR

RECEIVED
MAR 10 1960
ASSOC. SOLICITOR
MINERAL RESOURCES

Re: Docket No. IMEA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract
Austinville Area
Wythe County, Virginia
Contract No. Idm-E1204

Gentlemen:

Enclosed is a certification of discovery or development that covers all the land described in Article 2 of the contract.

By the terms of the Exploration Project Contract, as amended, and the certification, all minerals mined or produced from June 12, 1958, to June 12, 1988, are subject to the Government's percentage royalty as set forth in the contract until the sum of $32,209.00 is repaid to the Government.

Royalty payments should be made to the Executive Officer, OME Field Team, Region V, Room 11, Post Office Building, Knoxville 2, Tennessee, by the purchaser, with checks drawn payable to the Office of Minerals Exploration, the successor to the Defense Minerals Exploration Administration. The purchaser should be advised to deduct royalties from the amount due on each shipment and send the check directly to the Executive Officer. Each check should be accompanied by suitable sales evidence - such as copies of settlement sheets - showing the name of the purchaser, the quantity and grade of the products sold, and the price and charges, certified to be correct by the purchaser.

You are requested to notify the Executive Officer of any changes in ownership or production rights that may have any effect on the Government's right to its percentage royalty. Your attention is called particularly to Article 2(d) of the contract relating to the preservation of the Government's right to a percentage royalty on production. Also when production starts, please notify the Executive Officer. Thereafter, if production ceases for any extended period, please notify him accordingly at six-month intervals.

Sincerely yours,

Frank E. Johnson

Acting Director

Enclosure

urphy/gla 3-9-60
o: Director's Reading File
Frank E. Johnson
Operating Committee
Frank D. Lamb, USBM
Harold Kirkemo, USGS
OME Field Team, Region V (2)
Docket Chron Contract Adm. & Audit Division

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
3/9	Murphy	500
	Kirwan	500
3/10	J. Lynch	140
	[illegible]	140
	[illegible]	
3/14	Tallent	800
3/15	Selfridge	130
3/15	Johnson	130
3/15	Williams	130
3-15	gad	~~110~~ 220 500

MAR 15 1960

INTERIOR DEPT.
MAR 10 1960
SOLICITOR

Mr. Clarence A. Fredell, Director
Technical Research and Development Division
Defense Materials Service
General Services Administration
6018 GSA Building
Washington 25, D. C.

RECEIVED
MAR 10 1960
ASSOC. SOLICITOR
MINERAL RESOURCES

Re: Docket No. MMEA-3006 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract
Austinville Area
Wythe County, Virginia
Contract No. Idm-R1204

Dear Mr. Fredell:

I am enclosing one copy of a certification of discovery or development relating to the subject exploration contract.

The final report of the Field Team on this project has not been completed. Accordingly, we will supply additional information for your records upon receipt of this report.

Sincerely yours,

Frank E. Johnson

Acting Director

Enclosure

FMMurphy/gla
3-9-60
cc to: Director's Reading File
Frank E. Johnson
Operating Committee
Frank D. Lamb, USBM
Harold Kirkemo, USGS
OME Field Team, Region V (2)
Docket
Chron

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
2/17	Cal	220
	~~Murphy~~	~~500~~

FEB 16 1960

Memorandum

To: Executive Officer, OME Field Team, Region V

From: E. D. Talbert, Acting Chief (Signed) E. D. Talbert
Contract Administration and Audit Division

Subject: Docket No. DMEA-~~1204~~ 5008 (Zinc)
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia
Contract No. Idm-E1204

The original and three copies of a Report of Review on the subject project, as requested in your February 1 memorandum, are attached.

If you concur with the facts as stated therein, please forward the original and one copy to the regional certifying officer, submit one copy to the Operator, and retain one copy in your files. If for any reason you do not concur, please return the original and all copies to this Division with your comments.

The original of the Operator's certification as to the costs of assays and core boxes is being returned to Mrs. Miller, as an attachment to a copy of this memorandum, for filing with the final MF-104.

Attachments

EDTalbert/ama
February 16, 1960

Copy to: Docket
Director's Reading File
CA & A Division
Mrs. Helen R. Miller
Mr. Talbert

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
2/5	Selfridge	120
2-8	gad	220
	Murphy	100

FEB 8 1960

VIA CERTIFIED MAIL

Memorandum

To: Mrs. Helen R. Miller, Administrative Assistant
Bureau of Mines, Region V

From: E. D. Talbert, Acting Chief (Signed) E. D. Talbert
Contract Administration and Audit Division

Subject: Docket No. DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Estate Tract
Wythe County, Virginia
Contract No. Idm-E1204

Returned herewith are the original of the final (October 1959) MF-104 and MF-104A with attachments, together with the 18 drilling invoices and 14 laboratory reports applicable to prior forms MF-104.

The audit review, requested by your February 2 memorandum submitting the attached documents, has been performed. However, preparation of a Report of Review must be withheld pending your submission of documentary proof of the actual costs of the 730 core boxes and 90 sample assays claimed by the Operator. Please obtain the required documentary evidence from the Operator and then submit it to this Division for completion of the Report of Review.

It is to be noted that the subject contract provides for contribution by the Government on the basis of the actual costs incurred for core boxes and assays but not in excess of $2.50 for each box and $2.00 for each sample. Some other contracts with the same Operator (for instance, Idm-E1206, DMEA-4907) provide for contribution by the Government on the basis of fixed unit costs for these items regardless of actual costs incurred.

Enclosures

EDTalbert/ama
February 5, 1960

Copy to: Docket
Director's Reading File
CA & A Division
Mr. Laurence
Mr. Talbert

43683

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 11 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

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DATE	INITIALS	CODE
2/4	RCW	225
2/5	[illegible]	800
"	Murphy	500
		~~225~~

February 1, 1960

Memorandum

To: Contract Administration and Audit Division, OME

From: Acting Executive Officer, OME - Region V

Subject: DMEA-5008, Idm-E1204(zinc) New Jersey Zinc Co. Chaffin Tract, Wythe County, Virginia

Work under the subject contract was completed November 12, 1959.

The number of units of work completed by the Operator and accepted by the Field Team as conforming to contract specifications were:

Diamond drilling:	24,000 feet
Core Boxes used :	730
Samples analyzed:	90

An acceptable final engineering and geological report has been received.

A total of $31,717.06 has been paid to the Operator to date and $470.68 has been withheld pending final audit or review.

The original copy of the October 1959 Monthly Report and Voucher is attached. A Report of Review in lieu of final audit is requested.

V. J. Lynch

VJL/zm
cc
Opr. Com-2
Lynch
Files

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 11 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

February 1, 1960

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O. M. E.
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DATE	INITIALS	CODE
2/3	RCW	225
2/3	[illegible]	800
2/4	Murphy	500

Memorandum

To: Operating Committee, OME - Washington, D. C.

From: Acting Executive Officer, OME - Region V

Subject: Operator's Final Report. DMEA-5008, Idm-E1204 (zinc) Chaffin tract, Wythe County, Virginia.

Enclosed are three copies of the subject report, received in this office today.

Certification of this project will be recommended.

V. J. Lynch

OPR. FINAL REPORT

BERTHA MINERAL DIVISION

THE NEW JERSEY ZINC COMPANY

AUSTINVILLE, VA.

OFFICIAL FILE COPY
O. M. E.
RECEIVED FEB 3 1960

DATE	INITIALS	CODE

January 27, 1960

Regional Executive Officer
Defense Minerals Exploration Admn.
Room 13, Post Office Building
Knoxville 2, Tennessee

Subject: Final Report, Chaffin Tract
Austinville, Wythe Co., Va.
DMEA 5008 IDM-E-1204 (Zinc)

Dear Sir:

Enclosed is our final report on the Chaffin Project. It includes both an account of results of the drilling and a summary of the costs, the latter on your standard forms.

We trust that this is satisfactory and completes the job.

Very truly yours,

W. L. Albers
General Superintendent

WHoratioBrown:rjl
In quintuplicate
Enclosure

Maps in envelope Right side Docket
Jay

RECEIVED
FEB 1 - 1960
U. S. Geological Survey
Geologic Division
Knoxville, Tenn.

OFFICIAL FILE COPY
C. M. E.
RECEIVED FEB 3 1960
DATE | INITIALS | CODE

FINAL REPORT

DIAMOND DRILLING RESULTS

CHAFFIN CONTRACT

WYTHE CO., VA.

DMEA 5008 IDM-E-1204

W. Horatio Brown

January, 1960

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MAP AND SECTIONS	
Geologic Map Chaffin Area 7GB-4338A	In Pocket
Section 163 7GB-4621	In Pocket
Section 173 7GB-4622	In Pocket
Section 181 7GB-2189A	In Pocket
Section 189 7GB-4758	In Pocket
Section 219 7GB-4759A	In Pocket

below

SUMMARY

This report covers the results of diamond drilling on the 970 acre Chaffin Tract just northeast of the Austinville property of The New Jersey Zinc Company under DMEA Docket 5008.

Before drilling, no mineralization was known in the area and interest in it was based on the extrapolation of the en eschelon pattern of Austinville ore bodies into the area.

Two fences of holes 1900 feet apart with 800-foot spacing between holes were laid out to test this area. The first hole encountered ore. A total of seven holes containing ore grade mineralization have been drilled as shown on 7GB-4338A. It is estimated that 425,000 tons averaging 4.4% Zn and 0.9% Pb have been indicated by these holes.

INTRODUCTION

Location, Topography and Drainage

The Chaffin Tract consists of 970 acres of land in a roughly rectangular shape adjoining the Austinville property of The New Jersey Zinc Company on the northeast.

This area lies on the dissected surface of the Harrisburg peneplain which slopes from the foot of the Blue Ridge to the New River. The dissection and slope cause a relief in excess of 100 feet.

Drainage consists of northeasterly or southwesterly strike streams which flow into cross streams draining into the river. Sink holes are scattered through the area.

Scope of the Project

For several years it has been recognized that the ore-bodies of the Austinville-Ivanhoe area occur in an en eschelon pattern. An extrapolation of this pattern to the northeast places several of the theoretical ore positions on the Chaffin.

On this basis it was planned to drill widely spaced fences of widely spaced holes to test the gross potential of the area. It was further planned to do closely spaced drilling locally if any ore showings were found.

Personnel

The first study of this area was by Messrs. Callahan and Geoffrey Gilbert in 1927-29 as part of their regional mapping job. Gilbert was first to designate the upper series of lime-stones, and dolomites, "The Mystery Series."

Messrs. S. S. Goodwin and the writer remapped the area in 1930-33, and Mr. Goodwin continued those studies after 1934.

No further work was done on the property until after the property was acquired May 5, 1958. After the property was purchased, it was mapped on 300-scale aerial photographs by Brown. Some time later the tract was soil sampled by Messrs. E. E. Fulford and Don Myers.

The drilling was done by the Joy Manufacturing Company.

DMEA Assistance

On May 6, 1958, an application was made to the Defense Minerals Exploration Administration for assistance in drilling

the Chaffin Tract. A contract was signed June 12, 1958, for 16,000 feet and granted 50 percent of the costs involved. This was a "fixed unit cost" contract which paid one-half the cost of drilling, core trays, analyses and incidental expenses. A fixed cost per foot was specified for each item.

The contract was supervised by the Region V Field Team under the direction of Mr. R. A. Lawrence. The project was inspected at about monthly intervals by Mr. Helmuth Wedow, Jr., and either Mr. V. J. Lynch or Mr. Larry Shirley. The discussion of the problems with the field team was quite helpful.

The drilling was supervised by Messrs. R. M. Knutson and Brown.

On the 16th of June, 1959, an amendment was granted to the contract raising the total footage from 16,000 feet to 24,000 feet. The completion of the work under this extension was reported November 12, 1959.

The total costs incurred in drilling the 24,000 feet are reported on pages 4 and 5 which are a final summation of the contract.

DIAMOND DRILLING PROGRAM

On a basis of the extrapolation of the en eschelon pattern of the ore bodies from Austinville to Ivanhoe and the geologic mapping of the area it was decided to start drilling with a fence of holes on the extension of Austinville Section 181 with holes spaced at 800-foot intervals. It was further planned to drill closer spaced holes if ore was discovered. Logs of all holes are given in an appendix to this report, and the holes are shown in plan and section on the accompanying map and geologic sections.

The first hole collared was A-530 on Section 181. This hole encountered 106 feet of ground assaying 4.0% Zn and 1.2% Pb. It was immediately decided to decrease the spacing on Section 181 and determine the importance of this showing.

Hole A-531 was drilled one hundred feet up dip and hole A-532 down dip. Both holes penetrated runs of commercial grade and thickness, and A-532 had mineralization over a considerable thickness.

After proving the presence of ore grade material in these three holes, the drill was moved 400 feet northeast and holes A-533 and A-534 were drilled. (See Section 189). Both were barren. Hole A-533 deviated badly and may have missed on this account. Strong metamorphism at the favorable horizon was found in both holes.

The drill was then moved 400 feet southwest to Section 173.

Hole A-535 was essentially barren. Hole A-537 had two runs, one at the horizon of A-530 and the other the deepest run yet discovered. Hole A-536 was deepened and encountered the deep run. Hole A-535 was blocked and lost during an attempt to survey. An unsuccessful attempt has been made to clean out and deepen the hole which does not reach the lower horizon.

The drill was moved 500 feet southwest instead of 400 for the next fence of holes on account of the presence of a domestic water well. On Section 163, hole A-539 encountered one run of low grade and hole A-541 encountered two runs of commercial grade.

At this time it was decided to revert to the 800-foot spacing and determine the gross potential of the tract. Again, the first hole drilled, A-538, made an ore grade penetration. This was followed by A-540 one hundred feet up dip which was barren.

A-542 was drilled 800 feet down dip from A-538 and was barren, and A-544 was drilled 1600 feet further down dip and was also barren. A-546 was drilled 800 feet down dip from A-542 and midway between it and A-544. It was also barren but A-544 and A-546 proved the existence of a large reverse strike fault, here designated the Fowler Branch Fault, which will be discussed under Structure.

A-543 was drilled on Section 299 on a fence 1900 feet northeast of Section 181. It was barren except for one low

grade mineralized run. A-545 was then drilled 800 feet up dip and was also barren.

This completed the 24,000 feet allowed by the contract.

GEOLOGY

General

The Chaffin area is underlain by the Shady formation which contains the ore in the Austinville Mine, but the Shady here is very different from that in the Austinville Mine. This facies change, which causes these differences, can be seen on both dip and strike sections, principally the former.

The Shady occurs in a northeast striking, southeast dipping block which is broken along its north edge by the Callahan fault and broken across its middle by the Fowler Branch Strike Fault, a 1600-foot reverse fault which brings the deeper formations of its southeast side up within reach of the drill. The cross fault predicted at the beginning of the job nearly coincident with 181 Section was not found to exist as postulated.

Stratigraphy

Austinville Dolomite

The stratigraphy of the Austinville dolomite at the Austinville Mine has been well established for many years. Soon after the Chaffin drilling started, a longitudinal section was constructed showing the correlation of the main marker horizons with those in the Chaffin. The principal horizons correlated from top to bottom were: (1) Base of Black Augen zone;

(2) Archie bed; (3) Taylor Marker; (4) Black Rock, and (5) Mottled Marker.

All of these markers varied from their appearance in the type localities in the Austinville Mine. The following remarks apply to the ore area extending on strike in the northern part of the Chaffin.

The Black Augen bed is subject to bleaching and the base of the bleached black is difficult to distinguish from normal grey dolomite. It is recognized when possible by the remnants of the "eyes".

The Archie bed does not as a rule carry the large percentage of the organisms known at the type locality; therefore, it is distinguished chiefly by its stratigraphic position from other beds carrying a few Archies. Arch is an abbreviation of Archaeocyathus.

The Taylor Marker also varies from the standard type. It rarely contains many, if any, sand grains and instead is a generally clastic horizon with mud flakes and a characteristic type of mottling.

The Black Rock is difficult to recognize because there are so many shale parting horizons present.

The Mottled Marker has the most definitive texture of all the markers, but has a tendency toward a rather banded type of mottling.

All of the above remarks apply to the holes drilled on strike delineating the Chaffin mineralization. All of this

drilling was in a facies approaching that in the Brown Orebody area, but in the later drilling down dip across the facies trend, the changes were much more rapid.

The best way to see the stratigraphic changes down dip is to follow Section 181.

The strike section described above is common to 181 and contains the commonly recognized Austinville stratigraphic sequence.

Eight hundred feet down dip from A-530 in DDH A-538 and 540, the base of the Black Augen and the Archie bed are missing, the Taylor Marker has only three sand grains, and the Mottled Marker is strongly metamorphosed.

Eight hundred feet still further down the dip A-542 encountered a black shale bed at Taylor Marker position which was confirmed by the penetration of the Mottled Marker and top of the Ribbon (Patterson). Marked thinning of the Austinville dolomite accompanied these lithologic changes.

A-544 was drilled 1600 feet from A-542. It encountered a similar stratigraphy to A-542 and indicated two reverse faults, one with a six hundred and the Fowler Branch fault with a 1900-foot throw. The thinning of the formations continues but the favorable formation is brought up by the faults until it is much shallower for drilling.

Hole A-546 confirmed the Fowler Branch fault and penetrated the favorable horizons twice. In the footwall of the fault the Mottled Marker was metamorphosed and in the hanging wall

represented by an excellent Archie reef. Down dip from the big fault the Austinville dolomite is abnormally thin and unmetamorphosed.

Ribbon (Patterson) Formation

When the Chaffin drilling job was started it was questionable how deep we could get into the Austinville dolomite, but the presence of the two faults, the Callahan and the Fowler Branch Fault, brings the Ribbon (Patterson) within reach of the surface over a considerable proportion of the area.

As can be seen on Section 181, the top of the Ribbon (Patterson) is defined not as the first ribbony bed but as the first bleached diagenetic breccia bed, a type heretofore confined to the Ribbon. The Ribbon holes go down through the favorable TOM horizon and are bottomed in our usual bottoming horizon for the Ribbon, the Ellipsoidal horizon. No mineralization was found in the Ribbon.

Structure

The structure of the Chaffin estate appears simple because it is little known and because the drilling is not spaced close enough or known accurately enough to bring out minor structures.

As known, the Chaffin tract is a roughly rectangular tract about 6400 by 8000 feet. It is underlain by the Shady formation which strikes northeast and dips southeast.

The continuity of the block is broken by three strike faults, all steep angle reverse. The Callahan Fault is believed

to be in the northwest part of the area. It is known where it crosses Clear Branch. A zone of faults and openings are known in drill holes A-539 and A-541 which project up to a valley to the northwest. Also a displacement is present between the first Chaffin drilling and the Flatwoods. All of these three areas are correlated as the Callahan Fault, but it is recognized the Blue Grass Fault may take part in this complex.

Further south, the Fowler Branch Fault can be seen on Section 181. This fault apparently strikes east down Fowler Branch and is a reverse fault with 1900 feet throw. It brings the potential ore horizons nearer to surface and allows a larger area to be drilled.

Nine hundred feet southeast of the Fowler Branch Fault, there is a similar but smaller fault known only in DDH A-544. It also lifts the formations within reach of the drill.

Mineralization

As was stated under "DIAMOND DRILLING PROGRAM", the first hole drilled, A-530, encountered ore grade ground. This was 106 feet of 4.0% Zn and 1.2% Pb. It was chiefly in the Malden but apparently extended down to the Black Rock. However, in the next two holes, one up and one down dip, the mineralization only extended through in a fraction of its former thickness. Ore grade material also is present in A-531 at 150 feet below Mottled Marker.

On Section 173 southwest of 181 about 400 feet, the lower

horizon mineralization was found in two holes and a thin showing of the upper mineralized zone in one.

Still further southwest on Section 163, there are three showings: a low grade one in the upper Malden in A-539, and two at the repeated Mottled Marker horizon in A-541. These three showings are associated with faulting, Callahan? Fault, and caves which may make them difficult or impossible to mine.

Eight hundred feet southeast of the original discovery hole, commercial grade mineralization was discovered in A-538 in the Mottled Marker horizon. All other holes drilled were barren.

It can be seen from the above that practically every ore area drilled is at a different stratigraphic horizon although the ore areas fit into one aerial group and with the exception of a single, so far isolated, hole.

This tendency of the ore to jump horizons and apparent lack of continuity between sections makes us hesitant to connect ore between sections. With this idea in mind, the following tonnages were calculated for the Chaffin drilling:

Section	D. D. Holes	Tons	Grades Zn	Grades Pb	Horizon
181	530, 531, 532	215,900	4.7	1.4	Malden
173	536, 537	50,300	5.8	.2	Low Horizon
163	541	47,500	3.1	1.1	Mottled Marker
163	541	89,100	3.9	.8	Mottled Marker
Subtotal		402,800	4.5	.9	
181	A-538	22,800	3.5	.3	Mottled Marker
Total Chaffin		425,600	4.4	0.9	

It should be recognized that if more continuity had been assumed a larger tonnage could have been estimated, but this is not believed wise based on our experience with ore bodies of this type.

CONCLUSIONS

It can be concluded that: (1) a very interesting new mineralized area has been discovered, and (2) it will require considerably more drilling to determine whether it is a commercial ore body.

W. Horatio Brown

WHoratioBrown:rjl

DIAMOND DRILL LOG - A-530

Location: Austinville Grid: 4,000 ft. south of base line on Section 181

61.53 S 7598.15 E

Inclination: Vertical Elevation 2170.97

Object: To test for ore body en echelon from Austinville Orebodies.

Results

From	To	Dist.	Recov.	Description
0	83	83	0	Red clay overburden
83	120	37	26	Dolomite Locally Archies and Mud Flakes
120	124	4	4	Dense limestone
124	139	15	15	Dolomite, fine sach mottled
139	153	14	14	Dense limestone
153	276	123	118	Black Augen dolomite locally leached, archies
276	328	51	50	Archie & Fossil Limestone Ivanhoe Member???
328	647	319	318	Black augen dolomite largely bleached, locally archies
647	689	42	42	Mud flakes, Pseudo sand grains, Rare Partings, Mottled, Taylor Marker??
689	848	159	159	Light medium gray dolomite, local archies, local mottled
848	855	7	7	Medium to dark gray abundant shale partings Black Rock Marker?
855	1002	147	145	Very varied types of dolomite
1002	1003	1	1	Mylonitic fault zone
1003	1036	33	31	Mottled dolomite, Taylor Marker???
1036	1085	49	48	Medium gray sach dolomite
1085	1111	26	26	Medium gray sach dolomite
1111	1126	15	15	Strong Met, locally sach
1126	1130	4	4	Mineralized 1.6% Zn, Nil Pb
1130	1151	21	21	Ore 4.6% Zn, 0.2% Pb
1151	1166	15	15	Ore 3.9% Zn, Nil Pb
1166	1179	13	13	Ore 4.1% Zn, 1.1% Pb
1179	1186	7	7	Ore 14.8% Zn, 8.2% Pb
1186	1194	8	8	Mineralized 0.6% Zn, 0.1% Pb
1194	1206	12	12	Low grade 1.9% Zn, 0.4% Pb
1206	1213	7	7	Ore 9.4% Zn, 4.8% Pb
1213	1220	7	7	Medium gray sach dolomite

DIAMOND DRILL LOG -- A-530 (Cont)

From	To	Dist.	Results Recov.	Description
1220	1232	12	12	Ore 4.5% Zn, 1.2% Pb
1232	1239	7	7	Mineralized
1239	1275	36	36	Medium gray sach
1275	1288	13	13	Mottled Marker?
1288	1301	13	13	Medium gray sach
1301	1324	23	22	Low grade 2.0% Zn, 0.9% Pb
1324	1334	10	10	Mineralized medium gray sach
1334	1343	9	9	Low grade 2.0% Zn, Nil Pb
1343	1368	25	25	Mineralized light medium gray dolomite
1368	1448	80	80	Light medium gray dolomite
1448	1451	3	3	Estimated 2% Zn and .3% Pb
1451	1534	83	83	Varied types of dolomite
1534	1604	70	68	Banded sach dolomite mineralized nearly to bottom.
Bottom				

(N.B.) 476-503 should be added as a marker. It is a lower black rock type multiple shale parting bed.

DIAMOND DRILL LOG A-531

Location: Austinville Grid: 3900 ft. southeast of base line on Section 181

7.72 N 7525.64 E

Inclination: Vertical Elevation: 2175.82

Results

From	To	Dist.	Recov.	Description
0	60	60	0	Red clay overburden
60	168	108	78	Black augen dolomite zone locally bleached
168	286	196	105	Abundant archies. The lower part of this zone may be dolomitized Ivanhoe Member
286	414	128	128	Partly bleached black augen zone
414	451	44	44	Bed of multiple shale partings. Apparently a Marker
451	558	107	107	Bleached? Black augen
558	716	158	152	Varied types of dolomite
716	787	71	71	Zone of abundant partings. Possibly Black Rock Marker.
787	821	34	34	Mud flake dolomite
821	1076	255	255	Varied types of dolomite Fault 954-958
1076	1113	37	37	Strong Met Dolomite
1113	1128	15	15	Ore 7.1% Zn, 2.4% Pb
1128	1141	13	13	Strong Met Dolomite
1141	1234	93	93	Light gray slight Met dolomite
1234	1239	5	5	Fa, LoMylonite, Slight Met
1239	1256	17	17	Medium grey sach. Rare sand-grains.
1256	1269	13	13	Prominent mottling Mottled Marker.
1269	1283	14	14	Sach, thick partings
1283	1290	7	7	Sach abundant sandgrains
1290	1317	27	27	Strong met
1317	1321	4	4	Light grey sach

BOTTOM

DIAMOND DRILL LOG A-531 (Deepened)

Location: Chaffin Area, Section 181, 100 Feet Up Dip from A-530

7.72 N 7525.64 E

Inclination: Vertical Elevation: 2175.82

Started: 6/17/59 Completed: 6/20/59

RESULTS

From	To	Dist.	Recov.	Description
1321	1323	2	2	Low grade disseminated ore
1323	1343	20	20	Saccharoidal dolomite
1343	1348	5	5	Low grade breccia ore
1348	1376	28	24	Mineralized dolomite
1376	1393	17	17	Dolomite with sand grains
1393	1412	19	19	Low grade disseminated ore
1412	1424	12	12	Ore, 3.97% Zn, 0.83% Pb
1424	1441	17	17	Dolomite

BOTTOM

DIAMOND DRILL LOG A-532

Location: Chaffin Area on Austinville Grid
4100 ft. south of Base Line on Section 181

134.41 S 7666.29 E

Inclination: Vertical Elevation: 2163.64

Object: To test for ore down dip from A-530

Results

From	To	Dist.	Recov.	Description
0	58	58	0	Red clay
58	99	41	35	Dense limestone and fine sach dolomite.
99	185	86	85	Interbedded black augen and mud flake dolomite
185	240	55	55	Reef limestone
240	260	20	20	Black augen dolomite
260	274	14	14	Reef limestone
274	315	43	43	Interbedded limestone and dolomite, black augen, Arch and Sh Pts
315	331	16	16	Forams or Oolites
331	546	215	214	Interbedded limestone and dolomite, varied types.
546	562	16	16	Composite shale parting bed.
562	674	112	112	Dense limestone
674	727	53	53	Varied dolomites. Base of black augen.
727	812	85	85	Varied dolomites with interbedded limestone.
812	848	36	36	Dolomite Arch Reef.
848	914	66	66	Interbed limestone & dolomite
914	942	28	28	Mud flake dolomite
942	1133	191	190	Varied types of dolomite
1133	1139	6	6	2.4% Zn, 0.2% Pb
1139	1208	71	70	Varied types of dolomite
1208	1220	12	12	7.1% Zn, 0.5% Pb
1220	1244	24	24	Light grey sach dolomite
1244	1252	8	8	4.1% Zn, 1.1% Pb
1252	1298	46	46	Varied mineralized dolomites
1298	1302	4	4	4.6% Zn, 0.9% Pb
1302	1329	27	27	0.4% Zn, 0.1% Pb
1329	1347	18	17	1.7% Zn, 0.4% Pb
1347	1357	10	10	4.0% Zn, 0.1% Pb
1357	1365	8	7	0.4% Zn, Nil Pb
1365	1390	25	25	1.5% Zn, 0.2% Pb
1390	1397	7	7	Light grey sach dolomite
1397	1418	21	21	Mottled dolomite
1418	1443	25	25	Sand grain dolomite

BOTTOM

DIAMOND DRILL LOG A-532 (Deepened)

Location: Chaffin Area, Section 181, 100 ft. Down Dip from A-530

134.41 S 7666.29 E

Inclination: Vertical Elevation: 2163.64

Started: 6/16/59 Completed: 6/16/59

RESULTS

From	To	Dist.	Recov.	Description
1443	1473	30	30	Gray dolomite
1473	1496	23	23	Strongly metamorphosed dolomite
1496	1498	2	2	Gray dolomite
	BOTTOM			

DIAMOND DRILL LOG A-533

Location: Chaffin Area on Austinville Grid
N 65 E 470 feet from A-530 on Section 189

128.06 N 7980.15 E

Inclination: Vertical Elevation: 2151.27
Started: 9/23/58 Completed: 10/10/58

Results

From	To	Dist.	Recov.	Description
0	75	75	-	Red clay
75	115	40	40	Arch limestone
115	211	96	92	Varied dense limestone
211	230	19	19	Arch Reef
230	267	37	35	Foraminifera or Oolites?
267	597	330	226	Interbedded limestone and dolomite - sand grains 514
597	616	19	19	Taylor Marker? and T.M. Mot.
616	714	98	98	Interbedded LGy Sach and Black Augen dolomite
714				Base of Black Augen
714	733	19	19	Light Grey Sach Dolomite
733	747	14	14	Varied dolomite mud flakes and shale partings
747	784	37	37	Arch Reef - Ivanhoe Member
784	871	87	87	Varied dolomite with shale partings and mud flakes
871	886	15	15	Mud flake Bd Marker
886	914	28	28	Slightly metamorphosed saccharoidal dolomite
914	922	8	8	Stylolitic Parting Bd
922	1209	287	284	Varied types of dolomite
1209	1245	36	36	Shale Parting - Black Rock Marker
1245	1289	44	44	Varied dolomites
1289	1295	6	6	Sach Dolomite rare sand grains
1295	1312	17	17	Mottled Marker
1312	1320	8	8	Varied dolomites
1320	1332	12	12	Saccharoidal dolomite with sand grains
1332	1355	23	23	Saccharoidal dolomite
1355	1366	11	11	Fine dolomite few sand grains
1366	1372	6	2	Fault zone. Mylonite
1372	1384	12	12	Saccharoidal dolomite with sand grains

BOTTOM

DIAMOND DRILL LOG A-534

Location: Chaffin Area on Austinville Grid
S 45 E 195 feet from A-533 on Section 189

14 S 8114 E

Inclination: Vertical Elevation: 2152

Started: 10/11/58 Completed: 11/12/58

Results

From	To	Dist.	Recov.	Description
0	78	78		Red clay
78	269	191	172	Limestone cavernous upper part, Black augen and sedimentary breccia types
269	273	4	4	Black Augen Dolomite
273	502	229	229	Limestone, Black Augen and sedimentary breccia type
502	553	51	51	Black Augen dolomite
553	614	61	61	Limestone, Black Augen and shale partings
614	628	14	14	Limestone with few small sand grains
628	676	48	48	Limestone, Black Augen
676	682	6	6	Dolomite, fine saccharoidal
682	713	31	30	Well bedded dolomite
713	720	7	5	Mylonite, fault zone
720	727	7	0	Cavity
727	747	20	19	Massive limestone
747	760	13	13	Saccharoidal dolomite
760	779	19	16	Strong met dolomite
779	839	60	60	Saccharoidal dolomite
839	855	16	16	Saccharoidal dolomite with mud flakes. Mud flake bed
855	859	4	4	Saccharoidal slight met dolomite
859	867	8	8	Ivanhoe Member abundant archies
867	927	60	58	Dense limestone
927	1057	130	128	Varied slight met dolomite
1057	1059	2	1	Fault
1059	1074	15	13	Fine saccharoidal dolomite with sand grains. Taylor Marker
1074	1083	9	9	Dolomite locally banded
1083	1085	2	1	Fault
1085	1171	86	83	Slight Met dolomite
1171	1183	12	12	Strong met dolomite
1183	1244	61	60	Slight met dolomite
1244	1278	34	34	Black Rock Marker
1278	1329	51	51	Varied dolomite local abundant sand grains, Trace sphalerite
1329	1341	12	12	Mottled Marker
1341	1352	11	11	Lower Black Rock, Trace Sphalerite
1352	1360	8	8	Dolomite locally abundant sand grains
1360	1370	10	10	Saccharoidal dolomite

BOTTOM

DIAMOND DRILL LOG A-535

Location: Chaffin Area on Austinville Grid
S 45 W from A-530 on Section 173

330 S 7330 E

Inclination: Vertical Elevation: 2187

Started: 11/14/58 Completed: 12/29/58

Results

From	To	Dist.	Recov.	Description
0	76	76	--	Red Clay
76	101	25	23	Black augen zone
101	103	2	0	Cavity
103	159	56	54	Black augen zone
159	160	1	1	Abundant "forams"
160	171	11	10	Black augen zone
171	172	1	0	Cavity
172	252	80	58	Black augen zone
252	277	25	20	Light gray with few sand frains
277	656	379	372	Black augen zone. 656 Base of augen
656	669	13	13	Mineralized, 1.3% Zn, 0.1% Pb
669	685	16	16	Mud flake dolomite
685	694	9	9	Mineralized .9% Zn, 1.3% Pb
694	747	53	53	Dirty dolomite
747	768	21	20	Mud flakes and sand grains
768	769	1	0	Cavity
769	777	8	3	Light gray dolomite
777	788	11	8	Archybed
788	1049	261	248	Varied dolomites; Locally mineralized
1049	1061	12	8	Dolomite sand grains Taylor Marker/
1061	1064	3	2	Fault Mineralized
1064	1095	31	31	Varied dolomite
1095	1105	10	10	Dolomite sand grains Taylor Marker
1105	1174	69	68	Varied dolomite
1174	1220	46	46	Strong met dolomite
1220	1250	30	30	Miscellaneous dolomite
1250	1262	12	12	Shale partings - Black Rock
1262	1298	34	32	Dolomite locally metamorphosed
1298	1312	14	14	Mottled Marker
1312	1369	57	51	Varied dolomites

BOTTOM

DIAMOND DRILL LOG A-536

Location: Chaffin Area on Section 200 feet NW of A-535

210 S 7175 E

Inclination: Vertical Elevation: 2184

Started: 1/2/59 Completed: 2/18/59

RESULTS

From	To	Dist	Recov	Description
0	70	70	0	Red clay
70	80	10	7	Varied dolomite
80	120	40	0	Cavity
120	128	8	1	Fault
128	139	11	4	Black augen type dolomite, bleached
139	144	5	0	Cavity
144	154	10	2	Black augen,dolomite, bleached
154	161	7	0	Cavity
161	188	27	5	Drillers log as "Soft Rock" Black augen bleached
188	593	405	374	Black augen zone, usually bleached, locally pseudo sand grains
593	620	27	27	Fine saccharoidal dolomite
620	633	13	13	Bleached grey saccharoidal dolomite - Base of Black Augen?
633	649	16	16	Archeocyathus Marker
649	901	252	247	Varied Dolomites
901	1010	109	98	Taylor Marker Zone, possibly repeated
1010	1023	13	13	Moderate metamorphism
1023	1028	5	5	Grey Dolomite
1028	1030	2	2	Mineralized, estimated .5% Pb
1030	1078	48	46	Strong metamorphism
1078	1109	31	31	Strong metamorphism with very weak mineralization
1109	1131	22	22	Black Rock Marker
1131	1182	51	51	Varied Dolomites
1182	1200	18	18	Mineralized Dolomite
1200	1212	12	12	Grey dolomite
1212	1244	32	30	Mottled Marker
1244	1259	15	15	Varied Dolomites
1259	1279	20	19	0.8% Zn & 0.8% Pb
1279	1284	5	5	0.4% Zn, Nil Pb
1284	1286	2	2	Mineralized
1286	1306	20	17	Grey dolomite
1306	1327	21	21	Sand grains, dolomite. Locally mineralized

BOTTOM

DIAMOND DRILL LOG A-536 (Deepened)

Location: Chaffin Area, Section 173

210 S 7175 E

Inclination: Vertical Elevation: 2184

Started: 6/12/59 Completed: 6/12/59

RESULTS

From	To	Dist.	Recov.	Description
1327	1344	17	17	Dolomite
1344	1362	18	18	Strongly metamorphosed dolomite
1362	1373	11	11	Ore, 5.9% Zn, 0.2% Pb
1373	1423	50	50	Dolomite

BOTTOM

DIAMOND DRILL LOG A-537

Location: Chaffin Area, Section 173 Midway between A-535 and A-536

255 S 7270 E

Inclination: Vertical Elevation: 2187

Started: 2/23/59 Completed: 4/8/59

RESULTS

From	To	Dist.	Recov.	Description
0	70	70		Red clay
70	171	101	76	Black augen dolomite
171	173	2	0	Cavity
173	205	32	24	Black augen dolomite
205	256	51	50	Black augen beds, locally bleached
256	259	3	3	Local sand grains and "mud flakes"
259	296	37	37	Black augen beds, locally bleached
296	346	50	49	Local partings and detritus
346	633	287	273	Black augen beds, locally bleached, local partings and "soft" drilling: Archaeocyathus 595, 607
633	643	10	10	Abundant thick partings
643	703	60	59	Saccharoidal
703	711	8	8	Abundant large Archaeocyathus: "Archy" Bed
711	947	236	232	Saccharoidal to finely saccharoidal, local partings and very local "mud flakes"
947	1031	84	67	Taylor Marker: "mud flakes", mottling, partings. 979-81: Fault
1031	1095	64	40	Generally saccharoidal
1095	1149	54	27	Weak mineralization
1149	1158	9	8	7.2% Zn, 1.0% Pb
1158	1161	3	3	Mineralization, abundant partings: Black Rock Marker
1161	1193	32	24	Locally abundant partings: Black Rock Marker
1193	1205	12	9	Mineralization. Est. 0.5% Zn, 0.2% Pb
1205	1225	20	14	Medium grey & buff few partings
1225	1228	3	3	Mineralized fine saccharoidal
1228	1231	3	3	Light grey saccharoidal
1231	1236	5	4	Mottled Marker
1236	1240	4	4	1.6% Zn, Tr Pb Mottled Marker
1240	1255	15	9	Mottled Marker
1255	1294	39	38	Saccharoidal dolomite
1294	1325	31	31	Mineralized
1325	1351	26	24	Saccharoidal dolomite Stylolitic partings

From	To	Dist.	Recov.	Description
1351	1361	10	10	Mineralized 0.74% Zn, 0.15% Pb
1361	1389	28	28	Ore, 5.8% Zn, 0.23% Pb
1389	1391	2	2	Medium-Dark Grey
1391	1399	8	6	Mineralized
1399	1425	34	17	Fine saccharoidal

BOTTOM

DIAMOND DRILL LOG - A-538

Location: Chaffin Area, Section 181
800 ft. down dip from A-530

627 S 8165 E

Inclination: Vertical Elevation: 2165

Started: 4/4/59 Completed: 5/1/59

RESULTS

From	To	Dist.	Recov.	Description
0	44	44	0	Red clay
44	46	2	2	Pisolites
46	76	30	25	Bleach black augen
76	77	1	1	Pisolites
77	167	90	86	Saccharoidal
167	179	12	12	Abundant archies
179	248	69	69	Black augen
248	260	12	12	Abundant archies
260	268	8	8	Mottled dolomite
268	269	1	1	Oolite bed
269	317	48	46	Abundant pseudo sand grains
317	462	145	145	Bleached black augen
462	466	4	4	Dense black composite shale partings
466	555	89	88	Bleached black augen
555	560	5	5	Pseudo sand grains
560	700	140	140	Bleached black augen
700	704	4	4	Shale partings
704	761	57	55	Bleached black augen
761	763	2	2	Banded mottling
763	777	14	14	Saccharoidal
777	789	12	12	Mineralized 1.33% Zn, Nil Pb
789	810	21	19	Strong metamorphism
810	831	21	21	Dense and straticulate
831	844	13	13	Mineralized 0.15% Zn, Nil Pb
844	869	25	25	Black augen
869	926	57	57	Banded mot and banded dolomite
926	934	8	8	Mineralized 3.28% Zn, 0.21% Pb
934	1029	95	95	Bleached black augen
1029	1046	17	17	Composite shale partings and pseudo sand grains
1046	1142	96	88	Varied
1142	1284	142	142	Shale partings
1284	1300	16	16	Detrital material, three sand grains Taylor Marker?
1300	1490	190	190	Varied grey dolomite
1490	1515	25	25	Mineralized
1515	1525	10	10	Mineralized 1.21% Zn, 0.22% Pb
1525	1549	24	24	Ore, 3.46% Zn, 0.29% Pb Mottled Marker

From	To	Dist.	Recov.	Description
1549	1560	11	11	Mineralized
1560	1565	5	5	Lower black rock
1565	1579	14	14	Mineralized
1579	1626	47	47	Varied partings
1626	1635	9	9	Mineralized
1635	1742	107	107	Stylolitic shale partings
1742	1760	14	14	Mottled, archie
1760	1774	14	14	Diagenetic breccia
1774	1794	20	20	Multiple shale partings Ellipsoids
1794	1821	27	27	Stylolitic shale partings

BOTTOM

DIAMOND DRILL LOG - A-539

Location: Section 163, 565 feet S 63½ W from A-537

514 S 6778 E

Inclination: Vertical Elevation: 2176

Started: 4/11/59 Completed: 5/7/59

RESULTS

From	To	Dist.	Recov.	Description
0	48	48	0	Red clay
48	78	30	28	Black augen
78	82	4	4	Buff shaley bed
82	228	146	145	Bleached black augen
228	238	10	10	Stylolitic shale partings
238	276	38	38	Bleached black augen
276	286	10	10	Stylolitic and thick shale partings
286	340	54	54	Bleached black augen
340	345	5	5	Archies
345	537	192	192	Bleached black augen
537	541	4	4	Archies
541	664	123		Bleached black augen
664	676	13	11	Abundant partings
676	727	51	50	Bleached black augen
727	748	21	5	Strong metamorphism
748	858	110	104	Bleached black augen
858	920	62	59	Taylor Marker
920	942	22	18	Fine saccharoidal
942	964	22	22	Mineralized 2.09% Zn, 0.3% Pb
964	965	1	1	Fault
965	1029	64	62	Saccharoidal
1029	1038	9	9	Mylonite Fault top and bottom
1038	1055	15	14	Oxidized shale partings
1055	1090	35	0	Cavity
1090	1118	28	23	Strong metamorphism
1118	1139	21	20	Mottled Banded, Mottled Marker?
1139	1142	3	3	Mottled
1142	1163	21	18	Composite shale partings Lower Black Rock?
1163	1181	8	8	Mottled
1181	1184	Cavity		
1184	1212	28	2"	Soft Rock

BOTTOM

DIAMOND DRILL LOG - A-540

Location: Chaffin Area, Section 181, 100 ft. Up Dip from A-538

556 S 8094 E

Inclination: Vertical Elevation: 2165

Started: 5/4/59 Completed: 5/29/59

RESULTS

From	To	Dist.	Recov.	Description
0	78			Red clay
78	142	64	45	Bleach Black Augen Bed
142	177	35	35	Archie bed
177	230	53	53	Pseudo sand grain and speckled
230	243	13	13	Archie Bed
243	296	56	56	Bleached black augen bed
296	305	9	9	Archie Bed
305	489	184	184	Black and bleached black augen
489	500	11	11	Pseudo sand grains and mud flakes
500	529	29	29	Black augen
529	541	12	12	Pseudo sand grains in clusters
541	615	74	74	Black augen
615	648	33	33	Stylolitic shale partings
648	737	89	89	Varied dolomite
737	739	2	2	Straticulate bed
739	786	47	47	Black augen
786	797	11	11	Mineralized
797	808	11	11	Black augen
808	809	1	1	Mineralized black straticulate
809	840	31	31	Black augen
840	860	20	20	Banded Mottled Bed
860	872	12	12	Mineralized
872	975	103	103	Black augen and miscl.
975	1028	53	53	Straticulate bed
1028	1173	145	145	Black augen and straticulate
1173	1200	27	27	Mud flakes and pseudo sand grains
1200	1226	26	26	Light grey saccharoidal
1226	1255	29	26	Taylor Marker? Pseudo sand grain and TM type Mottling
1255	1298	43	43	Light grey saccharoidal
1298	1309	11	11	Thick shale partings
1309	1424	115	115	Light grey saccharoidal
1424	1437	13	13	Shale partings
1437	1463	26	26	Light grey saccharoidal
1463	1480	17	17	Mineralized composite shale partings
1480	1496	16	16	Composite shale partings

From	To	Dist.	Recov.	Description
1496	1525	29	29	Archies, strong Met, Mottled Marker?
1525	1554	29	29	Composite and stylolitic shale partings
1554	1558	4	4	Mineralized Mottled
1558	1570	12	12	Light grey saccharoidal
1570	1578	8	8	Mineralized
1578	1608	30	30	Shale partings and shaly
1608	1614	6	6	Mineralized
1614	1633	19	19	Stylolitic
1633	1635	2	2	Estimated 5% Zn
1635	1687	52	52	Stylolitic shale partings

BOTTOM

DIAMOND DRILL LOG A-541

Location: Chaffin Area, Section 163, 100 feet Down Dip from A-539

6848 S 585 E

Inclination: Vertical Elevation: 2174

Started: 5/11/59 Completed:

RESULTS

From	To	Dist.	Recov.	Description
0	26	20		Red clay
26	114	88	84	Black augen & bleached black
114	115	1	1	Shaly dolomite
115	128	13	13	Light grey saccharoidal
128	144	16	16	Composite shale partings
144	357	213	213	Black augen and bleached black
357	358	1	1	Straticulate
358	376	18	18	Black augen
376	379	3	3	Limey straticulate
379	661	282	282	Interbedded black augen and dense black
661	665	4	4	Pseudo sand grains
665	681	16	16	Bleach black augen
681	691	10	10	Dense massive and thin bedded
691	739	48	48	Black augen and bleached
739	767	28	28	Thin bedded and massive
767	768	1	1	Oolite
768	914	146	146	Leached buff
914	921	7	6	Taylor Marker type Mottling, Taylor Marker?
921	923	2	0	Soft rock
923	942	19	19	Miscl. textures
942	943	1	0	Soft rock
943	952	9	8	Miscl. textures
952	966	14	0	Soft rock
966	1017	41	24	Fractured and broken dolomite
1017	1026	9	4	Shale partings, fractured
1026	1036	10	5	Saccharoidal, galena @ 1033
1036	1038	2	0	Cavity
1038	1047	9	4	Light grey occasional mineralization
1047	1050	3	1	Estimated 10% sphalerite
1050	1111	61	20	Light grey saccharoidal sphalerite @ 1110
1111	1115	4	4	Mottled dolomite
1115	1129	14	14	Ore, 4.83% Zn, 0.08% Pb
1129	1130	1	1	Fault zone, ore, 3.08% Zn, 0.09% Pb
1130	1134	4	4	Mylonite, fault zone
1134	1158	24	11	Strongly metamorphosed dolomite
1158	1167	9	4	Mottled dolomite
1167	1185	18	17	Mottled Marker
1167	1215	48	45	Ore, 3.1% Zn, 1.1% Pb
1215	1250	35	22	Mineralized Dolomite
1250	1340	110	83	Varied dolomites

BOTTOM

DIAMOND DRILL LOG - A-542

Location: Chaffin Area, Section 181, 1600 ft. Down Dip from A-530

S 1191 E 8728

Inclination: Vertical Elevation: 2105

Started: 6/1/59 Completed: 7/15/59

RESULTS

From	To	Dist.	Recov.	Description
0	10	10	0	Red clay
10	85	75	75	Mud flakes, Pseudo sand grains, Oolites, Mass dolomite
85	87	2	2	Mylonite, Fault
87	186	99	99	Mud flakes, Oolites, Pseudo sand grains, Occasional Archies
186	195	9	9	Black augen, mud flakes, occasional archies
195	293	98	98	Black augen, Abundant archies
293	296	3	3	Thin bedded dark gray
296	330	34	34	Diagenetic breccia, mud flakes, Pseudo sand grains, Oolites
330	414	84	84	Mud flakes, Pseudo sand grains, Oolites, Massive
414	423	9	9	Archies and augen
423	451	28	28	Black augen and thin bedded
451	459	8	8	Archies
459	470	11	11	Saccharoidal dolomite
470	534	64	64	Diagenetic breccia, pseudo sand grains & Mud flakes
534	566	32	32	Black augen and bleached black
566	600	34	34	Pseudo sand grains and Oolite, Massive
600	604	4	4	Shear zone, fault
604	610	6	6	Pseudo sand grains and oolites
610	612	2	2	Shaly dolomite
612	641	29	29	Miscl. dolomites
641	697	56	56	Pseudo sand grains, massive
697	754	57	57	Diagenetic mottling
754	768	14	14	Abundant oolites, local archies
768	810	42	42	Abundant pisolites and oolites
810	811	1	1	Shaly dolomite
811	831	20	20	Diagenetic breccia, black augen
831	862	31	31	Massive, mud flakes, local banding
862	1027	165	165	Miscl., Mottled, diagenetic breccia, etc.
1027	1040	13	13	Pseudo sand grains and oolites
1040	1125	85	85	Diagenetic breccia, oolites, pseudo sand grains and black augen
1125	1139	14	14	Limestone diagenetic breccia
1139	1161	22	22	Dolomite diagenetic breccia

From	To	Dist.	Recov.	
1161	1163	2	2	Shear zone, fault
1163	1222	59	59	Bleached black augen
1222	1232	10	10	Mass locally bedded
1232	1332	100	100	Bleached black augen and diagenetic breccia
1332	1356	24	24	Bedded limestone, oolites in bedding
1356	1365	9	9	Banded dolomite
1365	1391	26	26	Fault, Mylonite, Shear
1391	1408	17	17	Saccharoidal dolomite
1408	1490	92	92	Banded straight bands
1490	1514	24	24	Interbedded shale and diagenetic breccia
1514	1564	50	50	Mass limestone
1564	1671	107	107	Interbedded limestone and shale
1671	1707	36	36	Massive limestone
1707	1712	5	5	Mass dolomite pseudo sand grains
1712	1759	47	47	Saccharoidal dolomite
1759	1799	40	40	Strongly metamorphosed Mottled Marker?
1799	1812	13	13	Limestone, composite shale partings
1812	1857	45	45	Shale partings and stylolites
1857	1878	21	21	Metamorphosed dolomite
1878	1934	56	56	Pseudo sand grains, shale partings and composite shale partings
1934	1958	24	24	Mottled bed
1958	1983	25	25	Coarse banded split by one foot Shaly Bed
1983	2005	22	21	Dense locally mottled
2005	2019	14	14	Strongly metamorphosed
2019	2050	31	31	Ribbony shale partings
2050	2059	9	9	Saccharoidal dolomite
2059	2070	11	11	Ribbony ellipsoidal limestone
2070	2089	19	19	Locally banded, locally ribbony
2089	2105	16	16	Strongly metamorphosed dolomite
2105	2152	47	47	Mottled and ribbony locally limestone
2152	2209	57	57	Mottled Marker?
2209	2262	53	53	Ribbony limestone and dolomite
2262	2276	14	14	Dense stylolites and shale partings
2276	2309	37	37	Saccharoidal banded at top
2309	2330	21	21	Dense, archies
2330	2366	36	36	Dense stylolites and shale partings

BOTTOM

DIAMOND DRILL LOG - A-543

Location: Chaffin Area, Section 219, First Hole on Exploratory Fence

506 N 9718 E

Inclination: Vertical Elevation: 2105

Started: 6/24/59 Completed: 8/5/59

RESULTS

From	To	Dist.	Recov.	
0	53	53	0	Red clay
53	217	164	164	Varied detrital dolomites
217	252	35	35	Bleached black augen
252	264	12	12	Slightly metamorphosed dolomite
264	313	49	49	Bleached black augen
313	314	1	1	Mass solid oolites
314	330	16	16	Coarse saccharoidal dolomite
330	334	4	4	Black composite shale partings
334	411	77	77	Miscl. dolomites
411	412	1	1	Composite shale partings
412	416	4	4	Strongly metamorphosed dolomite
416	432	16	16	Breccia, Pseudo sand grains, composite shale partings
432	481	49	49	Black augen and bleached
481	483	2	2	Oolite rock
483	520	37	37	Mud flakes and pseudo sand grains
520	530	10	10	Strongly metamorphosed dolomite
530	647	117	117	Breccia, mud flakes and pseudo sand grains
647	676	29	29	Strongly metamorphosed dolomite
676	740	64	64	Black augen and bleached black
740	759	19	19	Fault zone, mylonite
759	791	32	32	Black augen and bleached black
791	803	12	12	Strongly metamorphosed dolomite
803	854	51	50	Dense and saccharoidal dolomite
854	881	27	25	Saccharoidal, composite shale partings top and bottom
881	934	53	53	Saccharoidal and breccia
934	942	8	8	Archies
942	962	20	20	Shale partings and composite shale partings
962	988	26	26	Saccharoidal
988	991	3	3	Fault
991	1078	87	87	Black augen and bleached
1078	1094	16	16	Abundant pseudo sand grains
1094	1098	4	4	Fault
1098	1320	222	222	Local stylolites and shale partings
1320	1377	57	57	Archie reef, limestone and dolomite

From	To	Dist.	Recov.	Description
1377	1404	27	27	Ribbony limestone
1404	1466	62	62	Stylolites and pseudo sand grains One foot of estimated 3% 1443 to 1444
1466	1472	6	6	Banded mottling
1472	1489	17	17	Ribbony limestone
1489	1578	89	89	Saccharoidal limestone
1578	1583	5	5	Low grade estimated 1% Zn
1583	1626	43	43	Saccharoidal dolomite
1626	1636	10	10	Dense limestone
1636	1644	8	8	Mottled dolomite
1644	1654	10	6	Saccharoidal dolomite
1654	1670	16	16	Archie limestone
1670	1694	24	24	Ribbony limestone
1694	1712	18	18	Shale partings and composite shale parting limestone
1712	1729	17	17	Archie limestone
1729	1739	10	10	Composite shale parting limestone
1739	1764	25	25	Dense limestone
1764	1785	21	21	Ribbony and composite shale partings limestone
1785	1796	11	11	Archie and mottled limestone
1796	1799	3	3	Archie and mottled dolomite
1799	1832	33	33	Highly fractured dolomite fault
1832	1847	15	15	Mottled Marker?
1847	1884	35	35	Stylolites and mottled dolomite
1884	1908	24	24	Composite shale partings, dolomite
1908	1910	2	2	Abundant pseudo sand grains
1910	1931	21	21	Saccharoidal dolomite
1931	1944	13	13	Bleached ribbony dolomite
1944	1948	4	4	Strong met
1948	1960	12	12	Saccharoidal dolomite
1960	1980	20	20	Abundant stylolites
1980	2002	22	22	Composite shale partings

BOTTOM

DIAMOND DRILL LOG A-544

Location: Chaffin Tract, 1600 ft. down dip from A-542 on Section 181

2322 S 9860 E

Inclination: Vertical Elevation: 2139

Started: 7/18/59 Completed: 8/28/59

RESULTS

From	To	Dist.	Recov.	Description
0	32	32	0	Red clay
32	103	71	71	Saccharoidal dolomite
103	121	18	18	Massive Oolite rock
121	144	23	23	Massive mud flakes and pseudo sand grains
144	233	89	78	Limestone edgewise conglomerate
233	318	85	85	Black shale
318	339	21	21	Limestone edgewise conglomerate
339	388	49	49	Black shale
389	398	9	9	Saccharoidal sandy dolomite
398	437	39	39	Saccharoidal sandy dolomite
437	466	29	29	Composite shale partings
466	474	8	8	Banded
474	521	47	47	Painted looking mottling
521	576	55	55	Mylonite, fault zone
576	632	56	56	Painted type mottling
632	652	20	20	Sheared to massive limestone
652	667	15	15	Sand grain limestone
667	682	15	15	Edgewise conglomerate
682	760	78	78	Dark grey shale
760	815	55	55	Inter diagenetic breccia & shale
815	828	13	13	Saccharoidal fractured
828	863	35	35	Dense dolomite locally composite shale partings
863	884	21	21	Varied dolomites
884	949	65	65	Painted type mottling
949	986	37	37	Ribbony ellips and composite shale partings
986	1027	41	34	Saccharoidal
1027	1053	26	26	Abundant shale partings
1053	1156	103	103	Varied dolomites
1156	1183	27	27	Abundant Archies Mot Reef MM?
1183	1242	59	59	Painted type banded mottling
1242	1256	14	14	Shale partings & mud balls
1256	1272	16	16	Saccharoidal stylolites
1272				Top of Ribbon?
1272	1305	33	33	Bleached diagenetic breccia
1305	1311	6	6	Ribbony dolomite

From	To	Dist.	Recov.	Description
1311	1326	15	15	Mottled
1326	1363	37	37	Ribbony composite shale partings
1363	1376	13	13	Stylolitic bleached
1376	1412	36	36	Banded thin ribbony met. Bleached
1412	1441	29	29	Bleached ribbony locally banded
1441	1465	24	24	Bleached diagenetic breccia
1465	1559	94	94	Bleach ribbony
1559	1570	11	11	T.O.M.?
1570	1578	8	8	Bleached diagenetic breccia
1578	1605	27	27	Ribbony dolomite
1605	1684	79	79	Ellips ribbony limestone
1684	1687	3	3	Ellips ribbony dolomite
	BOTTOM			

DIAMOND DRILL LOG A-5[illegible]

Location: Chaffin Area, Section 219, second hole on Exploratory Fence

1086 N 9139 E

Inclination: Vertical Elevation: 2158

Started: 8/7/59 Completed:

RESULTS

From	To	Dist	Recov.	Description
0	58	58	-	Red clay
58	172	108	108	Saccharoidal dolomite locally silicified. Much "soft rock" 144-156
172	173	1	1	Oxidized low grade
173	189	16	10	Strongly metamorphosed dolomite
189	203	14	4	Saccharoidal dolomite, much "soft rock"
203	209	6	4	Buff dolomite with sand grains
209	245	36	36	Fractured saccharoidal
245	253	8	4	Fractured, oxidized, mylonite, much "soft rock"
253	269	16	13	Same, "soft rock" @ 266
269	299	30	30	Saccharoidal
299	302	3	No Core	
302	380	78	78	Varied dolomites
380	389	9	9	Archie dolomite
389	411	22	22	Varied dolomites
411	415	4	4	Pseudo sand grains
415	431	16	2	Saccharoidal "soft rock"
431	455	24	24	Varied dolomites
455	489	34	34	Dense, pseudo sand grains
489	550	61	61	Varied dolomites
550	552	2	2	Mottled dolomite
552	570	18	8	Saccharoidal dolomite
570	589	19	18	Strong met dolomite
589	650	61	57	Varied dolomites
650	658	8	7	Shaly dolomite
658	714	56	56	Varied dolomites
714	896	168	159	Light grey dolomite
896	927	31	31	Strong met Arch Reef
927	939	12	11	Light grey dolomite
939	976	37	6	"Soft rock"
976	1011	35	31	Light grey dolomite
1011	1033	22	4	"Soft rock"
1033	1056	23	23	Light grey dolomite
1056	1058	2	1/2	Soft rock
1058	1092	34	31	Varied dolomite
1092	1120	28	25	Taylor Marker?

From	To	Dist.	Recov.	Description
1120	1138	18	18	Faint Mot Pseudo Sand Grains
1138	1228	84	84	Light grey dolomite
1228	1250	22	21	Arch
1250	1255	5	0	Cavity
1255	1357	102	92	Slight local strong metamorphism
1357	1360	3	3	Pseudo sand grains and sand grains
1360	1388	28	27	Varied dolomites
1388	1457	69	63	Slight local strong metamorphism
1457	1463	6	6	Arch
1463	1478	15	15	Saccharoidal stylolites
1478	1490	12	12	Strong metamorphism
1490	1500	10	10	Faint mottling
1500	1526	26	26	Ribbony ellips Black Rock?
1526	1530	4	4	Light grey dolomite

DIAMOND DRILL LOG A-546

Location: Chaffin Area, Section 181, Hole in Exploratory Fence

1761 S 9297 E

Inclination: Vertical Elevation: 2107

Started: 8/31/59 Completed:

RESULTS

From	To	Dist.	Recov.	Description
0	12	12		Red clay
12	45	33	32	Breccia with varied fragments
45	48½	3½	0	Cavity
48½	91	42½	42	Limestone and dolomite
91	119	28	28	Interbed limestone & shale
119	152	33	33	Diagenetic breccia
152	211	59	59	Strong metamorphism
211	361	150	150	Interbed shale & limestone breccia
361	463	102	102	Varied dolomites
463	550	87	87	Dolomites paint type mottling
550	649	99	99	Varied dolomites
649	666	17	17	Limestone & dolomite ellips & shale partings
666	768	102	102	Varied dolomite
768	797	29	29	Abundant Arch Mottled Marker
797	879	82	82	Varied dolomite
879	920	41	41	Bleached diagenetic breccia - top of Patterson or Ribbon
920	1240	320	319	Bleached banded and ribbony
1240	1354	114	114	Poor ellips
1354	1376	22	22	Banded ribbony
1376	1563	197	197	Ellips ribbony limestone
1563	1594	31	31	Same with peripheral oolites
1594	1654	60	60	Inter limestone & dolomites, pyrite mineralization
1654	1662	8	8	Mylonite, Fault
1662	1708	46	46	Ellips, sheared & dragged
1708	1712	4	4	Saccharoidal, mylonite, fault
1712	1721	9	9	Sheared and dragged
1721	1775	54	54	Saccharoidal mylonite, fault
1775	1970	195	195	Inter shale and limestone breccia
1970	1986	16	16	Varied dolomites

Hole No.	Property	Total Depth	Remarks.
A-539	Chaffin Estate	1,212'	942'-964' 2.09% Zn. 0.3% Pb. 964'-965' Faults. 1029'-1038' Faults.
A-540	Chaffin Estate	1,687'	786'-797' 0.5% Zn. Est. 808'-808.5' 0.5% Zn. Est. 860'-872' Scattered Shines and traces. 893'-895' 1.0% Zn. Est. 1463'-1480' Scattered Shines and traces.
A-541	Chaffin Estate	1,340'	1115'-1130' 3.9% Zn. 0.80% Pb. 1167'-1215' 3.1% Zn. 1.1% Pb.
A-536	Chaffin Estate	1,327'	1259'-1269' 0.78% Zn. 0.35% Pb 1269'-1279' 0.95% Zn. 1.3% Pb. 1279'-1284' 0.45% Zn. 0 Pb. 1362'-1373' 5.9% Zn. 0.2% Pb.
A-542	Chaffin Estate	2,366'	Barren Hole
A-543	Chaffin Estate	2,002'	1578'-1583' Est. 1% Pb-Zn. 1443'-1444' Est. 1% Pb-Zn.
A-544	Chaffin Estate	1,687'	Trace Hole
A-545	Chaffin Estate		

Hole No.	Property	Total Depth	Remarks.
A-534	Chaffin Estate	1,370'	Minor scattered traces of Sphalerite from 1244'-1,278'
A-535	Ditto	1,369'	656' -- 659' 1.3% Zn. 0.1% Pb. 685' - 694' 0.9% Zn. 1.3% Pb. 810' - 814' Traces of Zn. 958' - 965' Est. less 0.2% Zn. 982' - 984' Est. less 0.1% Zn. 1054'-1057' Est. 0.5% Zn. 1057'-1061' Est. 0.5% Zn.
A-536	Chaffin Estate SEE OTHER SHEET.	1,327'	1259'-1269' 0.78% Zn. 0.35% Pb. 1269'-1279' 0.95% Zn. 1.30% Pb. 1279'-1284' 0.45% Zn. Nil-Pb.
A-537	Chaffin Estate	1,425'	1095'-1109' 0.70% Zn. Est. 1109'-1149' 0.2% Zn. Est. 9' = 1149'-1158' 7.2% Zn. 1.0% Pb. 1158'-1161' 0.1% Zn. Est. 1193'-1205' 0.5% Zn. 0.5% Pb.E 1225'-1228' 0.5% Zn. 0.2% PbE 1236'-1240' 2.0% Zn. 0.5% Pb.E 1294'-1325' 0.2% Zn. Est. 25' 1351'-1376' 2.0% Zn. 0.2% Pb. E 13' = 1376'-1389' 9.0% Zn. 0.3% Pb. E 1389'-1399' Traces & Shines.
	Continued		1095'-1101' 2.90% Zn. 0.16% Pb. 1101'-1109' 0.96% Zn. Nil Pb. 1236'-1240' 1.60% Zn. Tr. Pb. 1351'-1356' 0.45% Zn. 0.30% Pb. 1356'-1361' 1.04% Zn. Nil Pb. 1361'-1366' 5.27% Zn. Nil Pb. 1366'-1371' 2.30% Zn. 0.50% Pb 1371'-1376' 0.17% Zn. Nil Pb. 1376'-1382' 10.96% Zn. 0.16% Pb. 1382'-1389' 8.10% Zn. 0.43% Pb.
A-538	Chaffin Estate	1,821'	777'- 789' 1.33% Zn. Nil Pb. 831'- 844' 0.15% Zn. Nil Pb. 926'- 934' 3.28% Zn. 0.21% Pb. 1525'-1549' 3.46% Zn. 0.29% Pb.

Ore.

1361-1389 = 5.8% Zn 0.23% Pb.

Ore.

SUMMARY OF DRILLING RESULTS--DMEA-5008

Hole No.	Property	Total Depth	Remarks.	Zn%	Pb%
A-530	Chaffin Estate	1,604'			
			1126-1130	1.6	0
			1130-1151	4.6	0.2
	60' -- 4.6% Zn.	1.3% Pb.	1151-1166	3.9	0
			1166-1179	4.1	1.1
			1179-1186	14.8	8.2
			1186-1194	0.6	0.1
	46' -- 3.2% Zn.	1.0% Pb.	1194-1206	1.9	0.4
			1206-1213	9.4	4.8
			1220-1232	4.5	1.2
			1301-1324	2.0	0.9
			1334-1343	2.0	0
			1448-1451	Est.2.0	0.3
A-531	Ditto	1,321'	1113-1128	7.1	2.4
A-532	Ditto	1,443'	1133-1139	2.4	0.2
			1208-1214	3.6	0.2
	12' -- 7.1% Zn.	0.55% Pb.	1214-1220	10.7	0.9
			1244-1250	5.2	2.6
			1250-1252 4.1	0.8	0.7 2.1
			1298-1390	1.8	0.2
		1298-1302		4.64	0.94
		1302-1307		0.40	0.33
		1307-1316		0.10	nil
		1316-1322		0.95	nil
		1322-1329		0.35	nil
		1329-1335		1.70	0.23
		1335-1341		1.65	1.12
		1341-1347		1.75	nil
	92' -- 1.8% Zn.	0.2% Pb 1347-1352	1298-1390 10' @4.0%	3.86	nil
		1352-1357		4.14	0.17
		1357-1365		0.40	nil
		1365-1370		1.56	nil
		1370-1380		1.65	0.27
		1380-1390		1.40	0.36
A-533	Ditto	1,384'	1245'-1261'	Traces of sphalerite & Pyrte	
			1314'	Rare traces of sphalerite.	

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

August 5, 1959

OFFICIAL FILE COPY
O. M. E.
RECEIVED AUG 7 1959

DATE	INITIALS	CODE
8-7	gad	220
		~~210~~
8-10	K	500

Memorandum

To: Operating Committee, OME - Washington

From: OME Field Team, Region V - Knoxville, Tenn.

Subject: Signed Amendment No.2, DMEA-5008, Idm-E1204, zinc
The New Jersey Zinc Company
Chaffin Estate, Wythe County, Virginia

Transmitted are the Government and Audit copies of the subject signed amendment.

Distribution of the other copies has been made by this office.

Robert A. Laurence
Robert A. Laurence
Executive Officer, OME
Region V

V. J. Lynch
V. J. Lynch, Member
Bureau of Mines

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
7/31	Klugescheid	500
	[illegible]	500
7/31	Talbert	800
8/4	[illegible]	130
"	Johnson	110
		220
8/4	gad	500

AUG 4 1959

Memorandum

To: Executive Officer, GMK Field Team, Region V

From: Chairman, Operating Committee, GMK

Subject: Docket No. MMEA-5006 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract, Austinville Area
Wythe County, Virginia
Contract No. Idm-81204

We refer to the Operator's letter, dated June 9, 1959, and to your memorandum, dated June 12.

No amendment would be necessary to transfer funds from the assay item to the core box item in Category (7) of the cited contract.

Article 6 of the contract states: "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."

There is probably a significant amount of core which is of no particular value due to the fact that it is not mineralized and it seems as though some of this could be disposed of and the core boxes could be used again.

George C. Selfridge

APPROVED:

P. F. Yopes

Member, Bureau of Mines

Harold Kirkemo

Member, Geological Survey

WPKlugescheid/er (7/29/59) 7/31/59
cc to: Director's Reading File
Operating Committee
Mr. Bishop, USBM
Mr. Kirkemo, USGS
Docket
Chron

43683

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

OFFICIAL FILE COPY
O. M. E.
RECEIVED JUL 31 1959

DATE	INITIALS	CODE
7-31	gad	2V0
"	R	100

July 29, 1959

Memorandum

To: Operating Committee, OME - Washington 25, D. C.

From: OME Field Team, Region V - Knoxville, Tennessee

Subject: DMEA-5008, Idm-E1204-zinc-lead. The New Jersey Zinc Co. Chaffin Tract, Wythe County, Virginia Amendment No.1

Reference is made to the last paragraph of your July 27 memorandum.

We have checked our files, and the Government Copy of Amendment No.1 is not here. Our records indicate that it was sent to the Washington office on June 25. If not received in your office, it must have become separated from the other copies and correspondence after its arrival in Washington.

Robert A. Laurence
Robert A. Laurence
EXECUTIVE OFFICER
OME FIELD TEAM
REGION V

V. J. Lynch
V. J. Lynch, Member
Bureau of Mines

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
7-24	Klugescheid	500
	[illegible]	500
7/24	Talbert	800
7/24	[illegible]	130
"	[illegible]	110
		~~100~~
		~~HB~~
7/27	[illegible]	220
		500

500

JUL 27 1959

Memorandum

To: Executive Officer, OME Field Team, Region V

From: Chairman, Operating Committee, OME

Subject: Docket No. DMEA-5008 (Lead-Zinc)
The New Jersey Zinc Company
Chaffin Tract, Austinville Area
Wythe County, Virginia
Contract No. Idm-E1204

We are enclosing the original and four copies of a proposed Amendment No. 2 (two pages) to the cited contract, signed by the Acting Director for the Government. We are also enclosing two extra copies for the use of the Field Team.

This amendment is in accordance with the request of the Operator, dated July 3, 1959, and your recommendations, dated July 7.

If the proposed amendment meets with your approval, kindly present it to the Operator for approval and signature and, when completed, distribute the copies in the usual manner. In the event that the amendment is not satisfactory, and cannot be amended within your delegated authority, return all copies with your recommendations concerning any modifications.

We note that the signed Government copy of Amendment No. 1 has not been received by this office and wonder if by any chance it could have gone astray.

/s/ George C. Selfridge

(HB)

Enclosures

APPROVED:

Frank D. Lamb (HB)
Member, Bureau of Mines

Harold Kirkemo (HB)
Member, Geological Survey

WPKlugescheid/er 7-24-59
Copy to: Docket
Dir Read File
Op. Committee
Mr. Bishop, USBM
~~Mr. Kiilsgaard~~
Mr. Kirkemo, USGS
Chron.

8623

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

July 21, 1959

Memorandum

To: Acting Director
Office of Minerals Exploration

From: Acting Associate Solicitor
Division of Mineral Resources

Subject: Docket No. DMEA-5008
The New Jersey Zinc Company
Contract No. Idm-E1204

We have prepared the attached Amendment No. 2 from the draft submitted by Mr. Griswold. The concluding paragraph has been restated to conform to the requirements of the actual-cost contract form.

J. L. Hofflund

Attachment

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
7/17	Klugescheid	500
	[illegible]	500
		800
		130
		110
		220
		500

July 17, 1959

Memorandum

To: Associate Solicitor, Division of Mineral Resources

From: W. R. Griswold, Chief,
Division of Minerals, OME

Subject: Docket No. DMEA-5008 (Lead-Zinc)
The New Jersey Zinc Company
Chaffin Tract, Austinville Area
Wythe County, Virginia
Contract No. Idm-X1204

SOLICITOR

JUL 17 1959

INTERIOR DEPT.

Will you kindly prepare Amendment No. 2 for the cited contract similar to the attached draft.

Attachment

WPKlugescheid/gla
cc to: Docket
Chron

RECEIVED
JUL 17 1959
ASSOC. SOLICITOR
MINERAL RESOURCES

8623

OFFICIAL FILE COPY

Date	Surname	Code
7/17		500
	Guarnieri	

July 17, 1959

Memorandum

To: The File

From: W. P. Klugescheid, Mining Engineer
Division of Minerals

Subject: Justification for Amendment No. 2
Docket No. DMEA-5008 (Lead-Zinc)
The New Jersey Zinc Company
Chaffin Tract, Austinville Area
Wythe County Virginia
Contract No. Idm-E1204

Some drilling in excess of 2,000-foot depth may be required to satisfactorily explore the ore horizons. This was requested by the Operator and recommended by the Field Team.

No increase in cost per foot was allowed for this work.

W. P. Klugescheid

W. P. Klugescheid

WPKlugescheid/gla
cc to: Docket
Chron

8623

DRAFT
WRKluge:ehaid/
7/17/59

Docket copy

EXPLORATION PROJECT CONTRACT
THE NEW JERSEY ZINC COMPANY
DOCKET NO. DMSA-5008

AMENDMENT NO. 2

It is agreed this _____ day of _____, 1959, between the United States of America, acting through the Department of the Interior, Office of Minerals Exploration, hereinafter called the "Government," and The New Jersey Zinc Company, hereinafter called the "Operator," that Contract No. DMs-21204, Docket No. DMSA-5008, dated June 12, 1958, as amended, is further amended as of the date of the Contract as follows:

In Amendment No. 1: Delete Item 1, and substitute:

1. Paragraph 3 of Exhibit "A" is revised to read as follows:

3. It is estimated that approximately 16 holes will be required, having an average depth of approximately 1,500 feet, with a maximum depth for any hole of approximately 2,500 feet. Not more than 24,000 feet of drilling shall be performed.

Under Item 2, Exhibit "A", "Estimated Cost of the Project," delete:

Diamond drilling from 1,500- to 2,000-foot depth, AX size, 3,050 feet @ $5.00/ft.	$15,150.00
AX size @ $2.73/ft.	---------

substitute:

Diamond drilling in excess of 1,500-foot depth, AX size, 3,050 feet @ $5.00/ft.	$15,150.00
AX size @ $2.73/ft.	---------

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 quintuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By_____
Acting Director, Office of
Minerals Exploration

THE NEW JERSEY ZINC COMPANY

By_____

Title_____

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

July 7, 1959

OFFICIAL FILE COPY O. M. E. RECEIVED JUL 9 1959		
DATE	INITIALS	CODE
7-9	gad	VVO
		130
7-10	K	500

Memorandum

To: Operating Committee, OME, Washington 25, D. C.

From: Field Team, OME, Region V, Knoxville 2, Tennessee

Subject: Docket No. DMEA-5008, Contract No. Idm-E1204 (Zinc)
The New Jersey Zinc Company, Austinville, Virginia
Chaffin Tract, Wythe County, Virginia

Attached are the original and one copy of a letter from the Operator requesting an amendment to the subject contract for drilling to a depth of 2,500 feet.

Our Field Examiner has verified the statement that deeper drilling will be necessary in some areas of Chaffin Tract to explore the favorable ore horizons.

Although drilling deeper than 2,000 feet will be of greater cost per foot than the next shallower depth category, it is not feasible for the Government to contribute to this additional cost.

We therefore recommend an amendment to the contract authorizing diamond drilling to a depth of 2,500 feet, but at a cost not to exceed that for the 1,500- to 2,000-foot category.

V. J. Lynch
Acting Executive Officer

Helmuth Wedow, Jr.

Helmuth Wedow, Jr.
Geologist
U. S. Geological Survey

Attachments 2

BERTHA MINERAL DIVISION

THE NEW JERSEY ZINC COMPANY

AUSTINVILLE, VA.

OFFICIAL FILE COPY
O. M. E.
RECEIVED JUL 9 1959

DATE	INITIALS	CODE
7-9	gcd	

HORSEHEAD PRODUCTS ®

Austinville, Va.
July 3, 1959

Regional Executive Officer
Defense Minerals Exploration Admn.
Room 2-B, Post Office Building
Knoxville 2, Tennessee

Subject: Proposed Amendment
DMEA 5008, Contract IDM-E-1204
Chaffin Tract
Austinville, Virginia

Dear Sir:

Recent drilling in the Chaffin Tract has indicated that in some of the areas it is deeper to the favorable horizons than formerly believed.

We would appreciate it if you would prepare an amendment to the contract allowing us to drill in the range between 2,000 and 2,500 feet. We have already obtained an amendment to our Joy Contract, which charges us $3.50 per foot for drilling between 2,000 and 2,500 feet.

Very truly yours,

W. L. Albers
General Superintendent

WHoratioBrown:rjl
In duplicate

RECEIVED
JUL 6 - 1959
U. S. Geological Survey
Geologic Division
Knoxville, Tenn.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

June 25, 1959

Memorandum

To: Operating Committee, OME - Washington

From: Acting Executive Officer, OME - Region V - Knoxville

Subject: Signed Amendment No. 1. DMEA-5008, Idm-E1204(Zn-lead)
The New Jersey Zinc Company,
Chaffin Tract, Wythe County, Virginia

Attached are the Government and Audit copies of the subject amendment.

The usual distribution of the other copies has been made by this office.

V. J. Lynch

V. J. Lynch

OFFICIAL FILE COPY
O. M. E.
RECEIVED JUN 29 1959

DATE	INITIALS	CODE
6/29	C	220
	Klug	500
6/29	C	210

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

June 12, 1959

OFFICIAL FILE COPY
O. M. E.
RECEIVED JUN 15 1959

DATE	INITIALS	
6/15	a	220
		130
~~6/16~~	~~[illegible]~~	~~500~~

Memorandum

To: Operating Committee, OME - Washington, D. C.

From: OME Field Team, Region V - Knoxville, Tennessee

Subject: DMEA-5008, Idm-E1204 (zinc) The New Jersey Zinc Co. Chaffin Tract, Wythe County, Virginia.

Attached is a copy of a letter from the Operator of the subject contract inquiring about an amendment to exchange funds in certain categories of the contract.

If an amendment is necessary to transfer funds from the Assay Category to the core tray category, please prepare such an amendment.

V. J. Lynch, Acting
Executive Officer, OME
Region V

Helmuth Wedow, Jr.,
Geologist
Geological Survey

BERTHA MINERAL DIVISION

THE NEW JERSEY ZINC COMPANY

AUSTINVILLE, VA.

OFFICIAL FILE COPY
O. M. E.
RECEIVED JUN 15 1959

DATE	INITIALS	CODE

June 9, 1959

Regional Executive Officer
Defense Minerals Exploration Admn.
Room 2-B, Post Office Building
Knoxville 2, Tennessee

Subject: May Monthly Report
DMEA 5008, Contract IDM-E-1204
Chaffin Tract
Austinville, Virginia

Dear Sir:

Attached is our May Monthly Report on the diamond drilling of the Chaffin Tract, Austinville, Virginia.

You will note that we have overrun by seventeen core trays in the core tray account. We would like to know whether an amendment can be prepared which will permit unexpended funds in the assay category to be applied toward the overrun in the core tray category.

Very truly yours,

W. L. Albers
General Superintendent

WHoratioBrown:rjl
In quintuplicate
Attachment

RECEIVED
JUN 10 1959
U. S. Geological Survey
Geologic Division
Knoxville, Tenn.

June 15, 1959

Memorandum for the Files

From: W. P. Klugescheid, Mining Engineer, Division of Base Metals

Subject: Justification for Amendment No. 1, Docket No. DMEA-5008, The New Jersey Zinc Company, Chaffin Tract, Austinville Area, Wythe County, Virginia, Contract No. Idm-E1204, (Lead-Zinc).

The Operator requested an additional 35,000 feet of drilling and an increase of $100,000 in funds to prove the potential of the area being drilled. The work requested was very much more than originally requested and it was (quite impossible) to provide this sum of money (insofar as) the DMEA program was in liquidation.

The work completed had shown that some ore exists on the tract and with the footage remaining it is not possible to obtain the results necessary to properly (prove) a substantial amount of ore.

With the additional footage provided (8,000 feet of drilling), it may be possible to accomplish the purpose desired. This footage will allow an additional four holes and will permit the completion and deepening of other critical holes.

The additional work will involve an additional commitment of $10,993.00 of Government funds.

W. P. Klugescheid.

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
6/15	Klugescheid	500
	[illegible]	500
6/16	[illegible]	130
6/11	[illegible]	110
		~~100~~
		~~UR~~
6/17	[illegible]	220
6/16	[illegible]	500
		500

JUN 15 1959

500

Memorandum

To: Executive Officer, OME Field Team, Region V

From: Chairman, Operating Committee

Subject: Docket No. DMEA-5008 (Lead-Zinc)
The New Jersey Zinc Company
Austinville Area
Wythe County, Virginia
Contract No. Idm-E1204

We are enclosing the original and four copies of a proposed Amendment No. 1 (three pages) to the above contract, signed by the Acting Director, for the Government. We are also enclosing two extra copies for the use of the Field Team.

It was possible to provide neither the additional footage requested by the Operator nor the footage recommended by the Field Team. The increase of 8,000 feet of drilling will permit the deepening of holes A-531, A-535, and A-536, the completion of holes A-540 and A-541, and permit the drilling of four additional holes which could be used to locate the continuation of the ore found in A-538 and/or the continuation of the ore found in holes A-530, A-531, etc. The use to be made of this extra footage would depend upon the results obtained in holes A-540 and A-541, the results of which we do not know.

If the amendment meets with your approval, kindly present it to the Operator for approval and signature and, when completed, distribute the copies in the usual manner. In the event that the amendment is not satisfactory and cannot be amended within your delegated authority, return all copies with your recommendations concerning any modifications.

It will be well to bear in mind that the amendment must be executed before midnight June 30, 1959.*

/s/ George C. Selfridge (GB)

Enclosures
APPROVED:

Frank D. Lamb (GB)
Member, Bureau of Mines

Harold Kirkemo (GB)
Member, Geological Survey

WPKlugescheid/er 6-15-59
CC Docket
Dir Read File
Op. Committee
Mr. Bishop, USBM
Mr. Kirkemo, USGS
Chron.

* [illegible]

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
6/12	Klugachev	500

500

June 11, 1959

Memorandum

To: Associate Solicitor, Division of Minerals Resources

From: Chief, Division of Base Metals

Subject: Preparation of Amendment No. 1 for Docket No. DMEA-5008, The New Jersey Zinc Company, Chaffin Tract, Austinville Area, Wythe County, Virginia, Contract No. Idm-E1204, (Lead-Zinc)

Will you kindly prepare an Amendment No. 1 for the cited project along the following lines.

EXPLORATION PROJECT CONTRACT
The New Jersey Zinc Company
Docket No. DMEA-5008

Amendment No. 1

It is agreed this _____ day of _____, 1959, between the United States of America, acting through the Department of the Interior, Office of Minerals Exploration, and The New Jersey Zinc Company that Contract No. Idm-E1204, Docket No. DMEA-5008, dated June 12, 1958, is amended effective as of the date of the Contract, as follows:

1. Paragraph 5 of Exhibit "A" is revised to read as follows:

5. It is estimated that approximately 16 holes will be required, having an average depth of approximately 1,500 feet, with maximum depth for any hole of approximately 2,000 feet. Not more 24,000 feet of drilling shall be performed.

2. Exhibit "A", "Estimated Cost of the Project", is revised as follows:

43683

Suggested [illegible] [illegible]

On advantages have not been
mainly [illegible] [illegible] Two or
hinges indicated two more holes
[illegible] to [illegible] and a few
[illegible] [illegible] [illegible] [illegible]
in [illegible] possibility of [illegible]
and [illegible] to [illegible].
This is [illegible] of the Graphite [illegible]

No [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible]
[illegible]

[illegible]

Estimated Cost of the Project

Actual Costs

Category (1) Independent Contracts (See Annex II.)

Overburden drilling and diamond drilling to 1,000-foot depth. AX size, 12,000 feet @ $2.25/ft.	$27,000.00	
EX size @ $2.00/ft.	- - - -	
Diamond drilling from 1,000- to 1,500-foot depth. AX size, 6,950 feet @ $2.50/ft.	17,375.00	
EX size @ $2.25/ft.	- - - -	
Diamond drilling from 1,500- to 2,000-foot depth. AX size, 5,050 feet @ $3.00/ft.	15,150.00	
EX size @ $2.75/ft.	- - - -	$59,525.00

The above rates include charges for reaming, cementing, water supply, casing, changing of locations, and all other charges by the diamond drill contractor.

Neither the cost nor the value of the casing left in drill holes at the option of the Operator will be accepted as a charge to the contract.

Category (2) through (6)	None	
Category (7) Miscellaneous None except:		
300 samples assayed @ $2.00*/each sample	600.00	
Core boxes - 600 @ $2.50*/each box	1,500.00	2,100.00

* In addition to the maximum fixed in the contract form, an asterisk indicates maximum.

Fixed Unit Costs (See Annex II)

Incidental allowance 1/ for each foot of drilling completed, 24,000 feet @ $0.22/ft.	$ 5,280.00
Estimated Total Cost of the Project (rounded to)	$66,906.00
Government Participation @ 50%	$33,453.00

3. In Article 3 of the Contract the date for completion of the work is extended from "July 30, 1959" to "December 31, 1959".

4. In Article 5 of the Contract the estimated total allowable cost of the project is changed from "44,920.00" to "$66,906.00", and the figure "$22,460.00" is changed to "$33,453.00".

Executed in quintuplicate the day and year first above written.

UNITED STATES OF AMERICA

By _____
Acting Director, Office of
Minerals Exploration

THE NEW JERSEY ZINC COMPANY

By _____

TITLE _____

1/ Includes all costs that might be allowable costs of the project under Categories (1) through (7) of Article 6(a) except as otherwise scheduled in Exhibit "A".

W. R. Griswold

W. R. Griswold

WRG/er
CC: Docket
Dir Read File
Chron.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

cy memo & orig I.R. to 110-800, 500

OFFICIAL FILE COPY
O. M. E.
RECEIVED MAY 22 1959

DATE	INITIALS	
5/26	a	220
		130
		500

Memorandum

To: Operating Committee, OME - Washington, D. C.

From: Field Team, OME - Region V - Knoxville, Tennessee

Subject: DMEA-5008, Idm-E1204(zinc) The New Jersey Zinc Co., New York, N.Y. Chaffin Tract, Wythe County, Va.

Reference is made to your memorandum of May 12. The latest interim report is attached (original and two copies).

We have just been advised that hole A-538 has been completed at 1821 feet and A-539 at 1212 feet. No mineralization was found below the depths given in the interim report. Drilling is now in progress at A-540, on section 181, 100 feet northwest (up dip) from A-538 and at A-541, on section 163, 100 feet southeast (down dip) from Hole A-539. The funds authorized in the contract will be used up before completion of these two holes.

The Operator has already suggested deepening of three holes, and we are in agreement. These holes and the proposed additional footages are:

A-531	90 feet
A-535	85 feet
A-536	50 feet

It is our opinion that additional drilling, after completion of the present authorized footage, is amply justified by the possibility of increasing the ore already discovered to a much more significant tonnage figure. Therefore we recommend the following additional work:

Location	Approximate Footage
Completion of A-540	*1750
Completion of A-541	*1200
Deepening A-531, 535, 536	225
Eight more holes on Secs. 161,173 and 181.	12,000
	15,175

*Approximately 2000 feet of this footage will be covered by present authorized amount.

Precise locations of the eight new holes cannot be given, but we would suggest at least one on section 181 between A-540 and A-532; three on section 173 on strike from A-538, two or three on Section 189, also on strike from A-538. In addition, one or more up dip from A-531 and one or more to the west of A-539 and A-541, which would require addition of land to the project area, may be desirable.

In summary, we recommend authorization of additional drilling and supporting services, at the rates authorized in the existing contract, in total amount of 15,000 feet, and extension of time for completion of the project until December 31, 1959.

Robert A. Laurence

Robert A. Laurence
Executive Officer, OME
Region V

V. J. Lynch

V. J. Lynch, Member
Bureau of Mines

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
5/19	[illegible]	220
		500

MAY 19 1959

Memorandum

To: Mrs. Helen R. Miller, Administrative Assistant, Bureau of Mines, Region V

From: E. D. Talbert, Acting Chief (Signed) E. D. Talbert
Contract Administration and Audit Division

Subject: Docket No. DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Estate, Austinville Area
Wythe County, Virginia
Contract No. Idm-E1204

The recently received copy of the April 1959 MF-104 for the subject project indicates that costs were claimed and approved for payment on the basis of diamond drill hole A-537 bottoming AX size at 1,425 feet. However, the Operator's narrative for March 1959 and, also, the Field Team's interim report of inspection on April 9, 1959, state that core size in this hole was reduced to EX at a depth of 994 feet.

It is suggested that an appropriate disallowance be taken in the approval of the next MF-104. Unless the drilling contractor's prices are less than the EX costs per foot stated in the exploration contract, the disallowance will be $107.75 (i.e. 431 feet @ $.25).

EDTalbert/ama
May 19, 1959

Copy to: Docket
Director's Reading File
CA & A Division
Mr. Laurence
Mr. Talbert

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
5-11	Klugescheid	500
	[illegible]	500
5/11	[illegible]	130
"	Johnson	110
		~~100~~
		~~HB~~
5/12	[illegible]	220
		500

MAY 12 1959 500

Memorandum

To: Executive Officer, OME Field Team, Region V

From: Chairman, Operating Committee, OME

Subject: Docket No. DMEA-5008 (Lead-Zinc)
The New Jersey Zinc Company
Chaffin Tract
Austinville Area
Wythe County, Virginia
Contract No. Idm-8120

We refer to the request for amendment, dated March 16, 1959, and your memorandum recommending approval thereof, dated April 20.

As DMEA is now in process of liquidation, it will be impossible to grant the amendment requested. We are not in a position to increase the amount of Government participation in a DMEA contract except when the target has not been reached, or to reasonably delineate ore already found under the contract. The tonnage of ore found to date is small but it might be possible to grant some additional drilling footage, in the vicinity of this ore, so as to increase the possible tonnage.

Holes Nos. 538 and 539 are now being drilled and we would like to know the results of these holes before we decide if more drilling can be allowed and where it is to be done. As DMEA money may not be available after June 30, 1959, we will have to move rapidly so that a possible amendment could be processed before the critical date. We will, therefore, depend upon you to get the results of these holes to us with your recommendations for some possible further work in this immediate area, at the earliest possible date.

Judging by the deepest estimated showings in A-537, it would appear possible that hole A-535 might show additional ore if drilled deeper.

/s/ George C. Selfridge (GCS)

APPROVED:

(sgd.) G. W. Josephson (GWJ)
Member, Bureau of Mines

N. E. Nelson (NEN)
Member, Geological Survey

WPKlugescheid/er 5-7 & 11-59
Copy to: Docket
Dir Read File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron.

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
5-7	Klugescheid	500
	[illegible]	500
5/8	[illegible]	130
		110
		~~100~~
		HB
		220
		500

500

Memorandum

To: Executive Officer, OME Field Team, Region V

From: Chairman, Operating Committee, OME

Subject: Docket No. DMEA-5008 (Lead-Zinc)
The New Jersey Zinc Company
Chaffin Tract
Austinville Area
Wythe County, Virginia
Contract No. Idm-K1204

We refer to the request for amendment, dated March 16, 1959, and your memorandum recommending approval thereof, dated April 20.

As DMEA is now in process of liquidation, it will be impossible to grant the amendment requested ~~but, as~~ the tonnage of ore found to date is small, it might be possible to grant some additional drilling footage, in the vicinity of the ore ~~already found, to make thoroughly prove or~~ increase the tonnage ~~discovered~~. possible. avoid to

Holes Nos. 538 and 539 are now being drilled and we would like to know the results of these holes before we decide if more drilling can be allowed and where it is to be done. As ~~the~~ DMEA money ~~will~~ may not be available after June 30, 1959, we will have to move rapidly so that a possible amendment could be processed before the critical date. We will, therefore, depend upon you to get the results of these holes to us with your recommendations for some possible further work in this immediate area, at the earliest possible date.

Judging by the deepest estimated showings in A-537, it would appear possible that hole A-535 might show additional ore if drilled deeper.

/s/ George C. Selfridge (GB)

APPROVED:

(sgd.) G. W. Josephson (GB)
Member, Bureau of Mines

N. E. Nelson (GB)
Member, Geological Survey

WPKlugescheid/er 5-7-59
Copy to: Docket
Dir Read File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron.

We are not in a position to increase the amount of Government participation in a DMEA contract except when the target has now been reached or to reasonably certain or almost assured under the contract.

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
5/5	Grannell	500

May 5, 1959

Memorandum for the Docket

From: W. P. Klugescheid, Mining Engineer,
Division of Base Metals

Subject: Justification for Denial of An Amendment for Increase of drilling footage and $100,000.00 for Docket No. DMEA-5008, The New Jersey Zinc Company, Chaffin Tract, Austinville Area, Wythe County, Virginia, Contract No. Idm-E1204, Lead-Zinc.

Request made by W. L. Albers, dated March 16, 1959, for increase in drilling footage and an additional $100,000.00 to be added to the cited contract by amendment.

As DMEA is in liquidation only such amendments can be made which will materially aid in making a certification possible or that aid in completing the work already authorized. In this case, four holes have already struck ore in one small area so that a certification will be possible.

The additional drilling really amounts to a vastly increased project which was not contemplated when the contract was granted.

The Field Team recommended approval of the Operator's request. The new program would more thoroughly explore the possibilites of the area.

W.P.Klugescheid
W. P. Klugescheid

CC: Docket
Dir Read File
Chron.

43683

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

OFFICIAL FILE COPY
O. M. E.
RECEIVED APR 28 1959

DATE	INITIALS	CODE
4/28/59	G	220
4/29/59		~~500~~

April 27, 1959
Re: DMEA 5008
The New Jersey Zinc Co.
Chaffin Tract
Wythe County, Virginia
Appl. Est. $100,000
Lead-Zinc

Memorandum

To: W. R. Griswold, Office of Minerals Exploration

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of application for an amendment

The operator requests assistance on further drilling of a tract that adjoins the Austinville Mine property. Eight holes have been drilled under the original contract of which 4 holes are classed as ore holes.

Three holes, 530, 531, and 532, of the four are in line and 100 feet apart. The fourth hole, 537, is 400 feet to the southwest and is 100 feet from and between 2 holes that show mineralization but no ore. The ore thickness in 530, 106 feet, does not compare with that in the other holes as, 531, 15 feet, 532, 12 feet, and 537, one intersection of 9 feet, and 193 feet below another intersection of 38 feet. If the thicker ore bed in 537 can be correlated with the ore in 530, 531, and 532, a sizable body of ore is drill indicated. If the thinner ore bed in 537 correlates with that in the three holes, a much lesser tonnage is indicated. A drill hole between 537 and the 3 hole fence is needed, but enough is indicated, whether or not 537 is taken with the 3 holes, to warrant certification. Such being the case, denial of the application for the requested amendment is in order.

N. E. Nelson

N. E. Nelson

LSBM Memo

4/27/59

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

OFFICIAL FILE COPY
O. M. E.
RECEIVED APR 27 1959

DATE	INITIALS	CODE
4/28	a	220
		500

April 27, 1959

Re: DMEA-5008, Idm-E1204, Zn-Pb
The New Jersey Zinc Company
Chaffin Tract
Wythe County, Virginia

Memorandum

To: W. R. Griswold, Office of Mineral Exploration

From: H. M. Callaway, Branch of Base Metals

Subject: Review of request for contract amendment to permit additional $100,000 drilling on the Chaffin project

Drilling under the present contract has led to a significant ore strike in this most interesting and favorable area flanking the productive Austinville anticline on its south border.

The rather modest original contract is insufficient to permit effective follow-up of the trend. The company requests an addendum to the present contract to permit an added 35,000 feet of drilling.

This contract seems to me to be another excellent opportunity to demonstrate the effectiveness of O.M.E. in contributing to the Nation's ore reserve base.

Before coming with Government I conducted drilling in this area for a company competing with New Jersey Zinc Co. In so doing I gained an appreciation for the potential of this area to yield commercial ore and an appreciation of the ability of the New Jersey Zinc Co. to conceive and execute effective ore-search programs.

I hardily recommend the proposed program and hope acceptance can be found within the limits of the present administrative policy.

H. M. Callaway

H. M. Callaway

Copy to Division of Minerals
Mr. Kiilsgaard
Mr. Lamb
Branch of Base Metals (3)
FILES

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

April 20, 1959

OFFICIAL FILE COPY
O. M. E.
RECEIVED APR 22 1959

DATE	INITIALS	CODE
4/22	a	220
4/23	absent	130
4/23	[illegible]	500

Memorandum

To: Operating Committee, OME - Washington

From: OME Field Team, Region V - Knoxville, Tennessee

Subject: DMEA-5008, Idm-E1204 (Zinc-lead)
The New Jersey Zinc Co., New York, N.Y.
Chaffin Tract, Wythe County, Virginia

Reference is made to our memorandum of March 19.

Information obtained since that date tends to support the request for additional drilling, submitted by the Operator on March 15. Hole A-537 will be classed as an ore hole, thus adding to the ore shoot already discovered. Even so, the tonnage discovered will be small and though probably certified, the present program will not really explore the possibilities of the area.

We recommend approval of the Operator's request.

Robert A. Laurence
Robert A. Laurence,
Executive Officer, OME - Region V

Wm. A. Beck
Wm. A. Beck, for V. J. Lynch
Member, Bureau of Mines

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

March 19, 1959

OFFICIAL FILE COPY
O. M. E.
RECEIVED MAR 23 1959

DATE	INITIALS	CODE
3/23	C	220
		1304
3/24	Kleng	500

Memorandum

To: Operating Committee, OME - Washington, D. C.

From: OME Field Team, Region V, Knoxville, Tennessee

Subject: DMEA-5008, Idm-E1204 (zinc-lead) The New Jersey Zinc Company, New York, N.Y. Chaffin Tract, Wythe County, Virginia

Enclosed are three copies of a request submitted by the Operator for an amendment authorizing an additional $100,000 for the Chaffin project.

This has just been received and we have not had time to study the proposal or to discuss it with the Field Examiners. A memorandum containing our recommendations will follow shortly. However, we are in agreement that additional work on the Chaffin tract is justified, although a certification could possibly be supported on results to date.

We have told the Operator informally that it is probable they will be asked to complete the new OME forms and to submit financial eligibility data but that we have not actually been advised as to how requests for extensions of DMEA contracts will be handled. We suggest that a letter explaining this situation should be sent to Mr. Albers by the Washington office.

Robert A. Laurence

Robert A. Laurence, Executive Officer
OME Field Team, Region V

V. J. Lynch

V. J. Lynch, Member
Bureau of Mines

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

OFFICIAL FILE COPY
O. M. E.
RECEIVED MAR 23 1959

March 19, 1959

Mr. W. L. Albers, General Superintendent
Bertha Minerals Division
The New Jersey Zinc Company
Austinville, Virginia

Re: DMA-5008, Idm-E1204 (zinc-lead)
Chaffin Estate
Wythe County, Virginia

Dear Mr. Albers:

Your letter of March 16 and accompanying request for an amendment to the subject contract has been forwarded to our Washington office, as the Field Team does not have the authority to make such amendments. You will be advised by the Washington office if any additional information is required.

Sincerely yours,

Robert A. Laurence
Executive Officer, OME
Field Team, Region V

RAL/sm
cc
Opr. Com.-2
Lynch
Files
Shirley

BERTHA MINERAL DIVISION

THE NEW JERSEY ZINC COMPANY

AUSTINVILLE, VA.

OFFICIAL FILE COPY
O. M. E.
RECEIVED MAR 23 1959
DATE | INITIALS | CODE

March 16, 1959

RECEIVED
MAR 18 1959
U. S. Geological Survey
Geology
Knoxville, Tenn.

Regional Executive Officer
Defense Minerals Exploration Admn.
Room 2-B Post Office Building
Knoxville 2, Tennessee

Subject: Request for Amendment
DMEA 5008, Contract IDM-E-1204
Chaffin Tract, Austinville, Va.

Dear Sir:

The subject contract which was designed to explore the zinc-lead potential of the Chaffin Tract adjoining the Austinville Mine property has been successful in that what appears a very significant mineral discovery has been made. However, on account of the small size of the contract, the depth of the ore and the difficulties of following it, and the potential of the relatively large acreage involved, it will be necessary to drill a larger footage in order to do a definitive job.

Therefore, it is requested that an amendment be added to the present contract increasing the footage by an additional 35,000 feet and the funds by $100,000, half to be supplied by DMEA and half by the Company.

A memorandum supporting this request, complete with maps and sections, is attached.

If this request for an amendment meets with your approval, we would appreciate it if you would prepare the amendment and forward it to us for signature.

Very truly yours,

W. L. Albers
General Superintendent

WHoratioBrown:rjl
In quintuplicate

Attachments

Original Proposal
Results to Date
Proposed Additional Work
Estimated Costs

Enclosures

Geochemical Map Chaffin Area 7GB-4338B
Section 2189A
Section 4405
Section 4406
Section 4428

Original Proposal

In the original proposal on which our present contract is based, it was pointed out that the Chaffin tract of 970 acres adjoins the Austinville Mine tract on the east and that it is underlain by the Shady formation which contains ore through a 1900-foot stratigraphic range. The orebodies of the Austinville-Ivanhoe district occur in a well defined en echelon pattern. An extrapolation of this pattern to the east indicated the possibility of ore shoots of the system on the Chaffin estate. The presence of strike and cross faulting in the area made it still more promising for ore.

On a basis of the above, it was proposed to start the exploration with a fence of four holes spaced at 800-foot intervals. The object of this drilling was to determine the location of the most promising ground and drill this ground in detail.

Results to Date

Drilling was started based on the above plan and the first hole, A-530, encountered a major thickness and grade of ore. This can be seen in plan on 7GB-4338B and in section on Section 181, 7GB-2189A. The penetration in A-530 of 106 feet of 4.0% Zn and 1.2% Pb was in the Malden Horizon, the most favorable horizon in the Austinville mine. Two additional runs of low grade were penetrated at a lower horizon.

Hole A-531 was drilled 100 feet up dip from A-530 and encountered 15 feet of 7.1% Zn and 2.4% Pb in the upper part of the Malden Horizon.

Hole A-532 was drilled 100 feet down dip from A-530. Ore and mineralization was found scattered through a 255-foot range with one of the runs of a commercial thickness and grade and several runs marginal.

On a basis of the habit of neighboring ore bodies, it was assumed that we were drilling a pencil orebody having a pitch close to N 65 E. Holes A-533 and A-534 were drilled on this assumption and both holes were essentially barren, although both had fair runs of metamorphosed ground at the Malden ore horizon.

Following this drilling, an attempt was made to trace the ore by means of geophysics. The results of the job were so indefinite that it was not possible to use them.

About this time a soil sampling or geochemical job was done over the entire area of the Chaffin tract and is shown on 7GB-4338B. Samples were spaced at 200-foot intervals on fences spaced 500 feet apart. Three areas containing anomalously high (plus 400 PPM) samples were found, plus several individual high samples.

One of the groups of anomalies starts at the middle of the west edge of 7GB-4338B and trends toward the ore bearing area now being drilled. The other two are in the general area into which the en echelon pattern of Austinville ore bodies was extrapolated. These geochemical anomalies are believed to be significant and probably indicate leakage mineralization from ore at depth in the Malden horizon.

After drilling holes A-533 and 534 on Section 189, the drill was moved to Section 173.

Hole A-535 was drilled on Section 173 S 45 W from A-530. Two thin runs of low grade were discovered well above the usual ore horizons and the drill was moved 200 feet northwest. This hole, A-536, encountered the thickest run of strong metamorphism, 80 feet, in the Malden horizon and 25 feet of low grade below the Malden.

On a basis of the showings in these two holes, a straddle was suspected and A-537 was drilled between A-535 and A-536. It is not yet down to the Malden Horizon.

As can be seen on the three cross sections, Section 173, 181, and 189, and the accompanying longitudinal section 7GB-4428, there is little or no faulting cutting the drilled area. Some was suspected but has been disproved.

At the moment the main problem is, where is the extension of the ore in A-530, 531 and 532?

Proposed Additional Work

Two principal jobs remain to be done on the Chaffin exploration:

(1) Locate the extensions of the ore already found in A-530, 531 and 532 and trace it out.

(2) Explore and try to determine the potential of the larger area.

It certainly seems reasonable to believe that the A-530 ore has an extension, probably one of considerable size. The location of this ore is our most important immediate problem. On 7GB-4338 B, proposed holes A, B, and C are the first three planned to locate and trace this ore. The number of holes needed to complete this phase of the project will depend on the size and shape of the orebody.

The potential of this large area was not fully appreciated when this job was begun, but the discovery of the A-530 ore and geochemical anomalies proved that the potential is much greater than can be tested by the limited footage available. The following program which is divided into four parts will rectify this.

It is proposed first that holes D, E, F, G, and H as shown on 7GB-4338B, be drilled on Section 181 at 800-foot intervals as planned in the original Chaffin contract. The completion of this fence will give us a much clearer picture of the adjoining country and facilitate the planning of the holes in it.

The second project is planned about 2,000 feet southwest of the present area of drilling. There is in this area a string of geochemical anomalies north of the Callahan fault. It is planned to start with two holes, I and J, drilled at 400-foot intervals on Section 129.

The third proposed project is a fence of holes spaced at 800-foot intervals across the area of geochemical anomalies and en echelon extrapolations. These holes would be placed on Section 219. Tentative locations are K, L, M, N, O, and P.

It is estimated that if the favorable horizons are not deeper than expected, 24 holes should be drilled with the footage remaining and the additional 35,000 feet requested and leave enough footage for tracing out the presently known ore and other discoveries.

Thirteen of the sixteen holes listed are designed to test the area for promising mineralization and alteration. If such promising areas are found, they will have to be drilled with a pattern of follow-up holes.

The pattern for follow-up drilling that we are now using is satisfactory, and it is suggested that we continue with that pattern.

On account of much of the proposed drilling being further down dip than that heretofore, it is probable that this job will average about 1,600 feet depth.

Estimate of Costs

In the foregoing proposals, sixteen holes are laid out and about eleven follow-up holes are expected. This should do an adequate job on the Chaffin tract.

To summarize:

Holes drilled or drilling to date	8
Holes laid out above	16
Follow-up holes	11
	35

Twelve of these holes will be paid for under the contract now in force. It is requested that an additional appropriation of $100,000 ($50,000 New Jersey Zinc Company and $50,000 DMEA) be granted to drill the additional 23 holes.

WHoratioBrown:rjl

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
	Klugescheid	500
	Iverson	500
2/27	[illegible]	130
2-27	Chamberlin	200
"	Johnson	200
3/2	C	220
		500

MAR 2 1959

Mr. Robert A. Laurence
Executive Officer
OME Field Team, Region V
Room 2B, Post Office Building
Knoxville 2, Tennessee

Re: Docket No. DMEA-5008 (Lead-Zinc)
The New Jersey Zinc Company
Chaffin Tract
Austinville Area
Wythe County, Virginia
Contract No. Idm-E1204

Dear Mr. Laurence:

We refer to your memorandum dated February 16, 1959, and the request of the Operator dated February 12, 1959.

Under Category (1) of the contract, the estimated total amount of this category and the estimated cost of each unit of work only are maximums. This being the case, it will not be necessary to process an amendment for the contemplated transfer of 4000 feet of drilling from the 1500'-2000' depth to the 0'-1000' depth.

Under Exhibit "A", item 5, the total amount of drilling is limited to 16,000 feet; therefore, if any drilling in excess of this amount were contemplated, to make available drilling money that may remain unused, it would be necessary to request an amendment.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (HB)

APPROVED:

H. G. Iverson (HB)
Member, Bureau of Mines

N. E. Nelson (HB)
Member, Geological Survey

WPKlugescheid/fw-2/25/59
cc: Docket
Admr. R. File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron.

43683

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
ROOM 2-B POST OFFICE BLDG.
KNOXVILLE 2, TENN.

February 16, 1959

OFFICIAL FILE COPY O. M. E. RECEIVED FEB 19 1959		
DATE	INITIALS	CODE
2/19	C	220
~~2/20~~	~~[illegible]~~	~~130~~
	J	500

Memorandum

To: Operating Committee, OME - Washington, D. C.

From: OME Field Team, Region V - Knoxville, Tennessee

Subject: DMEA-5008, Idm-E1204-zinc. The New Jersey Zinc Co., Chaffin Tract, Wythe County, Virginia

Enclosed is a copy of a letter from the Operator of the subject contract requesting a transfer of drilling footage from the 1500 to 2000-foot category to the 0 to 1000 foot category.

The Field Team is of the opinion that the transfer should be granted. The number of holes drilled would be increased without increasing the overall costs or the total footage.

If an amendment is necessary to make this change, please prepare one.

The change will not be necessary until the Operator starts Hole No.9, which will be in about one month.

V. J. Lynch, Acting
Executive Officer, Region V

Helmuth Wedow, Jr. Geologist
U. S. Geological Survey

BERTHA MINERAL DIVISION

THE NEW JERSEY ZINC COMPANY

AUSTINVILLE, VA.

HORSE HEAD PRODUCTS

OFFICIAL FILE COPY
O. M. E.
RECEIVED FEB 19 1959

DATE	INITIALS	CODE

Austinville, Va.
February 12, 1959

Regional Executive Officer
Defense Minerals Exploration Admn.
Room 2-B Post Office Building
Knoxville 2, Tennessee

Subject: Modification of Contract
DMEA 5008, Contract IDM-E-1204
Chaffin Tract, Austinville, Va.

Dear Sir:

During the visit of your Field Team here this morning, it was brought out that we are running short of footage in the 0-1000 foot range in our Chaffin contract. We have only 8,000 feet allocated and are now drilling our seventh hole.

It would appear now that we can drill twelve holes if 4,000 feet of the 1500 to 2000 foot range is transferred to the 0 to 1000 foot range.

If it is necessary, we would appreciate it if you will initiate an amendment to the contract to take care of this.

Very truly yours,

W. L. Albers
General Superintendent

WHoratioBrown:rjl

RECEIVED
FEB 13 1959
U. S. Geological Survey
Geologic Division
Knoxville, Tenn.

Oper. Comm.

OFFICIAL FILE COPY
U. M. E.
RECEIVED OCT 16 1958
DATE | INITIALS | CODE
10/16 | C | 220
10/17 | KBz | 500

October 13, 1958

Mr. W. L. Albers, General Superintendent
Bertha Mineral Division
The New Jersey Zinc Company
Austinville, Virginia

Attention: Dr. W. H. Brown, Chief Geologist

Re: DMEA-5008, Idm-E1204 (Zinc-lead)
Chaffin Estate, Austinville area
Wythe County, Virginia

Dear Mr. Albers:

The plan to drill a hole on the subject project approximately 400 feet southwest of Hole A-530 on strike with Holes A-530 and A-533, as discussed by Messrs. Brown, Lynch, Shirley, and Wedow on October 9, 1958 is hereby approved.

Messrs. Shirley and Wedow plan to make the next inspection of the subject project sometime in the latter part of the week of October 19, probably on Thursday, October 23. We will let you know the precise time within the next few days.

Sincerely yours,

Robert A. Laurence
Executive Officer
Region V

RWjr/mg
cc - Operating Committee (2)
Mr. V. J. Lynch
Mr. L. E. Shirley
File

1086 150M

COPY

Mating Comm.

CENTRAL FILE COPY
DMEA
RECEIVED JUL 11 1958

DATE	INITIALS	COLL.
7/11	C	220
7/11	~~L.P.~~	~~560~~

July 8, 1958

Regional Executive Officer
Defense Minerals Exploration Administration
Room 13, Post Office Building
Knoxville 2, Tennessee

Subject: Initial Report, Docket DMEA-5008
Contract #IDM-E1204, Chaffin Tract
Austinville, Wythe County, Va.

Mr. Jr. Zim.

Dear Sir:

This will advise you that the Joy Manufacturing Company has been moving onto the Chaffin tract for several days, has the drill set up, and expects to start drilling tomorrow.

Very truly yours,

W. L. Albers

W. L. Albers
General Superintendent

WHoratioBrown:rjl
In quintuplicate

RECEIVED
JUL 8 - 1958

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
6/30	[illegible]	500
	[illegible]	500
6/30	[illegible]	130
"	[illegible]	110
"	[illegible]	100
6/30	[illegible]	220 HB
		500

500

JUN 30 1958

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Bldg.
Knoxville 2, Tennessee

Re: Docket No. DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract
Austinville Area
Wythe County, Virginia
Contract No. Idm-E1204

Dear Mr. Laurence:

Enclosed are the Field Team and Finance Office copies of the cited contract, signed by the Operator and the Government.

We are also enclosing an unsigned copy of the contract for the use of the Field Team.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (HB)
WRGriswold/er 6/30/58 w PK Lungschird -
Copy to: Docket
Admr R File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron.

Enclosures

APPROVED:

A. D. McMahon (HB)
Member, Bureau of Mines

Thor H. Kiilsgaard (HB)
Member, Geological Survey

8623

THE NEW JERSEY ZINC COMPANY
(ESTABLISHED 1848)
100 FRONT STREET
NEW YORK 38, N.Y.

OFFICE OF THE
VICE PRESIDENT

HORSE HEAD PRODUCTS ®

June 19, 1958

OFFICIAL FILE COPY
DMEA
RECEIVED JUN 20 1958

DATE	INITIALS	CODE
6/20	C	220
6/20	C	215
6/23	Klg	500

Mr. C. O. Mittendorf, Administrator
United States Department of the Interior
Defense Minerals Exploration Administration
Washington 25, D. C.

Re: DOCKET NO. DMEA - 5008 (ZINC-LEAD)
THE NEW JERSEY ZINC COMPANY
CHAFFIN TRACT
AUSTINVILLE AREA
WYTHE COUNTY, VIRGINIA

Dear Mr. Mittendorf:

Returned herewith are the original and three copies of Contract #Idm - E1204, duly signed in accordance with your letter to Mr. S. S. Goodwin dated June 12, 1958. We have retained the "Operator's Copy".

Very truly yours,

L F Johnson

L. F. Johnson
Vice President

JBC/ahg

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
6/10	Klugescheid	500
	Dwenson	500
"	Chambers	800
6/11	GCS	130
"	Jensen	110
"	Hallinday	100
6/12	C	220
		500

500

JUN 12 1958

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Bldg.
Knoxville 2, Tennessee

Re: Docket No. DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract
Austinville Area
Wythe County, Virginia

Dear Mr. Laurence:

In order to save valuable time, we are forwarding the original and four copies of a proposed long-form contract to the Applicant's New York City office.

We are enclosing two extra copies, minus the form, for Field Team use. This material consists of Annex I (two pages), Annex II (two pages), Exhibit "A" (three pages), and one map.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (SHB)

Enclosures

WPKlugescheid/er 6/10/58
Copy to: Docket
Admr R File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron.

APPROVED:

Frank D. Lamb (SHB)
Member, Bureau of Mines

Thor H. Kiilsgaard (SHB)
Member, Geological Survey

8623

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
6/10	Klugescheid	500
	Silvanus	500
"	Chambers	300
6/11	[illegible]	130
6/11	Lamb	130
6/11	Kiilsgaard	130
"	Olmos	110
	McPartlandy	100
		220
		500

JUN 12 [illegible]

Mr. S. S. Goodwin, Vice-President
The New Jersey Zinc Company
160 Front Street
New York 38, New York

Re: Docket No. DMEA-5008 (Zinc-Lead)
The New Jersey Zinc Company
Chaffin Tract
Austinville Area
Wythe County, Virginia

Dear Mr. Goodwin:

In reference to your application of May 6, 1958, we are enclosing the original and four copies of a proposed long-form contract for the cited project, signed by the Administrator, Defense Minerals Exploration Administration. The complete contract includes the contract form (MF-200), Annex I (two pages), Annex II (two pages), Exhibit "A" (three pages), and one map.

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.

In order to become effective, the contract must be signed and in the mail by June 30, 1958.

Sincerely yours,

C. O. Mittendorf

Administrator

WPKlugescheid/er 6/10/58

Enclosures

Copy to: Docket
Admr R File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Region V (2)
Chron.

8623

MEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
	Klingenkard	

June 5, 1958.

Memorandum

To: Associate Solicitor, Division of Mineral Resources

From: Director, Division of Base Metals

Subject: Preparation of a Contract for Docket No. DMEA-5008 (Zinc-Lead), The New Jersey Zinc Company, Chaffin Tract, Austinville Area, Wythe County, Virginia.

Will you please prepare a contract for the cited application. A draft of the contract, Exhibit "A", Annex I, and Annex II are attached to this memorandum. Also attached is one copy of the map, we have retained the remaining necessary maps and will attach them to the contract when ready.

W. R. Griswold

W. R. Griswold

8623

EXPLORATION PROJECT CONTRACT
THE NEW JERSEY ZINC COMPANY
DOCKET NO. DMEA-5008

EXHIBIT "A"

Description of the Work

1. The purpose of the project is to explore for ores of zinc and lead by diamond drilling (and such churn drilling of overburden as may be required). Zinc-lead ores in the Austinville and Ivanhoe mines are fracture-filling and replacement bodies in the Lower Cambrian Shady dolomite. The ore deposits in this area are elongated shoots in the plane of the bedding and pitch gently to the northeast. They are generally parallel to strike faults and enlarged at fault intersections. Orebodies in the Austinville-Ivanhoe district occur in a well-defined en echelon pattern.

2. A series of widely spaced dip and strike fences shall be drilled, with holes spaced at between 100-and 800-foot intervals on the fences.

3. The space intervals between the various fences shall not be less than 400 feet, except with the prior approval of the Government.

4. Drilling shall not be done at locations closer than 200 feet from property lines.

5. It is estimated that approximately 12 holes will be required, having an average depth of approximately 1,500 feet, with a maximum depth for any hole of approximately 2,000 feet. Not more than 16,000 feet of drilling shall be performed.

6. The tentative locations of the initial holes are shown on the attached map, but the actual locations, direction, inclinations, and depths of all holes are subject to prior Government approval.

7. All diamond drilling shall be with AX, or larger, size coring bits, except that when it is not feasible to complete a hole with AX size, with Government approval, the hole may be reduced with EX casing and completed with EX size bits. Drill holes shall be reamed and cased or cemented and redrilled as necessary.

The Government will not contribute to the costs of drilling any hole which is not completed.

8. All drill holes shall be logged and all drill core shall be made available to the Government for examination. All significantly mineralized core shall be split and one half thereof shall be properly sampled and the samples assayed for zinc and lead. The remaining half of all significantly mineralized core samples shall be furnished to the Government upon request.

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

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

Estimated Cost of the Project

Actual Costs

Category (1) Independent Contracts (See Annex II)

Overburden drilling and diamond drilling to 1,000 - foot depth. AX size, 8,000 feet @ $ 2.25/ft.	$18,000.00	
EX size @ $2.00/ft.		
Diamond drilling from 1,000- to 1,500-foot depth. AX size, 4,000 feet @ $2.50/ft.	10,000.00	
EX size @ $2.25/ft.		
Diamond drilling from 1,500- to 2,000-foot depth. AX size, 4,000 feet @ $3.00/ft.	12,000.00	$40,000.00
EX size @ $2.75/ft.		

The above rates include charges for reaming, cementing, water supply, casing, changing of locations, and all other charges by the diamond drill contractor.

Neither the cost nor the value of the casing left in drill holes at the option of the Operator will be accepted as a charge to the contract.

Categories (2) ~~xxx~~ through (6)

None

Category (7) Miscellaneous None except:

200 samples assayed @ $2.00*/each sample	400.00	
Core boxes - 400 @ $2.50*/each box	1,000.00	1,400.00

Fixed Unit Costs (See Annex II)

Incidental allowance 1/ for each foot of drilling completed, 16,000 feet @ $0.22/ft.	3,520.00
Estimated total cost of the Project	$44,920.00
Government Participation @ 50%	$22,460.00

* In addition to the maximum fixed in the contract form, an asterisk indicates maximum.

1/ Includes all costs that might be allowable costs of the project under Categories (1) through (7) of Article 6(a) except as otherwise scheduled

EXPLORATION PROJECT CONTRACT
THE NEW JERSEY ZINC COMPANY
DOCKET NO. DMEA-5008

ANNEX I

The land referred to in Article 2 of the contract consists of a tract known as the "Chaffin Mineral Reservation" which contains approximately 970 acres. The New Jersey Zinc Company owns the mineral rights to this tract and has limited surface priveleges. In her will, dated 1892, Elizabeth Chaffin separated the mineral rights from the surface of the land. This land is described in a plat of record in the Clerks Office of Wythe County in Plat Book 2, page 33.

Said land is shown outlined in blue color on the map (Fig. 2) entitled "The New Jersey Zinc Company, Proposed Drilling, Chaffin Estate Tract, Austinville, Virginia, File No. 7GB-4367," attached to and made a part of this contract.

SPECIAL AGREEMENT CONCERNING LAND

1. In the event the Operator or any subsidiary thereof (whether wholly owned or otherwise), at any time during the period expiring ten years from the date of this contract acquires any interest, title, or equity (exclusive of agreements granting the rights to explore, purchase, or acquire leases) in or with respect to any land, including minerals therein, situate within 1500 feet of the land described in this contract, at the

contract date and the right to make such acquisition postdates this contract, it is agreed that such land shall thereupon become subject to the provisions of this contract, and the parties hereto shall promptly execute amendments to this contract listing such land as land included in this contract.

2. It is agreed that the Operator may, at any time prior to furnishing the Government with the final report, request the Government to delete from this contract such land listed in this Annex I, or in any amendments thereto, as has no known value for mineral production. The Government will, if it concurs that the land has no known value for mineral production, promptly prepare amendments removing the specified land from the contract, which amendments shall provide that the Operator:

(a) certifies the land has no known value for mineral production; and

(b) agrees that if the Operator or any subsidiary thereof (whether wholly owned or otherwise) acquires or reacquires any interest, title, or equity (exclusive of agreements granting rights to explore, purchase, or acquire leases) in such land or any minerals produced therefrom or derives any benefit therefrom, before the expiration of thirty years from the date of this contract, such land shall be deemed subject to this contract and any certification 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.

EXPLORATION PROJECT CONTRACT
THE NEW JERSEY ZINC COMPANY
DOCKET NO. DMEA-5008

Annex II

Article 13. Changes and Added Provisions--

1. In Article 3, the words following the reference to Article 10 are deleted, and the following words are substituted: "shall have completed the work."

2. In Artilce 6(a), that part of the last sentence in the first paragraph beginning after the semicolon is deleted.

3. Categories (2) through (6) of Article 6(a) are deleted.

4. In Article 6(c), the words "Article 9" are changed to "Article 8."

5. 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".

6. 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 settlment 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 concentrates sales than that value which would result from applying the smelter schedule most favorable to an independent supplier, the greater value will beused as the basis for calculating royalty payable to the Government.

7. In addition to the costs of work estimated in Exhibit "A" by categories of actual costs, the costs of work requirements specified in Exhibit "A" as "Fixed Unit Costs" are allowable costs of the project. The Government will contribute to the fixed unit costs as work units are performed. A "Fixed Unit Cost" is an agreed price for each unit of work to be performed regardless of costs incurred by the Operator. Costs set forth in Exhibit "A" include all allowable costs of the work to be performed under the contract.

8. Notwithstanding any other provisions of the contract, the allowable unit cost per foot of a drilling item is the average unit cost per foot computed on the basis of all actual unit costs of said drilling item incurred by the Operator: Provided, That the Government will not contribute to any portion of an average unit cost of a drilling item that exceeds the estimated unit cost of said item set forth in the contract.

Memorandum for the Files

From: W. P. Klugescheid

Subject: Change in estimated Costs

Geologist--1/3 time for 12 months @ $500.00/month.	$ 2,000.00
Surveyor--1/5 time for 12 months @ $300.00/month.	720.00
Draftsman--18/25 month @ $250.0ØmonthØ	180.00
Accounting and Secretarial--12 months @ $30.00/month.	360.00
Compensation (Workmans) @ 1%	33.00
Liability Insurance and Payroll Taxes @ 5%	165.00
Transportation--1,000 miles @ $0.08/mile.	80.00
Total	$ 3,538.00

3,538/16,000 :: $0.2211/foot.

Assuming $0.22 per foot. 16,000 x 0.22	$ 3,520.00

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

June 5, 1958

Re: DMEA 5008; Lead-Zinc
$48,183
New Jersey Zinc Company
Austinville area
Chaffin tract
Wythe County, Va.

Memorandum

To: W. R. Griswold, DMEA

From: O. M. Bishop, USBM

Subject: Review of field examination report dated May 23 and accompanying comments and recommendations by the Field Team dated May 26, 1958

An examination has been made of the Chaffin tract in the Austinville basin that flanks the productive anticline on its south border. New Jersey proposes 16,000 feet of diamond drilling to explore for orebodies within the extrapolated en echelon pattern of known ore shoots on the crest and southeast flank of the anticline.

I agree with the field team that the project is well supported by structural relations and recommend acceptance of the field examiners recommendations.

O. M. Bishop

O. M. Bishop

cc: Division of Minerals
Mr. Kiilsgaard
Mr. Lamb
Mr. Callaway
F I L E S

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

June 2, 1958

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: W. P. Williams, U. S. Geological Survey

Subject: Review of field examination report, DMEA 5008 (zinc-lead) The New Jersey Zinc Company, Chaffin Estate, Wyth Co., Va.

The examining team report that geologic conditions on the applicant's property are favorable for the presence of undiscovered ore deposits.

The area is located only 2 miles from the long-known ore deposits at Austinville. The en echelon pattern of the known ore bodies forms a northeasterly trend. That trend, when extended, passes into the applicant's property. The favorable position of a major cross fault in the area also makes the exploration target better because known ore bodies are enlarged near faults.

The examiners recommend approval of a DMEA contract that would provide for an exploration drilling project. The drill hole pattern is based on the applicant's successful drilling practice in the Austinville district. I agree with the recommendations of the Field Team.

W. P. Williams

W. P. Williams

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UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

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RECEIVED MAY 28 1958

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May 26, 1958

Memorandum

To: Operating Committee, DMEA, Washington

From: DMEA Field Team, Region V, Knoxville

Subject: DMEA-5008 (Zinc-lead)
The New Jersey Zinc Company, New York, N. Y.
Chaffin Estate, Wythe County, Va.

Enclosed are the original and two copies of the subject report.

Eight extra copies of the Applicant's property map are being sent under separate cover.

We consider that this area is well worth the amount of exploration proposed, and recommend approval of a contract as outlined in the report. The estimates for supervision, technical and other work and transportation are in line with what is considered necessary to do the job, taking account of the complexity of the geology and the uncertainty of controlling structures.

Robert A. Laurence
Robert A. Laurence
Executive Officer

Wm. A. Beck
Wm. A. Beck for
V. J. Lynch, Member

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
6-2-58
(date)

UNITED STATES

DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

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RECEIVED MAY 28 1958
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FIELD EXAMINATION REPORT, REGION V

DMEA-5008 (Zinc-lead), CHAFFIN ESTATE
Wythe County, Virginia

Helmuth Wedow, Jr., Geologist
U. S. Geological Survey

L. E. Shirley, Mining Engineer
U. S. Bureau of Mines

DMEA OPERATIONS (RECEIVED)
6-2-58
(date)

May 23
1958

DMEA
28
672 JCB 130 220

FIELD EXAMINATION REPORT

DMEA-5008 (Zinc-lead), CHAFFIN ESTATE
Wythe County, Virginia

Applicant: The New Jersey Zinc Company
160 Front Street
New York, N. Y.

SUMMARY

The Applicant's newly-acquired mineral rights to the Chaffin Estate area 2 miles airline distance and 3½ to 4 miles by road east of the Austinville mine have opened a highly favorable area of 970 acres to exploration. The potential targets are possible zinc-lead ore bodies of the same general character as those long known and mined at Austinville. The chief target areas fall in the extrapolated en echelon pattern of the known deposits which lie to the west and southwest of the Chaffin area. The initial drilling is proposed where the en echelon pattern is crossed by the inferred projection of a tear fault--a possible locus for the lateral enlargement of the generally elongate pencil-like ore shoots typical of the district.

A maximum of 16,000 feet of diamond drilling has been proposed for the project with a tentative 9,000 feet in six initial holes and the balance of 7,000 feet for intermediate or follow-up holes. The holes will probably average between 1,000 and 1,500 feet, although a minimum of 500 feet and a maximum of 2,000 feet can be expected. Although the initial holes are tentatively planned with a wide spacing, a minimum spacing of 100 feet on fences and 400 feet between fences should be provided in order to follow possible ore trends if such are discovered.

On the basis of geologic inference the Chaffin Estate shows excellent promise for the presence of one or more large zinc-lead ore bodies of the Austinville type. The proposed exploration program provides for the initial subsurface test of geologically selected targets. The examiners believe such a program merits consideration and consequently recommend it strongly for DMEA assistance.

INTRODUCTION

Location and access:

The Chaffin Estate is located in Wythe County, Va., about 2 miles due east of Austinville. The center of the estate where drilling

is proposed is between 3½ and 4 miles by road, mostly hard-surfaced, from the Applicant's headquarters building at the Austinville mine. (See fig. 1 and 2, attached.)

Property:

The Chaffin Estate comprises 970 acres lying northwest of the Austinville-Poplar Camp Road as outlined in Fig. 2. The tract is also known as the Chaffin Mineral Reservation. Because of post-World War II discoveries of ore bodies immediately west of the tract, chiefly the Brown and Flatwoods deposits, the Applicant began the purchase of mineral rights in the area in 1948. As all the separate mineral rights could not be purchased outright, those remaining were acquired through partition proceedings. The Applicant thus now owns the entire mineral rights to the tract as well as the mineral rights, either entirely or partially, of most of the adjoining tracts. All properties except the Chaffin Estate are specifically excluded from the application and should be excluded from a contract, if granted.

Field examination:

The field examination of the Chaffin Estate was conducted on May 17, 1958. The examination consumed a total of about 8 hours, including discussions and review of pertinent data at the Applicant's Austinville office. The examiners were accompanied by Dr. W. H. Brown and Mr. R. C. Gilbert, geologists of the Applicant's Bertha Mineral Division staff, and by Mr. V. J. Lynch, U. S. Bureau of Mines Member of the DMEA Region V Field Team.

GEOLOGY

The geology of the zinc-lead deposits in the Austinville district is reasonably well known from reports by Currier (1935), Brown (1935), and Oder and Hook (1950) as well as from several older reports. The ore deposits in the Austinville and Ivanhoe mines of the Applicant are fracture-filling and replacement bodies in the Lower Cambrian Shady dolomite. The Shady is divided from base upwards into: (1) Patterson or ribbon member; (2) the Austinville or saccharoidal member; (3) the Ivanhoe or Carbide member ("Archy" or Archeocyathus zone); and (4) post-Ivanhoe carbonate rocks (known only on the southeast limb of the Austinville anticline). The stratigraphic thicknesses of these subdivisions of the Shady are as follows: Patterson member--750 feet; Austinville member--500 feet; Ivanhoe member--50-100 feet; post-Ivanhoe rocks--1,200 feet more or less.

The general outlines of the ore bodies either mined or discovered by drilling in the Austinville-Ivanhoe area are shown on Fig. 2. The approximate current northeasternmost headings in the main Austinville mine and the adjacent Brown ore body are also shown. The zinc-lead deposits in this area are elongated shoots in the plane of the bedding and pitch gently to the northeast. They are generally parallel to strike faults and apparently greatly enlarged at cross-fault intersections. The horizontal pattern of the known ore shoots is en echelon with the en echelon step off being generally northeasterly from the Ivanhoe bodies on the northwest limb of the Austinville anticline to the Brown (named for Dr. W. H. Brown, Chief Geologist at Austinville) and Flatwoods bodies, the eastern-most known deposits on

the southeast limb of the anticline. (See fig. 2.) The average grade of Austinville ore is 4 to 5 percent zinc and about 1 percent lead. The Applicant classifies ore and related mineralization in feet-percent units, generally equating Zn:Pb:Cu in the ratio of 1:1:2. As the amount of copper in the Austinville deposits is essentially nil, minimum "ore" is 50 feet-percent units of combined lead and zinc. Further, a minimum grade of 3 percent (hence a thickness of about 17 feet) is required, although locally in actual mining some rock as low as 2 percent may be processed.

The Applicant has extrapolated the above-mentioned en echelon pattern eastwardly into the area of the Chaffin Estate (fig. 2). The inferred positions of postulated ore bodies in this en echelon pattern are thus one of the major targets of the proposed exploration. Geologic mapping since the application was submitted suggests that a major cross fault, previously mapped by the Applicant up to the northwest boundary of the Chaffin tract, continues to the southeast in the vicinity of the proposed dip exploration fence (fig. 2). The evidence for the southeastward projection of the cross fault is in the mapping of marker beds, chiefly a distinctive argillaceous dolomite and superjacent sedimentary limestone breccias, in the post-Ivanhoe rocks from the southwest to about the middle of the Chaffin tract. Northeastward from the projection of the fault all the rocks yet observed on the Chaffin property are a medium-grained light gray saccharoidal dolomite similar to the stratigraphically lower Austinville member. Relative horizontal movement along the fault thus was probably to the northwest in the southwest block. Drag along the postulated cross fault could then account for

the more eastwardly strike of the Brown and Flatwoods ore bodies in contrast to the more northerly strike of the main Austinville ore shoots. (See fig. 2.) The favorability of targets in the vicinity of the postulated projection of the cross fault is thus considerably enhanced if such potential ore bodies are enlarged in the vicinity of the cross fault after the common pattern of the other ore bodies in the district.

High-angle reverse strike faults (Blue Grass and Callahan faults, fig. 2) have been traced into the southwest end of the Chaffin area. The relationship of these faults to the postulated cross fault mentioned above is obscure in the scarcity of surface outcrops. These faults are doubtless similar to the strike faulting in the mine that plays a significant part in the localization of the ore shoots. The logical inference, then, is that the two known strike faults as well as others yet undiscovered in the Chaffin area will play a similar role in the localization of potential ore.

The Brown ore body, which is mined through a cross cut from the main mine, consists of a series of lenses stacked in a vertical range of several hundred feet. Although the Brown body appears to feather out toward the northeast, the feathering-out is postulated on the basis of only one dip fence of drill holes (fig. 2). Some of the holes in this fence, however, are classed as "strong shine" holes and thus suggest that the structure controlling the position of the Brown shoot continues to the northeast into the area of the Chaffin Estate. Most of the main Austinville ore bodies, including the Brown shoot, generally occur in the Austinville member below the Taylor marker, a

prominent lithologic zone containing sand grains. Major exceptions to this localization are the Ivanhoe deposits, some of which occur in the upper part of the Patterson member, and the Flatwoods body, which may be as much as about 700 feet above the Taylor marker and generally less than 200 feet below the surface. Because of this shallow position much of the Flatwoods shoot is oxidized.

Although the Applicant generally uses geochemical exploration as a standard technique in its search for new deposits, this type of study is not particularly applicable to the Chaffin area. As it is unlikely that the postulated ore bodies or any attendant mineralization as well as the ore-bearing strata reach the surface in any part of the area, geochemical soil anomalies would not have formed, thus obviating the usefulness of the soil sampling technique.

EXPLORATION

Previous drilling:

There is no known previous drilling or other exploration for lead and zinc on the Chaffin Estate. Adjacent to the tract on the northwest post-World War II drilling discovered the relatively large Brown ore body and the Flatwoods oxidized deposit as well as several other smaller ore bodies. In 1943 the Applicant drilled Holes A-226 and A-228 close to the southwest end of the Chaffin area (fig. 2). The respective depths of these holes are 701 and 841 feet. Neither of these holes found lead or zinc minerals but showed zones with some pyrite and much gangue dolomite. In 1950 Holes A-506 and A-507 were drilled close to the northeast end of the Chaffin tract to depths of

about 1,710 and 1,850 feet, respectively. Although these two latter holes discovered no ore, both showed traces of sphalerite and galena, chiefly as fracture fillings, at various intervals from depths of about 450 feet to over 1,400 feet. In addition, these holes showed strongly pyritized zones of gangue dolomite that are commonly associated with ore bodies in the district. When the postulated en echelon pattern is placed over the area under consideration, it is seen that the scattered adjacent strike drilling falls outside of the preferred pattern, and the traces of mineralization found may represent "edge conditions". Thus, the recently discovered ore bodies to the northwest, one of which has a projected trend into the Chaffin area, and the adjacent strike drilling show the potentiality for favorable targets within the area. (See fig. 2.)

Proposed drilling:

The Applicant has proposed a program consisting of 16,000 feet of diamond drilling with the initial holes widely spaced along a line essentially normal to the regional bedrock grain. The tentative pattern, with which the field examiners concur, places four holes on 800-foot centers along the initial exploration fence (fig. 2). Two (DDH-2 and -4) of these four holes are centered over the two main postulated en echelon bodies that lie entirely within the Chaffin area. DDH-3 lies about midway between the main bodies. The fourth hole (DDH-1, fig. 2) lies on the projected northeastward extension of the Brown ore body. DDH-1 and -2 are southwest, and DDH-3 and -4 are northeast, respectively, of the postulated major cross fault where possible lateral enlargement of the

inferred deposits may occur. Thus, the positions of the first four holes are designed to test the best possibilities of the several major targets outlined. In addition, the examiners propose two holes (DDH-5 and -6, fig. 2) to probe at 1,200-foot intervals for some inferred strike extent of the two main postulated deposits.

As the vertical throws on the inferred faults within the area are not known, it is difficult to plan hole depths with any precision. The closest adjacent drilling to the northeast reached recognized marker beds below the major ore horizons at depths slightly less than 2,000 feet. Thus, the targets sought in the proposed drilling will probably be less than 2,000 feet but more than 500 feet depending on the fault conditions and the stratigraphic positions of possible ore bodies. Review of the best currently available geologic data suggests that the holes will average between 1,000 and 1,500 feet in depth. Thus, the four initial holes proposed by the Applicant and the additional two holes tentatively added by the examiners will aggregate 9,000 feet, if an average of 1,500 feet per hole is used, with the remaining 7,000 feet for intermediate holes at sites to be selected later.

It must be strongly emphasized that all hole locations and depths are only tentative at best and that each succeeding drill-hole site after the first hole is completed should be reconsidered in the light of data gained as the drilling progresses. Thus, it should be permissible for the Applicant to drill to a maximum depth of 2,000 feet in holes with a minimum spacing of 100 feet in both dip and strike fences and 400 feet between fences in order to follow possible ore trends if such are discovered. Further, it should be arranged that holes can be drilled outside of this pattern but with prior Government approval.

The estimated cost of 16,000 feet of diamond drilling and related expenditures is as follows:

Actual Costs

Category 1, Independent Contracts.

Overburden drilling and diamond drilling to 1,000-foot depth. AX-size core 8,000 feet @ $2.25/ft.	$18,000.00	
Diamond drilling from 1,000- to 1,500-foot depth. AX-size core approximately 4,000 ft. @ $2.50/ft.	10,000.00	
Diamond drilling from 1,500- to 2,000-foot depth. AX-size core approximately 4,000 ft. @ $3.00/ft.	12,000.00	
Total Drilling Cost		$40,000.00

Cost of Incidentals

Geologist (1/3 time) 12 mo. @ $500/mo.	2,000.00	
Surveyor (1/3 time) 12 mo. @ $300/mo.	1,200.00	
Draftsman (1/6 time) 12 mo. @ $250/mo.	500.00	
Accounting and Secretarial help @ $30/mo.	360.00	
Core boxes--400 @ $2.50/each	1,000.00	
Transportation--1,000 mi. @ 8¢/mi.	80.00	
Workmen's compensation--1%	40.00	
Liability Insurance & payroll taxes--5%	203.00	
Sample assays, chemical, for Pb and Zn 200 @ $2.00/each	400.00	
Total cost of incidentals		5,783.00
TOTAL ESTIMATED COST OF PROJECT		$45,783.00

Note: Provision should be made for the use of EX-size bits if and when necessary to complete a hole.

CONCLUSIONS AND RECOMMENDATIONS

The Applicant's newly-acquired mineral rights to the Chaffin Estate have opened for exploration a large acreage in close proximity to the well known zinc-lead mines at Austinville. The en echelon pattern of the near strike elongated shoots of the Austinville-Ivanhoe ore bodies is logically inferred to straddle the Chaffin area, thus offering as excellent exploration targets two new postulated ore bodies as well as the projected northeastward extension of the recently discovered Brown ore body. The exploration for these targets, as proposed, follows the practice of dip fence drilling used successfully by the Applicant in the Austinville district. The examiners believe, however, that provision should be made for strike fence drilling to test for the longitudinal extent of postulated shoots. The proposed exploration has an excellent chance of finding one or more large ore bodies similar to those being mined at Austinville and thus is strongly recommended by the examiners for DMEA assistance.

Specific recommendations for a contract, if one is granted, follow:

(1) The total of 16,000 feet of diamond drilling, as proposed, should be the maximum footage. Although the hole depths will probably average between 1,000 and 1,500 feet, provision should be made for a maximum depth of 2,000 feet.

(2) No specific limitation should be put on the number of holes to be drilled, as the structure is highly complex, and it is conceivable that a relatively greater number of short holes may be the drilling pattern rather than the minimum of eight 2,000-foot holes.

(3) Although the initial holes would be widely spaced, permission should be given to drill (with prior Government approval) on 100-foot centers in both dip and strike fences with the minimum space between fences to be 400 feet in order to follow possible ore trends if such are discovered.

REFERENCES CITED

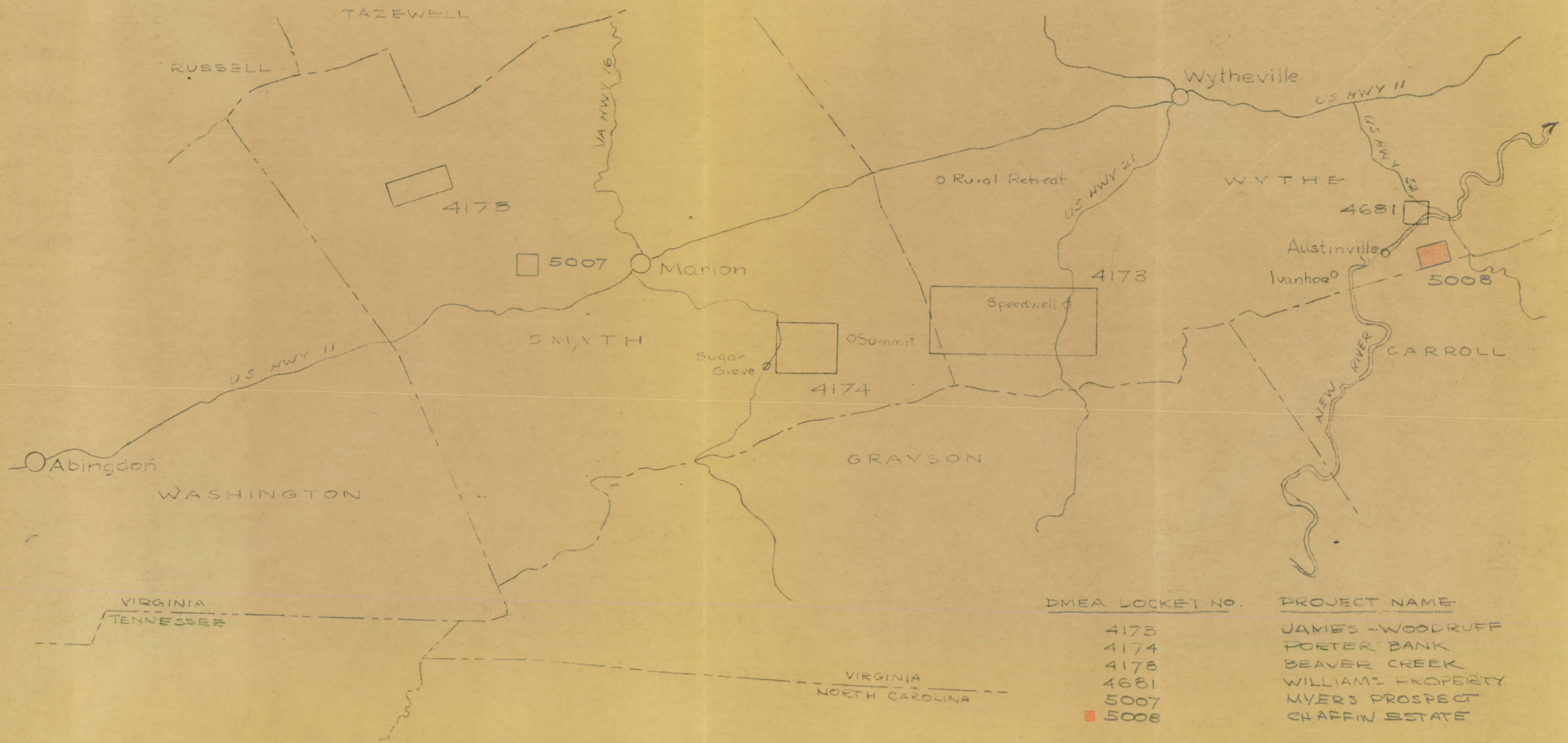
Brown, W. H., 1935, Quantitative study of ore zoning, Austinville mine, Wythe County, Virginia: Econ. Geology, vol. 30, pp. 425-433.

Currier, L. W., 1935, Zinc and lead region of southwestern Virginia: Virginia Geol. Survey, Bull. 43.

Oder, C. R. L., and Hook, J. W., 1950, Zinc deposits in the southeastern states: in Snyder, F. G., ed., Symposium on mineral resources in southeastern United States, pp. 72-87.

DMEA ZINC PROJECTS IN SOUTHWEST VIRGINIA

SCALE 1/250,000



DMEA DOCKET NO.	PROJECT NAME
4173	JAMES-WOODRUFF
4174	PORTER BANK
4178	BEAVER CREEK
4681	WILLIAMS PROPERTY
5007	MYERS PROSPECT
5008	CHAFFIN ESTATE

HW-4/57

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DMEA Form 7
(12-56)

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Date	Surname	Code
5/19	Klugescheid	500
	Signed	500
5/19	Selfridge	130
5/19	Copley	130
5/19	R. Sigsaard	130
"	Gordon	110
"	Mittendorf	100
5/20	JAS	220
		500

MAY 20 1958

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

Re: Docket No. DMEA-5008 (Zinc)
The New Jersey Zinc Company
Chaffin Tract
Austinville Area
Wythe County, Virginia

Dear Mr. Goodwin:

Your application for Government assistance to explore the cited property has been reviewed by the Division of Base Metals of the Defense Minerals Exploration Administration and has been referred to:

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville 2, Tennessee

If the Field Team requires additional information concerning your application, they will contact your Virginia field office at an early date.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

WPKlugescheid/er 5/19/58
Copy to: Docket
Admr R File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Region V (2)
Chron.

8623

DMEA Form 7
(12-56)

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Date	Surname	Code
5/19	Klugescheid	500
	Williams	500
5/19	[illegible]	130
"	Johnson	110
"	Williams	100
		220
		500
		130
5/19	Kilsgaard	
5/19	Yopes	180

500

MAY 20 1958

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Bldg.
Knoxville 2, Tennessee

Re: Docket No. DMEA-5008 (Zinc)
The New Jersey Zinc Company
Chaffin Tract
Austinville Area
Wythe County, Virginia

Dear Mr. Laurence:

The cited application for exploration assistance is being referred to your office for consideration, a field examination of the property if warranted, and recommendations.

If the project is favorably considered by the Field Team, the following points should be taken into consideration:

1. The average and maximum depths of the drill holes have not been given.

2. The costs for supervision for this project should be quite low due to the proximity of Austinville.

Copies of memoranda dated May 13 and 16, 1958, by W. P. Williams, Geological Survey, and O. M. Bishop, Bureau of Mines, respectively, relating to the project, are enclosed for your information. As two copies of the application have already been sent to your office, we are not including another copy.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (GCS)

Enclosures
APPROVED:

P. F. Yopes (GCS)
Member, Bureau of Mines

Thor H. Kiilsgaard (GCS)
Member, Geological Survey

WPKlugescheid/er 5/19/58
Copy to: Docket
Admr R File
Op. Committee
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Chron.

8623

OFFICIAL FILE COPY
DMEA
MAY 16 1958

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

May 16, 1958

Re: DMEA 5008; Lead-Zinc
$48,183
New Jersey Zinc Co.
Austinville area
Chaffin tract
Wythe County, Virginia

Memorandum

To: W. R. Griswold, DMEA

From: O. M. Bishop, USBM

Subject: Review of application dated New York, May 6 and received Washington May 8, 1958

New Jersey Zinc Company requests DMEA assistance in an exploratory project on the Chaffin tract bordering their present mine works. The program includes 16,000 feet of diamond drilling at an estimated total cost of $48,183.

The Chaffin estate lies in the Austinville basin that flanks the productive anticline on its south border. The basin is cut by numerous reverse strike faults and is partly overridden on its south side by a major thrust fault. Structural and stratigraphic analogies have led New Jersey Zinc to believe the area is a worthy drilling gamble. Extrapolation of the en echelon pattern of orebodies nearer the anticlinal crest gives a hypothetical ore location on the Chaffin tract.

The drilling plan calls for 4 holes on 800-foot centers across the tract. The remaining footage is to be used in follow-up drilling.

I recommend the application be referred to the field team for analysis and recommendations.

O. M. Bishop

O. M. Bishop

cc: Division of Minerals
Mr. Kiilsgaard
Mr. Lamb
Mr. Callaway
F I L E S

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

IN REPLY REFER TO:

RECEIVED MAY 14 1958

DATE	INITIALS	CODE
5/14/58	KVB	220
5/14	Klog	500

May 13, 1958

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: W. P. Williams, U. S. Geological Survey

Subject: Review of application, DMEA 5008 (Zinc) New Jersey Zinc Company, Chaffin Estate, Wythe County, Virginia

The applicant proposes to explore for zinc ore deposits on a tract of land comprising 970 acres. The property lies about two miles east of Austinville and adjoins the main Austinville mine tract. The applicant states that no exploration has previously been done on the Chaffin tract.

The proposed project would consist of a total of 16,000 feet of diamond drilling at a total estimated cost of $48,183.00.

The applicant believes that the property contains a favorable structural pattern which is underlain by formations of a large productive history. The land is adjacent to zinc ore bodies to the northwest and zinc mineralization to the northeast and southwest. The property is located in a general area where large zinc deposits are already known.

Study of the applicant's data indicates that the property may well merit further exploration. It is recommended that the application be referred to the Field Team for review, field examination, if necessary, and field report.

W. P. Williams

W. P. Williams

DMEA FORM 6 REFERENCE SLIP

REV. 12-56 DEFENSE MINERALS EXPLORATION ADMINISTRATION

TO:	INITIALS	DATE
1. 500		
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5.		
FROM: 100		

FOR: Check items for action desired

____ Action ____ Reply for signature of _____

____ Approval ____ Investigate ____ Surname

____ Comment ____ Recommendations ____ Signature

____ Conference ____ Rewrite ____ File

____ Instructions ____ Your information

REMARKS:

Two copies because:

Only part of it concerns DMEA-4681.

"Lump sum" discussion concerns application not yet filed.

Thot you might need copies for two files.(?)

fw

Excerpts from Mr. Mittendorf's diary:

May 5, 1958

Dwyer said he talked with Lindley Miller, attorney for New Jersey Zinc, at about 4 p.m. Miller phoned to ask if DMEA would accept a lump sum payment for its contribution to a certified project in lieu of the royalty payments as specified under Article 7 of the contract. Dwyer told him we would. Miller suggested that I write the company a letter to that effect.

Dwyer did not know whether Miller was referring to any specific docket. At this point I couldn't recall having certified any New Jersey project.

May 6, 1958

I attempted to draft a letter to New Jersey Zinc following Dwyer's suggestion of yesterday. I was still troubled because we have not certified any Jersey project. I surmised that Miller was concerned over DMEA-4681. This is the case which we recently terminated with the inclusion of a royalty provision in the event they ever re-acquire the property. This is also the case where New Jersey dropped all the land under Article 2 of the contract.

I phoned Miller to get more information and he was very pleased that I did. He said the question of a lump sum payment came up during the week end when company officials were discussing a new application that is being submitted. This concerns a project which adjoins New Jersey's main operation at Austinville, Va. The Manager of Explorations made the remark that should the project be a success it would be only a short time until actual mining got underway from the Austinville workings. He wondered, if DMEA had participated to the extent of $50,000 or $60,000, whether the company could pay up in a lump sum in order to avoid detailed accounting of the ore milled from this particular property. It seems that they commingle ores from various sources. Miller will put his question in the form of a letter.

I mentioned DMEA-4681 and told him I had thought he was phoning about it. I told him we are somewhat disturbed by the company's act in dropping all of the land in the contract. I said it ignored our rights to certify within the six-month period and left us with nothing but an empty shell. He said the New York staff was equally distressed by the action taken by the Virginia field office without consulting the New York office. He said he realized that they had emasculated our contract. He felt we had no alternative but to put in the royalty provision. He said he o.k.'d the termination agreement this morning.

DMEA Form 7
(12-56)

5008

OFFICIAL FILE COPY

Date	Surname	Code

5-7-58

Mr. Stanley G. Miller
Legal Department
New Jersey Zinc Company
160 Front Street
New York 38, New York

Re: Repayment provisions of DMEA contracts

Dear Mr. Miller:

This will confirm the understanding expressed in your letter of May 6, 1958, that the Government will accept a lump sum payment in lieu of the royalty payments provided for under Article 5 of DMEA contract Nos. [illegible] and Article 6 of DMEA contract Nos. [illegible].

I trust my telephone discussion on May 6. When you are again in Washington, please try to pay us a visit.

Sincerely yours,

(Lee)

Administrator

OCMittendorf/fw-5/7/58

cc: Mails & Files
Admr. Reading File
Reg. V (2)
Mr. Kiilsgaard
Mr. Lamb
Mr. Mittendorf

8623

THE NEW JERSEY ZINC COMPANY
(ESTABLISHED 1848)

CABLE ADDRESS
"JERSEZINC"

160 FRONT STREET
NEW YORK 38, N.Y.

5-008-

May 6, 1958

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

Re: The New Jersey Zinc Company,
DMEA Contracts.

Dear Mr. Mittendorf:

It was indeed a pleasure speaking to you this afternoon, and I conveyed the information you gave me to our Exploration Department.

In Article 8 of our several exploration project contracts, there is an agreement on the Operator's part to repay to the Government a royalty on minerals mined or produced from the land to which the contract is directed. A question has been raised as to whether an operator may exercise the privilege, at any time prior to commencing production or during the course of the same, of prepaying the entire amount advanced by the Government without having to continue to pay the same periodically out of production. It is my understanding that the Government is perfectly agreeable to permitting an operator make a complete prepayment in one sum, and we are most anxious that you confirm this in writing at your early convenience.

Again, I wish to thank you and your staff for their interest and assistance in the several matters that we have had with your Administration, and we commend you on having such an excellent staff.

Very sincerely yours,

Legal Department

LGMiller/rm

AIR MAIL

I will reply
CCM

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

May 8, 1958

The New Jersey Zinc Company
160 Front Street
New York 38, New York

Subject: DMEA:5008

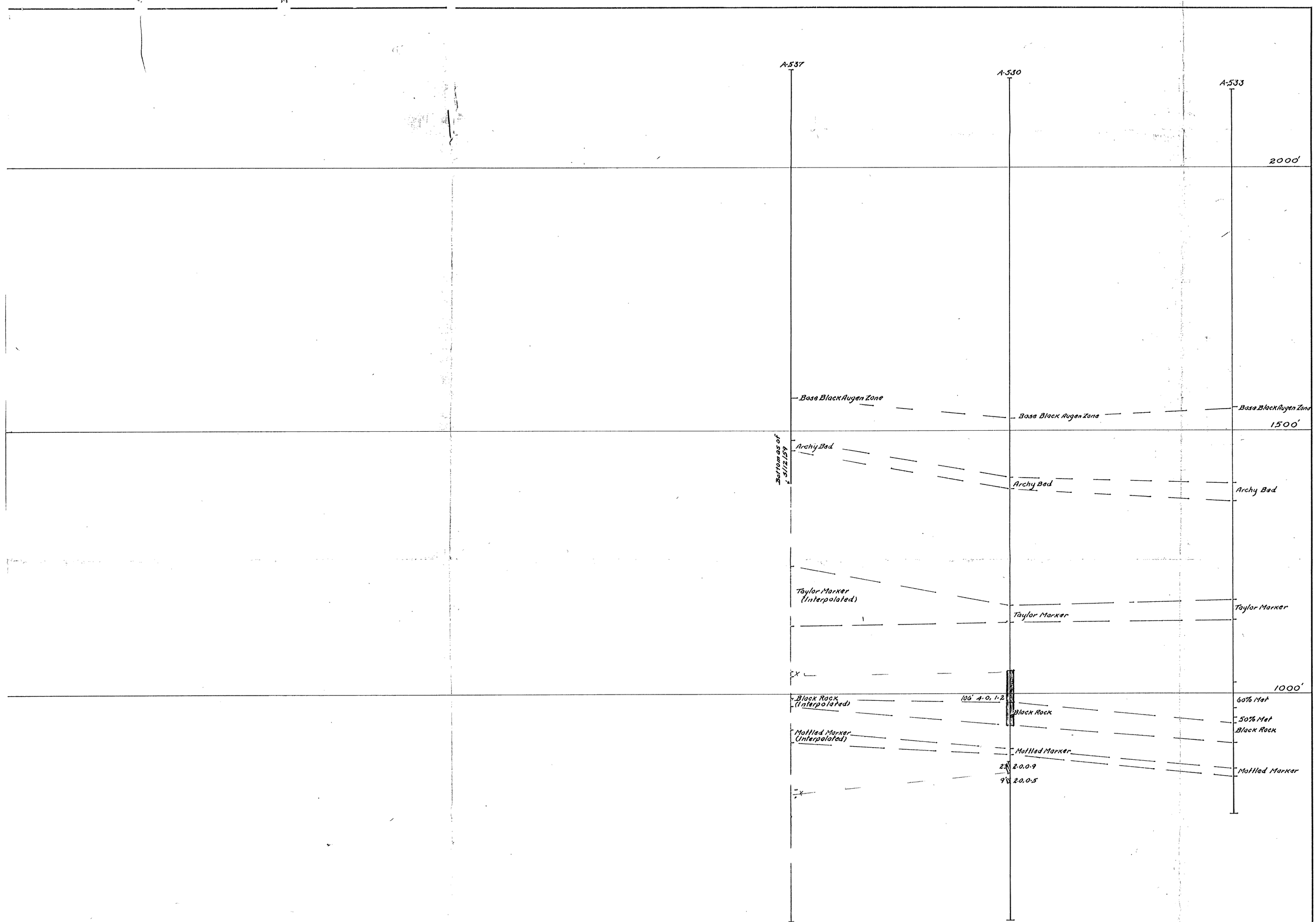
Gentlemen:

Your application for exploration assistance, dated May 6, 1958 submitted to our office at Washington, D.C. has been assigned Docket Number DMEA-5008 and referred to the Base Metals Division in the Washington office. Kindly identify all future correspondence relating to your application by this Docket Number.

Sincerely yours,

Allen S. Dakan, Director
Operations Control and
Statistics Division

Copy to: Region V. (2)



SERIAL NUMBER		DATE ISSUED		REFERENCE DRAWINGS	REVISIONS

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THE NEW JERSEY ZINC COMPANY

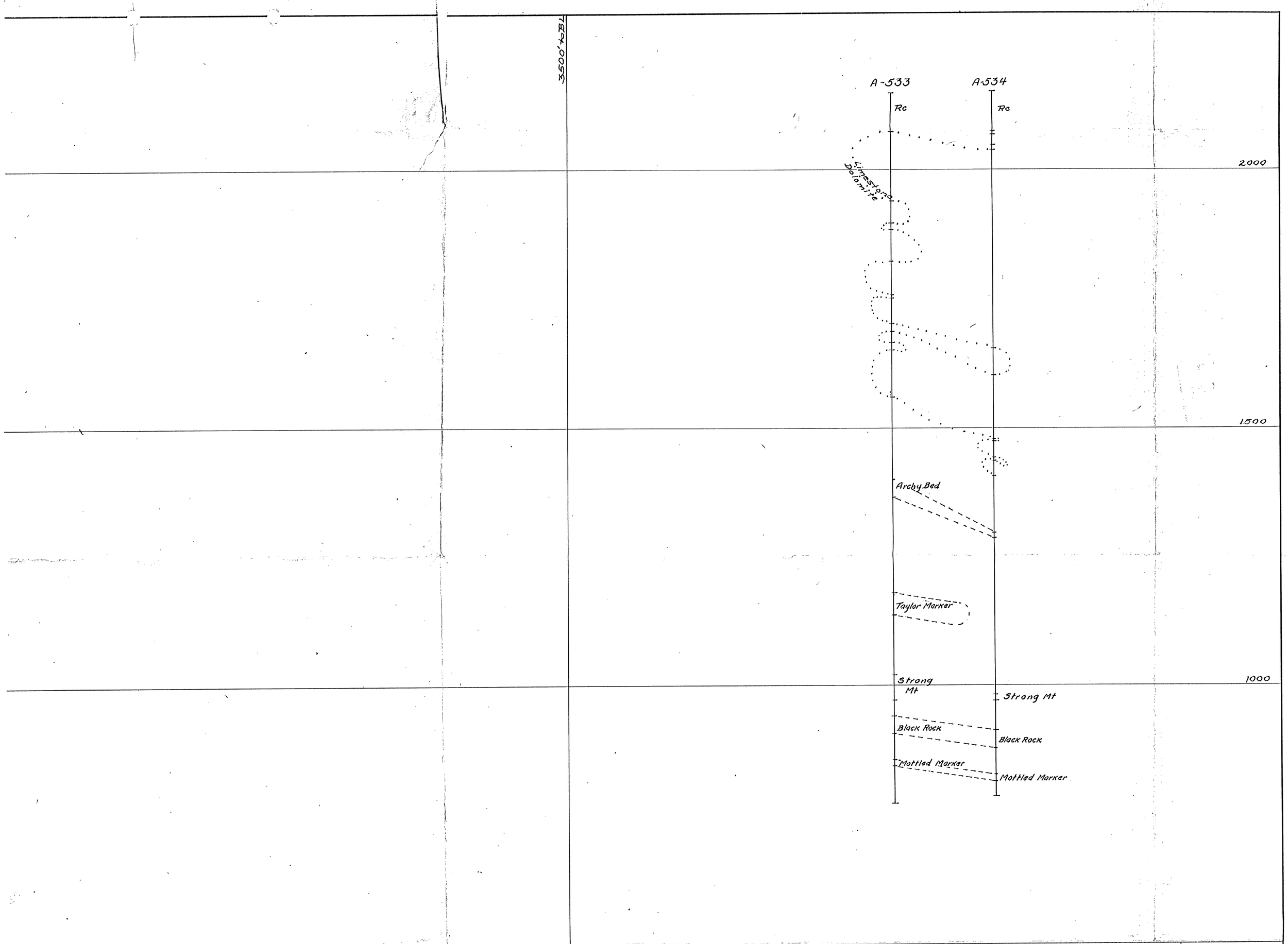
AUSTINVILLE, VA.

DRAWN R.M.K.
TRACED E.E.F.
CHECKED
APPROVED

CHAFFIN LONG SECTION N63½°E

DATE 3/13/59
SCALE 1" = 100'
7GB-4428

X5453C 1M 11-54



SERIAL NUMBER		DATE ISSUED	

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REFERENCE DRAWINGS	REVISIONS

THE NEW JERSEY ZINC COMPANY

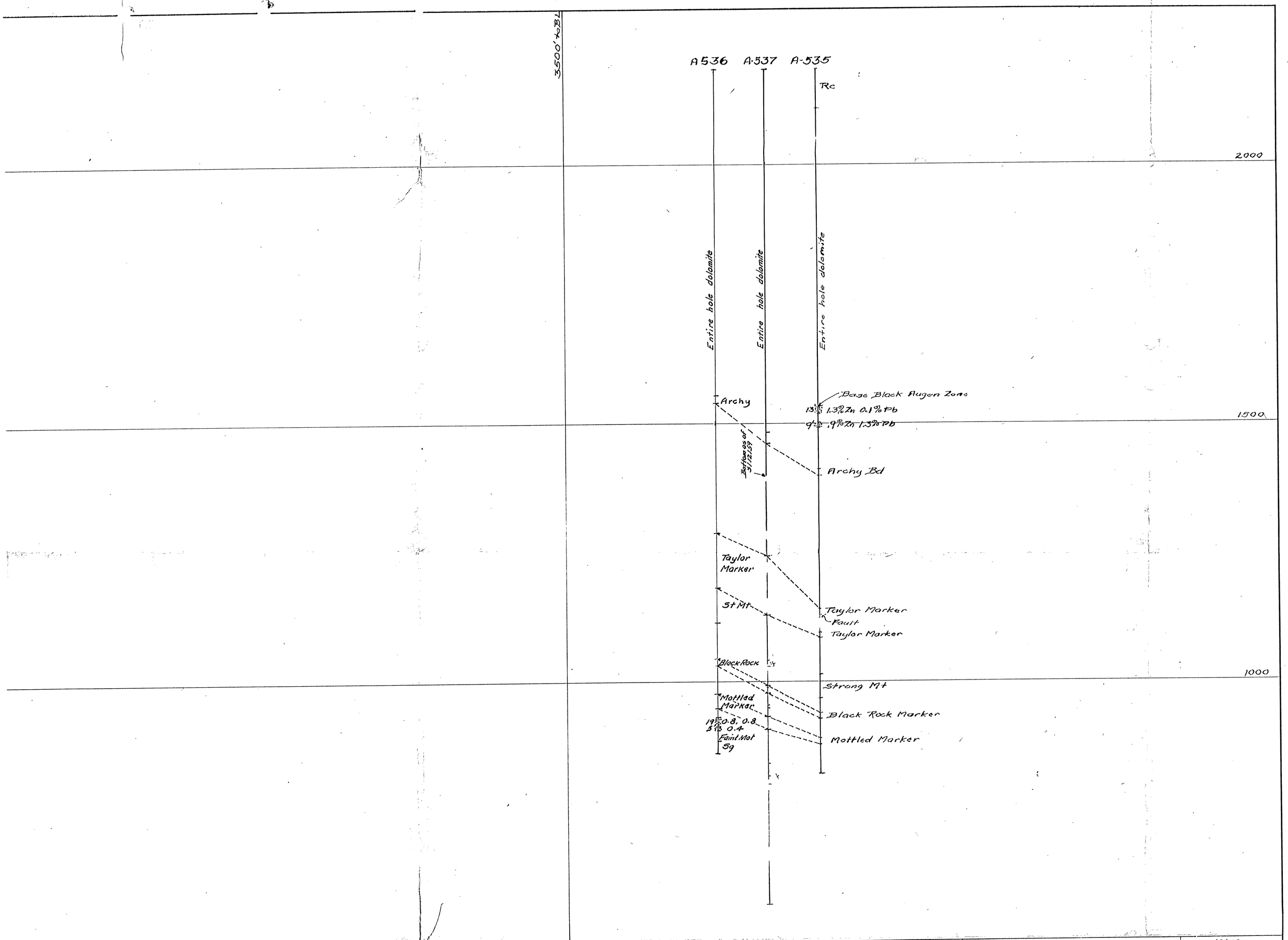
AUSTINVILLE, VA.

DRAWN W.H.B./R.M.K.
TRACED W.H.B. E.E.F.
CHECKED
APPROVED

CHAFFIN SECTION 189

DATE 1/9/59
SCALE 100' = 1"

7GB-4406



SERIAL NUMBER		DATE ISSUED		REFERENCE DRAWINGS	REVISIONS

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THE NEW JERSEY ZINC COMPANY

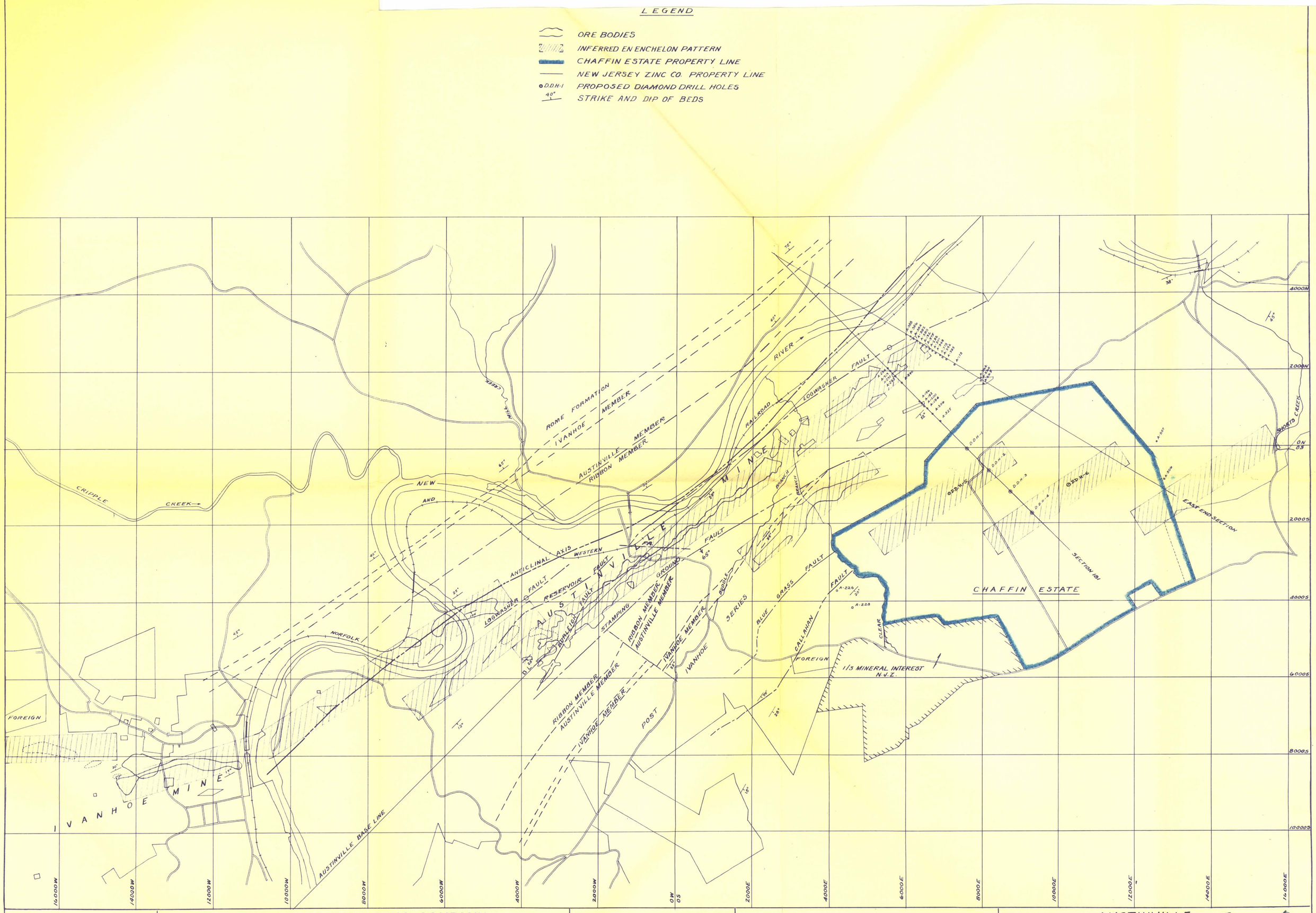
AUSTINVILLE, VA.

DRAWN W.H.B./R.M.K.
TRACED W.H.B.
CHECKED
APPROVED

CHAFFIN SECTION 173

DATE 1/9/59
SCALE 100' = 1"

7GB-4405

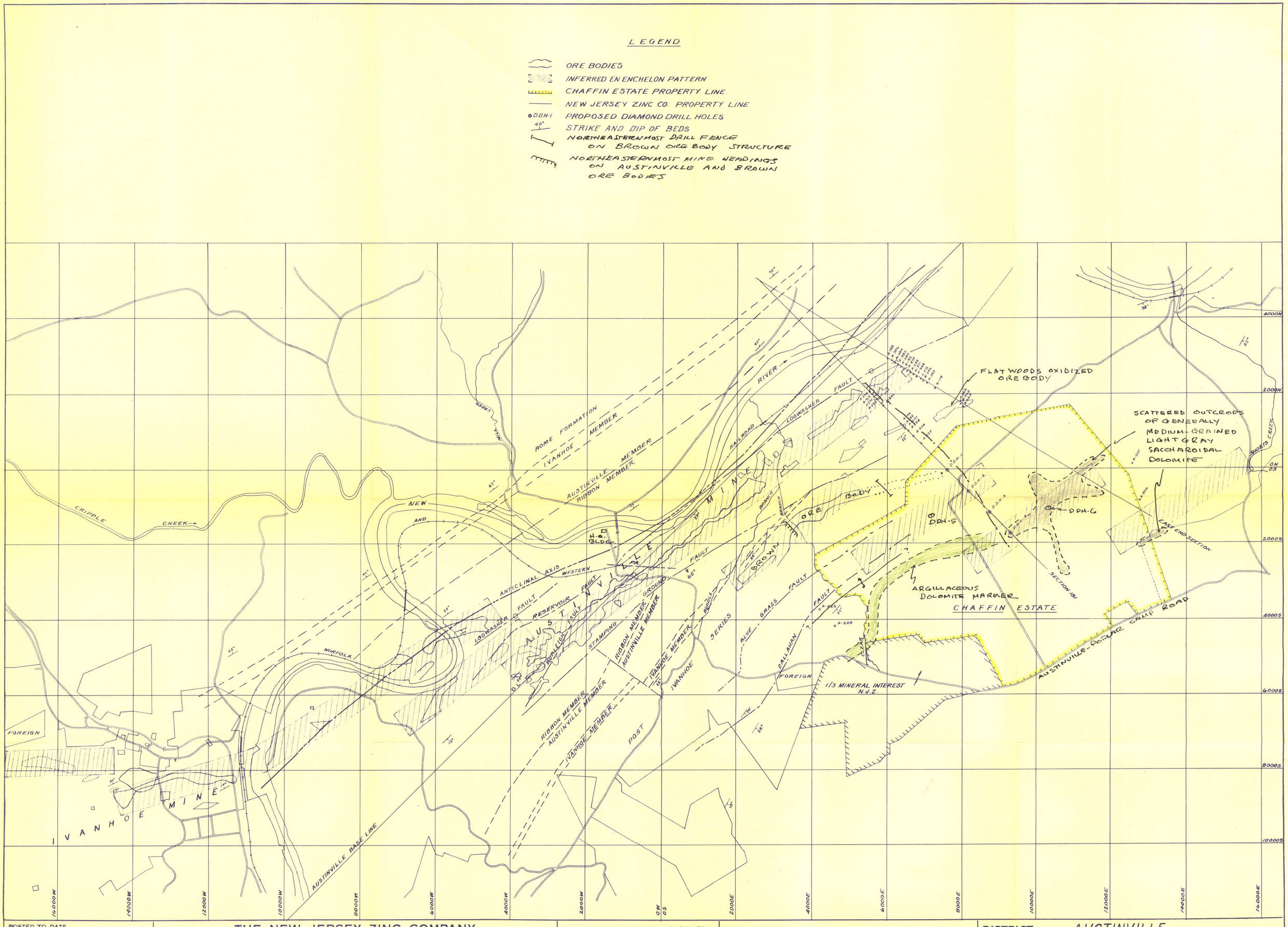


POSTED TO DATE	THE NEW JERSEY ZINC COMPANY AUSTINVILLE, VIRGINIA	DRAWN DATE 4-24-58 TRACED E.E.F. SCALE 1"=1320'	PROPOSED DRILLING CHAFFIN ESTATE TRACT AUSTINVILLE, VIRGINIA

DISTRICT AUSTINVILLE Figure 2.

FILE NO. 7GB-4367

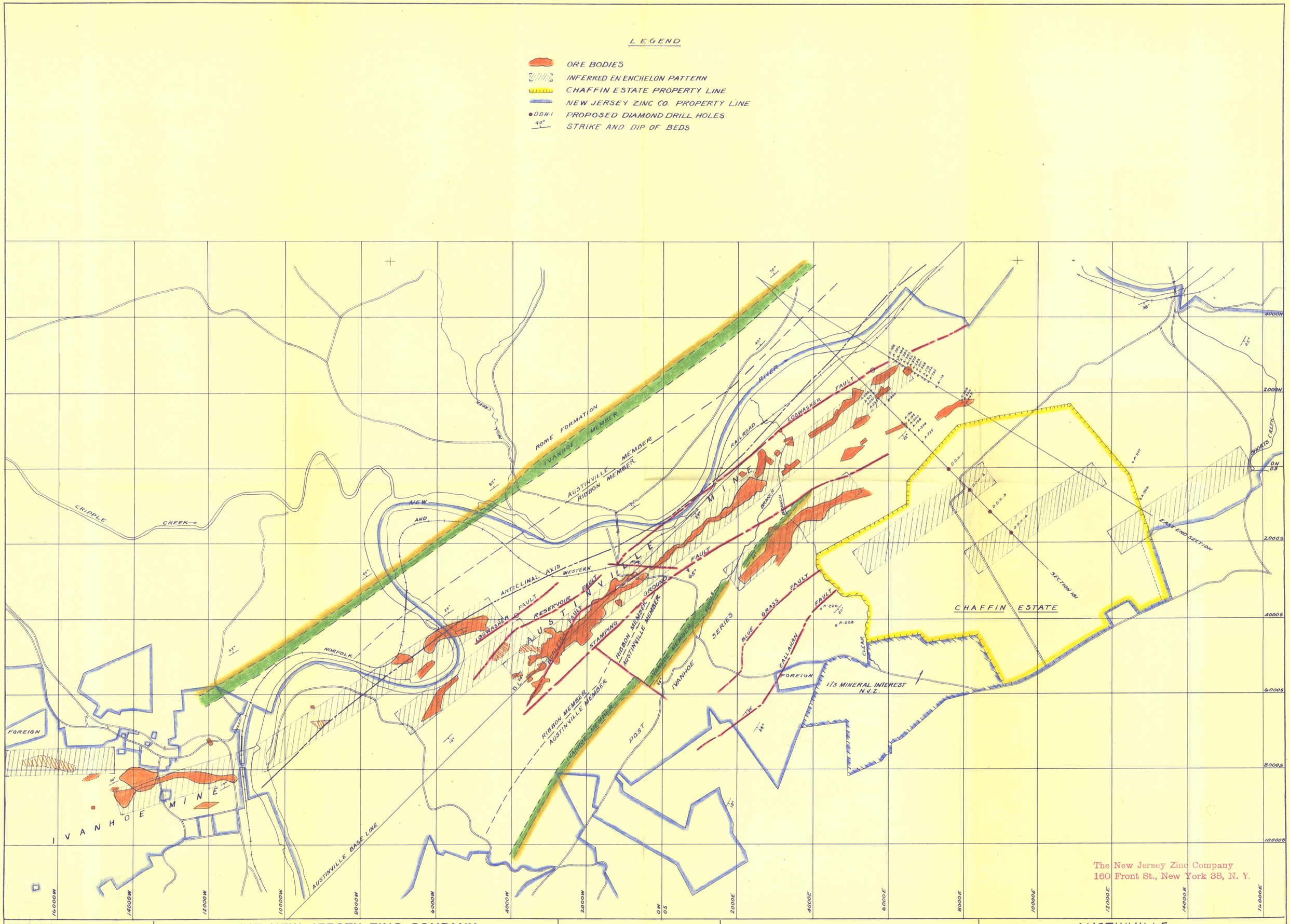
FIGURE 2



POSTED TO DATE	THE NEW JERSEY ZINC COMPANY AUSTINVILLE, VIRGINIA	DRAWN DATE 4-24-58 TRACED E.E.F. SCALE 1"=1320'	PROPOSED DRILLING CHAFFIN ESTATE TRACT AUSTINVILLE, VIRGINIA

DISTRICT AUSTINVILLE

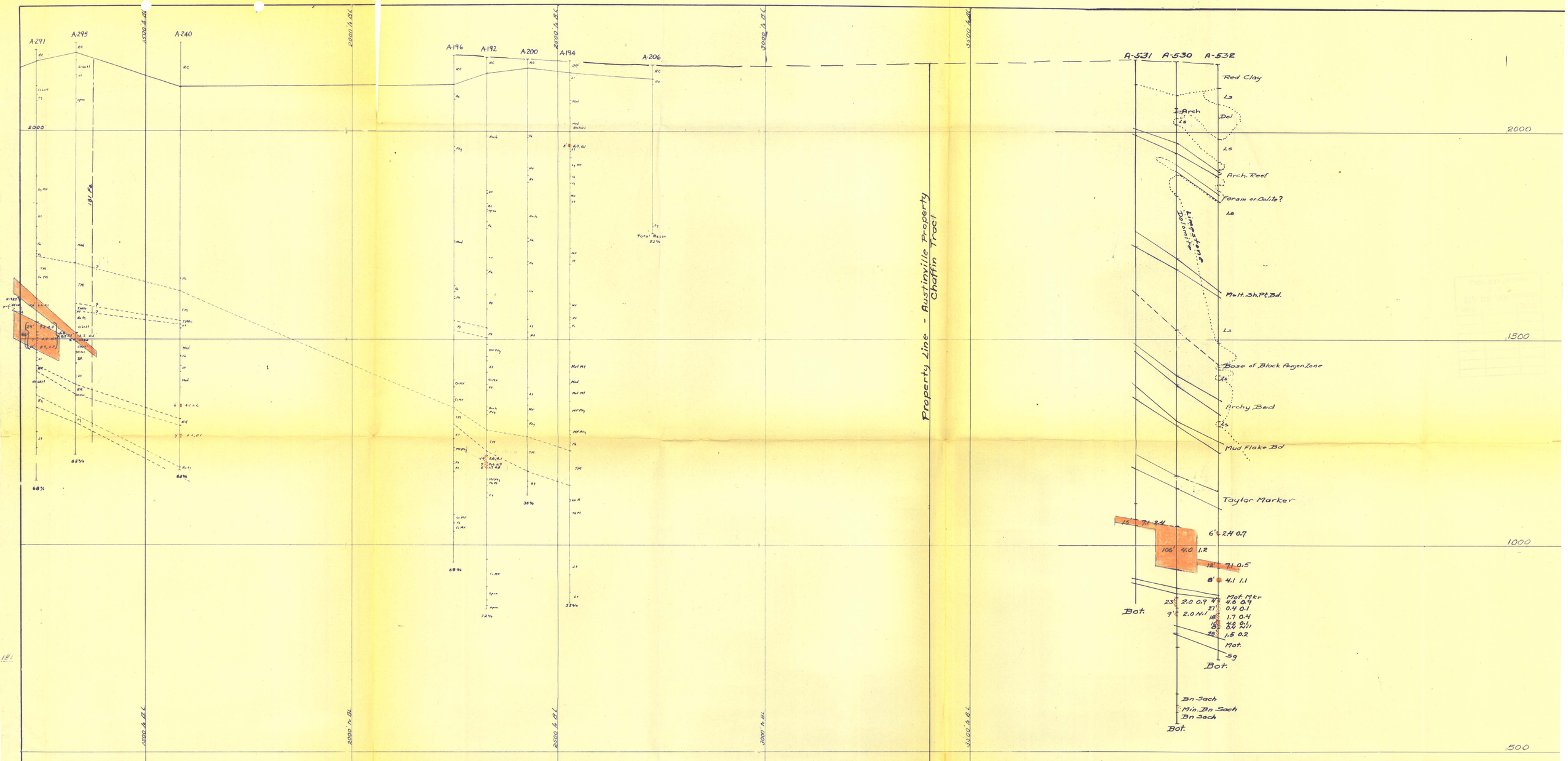
FILE NO. 7GB-4367



POSTED TO DATE	THE NEW JERSEY ZINC COMPANY AUSTINVILLE, VIRGINIA	DRAWN DATE 4-24-58 TRACED E.E.F. SCALE 1"=1320'	PROPOSED DRILLING CHAFFIN ESTATE TRACT AUSTINVILLE, VIRGINIA

DISTRICT AUSTINVILLE

FILE NO. 7GB-4367



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BERTHA MINERAL DIVISION
THE NEW JERSEY ZINC COMPANY

DRAWN J.R.F. DATE 8-53
TRACED SCALE 1" = 100'

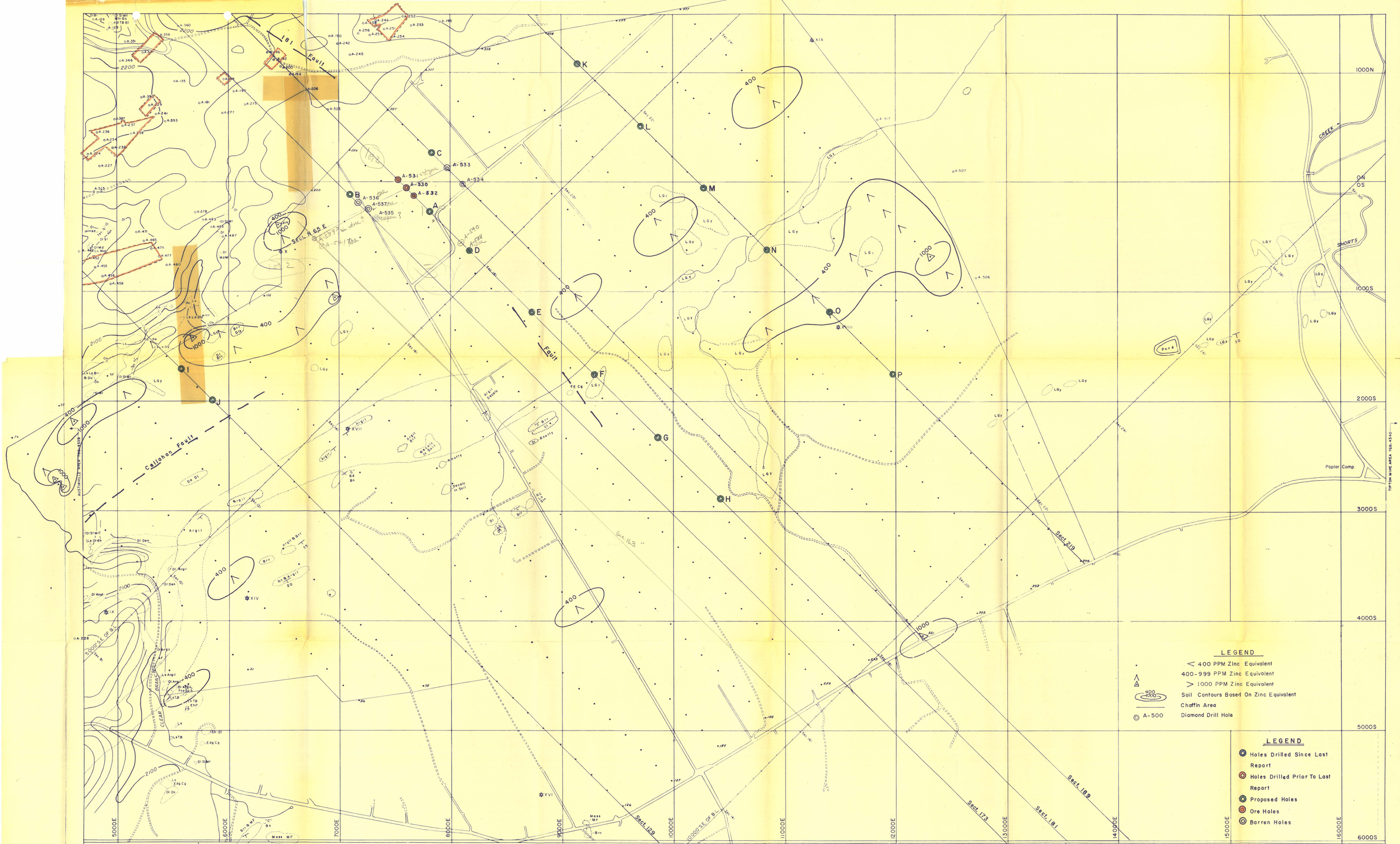
AUSTINVILLE
CROSS SECTION 181-ISE

CHAFFIN AREA

FILE NO. 7GB - 2189-A

HOWARD SUTTON CO., INC., N. Y.

SUBASTON KC. 7-53



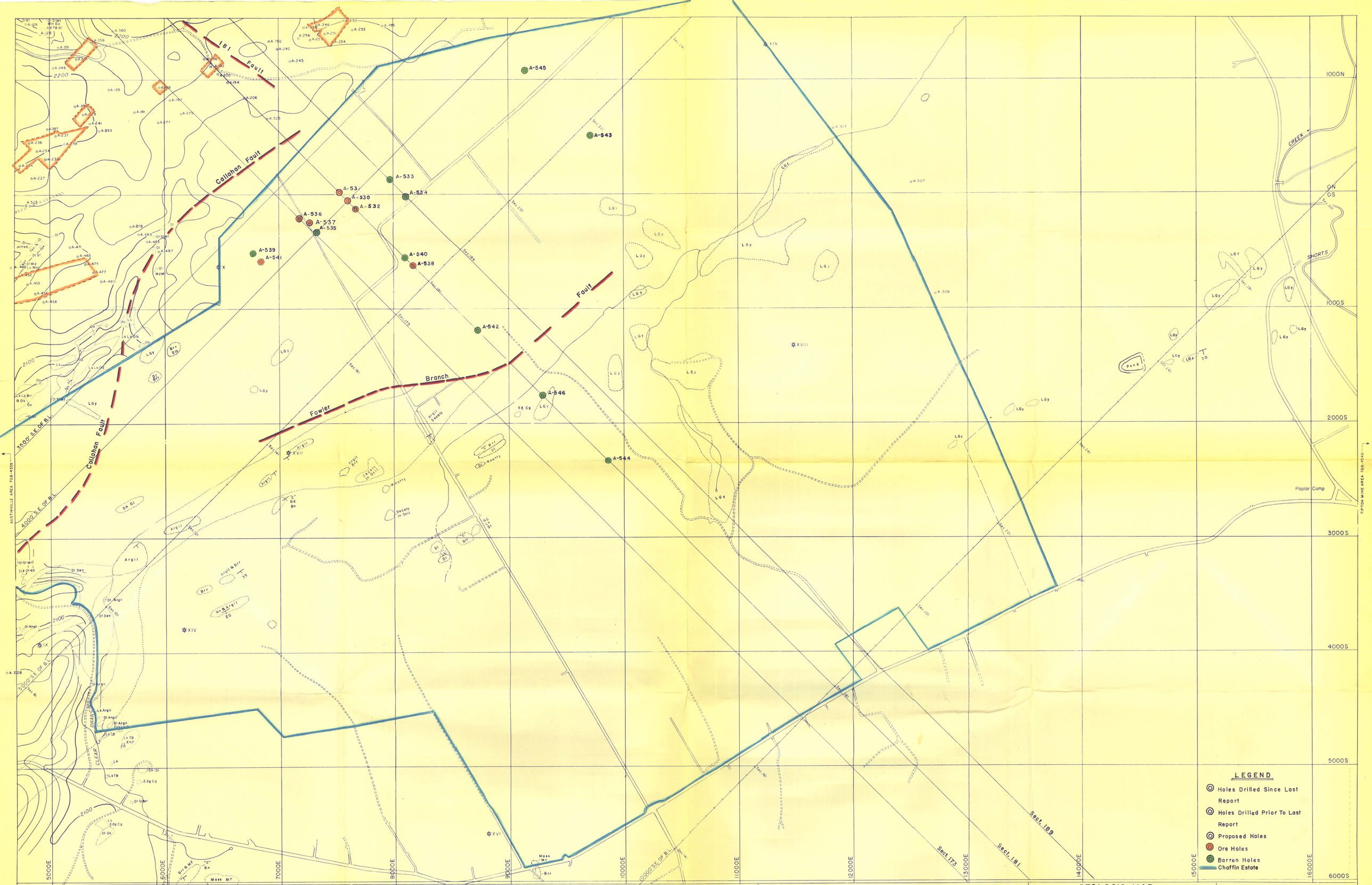
POSTED TO DATE

THE NEW JERSEY ZINC COMPANY
AUSTINVILLE, VIRGINIA

DRAWN W.H.B. + E.E.F. DATE Oct. 6, 1958
TRACED E.E.F. SCALE 1" = 300'

GEOCHEMICAL MAP
CHAFFIN AREA

DISTRICT
FILE NO. 7GB-4338 B



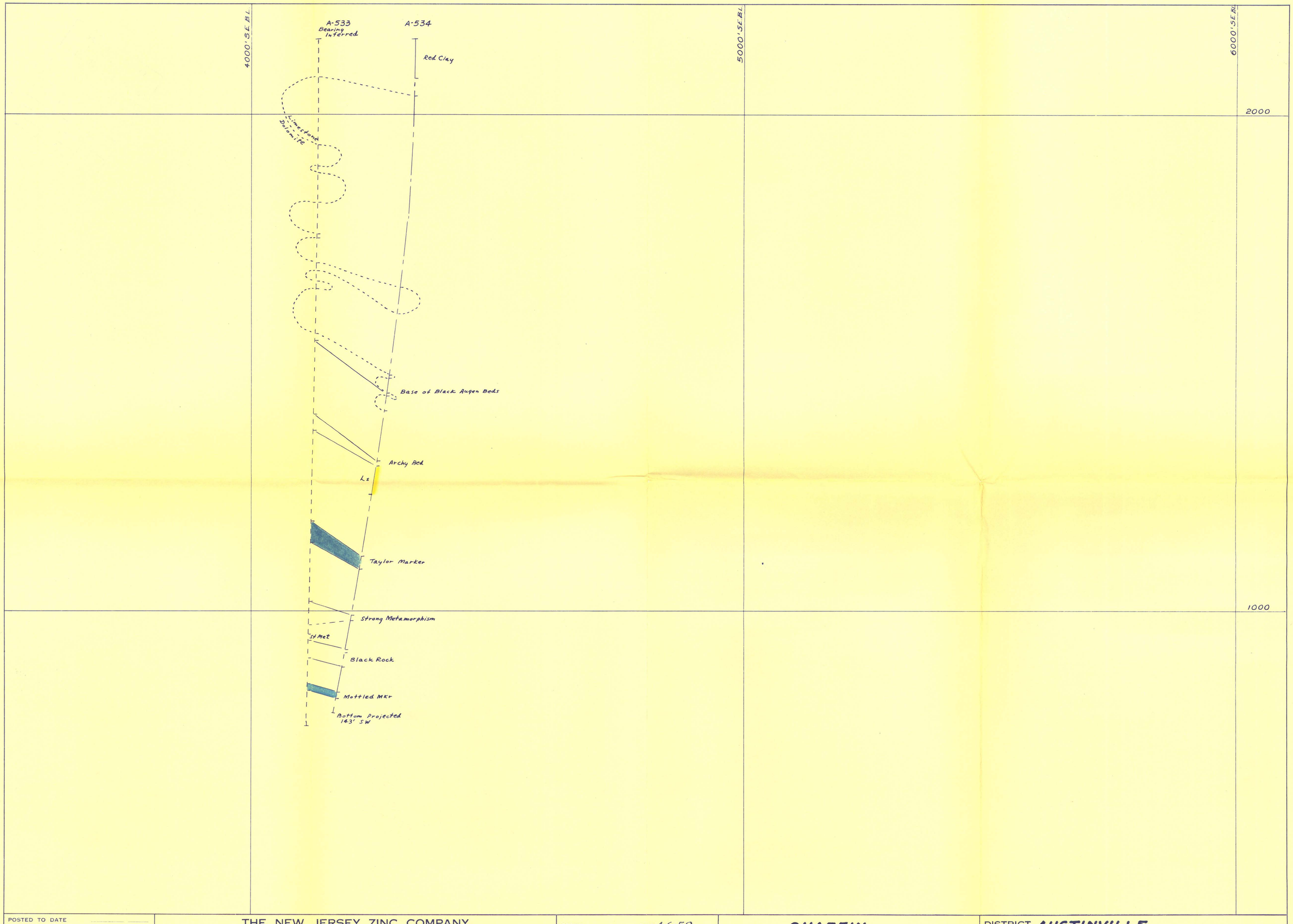
POSTED TO DATE

THE NEW JERSEY ZINC COMPANY
AUSTINVILLE, VIRGINIA

DRAWN W.H.B. + E.E.F
TRACED E.E.F
DATE Oct. 6, 1958
SCALE 1" = 300'

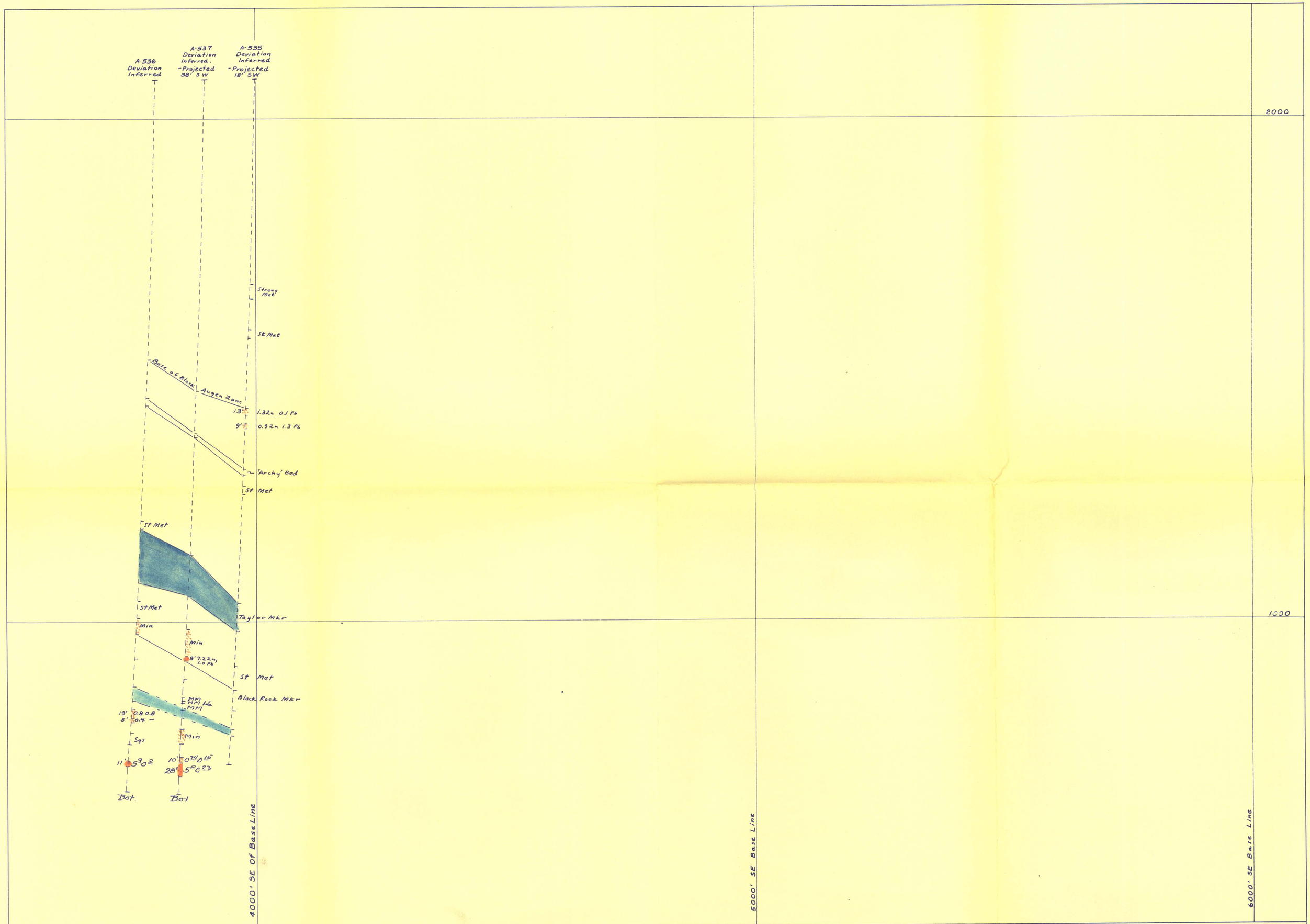
GEOLOGIC MAP
CHAFFIN AREA

DISTRICT AUSTINVILLE, VA.
FILE NO. 7GB-4338A



POSTED TO DATE	THE NEW JERSEY ZINC COMPANY **AUSTINVILLE, VA.**	DRAWN TRACED	DATE 4-6-59 SCALE 100	**CHAFFIN SECTION 189**	DISTRICT **AUSTINVILLE** FILE NO. **76B-4758**

X5407A 1M 3-53



POSTED TO DATE

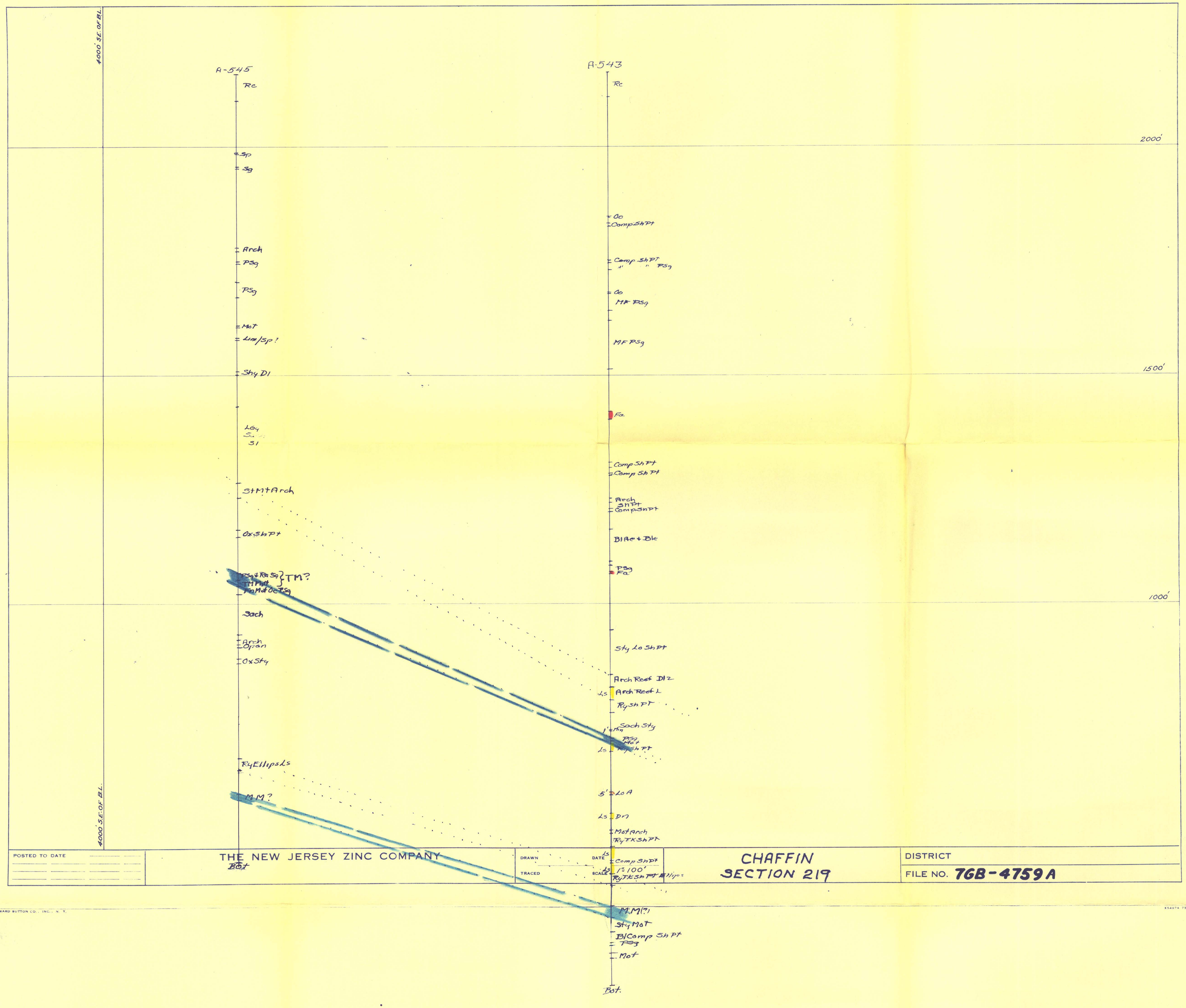
THE NEW JERSEY ZINC COMPANY
AUSTINVILLE, VA.

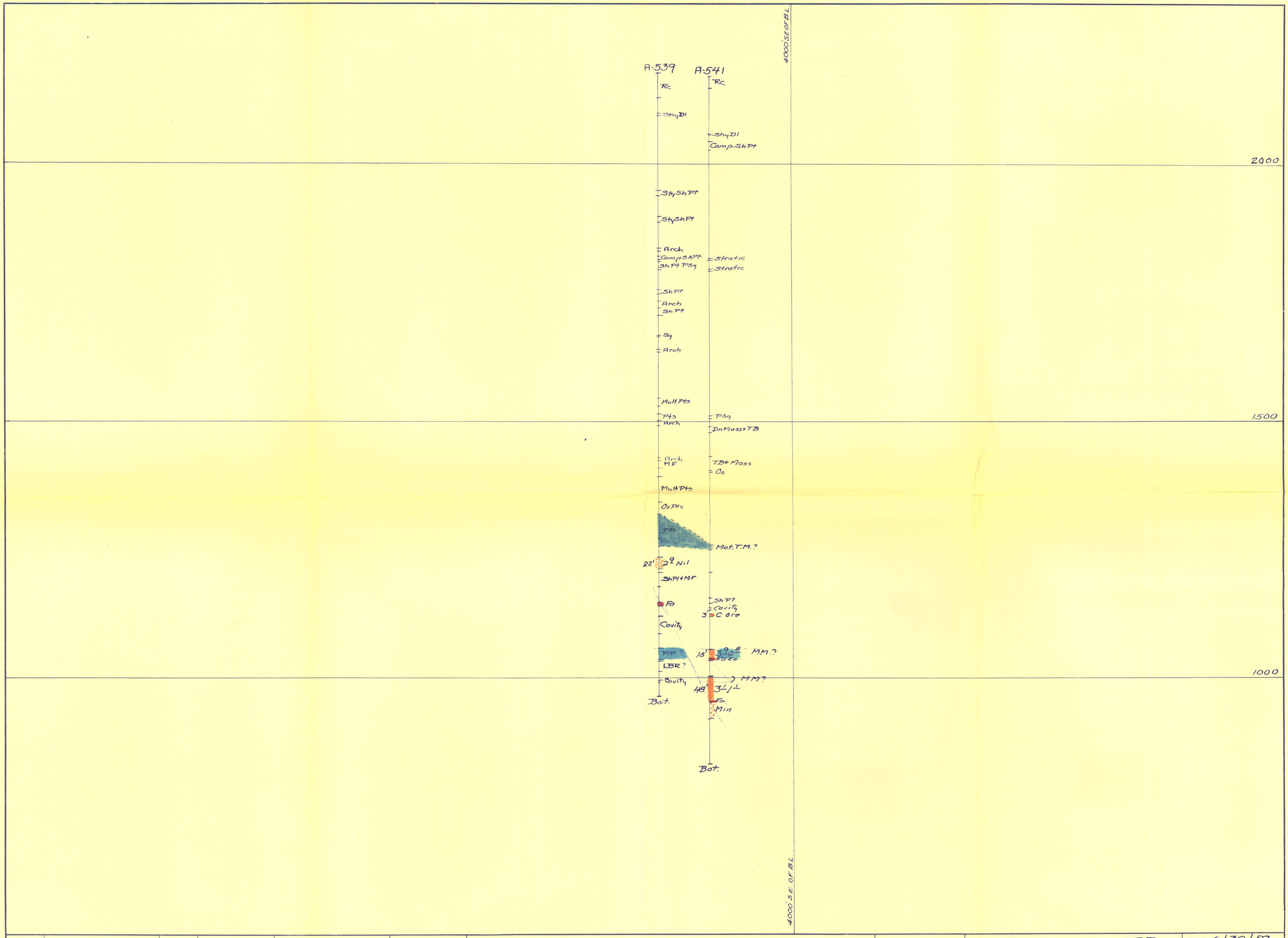
DRAWN DATE 4-6-59
TRACED SCALE 100

CHAFFIN
SECTION 173

DISTRICT AUSTINVILLE
FILE NO. 7GB-4622

X5407A 1M 3-53


4000' S.E. OF BL.
A-545
Rc
Sp
Sg
Arch
PSg
PSg
Mot
Lim/Sp?
Shy Dl
LGy
Sl
Sl
St M+Arch
Ox Sh Pt
TM?
Sach
Arch
Open
Ox Sty
Ry Ellips Ls
M.M?
Bot
A-543
Rc
2000'
Oo
Comp Sh Pt
Comp Sh Pt
PSg
Oo
MF PSg
MF PSg
1500'
Fa
Comp Sh Pt
Comp Sh Pt
Arch
Sh Pt
Comp Sh Pt
Bl Rc + Blk
PSg
Fa
1000'
Sty Lo Sh Pt
Arch Reef Dl 2
Ls
Arch Reef L
Ry Sh Pt
Sach Sty
1' thn
PSg
Mot
Ls
Ry Sh Pt
5'
Lo A
Ls
Dn
Mot Arch
Ry Tk Sh Pt
Ls
Comp Sh Pt
Ls
1" = 100'
Ry Tk Sh Pt
Ellips
M.M(?)
Sty Mot
Bl Comp Sh Pt
PSg
Mot
Bot.
POSTED TO DATE
THE NEW JERSEY ZINC COMPANY
DRAWN
DATE
TRACED
SCALE
CHAFFIN
SECTION 219
DISTRICT
FILE NO. 7GB-4759A
HOWARD BUTTON CO., INC., N. Y.
X5497A 750 2 52



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THE NEW JERSEY ZINC COMPANY

AUSTINVILLE, VIRGINIA.

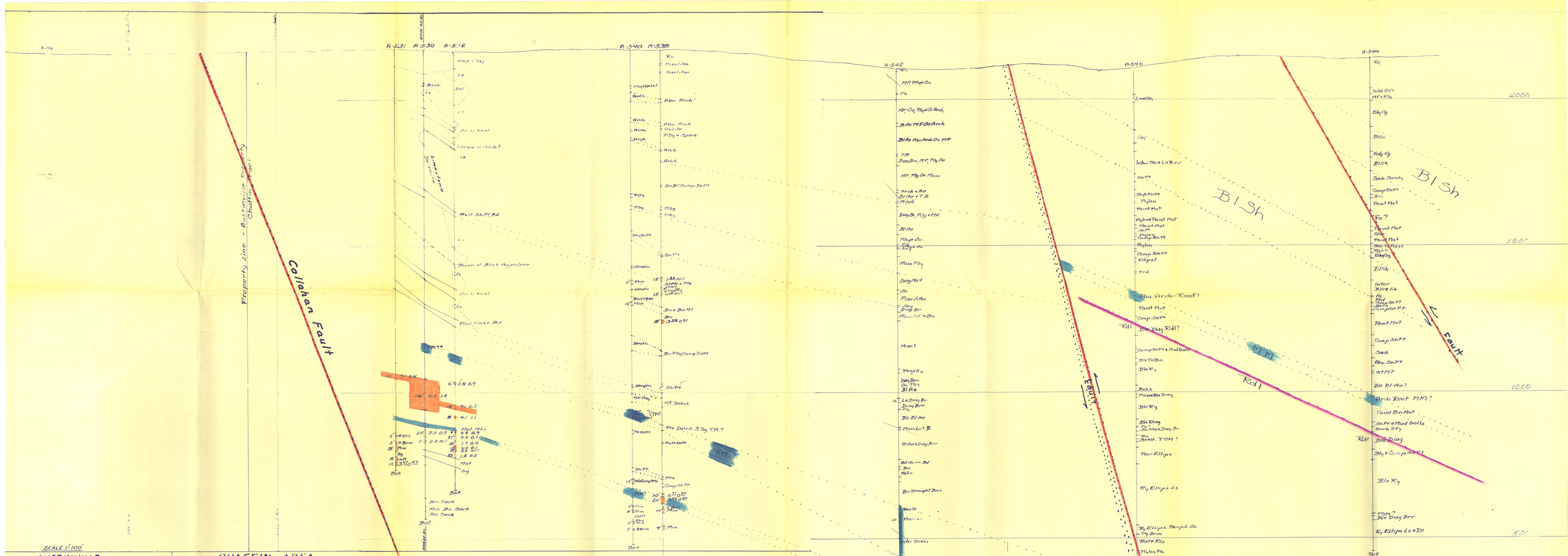
DRAWN	
TRACED	
CHECKED	
APPROVED	

SECTION 163
CHAFFIN TRACT
AUSTINVILLE, VA.

DATE	6/30/59
SCALE	100' = 1"

7GB-4621

X5453C 1M 11-54



SCALE 1"=100'

AUSTINVILLE
CROSS SECTION 181-1SE

FILE NO.

CHAFFIN AREA
7GB - 2189-A