DMEA Form 9
Rev. 6/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE

Idm-E NO. 522

DMEA NO. 2746

Application
- [ ] Denied
- [ ] Withdrawn

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

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

Folder No. 1:

Left Side

- [x] Royalty Audits
- [x] Certification of Discovery 2/2/56
- [x] Closing Letter
- [x] Cost Audits
- [ ] Termination Notice or Agreement
- [ ] Recision Notice
- [ ] Assignment of Contract
- [x] 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)
- [x] Work Comoleted analysis (final)

All other material filed in chronological order including the following reports if checked:

- [ ] Field Team Semi-Annual Report for Certified Project
- [x] Final Field Team Report (Tab) 1-18-56
- [x] Operator's Final Report (Tab) 1-18-56
- [ ] Interim Field Team Reports
- [ ] Operator's monthly reports and all attachments
- [x] On-site Exam Report (Tab)
- [ ] Settlement Sheets
- [ ] Drill Logs

Additional Folders: # 2 Cases from 1-16-56

Left Side

Folders No. 3 : Reports

- [x] Analysis of Semi-Annual Inspection Reports
- [ ] Project Summary (Interim) by DMEA Engineers

Right Side

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

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

Folders No. 4 : Settlement Sheets

Folders No. _____ : Drill Logs

Folders No. _____ : Royalty material

17963

OFFICE OF MINERALS EXPLORATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

ROYALTY AUDIT CERTIFICATE

I have examined the production, sales, and royalty accounts and records pertaining to the sale of copper and zinc concentrates by McFarland and Hullinger for the period April 15, 1961, through April 10, 1963, from property known as the Republic Copper-Zinc Mine and Johnson Camp Mine located in Cochise County, Arizona, on which royalty is payable to the U. S. Government under terms of Contract Idm-R522, Docket DMRA-2746 (copper-zinc), dated May 18, 1953, with

Coronado Division, Cyprus Mines Corporation
(successor to Coronado Copper and Zinc Company)
1206 Pacific Mutual Building
529 West Sixth Street
Los Angeles 14, California

My examination was made in accordance with generally accepted standards applicable in the circumstances.

The audit established the total sales of concentrates subject to Government royalty for this period to be $85,541.13 and the amount of royalty payable at rates specified in the contract to be $4,277.05.

A Report of Royalty Review dated April 17, 1961, found the sales subject to royalty for the period May 18, 1953, through April 14, 1961, to be $733,637.71, which added to the sales for the subsequent period make a total of $819,178.84. The royalty account as of April 14, 1961, was:

Total Royalty Payable	$36,681.87
Total Royalty Paid	36,695.15
Overpayment of Royalty	$ 13.28

At April 10, 1963, the royalty account of this project was found to be:

Total Royalty Payable	$40,958.92
Total Royalty Paid	40,959.89
Overpayment of Royalty	$ .97

C. E. Fisher

C. E. Fisher, OME Auditor

APR 2 9 1963

OFFICE OF MINERALS EXPLORATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

ROYALTY AUDIT REPORT

I. INTRODUCTION

On April 10, 1963, an audit was made of the production, sales, and royalty accounts and records of McFarland and Mullinger pertaining to the value of lead and zinc concentrates sold during the period April 15, 1961, through April 10, 1963, from property referred to as the Republic Copper-Zinc Mine, also known as the Johnson Camp Mine, located in Cochise County, Arizona, on which royalty is payable to the U. S. Government under terms of Contract Idm-8521, Docket IMEA-2746 (copper-zinc), dated May 18, 1953, with

Coronado Copper and Zinc Company
523 West Sixth Street
Los Angeles 14, California

The Coronado Copper and Zinc Company, a wholly-owned subsidiary of Cyprus Mines Corporation, was dissolved as of the close of business December 31, 1960, its assets and liabilities were taken over by the parent, and it is now known as the Coronado Division of Cyprus Mines Corporation.

This audit was performed in the office of McFarland and Mullinger, Tooele, Utah, who have operated the property as lessees since September 1959. The records of that company pertaining to its operation of the Johnson Camp Mine were made available for this audit by A. R. Klenda, office manager, whose cooperation greatly facilitated the audit work.

II. GENERAL INFORMATION

Articles 6 and 9 of the contract provide that, if the Government considers that a discovery or development from which production may be made has resulted from the exploration work, the Operator or its successor in interest shall pay to the Government a percentage royalty on all minerals produced from the land described in Articles 2 and 9 and Annex I of the contract during a period of 10 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 certification of discovery or development was issued on February 2, 1956.

A Report of Review in lieu of final cost audit dated August 17, 1955, indicated accepted costs under the exploration contract

amounting to $87,045.00 with the Government's contribution, on a 50 percent basis, being $43,522.50.

A Royalty Audit Report dated April 15, 1955, and a Report of Royalty Review dated January 22, 1959, relate to production, sales, and royalty payable and paid to the Government for the period from the date of the contract, May 18, 1953, through January 15, 1959, while the property was being operated by the Operator (Coronado Copper and Zinc Company) named in the contract.

A Report of Royalty Review dated April 17, 1961, pertains to production, sales, and royalty payable and paid thereafter through April 14, 1961, during which period mining and milling operations were conducted by McFarland and Mullinger. The present audit was undertaken for the purpose of making an on-site verification of royalty receipts for the period covered by such review and to extend the period covered by audit through January 15, 1963, the date upon which McFarland and Mullinger ceased operation and production at this property.

The mining and milling operations were discontinued because of an order by the Arizona State Highway Department to vacate the Operator's well and portions of its pipeline located on state property to be used for highway purposes. The Operator deemed the cost of sinking a new well and relocation of the pipeline would be excessive with respect to the probable recovery from production and sale of minerals. During most of 1962, in anticipation of the close-down of the mine and mill, the principal efforts were directed toward removing the higher grade and more readily accessible ore. The last production from the area subject to Government royalty was made in April 1962 although operations were continued in other areas until January 15, 1963.

Royalty due to the Government during the time of operations by McFarland and Mullinger was paid by the Operator or its successor, Cyprus Mines Corporation. Monthly royalty statements furnished to the Government by the Operator were supported by copies of smelter settlement statements covering sales by McFarland and Mullinger together with cumulative monthly mill reports and assay data relating to total production from the mine and that portion from ore subject to Government royalty.

III. SCOPE OF AUDIT AND FINDINGS

A considerable amount of preaudit work was accomplished in the OME Washington, D. C., office prior to the site audit. During this preaudit work a statement of royalty received was prepared from copies of statements furnished by the Operator showing computations of the monthly royalty remittances. All of the data included in the statement were confirmed by detailed recomputation. This statement, which is filed as part of my audit work papers, was reconciled with the production and sales records in McFarland and Mullinger's office.

During this on-site audit it was determined that McFarland and Mullinger was operating under a lease which required them to pay to the Operator a 10 percent royalty on net smelter returns, less certain milling charges. Test checks were made to the extent deemed necessary to establish the fact that the same smelter settlements were used in computing the Government's royalty as were used in reporting the royalty paid to the Operator.

McFarland and Mullinger supplied to the Operator complete detail as to production from the various areas of the mine together with assay data. Based on such information the Operator was able to compute the value of the production from the area subject to Government royalty and made monthly payments of such royalty.

In this auditor's opinion the records which were inspected were reliable and adequate for the purpose of audit and the expenditure of the time and expense required for verification of the royalty account in the office of Cyprus Mines Corporation, Coronado Division, in Los Angeles, California, is unwarranted.

During the period covered by this audit, the zinc concentrates were sold to the International Minerals and Metals Corporation. The copper concentrates were sold to the International Consolidated Copper Company, except for 5 sales in September 1961 made to International Smelting and Refining Company.

IV. CONCLUSION

A summary analysis of the production, sales, and royalty payable and paid during the period covered by this audit follows:

	Total Production	DMEA Portion
Tons of ore milled	76,367.50	6,573.19
Dry tons of concentrates produced:		
Copper	5,212.03	434.64
Zinc	7,644.87	670.91
Smelter value	$1,130,292.51	
Deductions	130,413.80	
Proceeds	$ 999,878.71	$85,541.13
Royalty Payable		$ 4,277.05
Royalty Paid	$ 4,264.74	
Plus: Overpayment (per Report of Royalty Review dated April 17, 1961) applied to royalty due	13.28	4,278.02
Overpayment		$ .97*

Overpayment:

* Inspiration Consolidated Lot 1060, Shipper Lot J-95 -
Royalty Paid:
Smelter value $9,898.94 x 7.66% x 5% = $37.91
Should be:
Smelter value $9,898.94
Less: Freight 253.78
Net proceeds $9,645.16 x 7.66% x 5% = 36.94
Overpayment $ .97

The audit has confirmed the accuracy and propriety of royalty payments received applicable to settlements during the period April 15, 1961, through April 10, 1963, as well as during the period covered by and summarized in a prior Report of Royalty Review dated April 17, 1961. It has also determined that all indicated production during these periods has been properly accounted for.

C. E. Fisher

C. E. Fisher, OME Auditor

APR 29 1963

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 No. Idm-2522, Docket No. DMEA-2746 (copper-zinc), dated May 18, 1953, with

Coronado Copper and Zinc Company
1206 Pacific Mutual Building
523 West 6th Street
Los Angeles 14, California

for the purpose of determining the amount of royalty due the U. S. Government on sales of minerals from property referred to as the Republic Copper-Zinc Mine, also known as the Johnson Camp Mine, located in Cochise County, Arizona, reported during the period January 16, 1959, through April 14, 1961.

A certification of discovery or development was issued on February 2, 1956, and, in accordance with Articles 6 and 9 of the contract, royalty is payable on all minerals mined or produced from the land described in Articles 2 and 9 of the contract for a period of 10 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 August 17, 1955, indicated accepted costs under the exploration contract amounting to $87,045.00 with the Government's contribution, on a 50 percent basis, being $43,522.50.

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

This review established the total sales of copper and zinc concentrates for the period to be $138,153.88. Royalty due the Government at rates specified in the contract is $6,907.67.

A prior Report of Royalty Review found the sales subject to Government royalty through January 15, 1959, to be $595,483.83 which added to the sales for this subsequent period make a total of $733,637.71. The royalty account as of January 15, 1959, was:

Total Royalty Due	$29,774.20
Total Royalty Paid	29,508.17
Balance of Royalty Due	$ 266.03

At April 14, 1961, the royalty account of this project was found to be:

Total Royalty Due	$36,681.87
Total Royalty Paid	36,695.15
Overpayment of Royalty	$ 13.28

E. D. Talbert

April 17, 1961

E. D. Talbert OME Auditor

Idm-8522 Coronado Copper and Zinc Company DMEA-2746

STATUS OF PROJECT, SCOPE OF REVIEW AND REASONS THEREFOR

Mining and milling was discontinued on August 15, 1957, by the Operator. The mine was reopened in September 1959 by a lessee, McFarland & Mullinger, Box 238, Tooele, Utah. The ore produced by the lessee was concentrated at its Sahuarita, Arizona, mill until March 1960, when milling operations were transferred to the Johnson Camp mill.

Although not the producer, the Operator has continued to pay the DMEA royalty on a monthly basis. In addition to the pertinent settlement sheets, the payments are supported by statements showing the calculated proceeds applicable to DMEA production on the basis of percentage of concentrates produced from DMEA ore to total concentrates produced by the mill during the month. This was similar to the method in effect during the prior period, when the Operator was the producer, as outlined in the prior Report of Royalty Review dated January 22, 1959, and a Royalty Audit Report dated April 15, 1955.

During the period covered by this review, the zinc concentrates were sold to the International Minerals and Metals Corporation. The copper concentrates produced through March 1960 were sold to the International Smelting & Refining Company and thereafter to the Inspiration Consolidated Copper Co.

This review included the recomputation and tabulation of the Operator's monthly reports and the pertinent settlement sheets. The tabulation is filed with my audit work-papers and is summarized, for the period covered by this review, as follows:

	Total Production	DMEA Portion
Tons of ore milled	81,836.67	8,421.28
Dry tons of concentrates produced:		
Copper	6,542.05	687.56
Zinc	7,842.48	969.83
Smelter value	$1,391,137.65	$153,391.26
Deductions	138,191.03	15,237.38
Proceeds	$1,252,946.62	$138,153.88
Royalty Due		$ 6,907.67
Royalty Paid		6,920.95
Overpayment		$ 13.28

The $13.28 overpayment of royalty was due to the following three errors in the Operator's monthly reports:

(1) A difference of $970.94 (DMEA portion $104.38) between the provisional and final settlements on smelter lot 119 (mine lot J-13) was included erroneously as an adjustment on the June 1960 report, whereas the entire final settlement had been included in the May 1960 report. This resulted in an overpayment of $5.22 in DMEA royalty.

(2) The proceeds applicable to September production on smelter lot 30 (mine lots J-51 to J-55) were reported erroneously as $9,886.15 (DMEA portion $816.59) instead of $9,866.15 (DMEA portion $814.94). This resulted in an overpayment of $.07 in DMEA royalty.

(3) An aggregate difference of $2,104.81 (DMEA portion $159.76) between the provisional and final settlements on smelter lots 506, 523, 530, and 535 (mine lots J-50, J-51, J-52, and J-53) was included erroneously as an adjustment on the November 1960 report, whereas the entire final settlements had been included in the October report. This resulted in an overpayment of $7.99 in DMEA royalty.

These findings, which are subject to audit of the producer's records if deemed advisable in the future, include production through January 1961; final settlements thereon through International Minerals and Metals Corporation's February 21, 1961, invoice MP-2591 (mine lots 91 to 94) and Inspiration Consolidated Copper Company's March 10, 1961, settlement on lot 816 (mine lot J-79); provisional settlements thereon through International Minerals and Metals Corporation's March 13, 1961, invoice MP-5557 (mine lots 95-100) and Inspiration Consolidated Copper Company's March 17, 1961, settlement on lot 838 (mine lot J-80); and royalty payments thereon through April 14, 1961.

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

(1) Available information in the files indicates that all sales of production from the property have been accounted for and proper royalty thereon has been paid to the Government; 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 additional royalty which might be disclosed.

MME Form 22
April 59

DEPARTMENT OF THE INTERIOR
Office of Minerals Exploration

CHECK SHEET OF EXAMINING ENGINEER

Operator's Name CORONADO COPPER & ZINC CO.

Address 1206 Pacific Mutual Building

Los Angeles 14, California

Exploration Contract No. Idm E522 Docket No. DMEA 2746

			Check One Yes	Check One No
1.	(a)	Does the Operator stockpile ore subject to royalty repayment?		x
	(b)	If so, is segregation and identification procedure adequate?		
2.	(a)	Does Operator commingle production subject to DMEA or OME royalties with exempt production?	x	
	(b)	If so, do you consider the allocation of the commingled production equitable?	x	
3.	(a)	Does the Operator stockpile mine or mill rejects (low grade ore, tailing, middlings, etc.) that may have potential value within the royalty payment period?		x
	(b)	If so, are adequate records maintained on such material to protect the Government's interest?		
4.		Do you consider the assay controls in effect are adequate?	x	
5.		Do you consider that the manner of disposing of production gives the Government its fair royalty returns?	x	
6.		Do your periodic examinations of operations indicate the Operator is properly reporting his production of ores subject to DMEA or OME royalties?	x	
7.		Does the Operator buy from or sell to other Operators?		x
8.		Comment on any item 2 (b) to 6 if answer is No.		

3
5-20-61
Date

Hugh M. Connors
Mining Engineer
Hugh M. Connors

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OFFICE OF MINERALS EXPLORATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF ROYALTY REVIEW

I have reviewed the files of the Executive Office, OME Field Team, Region III, Denver, Colorado, pertaining to Contract Idm.R522, Docket No. DMRA-2746 (Copper-Zinc) dated May 18, 1953, including Amendments Nos. 1 through 4, with

Coronado Copper and Zinc Company
1806 Pacific Mutual Building
523 West Sixth Street,
Los Angeles, California

for the purpose of determining the amount of royalties due the United States Government on the sale of copper concentrates, copper metal and zinc concentrates produced from ore extracted from the subordinated sections of the Republic Mine, Johnson Camp, Cochise County, Arizona, during the period November 1, 1954 through January 15, 1959.

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

My review established the total sales of concentrates and copper metal for this period to be $551,710.03. (See Schedule No. 1.) Royalty due the U. S. Government at the contract rate of 5 percent is $27,585.50. A prior royalty audit report by Donald T. Finch for the period May 18, 1953 to October 31, 1954, stated the sales of concentrates to be $43,773.80 and the royalty at 5 percent to be $2,188.70. The Auditor stated the royalty account as follows:

Total Royalty Paid	$ 2,195.09
Total Royalty Due	2,188.70
Royalty Paid in Excess of Royalty Due	$ 6.39

As of January 15, 1959, the royalty account of the project was found to be

Total Royalty Due	$29,774.20
Total Royalty Paid	29,508.17
Balance of Royalty Due (See Schedule 2)	$ 266.03

Donald T. Finch
Donald T. Finch,
OME Auditor

January 22, 1959

STATUS OF PROJECT, DESCRIPTION OF REVIEW, AND STATEMENT OF JUSTIFICATION

CONTRACT NO. Idm-E522 DOCKET NO. DMEA-2746

A certification of discovery or development was issued on February 2, 1956, and in accordance with Article 6 of the Exploration Contract, percentage royalties are due the Government on any minerals mined or produced from the land described in Article 2 and Article 9 for a period of 10 years from the date of the contract or until total amount of the Government advance has been repaid without interest, whichever occurs first. A report of review in lieu of final audit, dated August 17, 1955, indicated accepted costs under the Exploration Contract amounting to $87,045.00, with the Government's contribution on a 50 percent basis being $43,522.50.

A royalty audit report dated April 15, 1955, describes the Operator's commingling of ores and production of both copper and zinc concentrates. It also describes the detailed schedules and settlement sheets submitted to the Executive Officer of the DMEA Field Team to support its payments of royalties.

During the period November 1, 1954 to May 16, 1956, similar complete supporting data were submitted and methods of marketing of concentrates remained unchanged. Subsequent to May 16, 1956, copper concentrates were custom smelted, and resulting copper metal was sold by the Operator through a sales agent. Such copper production and sales were supported by copies of smelter statements covering the production of refined copper and by sales agent's invoices covering the sale of copper metal. Support for the sale of zinc concentrates continued to be similar to that furnished in the previous periods.

Schedule No. 1, attached, showing the quantities of each type of metals applicable to each category subject to royalty was compiled during my review from the data submitted by the Operator, which are on file in the office of the Executive Officer, OME Field Team, Region III. During the review all computations on smelter statements, sales invoices, mill data and allocation schedules were confirmed by recomputation. The production subject to royalty is approximately 10 percent of the Operator's total production. In order to confirm the portion subject to DMEA royalty, it was necessary to compile detailed and voluminous working papers which are retained in the report file. This report file also contains copies of all smelter contracts which I secured and analyzed during the review to confirm smelter deductions and charges.

Total refined copper reported returned to the Operator by the custom smelter was reconciled with total reported sales by the Operator's sales agency.

Royalties paid were reconciled with the records of the OME Finance Office, Denver, Colorado.

Operations ceased during the month of August, 1957, and there is no indication in the Executive Officer's files as to when they will be resumed.

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

(1) Operator's reports of production and royalty due were adequately documented.

(2) The examining engineer is of the opinion that all sales of production have been properly accounted for.

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

SCHEDULE NO. 1

CORONADO COPPER AND ZINC COMPANY

CONTRACT NO. Idm-E522

DOCKET NO. DMEA-2746

SUMMARY OF PRORATA PRODUCTION SUBJECT TO ROYALTY
PERIOD NOVEMBER 1, 1954 THROUGH JANUARY 15, 1959
COMPUTED AND TABULATED DURING ROYALTY REVIEW

Tons of ore produced (applies to both copper and zinc concentrates)	27,976.46	
Average grade:		
Copper corrected assays ranged from 1.46% to 3.10%		
Zinc " " " " 5.11% to 7.22%		
Copper Concentrates		
Period November 1, 1954 through May 16, 1956		
Copper concentrates sold to American Smelting and Refining Company		
Prorata tons of concentrates subject to royalty	1,107.32 Tons	
Copper content	650,005.20 Lbs.	
Less: Smelter deduction	22,142.56	
Pounds of copper paid for		627,862.64
Pounds of Zinc content (No payment)		226,713.30
Ounces of silver content	4,934.71	
Less: Smelter deduction	446.69	
Ounces of silver paid for		4,488.02
Gross Value Copper	$233,140.30	
Gross Value Silver	4,149.83	
Total Gross Value		$237,290.13
Smelter Deductions		
Treatment charges	$ 12,179.33	
Freight paid by smelter	4,574.93	
Umpire fees	55.45	
Total Smelter Deductions		16,809.71
Net Value Subject to Royalty		$220,480.42
Royalty Due at 5%		$ 11,024.02
Period May 17, 1956 through January 15, 1959		
Copper concentrates which were custom smelted by International Smelting and Refining Company: -		
Copper metal was returned to Coronado Copper and Zinc Company and sold by The American Metal Company, Ltd., agent for the Operator.		
Dry tons of copper concentrate (Smelter weights)	1,015.01 Tons	
Copper content	572,774 Lbs.	
Less: Smelter deduction Copper metal	17,181	
Copper Delivered to Operator		555,593 Lbs.

CORONADO COPPER AND ZINC COMPANY

CONTRACT NO. Idm-E522 DOCKET NO. DMSA-2746

Ounces of silver content	4,572.38	
Less: Smelter deduction silver metal	503.47	
Ounces of silver credited to Operator by Smelter		4,068.91
Value of 555,593 lbs. copper metal sold	$178,396.33	
Value of 4,068.91 ounces silver credited to producer by smelter	3,663.87	
Total value of metal subject to royalty		$182,060.20
Royalty due at 5%		$ 9,103.01

Zinc Concentrates

Period November 1, 1954 through January 15, 1959

Zinc concentrates sold to International Minerals and Metal Corporation			
Prorate tons subject to royalty	2,615.91	Tons	
Zinc content	2,835,933	Lbs.	
Less: Smelter Deduction Zinc Metal	425,390		
Pounds of Zinc paid for by smelter			2,410,543
Copper Content	102,712	Lbs.	
Less: Smelter Deduction Copper Metal	48,121		
Pounds of copper paid for by smelter			54,591
Silver Content			
Ounces of silver content	3,214.84	Ozs.	
Less: Smelter Deduction Silver Metal	1,240.13		
Ounces of silver paid for by smelter			1,974.71
Cadmium Content (Jan. 1, 1956 to Sept. 20, 1957)			
Cadmium Content	5,088	Lbs.	
Less: Smelter Deduction Cadmium Metal	4,917		
Pounds of Cadmium paid for by smelter			171

Gross Values Paid for by Smelter		
Zinc	$292,958.68	
Copper	16,248.81	
Silver	1,778.16	
Cadmium	72.96	
Total Gross Values		$311,058.61
Deductions		
Smelter charges	$128,231.26	
Freight paid by smelter	33,613.42	
Umpire fees	44.52	
Total Smelter Deductions		161,889.20
Net Value Subject to Royalty		$149,169.41
Royalty due on Zinc Concentrates at 5%		$ 7,458.47

CORONADO COPPER AND ZINC COMPANY

CONTRACT NO. Idm-E522

DOCKET NO. IMEA-2746

SUMMARY

	VALUE SUBJECT TO ROYALTY	ROYALTY AT 5%
Copper concentrates sold to smelter	$220,480.42	$11,024.02
Copper concentrates custom smelted and sold in form of copper metal	182,060.20	9,103.01
Zinc concentrates sold to smelter	149,169.41	7,458.47
Totals	$551,710.03	$27,585.50

	BALANCE PREVIOUS AUDIT PERIOD 5/18/53 - 10/31/54	PRESENT REPORT PERIOD 11/1/54 - 1/15/59	TOTAL PERIOD 5/18/53 - 1/15/59
Royalties Due	$2,188.70	$ 27,585.50	$29,774.20
Royalties Paid	2,195.09	27,313.08	29,508.17
Balance Royalties Due	$ 6.39	$ 272.42	$ 266.03

Production ceased August, 1957.
Last sale of copper dated December 19, 1957.
Last settlement sheet for zinc concentrates dated September 20, 1957.
Last deposit on Certificate of Deposit No. CD 58-126 dated April 29, 1958.

SCHEDULE NO. 2

CORONADO COPPER AND ZINC COMPANY

CONTRACT NO. Idm-E522

DOCKET NO. IMRA-2746

SCHEDULE OF ROYALTIES DUE

DATE		REPORT NO.	ROYALTY DUE
Nov., 1954	Zinc Concentrates (Overstated value Silver 21¢)	14	.01
Feb., 1955	Copper Concentrates (Understatement of smelter charges of $216.45) Zinc Concentrates (Understatement of smelter charges of $148.07)	16	18.23
Mar., 1955	Copper Concentrates (Understatement of smelter charges of $207.62)	17	10.38
Apr., 1955	Copper Concentrates (Understatement of smelter charges of $280.66)	18	14.04
Feb., 1956	Copper Concentrates (Overstatement of total freight and umpire charges of $1.00)	28	.05
Mar., 1956	Zinc Concentrates (Overstatement of 850 lbs. Zinc, net value $111.69)	29	5.58
Apr., 1956	Zinc Concentrates (Understatement of contract adjustment for Copper of 52¢)	30	.03
May, 1956	Copper Concentrates (For corrections see Schedule No. 2A, attached)	31	102.77
June thru Sept,1956 June thru Nov.,1956	Copper, Zinc - (For corrections see Schedule 2B attached)	32	76.91
Oct.,1956	Copper Concentrates (Value of Silver of $202.76 not considered by Operator for royalty, plus 36¢ adjustment Copper value)	33	10.16
Nov.,1956	Copper Concentrates (Value of Silver of $246.58 not considered by Operator for royalty, plus understated value of Copper of $2.70)	34	12.47
Dec.,1956	Copper Concentrates (Value of Silver of $136.47 not considered by Operator for royalty)	35	6.83
Jan.,1957	Copper Concentrates (Value of Silver of $154.08 not considered by Operator for royalty, plus 22¢ understatement of value of Zinc Concentrates)	36	7.71
Feb. thru Aug.,1957	Copper Concentrates (Value of Silver of $1,948.22 not considered by Operator for royalty	37	97.40
	TOTAL BALANCE OF ROYALTY DUE		$266.03

SCHEDULE NO. 2A

CORONADO COPPER AND ZINC COMPANY

CONTRACT NO. Idm-E522

DOCKET NO. DMRA-2746

SCHEDULE OF CORRECTIONS FOR OPERATOR'S REPORT NO. 31 - MAY, 1956

	CORRECTED	AS SUBMITTED	INCREASE	DECREASE
Tons of Ore Milled				
DMEA Ore	930.34	930.34	-	-
Other Ore	5,527.66	5,527.66	-	-
Total	6,458.00	6,458.00	-	-
Tons of Copper Concentrates Produced From Ore Milled				
DMEA	64.24	50.87	13.37	
Other	381.71	395.08		13.37
Total Tons Copper Concentrates	445.95	445.95	13.37	13.37
Ratio of Copper Concentrates to Ore Milled	6.9054%	6.9054%		
Tons of Zinc Concentrates Produced From Ore Milled				
DMEA	59.44	74.37		14.93
Other	353.17	338.24	14.93	
Total Tons Zinc Concentrates	412.61	412.61	14.93	14.93
Ratio of Zinc Concentrates to Ore Milled	6.3891%	6.3891%		
Ratio of DMEA Concentrates to Total Concentrates Produced				
Copper Concentrates	14.405%	11.409%	2.996%	
Zinc Concentrates	14.406%	18.024%		3.618%
Sales Applicable to: -				
Copper Concentrates	$98,146.48	* $98,146.48		
Add: Silver credit not considered	824.64		824.64	
Total Copper Concentrates	$98,971.12	$98,146.48	$824.64	
Zinc Concentrates	$27,801.62	$27,801.62		
DMEA Portion of Sales				
Copper Concentrates	$14,256.79	$11,195.68	$3,061.11	
Zinc Concentrates	4,005.10	5,011.05	1,005.95	
Totals	$18,261.89	$16,206.73	$2,055.16	
Royalty Due at 5%				
Copper Concentrates	$ 712.84	$ 559.78	$ 153.06	
Zinc Concentrates	200.26	250.55	50.29	
Total	$ 913.10	$ 810.33	$ 102.77	

* Amended Sales: See Executive Officer's letter February 19, 1957 and Operator's reply March 5, 1957.

Note: For original data see Operator's Schedules II and III.

COROMABO COPPER AND ZINC COMPANY

CONTRACT NO. Idm-E522

DOCKET NO. DMEA-2746

SCHEDULE OF CORRECTIONS FOR OPERATOR'S REPORT NO. 32
JUNE THROUGH NOVEMBER, 1956

	JUNE, 1956	JULY, 1956	AUG. 1956	SEP. 1956	TOTAL
Tons of Ore Milled (See Operator's Schedule 1-A)					
DMEA	1,157.52	1,165.34	722.30	445.24	3,490.40
Other	5,055.48	4,991.86	4,877.22	4,453.92	19,378.48
Total Tons Ore Milled	6,213.00	6,157.20	5,599.52	4,899.16	22,868.88
Tons of Copper Concentrates Produced from Ore Milled (Corrected)					
DMEA	73.11	82.76	60.66	40.66	257.19
Other	319.32	354.52	409.60	406.79	1,490.23
Total Tons of Copper Concentrate	392.43	437.28	470.26	447.45	1,747.42
Ratio of Copper Concentrates to Ore Milled	6.316%	7.102%	8.398%	9.133%	
Tons of Zinc Concentrates Produced from Ore Milled (Corrected)					
DMEA	80.09	85.61	68.91	43.11	277.72
Other	349.82	366.70	465.31	431.28	1,613.11
Total Tons Zinc Concentrates	429.91	452.31	534.22	474.39	1,890.83
Ratio of Zinc Centrates to Ore Milled	6.9195%	7.346%	9.540%	9.683%	

Ratio of DMEA Concentrates to Total Concentrates Produced
(Period June through Sept., 1956)

Copper Concentrates	
As corrected (257.19 Tons ÷ 1,747.4 Tons)	14.7184%
As originally submitted (250.85 Tons ÷ 1,747.4)	14.3556%
Increase	0.3628%

Zinc Concentrates	DMEA	OTHER	TOTAL
Tons produced June through September, 1956, as corrected above	277.72	1,613.11	1,890.83
Tons Produced: October	57.09	466.65	523.74
November	72.07	471.48	543.55
Corrected Totals	406.88	2,551.24	2,958.12
Ratio as corrected	13.755%	86.245%	100.000%
Ratio as originally submitted	14.049%	85.951%	100.000%
Difference	.294%	.294%	0.000%

Note: Operator's Report 32 applicable to copper concentrates covered period June through September, 1956, and portion applicable to zinc concentrates covered period June through November, 1956. There was no correction of zinc concentrate production data for the months of October and November, 1956.

CORONADO COPPER AND ZINC COMPANY

CONTRACT NO. Idm-E522

DOCKET NO. EMEA-2746

SCHEDULE OF CORRECTIONS FOR OPERATOR'S REPORT NO. 32
JUNE THROUGH NOVEMBER, 1956

	CORRECTED	AS SUBMITTED	INCREASE
Sales Applicable to:			
Copper Concentrates	$341,276.92	* $341,276.92	
Add: Silver credit not considered	5,822.36		$5,822.36
Total Copper Concentrates	$347,099.28	$341,276.92	$5,822.36
Zinc Concentrates	$186,755.49	$186,755.49	-
EMEA Portion of Sales			
Copper Concentrates	$ 51,087.46	$ 48,991.81	$2,095.65
Zinc Concentrates	$ 25,688.22	$ 25,245.56	557.34
Totals	$ 76,775.68	$ 75,237.37	$1,538.31
Royalty due at 5%			
Copper Concentrates	$ 2,554.37	$ 2,449.59	$ 104.78
Zinc Concentrates	1,284.41	1,312.28	27.87
Totals	$ 3,838.78	$ 3,761.87	$ 76.91

* Amended sales - See Executive Officer's letter February 19, 1957, and Operator's reply March 5, 1957.

Check Sheet of Examining Engineer

EXTRA COPY
O. M. E.
RECEIVED JAN 26 1959

DATE	INITIALS	CODE

Operator's Name Coronado Copper and Zinc Company
Address 1206 Pacific Mutual Bldg., 523 West Sixth Street
Los Angeles, California

(Republic Mine) Johnson Camp, Cochise County, Ariz.

Exploration Contract No. Ida-1522 Copper-Zinc Docket No DMEA-2765

		Check One Yes	Check One No
1. (a)	Does the Operator stockpile ore subject to royalty repayment?		X
(b)	If so, is segregation and identification procedure adequate?		
2. (a)	Does Operator commingle production subject to DMEA royalties with exempt production?	X	
(b)	If so, do you consider the allocation of the commingled production equitable?	X	
3. (a)	Does the Operator stockpile mine or mill rejects (low grade ore, tailing, middlings, etc.) that may have potential value within the royalty payment period?		X
(b)	If so, are adequate records maintained on such material to protect the Government's interest?		
4.	Do you consider the assay controls in effect are adequate?	X	
5.	Do you consider that the manner of disposing of production gives the Government its fair royalty returns?	X	
6.	Do your periodic examinations of operations indicate the Operator is properly reporting his production of ores subject to DMEA royalties?	X	
7.	Does the Operator buy from or sell to other Operators?		X
8.	Comment on any item 2 (b) to 6 if answer is No.		

Date July 10, 1958, amended to January 16, 1959 mc

D M Ronsko
Mining Engineer

File
Su

Gechon
Kilgaard
Selfridge
Johnson
Sawyer
Appd. Sol. Off.
Talbert

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

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

To: Mr. George D. Dub, President
Coronado Copper and Zinc Company
1206 Pacific Mutual Building
523 West Sixth Street
Los Angeles, California

Pursuant to the provisions of Exploration Project Contract No. Idm-K522, dated May 18, 1953, Docket No. DMEA-2746, hereinafter called the "contract", between you and the United States of America, hereinafter called the "Government"; to establish and fix the Government's percentage royalty on production and its lien thereon and on the land described in the contract, the Government 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: Drifting and crosscutting on the 400 and 500 levels of the mine, and diamond drilling have proved the existence of copper-zinc ores occurring as replacements in garnetized limestone.

Dated FEB 2 - 1956

THE UNITED STATES OF AMERICA

By C. Mitchenor
Administrator, Defense Minerals Exploration Administration

WRGriswold/er (rewritten 2/1/56)
Copy to:
Docket
Mr. C. A. Fredell, Dr., MD, EPS
Mr. Geehan, USBM
Mr. Kiilsgaard, USGS
Admr. R. File
Op. Committee
Base Metals
Region III (2)
Cont.Adm.&Audit Div.
Finance Office
Mr. F.E. Johnson
Mr. W. R. Griswold
Chron.

File Copy
Surname

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

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

To: Mr. George D. Dub, President
Coronado Copper and Zinc Company
1206 Pacific Mutual Building
523 West Sixth Street
Los Angeles, California

Pursuant to the provisions of Exploration Project Contract No. Idm-E522, dated May 18, 1953, Docket No. DMEA-2746, hereinafter called the "contract", between you and the United States of America, hereinafter called the "Government"; to establish and fix the Government's percentage royalty on production and its lien thereon and on the land described in the contract, the Government 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: Drifting and crosscutting on the 400 and 500 levels of the mine, and diamond drilling from these levels and from the surface, have proven the existence of copper-zinc ores occurring as replacements in garnetized limestone rocks.

Dated _____

THE UNITED STATES OF AMERICA

By _____
Administrator, Defense Minerals Exploration Administration

WRGriswold/er (1/27/56)
Copy to:
Docket
Mr. C. A. Fredell, Dr., MD, EPS
Mr. Geehan, USBM
Mr. Kiilsgaard, USGS
Admr R. File
Op. Committee
Base Metals
Region III (2)
Cont. Adm. & Audit Div.
Finance Office
Mr. F. E. Johnson
Mr. W. R. Griswold
Chron.

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
	Grunsell	500
5/22	Talbert	800
	Selfridge	120
5/22	Johnson	110
	Frank	100
		120

MAY 22 1963

Cyprus Mines Corporation
523 West Sixth Street
Los Angeles 14, California

Re: DMEA-2746 (Copper-Zinc)
Coronado Copper and Zinc Company
Republic Copper-Zinc Mine
Cochise County, Arizona
Contract Idm-E522

Gentlemen:

By the terms of the subject Exploration Project, as amended, and the certification of discovery or development dated February 2, 1956, all minerals mined or produced from May 18, 1953, to May 18, 1963, were subject to the Government's royalty as set forth in said contract.

As the period during which production was subject to royalty has now expired, the Government according to its present records retains no claim or lien against the property subject to the contract or any future production therefrom. We, therefore, are closing our books and records on this contract. Your attention, however, is called to the provisions of the contract which require the Operator to keep and preserve certain records for the periods indicated.

Sincerely yours,

George Fumich, Jr. (afa)

Director

MMerrithew/mm
5/20/63
cc: Director's Reading File
Region III (2)
CA&A Division
✓Docket
Code 500

8623

Klugeschied
Betty

DEFENSE MINERALS EXPLORATION ADMINISTRATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF REVIEW

I have reviewed the Monthly Reports of:

Coronado Copper and Zinc Company
Johnson Camp
Cochise County, Arizona

DMEA-2746

pertaining to Exploration Project Contract No. Idm-E522, Docket No. ~~DMEA-2476~~, 2746 including Amendments, Nos. 1 to 4, for the months of June, 1953 to April, 1955 covering a project for the exploration of Copper and Zinc on property known as Republic Mine, located in Cochise County, Arizona.

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

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

All of the costs incurred were under a contract provision for payment by the Government on the basis of agreed estimated costs of units of work actually performed.

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

Total cost as billed by Contractor:		$87,605.00
Exceptions (schedule attached):		
By DMEA Finance Officer	$560.00	
Herewith	—	560.00
Total Accepted Cost		$87,045.00

The contract calls for a 50 percent participation of exploration expenses by the United States Government. Therefore, payment to the contractor by the Government in the amount of Forty-three thousand, five hundred twenty-two and 50/100ths Dollars

** $43,522.50 **

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

August 17, 1955.

T. H. Breding, Auditor.

SCHEDULE OF EXCEPTIONS

CORONADO COPPER AND ZINC COMPANY

DOCKET NO. DMEA-2476, CONTRACT IDM-E522

14 Feet of Drifting @ $40.00 per foot $560.00

Unable to determine footage actually advanced during the period from December 13, 1954 to January 31, 1955 from Operator's records before the effective date of Amendment (December 27, 1955.) Total footage completed is based on number of working days for period December 13, 1954 to January 31, 1955, resulting in disallowance shown above. Disallowance approved by Auditor.

Butin (per memo 3/7/55)

No. 4

AMENDMENT OF CONTRACT: No. IBM E522

Contract Docket No. DMMA 2746, dated May 18, 1953, between the United States of America and Coronado Copper and Zinc Company is hereby further amended as follows, effective December 27, 1954:

> Whereas 1161 feet of drifting and crosscutting, and 8717.5 feet of surface and underground drilling has been performed at a total reported cost of $79,909.00; and whereas funds in the amount of $19,141.00 remain unexpended under the contract; and whereas additional exploration work is deemed desirable; now therefore it is agreed by the parties concerned that a portion of the additional exploration work to be performed under the contract will consist of the following:
>
> 1. Drift northwesterly from the 300 WF drift a maximum distance of 150 feet.
>
> 2. Drill a maximum of 600 feet of drill holes from the drift under the above item.
>
> The above work will be performed at the agreed unit cost established in the contract for that particular type of work.
>
> The work under items 1 and 2 is shown on the map titled "Plan and Sections, Proposed Exploration, Moore Shaft, 'F' ore body, Coronado Copper & Zinc Co., DMMA 2746" which is attached and made a part of this amendment. Only three drill holes are shown on the map; the location of any additional holes will depend upon conditions encountered as a result of that drilling and the location and extent of additional holes within the maximum of 600 feet must be acceptable to the Government.
>
> Any additional drifting, crosscutting and/or drilling to be performed under the contract, other than under the foregoing items 1 and 2 is subject to the prior written approval of the DMMA Field Team, Region III, based upon a request in writing from the operator. The operator in requesting the Government's approval of additional exploration work will provide an analysis showing units accomplished and costs thereof of all work performed to date of his request.

This amendment shall not be construed to increase the estimated total cost of the project, the amount of the Government's contribution, or any item of allowable cost which is expressly designated "allowable maximum".

Dated FEB 3 1955

[illegible] COPPER AND ZINC COMPANY

By [illegible]
George T. [illegible], President

UNITED STATES OF AMERICA

By [illegible]
[illegible], Executive Officer
[illegible] Field Force, Region XII

Seal

Pmbl 10/20/4

AMENDMENT OF CONTRACT: No. 14m-[illegible] SEP 17 1954 No. 3

Contract Docket No. DMEA 2746, dated May 18, 1953, between the United States of America and Coronado Copper and Zinc Company is hereby amended as follows, effective August 27, 1954:

> Referring to EXHIBIT "A" attached to Exploration Project Contract Form DF-200(A) (February 1952), captions "Description of the Work" and "Agreed Unit Costs", sub-headings "Phase I" and "Phase II", whereas the diamond drilling accomplished to date has been performed at a unit cost less than that used as a basis for computing the total agreed cost of performing the drilling, and as a result of which, funds are available within the total agreed cost for the performance of additional footage of diamond drilling, it is therefore agreed that the footage of drilling used as a basis to compute the total agreed cost of drilling will be increased by approximately 560 feet of additional drilling. The additional footage will be expended in drilling holes numbers 19 and 20 and such additional holes as are considered desirable depending upon the results of and after completion of holes numbers 19 and 20. The location and attitude of holes numbers 19 and 20 are shown on the map titled "Coronado Copper and Zinc Co., Johnson Camp, Arizona, Proposed Work on the Moore 400 West Drift Under Contract No. 14m-[illegible], Docket No. 2746, Date: 8/7/54" which is attached hereto and made a part of this amendment.
>
> The location and extent of any additional holes to be drilled must be acceptable to the Defense Minerals Exploration Administration. The additional drilling herein described will be performed at the unit cost stipulated for the type of drilling accomplished as outlined under said EXHIBIT "A", caption "Agreed Unit Costs".

This amendment shall not be construed to increase the estimated total cost of the project, the amount of the Government's contribution, or any item of allowable cost which is expressly designated "allowable maximum".

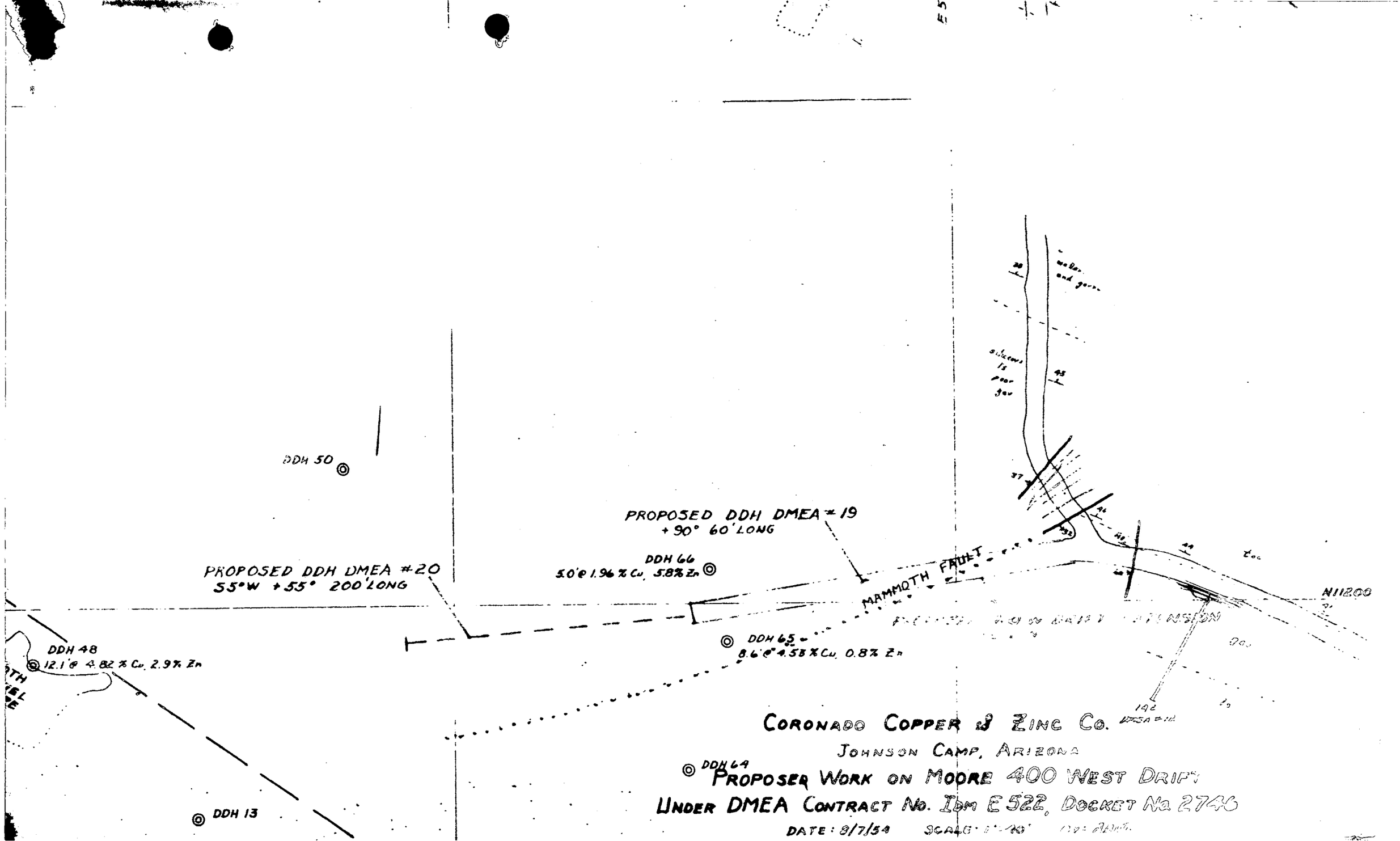
Dated SEP 15 1954

CORONADO COPPER AND ZINC COMPANY

By [signature]
President

UNITED STATES OF AMERICA

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


DDH 50
PROPOSED DDH DMEA #19
+90° 60' LONG
DDH 66
5.0' @ 1.96 % Cu, 5.8% Zn
PROPOSED DDH DMEA #20
55°W +55° 200' LONG
MAMMOTH FAULT
N11200
DDH 48
12.1' @ 4.82 % Cu, 2.9% Zn
DDH 65
8.6' @ 4.55 % Cu, 0.8% Zn
DDH 64
DDH 13
CORONADO COPPER & ZINC CO.
JOHNSON CAMP, ARIZONA
PROPOSED WORK ON MOORE 400 WEST DRIFT
UNDER DMEA CONTRACT No. IDM E 522, DOCKET No. 2746
DATE: 8/7/54

C O P Y

224 New Customhouse
Denver 2, Colorado

August 27, 1954

Mr. Fred E. Gray, Mine Manager
Coronado Copper and Zinc Company
Johnson Camp Unit
Dragoon, Arizona

Re: Docket No. DMEA 2746
(Copper-Zinc), Contract
Idm-E522

Dear Mr. Gray:

Reference is made to your letter of August 9, 1954 which was acknowledged by our letter of August 19, 1954 relative to authorization of additional work under Contract Idm-E522.

In regard to your request for authorization to extend the 400 Level Drift from the Moore Shaft 150 feet in addition to the 1009 feet of drifting and crosscutting completed to date, you are referred to Stage 1, first paragraph of the contract, which authorizes approximately 1220 feet of drifting and crosscutting on the 400 Level. Therefore, no additional authorization for work up to that extent is required.

In regard to the additional diamond drilling requested, an amendment to the contract will be prepared authorizing the drilling as outlined by you.

Very truly yours,

W. H. King
Executive Officer
DMEA Field Team
Region IV

JWT:es

cc: Contract
Chron.
Storms
Townsend
Koschmann
Faick

August 26, 1954

Memorandum

To: Mr. A. H. Koschmann AHK

From: J. H. Falck

Subject: DMEA Docket 2746, Contract Idm-6322, Coronado Copper and Zinc Company's Republic Copper-Zinc Mine, Johnson Camp, Cochise County, Arizona - Proposed additional work

On August 9, 1954, Mr. F. E. Gray, Manager, Coronado Copper and Zinc Company, Johnson Camp, Arizona, requested permission to drive an additional 150 feet of drift and to drill a maximum of 300 feet of underground diamond drill holes. This exploration work, which is to be done on the 400-foot level of the Moore shaft area, is intended to explore for extensions of the ore found in surface holes No. 85 and 86, and is intended to supplement exploration already completed in Area 1, under terms of the original contract.

This proposed exploration was previously anticipated and an effort was made to provide for it when the contract was drawn up. As 211 feet of the drifting authorized by contract remain unused, it should not be necessary to amend the contract to provide the requested drifting. Only 29 feet of the previously authorized drilling remain, therefore it is necessary to amend the contract to provide the 300 feet of drill holes requested by the operator. This proposed drilling will not increase the total cost of the project because not all of the funds allowed for drilling have been spent, and the remaining funds are more than sufficient to pay the cost of the additional drilling.

The proposed drifting and drilling will explore a zone which is geologically favorable for the occurrence of ore, therefore it is recommended that the operator's request be granted.

August 11, 1954

Memorandum

To : W. H. King, Chief, Mining Division, Region IV

From : Chief, Mining Methods Br., Mining Div., Region IV

Subject : Proposed Additional Work, RFC Contract Mdc-8422, Docket RFC-2746, Cerrosolo Copper & Zinc Co.'s Republic Copper-Zinc Mine, Johnson Camp, Cochise County, Ariz.

Enclosed in quadruplicate are the following:

(1) Request from Cerrosolo Copper & Zinc Co. for additional drifting (or crosscutting), and diamond drilling on the Republic Copper-Zinc mine 400-foot level;

(2) Memorandum report by William R. Hardwick of the Bureau of Mines recommending that this request be approved.

Also enclosed are 3 extra copies of Hardwick's report.

According to terms of the contract, it would seem that the additional 150 feet of drift on the 400-foot level could be authorized without an amendment. However, an amendment will be necessary for the additional diamond drilling.

I discussed this proposed work with Mr. Fred E. Gray, mine manager of Cerrosolo Copper & Zinc Co.'s Johnson Camp Unit, several days ago and recommend that the proposed work be authorized. The amount of ore already discovered by work under terms of the contract does not seem to be sufficient to repay the Government's share of the loan. The proposed work has a good chance of discovering additional substantial quantities of ore.

John M. Faick of the Geological Survey is on a field trip and probably will not return before Friday. When he will send in his report on this request, I do not know.

Walter R. Storms

Walter R. Storms

CC W. H. King (7)
John M. Faick
RFC-2746
DF

WRStorms:fr

August 11, 1954

Memorandum

To : Walter H. Stevens, Chief, Mining Methods Br., Mining Div., Region IV

From : William R. Hardwick, Mining Engineer, Tucson, Ariz.

Subject : Proposed Amendment to Contract Idm-5323, Docket BMEA-2746, Cornucopia Copper and Zinc Co.'s Republic Copper-Zinc Mine, Gunnison County, Ariz.

The Republic mine was visited on August 9, 1954. At that time, Fred E. Gray, mine manager, discussed a proposal to drive an additional 150 feet of drift and do additional diamond drilling on the 400 Level of the Moore shaft.

This proposed drift was contemplated by the original exploration plan and it would appear to me that it is authorized under Stage I of the contract. The plan of the proposed work, that is a part of the contract, shows a proposed drift in the approximate location in which the operator now desires to drive a drift.

Stage I of the contract provided for 1,220 feet of drift or crosscut at an estimated cost of $48,000.00. As of July 31, 1954, the operator had completed 1,070 feet of drift and crosscut at a cost of $40,360.00. This leaves 150 feet of drift or crosscut that is authorized by the contract but not used by the operator. In addition to this footage, there was 300 feet of drift or crosscut authorized by Stage II, none of which has been used by the operator.

With respect to the additional drilling that has been requested by the operator, it would appear that an amendment would be necessary. The contract provides for 8,300 feet of drill hole, including all Stages, and the operator has completed 8,471 feet as of July 31. The estimated cost of the 8,300 feet of drilling was $38,150.00, but the actual cost as reported by the operator was $32,488.00. This smaller cost resulted from the fact that the operator drilled a larger portion of the footage with a smaller bit than was anticipated. Thus, although the additional drilling which

cc W. H. King (Orig. & 7)
J. N. Faick
BMEA-2746
RF

WRHardwick:frj

operator has requested will not exceed the total cost of drilling as authorized by the contract, it will exceed the total footage. It is recommended that an amendment be added to the contract to allow the additional footage of drill hole that is requested by the operator.

The additional work proposed by the operator has an excellent chance of finding an additional ore body and it is recommended that it be authorized.

The operator is anxious to start the additional work and it is recommended that Mr. Gray be notified as soon as possible if the drift does not require an amendment and is approved, so the work can be started. The amendment for the additional drilling can then be processed.

William R. Hardwick

William R. Hardwick, Mining Engineer
Mining Methods Branch
Mining Division, Region IV

CORONADO COPPER AND ZINC COMPANY
1206 PACIFIC MUTUAL BUILDING
523 WEST SIXTH STREET
LOS ANGELES 14, CALIFORNIA
TELEPHONE MADISON 6-3231

U. S. BUREAU OF MINES
MINING DIVISION
AUG 10 1954
TUCSON, ARIZONA

REPLY TO
JOHNSON CAMP UNIT
DRAGOON, ARIZONA

August 9, 1954

Mr. W. H. King, Executive Officer, DMEA
Field Team, Region IV
224 New Customhouse
Denver 2, Colorado

Re: DMEA Contract Idm E522
Docket DMEA - 2746

Dear Mr. King:

We have been giving considerable study as to what further exploration work may be worthwhile under the above captioned contract. We have come to the conclusion that further work is advisable in Area I. We request that approval be granted for an additional 150 ft. of drifting and a maximum of 560 ft. of underground diamond drilling.

In the contract under Exhibit A, Stage I in Area I approximately 1220 ft. of drifting and crosscutting was approved to disclose the downward extension of the mineralization indicated by surface drill holes Nos. 65 and 66. Of this approved footage, we have driven only 1009 ft. The low grade ore discovered by the work in what is now known as the 400 W 200 stope was thought to be an extension of that mineralization in the footwall of the Mammoth Fault. On account of the great difference in the character of the ore in the two places it seems doubtful if that is true. Regardless of whether or not it is true there should be considerable ore on the hangingwall side of the Mammoth Fault between it and the floor of the Mammoth W 700 Level 30 stope. The location of this ore is not known except as indicated in surface holes Nos. 65 and 66. It is our opinion that this ore rakes eastward from the Mammoth W 700 Level 30 stope, through diamond drill holes Nos. 65 and 66. We formerly thought that this ore would reach the 400 Level at about coordinates 11200 N, 5900 E. Work under this contract in the 400 W Drift and underground diamond drill hole No. 142 (DMEA No. 12) proved that the ore does not reach the level at that point. The ore may have turned slightly to the north, thus either reaching the level ahead of the present face of the drift or more probably it is cut off by the fault before it reaches the level.

The indicated grade of ore to be expected is good, as shown by surface holes Nos. 48, 65 and 66 on the accompanying sketch. The tonnage that we might expect would be about 10,000 to 12,000 tons.

We propose continuing the 400 W Drift on to the west about 150 ft. as shown in green on the accompanying sketch. From this drift we propose drilling two diamond drill holes as indicated, probably totaling 260 ft. We would also like to have approval of another 300 ft. of diamond drilling if the first two holes are not successful or indicate more drilling to be advisable. The location of those additional holes will be decided upon after analysing the results of the first two holes.

I believe that the 150 ft. of drifting is covered by our contract and will therefore require no change in the contract, but merely your approval of the work. The diamond drilling may require an amendment as we have completed drilling all but 29 feet of the diamond drilling provided in the contract altho there remains the sum of $5759 provided for diamond drilling that has not been used.

We hereby request approval of 150 feet of drifting as outlined above and also approval or an amendment authorizing an additional 560 feet of diamond drilling as outlined above. We will start this work as soon as approval is granted. We hope that action on this request will be taken as soon as possible.

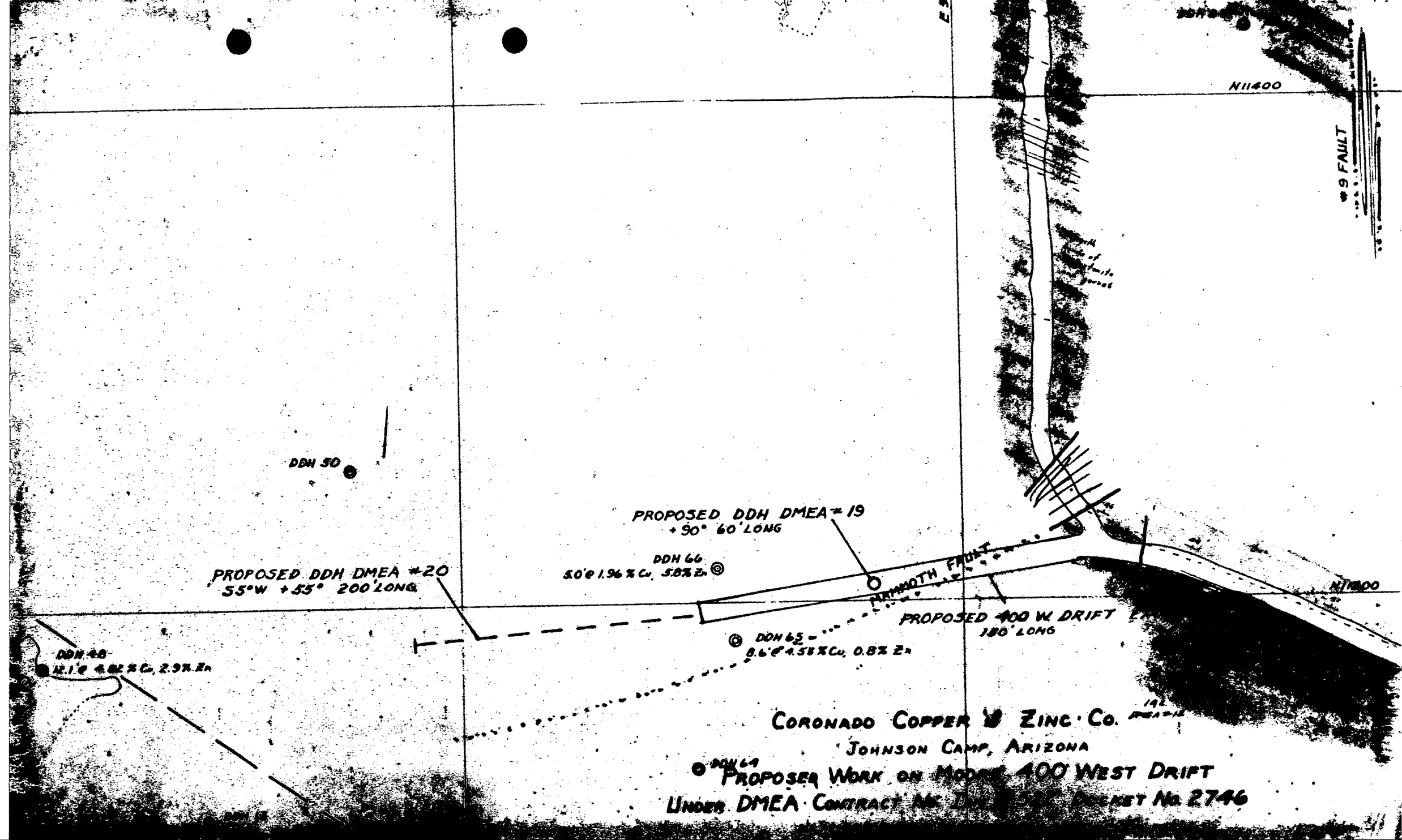
Very truly yours,

CORONADO COPPER & ZINC CO.

By Fred E. Gray
Fred E. Gray,
Mine Manager

FEG:rk

cc:- 6 Enclosed
1 Mr. George D. Dub
1 Mine Office


N11400
9 FAULT
DDH 50
PROPOSED DDH DMEA #19
+90° 60' LONG
DDH 66
5.0' @ 1.96 % Cu, 5.8% Zn
PROPOSED DDH DMEA #20
55°W +55° 200' LONG
MAMMOTH FAULT
PROPOSED 400 W. DRIFT
180' LONG
DDH 65
8.6' @ 4.58 % Cu, 0.8% Zn
DDH 48
12.1' @ 4.82 % Cu, 2.9% Zn
CORONADO COPPER & ZINC CO.
JOHNSON CAMP, ARIZONA
PROPOSED WORK ON MOORE 400' WEST DRIFT
UNDER DMEA CONTRACT No. DMA 522 DOCKET No. 2746

Rubin 8/27/54

AMENDMENT OF CONTRACT: No. IDM-E522 **No. 2**

Contract Docket No. DMEA 2746, dated May 18, 1953, between the United States of America and Coronado Copper and Zinc Company is hereby amended as follows, effective July 15, 1954:

It is agreed by the parties concerned, as indicated by signature affixed hereto, that work operations under the terms of Contract IDM-E522 will be recessed effective July 15, 1954, contingent on the following conditions:

1. Normal operations under the terms of the contract will be resumed on or before January 15, 1955.

2. A sum of not to exceed $500.00 will be withheld from reimbursement to the operator, under the terms of the contract, from Form MF-104 "Operator's Monthly Progress Report and Voucher" for the period prior to the recess of operations, pending resumption of operations.

3. The operator will preserve and protect the work performed prior to the recess of operations, to the best interest of the parties concerned, without charge to the DMEA project.

This amendment shall not be construed to increase the estimated total cost of the project, the amount of the Government's contribution, or any item of allowable cost which is expressly designated "allowable maximum".

Dated AUG 9 1954

CORONADO COPPER AND ZINC COMPANY

By George D. Dub, President

Seal

UNITED STATES OF AMERICA

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

No. 1

AMENDMENT OF CONTRACT: No. IDM-E522

Rubin 6/4/54

Contract Docket No. DMEA 2746, dated May 18, 1953, between the United States of America and Coronado Copper and Zinc Company is hereby amended as follows, effective April 20, 1954:

> Referring to EXHIBIT "A" attached to Exploration Project Contract Form MF-200(A) (February 1952), second page, footnote "1/", change the ending period to a comma and add the following: "except that footage and funds not expended on work described under Stage I may be added to that estimated for Stage II. The extent and location of additional work performed under Stage II, in conformance with the foregoing, is subject to prior mutual agreement between the operator and the Government and the additional work will be performed at the established unit costs applicable to that type of work.

This amendment shall not be construed to increase the estimated total cost of the project, the amount of the Government's contribution, or any item of allowable cost which is expressly designated "allowable maximum".

Dated MAY 10 1954

CORONADO COPPER AND ZINC COMPANY

By Gerry D. Dorr
President

UNITED STATES OF AMERICA

By W. S. King
...H. King, Executive Officer
...Field Team, Region IV

Seal

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 25 1953

MF-200 (A)
(February 1952)

DOCKET NO. DMEA 2746

COMMODITY Copper-Zinc

Docket Copy

IDM-E 522

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

EXPLORATION PROJECT CONTRACT[1]
(Short Form)

IT IS AGREED this 18th day of May, 1953, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and[2] Coronado Copper and Zinc Company, Johnson Camp, Cochise County, Arizona, a corporation duly organized and existing under and by virtue of the laws of the State of Nevada

hereinafter called the "Operator," as follows:

ARTICLE 1. *Authority for contract.*—This agreement is entered into under the authority of the Defense Production Act of 1950, as amended, pursuant to DMEA Order 1 entitled "Government Aid in Defense Exploration Projects."

ARTICLE 2. *Operator's property rights.*—With respect to that certain land situated in the State of Arizona, County of Cochise, described as ~~follows:~~ set forth in Annex I attached hereto and made a part hereof, and as indicated on the map entitled "Figure 2-DMEA-2746, Horizontal Projection of Mine Workings and Proposed Exploration, Coronado Copper & Zinc Company," attached hereto and made a part hereof,

the Operator represents and undertakes:[4]

(*a*) That the Operator is the owner, in possession and entitled to possession, and that the property is subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder is attached:

None

~~(b) That the Operator is a lessee, in possession and entitled to possession, and the Owner's Consent to Lien is attached.~~

The Operator shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of the exploration project without any allowance for the use, rental value, depreciation, depletion, or other cost of acquiring, owning, or holding possession thereof.

ARTICLE 3. *Exploration project.*—The Operator, within 90 days from the date of this contract shall commence work on a project of exploration for[5] Copper and Zinc

in or upon the described land; and shall bring the project to completion within a period of 2 years from the date of this contract. The work to be performed is more fully described in Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, are made a part of this contract. The Government will contribute to the cost of this work as hereafter provided. The work shall be performed by the Operator or by independent contractor or contractors efficiently, expertly, in a workmanlike manner, in accordance with good mining standards and State regulations for health and safety and for workmen's compensation and employers' liability insurance, with suitable and adequate equipment, materials, and labor, to bring the project to completion within the time fixed. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

ARTICLE 4. *Costs of the project.*—The agreed, estimated costs of performing the work, expressed in terms of units of work to be performed (per foot of drifting, per foot of drilling, per cubic yard of material to be moved, etc.) are set forth in Exhibit "A," attached hereto. The Government will pay 50 percent of these agreed, estimated costs, as they accrue, for units of work actually performed that conform with the description or specifications for the work set forth in this contract, in an aggregate total amount not in excess of $9,525.00, which is 50 percent of $19,050.00 the agreed, estimated total cost of the project in which the Government will participate: *Provided,* That until the Operator's final report and final accounting have been rendered to the Government and any final check or 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 ten (10) percent of the maximum total which the Government might have been called upon to pay under the terms of the contract. The Government may, as it sees fit, make payments direct to the Operator's independent contractors, if any, for the account of the Operator, rather than to the Operator.

ARTICLE 5. *Reports, accounts, audits.*—(*a*) *Progress reports.* The Operator shall provide the Government with monthly reports of units of work performed under the contract, in quintuplicate (five copies), upon forms provided by the Government. These progress reports shall be certified by the Operator, and shall constitute both the Operator's invoice of units of work performed on the project during the period covered by the report and his voucher for repayment by the Government, unless the Government requires the use of a standard voucher form with invoice attached. Progress reports shall include surface and/or underground engineering-geological maps or sketches showing the progress of the exploration, with assay-reports on samples taken concurrently with the advance in mineralized ground.

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] State name, address, and nature of organization if any.
[3] Give legal description or enough to identify the property, particularly excluding any land or interest therein to which the Government's lien is not to attach or the production from which is not to be subject to the Government's percentage royalty.
[4] Strike out the provision not applicable.
[5] Name of mineral or minerals.

(*b*) *Final report.*—Upon completion of the exploration work or termination of the contract the Operator shall provide the Government with an adequate geological and engineering report, in quintuplicate (five copies), including an estimate of ore reserves resulting from the exploration work.

(*c*) *Compliance with requirements.*—If, in the opinion of the Government, any of the Operator's reports are insufficient or incomplete, the Government may procure the making or completion of such reports and attachments as an expense of the exploration work; and the Government may withhold approval and payment of any vouchers depending upon insufficient or incomplete reports.

(*d*) *Accounts and audits.*—The Operator shall keep suitable records and accounts of the units of work performed, which the Government may inspect and audit at any time. The Government may at any time require a check of the work performed and an audit of the Operator's records and accounts, by a certified public accountant or otherwise, the cost thereof to be treated as a cost of the project. The Operator shall keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract. Upon the completion of the project or termination of the contract the Operator shall render a final account and statement of work performed to accompany his final report.

ARTICLE 6. *Repayment by Operator.*—(*a*) If, at any time, the Government considers that a discovery or a development from which production may be made has resulted from the exploration work, the Government, at any time not later than 6 months after the Operator has rendered the required final report and final account, may so certify in writing to the Operator. The certification shall describe broadly or indicate the nature of the discovery or development. In the event of such certification, any minerals mined or produced from the land described in Article 2 within 10 years from the date of this contract, including any mined or produced before the certification, shall be subject to a percentage royalty which the Operator or his successor in interest shall pay to the Government, upon the net smelter returns, the net concentrator returns, or other net amounts realized from the sale or other disposition of any such production, in whatever form disposed of, including ore, concentrates, or metal, until the total amount contributed by the Government, without interest, is fully repaid, or said 10 years have elapsed, whichever occurs first, as follows: (See also Article 9.)

(1) One and one-half (1½) percent of any such net amounts not in excess of eight dollars ($8.00) per ton.

(2) One and one-half (1½) percent of any such net amounts, plus one-half (½) percent of such net amounts for each additional full fifty cents ($0.50) by which such net amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) percent of such net amounts.

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

(*b*) As here used, "net smelter returns," "net concentrator returns," and "other net amounts realized from the sale or other disposition," mean gross revenue from sales, or if not sold, the market value of the material after it is mined in the form in which and the place where it is held. In the case of integrated operations in which the material is not disposed of as such, these terms mean what is or would be the gross income from mining operations for percentage depletion purposes in income-tax determination.

(*c*) To secure the payment of its percentage royalty, the Government shall have and is hereby granted a lien upon the land described in Article 2 and upon any production of minerals therefrom, until the royalty claim is extinguished by lapse of time or is fully paid.

(*d*) This article is not to be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any mining or production operations.

ARTICLE 7. *Assignment, transfer, or loss of Operator's interest.*—Without the written consent of the Government, the Operator shall not assign or otherwise transfer or hypothecate this contract or any rights thereunder. The Operator shall not make any voluntary nor permit any involuntary transfer or conveyance of the Operator's rights in the land described in Article 2, without making suitable provision for the preservation of the Government's right to a percentage royalty on production and lien for the payment thereof; *Provided,* that mere failure by the Operator to maintain the Operator's rights in the land, without any consideration running to the Operator other than relief from the cost of maintaining such rights (as by surrender of a leasehold, failure to perform assessment work, or failure to exercise an option), coupled with complete abandonment by the Operator of all interest in or operations on the land for a period of 10 years from the date of this contract, shall not constitute such a transfer or conveyance. Should the Operator make or permit any transfer or conveyance in violation of this provision, the Operator shall be and remain liable for payment to the Government of the same amounts, at the same times, as would have been paid under the terms of the percentage royalty on production. If for any reason the net smelter returns, net concentrator returns, or other net amounts realized from the sale or other disposition of such production are not available as a means of measuring the amount of the Operator's liability, the amount thereof shall be estimated as well as may be, and in the event of dispute as to such estimates, the determination thereof by the Administrator of Defense Minerals Exploration Administration or by his successor shall be final and binding upon the Operator.

ARTICLE 8. *Termination and completion.*—The Government may, at any time, by written notice to the Operator, terminate this contract: (*a*) If the Operator fails to provide his share of the money necessary to prosecute operations pursuant to the terms of the contract; (*b*) if the Operator, in the opinion of the Government, fails to prosecute operations pursuant to the terms of the contract; or (*c*) if, in the opinion of the Government, operations up to the time of the notice have not indicated the probability of making any worth while discovery and in the opinion of the Government further operations are not justified.

ARTICLE 9. *Changes and added provisions* After the word "contract," on the 5th line of Article 6, the following is inserted: "including any mined or produced from any extension of the ore bodies known to be in drill holes 65 and 66, or in the west winze of the Mammoth mine indicated on the map attached hereto, made a part hereof, and entitled "Figure 2 DMEA 2746 - Horizontal Projection of Mine Workings and Proposed Exploration, Coronado Copper & Zinc Company,"

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By C. Mitchell Dow
Administrator, Defense Minerals Exploration Administration

CORONADO COPPER & ZINC COMPANY
(Operator)

By Roy W. Moore
President

Roy W. Moore
Pres.
Chandler

I, A. L. Davidson, certify that I am the secretary of the corporation named as Operator herein; that Roy W. Moore, who signed this contract on behalf of the Operator, was then 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.

A. L. Davidson

[CORPORATE SEAL]

U. S. GOVERNMENT PRINTING OFFICE 16—66329-1

EXPLORATION PROJECT CONTRACT
CORONADO COPPER AND ZINC COMPANY
DOCKET NO. DMEA-2746

ANNEX I

As indicated on Figure 2, the land referred to in Article 2 consists of the following mining claims in Area 1:

Blue Grass, patent applied for, Mineral Survey No. 4340
Arizona, patent applied for, Mineral Survey No. 4340
Miantenomah, patented, Mineral Survey No. 330

and the following mining claims in Area 2:

Blue Lead, patented, Mineral Survey No. 3242
Southern Cross, patented, Mineral Survey No. 3242
A-Number One, patent applied for, Mineral Survey No. 4314
A-Number Two, patent applied for, Mineral Survey No. 4314
Blue Lead Extension, patented, Mineral Survey No. 3242
Dwarf, patented, Mineral Survey No. 3242
Little Bush, patented, Mineral Survey No. 3242

Area 1 is more particularly described as follows:

Beginning at Corner No. 1 of the Blue Grass claim as the initial point, Corner No. 1 of Area No. 1 bears North 62° 20' West 180.6 feet; thence S. 35° 00' West 294.0 feet to Corner No. 2; thence North 55° 00' West 638.0 feet to Corner No. 3; thence due North 445.0 feet to Corner No. 4; thence North 35° 00' East 310.0 feet to Corner No. 5; thence South 55° 00' East 422.0 feet to Corner No. 6; thence South 15° 48' East 605.7 feet to Corner No. 1, the place of beginning.

Area 2 is more particularly described as follows:

Starting from Corner No. 1 of the Blue Grass claim as the initial point, Corner No. 1 of Area No. 2, the place of beginning, bears South 85° 55' East 268.7 feet; thence North 32° 35' East 428.5 feet to Corner No. 2 which is on the common side line of the North Star and Blue Lead claims, both patented under Mineral Survey No. 3242; thence South 47° 23' East 1,257.5 feet along that common side line to Corner No. 3; thence South 49° 58' East 596.8 feet to Corner No. 4; thence South 30° 02' East 970 feet to Corner No. 5; thence North 50° 13' West 1,402.0 feet to Corner No. 6; thence North 3° 31' West 818.4 feet to Corner No. 1, the place of beginning.

EXPLORATION PROJECT CONTRACT
CORONADO COPPER AND ZINC COMPANY
DOCKET NO. DMEA-2746

EXHIBIT "A"

Description of the Work

The objective of this project is the exploration of the areas designated on the map, Figure 2, as Area 1 and Area 2. As shown on the said map, the work is to be performed in 2 stages and is as follows:

STAGE I

Area 1 is to be explored by drifting and crosscutting in cross section a minimum of 6 by 8 feet in the clear, approximately 1220 feet in a northwesterly direction on the 400 level of the Moore shaft, to disclose the downward extensions of mineralization indicated by surface drill holes No. 65 and No. 66.

Area 2 is to be explored to test an unexplored area between the Moore shaft area and the Republic mine area, by diamond drilling from the surface through the middle Abrigo formation 11 EX or AX size drill holes totaling approximately 6500 feet but averaging 590 feet per hole.

The location of these drill holes is spotted on the said map in regular pattern for convenience; but it is intended that information gained from any drill hole may dictate a change in the location, attitude, and extent of succeeding holes. All such changes shall be subject to prior approval of the Government.

STAGE II

If, in the opinion of the Government, the work under Stage I is sufficiently favorable, then, in this stage, about 2000 feet of additional diamond drilling, either from the surface or underground locations in Area 1 and/or Area 2, and 300 feet of additional drifting and/or crosscutting in Area 1 may be undertaken. This work may be done concurrently or consecutively.

dmea 2746

CORONADO COPPER AND ZINC COMPANY
1206 PACIFIC MUTUAL BUILDING
523 WEST SIXTH STREET
LOS ANGELES 14, CALIFORNIA
TELEPHONE MADISON 6-3231

October 15, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
OCT 24 1952

Mr. C. O. Mittendorf, Administrator
Defense Minerals Exploration Administration
Washington, D. C.

Dear Mr. Mittendorf:

Herewith you will find our Application (Form MF-103) in quadruplicate, for Aid in an Exploration Project, Pursuant to DMEA Order 1, Under the Defense Production Act of 1950, as Amended.

The Application is for aid in an exploration project to be conducted in, and adjacent to, one of the mines of the applicant at Johnson Camp, Dragoon, Arizona. The work will consist of drifts and crosscuts on the 400, 500 and 600 levels of the Moore Shaft; diamond drilling from the surface and diamond drilling underground, if exploration drifts and crosscuts justify.

Herewith you will also find maps, in quadruplicate, as follows:

Figure 1, Plate I, entitled -	Geologic map of the Johnson Camp District.
Figure 2 entitled -	Moore Shaft Area, Diamond Drill Holes, Geology and Underground Workings.
Figure 3, Plate II, entitled -	Structure Contour and Garnetite Isopach Map, Johnson Camp, Arizona.

This Application divides the project into five divisions designated as Plans A, B, C, D and E, embraced in areas designated as areas Numbers 1, 2 and 3.

It is our understanding that the work designated under the five Plans does not have to be completed to the extent provided for if, as the work progresses, evidence indicates that work in any, or all, of the Plans should be curtailed or discontinued.

It is also our understanding that work can be discontinued in any of the Plans without effecting the status of any of the other Plans.

Plan A is the only Plan embraced in Area No. 1.
Plans B and E are embraced in Area No. 2.
Plans C and D are embraced in Area No. 3.

We assume that Government may certify a discovery in one area without discontinuing Government aid in the other areas. Also that Government may certify or recognize a discovery under one Plan without discontinuing Government aid under the other Plan in the same area.

Coronado Copper and Zinc Co.
1206 Pacific Mutual Building
Los Angeles 14, California

We will appreciate advice as to whether our impressions, as indicated above, are correct.

Mr. Fred E. Gray, the Mine Manager at Johnson Camp, Mr. Arthur Baker III, Geologist, and the undersigned had an interesting meeting with Mr. Walter Storm at the University of Arizona on October 6th. We endeavored to draw up this Application to conform with his recommendations.

Very truly yours,

R. W. Moore, Pres. & Gen'l. Mgr.
CORONADO COPPER AND ZINC COMPANY

RWM:en
Encls.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

Department of the Interior
Defense Minerals Administration

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 2746
Metal or Mineral
Date Received 10-24-52
Estimated Cost
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: Coronado Copper and Zinc Company, a corporation under the laws of the State of Nevada
1206 Pacific Mutual Building, Los Angeles 14, California
(Herewith find Application in quadruplicate. The answers to instructions are attached hereto)

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

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

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

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

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

(*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

(*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

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

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

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

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

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

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

5. *The exploration project* [redacted] *a* [redacted] ate the mineral or minerals for which [redacted] w [redacted] to explore .....

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(*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 October 15, 1952, 195...

Coronado Copper and Zinc Company
(Applicant)

By Roy W. Moore

R. W. Moore, Pres. & Gen'l. Mgr.

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

Coronado Copper and Zinc Co.
1206 Pacific Mutual Building
Los Angeles 14, California

October 15, 1952

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

1. Name of applicant:

(a) Coronado Copper and Zinc Company
1206 Pacific Mutual Building
Los Angeles 14, California

(b) Coronado Copper and Zinc Company is a corporation, incorporated under the laws of Nevada.

(c) Roy W. Moore, President; Henry T. Mudd, First Vice President; Blair W. Stewart, Second Vice President; A. L. Davidson, Secretary, and C. W. Six, Treasurer and Assistant Secretary.

The address of all of the above officers is 1206 Pacific Mutual Bldg., Los Angeles 14, California.

2. General:

This application, maps and accompanying papers are filed in quadruplicate herewith.

3. Applicant's property rights:

(a) The proposal of the applicant is to conduct exploration work by diamond drilling from the surface and underground, and underground by drifts and crosscuts under five Plans designated as Plan A (Map Figure 2); Plan B (Map Figure 2 and Map Figure 3); Plan C (Map Figure 2); Plan D (Map Figure 2) and Plan E (Map Figure 3).

The areas mentioned are shown on one or more maps enclosed herewith and it is within the vertical boundaries of those areas that the work under this project is to be confined. The metes and bounds of the areas are given later on in this application.

Plan A consists of underground development work within Area No. 1 which covers portions of the surfaces of the following mining claims:

Blue Grass (patent applied for, Mineral Survey No. 4340)
Arizona (patent applied for, Mineral Survey No. 4340)
Miantenomah (patented) Mineral Survey No. 330)

Plan B consists of underground development work and
Plan E provides for diamond drilling from the surface. The two Plans are embraced within Area No. 2 which covers parts of the surfaces of the following mining claims:

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3. (a) Continued:

Blue Lead (patented) Mineral Survey No. 3242).
Southern Cross (patented) Mineral Survey No. 3242)
A-Number One (patent applied for, Mineral Survey No. 4314).
A-Number Two (patent applied for, Mineral Survey No. 4314).
Blue Lead Extension (patented) Mineral Survey No. 3242.
Dwarf (patented) Mineral Survey No. 3242.
Little Bush (patented) Mineral Survey No. 3242.

Plans C and D, consisting of drifts and crosscuts on the 500 and 600 Levels, are within the vertical boundaries of Area No. 3 which covers parts of the surfaces of the following claims:

Ross (patented) Mineral Survey No. 1717.
Carlton (patent applied for, Mineral Survey No. 4340).

The areas mentioned above under this heading are tied by surveys to the initial point which is the common corner of three mining claims as follows:

Corner No. 1 of the Blue Grass; Corner No. 1 of the Blue Lead and Corner No. 2 of the Little Bush mining claims.

The coordinates of this initial point, as shown on Map Figure 2, are N 11069.13; E 6166.96.

The metes and bounds of the three areas embracing the five Plans are as follows:

Plan A - Area No. 1: The bearing from the initial point described above to Corner No. 1 of Area No. 1, which embraces Plan A, is N 62° 20′ W 180.6 ft., the place of beginning; thence S 35° 00′ W 194.04 ft. to Corner No. 2 of Area No. 1; thence N 55° 00′ W 710.0 ft. to Corner No. 3 of Area No. 1; thence due North 326.0 ft. to Corner No. 4 of Area No. 1; thence N 35° 00′ E 210.0 ft. to Corner No. 5 of Area No. 1; thence S 55° 00′ E 550.0 ft. to Corner No. 6 of Area No. 1; thence S 15° 48′ E 447.8 ft. to Corner No. 1 of Area No. 1, the place of beginning.

Plans B & E - Area No. 2: The bearing from the initial point to Corner No. 1 of Area No. 2, which embraces Plans B & E, is S 85° 55′ E 268.72 ft., the place of beginning; thence N 32° 35′E 428.50 ft. to Corner No. 2 of Area No. 2, being on the northeasterly side line of the Blue Lead claim; thence S 47° 23′E 1257.5 ft. along the northeasterly side line of the Blue Lead claim to Corner No. 3 of Area No. 2, said corner coinciding with the NE corner of the Blue Lead claim and the SE corner of the North Star claim; thence S 49° 58′ E 996.8 ft. to Corner No. 4 of Area No. 2, said corner coinciding with the NE corner of the A-Number Two Claim; thence S 30° 02′ W 770.0 ft. to Corner No. 5 of Area No. 2, this course and distance being coincident with a part of the east side line of Claim A-Number-Two; thence N 50° 13′ W 1950.6 ft. to Corner No. 6 of Area No. 2; thence N 3° 38′ W 555.1 ft. to Corner No. 1 of Area No. 2, the place of beginning.

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3. (a) Continued:

Plans C & D - Area No. 3: The bearing from the initial point described above to Corner No. 1 of Area No. 3, which embraces Plans C & D, is N 18° 21' W 933.3 ft., the place of beginning; thence N 55° 00' W 750.0 ft. to Corner No. 2 of Area No. 3; thence N 35° 00' E 450.0 ft. to Corner No. 3 of Area No. 3; thence S 55° 00' E 750.0 ft. to Corner No. 4 of Area No. 3; thence S 35° 00' W 450.0 ft. to Corner No. 1 of Area No. 3, the place of beginning.

(b) The area which embraces the holdings of applicant has been known for thirty or more years as "Johnson Camp." The principal old mine is the "Republic" which is owned by the applicant.

The exploration work described herein is from, and in the vicinity of, the Moore Shaft which was sunk and all exploration work done therefrom subsequent to 1948. The principal production has been from this shaft during the past two years.

(c) All the patented land described herein is owned in fee; unpatented claims are held by possessory rights.

(d) No leases involved.

(e) No liens or encumbrances on any of the holdings of the applicant.

(f) Unpatented claims mentioned in this application have been surveyed for patent under Mineral Survey No. 4340. The unpatented claims in this category are:

Locations Recorded

	Records of Mines		Bisbee, Arizona	
	Book	Page	Docket	Page
Arizona	19	569		
Amended	39	138		
Amended			29	107
Blue Grass	25	523		
Amended	45	501		
Amended			29	106
Carlton	62	238		
Amended			29	108

4. Physical description:

(a) The Moore Shaft which is 800 ft. deep has two hoisting compartments and a manway. The 400 level is 384 ft. and the 500 level 541 ft. below the collar. Level stations have also been cut at approximate depths of 650 ft. and 750 ft. below the collar. All development work to date has been on, and from, the 400 and 500 levels and all ore extracted has been stoped from between those two levels.

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4. (a) Continued:

In addition to the shaft, development work consists of 5679 ft. of drifts and crosscuts and 1810 ft. of raises.

Hoisting equipment consists of a 200-HP double drum Vulcan hoist and two double decked cages. Ore is hoisted in mine cars.

Underground equipment consists of the required amount of track, pipe, mine cars, air drills, shovel loaders, etc.

In addition to the hoist, surface equipment consists of 3 electric motor-driven compressors that supply an adequate amount of air. A 75 ft. steel Headframe is erected over the shaft.

All mine workings are accessible for examination purposes.

The applicant has done all of the work described and owns all equipment.

(b) Production from the Moore Shaft area up to September 1, 1952 amounted to 81,773 tons of ore having an average metal content of 2.52% copper and 6.58% zinc. All of this ore was milled on the property. The selective flotation plant, which is owned by applicant, produces zinc concentrate and copper concentrate which are sold to smelters.

The current production is around 6600 tons of ore per month.

The estimated ore reserve of applicant at Johnson Camp as of September 1, 1952 was 180,000 tons, with an average metal content of 2.58% copper and 6.67% zinc.

(c) The geologic features of the property are described as follows:

The Johnson Camp orebodies are pyrometasomatic copper-zinc deposits in Paleozoic carbonate rocks. The Paleozoics lie in a uniform monocline striking northwest and dipping about 40° northeast (Figure 1). The major productive beds are those in the middle member of the Cambrian Abrigo formation, but all of the formations are locally mineralized.

Most of the orebodies of the Middle Abrigo lie in the uppermost 50 ft. of the member, but some orebodies have been found in other, lower, beds of the member. The orebodies are elongate lenses lying parallel to the bedding, varying in size from 100 - 300 ft. wide, 6 - 70 ft. thick and 200 - 700 ft. long. The larger orebodies are localized in the crests of shallow anticlines, and trend either about due east or about N 10° W. A few smaller orebodies, and offshoots of the larger ones, are localized by the intersections of faults with the favorable beds. All of the orebodies in the Middle Abrigo member are closely associated with large masses of garnetite. Of the proposed exploration plans, all are directed toward the Middle Abrigo favorable beds.

A description of the district is given in Arizona Bureau of Mines Bulletin No. 156, "Arizona Zinc and Lead Deposits," Part I, pp. 30-39.

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4. (c) Continued:

On Figure 1, the surface geologic map of the district, the boundary of the property owned by the applicant is shown.

The maps that accompany this application are:

Plate I, Figure 1: Surface Geology of Johnson Camp vicinity.

Figure 2: Moore Shaft Area; Diamond drill Holes; Geology and underground Workings.

This map, in addition to the information indicated above, shows the proposed underground exploration which applicant wishes to drive under this project. The exploration drifts and crosscuts are indicated as Plan A, Plan B, Plan C, and Plan D.

Plate II, Figure 3: Structure Contour and Garnetite Isopach Map, Johnson Camp, Arizona.

This map shows location of Plan "E" which calls for the drilling from the surface of 20 diamond drill holes to the favorable Middle Abrigo member beyond and to the southeast of the face of the proposed 700 ft. extension (Plan B) of the 500 level from the Moore Shaft.

These maps need not be returned.

The orebodies consist of sulphides of copper and zinc in garnetite which occurs as a replacement of a part of the Middle Abrigo member of the Cambrian Abrigo formation.

Applicant's reason for wishing to do the diamond drilling and underground exploration is to explore for new orebodies in the favorable horizon to the southeast and northwest of known orebodies in the Moore Shaft area and also to explore the same favorable horizon in the fault blocks to the north at the elevations of the 500 and 600 levels and beyond the limits of the present developed area.

Assay maps are not made and are therefore not available. Ore removed from each stope is sampled and assayed separately each day and samples were taken from all exploration and development work in the past. Estimate of the grade of ore reserve is based on these results, as well as on assays of diamond drill cores recovered from numerous holes through the blocks of ore.

(d) A graded road extends 6 miles from Johnson Camp to Dragoon, the shipping point on the Southern Pacific Railroad. This road crosses paved Arizona Highway No. 84 two and one-half miles from Johnson Camp. This highway is part of a transcontinental route.

4. (d) Continued:

Supply points are Willcox, 20 miles to the east on Highway No. 84, Benson 17 miles and Tucson 70 miles to the west on Highway No. 84.

There are more than 150 residents in Johnson Camp, all because of this operation. Busses carry 42 children to public schools in Cochise and Benson. Some employees live in Willcox, Cochise and Benson.

(e) Manpower is plentiful at the present time, as are, in general materials, supplies and equipment. A sufficient water supply for domestic purposes is obtained from the company well situated 8-1/2 miles to the northeast.

Water for the mill is being pumped from the Moore Shaft. The supply is more than adequate.

There is an adequate supply of power which is purchased from Sulphur Springs Valley Electric Cooperative, Inc., Willcox, Arizona.

5. The exploration project:

(a) All work proposed for this project, whether by diamond drilling or underground exploration by drifts and crosscuts, will be for the purpose of exploring for unknown orebodies of minerals of copper and zinc.

(b) Refer to Figure 3, which is a map of the present mine workings of the Moore Shaft area. This map shows the locations of the proposed drifts and crosscuts that applicant wishes to drive. It is obvious that the drifts and crosscuts are laid out on the map in a more or less ideal manner, which is necessary in view of the lack of information relative to faults which, if encountered, probably will make it necessary to change bearings of drifts and crosscuts in order to reach favorable horizons in their offset positions.

Each piece of work is designated as a Plan. The five Plans are described as follows:

Figure 2 - Plan A - Area No. 1:
400 Level West Drift. This drift will be advanced 50 ft. at the sole expense of the applicant, to the easterly boundary of the area within which the work designated as Plan A is to be done. The drift will then be continued 460 ft. to the northwest, as a part of this project, in the favorable horizon to test the favorable beds down-dip from thin low-grade intersections of mineralization in the surface drill Holes No. 65 and No. 66. It is highly probable that this drift will be terminated when it strikes the Mammoth Fault, on which there is a displacement of considerable magnitude, but it is hoped that the downward extension of the ore encountered in drill Holes No. 65 and No. 66 will be reached before the hanging wall of the Mammoth Fault is cut. A crosscut will then be driven more or less due north for a distance of approximately 210 ft. to pick up the favorable garnetite horizon on the footwall side of the Mammoth Fault. The favorable horizon will then be drifted on to the northwest for a distance of approximately 550 ft.

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5. (b) Continued:

The total amount of work outlined above is as follows:

Drifting		1,010 ft.
Crosscutting		210 ft.
Total	-	1,220 ft.

As the Mammoth Fault probably will limit the length of drifting to be done on the hanging wall side of the fault, the applicant herewith requests permission to apply the amount of the reduction in footage to some other location within this project.

Figure 2 & Figure 3 - Plan B - Area No. 2:
East 500 Level Drift. This drift will be extended 80 ft. in a south easterly direction from its present face to the northwesterly boundary of the project area at the sole expense of the applicant. This drift will then be extended to the southeast within the project area for a length of 700 ft. as a part of this project. This work is laid out to test the unknown ground easterly of the Moore Shaft developed area. It will be driven in the favorable beds. The first 500 ft. of the drift within the project area will be through ground that has been partially explored by surface diamond drill holes, which should have located a large orebody if one were present, but could have missed small ones. Beyond 500 ft. the drift will be in virgin ground but under an area in which J. R. Cooper and L. C. Huff reported geochemical anomalies in bedrock and soil as a result of their Geochemical Survey made for the U. S. Geological Survey in 1949 and as described in "Geological Investigations and Geochemical Prospecting Experiment at Johnson, Arizona" Economic Geology, Volume 46, 1952.

Under Plan E the ground to the southeast of face of the east drift of the 500 Level, as extended, will be prospected by diamond drilling from the surface and within Area No. 2 where work under Plan B will be done.

Figure 2 - Plan C - Area No. 3:
A crosscut will be driven to the north on the 500 Level from the face of the hanging wall west drift in the "C" orebody for a distance of 185 ft. at the sole expense of the applicant, to the southwesterly boundary of the area within which the work outlined under Plan C and Plan D will be done. Under Plan C the crosscut will then be continued approximately 220 ft. as a part of this project to the favorable beds from which point the favorable beds will be prospected by a drift extending 500 ft. to the northwest.

The amount of work to be done under this project, as outlined above for Plan C, is as follows:

Crosscutting		220 ft.
Drifting		500 ft.
Total	-	720 ft.

In surface diamond drill Hole No. 89, the uppermost 100 ft. of the Middle Abrigo member was tactitized, rather than garnetized, a situation that has been found in only one other place in the district - near a large fault in the Republic Mine. Three orebodies (Republic Manto, West Manto and 700 Station Manto), which produced well over 100,000 tons of ore, were

associated with this anomalously tactitized area in the Republic. For this reason, the area around diamond drill Hole No. 89 appears highly favorable. Furthermore, diamond drill Hole No. 89 intersected 3 ft. of intermediate-grade ore immediately below the anomalously tactitized beds.

Figure 2 - Plan C - Area No. 3:
Since the orebodies associated with the Republic anomalously tactitized area were less than 50 ft. wide over much of their length, it may be advisable to prove with numerous short diamond drill holes the anomalously tactitized zone on either side of the above proposed 500 ft. of drift, a plan that probably would be more effective than diamond drilling from the surface. This underground diamond drilling is to be a part of the surplus diamond drilling footage provided for in this application.

A part or all of the balance of the surplus diamond drilling listed on Page 10 of this application may be similarly used for short hole drilling from the drifts and crosscuts driven in any of the three Areas under the provisions of this project.

Figure 2 - Plan D - Area No. 3:
600 Level Moore Shaft. Deepening of the Moore Shaft was recently completed and the so-called 600 and 700 Stationswere cut. They are respectively 650 and 750 ft. below the collar of the shaft. No drifting has been done on either of these two levels.

The applicant expects to drive a crosscut from the 600 Level Station for a distance of 870 ft. to the north, at its own expense, to the southerly boundary of the project area which embraces Plans C and D. The crosscut will then be continued, as a part of Plan D under this project, in a northwesterly direction within the boundaries of the area embracing Plans C and D, for a distance of approximately 415 ft. to the favorable beds from which point the favorable beds will be prospected by drifting for a distance of 400 ft. to the northwest. This area to be prospected by drifting will be down-dip on the favorable beds from the northwesterly drift described above under Plan C.

The total amount of work proposed under Plan D is as follows:

Crosscutting		415 ft.
Drifting		400 ft.
Total	-	815 ft.

Figure 3 - Plan E - Area No. 2:
Diamond drilling to test unknown ground between the Republic Mine and the Moore Shaft area, reaching the favorable beds 50 ft. more or less below and 50 ft. above the 500 Level elevation. The Plan, as laid out, embraces 20 holes involving approximately 13,000 ft. of drilling. This is purely a wildcat exploration in beds that are known to be favorable and in which all our important orebodies have been discovered. The holes are laid out in a saw-tooth pattern in order to cut the favorable beds at various horizons and also to avoid missing narrow shoots or pipes of ore that might pass between holes on any of the known trends; that is, due E, N-10°-W, or N-35°-E. (This latter is the trend of intersections of northeasterly striking faults with the favorable beds).

(c) The work will start within 30 days and be completed within 24 months from the date of an exploration contract.

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Los Angeles 14, California

5. (d) Continued:

Coronado Copper and Zinc Company has been active for the past nine years and its operations at Johnson Camp, Arizona, have been on a producing basis since the 200-ton selective flotation milling plant was put into service in May, 1945, with the exception of the period of one year between June, 1949 and July, 1950 when the mine and mill were idle because of low metal prices.

The Mine Manager at Johnson Camp, Mr. Fred E. Gray, is a graduate engineer and has been an operator for over twenty years. Mr. Gray will continue as Mine Manager at Johnson Camp and will supervise the operations in connection with this exploration project contract if it is granted.

The undersigned has been active in the mining business for over forty years.

6. Estimate of costs:

See separate sheet - next page.

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Los Angeles 14, California

6. Estimate of costs:

Map Figure 2

	Drifts Feet	Crosscuts Feet	Total Feet	Price per Ft.	Total Cost	
Plan A	1010	210	1220	$ 40.00	$48,800	
Plan B	700			40.00	28,000	
Plan C	500	220	720	42.00	30,240	
Plan D	400	415	815	42.00	34,230	
Surplus allowance for drifting and crosscutting in Project Areas from any of above new work, if conditions warrant.			500	42.00	21,000	
						$162,270

Map Figure 3

Plan E

20 Diamond Drill Holes from surface	13,000	4.56	59,280	
Surplus Diamond Drilling, if conditions warrant, from drifts and/or crosscuts driven under this Project and within the described Areas No. 1, No. 2 and No. 3.	2,000	4.07	8,140	
				67,420
				$229,690

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6. Estimate of costs (Continued):

(a) Independent contracts:

Most or all of the underground drifting and crosscutting will be done under contract insofar as drilling, blasting and mucking are concerned. This type of contract cannot be classed as an independent contract because all of the men will be carried on the payroll of applicant at guaranteed wages of the classifications under which they are employed. Their extra earnings will be governed by the work accomplished over certain minimums.

Diamond drilling underground, if an allowance for surplus diamond drilling is granted, will be done by company employees at regular wages.

Diamond drilling from the surface will be done under contract, probably with Continental Drilling Company, 915 Pacific Mutual Building, Los Angeles, California, at specified prices per foot as indicated below. Any extra costs in connection with cementing of holes, reaming and casing of holes, will be paid for by applicant at actual cost, and charged to project.

Continental Drilling Company has been drilling under contract for applicant at Johnson Camp for a number of years. Their prices per foot, under their present wage scale, are as follows:

> Footages drilled with AX Bit - $3.30 per foot up to a depth of 300 ft. Below 300 ft. the increment of increase is at the rate of 15¢ per foot for each additional 100 ft. drilled.
>
> For holes drilled with EX Bits the price per foot is $3.00 per foot for the first 300 ft. and then the increment is 15¢ per foot for each additional 100 ft. drilled.

(b) Labor, supervision, consultants:

All costs for labor, supervision, engineering, and mine geologist are included in over-all costs given elsewhere in this application for diamond drilling and underground exploration work. There will be no charge for geological consultants.

(c) Operating materials and supplies:

Materials and supplies to be used under this project are included in the unit costs stated elsewhere in this application.

(d) Operating equipment:

The necessary operating equipment will be furnished by the applicant. A minor charge is included in unit cost estimates given elsewhere in this application for use of equipment to be used directly for work done under this project.

(e) Rehabilitation and repairs:

There will be no charges to the project under these classifications.

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6. Estimate of costs (Continued):

(f) New buildings, improvements, installations:

There will be no charges for new buildings, improvements or installations. None will be required.

(g) Miscellaneous:

The costs of the repairs to, and maintenance of equipment to be used exclusively for this work, and the proper portions of repairs and maintenance of equipment such as hoist, mine cars, pumps, etc. used in connection with the work under this project, are included in the unit costs given in this application.

Allowances for accounting, workmen's compensation and employers' liability insurance, payroll taxes, and assaying, which are included in unit costs given elsewhere in this application, are based on actual costs experienced during past operations.

(h) Contingencies:

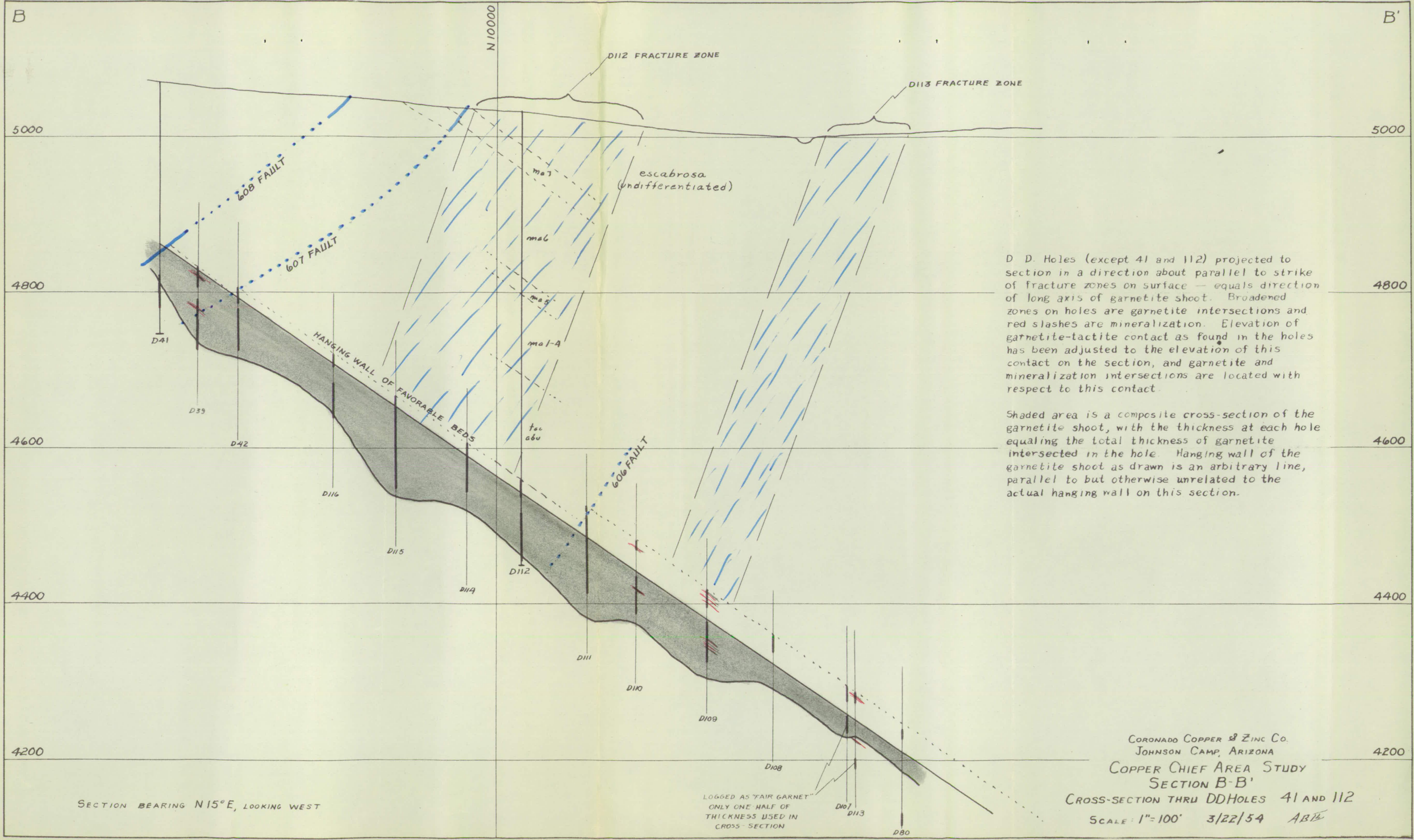
No allowance for contingencies has been made except an increase of 5.4% over costs experienced in 1952, to cover wage increases and expected increases in maintenance and operating supplies. Costs of power and explosives were excluded in arriving at the factor of 5.4%.

A wage increase of 4¢ per hour became effective October 1st, 1952 for all employees working at hourly rates. An application for a further increase of 4¢ per hour has been filed with the Wage Stabilization Board.

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, are included in the estimated costs listed herein.

7. (a) The applicant, Coronado Copper and Zinc Company, is prepared to furnish its share of the costs of the proposed project in accordance with the regulations covering Government participation.

(b) The applicant will supply the money to pay for its half of the costs listed herein.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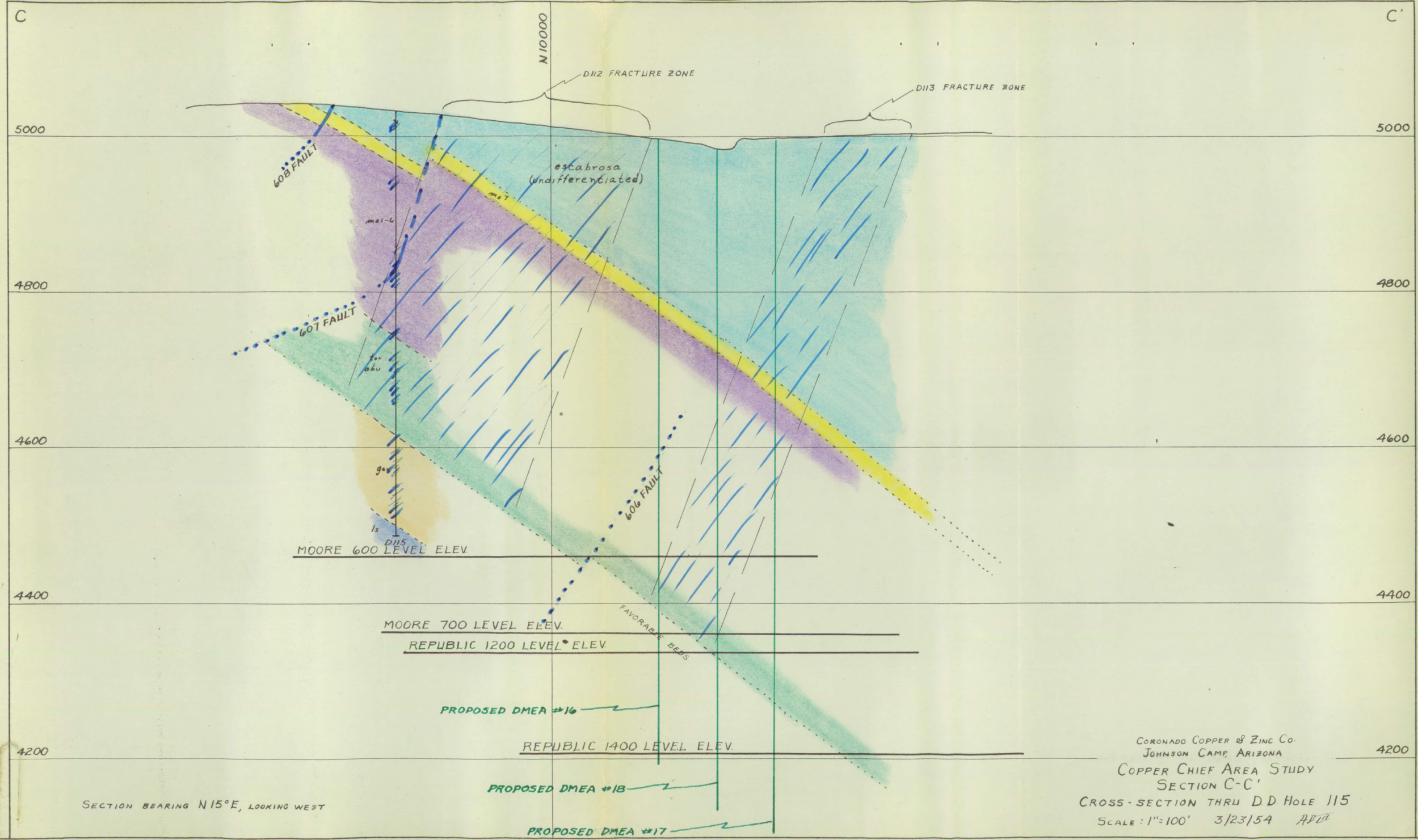
ma5
ma1-A
tau
abu
HANGING WALL OF FAVORABLE BEDS
D41
D39
D42
D116
D115
D114
D112
D111
D110
D109
D108
D107
D113
D80
LOGGED AS "FAIR GARNET" ONLY ONE HALF OF THICKNESS USED IN CROSS-SECTION
SECTION BEARING N15°E, LOOKING WEST
D D. Holes (except 41 and 112) projected to section in a direction about parallel to strike of fracture zones on surface — equals direction of long axis of garnetite shoot. Broadened zones on holes are garnetite intersections and red slashes are mineralization. Elevation of garnetite-tactite contact as found in the holes has been adjusted to the elevation of this contact on the section, and garnetite and mineralization intersections are located with respect to this contact.
Shaded area is a composite cross-section of the garnetite shoot, with the thickness at each hole equaling the total thickness of garnetite intersected in the hole. Hanging wall of the garnetite shoot as drawn is an arbitrary line, parallel to but otherwise unrelated to the actual hanging wall on this section.
CORONADO COPPER & ZINC CO.
JOHNSON CAMP, ARIZONA
COPPER CHIEF AREA STUDY
SECTION B-B'
CROSS-SECTION THRU DD HOLES 41 AND 112
SCALE: 1"=100' 3/22/54 ABH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D112 FRACTURE ZONE
D113 FRACTURE ZONE
5000
4800
4600
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escabrosa
(undifferentiated)
ma1-6
ma7
gv
ls
D115
MOORE 600 LEVEL ELEV.
MOORE 700 LEVEL ELEV.
REPUBLIC 1200 LEVEL ELEV.
REPUBLIC 1400 LEVEL ELEV.
FAVORABLE BEDS
PROPOSED DMEA #16
PROPOSED DMEA #18
PROPOSED DMEA #17
SECTION BEARING N 15° E, LOOKING WEST
CORONADO COPPER & ZINC CO.
JOHNSON CAMP, ARIZONA
COPPER CHIEF AREA STUDY
SECTION C-C'
CROSS-SECTION THRU D.D. HOLE 115
SCALE: 1" = 100' 3/23/54

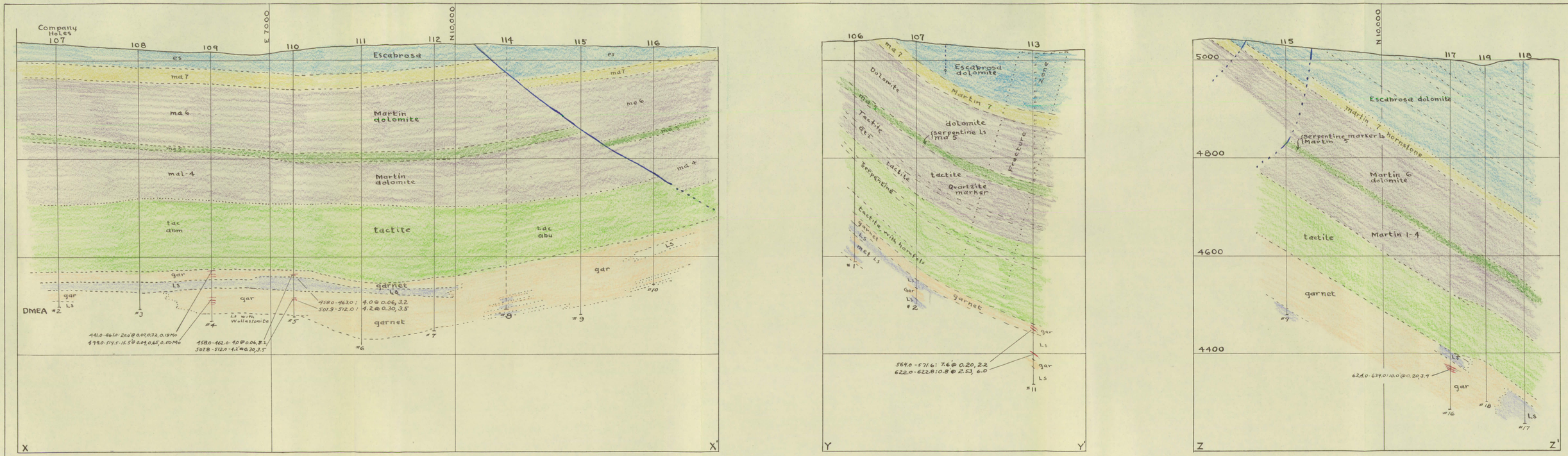


FIG. 4, SECTIONS SHOWING RESULTS OF EXPLORATION, AREA 2, DMEA 2746, CONTRACT Idm-E 522, CORONODO COPPER & ZINC CO., ARIZONA

Talbert

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

SEP - 7 1955

Mr. Thomas H. Brading
DMEA Auditor
224 New Customhouse
Denver 2, Colorado

Re: Report of Review
Coronado Copper and Zinc Co.
Idn-E522, DMEA-2746

Dear Tom:

Your last Monthly Work Load Report indicates the release of a Report of Review covering the referenced Exploration Project Contract. Furthermore, a copy of a memorandum dated August 26, 1955, addressed to Mr. T. A. Christensen by the Executive Officer, Region III, states that you released this Report of Review to his office on August 18, 1955.

To date the Washington copies have not been received. Please submit at once.

Sincerely yours,

SIGNED

E. D. Talbert, Acting Chief
Contract Administration
and Audit Division

EDTalbert/wb
September 7, 1955

Copy to: Docket
Admr. Reading File
Mr. Chambers

RCB

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

224 New Customhouse
Denver 2, Colorado

August 15, 1955

Mr. C. W. Six, Treasurer
Coronado Copper and Zinc Company
1206 Pacific Mutual Building
523 West Sixth Street
Los Anglees, California

Re: Royalty payments, DMEA Docket 2746, (Lead-Zinc) Contract Idm-E522, Coronado Copper and Zinc Company, Cochise County, Arizona.

Dear Mr. Six:

We acknowledge receipt of royalty calculation sheets and check for $3,075.51 in payment of DMEA Royalties for the period November 1, 1954 through May 31, 1955.

Please make future royalty checks payable to the Defense Minerals Exploration Administration.

Yours very truly,

W. M. Traver

RDB/vj

cc: Royalty File E522
W. R. Storms
Sec. Opr. Comm. (2)
Berkenkotter
Chron

RECEIVED
AUG 18 1955

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

RECEIVED AUG 4 1955

224 New Customhouse
Denver, Colorado

August 1, 1955

Mr. George D. Dub, President
Coronado Copper and Zinc Company
1206 Pacific Mutual Building
Los Angeles, California

Re: Docket DMEA 2746 (Copper, Zinc)
Contract Idm-E522

Dear Mr. Dub:

We wish to direct your attention to Article 5(b) of Contract Idm-E522 which states that upon completion of project work the operator shall provide theGovernment with five copies of a final report covering the work completed under the contract. The amount of $250.00 withheld from money due you for work completed April 1955 will be approved when your final report is received. Your attention to this matter will be appreciated.

Very truly yours,

W. M. Traver
Executive Officer, DMEA
Field Team, Region III

WLD:dja

cc: Sec.Op.Comm.(3)
Faick
Storms
Harshman
Townsend
Subject
Chron

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

Defense Minerals Administration
RECEIVED
MAY 5 - 1955

224 New Customhouse
Denver 2, Colorado

April 29, 1955

Mr. C. W. Six, Treasurer
Coronado Copper and Zinc Company
1206 Pacific Mutual Building
523 West Sixth Street
Los Angeles, California

Re: Docket No. DMEA 2746
Contract Idm-E522

Dear Mr. Six:

Reference is made to First Royalty Audit Certificate and Report transmitted to you on April 25, 1955, by Donald T. Finch, DMEA Auditor.

As per this report you have a credit of royalties due in the amount of $6.39. You may deduct this amount from future royalty payments under DMEA Contract Idm-E522.

Yours very truly,

W. M. TRAVER,

W. M. Traver
Executive Officer
DMEA Field Team, Region III

RDB:ld
Copy to: Sec. Opr. Comm. (2)
R. D. Berkenkotter
W. R. Storms
Royalty File E522
Chron

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

APR 22 1955

Mr. Donald T. Finch
DMEA Auditor
224 New Customhouse
Denver 2, Colorado

Re: Coronado Copper & Zinc Co.
Contract No. Idm-E522
Docket No. DMEA-2746

Dear Mr. Finch:

This acknowledges receipt of your First Royalty Audit Report and Certificate issued on the above-cited contract.

The Report is accepted and may be distributed in the usual manner.

I may use a part of the report in the royalty audit procedure. If I do I shall change it so that the company will not be identified, or I may request assistance from you in making the changes.

Sincerely yours,

(Signed) J. L. Chambers

Jay L. Chambers, Chief
Contract Administration
and Audit Division

JLChambers/wb
April 21, 1955

Copy to: Docket
Admr. Reading File
Mr. Chambers

R.C.S.

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

224 New Customhouse
Denver 2, Colorado

March 22, 1955

Mr. C. W. Six, Treasurer
Coronado Copper and Zinc Company
1206 Pacific Mutual Building
523 West Sixth Street
Los Angeles, California

Re: Docket DMEA 2746 (Copper-Zinc)
Contract Idm-E522

Dear Mr. Six:

Your attention is directed to an inadvertent error in the first paragraph in Amendment No. 4.

Please change your copy of the amendment so that the figure 1520 will read 1161. Government Field Offices and the Washington Office DMEA are advised of the change by copies of this letter.

Very truly yours,

W. M. Traver

W. M. Traver
Executive Officer, DMEA
Field Team, Region III

JWT:sr

cc Fred E. Gray
Chairman Op. Comm. (3)
Harshman
Storms
Faick
Townsend
Amendment File
Chron

File Copy
Surname

UNITED STATES
DEPARTMENT OF THE INTERIOR 500
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

MAR 17 1955

Mr. W. M. Traver, Executive Officer
DMEA Field Team, Region III
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA-2746 (Copper-Zinc)
Coronado Copper and Zinc Company
Republic Copper-Zinc Mine
Cochise County, Arizona
Contract No. Idm-B522

Dear Mr. Traver:

With reference to Amendment No. 4 to the cited contract which was prepared and executed by you, we wish to call your attention to the enclosed memorandum from J. L. Hofflund, Acting Assistant Solicitor, Defense Minerals, dated March 9, 1955.

As stated in Mr. Hofflund's memorandum, we will make the change from 1520 feet to 1161 feet upon advice from you that this correction has been made by both your office and the Operator. When the change has been effected, the Finance Officer should be notified.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

Enclosure

JWAlt/er 3/11/55

APPROVED:

J. H. Hedges
Member, Bureau of Mines

Thor H. Kiilsgaard
Member, Geological Survey

Copy to: Docket
Admr R File
Op. Committee
Base Metals
Mr. M.E. Volin, USBM
Mr. Kiilsgaard, USGS
Chron.

R.C.S.

Rubin

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

MAR - 9 1955

Memorandum

To: The Administrator, DMEA
Attention: ~~E. W. Ellis~~ W. R. Griswold

From: Acting Assistant Solicitor, Defense Minerals

Subject: Docket No. DMEA-2746 (Copper-Zinc), Contract No. Idm-E522, Coronado Copper and Zinc Company, Cochise County, Arizona

We have reviewed Amendment No. 4 executed in Region III.

The footages of work completed as set forth in the recital in the first paragraph are probably inadvertent, otherwise in excess of $19,000 would not be available for more work under the Contract. We are informed by the Audit Division that the footage should be 1,161 instead of 1,520.

Accordingly, a letter should be written to the Operator notifying him of the obvious error, that the correction will be indicated on our copies of the Contract, and that he should do likewise on his copy.

J. L. Hofflund

J. L. Hofflund
Acting Assistant Solicitor,
Defense Minerals

HCRubin:gjb 3/9/55

Copy to: DMEA Docket
Sol. Docket
~~E. W. Ellis~~ W. R. Griswold
H. C. Rubin
J. L. Hofflund
Chron. File

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 7 1955

224 New Customhouse
Denver 2, Colorado

February 3, 1955

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA 2746 (Copper-Zinc), Contract IDM-E522, Coronado Copper and Zinc Company, Cochise County, Arizona

Enclosed are the original and two copies of Amendment No. 4 to Contract IDM-E522 which has been executed to authorize additional work under the contract which can be performed within funds presently allocated under the contract. Also enclosed are three sets of data relevant to the amendment.

Copies of the amendment have been given to the operator, the Finance Office, Region III, and a copy has been retained for our files.

W. M. Traver

W. M. Traver

Enclosures

RECEIVED
MAR 1 1955
GENERAL COUNSEL
DEFENSE MINERALS
ADMINISTRATION

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Defense Minerals Exploration Administration
Denver Federal Center
Denver 2, Colorado

Defense Minerals Administration
RECEIVED
FEB 7 1955

January 17, 1955

Memorandum

To: DMEA Field Team, Region III

From: E. N. Harshman

Subject: DMEA Docket 2746 (copper-zinc), Contract Idm-E522, Coronado Copper and Zinc Company, Republic Copper-Zinc Mine, Cochise County, Arizona - Request for amendment

Enclosed are the original and 8 copies of a memorandum report by J. N. Falck of the U. S. Geological Survey concurring with the Field Team's recommendation that exploration on the 500-foot level of the Republic mine be limited to drifting about 150 feet northwesterly from the 500 WF drift and drilling a maximum of 6 holes from the end of the new drift to explore for an extension of the 320 stope ore body.

The program outlined by Falck includes 150 feet of drifting, 200 feet of diamond drilling (3 holes), and 200 feet of tentative diamond drilling (3 holes).

Nine copies of a map showing the location and bearing of the proposed drift and the location, altitude, and bearing of the 3 proposed drill holes are attached for use in preparing the amendment. The three tentative holes are to be drilled only with prior approval of DMEA and at locations acceptable to both the operator and DMEA. Their locations, altitudes, and bearings are therefore not given by Falck.

The program suggested by the Field Team and shown on the accompanying map has my approval.

E. N. Harshman

E. N. Harshman
Member, Field Team

Enclosures (18)

Box 4126 University Station
Tucson, Arizona

January 12, 1955

MEMORANDUM

To: E. M. Marshman

From: J. M. Faick

Subject: Proposed Additional Exploration in Subordinated Area No. 1: DMEA 2746, Contract Idm-2522, Coronado Copper and Zinc Company's Republic Copper-Zinc Mine, Johnson Camp, Cochise County, Arizona

In a telephone conversation of January 10, 1955, it was agreed by Marshman and Faick that the operator's proposed revisions of the above subject contract, submitted under date of December 24, 1954, should be revised to comply with the policies and intent of DMEA. The operator's proposal was explained in Hardwick's memorandum of January 3 and Faick's memorandum of January 4. The possibility that the operator's proposed work might be considered as development rather than exploration was discussed with Mr.Gray when he delivered the request to Mr.Storms on December 27, and again on January 7 when I visited his office in Johnson Camp.

The revised program which I am submitting herewith is essentially the first half of the applicant's program which, we believe, should be reduced in size in order to avoid the implication of doing development work rather than exploration.

In this revision we are proposing the driving of 150 feet of drift on 500 level and the drilling of 3 short diamond drill holes, each about 100 feet in length; this proposed exploration is illustrated on the attached figure A. It is assumed that 3 short holes will prove the existence of ore, but in case these fail to find ore the drilling of about 3 additional holes should be tentatively provided for, the locations of which will be selected at a later date by the operator with DMEA approval. Adequate funds have been provided for this project, the cost of which will be about $6800 at a minimum, and $7600 for a maximum, depending on how many holes are drilled and the depth to which they are drilled. The cost will be about as follows:

150 ft. drifting @ $40/ft.	$6,000
200 ft. of drilling @ $4.00	800
Total minimum	$6,800
200 ft. additional drilling (optional)	800
Total maximum	$7,600

As the mineralized zone previously has been penetrated in 5 places it is believed this additional drifting and drilling from 500 level will prove the existence of ore without doubt; therefore this revised project is recommended.

John N. Faick

JNF:ms

cc. Marshman (8)
Stearns

Defense Minerals Exploration Administration
Denver Federal Center
Denver 2, Colorado

January 10, 1955

Memorandum

To: Field Team, Region IV

From: E. N. Harshman

Subject: Proposed Additional Exploration in Subordinated Area No. 1: DMEA 2746, Contract Idm-E522, Coronado Copper and Zinc Company's Republic Copper-Zinc Mine, Johnson Camp, Cochise County, Arizona

Enclosed are the original and 8 copies of a memorandum report by J. N. Faick, U. S. Geological Survey on the above subject contract.

In a letter of December 24, 1954 the operator submitted a request for amendment No. 4 to permit drifting on and diamond drilling from the 500-foot level of the Republic Mine to explore for the extension ore cut in several recently completed diamond drill holes. The holes were drilled by the operator and cut ore believed to be an extension of the ore body mined in the 320 stope.

Faick calls a tention to the fact that the operators' proposal impinges on development and suggests an alternative plan of exploration on and from the 400-foot level of the mine. The alternative plan has merit and is considered sound exploration but as Faick points out its execution would involve subordination of additional ground by the operator. Conversations between Faick and the operator indicated a reluctance on the part of the operator to consider the alternative proposal.

Since it is not the policy of DMEA to coerce an operator to do exploration not specified in the contract and not acceptable to him, it appears that action on the part of the Field Team should be limited to processing the request for amendment contained in the operators' letter of December 24, 1954.

The proposed drifting and diamond drilling on and from the 500-foot level of the Republic mine is certainly desirable from the operator's point of view, but the work is believed to be more extensive than required to establish the presence of ore between the operator's diamond drill holes and the 320 stope. It appears that the new target

area can be explored by drifting a maximum of 150 feet northwest from the end of the 500 level crosscut, near the 320 stope, and drilling a maximum of 6 diamond drill holes upward from the new drift. This plan of attack if of advantage to the Government in that it will assure exploitation of any ore that may be found by drilling. It is of advantage to the operator, for development work by the operator can be done from the exploration drift and an extension of that drift.

Following discussions with the Executive Officer, Field Team Region IV, Mr. Faick was requested by telephone on January 10, 1955 to formulate a program of exploration similar to that proposed by the operator, but restricted in scope as suggested in the preceding paragraph. Nine copies of a plan map of the target area and accompanying geologic sections will be submitted by Faick to assist in preparing the amendment. These illustrations will show the location of the proposed drift on the 500-foot level, and the location, bearing and altitude of at least 2 of a possible 6 diamond drill holes.

Unexpended funds are available to complete the above suggested work and to complete at least a part of the work proposed by Faick in the area northwest of the ore discovered in the drill holes completed by the operator.

E. N. Harshman

E. N. Harshman
Member, Field Team

Enclosures 9

Box 4126 University Station
Tucson, Arizona

January 4, 1955

MEMORANDUM

To: A. M. Zaschmann

From: J. N. Faick

Subject: Proposed Additional Exploration in Subordinated Area No. 1: MMSA 2746, Contract Idm-2522, Coronado Copper and Zinc Company's Republic Copper-Zinc Mine, Johnson Camp, Cochise County, Arizona

In a letter dated December 24 Mr. F. N. Gray, Manager, Coronado Copper and Zinc Company, Johnson Camp, Arizona, submitted a request for amendment No. 4 to contract Idm-2 522 to permit additional exploration of the subordinated area No. 1. The request is properly documented by a description of the proposed work in Gray's letter and by mine maps and sections submitted with it. The proposed work can be accomplished without increasing the allowable cost as $19,141 remain of the original appropriation.

During recent months the operators, at their own expense, diamond drilled several holes into the northeastern part of area No.1, and encountered a mineralized zone which apparently extends southeasterly across area No. 1 and lies about 100 feet southwest of the northeast boundary of the area. This mineralized zone was first encountered west of the subordinated area, and was then traced into it by diamond drilling. Inspection of the data submitted by the operation (refer to operator's map) reveals that the ore zone has been penetrated by drill holes at cross section A-A', B-B', C-C' and at a point about 100 feet northwest of section C-C'. The ore zone is believed to be an extension of the ore body exposed by the 300 stope. As pointed out in Gray's letter, this ore body may be similar to the "B" ore body, except that it is along the upper or hanging wall side of the N-90 fault.

It is now proposed to supplement the operator's preliminary exploration by drifting on the 500 level beneath the ore, and by drilling upward from the drift into the ore zone with about 1200 feet of diamond drill holes. The purpose of the exploration is to determine the location and dimensions of the ore body, determine the grade, and to prove, if possible, that the ore is an extension of the ore in the 300 stope.

This request for an amendment No. 4 introduces a problem of interpretation of the intent of MMSA. The proposed work is undoubtedly desirable from the operator's point of view, because the drift will be used as a base for blocking out the ore by diamond drilling, and will later be used as an extractive base for mining purposes. From the Government point of view the drift may also be

desirable because it would help to assure exploitation of the ore during a reasonable life of the contract. It might also be desirable to accept the proposal because the Government has not paid any of the direct cost of the drilling that established the presence of ore, and it might be to the Government's interest to participate in the actual discovery.

I believe the Government's interest could be served best by spending the remaining money in exploring this ore body northwestward from cross-section A-A, in which direction the ore body apparently becomes larger and richer. The northwest extension of this ore body could be explored by drifting northwest from 400 level, and by drilling downward to the ore. I suggest that this be considered as an alternate to Gray's proposal. This alternate proposal would be nearly identical to the Company proposal, in methods and costs, but would involve driving above the ore rather than below it, and would require drilling downward instead of upward. This proposal would have the advantage of exploring outward beyond the limits of presently known or reasonably inferred ore.

In order to execute this alternate proposal it would have to be requested by the applicant and the area of subordination would have to be increased. This alternate exploration possibility seemed to have considerable merit; therefore, I discussed briefly the plan with Gray by telephone. He seemed reluctant to consider the alternate proposal, but agreed to study it, although he felt that his original proposal was best for the Company.

I have not had adequate opportunity to discuss with Gray the details of the many factors that should be considered in offering an alternate proposal, but a decision must be made because of the necessity of fitting the work into an operating time schedule.

I believe that either Gray's proposed program or my alternate proposal could be considered as suitable exploration. Therefore I am recommending the following.

1. Someone in authority, preferably Denver, should contact Gray and propose to him that the remainder of the exploration funds be used to explore by drifting and drilling on the 400 level northwestward for the A-A' section, and that the subordinated area be increased to cover the new proposal.

2. If the operator is unwilling to accept the above alternate proposal, then the Government should accept Gray's proposal and participate in exploration by drifting and drilling on the 500 level.

J. M. Faick

JMF:ms
cc Kaschmann (8)
Storms

January 3, 1955

Memorandum

To : W. H. King, Executive Officer, DMEA Field Team

From : Superintendent, Southwest Experiment Station

Subject : Request for Amendment to DMEA Contract Idm-E522, Docket DMEA-2746, Coronado Copper & Zinc Co.'s Republic Copper-Zinc Mine, Cochise County, Ariz.

Enclosed in sextuplicate are

(1) Operator's request (with map) for an amendment to Exploration Project Contract No. Idm-E522, so an additional 300 feet of drifting and 1,200 feet of diamond drilling may be done in the project area;

(2) Bureau of Mines engineer's recommendation.

Also enclosed are 3 extra copies of our engineer's report.

As a significant amount of copper-zinc ore may be discovered by the proposed work and as the total project cost will not be enlarged by the proposed work, I recommend that this request for an amendment be approved. There has been some argument that the proposed drifting might be termed development work as ore already has been cut by diamond drill holes. However, the ore has merely been cut and not outlined in any way so it seems to me that the proposed work may be classed as exploration, and not development.

Walter R. Storms

Walter R. Storms

CC W. H. King (6)
J. N. Faick
DMEA-2746
DF

WRStorms:frj

The operator proposes to drive a drift to the northwest from the 500 W 120 stope and then to probe for the inferred location of the ore body with diamond drill holes. The proposed drift is 65 feet inside the north boundary of the block of ground that has been subordinated for royalty purposes and is parallel to that boundary. The drill holes will be fanned upward into the inferred location of the ore body.

As the contract now stands, the operator has completed all exploration that is authorized by the contract. This contract originally provided for an estimated total cost of $[illegible]. The total cost of the exploration that has been completed to date is $79,[illegible].00; thus, $1[illegible],1[illegible].00 has not yet been expended. The cost of the new work that has been requested is as follows:

300 ft. drifting @ $[illegible].00/ft.	$1[illegible],000.00
1,200 ft. underground diamond drilling @ $4.00/ft.	4,[illegible].00
Total	$1[illegible],000.00

The total cost of the additional work requested by the operator is less than the unexpended amount of the original contract, thus the additional work that is requested by the operator can be completed without increasing the estimated total cost of the project.

Further exploration in the area proposed by the operator will probably result in the discovery of a significant amount of ore. This operator has an excellent operating record and has been very efficient in completing the exploration project to date. It is recommended that the operator's request for 300 feet of drifting and 1,200 feet of diamond drill hole on the 500 level be approved.

Unless amended this contract will expire on May 18, 1[illegible]. No extension of time will be required to complete the additional work. The operator has requested that if approved the effective date of the amendment be December 27 and it is recommended that this request be granted.

William R. Hardwick

William R. Hardwick, Mining Engineer

December 24, 1954

Mr. W. H. King,
Executive Officer, DMEA
Field Team, Region IV
224 New Customhouse
Denver 2, Colorado

Re: DMEA Contract Idn K522
Docket DMEA - 2746

Dear Mr. King:

We have completed the diamond drilling covered by Amendment No. 3 to the above captioned contract. As we did not get any ore in the diamond drill hole No. 22, it appears that the ore shoot stopped against the Mammoth Fault. It does not appear that any further drilling in that area is indicated at this time.

In the last few months we have done some diamond drilling into the Northeastern part of the DMEA Area No. 1 from some of our underground workings. This work has disclosed what appears to be an orebody on the upper side of the N 90 Fault which, from the exploration done, may be an ore shoot similar to our "D" orebody except on the upper side of the fault. We have not asked for your financial participation in this drilling as most of it was done from without the participation area.

We wish to do some more exploration work on this orebody to determine its dip length and grade and also to make sure that it connects with the low grade ore in our 500 WF 320 Stope in the DMEA participation area. Although the grade of ore found in the drill holes is much higher than in the 500 WF 320 Stope in the participation area, it is our opinion that the ore found in these holes connects to that in the 500 WF 320 Stope. Although this ore shoot can be drilled from our underground workings in the "D" orebody, the holes are relatively long and also will interfere with our stoping operations now in progress. Furthermore, if the ore shoot lies as we think, it will be necessary to drive a drift under it, which if done now will materially decrease the footage of diamond drilling necessary and will provide a better angle for the holes. A plan, longitudinal section and sections normal to the strike, are enclosed herewith. I wish to add that we have just finished drilling one other hole into this area about 100 feet west of the 500 WF 320 L-cut. Assays of the core are not yet completed, but it is now known that there is ore at that point.

To date we have spent $79,909.00 of the $99,050.00 approved under the above captioned contract. We ask, therefore, that an amendment be made to the contract providing for your participation in drifting northwestward on the 500 Level for 300 feet as shown on the accompanying drawings, and in diamond drilling from the drift a total of approximately 1200 feet in 12 holes numbered 23 to 34 inclusive.

On the accompanying plan we have shown the approximate location, bearings and vertical angles of holes Nos. 23, 24, 25 and 26 to be drilled on proposed section designation 370 W. On proposed section 440 W we wish to drill three holes, on proposed section 520 W three holes and on proposed 600 W, two holes. The bearings and vertical angles of the holes on section 440 W, 520 W and 600 W should be decided upon as we progress with the drilling, but will be in approximately the same pattern as those specified in section 370 W. The total footage of all of the holes should not exceed 1200 feet.

While awaiting your approval we expect to drive the drift approximately 40 to 50 feet northwest of the 500 W 320 X-cut as we need it for switching room for our motor haulage. We will be pleased if the amendment will include the cost of this 50 feet.

We wish to get started on this work as soon as possible and, therefore, ask that you give us your answer on this request as soon as possible.

Very truly yours,

CORONADO COPPER & ZINC CO.

By Fred E. Gray
Fred E. Gray
Mine Manager

FEG-e

6 ccs Mr. W. H. Storms
2 ccs Mr. George D. Dub
1 cc Mine File

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

224 New Customhouse
Denver 2, Colorado

January 28, 1955

Memorandum

To: T. A. Christensen

From: Executive Officer, DMEA Field Team, Region III

Subject: Royalty Payment - Coronado Copper and Zinc Company, Docket DMEA 2746, Contract Idm-E522, Arizona

Enclosed is check No. 3636 in the amount of $1,351.41 from Coronado Copper and Zinc Company for royalty repayments on ore mined through October 31, 1954.

Settlement sheets covering the ore will be forwarded to your office at a later date.

W. M. TRAVER

W. M. Traver

Enclosure

Copy to: Royalty File E522
Sec. Opr. Comm. (2)
W. R. Storms
Chron

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

224 New Customhouse
Denver 2, Colorado

December 31, 1954

Mr. C. W. Six, Treasurer
Coronado Copper and Zinc Company
1206 Pacific Mutual Building
523 West Sixth Street
Los Angeles 14, California

Re: Royalty Payments - DMEA Docket 2746,
(Lead-Zinc) Contract Idm-E522,
Coronado Copper and Zinc Company

Dear Mr. Six:

To date we have not received an answer to our letters of June 7, 1954 and December 2, 1954 concerning the payment of royalties on production under DMEA Contract Idm-E522. Please advise when we may expect your answer on this subject.

The Contract Administration and Audit Division plans to make a routine royalty audit for Contract Idm-E522. In order to assist them in this audit we request that you forward to this office one complete set of all settlement sheets pertaining to production from Coronado Copper and Zinc Company's property from the date of Contract Idm-E522 (May 18, 1953). Photostatic copies of the settlement sheets will be acceptable.

Yours very truly,

W. H. King

W. H. King
Executive Officer
DMEA Field Team, Region IV

RDB:ld

Copy to: Royalty File E522
Sec. Opr. Comm. (2)
W. R. Storms
T. A. Christensen
T. H. Brading
J. W. Townsend
R. D. Berkenkotter
Chron.

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

Defense Minerals Administration
RECEIVED
DEC 10 1954

224 New Customhouse
Denver 2, Colorado

December 7, 1954

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 2746 (Copper-Zinc), Contract Idm-E522, Coronado Copper and Zinc Company, Cochise County, Arizona

Enclosed are three copies of work authorization, dated December 3, 1954, for the performance of certain work under Contract Idm-E522. Also enclosed are four sets of data relative thereto.

W H King
W. H. King

Enclosures

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

224 New Customhouse
Denver 2, Colorado

December 3, 1954

Mr. Fred E. Gray
Mine Manager
Coronado Copper and Zinc Company
Johnson Camp Unit
Dragoon, Arizona

Re: Docket DMEA 2746 (Copper-Zinc)
Contract Idm-E522

Dear Mr. Gray:

Referring to your letter of November 24, 1954, and confirming advice in our telegram of December 1, 1954, you are hereby authorized to drill Hole No. 21 and one additional hole under the provisions of Amendment No. 3 as you have requested.

Nothing in this work authority shall be construed to increase the estimated total cost of the project, the amount of the Government's contribution, or any item of allowable cost which is expressly designated "allowable maximum".

Very truly yours,

W H King
W. H. King

for E. M. Hanchman
A. H. Koschmann

DMEA Field Team, Region IV

JWT:jp
cc Amendment File
Chron
Christensen
Contract Corresp.) with
Chairman, Op. Comm. 3) copy
Contract Corresp. File) of
Storms) support-
Faick) ing
Koschmann) data
Townsend)

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Defense Minerals Exploration Administration
Denver Federal Center
Denver 2, Colorado

December 3, 1954

Memorandum

To: Field Team, Region IV

From: A. H. Koschmann

Subject: Request for additional exploration under Contract Idm-E522, DMEA Docket 2746, Coronado Copper and Zinc Company, Cochise County, Arizona

I have reviewed the contractor's request for drilling 2 additional holes (Nos. 21 and 22) on the subject property as tentatively provided for in Amendment No. 3 to Contract Idm-E522. A memorandum of November 29, 1954, by W. H. Hardwick, U. S. Bureau of Mines, and J. H. Faick, U. S. Geological Survey, has recommended drilling the holes as requested by the contractor. I concur in their recommendation.

E. M. Hauchman
for A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

November 29, 1954

Memorandum

Air Mail

To : W. H. King, Chief, Mining Division, Region IV

From : Chief, Mining Methods Br., Mining Div., Region IV

Subject : Request for additional core drilling under Amendment No. 3, DMEA Contract Idm-E522, Docket DMEA-2746, Coronado Copper & Zinc Co.'s Republic Copper-Zinc Mine, Johnson Camp, Cochise County, Ariz.

Enclosed in quintuplicate is a request from the above company for permission to drill two additional diamond drill holes on the 400-foot level under Amendment No. 3 to Exploration Project Contract No. Idm-E522. This amendment provided for two holes (Nos. 19 and 20), the locations of which were given, but it stated that "The location and extent of any additional holes to be drilled must be acceptable to the Defense Minerals Exploration Administration".

As ore was found in Hole No. 20, the operator proposes to drill two additional holes to try to determine the extent and trend of this ore shoot. I recommend that permission be granted the operator to drill these additional two holes and that Mr. Fred E. Gray, manager at the mine, be so notified by telegram.

A memorandum report by W. R. Hardwick of the Bureau of Mines is attached, recommending this additional work. It has been signed by John N. Faick of the Geological Survey who concurs with Hardwick's recommendation.

Walter R. Storms

Walter R. Storms

CC W. H. King (8)
J. N. Faick
DMEA-2746
DF

WRStorms:frj

November 29, 1954

Memorandum

To : Walter R. Sterms, Chief, Mining Methods Br., Mining Div., Region IV, Tucson, Ariz.

From : William R. Hardwick, Mining Engineer, Tucson, Ariz.

Subject : Request for additional drill holes, Docket DMEA-2746, Contract Idm-E522, Coronado Copper and Zinc Co.'s Republic Copper-Zinc Mine, Cochise County, Ariz.

On November 29, 1954, a letter from Fred E. Gray requested permission to drill two short underground diamond drill holes.

The possibility that the two holes now proposed would be desirable exploration was foreseen when amendment No. 3 was requested but the location of the holes was dependent on the results of drill holes No. 19 and 20. The opportune location for these holes now has been determined by the operator, based on the results of holes No. 19 and 20.

Amendment No. 3 provides that "the location and extent of any additional holes to be drilled must be acceptable to the Defense Minerals Exploration Administration". The total cost of the two additional holes (Nos. 21 & 22) will not exceed the amount authorized by Amendment No. 3.

The core from diamond drill holes No. 19 and 20 was examined on November 15, 1954. Mr. Gray was not at the mine at that time but the possibility of additional holes was discussed with his staff. It is believed that the two holes, (Nos. 21 and 22) that are requested by the operator, are good exploration and may result in the discovery of additional ore. Therefore, it is recommended that approval be granted to drill these holes as proposed by the operator and under the provisions of Amendment No. 3, contract Idm-E522.

William R. Hardwick

William R. Hardwick, Mining Engineer
Mining Methods Branch
Mining Division, Region IV.

I concur with the above recommendations.

J. N. Faick

John N. Faick, Geologist
U. S. Geological Survey

CC W. H. King (Orig. & 8)
J. N. Faick
DMEA-2846 DF WRHardwick:frj

November 24, 1954

Mr. W. H. King, Executive Officer, DMEA
Field Team, Region IV
224 New Customhouse
Denver 2, Colorado

Re: DMEA Contract Idm E522
#3 Docker DMEA - 2746
Amendment to Idm E522 - dated September 15, 1954

Dear Mr. King:

We have completed drilling underground diamond drill hole Nos. 19 and 20 as provided in the amendment. Our geologist has prepared a section showing the results of this drilling, and it is enclosed herewith.

As we found the ore in hole No. 20, but not in 19, the ore shoot if it extends down dip from surface holes Nos. 65 and 66 must have changed its trend. If it turned more down dip it probably is cut off on the Mammoth Fault not far below holes 65 and 66. If it turned the other way we should find it south of hole No. 19.

We, therefore, request your approval of another hole to be designated No. 21 to be drilled from 11210 N, 5765 E, bearing due south and inclined plus 66 degrees. If that finds the ore we would then wish to drill another hole from 11215 N, 5848 E on a bearing due south and inclined plus 50 degrees. Neither of these holes should exceed a depth of 100 feet so that if both holes are drilled, the total footage drilled under the Amendment will be well under the 560 feet authorized in the amendment.

Your approval of these two holes will be appreciated as soon as convenient.

Very truly yours,

CORONADO COPPER & ZINC CO.

By Fred E. Gray
Fred E. Gray
Mine Manager

FEG-o

Encl.

4 ccs Mr. W. R. Storms
2 ccs Mr. George D. Dub
1 cc Mine File

Collar Location:

D. D. HOLE NO. MU 158 (DMEA #20)

Level: 400 Level W Drift
N: 11200
E: 5697
Elevation: 4730
Bearing: S 78 W
Angle: plus 55

Length: 167'
Hor: 94'
Vert: 137'
Logged by: R.E.B.
Date: 11/23/54

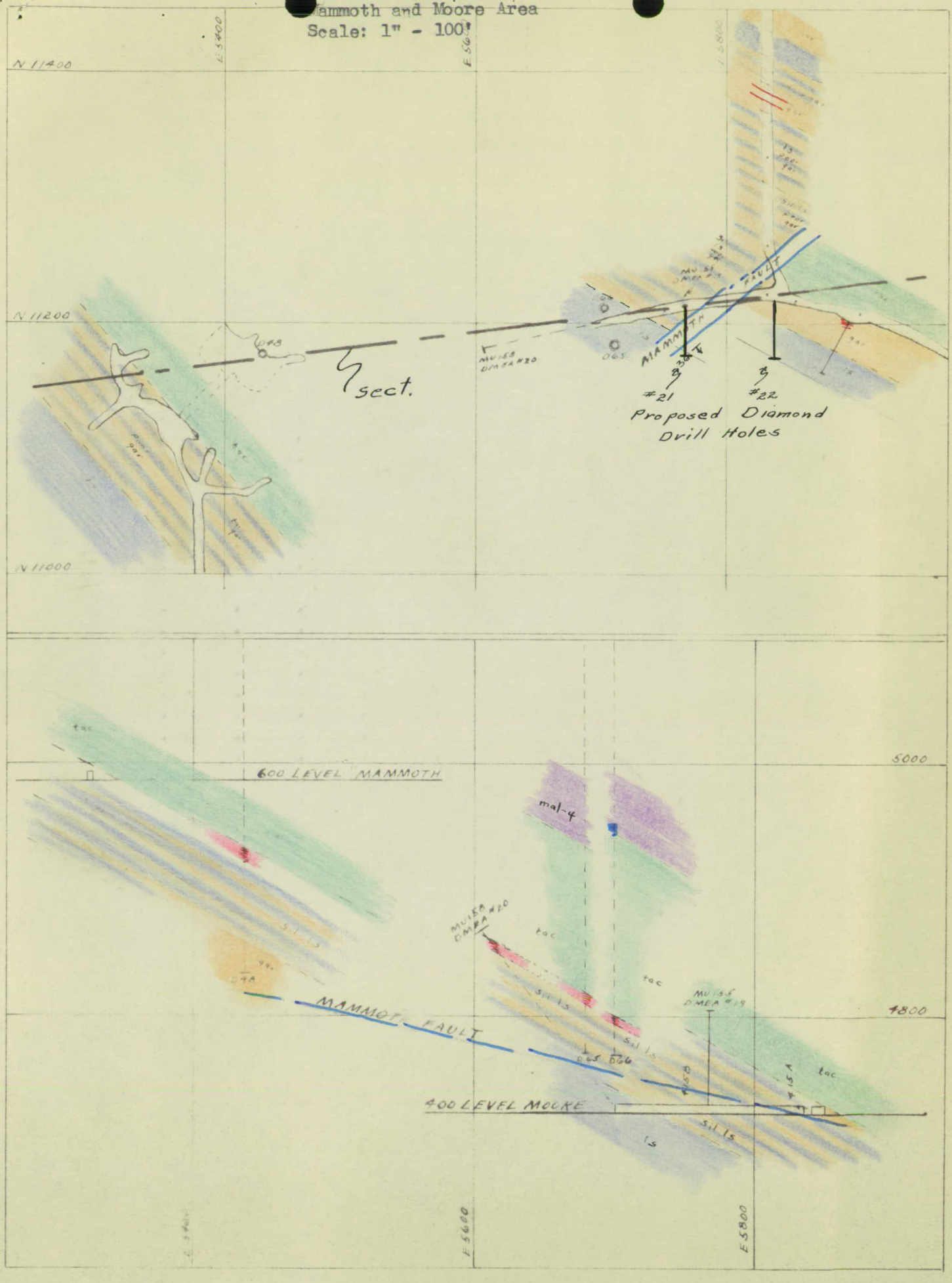
Date Started: 10/28/54
Date Finished: 11/15/54
Size: EX
Casing: None

Objective: Test for ore in ore horizon west of DDH 65 and DDH 66.

Results: Some ore.

Footage From	Footage To	Footage Interval	Assays Cu%	Assays Zn%	Core recovery	Log	Description and Averages
0.0	16.0	16.0			29		Shaley limestone
16.0	26.0	10.0			60		" " "
26.0	56.0	30.0			70		Limestone poor garnet. Iron stained 45' to 46'
56.0	63.0	7.0			3		poor recovery " "
63.0	66.0	3.0			8		Siliceous limestone poor garnet
66.0	77.0	11.0			100		"
77.0	80.0	3.0			100		Fault, dark green (Chlorite), altered, some calcite, sheared.
80.0	91.0	11.0			100		" "
91.0	110.0	19.0			100		Limestone poor fair garnet "
110.0	126.0	16.0			100		Siliceous limestone poor garnet
126.0	143.5	17.5			91		Siliceous limestone fair garnet
143.5	146.5	3.0	2.75	2.6	94		
146.5	148.0	1.5	7.40	11.6	100		
148.0	152.0	4.0	2.40	4.2	100		143.5-157.0: 13.5' @ 3.02, 4.2
152.0	153.0	1.0	7.60	3.1	100		
153.0	157.0	4.0	1.05	3.0	100		" "
157.0	167.0	10.0			95		Tactite, some hnf bands, hard, a little siliceous

MU 158 (DMEA #20)
Johnson Camp, Arizona
Mammoth and Moore Area
Scale: 1" - 100'



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

224 New Customhouse
Denver 2, Colorado

December 2, 1954

Memorandum

To: T. H. Brading, DMEA Auditor, Region IV

From: Executive Officer, DMEA Field Team, Region IV

Subject: Royalty Audit, DMEA Docket 2746 (Lead-Zinc)
Contract Idm-E522, Coronado Copper and Zinc Company

Enclosed is a copy of our letter of this date to Coronado Copper and Zinc Company regarding delinquent royalty payments. We believe that payment of October, 1954 expenditures under Contract Idm-E522 must be withheld pending a determination of the correct royalty due under this contract.

Please make arrangements to perform a full royalty audit for Contract Idm-E522 in the near future so we may release the balance of monies due the operator for October, 1954.

W. H. King

Enclosure

RDB:mn

cc: Royalty File E522
Correspondence File E522
Sec. to the Oper. Comm. (2)
W.R.Storms
T.A.Christensen
J.W.Townsend
R.D.Berkenkotter
Chron.

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

224 New Customhouse
Denver 2, Colorado

December 2, 1954

Mr. C. W. Six, Treasurer
Coronado Copper and Zinc Company
1206 Pacific Mutual Building
523 West Sixth Street
Los Angeles 14, California

Re: Royalty payments, DMEA Docket 2746
(Lead-Zinc), Contract Idm-E522
Coronado Copper and Zinc Company

Dear Mr. Six:

We acknowledge receipt of your Monthly Report Forms, MF-104 and MF-104A for October, 1954. We must necessarily withhold payment for work performed under Contract Idm-E522 during October pending receipt from you of statements of royalties due to date and payment of same.

Partial royalty payments under Contract Idm-E522 have been made on shipments from Coronado Copper and Zinc Company's property during the months of October, November, and December of 1953, and January and February of 1954. In addition to the above, our records indicate that ore shipments were made during March, April, May, June, July, September, and October of 1954.

Enclosed is a copy of our letter dated June 7, 1954, regarding calculation of royalties due the U. S. Government for which we have not received an answer.

Please furnish four copies of the above requested information and check in payment of royalties due to this office as soon as possible. Checks should be made payable to the Defense Minerals Exploration Administration.

Yours very truly,

W. H. King
Executive Officer, DMEA
Field Team, Region IV

Enclosure
RDB:mn
cc: Royalty File E522
Correspondence File E522 w/copy letter
Sec. to the Oper. Comm. (2) w/copy letter
W.R.Storms w/copy letter
T.A.Christensen
J.W.Townsend w/copy letter
T.H.Brading w/copy letter
R.D.Berkenkotter
Chron

524 Exr Customhouse
Denver 2, Colorado

June 7, 1954

Mr. C. W. Sim, Treasurer
Dynamic Copper and Zinc Co.
1230 Pacific Mutual Building
523 West Sixth Street
Los Angeles 14, California

Re: Royalty Payments, EMRA Order
(Non-Ferrous) Contract Number
Dynamic Copper and Zinc Co.

Dear Mr. Sim:

Our records indicate that original royalty payment for Report No. 1 (October 1953) was in the amount of $135.38.

Our letter dated February 4, 1954 advised you that a balance of $70.84 was due on the shipments during October 1953. A revised calculation was received from you with an additional royalty payment of $119.57 for royalty on the shipments for October 1953. The difference in the calculations arises from freight costs not being deducted from the gross value of the concentrates before the Government's royalty was calculated. An identical error has been made in the calculation of royalty due for the months of November and December, 1953 and for January and February, 1954. The above reports, according to our records, constitute our complete file of royalty due under the subject contract.

Enclosed is a copy of EMRA Order 1 (Amended), Section 10 of which explains the calculation of royalty due the U.S. Government under EMRA contracts.

With your next royalty statement, you may submit a recapitulation of the amount of the freight charges applicable to the five previous royalty statements and deduct royalty on this amount from your next royalty payment. Future royalty payments will then be made in conformance with instructions contained in Section 10 of EMRA Order 1 (Amended).

Very truly yours,

C. H. King

C. H. King
Executive Officer
EMRA Field Office, Region IV

Enclosure.

RHB:es
cc: Royalty File E522
Stoiss
Christensen
Berk
Curon.

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

SEP 17 1954

224 New Customhouse
Denver 2, Colorado

September 15, 1954

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 2746 (Copper Zinc), Contract Idm-E522, Coronado Copper and Zinc Company, Cochise County, Arizona

Enclosed are the original and two copies of Amendment No. 3 to Contract Idm-E522 which has been executed to authorize additional drilling to expend funds presently allocated under the contract. Also enclosed are three sets of data relevant to the amendment.

Copies of the amendment have been given to the operator, the Fiscal Officer, Region IV, and a copy has been retained for our files.

John F. Shaw
For W. H. King

Enclosures

RECEIVED
OCT 7 - 1954
GENERAL COUNSEL
DEFENSE MINERALS
ADMINISTRATION

DEFENSE MINERALS EXPLORATION ADMINISTRATION

ROYALTY REPAYMENTS
AS OF AUGUST 31,1954

OPERATOR

Coronado Copper and Zinc Company

CONTRACT NO.

E-522

DOCKET NO.

2746

RECEIVED DURING AUGUST

$ -

TOTAL RECEIVED

$843.68

DATE OF LAST RECEIPT

6/8/54

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

224 New Customhouse
Denver 2, Colorado

August 9, 1954

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 2746 (Copper-Zinc), Contract IDM-E522, Coronado Copper and Zinc Company, Republic Copper Zinc Mine, Cochise County, Arizona

Enclosed are the original and two copies of Amendment No. 2 to Contract IDM-E522 which has been executed in conformance with authorization contained in a teletype from you dated July 26, 1954 to authorize a six months recess of operations beginning July 15, 1954. Also enclosed are three sets of data relevant to the amendment.

Copies of the amendment have been given to the operator, the Fiscal Officer, Region IV, and a copy has been retained for our files.

W. H. King

W. H. King

Enclosures

July 15, 1954

Mr. W. H. King, Executive Officer, DMEA
Field Team, Region IV
224 New Customhouse
Denver 2, Colorado

Re: DMEA Contract Idm E522
Docket DMEA - 2746

Dear Mr. King:

At the time of this writing we have completed Diamond Drill Holes 16, 17, 18, none of which encountered any ore. Log of the last hole will be submitted with our July report. We are now doing some diamond drilling east of area No. 2 and also further surface geological work in the general area. Perhaps these holes of ours or the geological work may indicate more drilling may be advisable a little later in the areas covered by our contract. Until further information is obtained we have no further exploration work to suggest.

In view of the above considerations we request that we be granted a recess of 6 months before doing any more exploration work under the contract.

Very truly yours,

CORONADO COPPER & ZINC CO.

By Fred E. Gray
Fred E. Gray, Mine Manager

FEG:rk

ces-6 Enclosed
1 Mr. George D. Dub
1 Mine Office

July 19, 1954

Memorandum

To : W. H. King, Chief, Mining Division, Region IV

From : Chief, Mining Methods Br., Mining Div., Region IV

Subject : Request for Recess, DMEA Contract Idm-8522, Docket DMEA-2746, Coronado Copper & Zinc Co.'s Republic Copper-Zinc Mine, Johnson Camp, Cochise County, Ariz.

Enclosed are original and 5 copies of a request for a 6-months recess from Coronado Copper & Zinc Co. at its Republic copper-zinc mine, Johnson Camp, Cochise County, Ariz., DMEA Exploration Project Contract No. Idm-8522. I assume the recess will be from July 15.

John N. Faick of the Geological Survey, and W. R. Hardwick and I recommend that this recess request be granted.

Walter R. Storms

Walter R. Storms

CC W. H. King (5)
J. N. Faick
DMEA-2746
DF

WRStorms:frj

DEFENSE MINERALS EXPLORATION ADMINISTRATION

ROYALTY REPAYMENTS
AS OF JULY 31,1954

OPERATOR

Coronado Copper and Zinc Company

CONTRACT NO.

E-522

DOCKET NO.

2746

RECEIVED DURING JULY

$ -

TOTAL RECEIVED

$843.68

DATE OF LAST RECEIPT

6/8/54

File Copy
Surname

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

JUL 26 1954

JWAlt/bjl, Rm. 4058, Ext. 3669

Base Metals Div., DMEA, Interior

14X4401(01) Revolving Fund,
Defense Production Act, Interior (allocated
Working Fund to the Office of the Secy)

T E L E T Y P E

Date:

To: W. H. King, Executive Officer, DMEA Field Team, Region IV, Denver, Colorado

Reurtt July 21, Docket DMEA-2746, Contract Idm-E522, Coronado Copper and Zinc Company. This is your authority to grant 6 months recess for project.

George C. Selfridge
Chairman, Operating Committee

~~WRGrissmeld/bjl~~

(written 7/22/54)

Copy to: Docket
Admr. R. File
Op. Committee
Base Metals (DMEA)
Mr. Gildersleeve (USGS)
Mr. C. H. Johnson (USBM)
Chron.

SENT
JUL 26 1954
Clerical Service Section

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

500

July 23, 1954

Memorandum for the Files

From: J. W. Alt

Subject: Recess of Operations, Docket No. DMEA-2746, Contract No. Idm-E522, Cornado Cooper and Zinc Company, Cochise County, Arizona (Copper-Zinc)

On July 22, 1954 a teletype was prepared for the cited contract giving W. H. King authority to grant 6 months recess for the project. This was in reply to his teletype of July 21, 1954.

G. Selfridge brought this teletype back to this Division, stating that he thought that a recess amendment should be prepared by our legal department and that I should consult Mr. Hofflund about it. This I did and Mr. Hofflund's opinion was that the Field Team could prepare this amendment and referred to DMEA Circular 33, dated June 30, 1954 and to the form attached to this Circular. He advised that reference to this Circular should be made in the teletype.

I reported this to W. Griswold and to G. Selfridge. G. Selfridge said it was not necessary to mention in the teletype about DMEA Circular 33 and approved the original teletype.

/s/ J. W. Alt (Ajl)
J. W. Alt

Copy to:
Docket
Base Metals
Chron.
Mr. Hofflund - Legal

George Selfridge
21-54
Unattended service

RECEIVED
JUL 22 1954

DN 235 BUREAU MINES 7-21-54 4-43 PM

CHAIRMAN OPERATING COMMITTEE
DMEA

REE REFERENCE DOCKET 2746, CONTRACT IDM-E522, CORONADO COPPER-ZINC COMPANY. OPERATOR REQUESTS AUTHORIZATION OF 6 MONTHS RECESS OF OPERATIONS EFFECTIVE JULY 15,1954 TO ENABLE ASSEMBLY OF INFORMATION AND FORMU
LATION OF PLANS RELATIVE TO BALANCE OF WORK TO BE PERFORMED UNDER THE CONTRACT. RECESS RECOMMENDED. PLAXXX PLEASE TELETYPE INSTRUCTIONS.

W H KING

Klenner, Colo.

JUL 22 8 24 AM '54

BUREAU OF MINES
MAIL ROOM
WASHINGTON, D. C.

DEFENSE MINERALS EXPLORATION ADMINISTRATION

ROYALTY REPAYMENTS
AS OF JUNE 30,1954

OPERATOR

Coronado Copper & Zinc Company

CONTRACT NO.

E-522

DOCKET NO.

2746

RECEIVED DURING JUNE

$ *

TOTAL RECEIVED

$135.38

DATE OF LAST RECEIPT

12/29/53

* Indicates projects which have repaid the Government in full.

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

224 New Customhouse
Denver 2, Colorado

June 8, 1954

Memorandum

To: T. A. Christensen

From: Executive Officer, DMEA Field Team, Region IV

Subject: Royalty-Coronado Copper and Zinc Company, Docket No. DMEA 2746, Contract No. E522, Arizona

Enclosed are statements of royalty repayment on copper and zinc concentrate by the Coronado Copper and Zinc Company, for the months of October, November and December, 1953, and January and February, 1954.

Also enclosed are the following checks in payment of royalty:

October adjustment	$119.57
November	127.97
December	100.28
January	210.73
February	149.75

W. H. King

Enclosures

es

cc: Royalty File E522
Sec. to the Oper. Comm. (2) w/enc.
Storms w/enc.
Chron.

April 5, 1954

Mr. W. H. King, Executive Officer
Regional D.M.E.A. Office IV
224 New Customhouse
Denver 2, Colorado

Re: Docket No. DMEA 2746, Contract IDM-E 522
Report No. 5 - February 1954

Dear Mr. King:

Pursuant to your letter dated February 23rd we have prepared report No. 5 showing computation of values of concentrates derived from 194.57 dry tons of D.M.E.A. ore mined and milled in the month of February, along with 6,222.16 dry tons of other ores during that month.

The statements sent you herewith, in quadruplicate, reflect computation of the royalty payment upon the value per ton of concentrate marketed, rather than upon the value per ton of D.M.E.A. ore mined, and based upon the net smelter payment for concentrate delivered, instead of the net smelter returns after deduction for freight, etc. (the latter being the basis used for computation of percentage depletion).

The statements also reflect proration of smelter values to the 13.84 tons of D.M.E.A. copper concentrate as determined from the smelter payments covering the total of 468.7385 tons of copper concentrate delivered to the smelter in February 1954. The prorated receipts have been determined upon the basis suggested by our Mr. Fred E. Gray in his letter to you dated October 29, 1953 to which you indicated approval of his suggestion in your letter of November 4, 1953.

If you desire four copies of each smelter liquidation sheet, covering each copper concentrate lot delivered to the El Paso smelter and for each zinc concentrate lot delivered to the Bartlesville smelter (which smelter sheets form the basis for our proration of receipts for D.M.E.A. concentrate), we will have the necessary number of photostat copies made of each liquidation sheet and forward them to you. The original of the liquidation sheets will be preserved in our office and will be available for inspection at any time.

We are pleased to enclose Coronado Copper and Zinc Company's check No. 2545 payable to the Treasurer of the United States in the amount of $149.75, representing the additional amount due as reflected on our report of February.

Very truly yours,

C. W. Six, Treasurer
CORONADO COPPER AND ZINC COMPANY

CWS:es
Encls.

cc: DMEA-3
[illegible]

Report No. 5

CORONADO COPPER AND ZINC COMPANY

Statement of D.M.E.A. royalty repayment on loan covering D.M.E.A. copper and zinc concentrate produced from the 400 level project of Coronado's Johnson Camp Mine, said concentrate being a portion of Coronado's total production and marketed concentrate for February. The values of D.M.E.A. concentrate are based upon gross revenue realized from total sales to the smelters in February.

Month of February 1954

Calculated net proceeds from sale of concentrates derived from milling of 194.57 dry tons of ore mined from the D.M.E.A. 400 level project (per analysis shown in Schedule I):	
Net smelter proceeds (before deduction of freight and other delivery charges) apportioned to 13.84 dry tons of D.M.E.A. copper concentrate per Schedule II attached	$1,944.32
Net smelter proceeds (before deduction of freight and other delivery charges) apportioned to 22.64 dry tons of D.M.E.A. zinc concentrate per Schedule III attached.	1,050.70
	$2,995.02
Royalty repayment @ 5%	$ 149.75

Schedule 1
February 1954

CORONADO COPPER & ZINC CO.

MILL RECOVERY ON 194.57 TONS OF 400 LEVEL (DMEA) MUCK

	TONS	%WT.	ASSAY CU.	ASSAY Zn.	LBS. OF METAL CU.	LBS. OF METAL ZN.	DISTRIBUTION CU.	DISTRIBUTION ZN.
ORE MILLED:	194.57	100.00	2.310	7.730	8,969.13	30,080.52	100.00	100.00
CU. CONC. :	13.84	7.11	28.870	13.106	7,988.64	3,627.71	88.87	12.06
ZN. CONC. :	22.64	11.64	1.312	54.910	594.18	24,858.34	6.61	82.64
TAILS :	158.09	81.25	0.129	0.304	406.51	1,594.27	4.52	5.30

In this table the average recovery is assumed to be the same as the recovery for the month of Feb. Also the copper assay in the copper concentrate and the zinc assay in the zinc concentrate are the same as the month of February.

Joe Sierakoski

Schedule I
February 1954

Schedule 1
February 1954

CORONADO COPPER & ZINC CO.
Johnson Camp
Assay Summary - Feb., 1954

BREAKDOWN OF MINE ORE

	CARS	TONS	%Cu.	%Zn.	%Cu. x Cars	%Zn. x Cars	CORRECTED %Cu.	CORRECTED %Zn.
MOORE SHAFT								
No Special Development								
EXPLORATION DEVELOPMENT								
Raising								
400 L - W 800 Raise (DMTA)	200	194.57	2.72	8.96	544.0	1792.0	2.31	7.73
STOPE DEVELOPMENT								
Drifting								
500 L - WC 10 Sub-L X/C	97	94.37	2.80	6.64	271.6	644.1	2.38	5.73
500 L - Sub-L WD Drift	360	350.23	1.87	4.83	673.8	1740.2	1.59	4.17
500 L - Sub-L Ventilation Drifts	394	385.31	3.72	4.47	1465.7	1721.2	3.17	3.86
600 L - W 300 #3 Sub-L F/W Drift	75	72.96	2.26	6.63	169.5	497.3	1.92	5.72
MONTH TOTAL DRIFTING	926	900.87	2.79	5.01	2580.6	4642.8	2.37	4.32
Raising								
500 L - W 210 Raise	89	86.59	3.58	7.81	319.0	695.5	3.05	6.74
500 L - WD 360 Stope Raise	262	254.80	3.25	4.33	851.5	1134.3	2.77	3.74
500 L - WD 530 Raise	122	118.69	2.24	8.15	273.3	994.3	1.91	7.03
600 L - W 300 Stope Raise	95	92.42	2.26	6.83	214.7	629.9	1.92	5.72
MONTH TOTAL STOPE DEVELOPMENT RAISING	568	552.59	2.92	6.08	1658.5	3454.2	2.49	5.25
MONTH TOTAL STOPE DEVELOPMENT	1494	1453.46	2.84	5.42	4239.1	8097.0	2.42	4.88
MONTH TOTAL DEVELOPMENT	1694	1648.03	2.82	5.84	4783.1	9889.0	2.40	5.04

Schedule I
February 1954

MAR 13 1954

Schedule 1
February 1954

CORONADO COPPER & ZINC CO.
Johnson Camp
Assay Summary - Feb., 1954

BREAKDOWN OF MINE ORE

	CARS	TONS	%Cu.	%Zn.	%Cu. x Cars	%Zn. x Cars	CORRECTED %Cu.	CORRECTED %Zn.
MOORE SHAFT								
STOPING								
500 L - E 290 Stope	287	258.94	3.37	5.63	1000.2	1968.1	2.87	5.72
500 L - E 450 Stope	937	901.85	3.77	9.79	3498.1	9076.8	3.21	8.45
500 L - E 90 WC 270 Stope	525	510.75	2.79	5.02	1463.7	2637.5	2.37	4.33
500 L - E 90 WC 50 Stope	295	286.99	2.90	7.90	855.1	2330.2	2.47	6.82
500 L - E 90 WC 10 Stope	69	67.13	2.80	6.64	193.2	458.2	2.38	5.73
500 L - E 90 E 15 Stope	705	685.87	2.81	8.35	1979.2	5889.5	2.39	7.20
500 L - E 90 EC 75 Stope	847	824.02	3.95	6.21	3343.7	5256.6	2.80	5.36
500 L - E 90 WO 165 Stope	156	152.31	1.98	4.99	288.8	678.4	1.68	4.31
500 L - WD 360 Stope	452	420.28	3.00	4.93	1296.0	2129.8	2.55	4.25
500 L - WD 480 Stope	297	289.94	2.46	6.10	731.0	1812.0	2.09	5.26
500 L - WD 530 Stope	162	157.80	2.24	8.15	362.9	1320.3	1.91	7.08
500 L - WD 590 Stope	91	88.33	1.80	6.52	164.2	595.7	1.35	5.63
500 L - WD 620 Stope	38	36.97	3.25	4.33	123.4	164.4	2.77	3.74
600 L - E 300 Stope	165	160.32	2.26	6.63	372.9	1064.0	1.92	5.72
MONTH TOTAL STOPING	4986	4850.79	2.99	7.10	14804.4	34411.7	2.54	6.13
MONTH TOTAL MOORE SHAFT	6680	6498.73	2.95	6.78	19677.5	45300.7	2.51	5.85
MONTH TOTAL CHANGE IN INVENTORY		82.00					2.51	5.85
MONTH TOTAL MILLED		6416.73					2.51	5.85

Only the ore listed as DMEA above is ore mined under the DMEA contract. Those locations not so marked are not under the DMEA project.

Joe Sierakoski

Schedule I
February 1954

Schedule I
February 1954

CORONADO COPPER & ZINC CO.
Johnson Camp

Bin Inventory

	Feb. 1, 1954	Mar. 1, 1954	Change
Mill Bin	80	92	+ 12
Republic Customs Bin	116	76	- 40
Moore Shaft Surface Bin	200	50	- 150
500 Level Transfer Raise	100	360	+ 260
TOTAL	496	578	+ 82

Mill Heads: 6416.73 Tons @ 2.51% Cu. , 5.85% Zn.

Mine Produced: 6416.73 Tons + 82 Tons = 6498.73 Tons

Car Ton Factor is $\frac{6498.73}{6650}$ = .977863772

Cu. Correction Factor is $\frac{2.51}{2.95}$ = .850847457

Zn. Correction Factor is $\frac{5.85}{6.72}$ = .868051268

Production from the 400 level (INCLA) is the same as 400 L West 200 Raise.

	CARS	TONS	%Cu.	%Zn.	%Cu. x Cars	%Zn. x Cars	CORRECTED %Cu.	CORRECTED %Zn.
400 L - W 200 Raise (INCLA)	200	194.57	2.72	8.96	544.0	1792.0	2.31	7.78

Joe Sierakoski

Schedule II

CORONADO COPPER AND ZINC COMPANY

Copper Concentrate - February 1954

Calculated net proceeds from sale of 13.84 S.D. tons of copper concentrate derived from 194.57 S.D. tons of D.M.E.A. ore mined in February 1954 and processed with 6,222.16 tons of other ore mined.

Calculations are based upon moisture content, metal prices, smelter deductions and charges, and expenses as were applicable to the total of 468.7385 S.D. tons of copper concentrate delivered to the smelter in February 1954.

Quantity 15.33 wet tons, moisture 9.7% 13.84 dry tons.

	Copper	Zinc	Silver
Assay	28.87%	13.106%	4.06 oz p.T.
Content	7,988.64 lbs	3,627.71 lbs	56.19 ozs.

Metals paid for:

Copper content	7,989 lbs.	
Less 20 lbs per ton	277 lbs.	7,712. lbs.
Silver content	56.19 ozs.	
Less 5%	2.81 ozs.	53.38 ozs.

Payment:

Copper metal 7,712 lbs. @	29.666¢	$2,287.84	
Less: Bullion freight tax	.035¢		
Contract price deduction	3.080¢		
Cathode deduction	.125¢		
7,712 lbs @	3,240¢	249.87	$2,037.97
Silver metal 53.38 ozs. @	90.0¢	48.04	
Less: Contract price deduction	1.5¢	.80	47.24

Amount carried forward to page 2 $2,085.21

Amount carried forward		$2,085.21
Less smelter charges:		
Base charge per ton concentrate	$ 8.88	
Labor adjustment -		
$1.823 hourly base per contract		
1.884 January 1954 average hourly rate		
$ .061 Excess of 6¢ per each one cent	.37	
	9.25	
Zinc adjustment -		
10.000% zinc assay base per contract		
13.106% zinc assay of concentrate		
3.106% excess @ 30¢ per each one percent	.93	
13.84 tons @	10.18	140.89
		1,944.32
Less other deductions:		
Railroad freight on 15.33 wet tons	57.33	
Trucking from mill to railroad	11.50	
Smelter representation, assaying, etc.	3.22	72.05
Net proceeds from sale (gross income for percentage depletion)		$1,872.27

Schedule III

CORONADO COPPER AND ZINC COMPANY

Zinc Concentrate - February 1954

Calculated net proceeds from sale of 22.64 S.D. tons of zinc concentrate derived from 194.57 S.D. tons of D.M.E.A. ore mined in February 1954 and processed with 6,222.16 tons of other ore mined.

Calculations are based upon moisture content, metal prices, smelter deductions and charges, and expenses as were applicable to the total of 538.345 S.D. tons of zinc concentrate delivered to the smelter in February 1954.

Quantity 24.69 wet tons, moisture 8.3%. 22.64 dry tons.

	Zinc	Copper	Silver
Assay	54.91%	1.312%	.9 oz p.T.
Contents	24,858.54 lbs.	594.18 lbs.	20.38 ozs.

Metals paid for:

Zinc content	24,859 lbs.	
Less 15%	3,729 lbs.	21,130 lbs.
Copper content	594 lbs.	
Less 35%	208 lbs.	386 lbs.
Silver content	20.38 ozs.	
Less 20%	4.08 ozs.	16.30 ozs.

Payment:

Zinc metal 21,130 lbs. @ 9.375¢	$1,980.94	
Less: Freight on zinc to East St. Louis .3553¢	75.09	$1,905.85
Copper metal 386 lbs. @ 29.669¢	114.52	
Less: Contract price deduction 7.41¢	28.60	85.92
Silver metal 16.30 ozs. @ 90¢		14.67
Amount carried forward to page 2		$2,006.44

Amount brought forward from page 1		$2,006.44
Less smelter charges:		
Base charge per ton @ 19.50¢ zinc	$54.13	
Less adjustment for decrease to February zinc price of 9.375¢ - 10.125¢ @ $1.50 per 1¢	15.1875	
	38.9425	
Labor adjustment - $15.400 daily base per contract; 17.036 February 1954 daily average; $ 1.636 excess @ 20¢ per ten cents	3.2720	
22.64 tons @	42.2145	955.74
		1,050.70
Less other deductions:		
Railroad freight on 24.69 wet tons	279.00	
Trucking from mill to railroad	18.52	
Smelter representation, assaying, etc.	3.46	300.98
Net proceeds from sale (gross income for percentage depletion)		$ 749.72

March 17, 1954

Mr. W. H. King, Executive Officer
Regional D.M.E.A. Office IV
224 New Customhouse
Denver 2, Colorado

Re: Docket No. DMEA 2746, Contract IDM-E 522
Report No. 4 - January 1954

Dear Mr. King:

Pursuant to your letter dated February 23rd we have prepared report No. 4 showing computation of values of concentrates derived from 240.53 dry tons of D.M.E.A. ore mined and milled in the month of January, along with 6,477.65 dry tons of other ores during that month.

The statements sent you herewith, in quadruplicate, reflect computation of the royalty payment upon the value per ton of concentrate marketed, rather than upon the value per ton of D.M.E.A. ore mined, and based upon the net smelter payment for concentrate delivered, instead of the net smelter returns after deduction for freight, etc. (the latter being the basis used for computation of percentage depletion).

The statements also reflect proration of smelter values to the 18.53 tons of D.M.E.A. copper concentrate as determined from the smelter payments covering the total of 521.175 tons of copper concentrate delivered to the smelter in January 1954. The prorated receipts have been determined upon the basis suggested by our Mr. Fred E. Gray in his letter to you dated October 29, 1953 to which you indicated approval of his suggestion in your letter of November 4, 1953.

If you desire four copies of each smelter liquidation sheet, covering each copper concentrate lot delivered to the El Paso smelter and for each zinc concentrate lot delivered to the Bartlesville smelter (which smelter sheets form the basis for our proration of receipts for D.K.E.A. concentrate), we will have the necessary number of photostat copies made of each liquidation sheet and forward them to you. The original of the liquidation sheets will be preserved in our office and will be available for inspection at any time.

We are pleased to enclose Coronado Copper and Zinc Company's check No. 2433 payable to the Treasurer of the United States in the amount of $210.73, representing the additional amount due as reflected on our report of January.

Very truly yours,

C. W. Six, Treasurer
CORONADO COPPER AND ZINC COMPANY

CWS:es
Encls.

cc: DMEA-3
FEG

Report No. 4

CORONADO COPPER AND ZINC COMPANY

Statement of D.M.E.A. royalty repayment on loan covering D.M.E.A. copper and zinc concentrate produced from the 400 level project of Coronado's Johnson Camp Mine, said concentrate being a portion of Coronado's total production and marketed concentrate for January. The values of D.M.E.A. concentrate are based upon gross revenue realized from total sales to the smelters in January.

Month of January 1954

Calculated net proceeds from sale of concentrates derived from milling of 240.53 dry tons of ore mined from the D.M.E.A. 400 level project (per analysis shown in Schedule I):	
Net smelter proceeds (before deduction of freight and other delivery charges) apportioned to 18.53 dry tons of D.M.E.A. copper concentrate per Schedule II attached	$2,767.69
Net smelter proceeds (before deduction of freight and other delivery charges) apportioned to 28.55 dry tons of D.M.E.A. zinc concentrate per Schedule III attached	1,446.85
	$4,214.54
Royalty repayment @ 5%	$ 210.73

CORONADO COPPER & ZINC CO.

MILL RECOVERY ON 240.53 TONS OF 400 LEVEL (UMTA) MUCK

	TONS	WT.	ASSAY CU.	ASSAY ZN.	LBS. OF METAL CU.	LBS. OF METAL ZN.	DISTRIBUTION CU.	DISTRIBUTION ZN.
ORE MILLED:	240.53	100.00	2.650	7.638	12,748.09	37,104.88	100.00	100.00
CU. CONC. :	18.53	7.70	30.340	9.481	11,245.09	3,513.83	88.21	9.47
ZN. CONC. :	28.55	11.87	1.605	55.530	916.59	31,706.12	7.19	85.45
TAILS :	193.45	80.43	0.152	0.487	586.41	1,884.93	4.60	5.08

In this table the average recovery is assumed to be the same as the recovery for the month of Jan. Also the copper assay in the copper concentrate and the zinc assay in the zinc concentrate are the same as the month of January.

Joe Sierakoski

SCHEDULE I
JANUARY 1954

SCHEDULE I
JANUARY 1954

CORONADO COPPER & ZINC CO.
Johnson Camp

Bin Inventory

	Jan. 1, 1954	Feb. 1, 1954	Change in Inventory
Mill Bin	170	80	- 90
Republic Customs Bin	162	116	- 46
Moore Shaft Surface Bin	160	200	+ 40
500 Level Transfer Raise	60	100	+ 40
TOTAL	552	496	+ 56

Mill Heads: 6718.18 Tons @ 2.55% Cu.: 5.98% Zn.

Mine Produced: 6718.18 Tons - 56 Tons = 6662.18 Tons

Car Tons Factor is $\frac{6662.18}{7428}$ = .897505051

Cu. Correction Factor is $\frac{2.55}{2.89}$ = .882352941

Zn. Correction Factor is $\frac{5.98}{6.76}$ = .884615384

Production from the 400 Level (EMGA) is the same as 400 L W 200 Raise.

	CARS	TONS	%Cu.	%Zn.	%Cu. x Cars	%Zn x Cars	CORRECTED %Cu.	CORRECTED %Zn.
400 L - W 200 Raise	268	240.55	3.00	8.62	802.7	2312.2	2.68	7.63

Joe Sierakoski

CORONADO COPPER & ZINC CO.
Johnson Camp
Assay Summary - Jan., 1954

BREAKDOWN OF MINE ORE

WORKING PLACE	CARS	TONS	%Cu.	%Zn.	%Cu. x Cars	%Zn. x Cars	CORRECTED %Cu.	CORRECTED %Zn.
MOORE SHAFT								
No Special Development								
STOPE DEVELOPMENT								
Drifting								
500 L - Sub-L ED Drift	290	240.28	2.95	4.72	855.8	1369.2	2.80	4.18
500 L - Sub-L WD Drift	286	255.79	2.45	5.99	697.4	1707.4	2.16	5.50
500 L - Sub-L Ventilation Drifts	182	163.34	2.84	4.99	516.9	908.2	2.51	4.41
600 L - E 300 #3 Sub-L X/C	192	172.32	2.36	7.46	453.6	1435.1	2.08	6.60
MONTH TOTAL DEV. DRIFTING	949	851.73	2.66	5.71	2523.7	5417.9	2.35	5.05
Raising								
400 L - W 200 Raise (DMEA)	268	240.53	3.00	8.65	802.7	2312.2	2.65	7.63
500 L - WD 480 Raise	85	76.29	2.29	4.73	194.7	402.4	2.02	4.18
MONTH TOTAL DEV. RAISING	353	316.82	2.85	7.69	997.4	2714.6	2.50	6.80
MONTH TOTAL DEVELOPMENT	1302	1168.55	2.70	6.25	3521.1	8132.5	2.38	5.53
STOPING								
500 L W 290 Stp	1630	1462.93	3.30	6.80	5375.6	11076.1	2.91	6.02
500 L - E 450 Stp	86	77.19	4.32	10.00	371.1	889.8	3.81	8.85
500 L - E 90 WC 270 Stp	551	494.53	2.63	5.65	1448.5	3115.6	2.32	5.00
500 L - E 90 WC 50 Stp	1596	1432.42	2.57	5.99	4096.9	8563.6	2.27	5.30
500 L - E 90 WC 10 Stp	53	49.36	4.10	11.40	225.5	627.0	3.62	10.08
500 L - W 90 W 15 Stp	139	169.63	3.67	9.76	694.4	1846.4	3.24	8.63
500 L - E 90 EC 75 Stp	305	273.74	3.28	8.40	1000.7	2561.6	2.89	7.43
500 L - E 90 EC 165 Stp	860	771.85	2.96	7.46	2543.2	6415.2	2.61	6.60
500 L - WD 380 Stp	99	88.85	2.18	6.11	215.8	604.9	1.92	5.40
500 L - WD 420 Stp	52	46.67	2.47	5.42	128.4	281.8	2.18	4.79
500 L - WD 480 Stp	270	242.35	2.87	7.72	774.9	2084.4	2.53	6.83
500 L - WD 530 Stp	44	39.49	0.40	1.60	17.6	70.4	0.35	1.42
600 L - E 300 Stp	177	158.86	2.87	7.11	508.1	1258.4	2.53	6.29
General Stoping	207	185.78	2.49	7.97	514.4	1649.4	2.20	7.05
MONTH TOTAL STOPING	6121	5493.65	2.93	6.86	17917.1	42012.6	2.58	6.07
MONTH TOTAL MOORE SHAFT	7423	6662.18	2.89	6.76	21438.2	50145.1	2.55	5.98
MONTH TOTAL CHANGE IN INVENTORY		56.00					2.55	5.98
MONTH TOTAL MILLED		6718.18					2.55	5.98

Only the ore listed as DMEA above is ore mined under the DMEA contract. Those locations not so marked are not Under the TMEA Project

SCHEDULE I
JANUARY 1954

DE Sierakoek

CORONADO COPPER AND ZINC COMPANY

Copper Concentrate - January 1954

Calculated net proceeds from sale of 18.53 tons of copper concentrate derived from 240.53 S.D. tons of D.M.E.A. ore mined in January 1954 and processed with 6,477.65 tons of other ore mined.

Calculations are based upon moisture content, metal prices, smelter deductions and charges, and expenses as were applicable to the total of 521.175 S.D. tons of copper concentrate delivered to the smelter in January 1954.

Quantity 20.46 wet tons, moisture 9.43%. 18.53 dry tons.

	Copper	Zinc	Silver
Assay	30.34%	9.48%	4.05 oz.p.T.
Content	11,245.09 lbs.	3,513.83 lbs.	75.05 ozs.

Metals paid for:

Copper content	11,245 lbs.	
Less 20 lbs. per ton	371 lbs.	10,874 lbs.
Silver content	75.05 ozs.	
Less 5%	3.75 ozs.	71.30 ozs.

Payment:

Copper metal 10,874 lbs. @	29.6747¢	$3,226.83	
Less: Bullion freight tax	.035¢		
Contract price deduction	3.080¢		
Cathode deduction	.125¢		
10,874 lbs.	3.240¢	352.32	$2,874.51
Silver metal 71.30 ozs. @	90.0¢	64.17	
Less:			
Contract price deduction	1.5¢	1.07	63.10

Amount carried forward to page 2 $2,937.61

Amount carried forward		$2,937.61
Less smelter charges:		
Base charge per ton concentrate	$8.88	
Labor adjustment -		
$1.823 hourly base per contract		
1.871 December 1953 average hourly rate		
$ .048 Excess of 6¢ per each one cent	.29	
18.53 tons @	9.17	169.92
		2,767.69
Less other deductions:		
Railroad freight on 20.46 wet tons	76.52	
Trucking from mill to railroad	15.35	
Smelter representation, assaying, etc.	5.93	97.80
Net proceeds from sale (gross income for percentage depletion)		$2,669.89

Schedule III

CORONADO COPPER AND ZINC COMPANY

Zinc Concentrate - January 1954

Calculated net proceeds from sale of 28.55 S.D. tons of zinc concentrate derived from 240.53 S.D. tons of D.M.E.A. ore mined in January 1954 and processed with 6,477.65 tons of other ore mined.

Calculations are based upon moisture content, metal prices, smelter deductions and charges, and expenses as were applicable to the total of 598.365 S.D. tons of zinc concentrate delivered to the smelter in January 1954.

Quantity 31.40 wet tons, moisture 9.07%. 28.55 dry tons.

	Zinc	Copper	Silver
Assay	55.52%	1.605%	.94 oz.p.T.
Contents	31,706.12 lbs.	716.59 lbs.	26.84 ozs.

Metals paid for:

Zinc content	31,706 lbs.	
Less 15%	4,756 lbs.	26,950 lbs.
Copper content	917 lbs.	
Less 35%	321 lbs.	596 lbs.
Silver content	26.84 ozs.	
Less 20%	5.37 ozs.	21.47 ozs.

Payment:

Zinc metal 26,950 lbs. @ 9.76000¢		$2,630.32	
Less: Freight on zinc to East St. Louis	.35535¢	95.77	$2,534.55
Copper metal 596 lbs. @ 29.671¢		176.84	
Less: Contract price deduct. @ 7.41¢		44.16	132.68
Silver metal 21.47 ozs. @ 90¢			19.32

Amount carried forward to page 2 $2,686.55

Amount brought forward from page 1		$2,686.55
Less smelter charges:		
Base charge per ton @ 19.50¢ zinc	$54.13	
Less adjustment for decrease to January zinc price of 9.76¢ - 9.74¢ @ $1.50 per 1¢	14.61	
	39.52	
Labor adjustment -		
$15.400 daily labor base per contract		
17.351 January 1954 daily average		
$ 1.951 excess @ 20¢ per ten cents	3.902	
28.55 tons @	$43.422	1,239.70
		1,446.85
Less other deductions:		
Railroad freight on 31.40 wet tons	$354.82	
Trucking from mill to railroad	23.55	
Smelter representation, assaying, etc.	3.77	382.14
Net proceeds from sale (gross income for percentage depletion)		$1,064.71

March 17, 1954

Mr. W. H. King, Executive Officer
Regional D.M.E.A. Office IV
224 New Customhouse
Denver 2, Colorado

Re: Docket No. DMEA 2746, Contract IDM-E 522
Report No. 3 - December 1953

Dear Mr. King:

Pursuant to your letter dated February 23rd we have prepared report No. 3 showing computation of values of concentrates derived from 197.24 dry tons of D.M.E.A. ore mined and milled in the month of December, along with 6,462.68 dry tons of other ores during that month.

The statements sent you herewith, in quadruplicate, reflect computation of the royalty payment upon the value per ton of concentrate marketed, rather than upon the value per ton of D.M.E.A. ore mined, and based upon the net smelter payment for concentrate delivered, instead of the net smelter returns after deduction for freight, etc. (the latter being the basis used for computation of percentage depletion).

The statements also reflect proration of smelter values to the 8.44 tons of D.M.E.A. copper concentrate as determined from the smelter payments covering the total of 491.9915 tons of copper concentrate delivered to the smelter in December 1953. The prorated receipts have been determined upon the basis suggested by our Mr. Fred E. Gray in his letter to you dated October 29, 1953 to which you indicated approval of his suggestion in your letter of November 4, 1953.

If you desire four copies of each smelter liquidation sheet, covering each copper concentrate lot delivered to the El Paso smelter and for each zinc concentrate lot delivered to the Bartlesville smelter (which smelter sheets form the basis for our proration of receipts for D.M.E.A. concentrate), we will have the necessary number of photostat copies made of each liquidation sheet and forward them to you. The original of the liquidation sheets will be preserved in our office and will be available for inspection at any time.

We are pleased to enclose Coronado Copper and Zinc Company's check No. 2429 payable to the Treasurer of the United States in the amount of $100.26, representing the additional amount due as reflected on our report for December.

Very truly yours,

C. W. Six, Treasurer
CORONADO COPPER AND ZINC COMPANY

CWS:es
Encls.

cc: DMEA-3
FEG

Report No. 3

CORONADO COPPER AND ZINC COMPANY

Statement of D.M.E.A. royalty repayment on loan covering D.M.E.A. copper and zinc concentrate produced from the 400 level project of Coronado's Johnson Camp Mine, said concentrate being a portion of Coronado's total production and marketed concentrate for December. The values of D.M.E.A. concentrate are based upon gross revenue realized from total sales to the smelters in December.

Month of December 1953

Calculated net proceeds from sale of concentrates derived from milling of 197.24 dry tons of ore mined from the D.M.E.A. 400 level project (per analysis shown in Schedule I):	
Net smelter proceeds (before deduction of freight and other delivery charges) apportioned to 8.44 dry tons of D.M.E.A. copper concentrate per Schedule II attached	$1,194.55
Net smelter proceeds (before deduction of freight and other delivery charges) apportioned to 15.77 dry tons of D.M.E.A. zinc concentrate per Schedule III attached	811.06
	$2,005.61
Royalty repayment @ 5%	$ 100.28

CORONADO COPPER & ZINC CO.

MILL RECOVERY ON 197.24 TONS OF 400 LEVEL (EMPA) MUCK

	TONS	WT.	ASSAY		LBS. OF METAL		DISTRIBUTION	
			CU.	ZN.	CU.	ZN.	CU.	ZN.
ORE MILLED:	197.24	100.00	1.380	5.250	5,443.82	20,710.20	100.00	100.00
CU. CONC. :	8.44	4.27	29.090	13.512	4,910.32	2,247.06	90.20	10.85
ZN. CONC. :	15.77	8.00	0.956	55.800	301.59	17,603.67	5.54	85.00
TAILS :	173.03	87.73	0.067	0.248	231.91	859.47	4.26	4.15

In this table the average recovery is assumed to be the same as the recovery for the month of Oct. Also the copper assay in the copper concentrate and the zinc assay in the zinc concentrate are the same as the month of October.

Joe Sierakoski

SCHEDULE I
DECEMBER 1953

SCHEDULE I
DECEMBER 1953

CORONADO COPPER & ZINC CO.
Johnson Camp

Bin Inventory

	Dec. 1, 1953	Jan. 1, 1954	Change in Inventory
Mill Bin	145	170	+ 25
Republic Customs Bin	0	162	+ 162
Moore Shaft Surface Bin	125	160	+ 35
500 Level Transfer Raise	0	60	+ 60
TOTAL	270	552	+ 282

Mill Heads: 6659.92 Tons @ 2.61% Cu., 6.45% Zn.

Mine Produced: 6659.92 Tons + 282 Tons = 6941.92 Tons

Car Ton Factor is $\frac{6941.92}{7745}$ = .896541392

Cu. Correction Factor is $\frac{2.61}{2.91}$ = .896907216

Zn. Correction Factor is $\frac{6.45}{6.77}$ = .949778434

Production from the 400 Level (DMMA) is the sum of the 400 L - W 200 Raise and General Stoping - 400 Level.

	CARS	TONS	%Cu.	%Zn.	%Cu. x Cars	%Zn x Cars	Corrected %Cu.	Corrected %Zn.
400 L - W 200 Raise	176	157.79	1.59	5.76	279.8	1013.8	1.43	5.47
General Stoping - 400 L	44	39.45	1.36	4.60	59.8	202.4	1.22	4.37
TOTAL	220	197.24	1.54	5.53	339.6	1216.2	1.38	5.25

Joe Sierakoski

CORONADO COPPER & ZINC CO.
Johnson Camp
Assay Summary - Dec., 1953

BREAKDOWN OF MINE ORE

WORKING PLACE	CARS	TONS	%Cu.	%Zn.	%Cu. x Cars	%Zn. x Cars	CORRECTED %Cu.	CORRECTED %Zn.
MOORE SHAFT								
No Special Development								
STOPE DEVELOPMENT								
Drifting								
500 L - Sub-L ED Drift	233	209.89	2.23	8.05	518.9	1873.6	2.00	7.65
500 L - Sub-L WD Drift	229	205.31	1.88	5.44	451.0	1246.0	1.69	5.17
500 L - Sub-L Ventilation Drifts	75	67.24	2.05	5.61	155.8	420.8	1.84	5.35
600 L - E 300 Sub-L XC	148	132.69	2.48	6.89	367.0	1019.7	2.22	6.64
MONTH TOTAL DRIFTING	685	614.13	2.15	6.66	1470.7	4562.1	1.93	6.83
Raising								
500 L - WD 480 Raise	23	20.62	1.87	6.01	43.1	138.2	1.68	5.71
400 L - W 200 Raise (DMEA)	176	157.79	1.59	5.76	279.8	1013.8	1.43	5.47
500 L - WC 10 Raise	50	44.83	2.70	8.80	135.0	440.0	2.42	8.36
MONTH TOTAL RAISING	249	223.24	1.84	6.39	457.9	1592.0	1.65	6.07
MONTH TOTAL DEVELOPMENT	934	837.37	2.06	6.59	1928.6	6154.1	1.85	6.26
Stoping								
500 L - E 290 Stope	2014	1805.65	3.58	7.73	7204.3	15576.8	3.21	7.34
500 L - E 450 Stope	136	121.93	5.15	9.53	700.3	1296.6	4.62	9.05
500 L - E 90 WC 270 Stope	419	375.66	2.53	4.61	1059.9	1730.0	2.27	4.38
500 L - E 90 WC 50 Stope	1320	1183.44	2.66	5.53	3512.6	7294.4	2.39	5.25
500 L - E 90 W 55 Stope	910	815.85	3.23	7.92	2940.1	7205.6	2.90	7.52
500 L - E 90 EC 75 Stope	931	834.48	2.71	6.25	2521.9	5796.5	2.43	5.92
500 L - E 90 EC 165 Stope	698	625.79	2.71	7.75	1894.8	5411.3	2.43	7.36
500 L - WD 420 Stope	156	139.86	2.30	5.00	358.8	468.0	2.06	2.85
General Stoping	181	162.27	1.87	5.91	338.5	1069.9	1.68	5.61
General Stoping - 400 L (DMEA)	44	39.45	1.36	4.60	59.8	202.4	1.22	4.37
MONTH TOTAL STOPING	6809	6104.55	3.02	6.79	20591.0	46251.5	2.71	6.45
MONTH TOTAL MOORE SHAFT	7743	6941.92	2.91	6.77	22519.6	52405.6	2.61	6.43
MONTH TOTAL CHANGE IN INVENTORY		282.00					2.61	6.43
MONTH TOTAL MILLED		6659.92					2.61	6.43

Only the ore listed as DMEA above is ore mined under the DMEA contract. Those locations not so marked are not under the DMEA project.

Joe Sierakoski

SCHEDULE I
DECEMBER 1953

Schedule II

CORONADO COPPER AND ZINC COMPANY

Copper Concentrate - December 1953

Calculated net proceeds from sale of 8.44 S.D. tons of copper concentrate derived from 197.24 S.D. tons of D.M.E.A. ore mined in December 1953 and processed with 6,462.68 tons of other ore mined.

Calculations are based upon moisture content, metal prices, smelter deductions and charges, and expenses as were applicable to the total of 491.9915 S.D. tons of copper concentrate delivered to the smelter in December 1953.

Quantity 9.29 wet tons, moisture 9.12%. 8.44 dry tons.

	Copper	Zinc	Silver
Assay	29.09%	13.312%	3.92 oz.p.T.
Content	4,910 lbs.	2,247 lbs.	33.08 ozs.

Metals paid for:

Copper content		4,810 lbs.	
Less 20 lbs. per ton		168 lbs.	4,742 lbs.
Silver content		33.08 ozs.	
Less 5%		1.65 ozs.	31.43 ozs.

Payment:

Copper metal 4,742 lbs. @	29.6669¢	$1,406.80	
Less: Bullion freight tax	.035¢		
Contract price deduction	3.080¢		
Cathode deduction	.125¢		
4,742 lbs. @	3,240¢	153.64	$1,253.16
Silver metal 31.43 ozs. @	90.0¢	28.29	
Less:			
Contract price deduction	1.5¢	.47	27.82

Amount carried forward to page 2 $1,280.98

Amount brought forward from page 1		$1,280.98
Less smelter charges:		
Base charge per ton concentrate	$8.88	
Labor adjustment -		
$1.823 hourly labor base per contract		
1.884 November 1953 average hourly rate		
$ .061 Excess of 6¢ per each one cent	.37	
Zinc penalty -		
10.000% Zinc assay base per contract		
13.312% Zinc assay of concentrate		
3.312% Excess @ 30¢ per each 1%	.99	
8.44 tons @	10.24	86.43
		1,194.55
Less other deductions:		
Railroad freight on 9.29 wet tons	34.74	
Trucking from mill to railroad	6.97	
Smelter representation, assaying, etc.	3.44	45.15
Net proceeds from sale (gross income for percentage depletion)		$1,149.40

Schedule III

CORONADO COPPER AND ZINC COMPANY

Zinc Concentrate - December 1953

Calculated net proceeds from sale of 15.77 S.D. tons of zinc concentrate derived from 197.24 S.D. tons of D.M.E.A. ore mined in December 1953 and processed with 6,462.68 tons of other ore mined.

Calculations are based upon moisture content, metal prices, smelter deductions and charges, and expenses as were applicable to the total of 689.885 S.D. tons of zinc concentrate delivered to the smelter in December 1953.

Quantity 17.32 wet tons, moisture 8.97%, 15.77 dry tons.

	Zinc	Copper	Silver
Assay	55.80%	.956%	.892 oz. p.T.
Contents	17,599 lbs.	302 lbs.	14.07 ozs.

Metals paid for:

Zinc content	17,599 lbs.		
Less 15%	2,640 lbs.	14,959 lbs.	
Copper content	302 lbs.		
Less 35%	106 lbs.	196 lbs.	
Silver content	14.07 ozs.		
Less 20%	2.81 ozs.	11.26 ozs.	

Payment:			
Zinc metal 14,959 lbs.	@ 10.¢	$1,495.90	
Less: Freight on zinc to East St Louis	@ .35535¢	53.16	$1,442.74
Copper metal 196 lbs.	@ 29.673¢	58.16	
Less: Contract price deduct.	6.00¢		
Less: Cathode deduction	.15¢		
196 lbs.	@ 6.15¢	12.05	46.11
Silver metal 11.260 ozs.	@ 90¢		10.13

Amount carried forward to page 2 $1,498.98

Amount brought forward from page 1		$1,498.98
Less smelter charges:		
Base charge per ton @ 19.50¢ zinc	$54.13	
Less adjustment for decrease to December zinc price of 10¢ - 9.5¢ @ $1.50 per 1¢	14.25	
	39.88	
Labor adjustment -		
$15.400 daily labor base per contract		
17.271 December 1953 daily average		
$ 1.871 Excess @ 20¢ per ten cents	3.742	
15.77 tons @	43.622	687.92
		811.06
Less other deductions:		
Railroad freight on 17.32 wet tons	195.72	
Trucking from mill to railroad	12.99	
Smelter representation, assaying, etc.	4.16	212.87
Net proceeds from sale (gross income for percentage depletion)		$ 598.19

March 17, 1954

Mr. W. H. King, Executive Officer
Regional D.M.E.A. Office IV
224 New Customhouse
Denver 2, Colorado

Re: Docket No. DMEA 2746, Contract IDM-E 522
Report No. 2 - November 1953

Dear Mr. King:

Pursuant to your letter dated February 23rd we have prepared report No. 2 showing computation of values of concentrates derived from 214.02 dry tons of D.M.E.A. ore mined and milled in the month of November, along with 5,749.30 dry tons of other ores during that month.

The statements sent you herewith, in quadruplicate, reflect computation of the royalty payment upon the value per ton of concentrate marketed, rather than upon the value per ton of D.M.E.A. ore mined, and based upon the net smelter payment for concentrate delivered, instead of the net smelter returns after deduction for freight, etc. (the latter being the basis used for computation of percentage depletion).

The statements also reflect proration of smelter values to the 10.71 tons of D.M.E.A. copper concentrate as determined from the smelter payments covering the total of 430.643 tons of copper concentrate delivered to the smelter in November 1953. The prorated receipts have been determined upon the basis suggested by our Mr. Fred E. Gray in his letter to you dated October 29, 1953 to which you indicated approval of his suggestion in your letter of November 4, 1953.

If you desire four copies of each smelter liquidation sheet, covering each copper concentrate lot delivered to the El Paso smelter and for each zinc concentrate lot delivered to the Bartlesville smelter (which smelter sheets form the basis for our proration of receipts for D.M.E.A. concentrate), we will have the necessary number of photostat copies made of each liquidation sheet and forward them to you. The original of the liquidation sheets will be preserved in our office and will be available for inspection at any time.

We are pleased to enclose Coronado Copper and Zinc Company's check No. 2428 payable to the Treasurer of the United States in the amount of $127.97, representing the additional amount due as reflected on our report for November.

Very truly yours,

C. W. Six, Treasurer
CORONADO COPPER AND ZINC COMPANY

CWS:es
Encls.

cc: DMEA-3
FEG

Report No. 2

CORONADO COPPER AND ZINC COMPANY

Statement of D.M.E.A. royalty repayment on loan covering D.M.E.A. copper and zinc concentrate produced from the 400 level project of Coronado's Johnson Camp Mine, said concentrate being a portion of Coronado's total production and marketed concentrate for November. The values of D.M.E.A. concentrate are based upon gross revenue realized from total sales to the smelters in November.

Month of November 1953

Calculated net proceeds from sale of concentrates derived from milling of 214.02 dry tons of ore mined from the D.M.E.A. 400 level project (per analysis shown in Schedule I):	
Net smelter proceeds (before deduction of freight and other delivery charges) apportioned to 10.71 dry tons of D.M.E.A. copper concentrate per Schedule II attached	$1,523.53
Net smelter proceeds (before deduction of freight and other delivery charges) apportioned to 21.25 dry tons of D.M.E.A. zinc concentrate per Schedule III attached	1,035.85
	$2,559.38
Royalty repayment @ 5%	$ 127.97

CORONADO COPPER & ZINC CO.

MILL RECOVERY ON 214.02 TONS OF 400 LEVEL (BNEA) MECK

	TONS	WT.	ASSAY CU.	ASSAY ZN.	LBS. OF METAL CU.	LBS. OF METAL ZN.	DISTRIBUTION CU.	DISTRIBUTION ZN.
ORE MILLED:	214.02	100.00	1.650	6.430	7062.66	27,527.97	100.00	100.00
CU. CONC. :	10.71	5.00	29.280	14.558	6271.64	3,118.35	88.80	11.33
ZN. CONC. :	21.25	9.93	1.062	53.940	451.30	22,929.89	6.39	83.31
TAILS :	182.07	85.07	0.093	0.405	339.72	1,475.23	4.81	5.36

In this table the average recovery is assumed to be the same as the recovery for the month of Nov. Also the copper assay in the copper concentrate and the zinc assay in the zinc concentrate are the same as the month of November.

Joe Sierakoski

SCHEDULE I
NOVEMBER 1953

SCHEDULE I
NOVEMBER 1953

CORONADO COPPER & ZINC CO.
Johnson Camp

Bin Inventory

	Nov. 1, 1953	Dec. 1, 1953	Change in Inventory
Mill Bin	70	145	+ 75
Republic Customs Bin	120	0	- 120
Moore Shaft Surface Bin	142	125	- 17
500 Level Transfer Raise	20	0	- 20
TOTAL	352	270	- 82

Mill Heads: 5963.32 Tons @ 2.16% Cu., 5.08% Zn.

Mine Produced: 5963.32 Tons - 82 Tons = 5881.32 Tons

Car ton Factor is $\frac{5881.32}{6075}$ = .968437345

Cu. Correction Factor is $\frac{2.16}{2.67}$ = .80898876

Zn. Correction Factor is $\frac{5.08}{5.60}$ = .907142857

Production from the 400 Level (DMRA) is the same as the General Stoping - 400 L.

	CARS	TONS	%Cu.	%Zn.	%Cu. x Cars	%Zn. x Cars	CORRECTED %Cu.	CORRECTED %Zn.
General Stoping 400 Level	221	214.02	2.04	7.09	450.8	1566.9	1.65	6.43

Joe Sierakoski

CORRECTION ON NOV. 1953 REPORT

CORONADO COPPER & ZINC CO.
Johnson Camp
Assay Summary - Nov., 1953

BREAKDOWN OF MINE ORE

WORKING PLACE	CARS	TONS	%Cu.	%Zn.	%Cu. x Cars	%Zn. x Cars	CORRECTED %Cu.	CORRECTED %Zn.
MOORE SHAFT								
No Special Development								
STOPE DEVELOPMENT								
Drifting								
500 L - NC NW Drift	34	32.93	1.22	2.65	41.5	89.4	0.99	2.39
500 L - Sub-L WD Drift	160	154.94	1.76	4.28	282.1	684.1	1.42	3.88
500 L - Sub-L ED Drift	150	145.27	2.14	5.71	320.4	857.0	1.73	5.18
MONTH TOTAL DRIFTING	344	333.14	1.87	4.74	644.0	1630.5	1.51	4.30
Raising								
500 L - E 90 WC 420 Raise	197	190.78	2.28	3.04	449.2	597.9	1.84	2.76
600 L - E 300 Raise	35	33.90	0.45	4.40	15.8	154.0	0.36	3.99
MONTH TOTAL RAISING	232	224.68	2.00	3.24	465.0	751.9	1.62	2.94
MONTH TOTAL DEVELOPMENT	576	557.82	1.93	4.14	1109.0	2382.4	1.56	3.76
Stoping								
500 L - E 450 Stope	20	19.37	2.30	6.60	46.0	132.0	1.86	5.99
500 L - E 250 Stope	90	87.16	2.93	5.30	264.0	477.0	2.37	4.81
500 L - E 290 Stope	598	579.13	3.04	7.98	1816.6	4772.4	2.46	7.24
500 L - E 90 WC 30 Stope	1265	1225.07	2.78	5.60	3519.9	7087.5	2.25	5.08
500 L - E 90 WC 270 Stope	476	460.98	2.69	3.27	1278.1	1556.4	2.18	2.97
500 L - E 90 WC 75 Stope	2433	2356.81	2.69	5.52	6578.6	13484.4	2.18	5.01
500 L - E 90 WC 165 Stope2	394	381.54	2.96	6.47	1165.0	2548.2	2.39	5.87
General Stoping - 400 L (DMEA)	221	214.02	2.04	7.09	450.8	1566.9	1.65	6.43
MONTH TOTAL STOPING	5497	5325.50	2.75	5.75	15119.0	31684.8	2.22	5.22
MONTH TOTAL MOORE SHAFT	6073	5881.32	2.67	5.60	16228.0	34007.2	2.16	5.08
MONTH TOTAL CHANGE IN INVENTORY	-	+ 82.00					2.16	5.08
MONTH TOTAL MILLED		5963.32					2.16	5.08

Only the ore listed as DMEA above is ore mined under the DMEA contract. Those locations not so marked are not under the DMEA project.

Joe Sierakoski

SCHEDULE I
NOVEMBER 1953

Schedule II

CORONADO COPPER AND ZINC COMPANY

Copper Concentrate - November 1953

Calculated net proceeds from sale of 10.71 S.D. tons of copper concentrate derived from 214.02 S.D. tons of D.M.E.A. ore mined in November 1953 and processed with 5,749.30 tons of other ore mined.

Calculations are based upon moisture content, metal prices, smelter deductions and charges, and expenses as were applicable to the total of 430.643 S.D. tons of copper concentrate delivered to the smelter in November 1953.

Quantity 11.78 wet tons, moisture 9.05%. 10.71 dry tons.

	Copper	Zinc	Silver
Assay	29.280%	14.558%	4.04 oz.p.T.
Contents	6,271.64 lbs.	3,118.35 lbs.	43.27 ozs.

Metals paid for:

Copper content	6,272 lbs.	
Less 20 lbs. per T.	214 lbs.	6,058 lbs.
Silver content	43.27 ozs.	
Less 5%	2.16 ozs.	41.11 ozs.

Payment:

Copper metal 6,058 lbs.	29.666¢	$1,797.17	
Less: Bullion freight tax	.035¢		
Contract price deduction	3.080¢		
Cathode deduction	.125¢		
6,058 lbs. @	3.240¢	196.28	$1,600.89
Silver metal 41.11 ozs. @	90.0¢	37.00	
Less contract price deduction	1.5¢	.62	36.38

Amount carried forward to page 2 $1,637.27

Amount brought forward from page 1		$1,637.27
Less smelter charges:		
Base charge per ton concentrate	$ 8.88	
Labor adjustment -		
$1.823 hourly labor base per contract		
1.884 October 1953 average hourly rate		
$ .061 Excess @ 6¢ per each one cent	.37	
Zinc penalty -		
10.000% Zinc assay base per contract		
14.558% Zinc assay of concentrate		
4.558% Excess @ 30¢ per each 1%	1.37	
10.71 tons @	10.62	113.74
		1,523.53
Less other deductions:		
Railroad freight on 11.78 wet tons	43.94	
Trucking from mill to railroad	8.84	
Smelter representation, assaying, etc.	2.47	55.25
Net proceeds from sale (gross income for percentage depletion		$1,468.28

CORONADO COPPER AND ZINC COMPANY

Zinc Concentrate - November 1953

Calculated net proceeds from sale of 21.25 S.D. tons of zinc concentrate derived from 214.02 S.D. tons of D.M.E.A. ore mined in November 1953 and processed with 5,749.30 tons of other ore mined.

Calculations are based upon moisture content, metal prices, smelter deductions and charges, and expenses as were applicable to the total of 504.57 S.D. tons of zinc concentrate delivered to the smelter in November 1953.

Quantity 23.24 wet tons, moisture 8.56%. 21.25 dry tons.

	Zinc	Copper	Silver
Assay	53.94%	1.062%	.96 oz.p.T.
Contents	22,929.39 lbs.	451.3 lbs.	20.40 ozs.

Metals paid for:

Zinc content	22,929 lbs.	
Less 15%	3,439 lbs.	19,490 lbs.
Copper content	451 lbs.	
Less 35%	158 lbs.	293 lbs.
Silver content	20.40 lbs.	
Less 20%	4.08 ozs.	16.32 ozs.

Payment:

Zinc metal 19,490 lbs. @	10.0¢	$1,949.00	
Less: Freight on zinc to East St Louis @	.35535¢	69.26	$1,879.74
Copper metal 293 lbs. @	29.6510¢	86.88	
Less: Contract price deduct.	6.00¢		
Cathode deduction	.15¢		
293 lbs. @	6.15¢	18.02	68.86
Silver metal 16.32 ozs. @	90¢		14.69

Amount carried forward to page 2 $1,963.29

Amount brought forward from page 1		$1,963.29
Less smelter charges:		
Base charge per ton @ 19.50¢ zinc	$ 54.13	
Less adjustment for decrease to November zinc price of 10¢ - 9.5¢ @ $1.50 per 1¢	14.25	
	39.88	
Labor adjustment -		
$15.400 daily labor base per contract		
17.282 November 1953 daily wage		
$ 1.882 Excess @ 20¢ per ten cents	3.764	
21.25 tons @	43.644	927.44
		1,035.85
Less other deductions:		
Railroad freight on 23.24 wet tons	262.61	
Trucking from mill to railroad	17.43	
Smelter representation, assaying, etc.	9.53	289.57
Net proceeds from sale (gross income for percentage depletion)		$ 746.28

March 17, 1954

Mr. W. H. King, Executive Officer
Regional D.M.E.A. Office IV
224 New Customhouse
Denver 2, Colorado

Re: Docket No. DMEA 2746, Contract IDM-E 522
Revised Report No. 1 - October 1953

Dear Mr. King:

Pursuant to your letter dated February 23rd we have prepared a revised report No. 1 showing computation of values of concentrates derived from 459.33 dry tons of D.M.E.A. ore mined and milled in the month of October, along with 6,375.29 dry tons of other ores during that month.

The revised statements sent you herewith, in quadruplicate, reflect computation of the royalty payment upon the value per ton of concentrate marketed, rather than upon the value per ton of D.M.E.A. ore mined, and based upon the net smelter payment for concentrate delivered, instead of the net smelter returns after deduction for freight, etc. (the latter being the basis used for computation of percentage depletion).

The revised statements also reflect proration of smelter values to the 23.24 tons of D.M.E.A. copper concentrate as determined from the smelter payments covering the total of 463.043 tons of copper concentrate delivered to the smelter in October 1953. The prorated receipts have been determined upon the basis suggested by our Mr. Fred E. Gray in his letter to you dated October 29, 1953 to which you indicated approval of his suggestion in your letter of November 4, 1953.

If you desire four copies of each smelter liquidation sheet, covering each copper concentrate lot delivered to the El Paso Smelter and for each zinc concentrate lot delivered to the Bartlesville smelter (which smelter sheets form the basis for our preration of receipts for D.M.E.A. concentrate), we will have the necessary number of photostat copies made of each liquidation sheet and forward them to you. The original of the liquidation sheets will be preserved in our office and will be available for inspection at any time.

We are pleased to enclose Coronado Copper and Zinc Company's check No. 2427 payable to the Treasurer of the United States in the amount of $119.57, representing the additional amount due as reflected on our revised report for October.

Very truly yours,

C. W. Six, Treasurer
CORONADO COPPER AND ZINC COMPANY

CWS:es
Encls.

cc: DMEA-3
FEG

Report No. I

Revised 2/15/54

CORONADO COPPER AND ZINC COMPANY

Statement of D.M.E.A. royalty repayment on loan covering D.M.E.A. copper and zinc concentrate produced from the 400 level project of Coronado's Johnson Camp Mine, said concentrate being a portion of Coronado's total production and marketed concentrate for October. The values of D.M.E.A. concentrate are based upon gross revenue realized from total sales to the smelters in October.

Month of October 1953

Calculated net proceeds from sale of concentrates derived from milling of 459.33 dry tons of ore mined from the D.M.E.A. 400 level project (per analysis shown in Schedule I):	
Net smelter proceeds (before deduction of freight and other delivery charges) apportioned to 23.24 dry tons of D.M.E.A. copper concentrate per Schedule II attached	$3,313.35
Net smelter proceeds (before deduction of freight and other delivery charges) apportioned to 34.94 dry tons of D.M.E.A. zinc concentrate per Schedule III attached	1,785.57
	$5,098.92
Royalty repayment @ 5%	$ 254.95
Less: Payment made on original report rendered December 18, 1953	135.38
Balance	$ 119.57

CORONADO COPPER & ZINC CO.

MILL RECOVERY ON 459.33 Tons of 400 LEVEL (DMEA) MUCK

	TONS	%WT.	ASSAY CU.	ASSAY ZN.	LBS. OF METAL CU.	LBS. OF METAL ZN.	DISTRIBUTION CU.	DISTRIBUTION ZN.
ORE MILLED:	459.33	100.00	1.680	4.970	15,433.49	45,657.40	100.00	100.00
CU. CONC. :	23.24	5.06	29.330	11.748	13,632.40	5,460.63	88.33	11.96
ZN. CONC. :	34.94	7.61	1.575	54.090	1,100.41	37,795.19	7.13	82.78
TAILS :	401.15	87.33	0.087	0.299	700.68	2,401.58	4.54	5.26

In this table the average recovery is assumed to be the same as the recovery for the month of Oct. Also the copper assay in the copper concentrate and the zinc assay in the zinc concentrate are the same as the month of October.

Joe Sierakoski

Schedule I
October 1953
(Revised 2/15/54)

CORONADO COPPER & ZINC CO.
Johnson Camp
Assay Summary - Oct., 1953

CORRECTION OF OCT. 1953 REPORT

BREAKDOWN OF MINER ORE

WORKING PLACE	CARS	TONS	%Cu.	%Zn.	%Cu. x Cars	%Zn. x Cars	CORRECTED %Cu.	CORRECTED %Zn.
MOORE SHAFT								
Special Development								
400 L - W HW Drift (DMRA)	394	381.81	2.02	5.49	795.9	2163.1	1.66	5.01
STOPE DEVELOPMENT								
Drifting								
500 L - E 90 NC HW Drift	31	30.04	3.30	5.00	102.3	155.0	2.74	4.56
500 L - E 90 WC 420 Sub-L W XC	224	217.07	1.76	4.12	394.0	922.9	1.46	3.76
500 L - Sub-L ED Drift	71	68.80	1.77	4.27	125.7	303.0	1.47	3.90
500 L - Sub-L WD Drift	79	76.55	1.66	4.14	131.0	327.4	1.38	3.78
500 L - E 90 WC 20 XC	17	16.48	1.40	2.90	23.8	49.3	1.16	2.65
MONTH TOTAL DRIFTING	422	408.94	1.84	4.16	776.8	1757.6	1.55	3.80
Raising								
600 L - E 300 Raise	21	20.35	0.50	4.70	10.5	98.7	0.42	4.29
MONTH TOTAL STOPE DEVELOPMENT	443	429.29	1.78	4.19	787.3	1856.3	1.43	3.82
MONTH TOTAL DEVELOPMENT	837	811.10	1.88	4.80	1583.2	4019.4	1.57	4.38
Stoping								
500 L - E 90 WC 50 Stope	1790	1734.60	3.33	7.06	5952.5	12233.8	2.77	6.44
500 L - E 90 WC 130-190 Stope	77	74.62	3.08	7.02	237.3	540.7	2.56	6.41
500 L - E 90 WC 270 Stope	498	482.59	2.86	6.10	1396.7	3036.8	2.58	5.57
500 L - E 90 E 55 Stope	145	140.51	3.10	5.40	449.3	785.3	2.58	4.93
500 L - E 90 E 125 Stope	114	110.47	3.39	7.36	388.5	838.9	2.92	6.72
500 L - E 430 Stope	68	65.90	4.09	8.68	278.0	590.4	3.40	7.92
500 L - E 250 Stope	978	947.73	4.17	8.18	4080.1	7999.9	3.47	7.47
500 L - E 90 NC 75 Stope	2439	2353.82	3.31	6.21	8039.3	15075.7	2.75	5.67
400 L - W HW Drift - Gen. Stp. (DMRA)	80	77.52	2.00	5.20	160.0	416.0	1.66	4.75
General Stoping	40	38.76	3.10	5.00	124.0	200.0	2.58	4.56
MONTH TOTAL STOPING	6219	6026.52	3.39	6.77	21093.9	42113.5	2.82	6.18
MONTH TOTAL MOORE SHAFT	7056	6537.62	3.21	6.54	22677.1	46134.9	2.67	5.97
MONTH TOTAL CHANGE IN INVENTORY		-3.00					2.67	5.97
MONTH TOTAL MILLED		6534.62					2.67	5.97

Only the ore listed as DMRA above is ore mined under the DMRA contract. Those locations not so marked are not under the DMRA project.

Joe Sierakoski

Schedule I
October 1953
(Revised 2/15/54)

Schedule I
October 1953
(Revised 2/15/54)

COROWADO COPPER & ZINC CO.
Johnson Camp

Bin Inventory

	Oct. 1, 1953	Nov. 1, 1953	Change in Inventory
Mill Bin	167	70	- 97
Republic Customs Bin	59	120	+ 61
Moore Shaft Surface Bin	123	142	+ 19
500 Level Transfer Raise	0	20	+ 20
TOTAL	349	352	+ 3

Mill Heads: 6834.62 Tons @ 2.67% Cu. , 5.79% Zn.

Mine Produced: 6834.62 Tons + 3 Tons = 6837.62 Tons

Car Ton Factor is $\frac{6837.62 \text{ Tons}}{7056 \text{ Cars}}$ = .969050453

Cu. Correction Factor is $\frac{2.67}{3.21}$ = .831775700

Zn. Correction Factor is $\frac{5.79}{6.54}$ = .912844036

Production from the 400 Level (DMRA) is the sum of the 400 L-W HW Drift and 400 L - W HW Drift General Stoping.

	CARS	TONS	%Cu.	%Zn.	%Cu. x Cars	%Zn. x Cars	CORRECTED %Cu.	CORRECTED %Zn.
400 L - W HW Drift	394	381.81	2.02	5.49	795.9	2163.1	1.68	5.01
400 L - Gen Stoping	80	77.52	2.00	5.20	160.0	416.0	1.66	4.75
TOTAL	474	459.33	2.02	5.44	955.9	2579.1	1.68	4.97

Joe Sierakowski

Schedule II

CORONADO COPPER AND ZINC COMPANY

Copper Concentrate - October 1953

Calculated net proceeds from sale of 23.24 S.D. tons of copper concentrate derived from 459.33 S.D. tons of D.M.E.A. ore mined in October 1953 and processed with 6,375.29 tons of other ore mined.

Calculations are based upon moisture content, metal prices, smelter deductions and charges, and expenses as were applicable to the total of 463.043 S.D. tons of copper concentrate delivered to the smelter in October 1953.

Quantity 25.44 wet tons, moisture 8.66%. 23.24 dry tons

	Copper	Zinc	Silver
Assay	29.33%	11.748%	3.70 oz.p.T.
Contents	13,632.40 lbs.	5,460.63 lbs.	85.99 ozs.

Metals paid for:

Copper content	13,632 lbs.	
Less 20 lbs. per T.	465 lbs.	13,167 lbs.
Silver content	85.99 ozs.	
Less 5%	4.30 ozs.	81.69 ozs.

Payment:

Copper metal 13,167 lbs. @	29.590¢	$3,896.12	
Less: Bullion freight tax	.035¢		
Contract price deduction	3.080¢		
Cathode deduction	.125¢		
13,167 lbs @	3.240¢	426.61	$3,469.51
Silver metal 81.69 ozs. @	90.0¢	73.52	
Less contract price deduction	1.5¢	1.23	72.29

Amount carried forward to page 2 $3,541.80

Amount brought forward from page 1		$3,541.80
Less smelter charges:		
Base charge per ton concentrate	$ 8.88	
$1.823 hourly labor base per contract 1.894 September 1953 average hourly rate $ .071 Excess @ 6¢ per one cent	.43	
Zinc penalty - 10.000% Zinc assay base per contract 11.748% Zinc assay of concentrate 1.748% Excess @ 30¢ per 1%	.52	
23.24 tons @	9.83	228.45
		3,313.35
Less other deductions:		
Railroad freight on 25.44 wet tons	94.64	
Trucking from mill to railroad	19.08	
Smelter representation, assaying, etc.	5.60	119.32
Net proceeds from sale (gross income for percentage depletion		$3,194.03

Schedule III

CORONADO COPPER AND ZINC COMPANY

Zinc Concentrate - October 1953

Calculated net proceeds from sale of 34.94 S.D. tons of zinc concentrate derived from 459.33 S.D. tons of D.M.E.A. ore mined in October 1953 and processed with 6,375.29 tons of other ore mined.

Calculations are based upon moisture content, metal prices, smelter deductions and charges, and expenses as were applicable to the total 723.7505 S.D. tons of zinc concentrate delivered to the smelter in October 1953.

Quantity 38.09 wet tons, moisture 8.277%. 34.94 dry tons.

	Zinc	Copper	Silver
Assay	54.09%	1.575%	1.07 oz.p.T.
Contents	37,795.19 lbs.	1,100.41 lbs.	37.39 ozs.

Metals paid for:

Zinc content	37,795 lbs.	
Less 15%	5,669 lbs.	32,126 lbs.
Copper content	1,100 lbs.	
Less 35%	385 lbs.	715 lbs.
Silver content	37.39 ozs.	
Less 20%	7.48 ozs.	29.91 ozs.

Payment:

Zinc metal 32,126 lbs. @	10.¢	$3,212.60	
Less: Freight on zinc to East St Louis	.35535¢	114.16	$3,098.44
Copper metal 715 lbs. @ 29.598¢		211.63	
Less: Contract price deduction	6.00¢		
Cathode deduction	.150¢		
715 lbs. @	6,150¢	43.97	167.66
			3,266.10
Silver metal 29.91 ozs. @ 90.0¢			26.92

Amount carried forward to page 2 $3,293.02

Amount brought forward from page 1		$3,293.02
Less smelter charges:		
Base charge per ton @ 19.50¢ zinc	$ 54.13	
Less adjustment for decrease to October zinc price of 10¢ - 9.5¢ @ $1.50 per 1¢	14.25	
	39.88	
Labor adjustment -		
$15.400 daily labor base per contract		
17.032 October 1953 daily wage		
$ 1.632 Excess @ 20¢ per ten cents	3.264	
34.94 tons @	43.144	1,507.45
		1,785.57
Less other deductions:		
Railroad freight on 38.09 wet tons	430.42	
Trucking from mill to railroad	28.57	
Smelter representation, assaying, etc.	2.29	461.28
Net proceeds from sale (gross income for percentage depletion		$1,324.29

DEFENSE MINERALS EXPLORATION ADMINISTRATION

ROYALTY REPAYMENTS
AS OF MAY 31, 1954

Operator

Coronado Copper & Zin c Company

Contract No.

E-522

Docket No.

2746

Received During May

- - -

Total Received

$135.38

Date of Last Receipt

12/29/53

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

224 New Customhouse
Denver 2, Colorado

May 10, 1954

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 2746 (Copper-Zinc), Contract Idm-E522, Coronado Copper and Zinc Company, Cochise County, Arizona

Enclosed are the original and two copies of Amendment No. 1 to Contract IDM-E522 which provides that footage and funds not used under Stage I may be used for work under Stage II. Also enclosed are three sets of data relevant to the amendment and three copies of our letter to the operator forwarding his copy of the amendment wherein we approve the performance of diamond drilling holes No. 16, 17 and 18 in conformance with the plan of operation outlined in the second paragraph of the operator's letter of April 10, 1954 which is a part of the data relevant to the amendment.

A copy of the amendment has been given to the Fiscal Officer, Region IV, and a copy retained for our files.

W. H. King

W. H. King

Enclosures

RECEIVED
MAY 20 1954
GENERAL COUNSEL
DEFENSE MINERALS
ADMINISTRATION

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

224 New Customhouse
Denver 2, Colorado

May 10, 1954

Mr. Fred E. Gray
Mine Manager
Coronado Copper and Zinc Company
Johnson Camp Unit
Dragoon, Arizona

Re: Docket DMA 2740 (Copper-Zinc)
Contract IDM-E522

Dear Mr. Gray:

Enclosed is the operator's copy of Amendment No. 1 to Contract IDM-E522 which provides that footage and funds not used under Stage I may be used in the performance of work under Stage II.

Consistent with the stipulations contained in the contract relative to the Government's approval of work, and with the provisions of Amendment No. 1, you are hereby authorized to perform the drilling of diamond drill holes No. 16, 17 and 18 in conformance with the plan of operations outlined in the second paragraph of your letter of April 10, 1954

Very truly yours,

W H King

W. H. King
Executive Officer, D.M.
Field Team, Region IV

Enclosure

JWT:jp
cc Corresp. File
Amdt. File
TAChristensen
WHStorms
AHKoschmann
JWTownsend
COMittendorf (3)

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Box 4126 University Station
Tucson, Arizona

April 16, 1954

Memorandum

To: Mr. A. H. Koschmann, Denver 2, Colorado AHK

From: John E. Faick, Geologist, Tucson, Arizona

Subject: Coronado Copper and Zinc Company
Johnson camp, Cochise County, Arizona
DMEA 2746, Idm E-522

We have received a request, dated April 10, 1954, from the operator of the above project for permission to drill additional surface drill holes in DMEA Area No. 2. These holes are requested because recent geological studies, and data obtained from previous drilling under this project, have revealed an unexplored zone which the operators believe is worthy of exploration. If the proposed drilling is permitted, then the total footage will exceed the amount of drilling authorized by Stage II of the contract; however, adequate funds are available to do the additional drilling. Mr. Gray, Mine Manager, for Coronado Copper Zinc Corporation, reports that it has not been necessary to do all the drifting or crosscutting provided by the contract, and that a balance of $35,193.50 remains of the $99,050 which were originally allowed for the entire project. Thus adequate funds are available for the proposed drilling, although the holes were not specifically provided for in the contract.

The proposed drilling is based on results of the diamond drilling which has been completed under the DMEA program, and on surface geological mapping in and around DMEA Area 2. The proposal is supported by several maps and a short report prepared by Baker, and submitted with the applicant's request. These proposed surface holes were discussed by Hardwick and Faick with the operators when the project was examined on March 17, 1954. At that time Mr. Arthur Baker III, geologist for the operating Company, had not completed compiling his field data for locating these holes, but the data and maps available at that time were examined in anticipation of this proposed addition to Stage II of the contract. This writer again reviewed the proposed drilling with Mr. Gray when he brought the proposal and the supporting data to the Tucson office.

Drilling completed to date indicates that most of Area 2 is underlain by a large mass of garnetite, but that blanket type ore bodies apparently are not associated with it. Drill holes 109, 110, and 113 (see operators' drawing JGA 6 and 9) have penetrated low-grade mineralization, which apparently is concentrated near the north edge of the garnetite mass.

Operators' drawings JGA 6 and Sections B-B' and C-C' show 2 fracture zones, D 112 and D 113, in which minor, small-displacement fractures are concentrated. The fractures in Zone D 113 are interpreted by Baker to be slumpage or subsidence fractures that are spacially related to the north edge of the garnetite mass which underlies Area 2. The D 112 fracture zone projects from the surface to about the center of the garnetite mass, and has been partly explored by drill holes 112, 114 and 115, but no ore was discovered by the holes.

A fracture zone is associated with the Moore "A" ore body, (see operators' map JGA 6) and Baker's reconnaissance work indicates that a zone of similar fractures is concentrated above the Moore "D" ore body. The similarity of the fracture zones over the Moore "A" and "D" ore bodies to the fracture zone D 113 indicates that an ore body could be present in the "favorable" limestone beds where intersected by the D 113 fracture zone.

Some of the ore bodies in the Johnson Camp Area lie along the lateral edges of garnetite masses, in the same beds as the barren garnetite. An example of this type is found in the Republic Manto ore body which has a cross-section of about 30 by 40 feet and a length of 900 feet, and which lies along the down-dip edge of a mass of garnetite. The Moore "A" ore body, with a cross-section about 60 feet by 130 feet also lies along the down-dip side of a garnetite mass. A few ore bodies are associated with very small masses of garnetite, which occur along the lateral edges of the ore body. The Moore "C" and "D" ore body is of this type; and has a cross-section of about 20 by 40 feet.

The proposed diamond drilling is exploration for an ore body similar to the Moore "C" and "D" ore body. It is thought that an elongate ore body, having a small cross-section, could be present in the favorable limestones where they are intersected by the D 113 fracture zone. This intersection is thought to correspond closely to the northern, down-dip margin of the large garnetite mass that underlies most of Area 2. Thus, Baker's suggestion that ore may be present in this area is supported by the presence of the garnetite mass, the D 113 fracture zone, the presence of receptive or "favorable" limestones, and by low-grade mineralization penetrated by drill holes 109, 110 and 113.

Three diamond drill holes, having a total footage of 2550 feet, according to Baker, or 2700 feet, according to Gray, are proposed for testing the edge of the garnetite mass as inferred from the fracture zone. Two other diamond drill holes, totaling 1800 feet of drilling, are requested but their location is left to be decided on the basis of the results of the first three. The location of these holes and the order of drilling is shown on the applicant's maps and sections. It may not be necessary to drill all 3 holes, but if neither No. 16 nor No. 17 find ore, but indicate that the formation may be favorable, then No. 18 would be necessary.

The geology of the area, for which drilling is proposed, appears to be favorable for the concurrence of ore and the proposed holes could result in a discovery. There is no other feasible method by which this zone can be explored at this time. Therefore, it is recommended that the operators' request for drilling holes 16, 17 and 18 be approved.

John N. Faick
Geologist

JNF:ms

cc Koschmann (8)
Storms
Faick

APR 1954
RECEIVED
U.S. Geological Survey
Mineral Deposits Branch
Denver

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 13 1954

April 20, 1954

Memorandum

To : W. H. King, Chief, Mining Division, Region IV

From : Chief, Mining Methods Br., Mining Div., Region IV

Subject : Proposed Amendment, DMEA Contract Idm-E522, Docket DMEA-2746, Coronado Copper & Zinc Co.'s Republic Copper-Zinc Mine, Cochise County, Ariz.

Enclosed in sextuplicate are

(1) Company's request for further diamond drilling, with maps;

(2) Bureau of Mines engineer's recommendation.

The company has asked for additional diamond drilling under Stage II, and also for additional dirfting and/or cross-cutting. As the requested work will not increase the total cost of the project and as there is a good chance of discovering additional ore, I recommend that the company's request be granted.

Walter R. Storms

Walter R. Storms

CC W. H. King (5)
J. N. Faick
DMEA-2746
DF

WRStorms:frj

April 20, 1954

Memorandum

To : Walter R. Storms, Chief, Mining Methods Br., Mining Div., Region IV, Tucson, Ariz.

From : William R. Hardwick, Mining Engineer, Tucson, Ariz.

Subject : Amendment to Contract Idm-E522, Docket DMEA-2746, Coronado Copper and Zinc Co.'s Republic Copper-Zinc Mine, Cochise County, Ariz.

The Republic Mine was visited by John N. Faick, geologist, U. S. Geological Survey, and the undersigned engineer on March 17, 1954. The mine was again visited on April 9, 1954 by the undersigned and the proposed amendment was discussed with Arthur Baker, III geologist for the mining company, and Fred E. Grey, manager of the Johnson Camp unit.

The contract provides for a Stage II, which when approved will authorize an additional 2,000 feet of surface diamond drilling. However, the operator believes that 2,700 feet will be necessary to explore an area on which Mr. Baker has made a special study. Mr. Grey has requested an amendment to permit additional surface drilling. This change will not increase either unit costs or the total amount authorized by the contract. The additional funds will come from an unused portion of Stage I.

The total estimated costs under the contract are compared with the actual expenditures to April 1, 1954 in the following table:

	Contract Estimate		Actually Spent	
Stage I	Feet	Cost	Feet	Cost
Drift and/or crosscut	1,200	$48,800.00	1,005	$40,200.00
Surface Diamond drill	6,500	29,250.00	5,065	23,496.50
Stage II				
Drift and/or crosscut	300	12,000.00		-
Diamond drill	2,000	9,000.00		
Total		$99,050.00		$63,696.50
Government participation		49,525.00		$31,848.25

CC W. H. King (orig. & 5)
J. N. Faick
DMEA-2746
DF

WRHardwick:frj

Although this project has found only one small ore body to date, the operator, the Coronado Copper and Zinc Company, has been exceptionally cooperative and efficient in the execution of the exploration program. The technical men of the company have done an outstanding job of recording and reporting the results. The company is very reliable and it is believed that the program proposed in this request has merit. It is recommended that the additional surface diamond drilling that has been requested by the operator be approved.

William R Hardwick

William R. Hardwick, Mining Engineer
Mining Methods Branch
Mining Division, Region IV

April 10, 1954

Mr. W. H. King, Executive Officer, DMEA,
Field Team, Region 17,
224 Customhouse,
Denver 2, Colorado

Re: Docket No. DMEA-2746
Contract Idm E522

Dear Mr. King:

We are enclosing, herewith, various geological maps and a report by our Geologist, Mr. Arthur Baker, III. These maps and the geological report are submitted to you in support of the following request for approval of further diamond drilling in Area No. 2 of the above captioned project.

You will note that the spacing of the three diamond drill holes, specified in this request, is only 75 feet which may seem rather small for holes of 800 to 900 feet depth. We have located them with this close spacing because the type of orebody we expect in this location is one similar to our "C" orebody. A spacing greater than 75 feet could have straddled the "C" orebody, yet the "C" orebody will produce 60,000 tons of good ore even without its westward extension known as the "D" orebody. We advise, however, that we recommend drilling these holes in the order of their numbering and thus it may not be necessary to drill No. 18, but if neither No. 16 nor No. 17 find ore but indicate that the formation may be favorable between them, No. 18 would then be necessary.

As of April 1st, approximately 4 ft. of drifting remained to be done to complete all of the work provided in Stage I in both Area No. 1 and Area No. 2. At the same time, however, we have spent far less money than was approved for this work. Out of the $99,050 approved for the entire project, we have spent $63,696.50 to April 1st, leaving a balance of $35,353.50 which has been approved for the entire project. Only approximately $160 of this will be needed to complete Stage I, thus leaving approximately $35,193.50 approved in money but not in footage to be drilled, drifted and/or in crosscuts.

At this time we respectfully ask your approval for approximately 2700 feet of surface diamond drilling in the three locations numbered DMEA 16, 17 and 18 on the accompanying maps. As this is more footage of diamond drilling than provided in the contract in Stage II, it may require a change in the contract. In the event a change in the contract is necessary, we suggest that the contract be amended to allow additional diamond drilling, drifting and/or crosscutting to be done up to but not exceeding a total cost for the project of $99,050.00 which has been approved; at the same time providing that the amount and location of such work shall be mutually agreed upon by the government and ourselves. If approved in this manner we assume that the time necessary for approval of further work under the project will be minimized as all that would be necessary thereafter would be approval of your engineers on the location and amount of other diamond drill holes, drifts and/or crosscuts.

We request your decision on this matter as soon as possible so that work under this project may proceed without interruption.

Very truly yours,

CORONADO COPPER & ZINC CO.

By Fred E. Gray
Fred E. Gray
Mine Manager

FEG:rk

Encls.

Geology and Drill Hole Recommendations
For DMEA Area 2, Johnson Camp, Arizona

Docket No. DMEA 2746
Contract Idm 8522

Drawings accompanying this report:
Surface Geologic Map of the Copper Chief Area. Scale: 1" - 100'.
Section A-A', Longitudinal Section through DMEA Fence and D22 Fence. Scale: 1" - 100'.
Section B-B', Cross Section thru D.D. Holes 41 and 112, Scale: 1" - 100'.
Section C-C', Cross Section thru D.D. Hole 115, Scale 1" - 100'.
Structure Contour Map, Copper Chief Area Study, Scale 1" - 100'

SUMMARY AND CONCLUSION

All of the orebodies in the district are associated with garnetite masses, some lying as blanket-like bodies on top of garnetite masses, and others as pipe-like bodies along the lateral edges of garnetite masses. The results of diamond drilling in and around the DMEA Area 2 indicate that a garnetite mass underlies part of this area, but that no blanket-type orebody overlies it. However, there is light mineralization near one edge of the garnetite mass. A fracture zone on the surface is believed to be related to this edge of the garnetite mass. Three diamond drill holes totaling ~~2250~~ 2550' of hole are proposed to test the edge of the garnetite mass, as located by the fracture zone, some 600' from the known mineralization. Two other diamond drill holes, totaling 1800' of drilling, are recommended, but their location is left to be decided on the basis of results of the first three

INTRODUCTION

The diamond drilling recommended in this report is based on information gained from diamond drilling under the DMEA program and on surface geologic mapping in and around DMEA Area 2. The principal diamond drill data are shown in Section A-A', and more detailed information about the drilling is available in the logs of the individual holes. The surface data are shown on the surface geological map.

The surface map is a preliminary print showing the area mapped to date in a project that ultimately will cover the entire district. This mapping was undertaken in hope of finding new orebodies through features appearing on the surface, such as fracture patterns, type and intensity of metamorphism, and scattered mineralization. So far, the last two features show little promise; both are widely distributed, but there are no concentrations that appear likely to indicate ore. Several well-defined fracture zones have been found, however, and the proposed drilling is intended to test one of these.

Since the primary purpose of the mapping is to distinguish rock types and fracturing little attempt has been made on this print to separate formations or members, although some beds can be traced without difficulty through the area. Nearly all of the mapped area is in the Escabrosa formation. Along the southwestern edge of the map is the Martin 7 hornstone, mapped because it is an excellent marker bed. In the northeast corner of the map, a part of Cooper's Unnamed formation was mapped; this bed and the uppermost beds of the Escabrosa are here duplicated by faulting.

Several of the strong faults mapped in the Escabrosa formation on the surface (601, 602, 603, 604, 605 Faults) do not appear in the lower beds on Section A-A', where the closely-spaced diamond drill holes would be sure to show them if they were present. Evidently the Escabrosa was involved in some deformation that did not affect the beds below. The 607, 608 and 609 Faults, which offset the Martin 7 member, as well as the

Escabrosa beds, evidently persist down to the favorable Abrigo beds.

OCCURRENCES OF ORE IN THE DISTRICT

Sixteen important orebodies have been mined in the district. One of these, the Peabody Orebody, lay in the Naco formation, and will not be considered here. The other fifteen were in the favorable beds of the Middle Abrigo member, the beds that have been tested by the DMEA drifting and diamond drilling to date. At the present time, all exploration work in the district is done in these beds.

ASSOCIATION WITH GARNETITE

All of the orebodies are intimately associated with garnetite. Layers of high-grade sulfides several inches thick are interbedded with layers of barren or low-grade garnetite of about the same thickness. On a larger scale, the orebodies as a whole are closely associated with large masses of barren garnetite, but the spatial relationship between orebody and garnetite mass is variable.

Some orebodies lie in the beds immediately above the accompanying garnetite mass. The Republic Northeast Mines Orebody, typical of this type, is 700' long, 200' wide and 15' thick, and lies on a garnetite mass with about the same lateral dimensions but 40' thick.

Other orebodies lie along the lateral edges of garnetite masses, in the same beds as the barren garnetite. One such orebody is the Republic Mantle Orebody, which has an average cross-section of about 30' by 40' and a length of 900'. This orebody lies along the down-dip (north) edge of a mass of garnetite (and some other metamorphic rocks) having a cross-section 350' by 300'. Another example of this type is the Moore "A" Orebody, which, with a cross-section of about 60' by 130', lies along the down-dip edge of a garnetite mass with a cross-section of about the same dimensions.

Finally, there are a few orebodies that are associated with very small masses of garnetite, having only a thin fringe of garnetite on the lower side or lateral edge of the orebody. An example of this type is the Moore "C" and "D" Orebody (genetically a single orebody separated by post-mineral faulting) with a cross-section of about 20' by 40' and a fringe of garnetite 10' to 20' thick on two or three sides.

STRUCTURAL LOCALIZATION

Several kinds of structures are known to localize individual orebodies and also garnetite shoots. Three sets of faults are present in the district - Northeasters, Northwesters and Easters, all named for the direction of their strike. At least some faults of each set were premineral, but the major displacements were post-mineral. In addition, there are two sets of shallow folds, one set trending easterly, the other set northerly.

Most of the orebodies lie within a few hundred feet of major faults, - faults with 50' to 300' displacement. In only one case - that of the Moore "C"-"D" Orebody - is there any clear evidence that the major fault was an important factor in localizing the ore. In most cases, the faults pass near or even through the orebodies with no effect other than displacement. Possibly these major faults were important in large-scale ground preparation, but were not important in the localizing of individual orebodies.

The known orebodies lie in two distinct clusters, one in the Republic Mine, in an area cut by several major Easter Faults, and one in the Moore Mine and vicinity,

in an area cut by a Northwester fault and several large Easter and Northeaster faults. The EMEA Area 2 covers part of the untested ground between these two clusters. Two orebodies are definitely localized by faults. The Moore "B"-"D" Orebody, mentioned above, lies along the intersection of the favorable beds with the East 90 Fault, a fault striking N 45° W and dipping 45° SW. This is the only known fault in the district with this attitude. The Mammoth 467 Orebody lies at the intersection of the favorable beds with a Northeaster fault. Both of these orebodies are pipelike bodies with relatively small equidimensional cross-sections and great length.

Several orebodies in the Republic and Moore Mine are localized by folds of both the northerly and easterly trending groups. In general, the northerly trending folds localized broad, rather thin orebodies lying on top of garnetite masses. An exception to this is the Moore "A" Orebody, which has a triangular cross-section about half as thick as it is broad, and lies at the edge of the garnetite mass. The easterly-trending folds localized pipe-like orebodies, such as the Republic Manto Orebody described above.

For some orebodies, no localizing structure is discernable.

SURFACE GEOLOGY

At the northwest end of the map area is exposed a group of closely-spaced limonite-stained fractures, labeled the "A" Orebody Fracture Zone. These fractures trend about N 5° W, and dip steeply west. The strike of these fractures, and of the zone as a whole, is approximately parallel to the long axis of the Moore "A" Orebody, and if projected downward at about 70° W dip, the fracture zone coincides with the "A" Orebody. Fracturing with a similar attitude is common in the "A" Orebody, and probably represents the continuation of the fracture zone exposed on the surface.

On the surface above the Moore "D" Orebody (not mapped), reconnaissance work shows a similar group of fractures, with their strikes about parallel to the axis of the orebody (about N 45° W). Above the Moore "B" and "C" Orebodies there are only scattered small outcrops, so there is no way to determine whether or not fracture zones mark these orebodies too.

In the EMEA Area 2, two fracture zones similar to the "A" Orebody Fracture Zone have been found. These are labeled on the map as the B113 Fracture Zone and the D112 Fracture Zone. Both of these zones strike about S 75° E and the individual fractures dip south, though for the most part the dips are not so steep as those of the "A" Orebody fractures. Both zones are well developed only where they lie in the unaltered dolomite near the bottom of the Escabrosa formation, and more or less disappear where they enter the beds above and below. The manner of their disappearance, and the manner of disappearance of individual fractures on the ground indicates that the zones do not end where they pass out of the dolomite, but rather that in the new host rocks the fractures are too inconspicuous to be mapped. A group of fractures near N 10250, E 8100 is probably the continuation of the B113 Fracture Zone, and is shown as such on the map.

INTERPRETATION OF THE SURFACE GEOLOGY

When the B113 Fracture Zone was mapped, it was hoped that this marked a new orebody, and DDH 113 (EMEA No. 11) was drilled to test the favorable beds below the fracture zone. The hole cut only thin garnetite and two thin stringers of sulfides.

A new interpretation, based principally on the distribution of garnetite in the DMEA drill holes and others in the area, is that this fracture zone is related to the north edge of a garnetite mass. Section B-B' is a cross-section through this garnetite mass at right angles to the strike of the fracture zone and to the inferred axis of the garnetite shoot. Diamond drill holes in the surrounding area have been projected to the section, and the thickness of garnetite in each hole shown, to demonstrate the relationship between the fracture zone and the edge of the thick garnetite mass.

Although the cross-section demonstrates a spatial relationship between the D113 Fracture Zone and the edge of the garnetite mass, there is no evidence as to a genetic relationship. The writer thinks it quite possible that the fracture zone was caused by slight slumpage resulting from volume loss during formation of the garnetite mass. Cooper (1950, p. 35) has discussed some of the evidence for loss of volume during metamorphism in this district. The concentration of the slumpage effects into a narrow zone of parallel fractures presumably results from the features: 1) the transition from thick garnetite to unaltered limestone is quite abrupt at this edge, so that the zone of differential movement above this transition area would be quite narrow; and 2) the axis and edge of the garnetite shoot are parallel to the plane of weakness elsewhere marked by Master faults.

According to this reasoning, there should be at the south edge of the garnetite mass a similar fracture zone, and between the two fracture zones should be a relatively unbroken area, where the rocks have been dropped with little differential movement because of this uniform volume loss of the underlying garnetite. If such a fracture zone is present at the extreme south edge of the shoot, it cannot be recognized on the surface, because the beds in which it outcrops mask the fracturing.

The wide D112 Fracture Zone projects to the favorable beds at about the center of the garnetite mass. In this particular area, the garnetite is some 50' thicker than in the adjoining parts of the shoot (see Section B-B'), and this irregularity may have produced the fracture zone. Somewhere west of the exposure of the D112 Fracture Zone, the garnetite shoot evidently divided (see Structure Contour Map), and this division may have produced the fracturing.

One point made very clear by the DMEA drilling to date is that there is no Northeast Minas-type orebody associated with this garnetite mass — all of the holes drilled into the main part of the garnetite were completely barren, proving that there is no blanket of ore overlying the garnetite. The low-grade mineralization that has been found associated with the garnetite mass is all near the edge of the shoot, and particularly near the north edge — in D.D. Holes 109, 110 and 113, and in D.D. Hole 79, if this hole is in the same garnetite mass. Thus, the available evidence shows that there is a concentration of mineralization near the north edge of the garnetite mass. Further exploration of this area is recommended, in hopes of finding an orebody similar to the Republic Manto Orebody.

The location of only one point on the north edge of the garnetite shoot is known - in the vicinity of D.D. Holes 109, 110 and 113. If the relationship between the D113 Fracture Zone and the garnetite edge is as described above, however, the trend of the garnetite edge can be determined from the location of the fracture zone. This has been done on the Structure Contour Map and on Sections B-B' and C-C'. An average dip for the fracture zone of 70° S has been assumed; the basis for this assumption is the evidence that the D113 Fracture Zone in the vicinity of DDH 113 (see log of DDH 113) and also the "A" Orebody Fracture Zone both have that dip angle. The three diamond drill holes proposed below are located on the basis of this projection.

Proposed DMEA No. 16, at N 10133, E 7522, vertical down, approximately 800' long.
Proposed DMEA No. 17 at N 10277, E 7560, vertical down, approximately 900' long.
Proposed DMEA No. 18 at N 10205, E 7540, vertical down, approximately 850' long.

These holes are designed to test the north edge of the garnetite mass about 600' east of D.D. Hole 113, close to the 609 Fault. The 609 Fault is steep, but whether its average dip is east or west is not known. The fence of holes is laid out on ~~this~~ the assumption that it is vertical, but a dip as flat as 70° either east or west will probably not affect the chance of finding ore, since the garnetite edge is presumably the controlling feature, and as described above, orebodies are not generally limited to the immediate vicinity of major faults.

The holes are intended to be drilled in the order of their numbering. Number 16 is laid out to fall somewhat within the garnetite mass, since D.D. Holes 109 and 110 show that mineralization persists 100' or more in from the edge. It is assumed that this hole, then, will intersect thick garnetite; if it finds no ore, Hole No. 17 is located 150' north, to be sure that the edge of the garnetite has been found. It should intersect thin garnetite; if it finds no ore, Hole No. 18 is located midway between 16 and 17. This final 75' spacing should find any but a very narrow orebody along the garnetite edge. If Hole No. 17 should intersect thick garnetite, the proposed location of No. 18 can be abandoned, and the hole drilled at some distance further north of Hole No. 17.

Arthur Baker III

Arthur Baker, III

April 5, 1954.

PRELIMINARY LEGEND

COPPER CHIEF AREA STUDY
STRUCTURE CONTOUR MAP

April 3, 1954 ABIII

mine level workings

D108
◎(22/0/21 vertical diamond drill hole. Figures in parentheses refer to vertical thickness of garnetite logged, respectively good, fair, poor garnetite

4600 contour on contact between Upper Abrigo member and Middle Abrigo member (equals hanging wall of favorable beds)

intersection of normal fault with contoured horizon

intersection of vertical or reverse fault with contoured horizon

thick (25' or more) good garnetite

thin garnetite or no garnetite

PRELIMINARY LEGEND

FOR SECTIONS TO ACCOMPANY RECOMMENDATIONS FOR
DMEA DRILLING

April 3, 1954 ABIII

ore
Escabrosa formation, undifferentiated
Martin 7 member
Martin 1 - 6 members, undifferentiated
Martin 5 member
Upper Abrigo member, white tactite
Middle Abrigo member, garnetite
Midele Abrigo member, limestone or siliceous limestone

fault
mineralization

PRELIMINARY LEGEND
JOHNSON CAMP SURFACE GEOLOGIC MAP
April 3, 1954 ABIII

ROCK TYPES

Major Divisions

- qa alluvium
- ss sandstone or quartzite
- l limestone, fine-grained
- cl limestone, coarse-grained
- d dolomite
- dd dedolomitized rock
- tc tactite (diopside rock)
- cc coarse calcite (1/2" - 10" crystals)
- m7 Martin 7 member -- hornfels

Minor Subdivisions
(symbols used as prefixes for symbols of above)

- ch cherty
- t tremolitized
- s serpentinized
- ts tremolitized and serpentinized
- g garnetized
- c calcite (slightly limy dolomite, probably dedolomitized but no metamorphic minerals are visible)

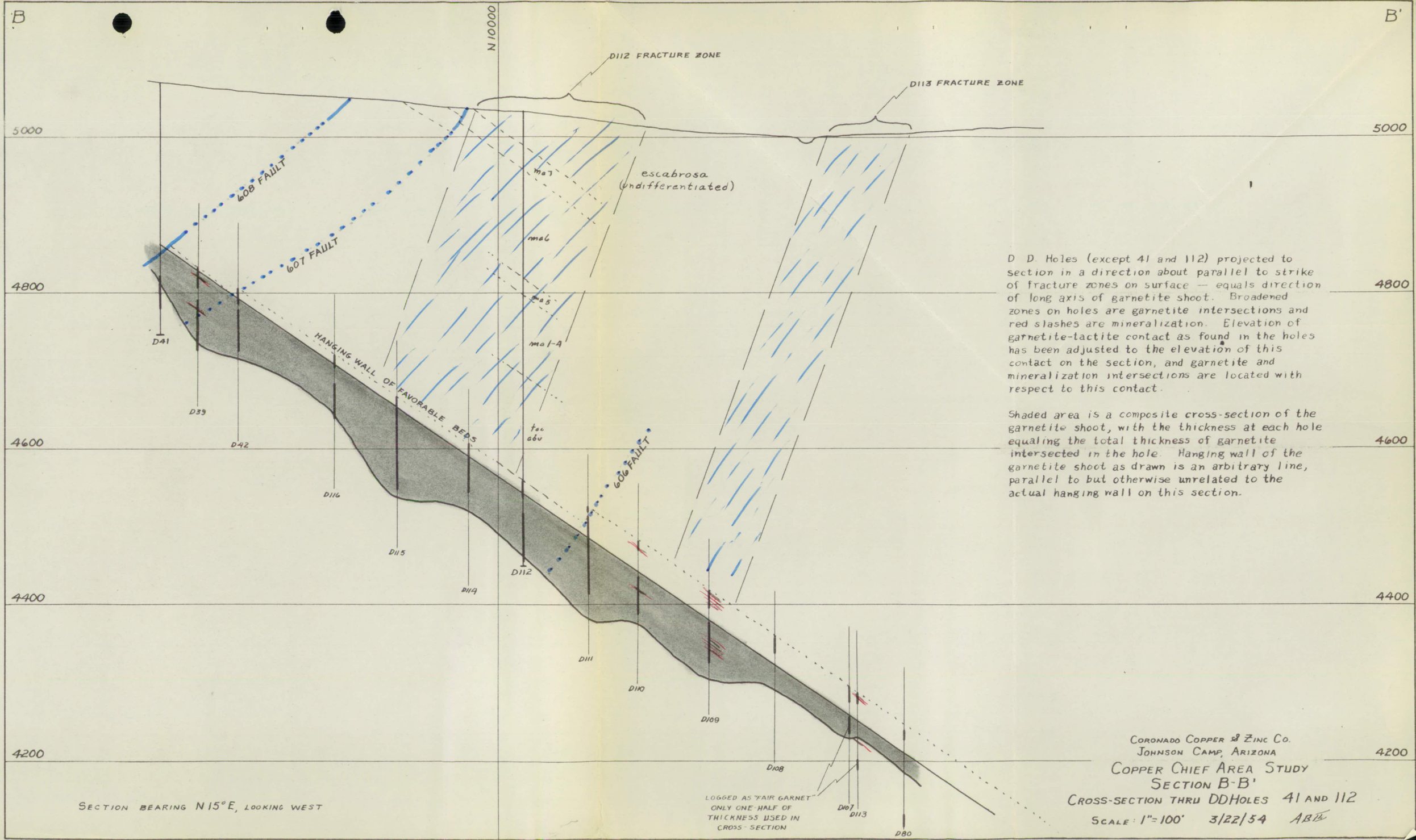
FRACTURES

Symbols

- persistent single fracture or narrow shear zone
- non-persistent closely spaced sheeting
- large brecciated area or persistent wide shear zone

Colors
(used to indicate character of fracture symbols)

- copper mineralization
- silica (quartz, jasper or, especially for non-persistent sheeting, metamorphism or walls of fractures)
- iron-staining
- simple shear without introduced material



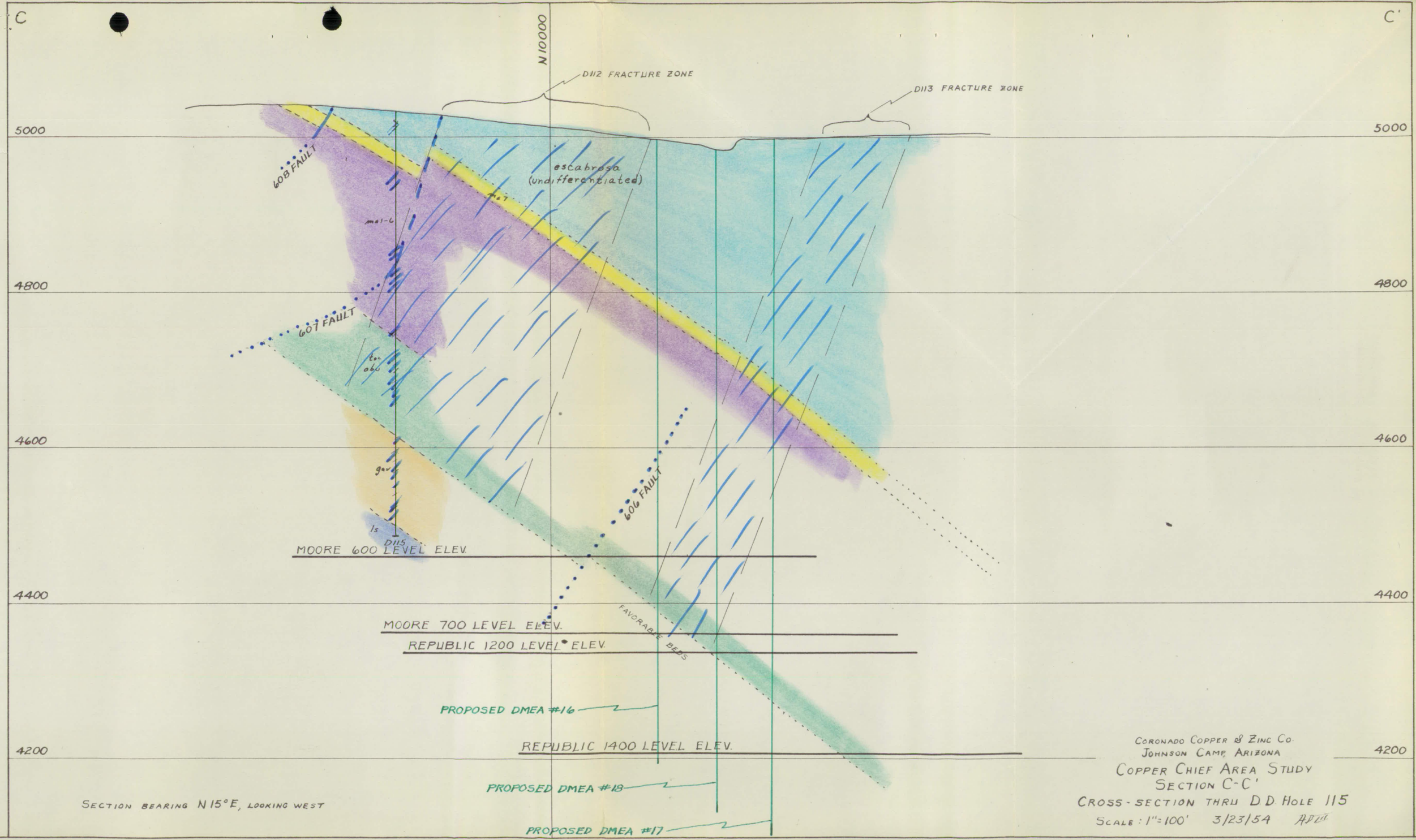
D D. Holes (except 41 and 112) projected to section in a direction about parallel to strike of fracture zones on surface — equals direction of long axis of garnetite shoot. Broadened zones on holes are garnetite intersections and red slashes are mineralization. Elevation of garnetite-tactite contact as found in the holes has been adjusted to the elevation of this contact on the section, and garnetite and mineralization intersections are located with respect to this contact.

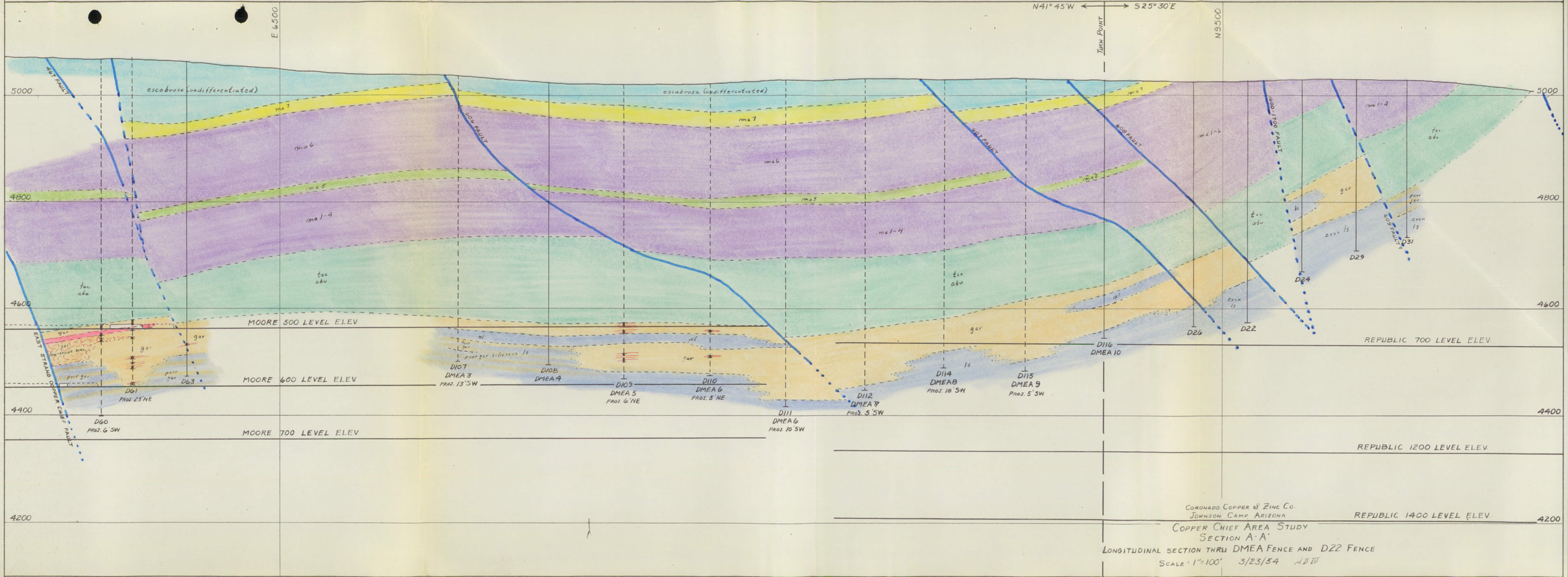
Shaded area is a composite cross-section of the garnetite shoot, with the thickness at each hole equaling the total thickness of garnetite intersected in the hole. Hanging wall of the garnetite shoot as drawn is an arbitrary line, parallel to but otherwise unrelated to the actual hanging wall on this section.

CORONADO COPPER & ZINC CO.
JOHNSON CAMP, ARIZONA

COPPER CHIEF AREA STUDY
SECTION B-B'
CROSS-SECTION THRU DD HOLES 41 AND 112

SCALE: 1" = 100' 3/22/54 ABH


C
C'
N 10000
D112 FRACTURE ZONE
D113 FRACTURE ZONE
5000
4800
4600
4400
4200
608 FAULT
607 FAULT
606 FAULT
escabrosa
(undifferentiated)
mel-6
lor
abl
gw
ls
D115
MOORE 600 LEVEL ELEV.
MOORE 700 LEVEL ELEV.
REPUBLIC 1200 LEVEL ELEV.
REPUBLIC 1400 LEVEL ELEV.
FAVORABLE BEDS
PROPOSED DMEA #16
PROPOSED DMEA #18
PROPOSED DMEA #17
SECTION BEARING N 15° E, LOOKING WEST
CORONADO COPPER & ZINC CO.
JOHNSON CAMP, ARIZONA
COPPER CHIEF AREA STUDY
SECTION C-C'
CROSS-SECTION THRU D.D. HOLE 115
SCALE: 1" = 100'
3/23/54



CORONADO COPPER & ZINC CO.
JOHNSON CAMP ARIZONA

COPPER CHIEF AREA STUDY
SECTION A-A'
LONGITUDINAL SECTION THRU DMEA FENCE AND D22 FENCE
SCALE: 1"=100' 3/23/54 ADV

DEFENSE MINERALS EXPLORATION ADMINISTRATION

ROYALTY REPAYMENTS
AS OF APRIL 30, 1954

Operator

Coronado Copper & Zinc Company

Contract No.

E-522

Docket No.

2746

Received during April

$ -

Total Received

$ 135.38

Date of Last Receipt

12-29-53

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

224 New Customhouse
Denver 2, Colorado

April 5, 1954

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 2746 (Copper-Zinc), Contract IDM-E522, Coronado Copper and Zinc Company, Cochise County, Arizona

Enclosed for your records are three copies of the work authority consistent with the stipulations contained in Exhibit "A" of Contract IDM-E522, Docket DMEA 2746. Also enclosed are three sets of data relevant to the work authority.

W. H. King

W. H. King

Enclosures

224 New Customhouse
Denver 2, Colorado

March 29, 1954

Mr. Fred E. Gray
Mine Manager
Coronado Copper and Zinc Company
Johnson Camp Unit
Dragoon, Arizona

Re: Docket DMEA 2746 (Copper-Zinc)
Contract IDM-E522

Dear Mr. Gray:

Reference is made to your letter of March 17, 1954, wherein you request authorization to drill diamond drill holes No. 12, 13, 14 and 15.

Consistent with the stipulations contained in Exhibit "A" attached to Exploration Project Contract Form MM-200(A) of Contract IDM-E522, Docket DMEA 2746, this constitutes the Government's approval and your authorization to perform the drilling as outlined in your letter of March 17, 1954, and as shown on the photostat copy of the map supplied by you which is attached herewith and made a part of this work authority.

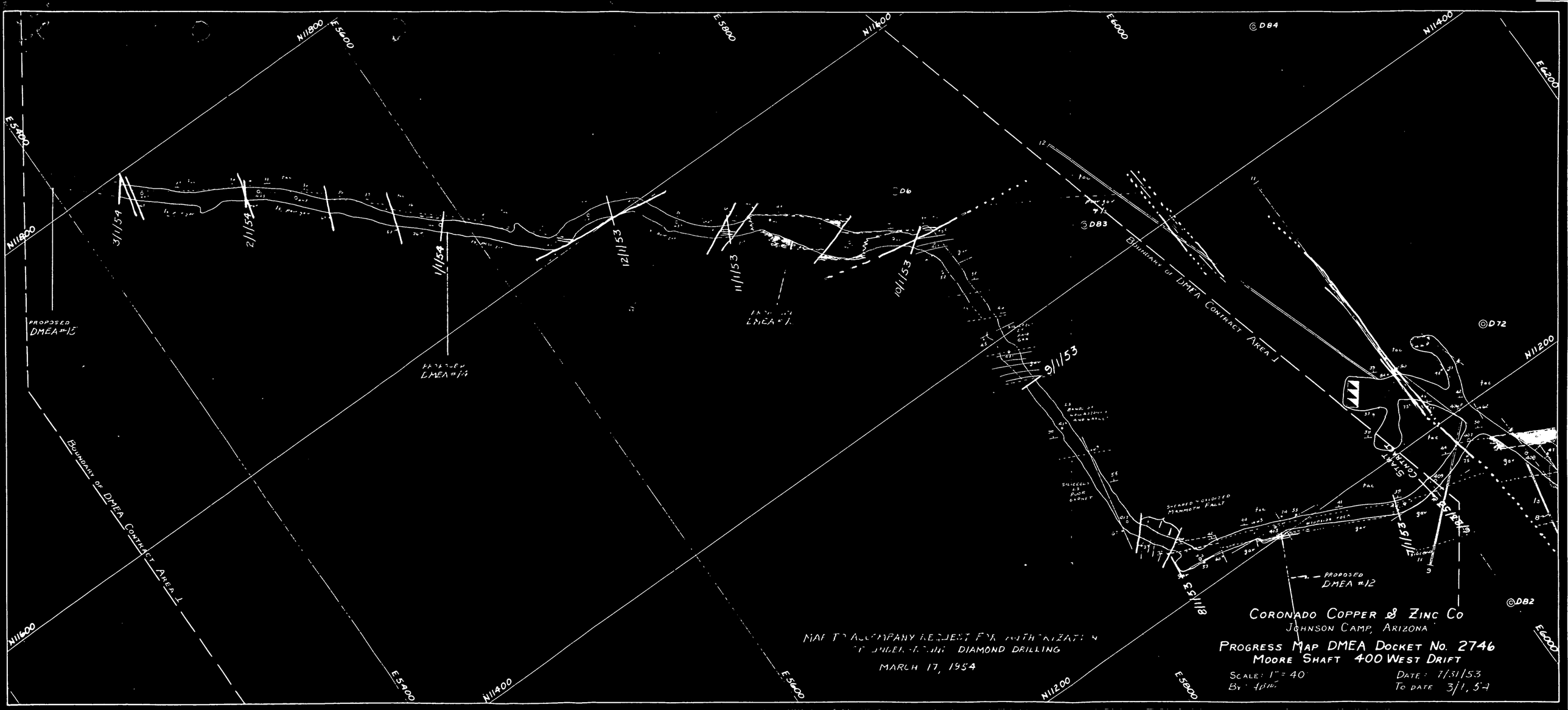
Nothing in this work authority shall be construed to increase the estimated total cost of the project, the amount of the Government's contribution, or any item of allowable cost which is expressly designated "allowable maximum".

Very truly yours,

John F. Shaw
John F. Shaw
For W. H. King

A. H. Koschmann
A. H. Koschmann
DMEA Field Team, Region IV

JWT:jp
cc Contract
Amdt/
Chron
TAChristensen
AHKoschmann w/encls
WHCtorms) w/copy geol.rept.
AFShride) & opr's request
COMittendorf (3)
JWTownsend


N11800
E5400
E5800
N11600
N11400
N11200
E6000
E6200
3/1/54
2/1/54
1/1/54
12/1/53
11/1/53
10/1/53
9/1/53
8/1/53
7/31/53
PROPOSED DMEA #15
PROPOSED DMEA #14
PROPOSED DMEA #1
PROPOSED DMEA #12
BOUNDARY OF DMEA CONTACT AREA 1
DB4
DB3
DB2
D6
D72
SHEARED & OFFSET MAMMOTH FAULT
MOORE SHAFT
MAP TO ACCOMPANY REQUEST FOR AUTHORIZATION TO UNDERTAKE DIAMOND DRILLING
MARCH 17, 1954
CORONADO COPPER & ZINC CO
JOHNSON CAMP, ARIZONA
PROGRESS MAP DMEA DOCKET NO. 2746
MOORE SHAFT 400 WEST DRIFT
SCALE: 1" = 40'
DATE: 7/31/53
TO DATE 3/1, 54

March 19, 1954

Memorandum

To : W. H. King, Chief, Mining Division, Region IV

From : Chief, Mining Methods Br., Mining Div., Region IV

Subject : Request for Approval to Start Stage II, DMEA Contract Ida-1522, Docket DMEA-2746, Coronado Copper & Zinc Co.'s Republic Copper-Zinc Mine, Johnson Camp, Cochise County, Ariz.

Enclosed in sextuplicate are

(1) Request from the Coronado Copper & Zinc Co. to start Stage II of Contract Ida-1522 by first drilling four horizontal diamond drill holes from the drift driven under Stage I, then possibly other Stage II work at a later date.

(2) Bureau of Mines engineer's recommendation.

At this time the company requests permission to start diamond drilling under Stage II by drilling four horizontal holes from the drift, which was driven under Stage I, as shown on the map accompanying the company's request. Later, the company proposes to again drill from the surface, but is not prepared to designate surface drill hole sites at this time.

As the four underground holes, as proposed by the company, will explore the footwall portion of this mineralized area with the possibility of discovering additional ore shoots, I recommend that the company's request to drill these holes at this time under Stage II be granted.

I believe John N. Faick of the Geological Survey, who accompanied Hardwick to the mine on March 17, also concurs with this request, and will submit a separate report with his recommendation.

Walter R. Storms

Walter R. Storms

CC W. H. King (5)
A. F. Shride
DMEA-2746
DF

WRStorms:frj

March 19, 1954

Memorandum

To : Walter R. Storms, Chief, Mining Methods Br., Mining Div., Region IV, Tucson, Ariz.

From : William R. Hardwick, Mining Engineer, Tucson, Ariz.

Subject : Request for approval to start Stage II, Docket MMA-2746, Contract Idn-2522, Coronado Copper & Zinc Co.'s Republic Mine, Cochise County, Ariz.

The Republic mine was visited on March 17, 1954. At that time John N. Faick, Geologist, U. S. Geological Survey, and the undersigned discussed Stage II with Mr. Fred L. Grey, Mine Manager, and Mr. Arthur Baker III, Company Geologist. In a letter dated March 17, 1954 the Coronado Copper & Zinc Co. has requested approval of four diamond drill holes to be drilled underground from favorable locations.

The operator has completed 944.5 feet of drifting and crosscutting at a cost of $37,780.00. One small, but significant copper-zinc ore body has been found from which 1,311.27 tons of ore, containing 1.90 percent copper and 6.15 percent zinc, has been mined. The limits of this ore have not been defined, but a rough guess of 10,000 to 20,000 tons seems reasonable at this time.

The prospect holes proposed by the operator have been located at favorable points and the combined total depth seems reasonable. In other parts of the mine, ore has been found under similar conditions and it seems reasonable to expect that ore might be found by the holes proposed.

Therefore, it is recommended that the operators request be approved.

William R. Hardwick

William R. Hardwick, Mining Engineer
Mining Methods Branch
Mining Division, Region IV

CC W. H. King (Orig. & 5)
A. F. Shride
MMA-2746
DF

WHHardwick:frj

March 17, 1954

Mr. W. H. King, Executive Officer, DMEA,
Field Team, Region IV,
224 Customhouse,
Denver 2, Colorado.

Dear Mr. King: DMEA 2746, Contract IDM-S 522

We expect to complete the drifting approved in Stage 1, Area 1 early in April. As we encountered the Mammoth Fault sooner than expected, the total drifting and crosscutting necessary to complete the work as approved will be approximately 214 feet less than the amount approved. This amounts to $8560 less than the amount of money approved for this purpose.

In Stage 11 an additional 2000 feet of diamond drilling either from the surface or underground in Area 1 and/or 2, and 300 feet of drifting and/ or crosscutting in Area 1 has been approved if in the opinion of the government it is advisable.

As soon as the drifting under Stage 1 is finished we wish to explore the ground in the footwall of the drift. On the accompanying map we have located four holes for this purpose, numbered DMEA Nos. 12, 13, 14 and 15. The first two, Nos. 12 and 13, will start in garnet and will explore the footwall portion of the garnet. The other two, Nos. 14 and 15, will start in poorly garnetized limestone and will explore the possibilities of a garnet and ore horizon in the footwall of the drift. In that area we may have a similar situation to that existing on the 500 level in the "C" orebody. In that area on the 500 level, we have approximately 50 feet of poorly garnetized limestone between the ore and the tactite.

We are hereby requesting approval of the four diamond drill holes, Nos. 12, 13, 14, and 15 mentioned above. The depth of the holes is not known, but the combined total depth of them is not expected to exceed 265 feet and may be somewhat less. In the event any of these holes are encouraging, we may then wish to crosscut and drift to explore further. this would be covered by the 300 feet of additional drifting and/or crosscutting allowed in this area under Stage 11.

We are not yet ready to spot the additional holes from the surface provided in Stage 11 in Area 2, but expect to be ready within two or three weeks. At that time we will apply to you for approval of them.

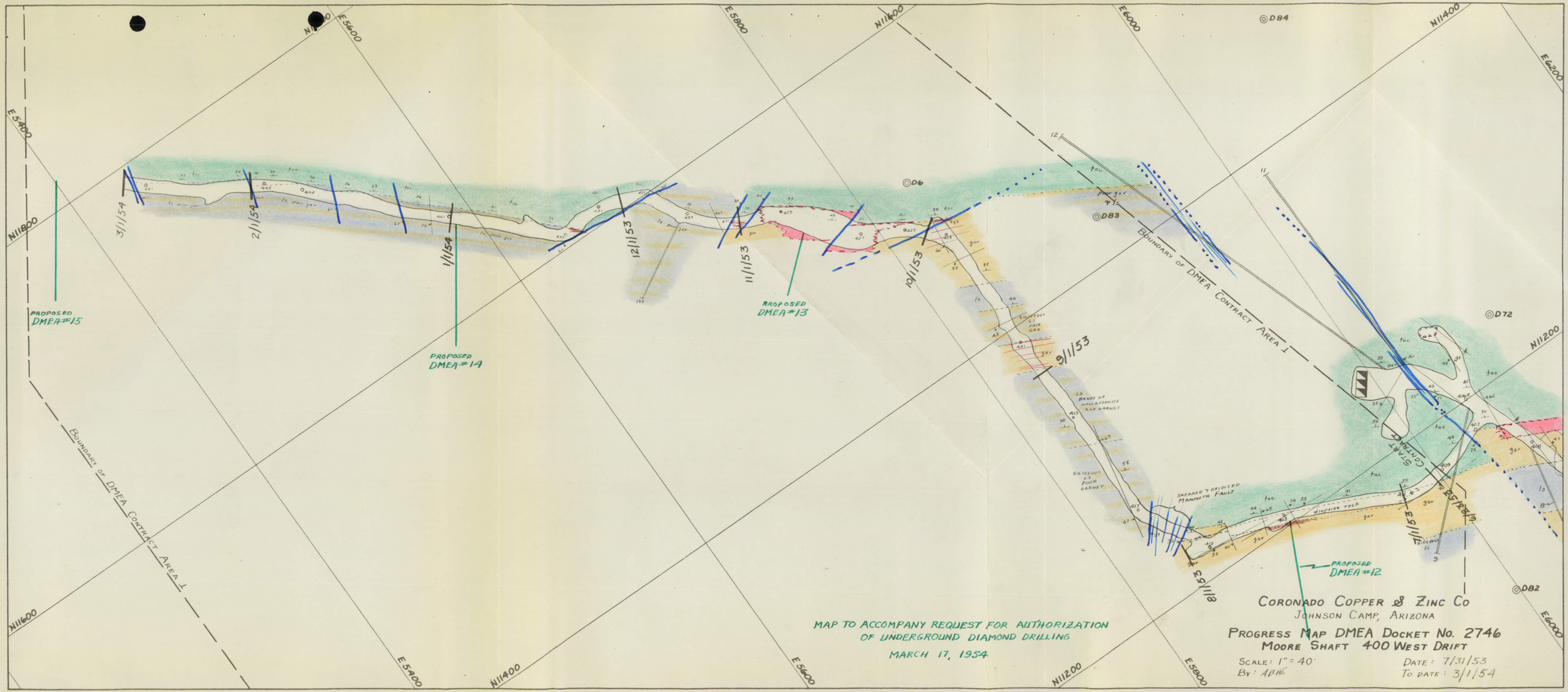
As the time is short between now and the time we will complete the drifting, we request that approval of the four diamond drill holes, Nos. 12, 13, 14, and 15, be granted as soon as possible so that a recess in our DMEA operations will not be necessary.

Very truly yours,

Fred E. Gray

Fred E. Gray
Mine Manager. Coronado Copper and Zinc Company

CC
DMEA 5
Mr. George Dub
File



MAP TO ACCOMPANY REQUEST FOR AUTHORIZATION OF UNDERGROUND DIAMOND DRILLING

MARCH 17, 1954

CORONADO COPPER & ZINC CO
JOHNSON CAMP, ARIZONA

PROGRESS MAP DMEA DOCKET NO. 2746
MOORE SHAFT 400 WEST DRIFT

SCALE: 1" = 40'
BY: ABW

DATE: 7/31/53
TO DATE: 3/1/54

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Box 4126
Tucson 5, Arizona

March 26, 1954

Memorandum

To: A. H. Koschmann AHK

From: John N. Falck

Subject: Request for approval to start Stage II, DMEA Docket 2746, Contract Ida-E522, Coronado Copper and Zinc Company, Republic Copper-Zinc Mine, Johnson Camp, Cochise County, Arizona

On March 17, 1954, W. R. Hardwick, engineer, U. S. Bureau of Mines, and this writer visited the Republic mine for the purpose of examining the work thus far completed under Stage I of the above project, and also for the purpose of appraising the initial work which is being proposed under Stage II.

Under Stage I 944.5 feet of drifting have been completed at a cost of $37,730. The operators estimate that the total drifting and crosscutting that will be required to complete Stage I will be 214 feet less than the amount originally approved and that the cost will be about $8,560 less than estimated.

The work completed has explored a contact between garnet or garnetized limestone, and tactite (diopside). This work resulted in the discovery of an ore body from which about 1300 tons of ore containing about 2 percent copper and about 6 percent zinc have been produced. The reserve in this ore body is not established but this writer estimates reserve in this ore body is not established but this writer estimates (tentatively) that it contains about 20,000 tons.

The initial work proposed by the operators under Stage II is the drilling of 4 diamond drill holes (see map submitted by the operator) to explore a zone on the footwall side of the drift which is being driven under Stage I. This footwall zone is thought to be favorable for localization of ore because of the nature of the metamorphism of the limy beds, because of faults and fractures in the metamorphosed zone, and because conditions are similiar to those in vicinity of the "C" ore body in another part of the mine. The "C" ore body was separated from the garnet-tactite contact by about 30 feet of garnet. It is, therefore, advisable to determine if ore exists under similiar conditions in the zone being explored with BMEA assistance.

The four proposed holes are located in areas favorable for exploration and will explore the footwall zone for a relatively small cost. The length of the holes is not known, but the combined total depth is not expected to exceed 265 feet. If encouraging results are obtained from these holes, then additional work in this footwall zone may be required at a later date.

The operators are not ready to undertake all of the exploration allowed under Stage II, but in order to avoid any future delay, it is proposed to start Stage II by drilling the 4 holes mentioned above, as was requested in a letter dated March 17, 1954, from the operator to Mr. W. M. King.

As the four underground holes proposed by the operator will explore the footwall portion of a mineralized zone in which additional ore may be discovered, it is recommended that the request to drill these holes under Stage II be granted.

/s/ John M. Falck

John M. Falck
Geologist

DEFENSE MINERALS EXPLORATION ADMINISTRATION

ROYALTY REPAYMENTS
AS OF MARCH 31, 1954

Operator

Coronado Copper and Zinc Company

Contract No.

E-522

Docket No.

2746

Received During Feb. & March

--

Total Received

$ 135.38

Date of Last Receipt

12-29-53

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

Defense Minerals Administration
RECEIVED
FEB 25 1954

224 New Customhouse
Denver 2, Colorado

February 23, 1954

~~Colo~~
Betty

Mr. C. W. Six, Treasurer
Coronado Copper and Zinc Company
1206 Pacific Mutual Building
523 West Sixth Street
Los Angeles 14, California

Re: DMEA Docket 2746 (Copper-Zinc)
Contract Idm-E522

Dear Mr. Six:

A letter received from the Arizona-New Mexico branch of the Bureau of Mines states in part:

"The Republic Mine was visited on January 7, 1954. The method of computing royalty payments as provided by DMEA Order, Sec. 10, was explained to Mr. Fred E. Grey, Manager, and to Mr. Joe Sierakoski, Mine Engineer, who makes the calculations. It was emphasized that royalty payments should be computed on the value of the product in whatever form it is disposed, and at the rates provided in Article 6 of the contract.

The Operator was requested to separate all ore mined under the DMEA project by a distinctive mark from all ore that was not mined under the DMEA project when this report is submitted in the future.

It was suggested to the operator that he submit a new calculation based on the value of the product actually sold at the point of [illegible]. Mr. Grey was advised that four copies of each settlement [illegible] for each lot of DMEA ore should be included with the settlement check."

As stated in this letter, your mine manager, Mr. Grey, has been informed as to the acceptable method of calculating royalty due the U. S. Government.

This office has also been informed that the following tonnages of ore were concentrated and shipped from DMEA exploration work on the subject property:

October 1953	453.98 tons
November 1953	220.00 tons
December 1953	179.24 tons
January 1954	240.53 tons

To date, we have received royalty payments from you for ore shipped during October only. Please inform us as to when we may expect royalty payments for ore shipped subsequent to October 1953.

Also, regarding royalty payment for October 1953, we note that royalty due was calculated at 3 percent based on the valuation of the ore as mined instead of 5 percent based on the concentrate value, the form in which it was sold. Royalty at 5 percent on concentrates shipped during October 1953 would amount to $255.62; whereas payment received was $135.38, leaving a balance due of $90.24. Please send your check for this amount to W. H. King, Executive Officer, DMEA Field Team, Region IV, 224 New Customhouse, Denver 2, Colorado. Check should be made payable to the Treasurer of the United States.

We again stress the fact that all ore produced from land described in Article 2 of your contract is subject to royalty payments. Annex I of the subject contract fully describes the land referred to in Article 2.

Very truly yours,

W H King

W. H. King
Executive Officer
DMEA Field Team
Region IV

R oyalty File E522
Chron.
W.R. Storms
Sec. to Oper. Comm. (2) w/enc. copies of memos ✓
Christensen w/enc. copy of memos
Berk

January 11, 1954

Memorandum

To : W. H. King, Chief, Mining Division, Region IV

From : Chief, Mining Methods Br., Mining Div., Region IV

Subject : Royalty Payments, Contract Idm-4522, Docket DMA-2746, Coronado Copper & Zinc Co.'s Republic Copper-Zinc Mine, Johnson Camp, Cochise County, Ariz.

In regard to your memorandum of December 24 on royalty payments under Contract Idm-4522, W. H. Hardwick of the Bureau of Mines visited the Republic mine on January 7 and checked the royalty calculations and location of ore mined.

The operator has been paying royalty on all ore mined from the project area; ore also was mined from another area in the mine which was outside the contract project area.

Hardwick also informed the mine manager that royalty payment should have been on concentrates instead of on ore.

Attached is a short interim report by Hardwick.

Walter R. Storms

Walter R. Storms

cc W. H. King (6)
DMA-2746 Proj. Reports
DMA-2746 Royalty
MF

wRStorms:frj

January 8, 1954

Memorandum

To : Walter R. Storms, Chief, Mining Methods Branch, Mining Division, Region IV

From : William H. Hardwick, Mining Engineer, Tucson, Ariz.

Subject : Interim Report, Contract DMSA-2746, Contract Ida-8322, Cananea Copper and Zinc Company's Republic Mine, Cochise County, Ariz.

The Republic Mine was visited on January 7, 1954. The method of computing royalty payments as provided by DMSA Order 1, Sec. 10, and further described by DMSA Circular No. 32, April 20, 1953, was explained to Mr. Fred K. Gray, Manager, and to Mr. Joe Zierahanki, Mine Engineer, who makes the calculations. It was emphasized that royalty payments should be computed on the value of the product in whatever form it is shipped, and at the rates provided in Article 4 of the Contract. The attention of the Operator was also directed to the method of determining the net value of the ore as provided by the contract and further explained in DMSA Circular 32, April 20, 1953.

The location from which the ore came, reported in connection with a payment of $115.38, was investigated. It was found that only the ore mined on the 400-level came from the ground described in Article 2 of the Contract. This ore is reported from two locations: "400 L-W HW Drift", and "400 L - W. HW Drift - Com. Stp." in a report which the operator calls "Breakdown of Mine Ore". All other ore shown in this report did not come from property described in Article 2 of the Contract.

The Operator was requested to separate all ore mined under the DMSA project by a distinctive mark from all ore that was not mined under the DMSA project when this report is submitted in the future. In general, all ore mined from the 400 level will be from the property described in Article 2 of the Contract, while ore mined from the 300 level or the 500 level will not be from subordinated ground.

The method used by the Operator to account for the ore mined from various places in the mine, including the DMSA project, was checked and is reasonable. It was suggested to the operator that he submit a

cc: W. H. King (orig. & 6)
DMSA-2746 Proj. Mgmt.
DMSA-2746 Royalty
DF

WHHardwick:fr;

new calculation based on the value of the product actually sold at the point of disposal. It is believed that on the supporting "Breakdown of Mine Gross" report he will also show distinctly what ore is from the DMA project, as suggested.

Mr. Gray stated that while the basic calculations are made in the mine office, the final check will be made by Mr. C. W. Six, the company's treasurer in Los Angeles, who also supplies the settlement sheet. Mr. Gray was advised that four copies of each settlement sheet for each lot of DMA ore should be included with the settlement check.

William R. Hardwick

William R. Hardwick, Mining Engineer
Mining Methods Branch
Mining Division, Region IV

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 19 1954

224 New Customhouse
Denver 2, Colorado

February 17, 1954

Memorandum

To: T. A. Christensen

From: Executive Officer, DMEA Field Team, Region IV

Subject: Calculation sheets for royalty received December 24, 1953 from Coronado Copper and Zinc Company $135.38, Docket No. DMEA 2746, Contract Idm-E522

Enclosed are your copies of calculation sheets for royalty payment made to this office and transmitted to you on December 24, 1953 in the amount of $135.38.

W. H. King

Enclosures

es

cc: Sec. to the Oper. Comm. (2) w/enc.
Royalty File
Chron.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 19 1954

CORONADO COPPER AND ZINC COMPANY

Statement of D.M.E.A. Percentage Royalty Covering Production of Copper and Zinc ores from 400 Level Based upon Gross Revenue realized from Sales in October.

Month of October 1953

Calculated net proceeds from sale of concentrates derived from milling of 458.93 dry tons, of ore mined from the D.M.E.A. 400 level project during October 1953 (per Schedule III)		
Sale of 23.22 dry tons of copper concentrate as per Schedule I		$3,191.36
Sale of 34.91 dry tons of zinc concentrate as per Schedule II		1,321.19
Total net proceeds		$4,512.55
Net proceeds per ton of ore mined from D.M.E.A. 400 level (458.93 tons)	$9.83276	
Royalty payment for October -		
3% of $4,512.55		$ 135.38

Schedule I

CORONADO COPPER AND ZINC COMPANY

Calculated net proceeds from sale of 23.22 S.D. tons of copper concentrates derived from 458.93 S.D. tons of D.M.E.A. ore mined in October 1953, using metal prices, smelter deductions and charges, and expenses as were applicable to the total of 463.043 tons of copper concentrate delivered to the smelter in October 1953.

Quantity 25.42 wet tons, moisture 8.66%, 23.22 dry tons.

	Copper	Zinc	Silver
Assay	29.33%	11.748%	3.70 oz T.
Contents	13620.53 lbs.	5455.87 lbs	85.91 ozs.

Metals paid for:

Copper content	13620 lbs	
Less 20 lbs. per T.	464 lbs	13156 lbs.
Silver content	85.91 ozs	
Less 5%	4.29 ozs	81.62 ozs

Payment:

Copper metal 13156 lbs @	29.590¢	$3,892.86	
Less: Bullion freight tax only	.35¢		
Contract price deduction	3.080¢		
Cathode deduction	.125¢		
13156 lbs. @	3.240¢	426.25	$3,466.61
Silver metal 81.62 ozs. @	.900¢	73.46	
Less contract price deduction	.015¢	1.22	72.24
Amount carried forward to page 2			$3,538.85

Amount brought forward from page I		$3,538.85
Less smelting charges:		
Base charge per ton concentrate	$8.88	
$1.823 hourly labor base per contract		
1.894 September 1953 hourly average rate		
$ .071 Excess @ 6¢ per one cent	.43	
10.000% Zinc assay base per contract		
11.748% Zinc assay of concentrate		
1.748% Excess @ 30¢ per 1%	.52	
23.22 tons @	$9.83	228.25
		$3,310.60
Less other deductions:		
Railroad freight on 25.42 wet tons	$94.53	
Trucking from mill to railroad	19.07	
Smelter representation, assaying etc.	5.64	119.24
Net proceeds from sale (gross income for percentage depletion)		$3,191.36

P.S. For the purpose of calculating wet tons of concentrate, we have used the average moisture as determined for the total of concentrates delivered to the smelter in October.

SCHEDULE II

CORONADO COPPER AND ZINC COMPANY

Calculated net proceeds from sale of 34.91 S.D. tons of zinc concentrate derived from 458.93 S.D. tons of D.M.E.A. ore mined in October 1953, using metal prices, smelter deductions and charges, and expenses as were applicable to the total of 723,7505 tons of zinc concentrate delivered to the smelter in October, 1953.

Quantity 38.06 wet tons, moisture 8.277%, 34.91 dry tons.

	Zinc	Copper	Silver
Assay (54.0852%)	54.09%	1.574%	1.07 oz per T.
Contents	37762.28 lbs	1098.97 lbs	37.35 ozs.

Metals paid for:			
Zinc content		37,762 lbs.	
Less 15%		5,665 lbs.	32,097 lbs.
Copper content		1,099 lbs.	
Less 35%		385 lbs.	714 lbs.
Silver content		37,35 ozs	
Less 20%		7.47	29.88 ozs.
Payment:			
Zinc metal 32,097 lbs. @ 10.0¢		$3,209.70	
Less freight on zinc to St Louis @	.35535¢	114.06	$3,095.64
Copper metal 714 lbs. @	29.598¢	211.33	
Less contract price deduction	6.000¢		
Less cathode deduction	.150¢		
714 lbs. @	6,150¢	43.91	167.42
Silver metal 29.88 ozs @ 90.0¢			26.89
Amount carried forward to page 2			$3,289.95

Amount brought forward from page I		$3,289.95
Less: Smelter charges:		
Base charge per ton @ 19.50¢ zinc	$54.13	
October price 10.00 zinc		
Less $1.50 per 1¢ 9.500	14.25	
	$39.88	
$15.400 daily labor base per contract		
17.032 October 1953 daily average		
$ 1.632 Excess @ 20¢ per ten cents	3.264	
34.91 tons @	$43.144	1,506.16
		$1,782.04
Less other deductions:		
Railroad freight on 38.06 wet tons	$430.05	
Trucking from mill to railroad	28.55	
Smelter representation, assaying, etc.	2.25	460.85
Net proceeds from sale (gross income for percentage depletion)		$1,321.19

P.S. For the purpose of calculating wet tons of concentrate, we have used the average moisture as determined for the total of concentrates delivered to the smelter in October.

SCHEDULE III

CORONADO COPPER & ZINC CO.

MILL RECOVERY ON 458.93 TONS OF 400 LEVEL (DIRA) STOCK

	TONS	PCT.	ASSAY		LBS. OF METAL		DISTRIBUTION	
			CU.	ZN.	CU.	ZN.	CU.	ZN.
ORE MILLED:	458.93	100.00	1.680	4.970	15,420.05	45,617.64	100.00	100.00
CU. CONC. :	23.22	5.06	29.350	11.748	13,620.55	5,455.87	88.33	11.96
ZN. CONC. :	34.91	7.61	1.574	54.090	1,099.45	37,762.28	7.13	82.78
TAILS :	400.80	87.33	0.087	0.299	700.07	2,399.49	4.54	5.26

In this table the average recovery is assumed to be the same as the recovery for the month of Oct. Also the copper assay in the copper concentrate and the zinc assay in the zinc concentrate are the same as the month of October.

CORONADO COPPER & ZINC CO.
Johnson camp
Assay Summary - Oct., 1953

BREAKDOWN OF MINE ORE

WORKING PLACE	CARS	TONS	%Cu.	%ZN.	%Cu. x Cars	%Zn. x Cars	CORRECTED %Cu.	CORRECTED %Zn.
MOORE SHAFT								
Special Development								
400 L - W HW Drift	394	381.47	2.02	5.49	795.9	2163.1	1.68	5.01
STOPE DEVELOPMENT								
Drifting								
500 L - E90 EC HW Drift	31	30.01	3.30	5.00	102.3	155.0	2.74	4.56
500 L - E90 WC 420 Sub-L NXC	224	216.88	1.76	4.12	394.0	922.9	1.46	3.76
500 L Sub-L ED Drift	71	68.74	1.77	4.27	125.7	303.0	1.47	3.90
500 L Sub-L WD Drift	79	76.49	1.66	4.14	131.0	327.4	1.38	3.78
500 L - E90 W 20 xc	17	16.46	1.40	2.90	23.8	49.3	1.16	2.65
MONTH TOTAL DRIFTING	422	408.58	1.84	4.16	776.8	1757.6	1.53	3.80
Raising								
600 L E 300 Rs	21	20.33	0.50	4.70	10.5	98.7	0.42	4.29
MONTH TOTAL STOPE DEVELOPMENT	443	428.91	1.78	4.19	787.3	1856.3	1.48	3.82
MONTH TOTAL DEVELOPMENT	837	810.38	1.89	4.80	1583.2	4019.4	1.57	4.38
Stoping								
500 L - E90 WC 50 Stp	1790	1733.08	3.33	7.06	5952.5	12633.8	2.77	6.44
500 L - E90 WC 130-190 Stp	77	74.55	3.08	7.02	237.5	540.7	2.56	6.41
500 L - E90 WC 270 Stp	498	482.16	2.86	6.10	1386.7	3036.8	2.38	5.57
500 L - E90 E 55 Stp	145	140.39	3.10	5.40	449.3	783.3	2.58	4.93
500 L - E90 E 125 Stp	114	110.38	3.39	7.36	386.5	838.9	2.82	6.72
500 L - E 450 Stp	68	65.84	4.09	8.68	278.0	590.4	3.40	7.92
500 L - E 250 Stp	978	946.90	4.17	8.18	4080.1	7999.9	3.47	7.47
500 L - E90 EC 75 Stp	2429	2351.75	3.31	6.21	8039.3	15075.7	2.75	5.67
400 L - W HW Drift - Gen. Stp	80	77.46	2.00	5.20	160.0	416.0	1.66	4.75
General Stoping	40	38.73	3.10	5.00	124.0	200.0	2.58	4.56
MONTH TOTAL STOPING	6219	6021.24	3.39	6.77	21093.9	42113.5	2.82	6.18
MONTH TOTAL MOORE SHAFT	7056	6831.62	3.21	6.54	22677.1	46134.9	2.67	5.97
MONTH TOTAL CHANGE IN INVENTORY		43.00					2.67	5.97
MONTH TOTAL MILLED		6834.62					2.67	5.97

Cu. Factor: .831775700
Zn. Factor: .912844036

CORONADO COPPER & ZINC CO.
Johnson Camp

Bin Inventory

	Oct 1, 1953	Nov 1, 1953	Change In Inventory
Mill Bin	167	70	- 97
Republic Customs Bin	59	120	+ 61
Moore Shaft Surface Bin	123	142	+ 19
500 Level Transfer raise	0	20	+ 20
TOTAL	349	352	+ 3

Mill Heads 6834.62 Tons 3.67 % Cu. , 5.79 % Zn.

Mine Produced 6834.62 Tons - 3 Tons = 6831.62 Tons

Car Ton Factor is $\frac{6831.62 \text{ Tons}}{7056 \text{ Cars}}$ = .968200113

Cu. Correction Factor is $\frac{2.67}{3.21}$ = .831775700

Zn. Correction Factor is $\frac{5.79}{6.34}$ = .913844036

Production from the 400 Level (D.M.E.A.) is the sum of the 400 L-7 Hd Dr. and 400 L-7 Hd Dr. Gen Stp.

	CARS	TONS	%CU.	%ZN.	CU # CAR	ZN. # CAR	CORR CTED %CU.	%ZN.
400L-7Hd Dr.	394	381.47	2.02	5.49	795.9	2163.1	1.68 (1.63)	5.01
" Gen. Stp.	80	77.46	2.00	5.20	160.0	416.0	1.66	4.75
TOTAL	474	458.93	2.02	5.44	955.9	2579.1	1.68	4.97

Joe Sierrakoski

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

FILE COPY
SURNAME:

Keating
Selfridge

DEPARTMENT OF THE INTERIOR
AGENCY: DMEA

Originator: AGKeating/bjl
Rm.: 4058 Ext.: 3669

Date: November 18, 1953

To: W. H. King, Executive Officer, DMEA Field Team, Region IV, Denver Colorado

Reurtt November 16, 1953, Docket DMEA-2746, Coronado Copper and Zinc Company, Contract Idm-E522. It is advisable to provide for recess of work by amendment and we approve of your preparing and executing such amendment for a reasonable period of time to permit determination and approval of work to be done under Stage II.

George C. Selfridge
Chairman, Operating Committee

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

SENT
NOV 18 1953
Clerical Service Section

R.C.B.
11-18-53

Mr. C. O. Mittendorf
11-16-53
unattended service after 4:15

DEPARTMENT OF THE INTERIOR
Bureau of Mines Administration
NOV 17 1953

D N 235 BUREAU MINES 11-16-53 4-20 PM

C O MITTENDORF

REFERENCE DOCKET 2746, CONTRACT IDM-E522, CORONADO COPPER AND ZINC COMPANY. OPERATOR REQUESTS AUTHORIZATION FOR RECESS OF OPERATIONS EFFECTIVE ON COPXXX COMPLETION OF DRILLING UNDER STAGE I ON OR ABOUT NOVEMBER 16,1953 UNIXXX UNTIL JANUARY 30,1954 PEDXXX PENDING RESOLVING MATTERS RELATIVE TO AUTHORIZATION OF WORK UNDER STAGE II. IS AMENDMENT NECESSARY WHEN CONTRACT STIPULATES THAT WORK UNDER STAGE II IS CONTINGENT ON APPROVAL BY THE GOVERNMENT. IF SO, PLEASE TELETYPE AUTHORIZATION.

JOHN F SHAW FOR W H KING

Denver, Colo.

NOV 17 8 27 AM '53
BUREAU OF MINES
MAIL ROOM
WASHINGTON D. C.

FILE COPY
SURNAME: 200

Adams

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

JUL 10 1953

Mr. W. H. King
Executive Officer
Region IV
224 New Customhouse Building
Denver 2, Colorado

Dear Mr. King:

Attached herewith is one copy of contract Idm-E522. This "extra copy" is for use of your office in making a report 2246 on this project.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

Attachment
READams/meb
7-9-53
cc to: Adm.Reading File
Mails & Files Br.

R.C.L.
7-10-53

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 25 1953

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

224 New Customhouse
Denver 2, Colorado

June 22, 1953

REGISTERED MAIL

54931

Memorandum

To: C. O. Mittendorf, Administrator
Defense Minerals Exploration Administration

From: Executive Officer, DMEA Field Team, Region IV

Subject: Contract Idm-E522, Docket DMEA 2746, Coronado Copper and Zinc Company (Copper-Zinc), Cochise County, Arizona

Enclosed are the original and two copies of Contract Idm-E522 to which are attached copies of a transmittal letter from the operator to the Chief, Mining Methods Branch, Bureau of Mines.

Copies of this contract have been given to the operator, the Fiscal Officer, Region IV, and a copy has been retained for our files.

Also enclosed are three copies of Plate 1, Figure 1, "Surface Geology of Johnson Camp" and three copies of Plate 2, Figure 3, "Structure Contour and Garnetite Isopach Map, Johnson Camp", which were requested by the Chairman, of the Operating Committee.

W. H. King
W. H. King

Enclosures

cc
6-25

maps in envelope

June 12, 1953

Registered

Mr. Walter R. Storms, Chief
Mining Methods Branch
Mining Division, Region IV
Southwest Experiment Station
P.O. Box 4097 University Station
Tucson, Arizona

Re: Docket DMEA-2746
Contract Idm-8522
Johnson Camp
Cochise County, Arizona

Dear Mr. Storms:

Herewith you will find five copies of contract between the Government and Coronado Copper & Zinc Company covering certain exploration work at our Johnson Camp copper-zinc property in Cochise County, Arizona (Docket DMEA-2746, Contract Idm-8522).

All five copies have been signed by the President, signature has been certified by the company secretary and corporate seal affixed.

Also herewith you will find the three additional copies of Plate I, Figure 1, "Surface Geology of Johnson Camp," and Plate II, Figure 3, "Structure Contour and Garnetite Isopach Map, Johnson Camp."

This morning Mr. Fred E. Gray, Mine Manager at Johnson Camp, phoned me from your office relative to certain provisions of the contract that we would like to have clarified. Mr. Gray advised that you would like to have us call Mr. C. O. Mittenderf, Administrator, Defense Minerals Exploration Administration, in order to obtain the information desired. Immediately after talking with Mr. Gray, the undersigned called Mr. Mittenderf in Washington; the following provisions of the contract were discussed with Mr. Mittenderf and Mr. A. G. Keating, Acting Chief, Base Metals Division, and conclusions reached as indicated.

<u>Article 9 - Changes and Added Provisions</u>

The following wording clarifies or adds to the provisions of Article 6. "After the word 'contract', on the fifth line of Article 6, the following is inserted: 'Including any mine ore produced from any extension of the orebodies known to be in drill holes 65 and 66, or in the west winze of the Mammoth mine indicated on the map attached hereto, made a part hereof, and entitled

'Figure 2 DMRA-2746 - Horizontal Projection of Mine Workings and Proposed Exploration, Coronado Copper & Zinc Company'."

The undersigned was advised by both Mr. Mittendorf and Mr. Keating that the above wording was added to the contract to make sure that applicant would not claim prior discovery of ore encountered in drill holes 65 and 66 and the downward continuation of possible ore below the Mammoth west winze in the vicinity of the figure 48 near the southern boundary of Area 1. We wish to state herewith that Coronado Copper & Zinc Company does not make any reservations with respect to ores discovered in drill holes 65 and 66 nor to any extension of the ore shoot below the west winze of the Mammoth that may continue on its dip below the surface of Area 1, whether or not such a shoot connects with the orebody indicated by drill holes 65 and 66.

The point we wanted to have cleared up with respect to the wording of Article 9 is whether the Government is claiming extralateral rights on any ore shoots outside Area 1. The undersigned was advised by Mr. Keating that the Government does not claim extralateral rights and pointed out that metes and bounds of Area 1 and Area 2, as entered under Annex I, limit the extent of orebodies in which the Government is to share in order to be repaid for funds contributed by the Government under this contract.

In brief, the applicant expects to pay royalty to the Government on any ore produced from within the vertical boundaries of Areas 1 and 2 in accordance with the provisions of the contract.

Another point the applicant wanted to have cleared up is the following: In the description of the boundaries of Area 1, as defined in Annex 1, you will note that the wording is as follows:

"Beginning at Corner No. 1 of the Blue Grass claim as the initial point, Corner No. 1 of Area No. 1 bears North 62° 20' East 180.6 feet;." With the permission of Mr. Mittendorf we have changed the word "East" to "West" to conform with the original application and maps, said original application being dated October 15, 1952. An error was made by this office in typing the supplementary agreement which is under date of February 5, 1953. Therefore, as agreed to by Mr. Mittendorf, the word East has been crossed out and the word West entered. This change is initialed in the margin by the undersigned.

The third point we wanted to have cleared up was the question of the amount of accounting that has to be done by the applicant in order to satisfy the requirements of the DMRA. It is our understanding, according to the advice of Messrs. Mittendorf and Keating, that the Form 104, which will have to be filled out monthly, will show costs equal to the estimated costs

shown under "Agreed Unit Costs" stated on the third typewritten page of the contract.

A signed copy of this letter is being attached to each of the five copies of the contract enclosed herewith.

Mr. Gray expects to start work on the drifting called for on the 400 level just as soon as the present drift has been examined and measured by your representative.

Diamond drilling from the surface will be started just as soon as the Continental Drilling Company can send the necessary equipment to Johnson Camp, probably within two weeks.

Very truly yours,

R. W. Moore, President
CORONADO COPPER & ZINC CO.

RWM:b

cc: one for each contract

FILE COPY
SURNAME:

Keating
Johnson

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

DMEA

AGKeating/bjl
3669 4058

June 4, 1953

W. H. King, Executive Officer, DMEA Field Team, Region IV, Denver, Colorado

Reur memorandum May 28, 1953, Docket DMEA-2746, Coronado Copper and Zinc Company, Contract Idm-E522. Map entitled Figure 2, DMEA 2746, referred to in the contract is the only one required to be named in contract. The maps of surface geology and structure contour were requested upon suggestion of Washington commodity members for later reference and so that our files could be complete. Contract as drawn with Figure 2 attached is legally sufficient.

(signed) FRANK E. JOHNSON
~~Chairman, Operating Committee~~
Deputy Administrator

(B.H.) 6-4-53

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

C. O. Mittendorf
6-3-53
5:38 P.M.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 4 1953

DN 235 BUREAU MINE 6-3-53 3-38 PM

C O MITTENDORF

REFERENCE OUR MEMORANDUM TO CHAIRMAN OF OPERATING COMMITTEE MAY 28,1953 RE DOCKET NO. DMEA 2746 CONTRACT NO. IDM-E522, CORONADO COPPER AND ZINC COMPANY. PLEASE ADVISE US IF WE MAY RELEASE THIS CONTRACT WITHOUT THE MAPS AND AMENDMENTS PERTAINING THERETO. OPERATOR HAS TELEPHONED REQUESTING STATUS OF CONTRACT.

W H KING

No answer necessary
see ltr to King
6/4/53

Denver, Colo.

JUN 4 8 27 AM '53

BUREAU OF MINES
MAIL ROOM
WASHINGTON, D. C.

500
Docket

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

224 New Customhouse
Denver 2, Colorado

May 28, 1953.

Department of the Interior
Defense Minerals Administration
JUN 1 1953

Memorandum

To: Chairman of the Operating Committee

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA-2746, Contract No. Idm-E522 (Zinc-Copper), Coronado Copper and Zinc Company, Johnson Camp, Cochise County, Arizona.

The transmittal letter attached to the original and five copies of Contract No. Idm-E522 stated that Plate I, Figure 1, "Surface Geology of Johnson Camp" and Plate II, Figure 3, "Structure Contour and Garnetite Isopach Map, Johnson Camp" should be attached to the contract.

Exhibit "A" does not state that the above maps are a part of the contract. We believe that an amendment to the contract should be prepared in order to make these maps a part of Contract Idm-E522. If you concur with this, please prepare the necessary amendment. All copies of Contract Idm-E522 will be held in this office until we receive a reply regarding the proposed amendment.

W. H. King

W. H. King

BJ

Greenwald
Keating
Betty

CORONADO COPPER AND ZINC COMPANY
1206 PACIFIC MUTUAL BUILDING
523 WEST SIXTH STREET
LOS ANGELES 14, CALIFORNIA
TELEPHONE MADISON 6-3231

May 25, 1953

Department of the Interior
Defense Minerals Exploration Administration
MAY 28 1953

Mr. C. O. Mittendorf, Administrator
Defense Minerals Exploration Administration
Washington, D. C.

Subject: DMEA Application Docket #2746

Dear Mr. Mittendorf:

On April 22, 1953 I phoned to you relative to the above application in order to inquire about the status of our application for exploration assistance. At that time you suggested we write to Ralph S. Trigg, Acting Assistant Director for Production, Office of Defense Mobilization, Washington 25, D.C. We did so and among other things advised Mr. Trigg that we were writing to him at your suggestion.

Our records indicate that a copy of the letter to Mr. Trigg was not sent to you so a copy is enclosed herewith.

In today's mail we received a letter dated May 20 from Mr. Trigg in reply to our letter of April 24. He stated therein that a copy of his letter was being forwarded to you for your information, but nevertheless, we are enclosing herewith a copy of that letter.

Mr. Trigg states that it would be advisable for us to present all necessary information to the DMEA. We believe we have supplied all necessary information. In any event we have not been advised that the information submitted was not adequate.

We will appreciate it very much if some definite action is taken relative to this application so that we can make our plans accordingly.

Very truly yours,

R. W. Moore, President
CORONADO COPPER & ZINC CO.

6/8/53

RWM:b
Enc. (2)

At the time the above letter was recieved a contract executed by the Administrator had been sent to the field 5/18/53. Washington attorneys called at this office 5/29/53 and were appraised of this - they stated they would advise Mr. Moore by telephone. AGK.

CC: C. O. Mittendor

EXECUTIVE OFFICE OF THE PRESIDENT

OFFICE OF DEFENSE MOBILIZATION

Washington 25, D.C.

May 20, 1953

C O P Y

Mr. R. W. Moore, President
Coronado Copper & Zinc Co.
523 West Sixth Street
Los Angeles 14, California

Dear Mr. Moore:

Reference is made to your letter of April 24, 1953.

I understand that the Defense Minerals Exploration Administration is still giving assistance to the search for domestic copper deposits. Accordingly, it would be advisable for you to present all necessary information to that agency.

I am sending a copy of this letter to Mr. Mittendorf for his information.

Sincerely yours,

Ralph S. Trigg
Acting Assistant Director
for Production

cc C. O. Mittendorf

April 24, 1953

Mr. Ralph S. Trigg
Acting Assistant Director for Production
Office of Defense Mobilization
Washington 25, D.C.

Subject: DMEA Application Docket No. 2746

Dear Mr. Trigg:

Last year this company made application to DMPA for a copper subsidy and also filed an application with DMEA for exploration assistance.

At the time all controls were taken off we were advised that, according to law, a copper subsidy could not be granted to us.

Several days ago I phoned Mr. C. O. Mittendorf, Director of DMEA, and he advised that they would give further study to our application for exploration assistance in view of the fact that we are now willing to go ahead with the project as outlined in our application to DMEA.

The drop in the price of zinc was a very serious matter, but the recent increases in the price of copper have been of considerable assistance. If metal prices remain where they are, we feel inclined to continue operating at Johnson Camp, Arizona. In order to proceed with the exploration work, however, it will be necessary to have some assistance in carrying out the exploration program as laid out in our application to DMEA.

At the suggestion of Mr. Mittendorf, I am writing to you for the purpose of asking if there is any chance of assistance to the company along some line that will justify the exploration program and the continuance of operations.

Very truly yours,

R. W. Moore, President
CORONADO COPPER & ZINC CO.

RWM:b

FILE COPY
SURNAME:
500

Keating
Martin
Hedges

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

MAY 18 1953

Mr. W. H. King, Executive Officer
DMA Field Team, Region IV
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMA 2746 (Zinc-Copper)
Coronado Copper and Zinc Company
Johnson Camp
Cochise County, Arizona

Dear Mr. King:

Enclosed are the original and five copies of the cited contract which have been signed for the Government.

The application presented to this office contained only one map, Figure (2) "Horizontal Projection of Mine Workings and Proposed Exploration", which is referred to in the contract. In the application it is stated that additional maps, Plate I, Figure 1, "Surface Geology of Johnson Camp", and Plate II, Figure 3, "Structure Contour and Garnetite Isopach Map, Johnson Camp" were furnished.

The Washington commodity members are of the opinion that the additional maps should be attached to the contract. Therefore, we suggest that you request the Operator to furnish the maps and attach them to the contract.

If you find the contract satisfactory, please obtain the proper signatures and distribute in the usual manner.

Sincerely yours,

W. S. Martin
ACTING Chairman, Operating Committee

Enclosures 6

AGKeating/hmj (5/7/53)
CC to: Docket
Adm. R. File
Op. Committee
Base Metals Division
Mr. Kinkel
Mr. Bishop
Mr. Keating
Chron.

APPROVED:

T. E. Hedges
Member, Bureau of Mines

T. P. Thayer
Member, Geological Survey

FILE COPY
SURNAME: 500

Keating

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

May 7, 1953

Memorandum

To: The Administrator

From: Chief, Base Metals Division

Subject: Proposed contract Docket No. DMA 2746 (Lead-Zinc-Copper) Coronado Copper and Zinc Company, Johnson's Camp, Chochise County, Arizona.

The terms of this contract on a unit cost basis provide for the exploration of two separated blocks of ground described by metes and bounds, designated as Area 1 and Area 2.

Area 1 is to be explored by approximately 1,220 feet of drifting and crosscutting on the 400 level of the Moore shaft, at an estimated cost of $48,800.00. Area 2 is to be explored by diamond drilling, eleven holes, from the surface with an average depth of 590 feet per hole, at an estimated cost of $29,250.00.

Stage II has been provided so that additional diamond drilling and/or crosscutting, at a total estimated cost of $21,000.00, may be undertaken if, in the opinion of the Government, the work under Stage I is sufficiently favorable.

The total agreed unit costs of the project are $99,050.00.

On a basis of approximately 6,500 tons of ore treated per month, the returns show an average grade of ore of 2.5 per cent copper and 6.5 per cent zinc, while the concentrates averaged 30 per cent copper and 54 per cent zinc.

AGKeating/hmj
(5/7/53)
CC to: Docket
Adm. R. File
Op. Committee
Base Metals Division
Mr. Keating
Chron.

W. R. Griswold

Attachments

FILE COPY
SURNAME:

UNITED STATES
DEPARTMENT OF THE INTERIOR 140
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

May 4, 1953

M.O. in P.v.P.

Memorandum

To: The Administrator

Through: ~~Mr. E. W. Ellis~~
Mr. W R. Griswold

From: Chief Counsel

Subject: Coronado Copper and Zinc Company
Docket DMEA 2746

There is attached in satisfactory legal form, for execution, a contract covering the above-described project, subject to attachment of the map referred to.

/S/ AEKane
for J. L. Hofflund
Chief Counsel

Attachments

AEKane:ep

Copy to: Mails & Files
Mr. Hofflund
Mr. Kane
Chron.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

April 28, 1953

Memorandum

To: George Keating, DMEA

From: C. H. Johnson, Bureau of Mines

Subject: DMEA-2746 (Copper, Zinc) Coronada Copper and Zinc Company, Cochise County, Arizona

I have reviewed the Field Team report by Elsing and Faick dated February 1953 on the above-named application transmitted to the operating committee by the Field Team of Region IV, April 10, 1953. The report recommends approval of the application, as revised, in the amount of $99,640. This recommendation is concurred in by the Field Team.

The report indicates that a thorough examination of the application was made from both engineering and geological viewpoints and in my opinion presents adequate data to justify the favorable conclusion reached.

C. H. Johnson

C. H. Johnson

Copy to - Mr. Kinkel, USGS
Minerals Division
Base Metals Branch
Files

FILE COPY
SURNAME:

500

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

Keating
Selfridge
Mattendorf

APR 20 1953

Mr. W. H. King, Executive Officer
DMEA Field Team, Region IV
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA-2746 (Copper-Zinc)
Coronado Copper and Zinc Company
Johnson Camp
Cochise County, Arizona

Dear Mr. King:

J.C. 4/20/53

This refers to the recent application by the subject company for exploration assistance. In this connection, we note that in a memorandum dated February 18, 1953, from Mr. Walter R. Storms to your office, it is stated that the Applicant "will not be interested in a loan unless it recieves over-the-market price for its copper from the Government."

As perhaps you have been informed, the Defense Material Procurement Agency, to which the Applicant would apply for a subsidy, has had its funds frozen and the discontinuance of price controls February 25, 1953 automatically cancelled the subsidy program.

Under the circumstances, the company will, in all probability, want to withdraw its application. Therefore, will you please advise this office what further action should be taken.

Sincerely yours,

George C. Selfridge (JHB)

Chairman, Operating Committee

APPROVED:

J. H. Hedges

Member, Bureau of Mines (JHB)

A. R. Kinkel, Jr.

Member, Geological Survey (JHB)

AGKeating/bjl (written 4/16/53)

Copy to: Docket
Amdr. R. File
Op. Committee
Base Metals
Mr. Bishop
Mr. Kinkel
Chron.

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

Gronwold
~~Keatinge~~
Betty
(Cpo. Docket)

224 New Customhouse
Denver 2, Colorado

April 17, 1953

DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION
RECEIVED
APR 20 1953

Mr. R. W. Moore, President
Coronado Copper & Zinc Company
1206 Pacific Mutual Building
523 West Sixth Street
Los Angeles 14, California

Dear Mr. Moore:

Reference is made to your letter dated April 14, 1953 regarding Docket No. DMEA 2746.

The final reports on this application, together with our recommendations, were forwarded to our Washington office on April 10, 1953.

Should you wish further information, kindly contact Mr. C. O. Mittendorf, Administrator, DMEA, Washington 25, D. C.

Very truly yours,

W. H. King

W. H. King
Executive Officer
Field Team, Region IV

JFS:es

cc: Mittendorf (1)
Docket
Chron.
Storms
Koschmann (2)

CORONADO COPPER AND ZINC COMPANY
1206 Pacific Mutual Building
523 West Sixth Street
Los Angeles 14, Calif.

C
O
P
Y

April 14, 1953

Mr. W. H. King
Executive Officer
DMEA Field Team, Region IV
224 New Customhouse
Denver 2, Colorado

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 20 1953

Dear Mr. King:

Mr. W. R. Storms, Chief of the Mining Methods Branch, Mining Division, Region IV, has advised that he has forwarded a copy of our letter of April 3 relative to Docket DMEA 2746 to you. We will be pleased to have advice as to the status of our application under this docket number at your earliest convenience.

Very truly yours,

/s/ Roy W. Moore

R. W. Moore, President
Coronado Copper & Zinc Company

IN REPLY REFER TO:

Smoot
Keating
Betty

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 17 1953

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

April 16, 1953

Memorandum

Re: DMEA-2746
Coronado Copper and Zinc Co.
Johnson Camp
Cochise County, Arizona
Copper, zinc

To: Mr. E. Wm. Ellis

From: Arthur R. Kinkel, Jr.

Subject: Concurrence with field team's recommendation for exploration

I concur in the field team's recommendation to explore this property. The revised application as worked out by consultation between the field team's representatives and the operator is more satisfactory than the original application, and the points which I questioned in my memorandum of October 31, 1952 have been covered satisfactorily in the report by the field team.

If the operator does not decide to withdraw the present application as it has been suggested that he may because of current low metal prices, I recommend that the application be approved. The location of drifting and drilling should be sufficiently flexible in the contract, so that advantage can be taken of new information as it develops.

A R Kinkel Jr

Arthur R. Kinkel, Jr.

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

224 New Customhouse
Denver 2, Colorado

April 10, 1953.

Memorandum

To: Secretary to the Operating Committee, Defense Minerals Exploration Administration

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 2746 (Copper-Zinc), Coronado Copper & Zinc Company, Johnson Camp, Cochise County, Arizona.

Enclosed are the original and three copies of the report pertaining to the above application.

We recommend that the revised application be approved for a total cost of $99,640.00, Government participation - $49,820.00.

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

Enclosures

$ revenue today (4/21)

24½¢ 10 oz au conc $118 266 2½%
11¢ 11½¢ 1313 zn " $69,904 6½%

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
APR 13 1953

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

224 New Customhouse
Denver 2, Colorado

April 10, 1953.

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 2746 (Copper-Zinc), Coronado Copper & Zinc Company, Johnson Camp, Cochise County, Arizona.

Enclosed are nine copies of the engineering report on the subject docket.

The examining engineer believes that the applicant's revised proposal offers the possibility of the discovery of important ore reserves.

He recommends that the revised application be approved for $99,640.00, Government participation - $49,820.00 We concur in this recommendation.

W. H. King
W. H. King

Enclosures

MINING DIVISION
REGION IV

February 13, 1953

Memorandum

To : W. W. King, Chief, Mining Division, Region IV

From : Chief, Mining Methods Branch, Min. Div., Region IV

Subject : Final Report, Docket DMA-2744, Coronado Copper & Zinc Co's. Johnson Camp, Cochise Mining District, Cochise County, Ariz.

Enclosed are original and 3 copies of the section on Summary, Conclusions and Recommendations by H. J. Elsing of the Bureau of Mines and J. M. Faick of the Geological Survey, and the section on Engineering by Elsing for the above report. A separate section on Geology will be submitted by the Geological Survey.

As the proposed work should result in the discovery of a substantial amount of copper-zinc ore, the examiners have recommended that an exploration loan for $99,640 be granted the applicant. However, applicant has stated that it will not be interested in a loan unless it receives an over-the-market price for its copper from the Government, as it cannot operate at a profit with present copper and zinc prices (24.5 and 11.5 cents, respectively). I concur with the DMA examiners recommendations.

Brochure ~~xxxxxxxxxx~~ will be submitted by Geological Survey.

Walter R. Storms

Walter R. Storms

CC: W. W. King (C)
A. P. Bride
DMA-2744
JF

WRStorms:als

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.
200 New Customhouse
Denver 2, Colorado

April 7, 1953

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 2746, Coronado Copper and Zinc Company, Cochise County, Arizona. Copper-zinc.

Enclosed are the original and 8 copies of the geologic report by J. R. Cooper and J. N. Falck of the U. S. Geological Survey, covering the above docket.

It has been recommended that a loan be approved for a total cost of $99,640.

The brochure is enclosed.

A. H. Koschmann

A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (10)

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Denver Federal Center
Denver 14, Colorado

March 31, 1953

To: A. H. Koschman

From: A. F. Shride

Subject: Geologic report, DMEA-2746, Coronado Copper and Zinc Company, Cochise County, Arizona (Copper-Zinc)

Enclosed are the original and 8 copies of the above report by J. R. Cooper and J. N. Faick of the Geological Survey.

Although some parts of the proposed exploration program are not considered entirely adequate, exploration to cost a total of $99,640 is recommended.

The brochure is enclosed.

John R. Cooper
for A. F. Shride

Enclosure

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA-2746, Coronado Copper and Zinc Company's Johnson Camp

Cochise Mining District, Cochise County, Ariz.

M. J. Elsing, Consulting Mining Engineer
U. S. Bureau of Mines

John N. Faick, Geologist
U. S. Geological Survey

February 1953

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By M. J. Elsing[1] and John N. Faick[2]

On November 10, 1952, the Chairman of the Operating Committee of the Defense Minerals Exploration Administration requested the Executive Officer, Region IV, to have an examination and report made on the feasibility of an exploration project, involving the expenditure of $229,690 by the Coronado Copper and Zinc Co. for the exploration of its Johnson Camp property, Cochise County, Ariz. The Chairman of the Operating Committee also requested that the field team study and discuss with the applicant various phases of the project which the Chairman listed. He also requested that consideration be given to a memorandum of A. R. Kinkel, Jr. of the Geological Survey. Consideration also was given to a memorandum of December 29, 1952 by John R. Cooper to A. F. Shride, both also of the Survey.

On January 21 and 22, 1953, M. J. Elsing and John N. Faick visited the Coronado company's property and reviewed the project with F. E. Gray, the mine manager, and Arthur Baker, the geologist. On January 23, 1953, Roy W. Moore, president and general manager of the Coronado Copper and Zinc Co., telephoned the writer, advising him that the company had decided to modify its application for an exploration loan. On February 6, 1953, the Tucson office of the Bureau of Mines received the revised project which provided for the exploration of two areas, instead of three, at a cost of $99,640, instead of $229,690.

1/ Consulting Mining Engineer, U. S. Bureau of Mines
2/ Geologist, U. S. Geological Survey

The Johnson Camp ore deposits consist of chalcopyrite, bornite, and sphalerite which occur in garnetite in the middle Abrigo limestone of Cambrian age. The ore bodies are exceedingly irregular in size and shape. They are tabular in form, lense-shaped, or may be manto replacements of limestone beds. The most common characteristic is their association with garnet. The first step in exploration is to locate the garnetized limestone bed. More intensive exploration then is carried on to locate the ore body within the favorable beds.

A continuous program of diamond drilling is carried on by the company, both underground and from the surface. Past experience has demonstrated the need for the close spacing of holes once the favorable garnetized beds have been found. Many holes have been drilled at 100-foot intervals. Upon first consideration, such close spacing was thought unnecessary and perhaps unadvisable, but after a thorough discussion of the question with the company's manager and its geologist, it was felt that they probably are correct. The ore target is small and the company officials seem certain that no considerable area in the garnetized zone can be written off without drilling at close intervals.

It is proposed to explore two areas. The larger, some 3,000 feet long, lies between the Republic and Mammoth-Moore mines. The company officials believe that the position of the garnet zone is known and they wish to diamond drill this zone from the surface with the expectation that it will be productive. The plan is to space holes at 175-foot intervals but the company requests the right to

change this spacing and the position of holes to conform with information obtained as the drilling progresses. The second area to be explored is smaller and is surrounded on 3 sides by known ore bodies. Exploration will be by drifting and crosscutting on the 400 level of the Moore shaft. The immediate target is the downward extension of low-grade ore found in surface diamond drill holes Nos. 65 and 66.

The company proposes to do the drifting and crosscutting at $40 per foot, and the surface diamond drilling at $4.56 per foot. The request for diamond drilling provides for 6,500 feet of drilling from the surface as shown in figure 2 of the engineering report, and $10,000 worth of additional drilling from the surface and underground. The location of this latter drilling is subject to the results obtained by the initial 6,500 feet of drilling and the results of drifting on the 400 level. The cost of underground drilling is estimated at $4.07 per foot.

A breakdown of these costs was provided and each item was discussed. The costs were accepted as they represent actual company costs for the first 11 months of 1952.

It is recommended that an exploration project involving the expenditure of $99,640, as proposed by the Coronado Copper and Zinc Co., be approved for the following reasons:

(1) The company has established a reputation for efficient operation of long standing and this particular project is based on its very careful study of the geologic conditions under which ore occurs in the district;

(2) The proposed work should result in the discovery of substantial amounts of ore assaying approximately 2.5 percent copper and 6.5 percent zinc;

(3) From a long range standpoint, the discovery of substantial amounts of copper-zinc ore warrants the risk even though the price of copper and zinc may not be sufficiently high during the 10-year lien period to permit the repayment of the loan.

CORONADO COPPER AND ZINC COMPANY

COPPER - ZINC

JOHNSON CAMP, COCHISE COUNTY, ARIZONA

by

John R. Cooper and John N. Faick

Geologists, U. S. Geological Survey

March 31, 1953

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ILLUSTRATIONS

Fig. 2 PLAN OF WORKINGS AND PROPOSED EXPLORATION (See Engineering report)

GEOLOGIC REPORT

CORONADO COPPER AND ZINC CO., DMEA 2746

JOHNSON CAMP, COCHISE COUNTY, ARIZONA (COPPER-ZINC)

INTRODUCTION

Prior to examination of the Coronado Copper and Zinc Company properties at Johnson Camp, Cochise County, Arizona, written comments on the application (DMEA-2746) were prepared by J. R. Cooper of the Geological Survey. Cooper did considerable geologic work in the district between 1944 and 1949, and subsequent to 1949 has kept in touch with the new developments in the area under consideration. Cooper's comments, dated December 29, 1952, were available to the examining team of M. J. Elsing and J. N. Faick, of the Bureau of Mines and Geological Survey respectively. Elsing and Faick visited the property on January 21 and 22, 1953 and discussed the application with Fred E. Gray and Arthur Baker III, respectively Manager and Geologist, of the Coronado Copper and Zinc Company's operations. During the examination the questions raised by the members of the Operating Committee

and by Cooper were discussed thoroughly. Cooper's comments are incorporated into the following report.

Subsequent to these discussions the applicant submitted a revised application eliminating Plans B, C, and D of the original application and modifying Plan E, thereby reducing the total cost of the project from $229,690 to $99,640.

It should be noted that the Coronado Copper and Zinc Company has made application, docketed as DMPA-2761, to the Defense Materials Procurement Agency for a price guarantee on future copper production. If DMPA assistance is not granted the applicant probably will not be interested in a DMEA exploration program, and processing of the application toward an exploration contract may not need to be completed.

GEOLOGY

At Johnson Camp the middle member of the Abrigo formation, of Cambrian age, has been the most productive part of the thick Paleozoic stratigraphic section. The proposed exploration is confined to testing this member of the Abrigo. Outside of the mining area the middle member consists of about 240 feet of thin-bedded limestone interbedded with shale and calcareous sandstone. Within the mining area, these beds have been locally metamorphosed to garnetite, in contrast to beds of the upper member of the formation which have been extensively metamorphosed to diopside-rich tactite.

The beds strike northwesterly and dip about 40° NE. Minor flexures were superimposed on this regional dip. Many steep faults and a few flat faults complicate the structure. The rocks of the mining area are cut by a well defined set of faults and fractures striking N. 5° - 30° E. and dipping 60° - 80° SE, called the Northeasters; a less well defined but important set striking approximately E-W and dipping 30° or more S., called the Easters; and a rare group striking N. 10° - 45° W. and dipping over 65° SW or NE, called the Northwesters.

With a few exceptions, the faults are normal faults and the east or south sides are downthrown. The displacements range from almost nothing to a few tens of feet on most faults, but exceptionally exceed 100 feet for some faults. Nearly all the faults are pre-ore but there has been post-ore movement on many of them. The relative magnitude of pre-ore and post-ore movement is generally indeterminable. The apparent fault-offset of ore bodies is due in part to mineralization of the same beds after they were displaced.

ORE DEPOSITS

The primary ore consists of varying proportions of chalcopyrite, sphalerite, bornite and pyrite, with a little molybdenite and scheelite in a gangue of lime-silicates, potash feldspar, quartz, and calcite. The average grade of the ore, mined by the applicant,

is about 2½ percent copper and about 6½ percent zinc. The minor metals are not recovered.

The ore selectively replaced certain sedimentary layers of which the upper beds of the middle member of the Abrigo formation are the most favorable and contain all the large ore bodies discovered to date.

The ore bodies are localized along or near the intersection of mineralizing fractures with favorable beds and along anticlinal flexures in these beds. Some bodies are tabular deposits parallel to the beds, irregular in outline, 3 to 15 feet thick and several hundred feet across. The largest deposits are chimneys which are more or less oval in cross section and have the long axis and intermediate axis in the plane of the beds. The chimney is known as a manto if it has a flat rake at a large angle to the direction of dip of the beds. The largest ore body mined, the Main Manto at the Republic Mine (Pl. 2, fig. 3 of application) was 1500 feet long, 30 to 100 feet wide and 15 to 40 feet thick, with several large extensions of the bedded type; the down-dip extensions became chimneylike at greater depths. Smaller ore bodies of the chimney or bedded types have been mined at the Mammoth, Copper Chief, Peabody and other mines. A few very small ore bodies in the district were tabular deposits following fractures at a considerable angle to the beds. A new ore body, discovered late in 1952, northwest of the Moore Shaft ore body, is known to be at least 500 feet long and is estimated by

the applicant to contain about 100,000 tons of ore. The proposed exploration could result in discovery of ore bodies comparable to those already known.

EXPLORATION PROBLEMS

The nature of the ore occurrences in the district impose limitations on exploration by drifting. Flat-raking ore bodies are a common and very important type. An exploratory drift may miss such an ore body completely although the ore is only a few feet above or below. Moreover ore found in a drift is likely to be difficult to appraise. Drifts, uncontrolled by preliminary drilling are more likely to cut the feather edge of an ore body than through its center. Some, but not all, thin streaks of ore are leads to important ore bodies. The extent of ore across the host beds can be readily determined by short drill holes from the drift, but the extent up or down the dip of the beds cannot be determined by drilling from a drift. Because the ore in the district consists of sulfide-rich bands separated by bands of barren garnetite a drill hole inclined less than 20 degrees to the plane of the beds generally gives misleading results.

Diamond drilling from the surface or from strategically situated nearby mine workings must be considered as a possible alternative to drifting in this district. Diamond drilling has been the exploration technique generally used by the Coronado Copper and Zinc Company and is the way they have discovered new ore

bodies of importance. By drilling, all parts of the target area and the full thickness of the favorable beds can be tested at relatively moderate cost. If discoveries are made, underground workings can be laid out for most efficient mining.

Close spacing of diamond-drill holes is essential to adequate coverage of the target areas being drilled. Although some ore bodies in the district feather out parallel to the beds and thus give lateral indication of their presence, important ore chimneys commonly end abruptly on both sides. Serious wandering of drill holes seems to be the exception rather than the rule in the district. Therefore the close spacing (100-150 feet) practised is known to be feasible. The findings of drill holes have frequently been checked by later mining and several cases are known where the drill hole was found close to the position expected. There seems to be little chance that the drill holes proposed in the revised application would duplicate one another.

The advantages of diamond drilling from the surface as an exploration technique in the district decrease as the depth of the target increases. Each deep hole must cut through much barren rock and may miss the favorable beds because of faulting. It is invariably more difficult to interpret the geologic structure from drill core than from mine openings. The depths involved in this application are considered within the range where drilling is an efficient method. Where nearly workings allow mine access,

drifting may be preferable to drilling at these moderate depths.

PROPOSED EXPLORATION

Plan A (Area No. 1) is the same in the original and the revised proposal presented by the applicant; Plan E (Area No. 2) has been modified from the Plan E originally proposed. Other plans of the original application are eliminated in the revised application here under consideration.

Plan A - Area No. 1

Plan A is designed to explore two blocks of ground, one above (south of) and the other below (north of) the south dipping Mammoth fault. The two parts of the plan are discussed separately because somewhat different exploration problems are involved.

Part 1 (Plan A) - The block of ground south of (above) the Mammoth fault is favorable for exploration because of ore showings in Surface Drill Holes 65 and 66 (Hole 65 - 5.0 feet assaying 7.5% copper and 0.8% zinc; Hole 66 - 5.0 feet assaying 1.9% copper and 5.8% zinc), as pointed out by the applicant, and also because of the ore discovered in Surface Drill Hole 48 (12.1 feet assaying 4.8% copper and 2.8% zinc) and partly mined from the small stope at the foot of the West Winze of the Mammoth Mine (fig. 2 of application). The relations in this stope suggest that the stope is at the top of a chimney having a small diameter and plunging eastward along the favorable beds, essentially parallel to the Mammoth Manto, Republic Manto, West Manto, and 700 Station ore bodies (Plate II, fig. 3 of

application). This suggests that the ore in Surface Drill Holes 65 and 66 is part of the same ore body. The shape of the D13 garnetite body (Plate II, fig. 3 of application) tends to confirm this interpretation. By comparison with the known ore bodies there is a fair chance that the thin ore indicated by Holes 65 and 66 may expand to commercially significant size to the east or northeast. The applicant's proposal to test this possibility by drifting on the 400 level is a well conceived and justified proposal. There should be a clear understanding that any ore found would be classified as a new discovery and subject to royalty payments even if it proved to be an extension of that known in Holes 65 and 66 and in the West Winze of the Mammoth Mine. The southern boundary of the area to be subordinated, as outlined in the revised proposal (see fig. 2 of this report), is satisfactory.

Part 2 (Plan A) - The block of ground north of (below) the Mammoth fault and west of the Copper Chief fault (fig. 2 of application) contains important ore bodies on the 500 level. This ore probably ends a relatively short distance above the level, but it is reasonable to suppose that other ore bodies occur at shallower depth within the same block. It is encouraging that Surface Drill Hole 2 cut 8 feet of 1.8% copper and 0.7% zinc at the top of the middle member of the Abrigo and 5 feet of 1.75% copper and 1.4% zinc 90 feet lower in the hole. The possibility of an ore body on the footwall side of the Mammoth fault across from the showings in Surface Holes 65 and 66 and in the West Winze of the Mammoth has not been explored. Although the

results of Surface Holes 6 and 83 and Underground Hole 12 are not encouraging, they are 300 feet or more from the known showings.

Even if there were no showings on the hanging wall side of the Mammoth fault the possibility of a chimney of ore beneath the fault should be further investigated. Four flat raking chimneys of ore have been mined in the district and each of these has occurred in the favorable beds parallel to and below a south dipping "Easter" like the Mammoth fault. The Republic Manto, West Manto, and 700 Station ore bodies were so related to the Republic fault (Pl. II, fig. 3 of the application) and the Mammoth Manto was similarly related to a smaller "Easter" shown on Plate 1, Figure 1 of the application. The northern-most segment of the Moore Shaft ore body and the recently discovered ore body to the northwest seem to have a similar relation to the East 90 fault (see figs. 2 and 4 of application).

Although exploration should be done in the block below the Mammoth fault, the applicant's proposal is weak in that it would explore only a small part of the block and showings that might be found would be difficult to appraise. The full thickness of the favorable beds would be explored in the initial 210-foot cross-cut only and this is laid out in a place that evidence from Surface Drill Holes 6 and 83 and Underground Hole 12 suggests is barren. The proposed 550-foot drift to the northwest might easily miss an ore body occurring at a slightly different stratigraphic horizon or in a flat-raking shoot above or below the level. As an illustration, the

important ore bodies on the 500 level of the mine might never have been found as a result of exploration on the 400 level. Moreover, the cross-cut and drift would depart farther and farther from the Mammoth fault as the work progressed, to a maximum of about 500 feet from the fault along the west side of the target area. Thus the possibility of a manto beneath the Mammoth fault would be largely unexplored. In addition to the possibility of missing an ore body completely, such ore as might be found by drifting is likely to be difficult to appraise because drilling from the drift could not adequately penetrate the ore showings, as explained under "Exploration Problems."

A preferable alternative to the applicant's plan would be to extend the drift of Part 1 of Plan A through the Mammoth fault to determine the local attitude of the fault which forms the hanging wall of the block to be explored under Part 2 of Plan A. Then a surface drilling program could be laid out to test the favorable beds by drilling on 100-to 150-foot centers. Drill holes from the drift of Part 1, Plan A, could be substituted for vertical holes from the surface where the holes from the drift would be shorter and would intersect the beds at a large enough angle to give reliable results. Such holes would probably reveal any ore body of importance that may be present. They would also indicate the trend of the ore body and thus provide a basis for laying out a wise plan for development and mining. When and if the drilling indicated an ore body and its trend, the rest of the drilling program could be suspended and mine workings could be taken to the ore.

The applicant strongly prefers to cross-cut and drift in the block below the Mammoth fault without a preliminary stage of diamond drilling. In Cooper's opinion, this procedure is not the best exploration approach but has a reasonable chance of leading to an ore discovery. Moreover, from long contact with Messrs. Gray and Baker, who will be actively directing the project, Cooper believes the applicant very competent to modify the exploration plan as the project progresses so as to explore this northern block more adequately than specified in the applicant's proposal. Therefore Part 2 of Plan A can be recommended, provided flexibility is allowed in the contract so that amendment for possible drilling or other work can be made. The writers believe that if the Government aid is not sufficient to test this block, that the applicant will, in time, adequately explore the block on their own account, once access is gained by the 550-foot drift on 400 level.

The applicant, in the revised proposal, has extended the area to be subordinated 100 feet to the north of the line originally proposed. This is generous because the north boundary of the area is within 50 to 100 feet of good ore penetrated by drilling since the original application was submitted.

Plan E - Area No. 2

The revised Plan E proposes to explore the area that extends southeast from the Moore shaft ore bodies toward the Republic mine by 11 diamond drill holes totaling 6500 in length. The proposed

holes are planned to penetrate the favorable middle Abrigo beds about 30 to 40 feet above the elevation of the 500 level of the Moore shaft workings. The holes are "spotted" in a regular pattern for convenience but it is intended that information gained from any drill hole may dictate a change in the location of succeeding holes to be drilled under Plan E.

Exploration is justified in Area 2. The area is between the two largest ore bodies thus far found in the district. The west end of Area No. 2 shows an appreciable geochemical anomaly at the surface. Ore metal is concentrated in fault zones in the northeast half of the area and is concentrated in the carbonate wall rocks in two narrow belts -- one extending northwest from coordinates 11060 N., 6580 E., the other extending southeast from 10850 N., 6800 E. (fig. 2 of this report). The geochemical anomalies plus the presence of numerous fissures from which ore may have been introduced make the northwest half of Area 2 promising for exploration. This geochemical anomaly has not been delimited to the southeast; it may extend over much or all of the southeast half of Area 2. The area south of the anomaly is considered relatively favorable because the highest concentrations of ore metal in the anomaly were found along east-west faults which dip 45° to 65° S. If these faults are regarded as leads to ore and projected downward, they intersect the favorable beds in a zone that would be tested by proposed drill holes 1, 2, 3, 4 and 5 (see fig. 2 of this report). Proposed drill hole 11 would test the ground vertically

below the anomaly. Drilling adjacent to the northwest end of the drill fence proposed (see fig. 2 of this report) has not been encouraging but has not adequately tested the ground. Surface Hole 34 cut two low-grade mineralized bands less than a foot thick. Holes 80 and 95 appear to have been wholly barren.

The 11 drill holes proposed in the revised application are justified, whereas the random " scatter-gun" approach of the original Plan E was excessive. Because of depth of the favorable beds and the lack of a nearby shaft, drilling from the surface is preferable to drifting to explore this area. To thoroughly explore the area (roughly 1000 feet by 1500 feet) by drilling would be a very costly undertaking. The single fence of holes of the revised proposal will reveal any large ore body having a more or less central location in Area 2, and will probably reveal small chimneys with a due E. or N. 10° W. trend. It might miss small chimneys trending N. 35° E. but this possibility did not justify the applicant's original proposal to drill 20 holes.

SUPPLEMENTARY DRILLING

In addition to Plans A and E, but listed under Plan E of the revised proposal, the applicant requests a $10,000 maximum allowance for supplemental diamond drilling in Areas 1 and 2. At the drilling costs proposed this would allow 2200 to 2460 feet of supplemental drilling. Drilling is to be done from the surface or underground in Area 1, as circumstances warrant. As explained under the discussion

of Plan A, drilling for ore north of the Mammoth fault possibly can be done effectively from the end of the proposed 460-foot drift (400-level) on the south side of this fault. Drilling for ore north of the fault, whether from the 460-foot drift or from the surface, might be more useful if it were done before the proposed 550-foot drift (400-level) is driven. From the 550-foot drift short hole drilling across the beds can be effective, but drilling more or less parallel to the beds is not feasible. Offset drilling in Area 2 to follow favorable indications suggested in drilling the initial line of holes is very worthwhile. Therefore funds for supplemental drilling should be allowed.

Neither the original nor the revised proposals would explore the northwestern part of Area 2. This part of the area also is considered favorable because of (1) ore showings in Drill Hole 75 (2 thin bands - 3 and 3.6 feet thick, respectively, of 9 to 10 percent zinc), (2) the proximity to the geochemical anomaly, and (3) the probable presence of strike faults which may have been channelways for mineralizing solutions. If the preliminary drilling as proposed for Area 2 does not result in significant penetrations of ore, and amendment is requested to drill this part of Area 2, the request should be favorably entertained.

Provision for supplemental drifting, cross-cutting or raising (within the maximum allowable cost) in Area 1 would be warranted if requested, or amendment to allow this is reasonable. The chances of Government royalty payment will be much better if exploration takes mine faces to ore.

CONCLUSIONS AND RECOMMENDATIONS

The areas proposed for exploration are geologically promising for zinc-copper ore of moderate grade. The exploration of proposed Plan A south of the Mammoth fault, and the exploration of Plan E are well conceived. The underground exploration north of the Mammoth fault as outlined under Plan A would be better if justified by prior diamond drilling, but is satisfactory as proposed by the applicant. The competent management of the Coronado Copper-Zinc Company can be relied on to expedite the program to good advantage. Therefore, it is recommended that the entire program as outlined in the revised proposal be accepted for a DMEA exploration loan.

DMEA-2746, CORONADO COPPER AND ZINC COMPANY'S JOHNSON CAMP
COCHISE MINING DISTRICT, COCHISE COUNTY, ARIZ.

Engineering Report

By M. J. Elsing
Consulting Mining Engineer
U. S. Bureau of Mines

February 1953

DMEA-2746, CORONADO COPPER AND ZINC COMPANY'S JOHNSON CAMP
COCHISE MINING DISTRICT, COCHISE COUNTY, ARIZ.

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INTRODUCTION

On November 10, 1952, the Chairman of the Operating Committee of the Defense Minerals Exploration Administration requested the Executive Officer, Region IV, to have an examination and report made on the feasibility of an exploration project involving an expenditure of $229,690 by the Coronado Copper and Zinc Co. for the exploration of its mine at Johnson Camp, Cochise County, Ariz. The Chairman of the Operating Committee also requested that the field team study and discuss with the applicant various phases of the project which the Chairman listed. He also requested that consideration be given to a memorandum of A. R. Kinkel, Jr., of the Geological Survey.

On January 21 and 22, 1953, M. J. Elsing and John N. Faick visited the Coronado company's property and reviewed the project with F. E. Gray, the mine manager and Arthur Baker, the geologist. All phases of the project were discussed, including those raised in a memorandum, dated December 29, 1952, from John R. Cooper to A. F. Shride, both of the Geological Survey. A trip was made underground through the Moore shaft workings.

On January 23, 1953, Roy W. Moore, president and general manager of the Coronado Copper and Zinc Co., telephoned the writer, advising that the company had decided to modify its application for an exploration loan. On February 6, 1953, the Tucson office of the Bureau of Mines received the revised project for the exploration of the Johnson Camp mine.

The new project provides for the expenditure of $99,640 instead of $229,690, which brings it more in line with the probable ore discoveries. The project as now presented conforms more closely with the suggestions made by various persons who reviewed the original proposals.

ACKNOWLEDGMENTS

Acknowledgments are due to F. E. Gray, the mine manager, who provided much information not included in the docket and who accompanied the examiners underground. Arthur Baker, the geologist, also contributed valuable information which aided in appraising the project.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

Johnson Camp, which is the local name of the property, is situated in the Cochise Mining District, Cochise County, Ariz., in the eastern foothills of the Little Dragoon Mountains at an altitude of slightly over 5,000 feet. The mine is 2.5 miles north of paved Arizona Highway No. 84 between Benson and Willcox. From the junction of the mine road and the highway, it is 15 miles west to Benson and 18 miles east to Willcox. Dragoon, the shipping point on the Southern Pacific Railroad, is 6 miles south of the mine.

The topography is mostly flat with a few small rolling hills. There is very little vegetation except for a little bunch grass and small desert shrubs. The climate is similar to that of other southern Arizona areas of equal altitudes.

HISTORY AND PRODUCTION

The history of Johnson Camp dates back to the early eighties when a small smelter was erected at the Peabody mine. From 1900 to 1942 numerous attempts were made to operate the Republic, Mammoth, Peabody, and Copper Chief mines. Considerable copper was produced but operations were unprofitable, except during short periods when the price of copper was high. In 1942, the Coronado Copper and Zinc Co. acquired the above mentioned mines, and in 1945 erected a selective flotation mill for the recovery of copper and zinc. The total production of Johnson Camp to the end of 1949 was approximately 36,500,000 pounds of copper and 25,000,000 pounds of zinc. The Coronad o company is treating approximately 6,500 tons of ore per month containing an average of about 2.5 percent copper and 6.5 percent zinc.

OWNERSHIP AND EXTENT

The revised project as proposed by the applicant includes all or parts of the following mining claims, all of which are owned by the company:

Blue Grass, patent applied for, Minerals Survey No. 4340;
Arizona, patent applied for, Mineral Survey No. 4340;
Miantenomah, patented, Mineral Survey No. 330;
Blue Lead, patented, Mineral Survey No. 3242;
Southern Cross, patented, Mineral Survey No. 3242;
A-Number One, patent applied for, Mineral Survey No. 4314;
A-Number Two, patent applied for, Mineral Survey No. 4314;
Blue Lead Extension, patented, Mineral Survey No. 3242;
Dwarf, patented, Mineral Survey No. 3242;
Little Bush, patented, Mineral Survey No. 3242.

DESCRIPTION OF THE DEPOSIT

The Johnson Camp ore deposits consist of chalcopyrite, bornite, and sphalerite which occur in garnetite in the middle Abrigo limestone of Cambrian age. The ore bodies are exceedingly irregular in size and shape. They vary in width from 100 to 300 feet, in thickness from 8 to 70 feet, and in length from 200 to 700 feet. The larger ore bodies are localized at the crests of shallow anticlines. A few smaller ore bodies, and offshoots of the larger ones, are localized by the intersection of the favorable beds with faults. The ore bodies are tabular or lenticular, or they may be replacements of the limestone as mantos. The most common characteristic is their association with garnet. The first step in exploration is to locate the garnetized limestone bed and then more intensive exploration is carried on to locate the ore body in the favorable beds.

MINABLE ORE RESERVES

The company's estimate of its ore reserves at the Johnson Camp as of September 1, 1952, was 180,000 tons with an average metal content of 2.58 percent copper, 6.67 percent zinc, and minor amounts of silver.

Figure 2 shows the 3 areas that the company originally proposed to explore. Areas No. 1 and No. 3 are 300 feet apart. The reason that these areas were not combined is due to the fact that the company has drilled a line of 6 holes down the middle of the area between Areas No. 1 and No. 3 with very encouraging results. The possible outline of this new orebody has been indicated on figure 2 by

the company's geologist, who believes that with additional exploration, this new discovery will add substantially to the ore reserves.

The existence of this ore zone was learned by the examiners when they discussed the possibility of combining Areas No. 1 and No. 3 with the mine manager. This combination was suggested by the Chairman of the Operating Committee. The mine manager stated it was the opinion of company officials that the ore in this zone was the company's discovery and that this ore should not be subject to any royalty. The writer agrees with this stand.

Failing to obtain a combination of Areas No. 1 and No. 3, the DMEA examiners suggested that Area No. 1 be extended to the north by 100 feet and similar distance to the south. This request was made on the basis that one of the proposed drifts was only 95 feet from the boundary of the area, and also that the amount of the loan was so large that it was necessary that the area subject to production royalty be as large as possible.

On January 23, Roy W. Moore, president and general manager of the company, telephoned the writer that the company would agree to the requested extensions. These extensions increase the possibility of additional ore reserves which would be a lien for the repayment of the loan, and therefore make the loan more favorable.

PRESENT STATUS

Exploration and Development

The company is currently producing approximately 6,500 tons of ore per month, and spending $1.56 per ton for development work and

$0.92 per ton for diamond drilling. The company officials believe that in order to keep operating it must find additional ore reserves and since its margin of profit is not sufficiently great to permit this, it has applied to the Government for an exploration loan.

Mining and Milling Equipment and Other Facilities

The mine and mill are completely equipped for production at the present rate. The expanded exploration program will require no additional facilities.

PROJECT PROPOSALS

The project proposals as modified by R. W. Moore, President of the Coronado Copper & Zinc Co., in a letter dated February 5, 1953, to the Chief of the Mining Methods Branch at Tucson reduced the proposed expenditure for exploration from $229,690 to $99,640. The present plan makes no change in the amount and character of the work originally proposed for Area No. 1 (see figure 2). In Area No. 2 drifting has been eliminated from the proposed work and the number of diamond drill holes to be drilled from the surface has been reduced and their spacing has been changed. The work proposed in Area No. 3 has been eliminated entirely.

The proposed work as now requested by the company is as follows:

Figure 2 - Area No. 1

400 Level West Drift.

"This drift will be advanced 50 feet at the sole expense of the applicant, to the easterly boundary of the area within which the work is to be done. The drift will then be continued 460 feet to the

northwest, as a part of this project, in the favorable horizon to test the favorable beds down-dip from their low-grade intersections of mineralization in the surface drill Hole No. 65 and No. 66. It is highly probable that this drift will be terminated when it strikes the Mammoth Fault, on which there is a displacement of considerable magnitude, but it is hoped that the downward extension of the ore encountered in drill Holes No. 65 and No. 66 will be reached before the hanging wall of the Mammoth Fault is cut. A crosscut will then be driven more or less due north for a distance of approximately 210 feet to pick up the favorable garnetite horizon on the footwall side of the Mammoth Fault. The favorable horizon will then be drifted on to the northwest for a distance of approximately 550 feet.

"The total amount of work outlined above is as follows:

Drifting	1,010 feet
Crosscutting	210
Total	1,220 feet

"As the Mammoth Fault probably will limit the length of drifting to be done on the hanging wall side of the fault the applicant herewith requests permission to apply the amount of the reduction in footage to some other location within this project."

Figure 2 - Area No. 2 - Plan "E".

"Plan "B" in Area No. 2 as embraced in our original application has been eliminated entirely.

"Plan "E" in our original application calls for the drilling of 20 diamond drill holes from the surface through the favorable Middle

Abrigo member. Plan "E" as originally laid out has been eliminated and in lieu thereof Plan "E" as now proposed consists of the drilling of 11 diamond drill holes averaging 590 feet deep each, or a total of 6,490 feet of drilling."

Figure 2 - Area No. 3

"Area No. 3 and Plans "C" and "D" which it embraces are herewith eliminated from our application."

In Plan "E" "the holes are laid out in a regular pattern for convenience only but we want to emphasize the fact that information obtained from any drill hole may dictate a change in location of the next hole to be drilled in the general area embraced under this plan.

"The cost figures which follow provide for possible extra drilling in the amount of 2,360 feet all or a part of this footage to be drilled from the surface within Area No. 2 if evidence obtained from holes previously drilled under this project indicate that more drilling should be done.

"It is possible that exploration work to be done in Area No. 1 will call for some diamond drilling to which a part of the extra diamond drilling mentioned above should be allotted if it seemed advisable to do so.

"Under date of November 19, 1952, Coronado Copper and Zinc Co. made application to Defense Materials Procurement Agency, Copper Branch, for a Government subsidy on copper produced at Johnson Camp. That application has been assigned DMPA Docket Number 2761.

"Coronado Copper and Zinc Co. will start work on this exploration project within 30 days after it is notified of a favorable decision on our application for a copper subsidy, provided the amount of the subsidy is sufficient to justify continued operation of its Johnson Camp property.

"The company would expect to complete the exploration project within 24 months from the date work is started."

Estimate of the Cost of the Project

	Drifts, Feet	Crosscuts, Feet	Total Feet	Price per ft.	Total Cost
Plan "A" - Area No. 1	1,010	210	1,220	$40	$48,000 1/
Surplus allowance for drifting and/or crosscutting in Area No. 1 if conditions warrant.			300	40	12,000
	Total		1,520	$40	$60,000

4880 ?

1/ As given by the company. This should be $48,800.

Plan "E" - Area No. 2

11 Diamond Drill Holes from surface.			6,500	$4.56	$29,640
Surplus Diamond Drilling if conditions warrant, from surface in Area No. 2 and/or underground from drifts and/or crosscuts driven under this project and within described Area No. 1, not to exceed $4.56 per foot for holes drilled from surface nor $4.07 per foot for holes drilled from underground stations.					$10,000
		Overall Costs			$99,640

It was considered that Area No. 1, the production from which would be subject to a lien for the repayment of the loan, was not sufficiently

large, and it was suggested by the DMEA examiners that an additional 100 feet in width be added to the north and a similar amount to the south. This request has been granted by the applicant in the modified application as follows:

Area No. 1

"The southwest boundary has been moved 100 feet to the southwest with bearing of boundary unchanged. The northeast boundary has been moved 100 feet to the northeast with the bearing of the boundary unchanged.

"The modified boundaries of Area No. 1 are as follows: Beginning at corner No. 1 of the Blue Grass claim as the initial point, Corner No. 1 of Area No. 1 bears North 62° 20' East 180.6 feet; thence S. 35° 00' West 294.0 feet to Corner No. 2; thence North 55° 00' West 638.0 feet to Corner No. 3; thence due North 445.0 feet to Corner No. 4; thence North 35° 00' East 310.0 feet to Corner No. 5; thence South 55° 00' East 422.0 feet to Corner No. 6; thence South 15° 48' East 605.7 feet to Corner No. 1, the place of beginning.

"Plan "A" under Area No. 1 remains the same as in the original application."

In view of the modified plan for drilling Area No. 2, the company has changed two sides of the area without materially decreasing its size.

"The boundaries of Area No. 2 as modified are as follows: Starting from Corner No. 1 of the Blue Grass claim as the initial point, Corner No. 1 of Area No. 2, the place of beginning, bears

South 85° 55' East 268.7 feet; thence North 32° 35' East 428.5 feet to Corner No. 2 which is on the common side line of the North Star and Blue Lead claims, both patented under Mineral Survey No. 3242; thence South 47° 23' East 1,257.5 feet along that common side line to Corner No. 3; thence South 49° 58' East 596.8 feet to Corner No. 4; thence South 30° 02' East 970 feet to Corner No. 5; thence North 50° 13' West 1,402.0 feet to Corner No. 6; thence North 3° 31' West 818.4 feet to Corner No. 1, the place of beginning."

The original areas and the modified areas subject to a lien are shown on figure 2.

The applicant proposes to do the drifting at a cost of $40.00 per foot. A breakdown of this cost was asked for and is given below:

Drifting Costs at Moore Shaft

650 Level & 500 N (Long Trams.)

Drilling, Blasting and Mucking (June 1952 to Date)	$15.54
Tramming (June 1952 to Date)(Republic)(Similar Trams.)	7.43
Timbering (June 1952 to Date)	0.64
Pipe and Track (June 1952 to Date)	3.55
Ventilation (June 1952 to Date)(Estimate)	0.80
Hoisting (Proportioned on basis of average hoisting cost per ton.)	3.30
Air Drill, Repair, Bits, Steel, Blacksmith Shop (From Gen. Mining & Milling Undistributed) (Apportioned by old cost sheets where distribution was made.)	2.50
Share of Machine Shop & Welding Shop (Ditto)	0.64
Compressors (Ditto)	0.60
Water Supply (Ditto)	0.11
Pumping (Estimated)	0.70
Payroll Taxes & Insurance	2.83
Supervision (Shift Bosses)	0.35

Drifting Costs at Moore Shaft (Con't.)

Supervision, Mine Mgr., Mine Foreman, Engineer & Helper, Master Mechanic, Warehouse Clerk, Geologist and Clerical	$ 0.98
Use of Equipment: (3 Air Drills and one Mucking Machine for 400 feet per month based on 5 year Life.).....	0.25
	$40.22
Plus 5.4% estimated increase in labor and supply cost, with wage increase October and applied for, and expected increase in supply costs - no increase figured on electric power and explosives ..	2.16
TOTAL	$42.38

On 500 E Drift and 400 West Drift, costs same as above except $2.00 per foot less for tramming (estimated) on account of shorter tram.

Manager, Mine Foreman, Engineer & Helper, Master Mechanic and Warehouse Clerk	$ 73.65
Geologist (5% against one face)	21.50
Clerical 5/7 x 350	250.00
	345.15
Ins. and Taxes	48.65
	393.80

400 Ft. per month (2 faces) $\frac{393.80}{400}$ $0.98 per ft.

The costs given above are for long tram drifts. It is estimated that short tram drifts will cost $2.00 per foot less, and since the work under the revised project will have short trams a cost of $40.00 per foot is used in estimating the cost of the project. The cost of drifting is estimated on the costs for 11 months of 1952. The important basic data which determine the cost of drifting are listed below:

Size of drift: 6 by 8 feet
Formation: hard garnetized limestone
Advance of drift: 3.34 ft. per drill shift.
Advance of drift; 3.74 ft. per round.
Timber: small amount except track ties.
Specific gravity of rock: 9 cu. ft. per ton in place.

Track: 20-pound rails
Pipe: 2-inch air line, 1-inch water line.
Hoisting muck: $0.78 per ton
Wage raise of October 1952, increases costs over 11-month average.
Explosives: $3.00 to $3.50 per foot.

The cost of each operation of drifting was discussed with the mine manager and he justified each item on the basis of the present costs of drifting. The applicant has included a very low cost of $0.25 per foot for the use of equipment, including 3 air drills and 1 mucking machine. The total cost is high but this seems unavoidable because of the hardness of the rock. If the project is approved it is believed that the applicant's drifting cost can be accepted because it has demonstrated that it is its actual cost of drifting.

The applicant proposes to do the surface diamond drilling at $4.56 per foot and the underground diamond drilling for $4.07 per foot. The mine manager provided a breakdown of these costs which is herewith shown:

Diamond Drilling Costs

Surface Diamond Drilling - Average Cost (June 1952 to Date) per ft.	$ 4.16
(This includes payment to contractor plus moving, cementing, reaming and miscellaneous)	
Water - (Providing drilling is done in area covered in Plan "E") Estimate	0.10
Supervision - Manager, Master Mechanic, Engineer and Helper, and chiefly Geologist	0.30
TOTAL	$ 4.56

Underground Diamond Drilling - Average 1st 8 months 1952 (Moore Shaft)	$ 3.08
Power estimated	0.15
Water "	0.05
Supervision (Same as for Surface Diamond Drilling)	0.30
Use of Equipment (Based on $225 per month rental paid to Continental Drilling Company)	0.29
	$ 3.87
Plus 5.4% increase due to 8c Wage increase in October, plus expected increase in supply costs but with no increase in power cost.	0.20
	$ 4.07

If the project is approved these costs can be accepted because they represent actual present costs of diamond drilling.

The Continental Drilling Co. has been drilling for the applicant for a number of years. The contract price with the present wage scale is as follows:

Footages drilled with AX bit - $3.30 per foot to a depth of 300 feet. Below 300 feet the increment of increase is at the rate of 15 cents for each additional 100 feet drilled.

For holes drilled with EX bits the price is $3.00 per foot for the first 300 feet and then the increment is 15 cents per foot for each additional 100 feet drilled.

The costs of moving, cementing, reaming and other smaller items are added to the contract price on the basis of past experience. Adding these costs to the contract price, plus water and supervision, the total cost for surface drilling is $4.56 per foot, and underground drilling is $4.07 per foot.

Wage Scale

In order to facilitate the analysis of the costs at the Johnson Camp the wage scale of the more important and most numerous employees is shown herewith:

Job Classification	Hourly Rate	Per 8-Hours
Mine shift boss, Class 1	$1.80	$14.40
Hoistman - double drum	1.64	13.12
Hoistman - single drum	1.55	12.40
Diamond driller	1.62	12.96

Wage Scale (Con't.)

Job Classification	Hourly Rate	Per 8-Hours
Timbermen	$1.59	$12.72
Mucking machine operator	1.55	12.40
Miner	1.55	12.40
Mucker	1.47	11.76
Cager	1.55	12.40
Toplander	1.47	11.76
Mill shift boss (flotation operator)	1.67	13.36
Ball mill operator	1.55	12.40
Electrician, 1st class	1.69	13.53
Mechanic, 1st class	1.64	13.12
Machinist	1.64	13.12
Welder	1.64	13.12
Carpenter, 1st class	1.64	13.12
Truck driver	1.47	11.76
Surface laborer	1.3713	10.97
Assayer	1.8152	14.52
Payroll clerk	1.1293	9.03

The above rates are for a 40-hour week and do not include overtime or fringe benefits.

Transportation

Transportation offers no problems. Concentrates are trucked 6 miles to Dragoon railroad station over a good gravel road.

Manpower

There are ample men available for doing the small amount of additional work that this project requires, therefore labor offers no problem.

Power

There is an adequate supply of electric power which is purchased from the Sulphur Springs Valley Electric Cooperative, Inc., Willcox, Ariz.

Water

Water for mine and mill operations is pumped from the Moore shaft. The supply is more than adequate. Domestic water is obtained from the company well, 8.5 miles to the northeast.

PRODUCTION PLAN

Mining Methods and Costs

The method of mining used at the Moore shaft is a combination of open stoping and sublevel mining. Where an ore body occurs on the level an open stope is started. Ore is broken into this opening by ring hole drilling from sublevel drifts. The ore is recovered from the floor of the stope by a mucking machine loading into one-ton cars, which are hand trammed to the shaft station. In other cases, ore in the sublevel open stopes is blasted into large mill holes which are not timbered. The ore drops directly to the level floor where it is loaded into cars by the mucking machine. This permits efficient block hole drilling and blasting.

The larger stopes are some 30 to 40 feet wide, and 30 to 40 feet high. When the waste top of the stope is reached it is roof-bolted. This consists of drilling 6-foot holes into the roof of the stope at regular intervals of 4 feet in each direction. A steel anchor bolt is wedged into the hole and a steel plate, 6 by 6 inches with a hole drilled in the middle, is fastened to the protruding bolt by a nut. This is a costly procedure to insure safety but is required by the State Mine Inspector. Pillars are left between stopes. After some pillar recovery, the loss of ore in pillars is estimated to be 10 percent which seems low.

Costs of mining for the first 11 months of 1952, and the estimated costs under the proposed project are shown below:

	Per Ton Ore	
	11 Mos. 1952	Project
Development	$1.56	$3.48
Diamond drilling	0.92	1.13
Mining	3.87	3.88
Total direct mining	$6.35	$8.49

Milling Methods and Costs

The mill is operated at capacity every day of the month except National Holidays. Approximately 6,500 tons of ore are treated per month with an average grade of 2.5 percent copper and 6.5 percent zinc. The selective flotation process is used with the recovery of a copper concentrate and a zinc concentrate. The copper concentrate contains approximately 30 percent copper, 3.5 ounces of silver, and no gold, and the zinc concentrate contains 54 percent zinc, 2 percent copper, 0.9 ounce of silver, and no gold. Approximately 95 percent of the copper is recovered, of which 90 percent is in the copper concentrate and 5 percent in the zinc concentrate. Approximately 90 percent of the zinc is recovered in the zinc concentrate. Such recoveries are unusually high and speak well for the efficiency of the milling practice. The freight rate to Bartlesville is $11.30 per wet ton of concentrates, or $12.22 per dry ton.

The mill cost for the first 11 months of 1952 was $1.90 per ton. The estimated cost of milling used in the application for a purchase contract was $2.12 due to an increase in the wage rate.

Smelting Methods and Costs

Copper concentrates are smelted at El Paso smelter of the American Smelting and Refining Co. The copper content, less 20 pounds, is paid

for at 20.995 cents per pound, and silver, less 5 percent, is paid for at 88.5 cents per ounce. The base smelting rate, including labor adjustments, is $8.85 per ton of concentrates. The bullion freight tax amounts to approximately 20 cents per ton. The railroad freight, including Federal transportation tax, is $3.55 per ton.

Zinc concentrates are shipped to the Bartlesville smelter of the International Minerals and Metals Corp. The following prices are used in payment for the metals contained:

E. & M. J. Quotations - October 1952

P. W. Zinc, f.o.b. East St. Louis	-	13.297 cents
Copper - Domestic refinery	-	24.20 cents
Silver - Domestic	-	90.00 cents

A total of 85 percent of the zinc is paid for at 13.297 cents less 0.35535 cents per pound. The copper is paid for on the basis of 65 percent of the content at 24.20 cents less 6.15 cents per pound, and the silver is paid for on the basis of 80 percent of the content at 90 cents per ounce. The base smelting charge with zinc at 19.5 cents per pound is $54.13 per ton. When the price of zinc is less than 19.5 cents per pound, the base smelting rate is reduced by $1.50 per ton for each 1 cent in the reduced value of zinc per pound. The smelting charge is calculated on a base average wage of $15.40 per shift. When the average wage scale is above this rate a labor adjustment charge is made which amounts to 20 cents per ton for each 10-cent increase in the wage scale. In October the base smelting rate was $44.8255 per ton and the labor adjustment charge was $2.048 with the average wage scale of $16.424 per shift, making the total cost of smelting $46.8735 per ton of concentrates.

SUMMARY: COST OF PROJECT

Capital Requirements, including development

There are no capital requirements to permit the completion of the proposed exploration project. Exploration will continue along the same general lines that have been followed since 1942 when the company acquired the property. The only change that the project provides is that exploration will be at an accelerated rate in order to build up the company's ore reserves.

Operating Costs

An estimate of the anticipated operating costs, should this project be approved, and the actual costs for the first 11 months of 1952 as given by the company, are shown below:

	Per Ton Ore	
	Project	11 Mos. 1952
Development	$3.48	$1.56
Diamond drilling	1.13	0.92
Mining	3.88	3.87
Milling	2.12	1.90
General expenses incl. admin.	4.42	4.26
Los Angeles costs	0.36	0.36
Marketing costs	0.16	0.16
Concentrates delivered to Dragoon	$15.55	$13.03

The above costs do not include depreciation of $0.71 per ton and depletion of $1.04 per ton.

Estimated Profit or Loss

The estimated net smelter returns of the concentrates produced during December 1952 was $88.754. A total of 6,443 tons of ore was milled. The price of copper was 24.5 cents per pound and zinc was

12.5 cents. On this basis the net smelter returns were $13.78 per ton of ore milled.

The actual costs for the first 11 months of 1952 were $13.03 per ton. In this cost the effect of the wage raise of October 1 is only partially reflected. Depreciation of $0.71 per ton wipes out all profit for the period. It is quite evident that at the present market price for copper and zinc, the Coronado company cannot operate profitably. The company manager advised the examiners that a request for a purchase contract for copper at an over-the-market price had been made and that in the event of a denial the company was not interested in an exploration contract. Furthermore it was unknown how long the company could continue to operate at the current prices of copper and zinc.

PROPOSED FINANCING

The applicant proposes to do the exploration work on a cost per foot basis with one-half of the cost to be paid by the Government and one-half by the company. The mine manager brought up the question that there were separate areas for exploration and requested information relative to the status of a discovery in one area and not in another. He was advised that in all probability there would be only one contract and that a discovery of ore in either area would be a lien for the entire loan.

CONCLUSIONS

The larger part of the production from the holdings of the Coronado company has come from the Republic and Mammoth mines. These mines are

separated by some 3,000 feet. The surface between them shows evidence of mineralization although it is not as strong as at and near the mines mentioned. The area is large and might contain important ore bodies. It is difficult to evaluate the possibilities of the discovery of new ore bodies, but its location between two productive mines and the fact that structural and geological conditions are similar, make it worthy of the proposed work.

The other area near the Moore shaft is surrounded on 3 sides by the Mammoth Manto, the 467 Ore body, and the more recently discovered ore bodies near the Moore shaft. This area is smaller than the area between the Republic and Mammoth mines. The reasons to warrant the belief that it will be productive are more factual than for the area first mentioned. The structural and geological conditions are good, but in addition to this, the drifting to be done should locate the downward extension of known low-grade ore in diamond drill Holes Nos. 65 and 66.

It is believed likely that substantial quantities of ore, running 2.5 percent copper and 6.5 percent zinc, will be found. Such a grade of ore is more-or-less the average grade for the district. However, with copper at 24.5 cents per pound and zinc at 11.5 cents, ore of this grade cannot be mined profitably at this time. Unless the Company receives Government price assistance the chances are that the mine will be closed down. It follows that whether or not the loan can be repaid depends upon the price of copper and zinc.

With copper at 24.5 cents per pound and zinc at 11.5 cents, the net smelter returns are $13.78 per ton. The royalty to the Government would be approximately 70 cents per ton. One-half of the cost of the project amounts to approximately $50,000. Therefore, to repay the loan at 5 percent royalty would require about 70,000 tons of ore. It seems reasonable to expect that with the 10-year period of the lien agreement, the loan will be repaid.

One of the persons who reviewed this application in Washington suggested the possibility that in spacing surface diamond drill holes at 100-foot intervals, one hole might duplicate an adjoining hole by wandering. The company has drilled many holes at close intervals. Baker, the company geologist, stated that of a dozen holes surveyed none wandered at a depth of 350 feet. At a depth of 650 feet the maximum wander was 12 feet and in most holes the wander was less than 8 feet. On the basis of this fact the conclusion drawn is that wandering of holes should not be the basis for disapproving closely spaced holes, particularly because past experience of the company has shown the need of drilling holes at close intervals after having determined a favorable zone. The closest spacing of holes in the revised plan is 175 feet and it is believed that no objection should be raised because of this spacing.

RECOMMENDATIONS

The project is sound because it is proposed by the personnel of an efficient mining company of many years successful operation. From the present examination it is quite evident that the proposals are based on

a very careful study of the geologic conditions of the areas to be explored. The work should discover substantial tonnages of ore assaying approximately 2.5 percent copper and 6.5 percent zinc which is more or less typical of the grade of Johnson Camp ore.

Whether or not ore of this grade can be mined profitably is dependent upon the price of copper and zinc. At the present price (February 1953) of 24.5 cents for copper and 11.5 cents for zinc, it is doubtful if ore of the grade mentioned can be mined at a profit. Therefore, whether the loan can be repaid is a matter of the price of copper and zinc during the 10-year period of the lien. In spite of this uncertainty it is believed that the area to be explored offers the possibility of the discovery of such important ore reserves, which presently may be submarginal, that the exploration should be done.

Therefore it is recommended that this project, as proposed by the Coronado Copper and Zinc Co. in its revised application of February 5, 1953, be approved for $99,640 of which the Government's share is $49,820.

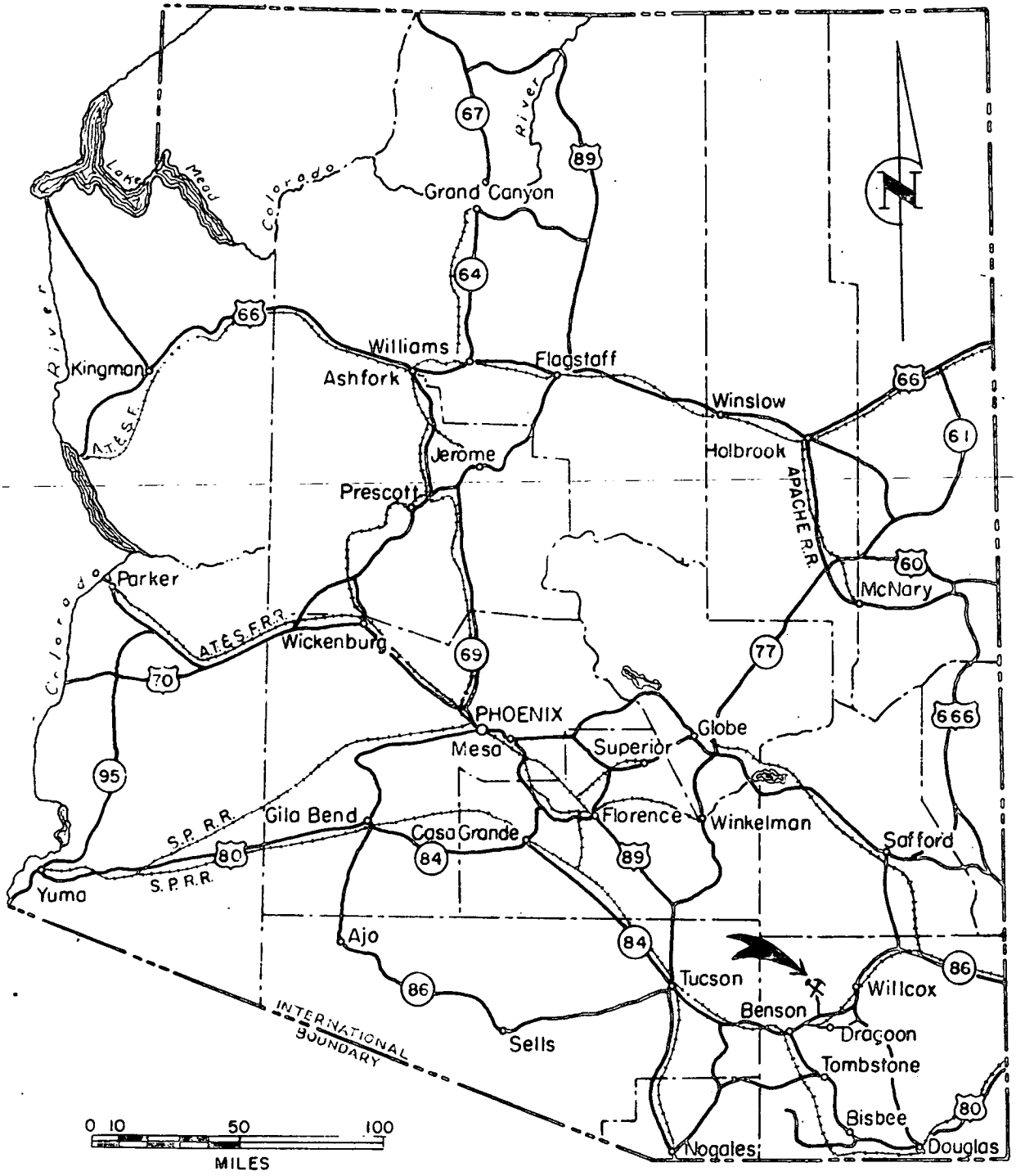

FIGURE 1. LOCATION MAP DMEA 2746

CORONADO COPPER & ZINC COMPANY

COCHISE MINING DISTRICT COCHISE COUNTY, ARIZONA

FIGURE 2.

DMEA 2746

HORIZONTAL PROJECTION OF MINE WORKINGS AND PROPOSED EXPLORATION

CORONADO COPPER & ZINC COMPANY

COCHISE MINING DISTRICT COCHISE COUNTY, ARIZONA

FEBRUARY 1953

FILE COPY
SURNAME:

500

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

NOV 10 1952

Mr. W. H. King, Executive Officer
DMEA Field Team, Region IV
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMEA-2746 (Copper-Lead)
Coronado Copper & Zinc Company
Johnson Camp, Arizona

Dear Mr. King:

A review of the subject application by both the commodity specialists and engineers of the Base Metals Division of this Administration indicates that a field examination should be made of the Applicant's property. The Field Team is therefore requested, on making the examination, to study and discuss with the Applicant the following points:

1. The general and local geological maps and sections and drill hole records that are used as a basis for the proposed exploration projects in each of the areas to be explored.

2. The probability of encountering ore in each of the three areas as deducted from a study of the above-mentioned data.

3. The necessity of restricting the areas from which royalty will be paid on production. Could not Area I be connected to Area 3 and include the full width of the Arizona, Carlton, and Ross claims and the northern half of the Miantenomaii, to the west of the developed ore bodies?

4. A careful study of the proposed drifting and drilling in Area 2 should be made. The proposed drilling from the surface will cost approximately $59,280. This money might be spent to more advantage in drifting and long hole drilling, especially if previous drilling has ascertained the elevation and dip of the more favorable beds in that area.

5. The necessity for two parallel drifts in Area 3 to explore different horizons of the favorable beds. Would not diamond drilling or long hole drilling from one drift explore the other horizon more economically, and at the same time ascertain the necessity of the other drift?

6. A breakdown of the estimated unit cost per foot of drifting and crosscutting. The cost seems rather excessive in view of the total footage to be driven and the number of faces that can be advanced at the same time. What are the average drifting costs in that district?

7. We are enclosing for your information two copies of the memorandum of A. R. Kinkel, Jr. We recommend that the Field Team consider the recommendations given in that memorandum when making their examination.

Sincerely yours,

(signed) FRANK E. JOHNSON (EHB)

Chairman, Operating Committee

P.H. 11-10-52

Enclosure

APPROVED:

J. H. Hedges (EHB)

Member, Bureau of Mines

A. R. Kinkel, Jr (EHB)

Member, Geological Survey

HFKeller/bjl (written 11/5/52)

Copy to: Docket
Admr. R. File
Op. Committee
H. F. Keller (2)
Mr. C. H. Johnson
Mr. A. R. Kinkel (USGS)
Chron.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

Memorandum October 31, 1952

To: E. W. Ellis

From: A. R. Kinkel, Jr.

Subject: DMEA 2746 Coronado Copper and Zinc Co.
Johnson Camp, Arizona

The applicant wishes to explore for faulted extensions of known ore bodies and to explore new areas by drilling and underground exploration.

The geology of the Johnson Camp district is well known and the company has a competent geologist (Arthur Baker). Mr. Cooper of the Geological Survey is thoroughly familiar with the district. The application for government support in exploration is well presented and well documented and should be referred to the field for review by a geologist familiar with the district. The Survey has also done geochemical work at Johnson Camp where some anomalies were found that might be related to subsurface ore.

In Area 1 the drifts proposed would apparently explore two parts of the favorable Abrigo formation, although cross sections are needed adequately to appraise the choice between surface drilling and underground drifts. Also, more down-dip extensions of the ore should be covered adequately for royalty payments.

In Area 2 it would seem that if drifting along the favorable horizon is the proper way to explore the first half of the area, it probably should be used to explore the last half of the area even though it involves a long waste haul and ventilation problems. Or possibly drilling would adequately explore all of Area 2.

The drill holes under Plan E in Area 2 appears to be too closely spaced. I have no information on whether the ore bodies thin out to below mining widths or grade, or whether they end abruptly and give no lateral indication of their presence. Even in the latter case, the spacing of drill holes seems too close because a 650 foot hole is apt to wander, and 650 foot holes on 100 foot centers could easily duplicate each other.

Sections are needed to appraise the exploration in area 3.

A. R. Kinkel

COPY

FILE COPY
SURNAME:

500

Keating

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

Docket

Mr. Roy W. Moore
President and General Manager
Coronado Copper & Zinc Company
1206 Pacific Mutual Building
523 West Sixth Street
Los Angeles, California

JAN 5 1953

Re: Docket No. DMEA 2746
(Lead-Zinc-Copper)
Coronado Copper & Zinc Co.
Johnson Camp, Arizona

Dear Mr. Moore:

At the request of Mr. Dillon, attorney in Washington, we wish to advise you that your application for exploration project assistance has been recieved, reviewed and referred for a field examination to:

Mr. W. M. King,
Executive Officer, Region IV
DMEA Field Team
224 New Customhouse Building
Denver 2, Colorado

If he has not already done so, Mr. King will arrange for the examination at his earliest opportunity. Upon receipt of the report from Mr. King, we will give your application immediate consideration.

Sincerely yours,

SIGNED

A. G. Keating, Acting Chief
Base Metals Division

1-5-53

AGKeating/hmj
1-5-53
CC to: Adm. Reading File
Op. Committee
Base Metals
Keating
Region IV
Mr. Kinkel
Mr. Bishop
Docket

November 26, 1952

NOTE FOR THE FILE

Applicant Has an application, No. DMPA-2761, with the Defense Materials Procurement Agency.

Call Mr. Dillon
ME-8-6474 Attorney
DMPA-2746
(I have brought out this file for your information)

11/4/52 gla

IN REPLY REFER TO

G-MD-CF

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

October 31, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
NOV 3 1952

Memorandum

To: E. W. Ellis

From: A. R. Kinkel, Jr.

Subject: DMEA 2746 Coronado Copper and Zinc Co.
Johnson Camp, Arizona

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apt to wander, and 650 foot holes on 100 foot centers could easily duplicate each other.

Sections are needed to appraise the exploration in area 3.

A. R. Kinkel

A. R. Kinkel

October 27, 1952

Mr. R. W. Moore, President
Coronado Copper and Zinc Company
1206 Pacific Mutual Building
523 West Sixth Street
Los Angeles 14, California

Subject: DMEA-2746
Re: Exploration Assistance
Johnson Camp

My dear Mr. Moore:

The receipt of your application dated October 15, 1952 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-2746 and referred to the Rare and Miscellaneous Metals Division.

Kindly refer to DMEA-2746 in any future correspondence relating to your application.

Sincerely yours,

R. E. ADAMS

Robert E. Adams
Chief, Operation Control
and Statistics Division

25451

CORONADO COPPER & ZINC CO.
JOHNSON CAMP, ARIZONA
SURFACE GEOLOGIC MAP
PEABODY AREA
MAPPED: 2/9/54 TO
SCALE: 1" = 100'
DRAWING NO.
JGA 8
CORONADO COPPER & ZINC CO.
JOHNSON CAMP, ARIZONA
SURFACE GEOLOGIC MAP
MOORE AREA
MAPPED: 7/9/53 -
SCALE: 1" = 100'
DRAWING NO.
JGA 6
PRELIMINARY PRINT
4/5/54
LEGEND ON SEPARATE SHEET
OUTLINE OF DMEA AREA 2
PROPOSED DMEA #17
PROPOSED DMEA #18
PROPOSED DMEA #16
"A" OREBODY FRACTURE ZONE
A-NO. 1 FRACTURE ZONE
D113 FRACTURE ZONE
D112 FRACTURE ZONE
467 FAULT
601 FAULT
602 FAULT
603 FAULT
604 FAULT
605 FAULT
607 FAULT
608 FAULT
609 FAULT
WISEMAN FAULT
WELL FAULT
1600-1700 FAULT
BRECCIA AREA NORTH HALF HAS BLOCKS OF d ONLY. SOUTH HALF HAS BLOCKS OF d xl, CC AND SOME LIMONITE
N12500
N12000
N11500
N10000
N9500
E6500
E7000
E7500
E8000
E9500
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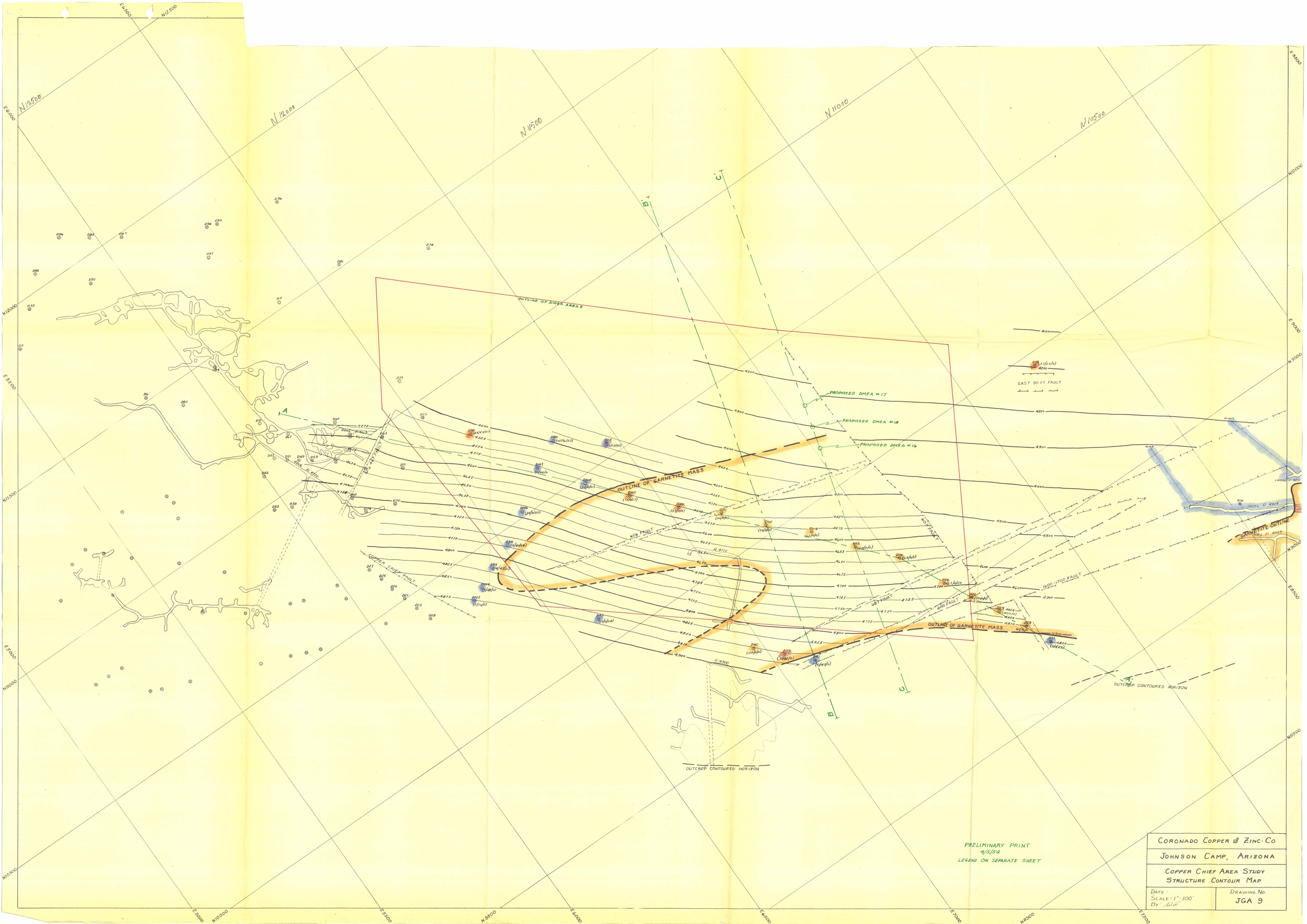
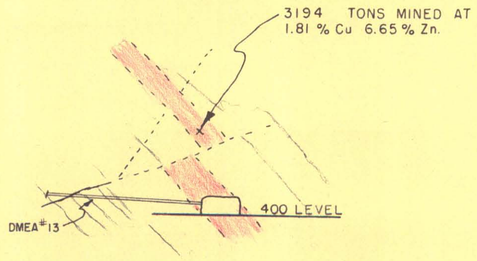
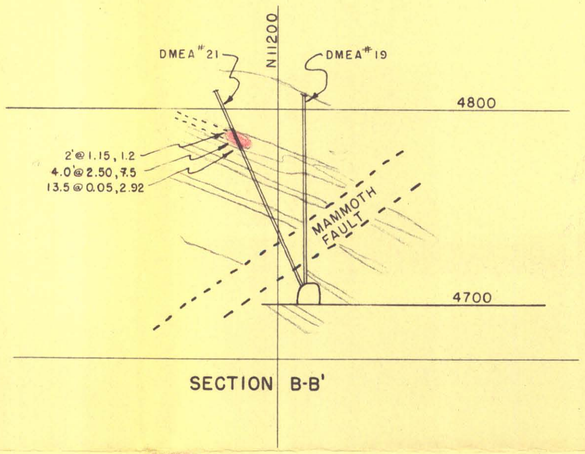
E5500
E6000
A'
B
B'
C
C'


OUTLINE OF DMEA AREA E
PROPOSED DMEA #17
PROPOSED DMEA #18
PROPOSED DMEA #16
OUTLINE OF GARNETITE MASS
OUTLINE OF GARNETITE MASS
GARNETITE OUTLINE
EAST 90 ?? FAULT
1600-1700 FAULT
COPPER CHIEF FAULT
OUTCROP CONTOURED HORIZON
OUTCROP CONTOURED HORIZON
PRELIMINARY PRINT
4/5/54
LEGEND ON SEPARATE SHEET
CORONADO COPPER & ZINC CO.
JOHNSON CAMP, ARIZONA
COPPER CHIEF AREA STUDY
STRUCTURE CONTOUR MAP
DATE:
SCALE: 1" = 100'
BY: Aiva
DRAWING NO.
JGA 9



SECTION A-A'



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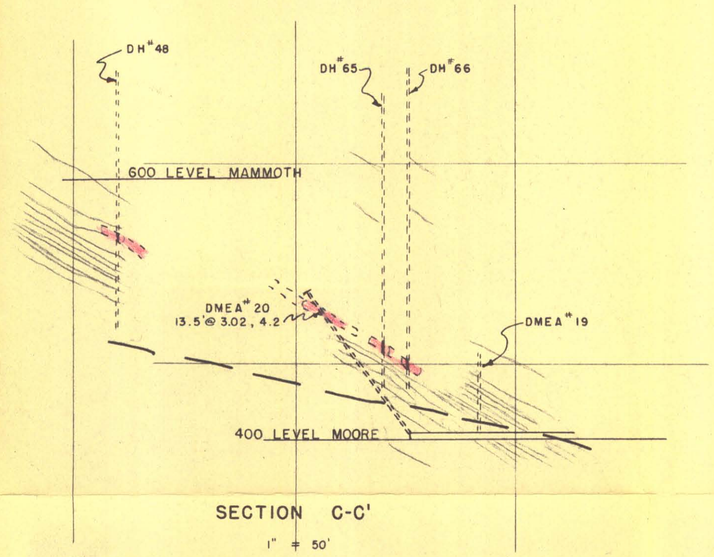
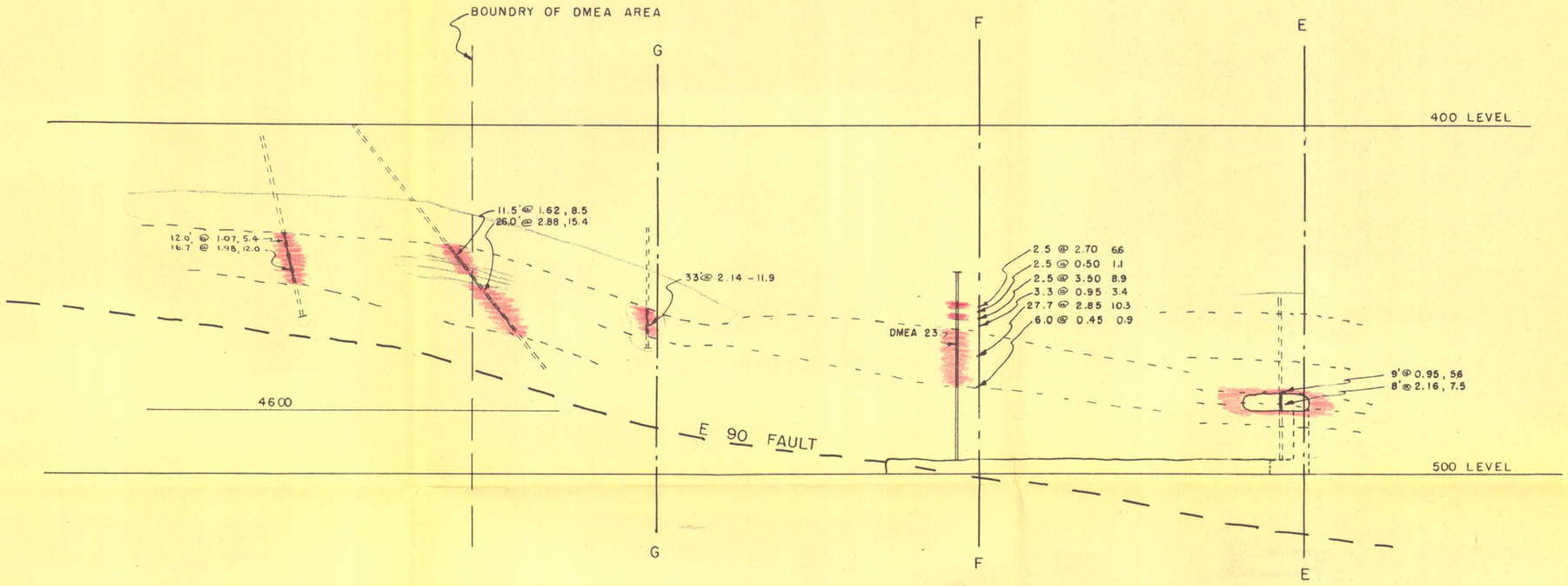
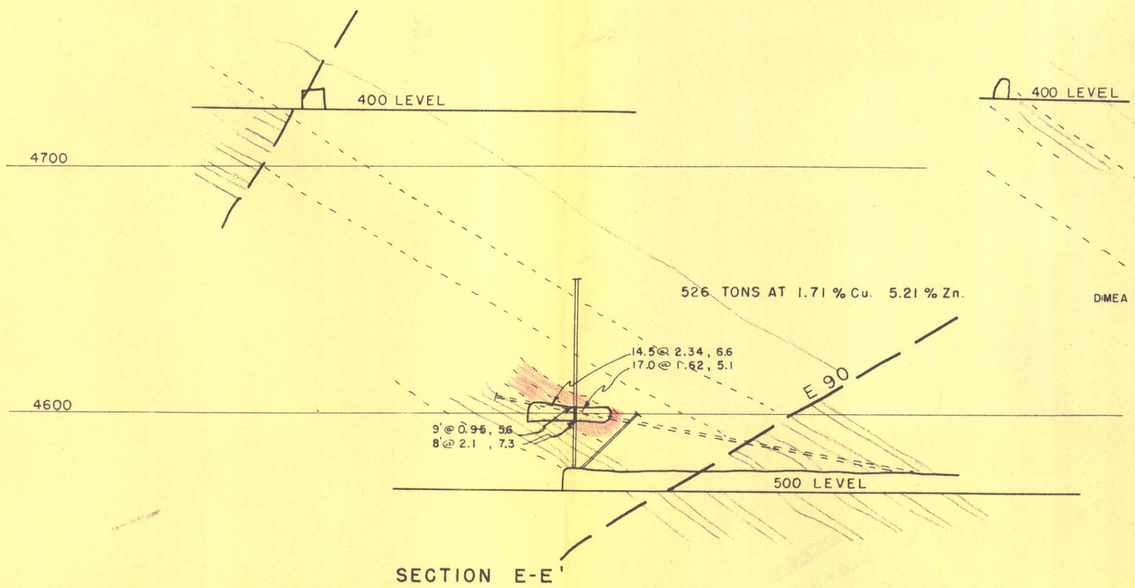


SECTION C-C'

1" = 50'



SECTION D-D'



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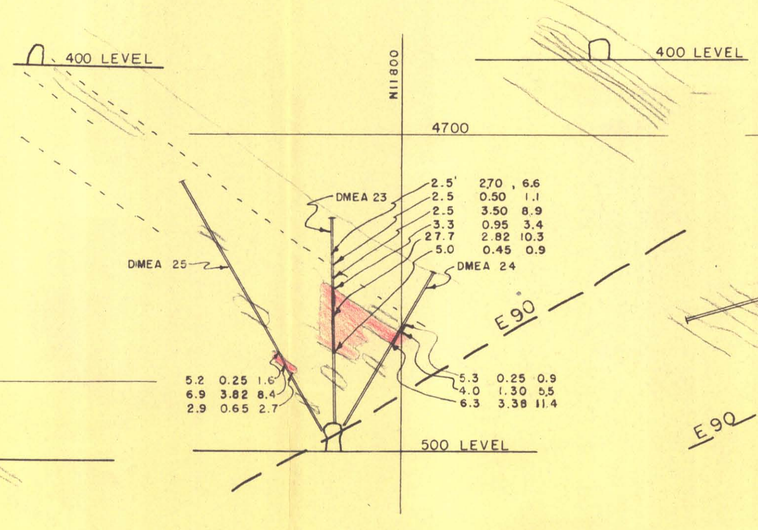
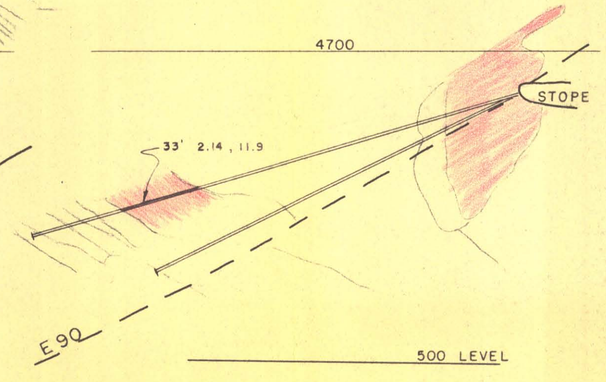


SECTION F-F'



SECTION G-G'

FIG. 43
CORONADO COPPER & ZINC CO.
JOHNSON CAMP, ARIZONA
AREA I MAP, DMEA DOCKET NO. 2746
SECTIONS THROUGH ORE BODIES
DMEA 2746

SCALE 1" = 40' (UNLESS OTHERWISE NOTED) 2-1-55

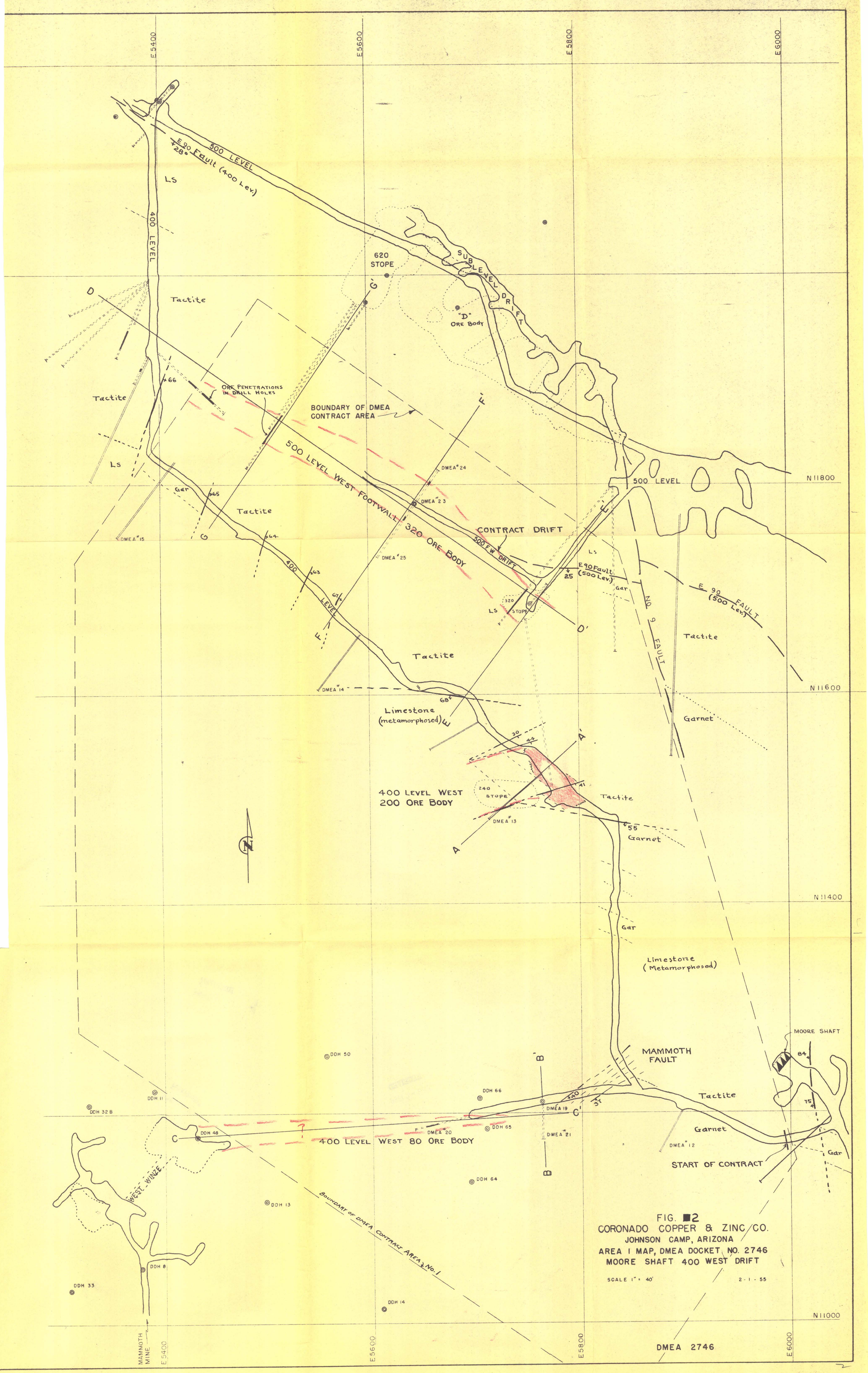
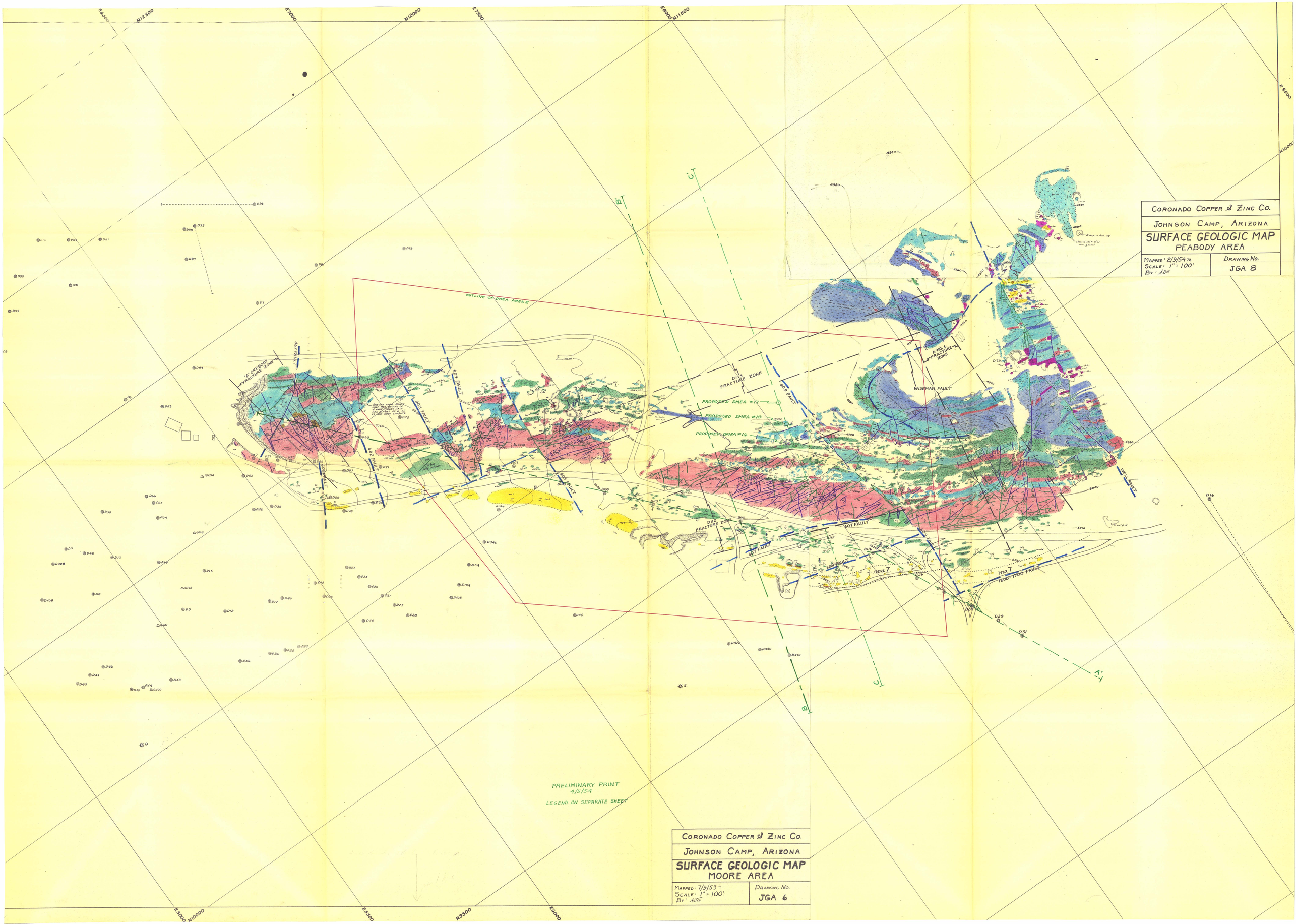
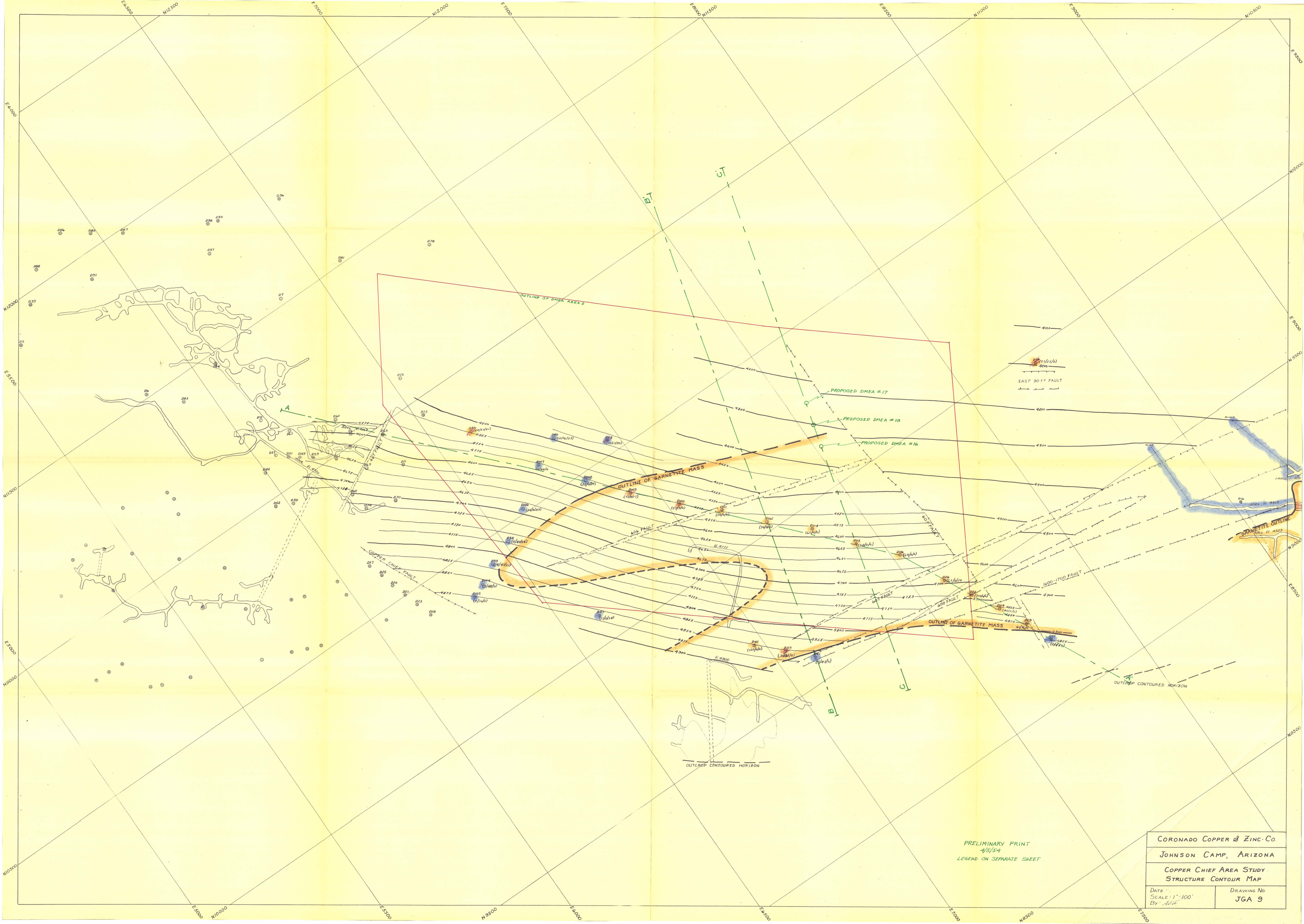


FIG. 2
CORONADO COPPER & ZINC CO.
JOHNSON CAMP, ARIZONA
AREA I MAP, DMEA DOCKET NO. 2746
MOORE SHAFT 400 WEST DRIFT

SCALE 1" = 40' 2-1-55


CORONADO COPPER & ZINC CO.
JOHNSON CAMP, ARIZONA
SURFACE GEOLOGIC MAP
PEABODY AREA
MAPPED: 2/9/54 TO
SCALE: 1" = 100'
BY: ADH
DRAWING NO.
JGA 8
OUTLINE OF DMEA AREA 2
PROPOSED DMEA #17
PROPOSED DMEA #18
PROPOSED DMEA #16
WISEMAN FAULT
A-NO. 1 FRACTURE ZONE
D115 FRACTURE ZONE
D112 FRACTURE ZONE
"A" ONEBOY FRACTURE ZONE
PRELIMINARY PRINT
4/5/54
LEGEND ON SEPARATE SHEET
CORONADO COPPER & ZINC CO.
JOHNSON CAMP, ARIZONA
SURFACE GEOLOGIC MAP
MOORE AREA
MAPPED: 7/9/53 -
SCALE: 1" = 100'
BY: ADH
DRAWING NO.
JGA 6


OUTLINE OF DMEA AREA 2
PROPOSED DMEA #17
PROPOSED DMEA #18
PROPOSED DMEA #16
OUTLINE OF GARNETITE MASS
OUTLINE OF GARNETITE MASS
GARNETITE OUTLINE
EAST 90 ?? FAULT
COPPER CHIEF FAULT
604 FAULT
1600-1700 FAULT
OUTCROP CONTOURED HORIZON
OUTCROP CONTOURED HORIZON
PRELIMINARY PRINT
4/5/59
LEGEND ON SEPARATE SHEET
CORONADO COPPER & ZINC. CO.
JOHNSON CAMP, ARIZONA
COPPER CHIEF AREA STUDY
STRUCTURE CONTOUR MAP
DATE:
SCALE: 1" = 100'
BY: ADK
DRAWING No.
JGA 9

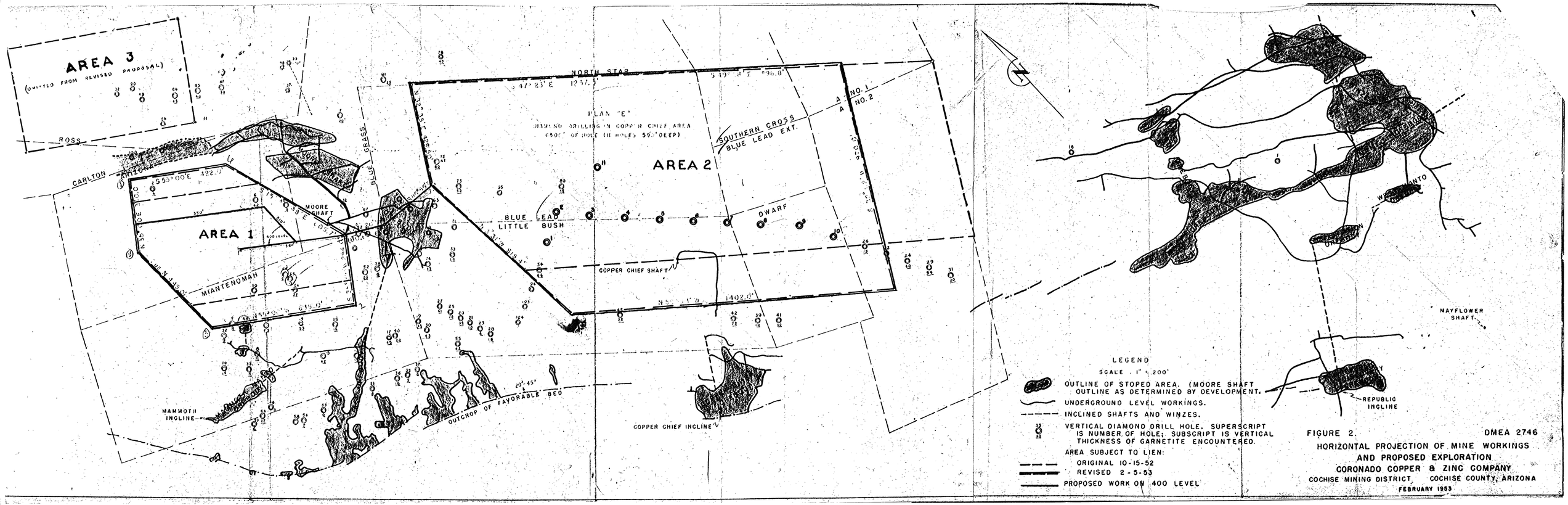


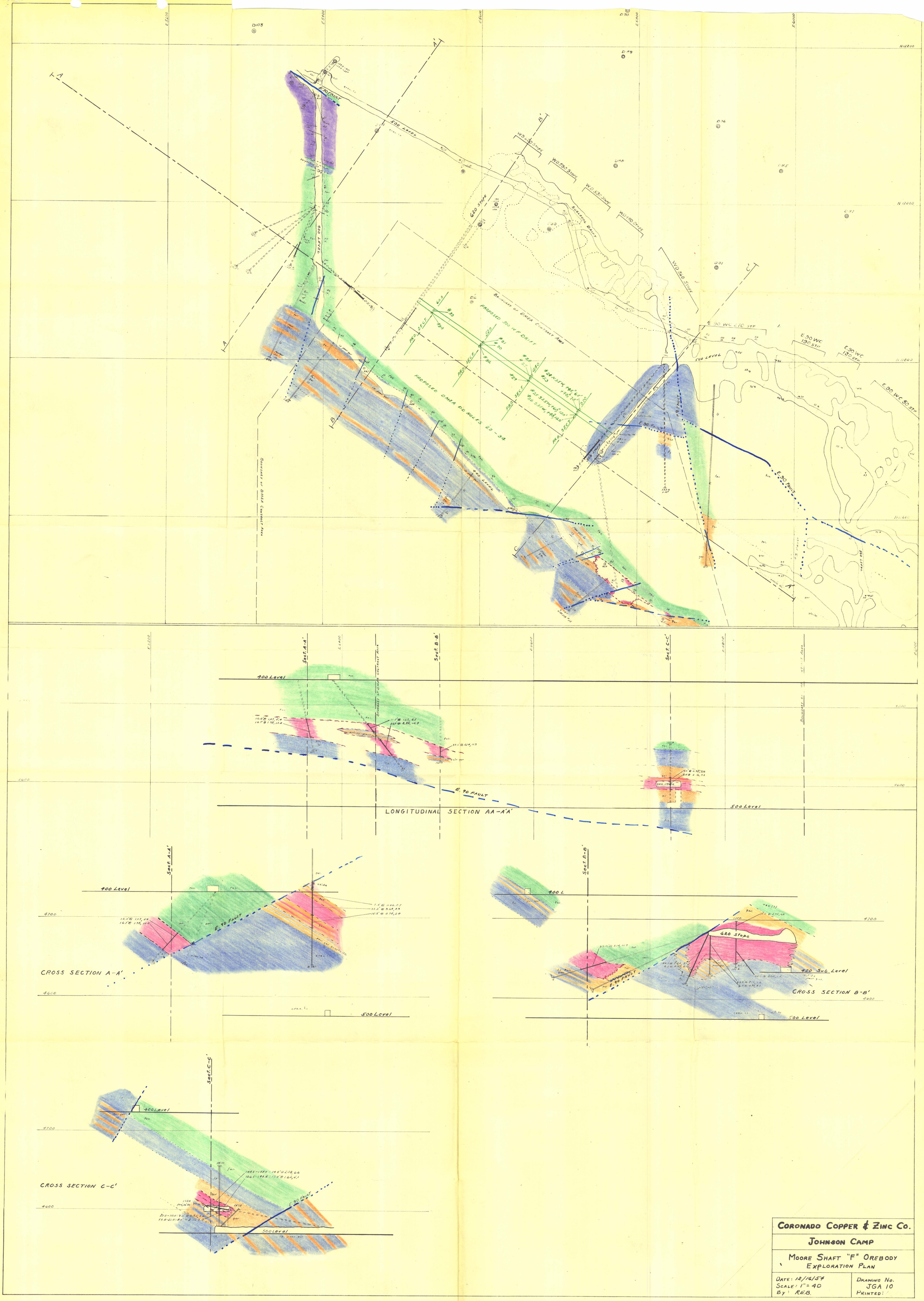
FIGURE 2. DMEA 2746

HORIZONTAL PROJECTION OF MINE WORKINGS AND PROPOSED EXPLORATION

CORONADO COPPER & ZINC COMPANY

COCHISE MINING DISTRICT COCHISE COUNTY, ARIZONA

FEBRUARY 1953



CORONADO COPPER & ZINC CO.	
JOHNSON CAMP	
MOORE SHAFT "F" OREBODY EXPLORATION PLAN	
DATE: 12/16/54 SCALE: 1" = 40 BY: R.E.B.	DRAWING NO. JGA 10 PRINTED:

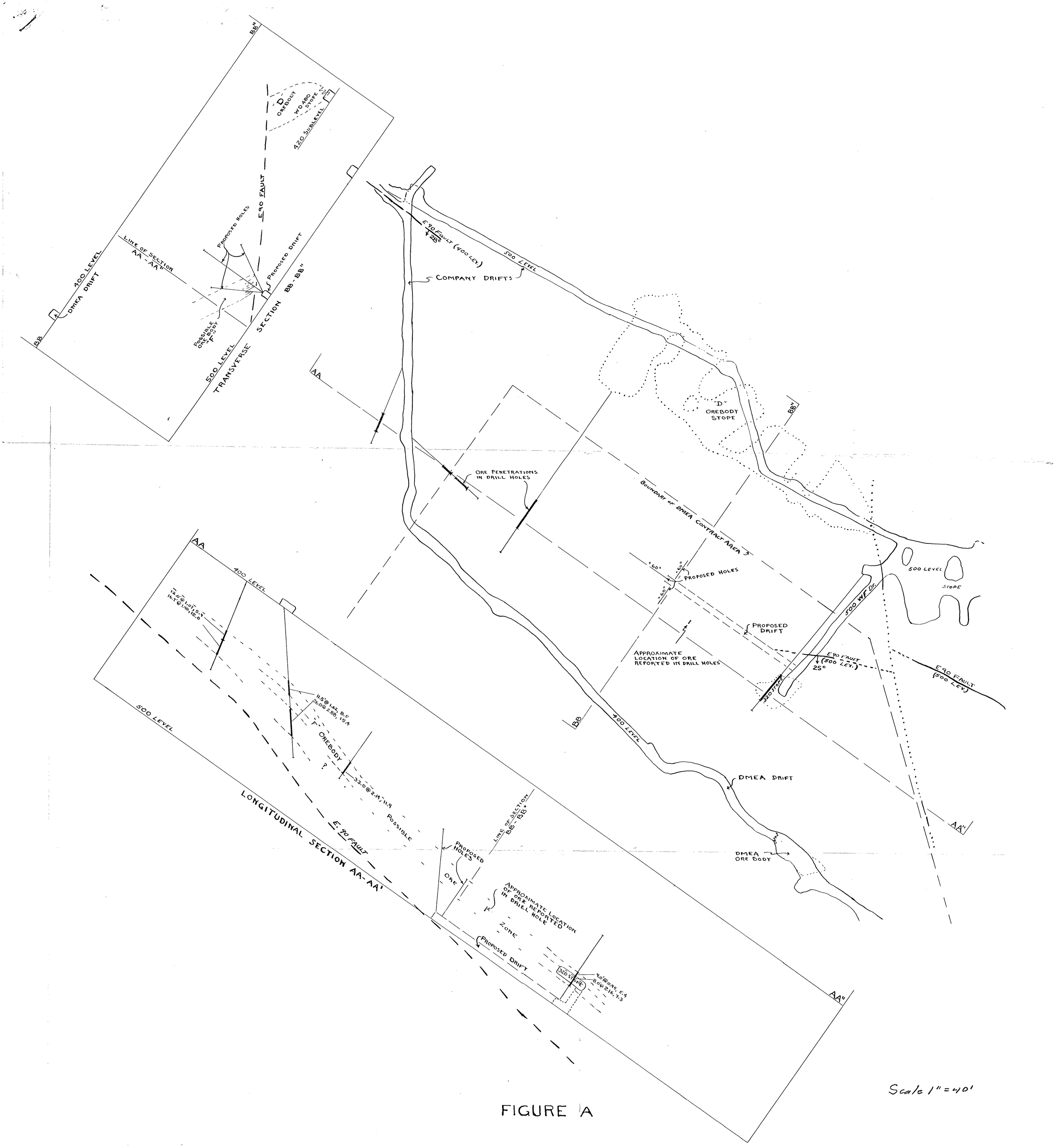


FIGURE A

PLAN & SECTIONS, PROPOSED EXPLORATION, MOORE SHAFT "F" ORE BODY, CORONADO COPPER & ZINC CO., DMEA 2746

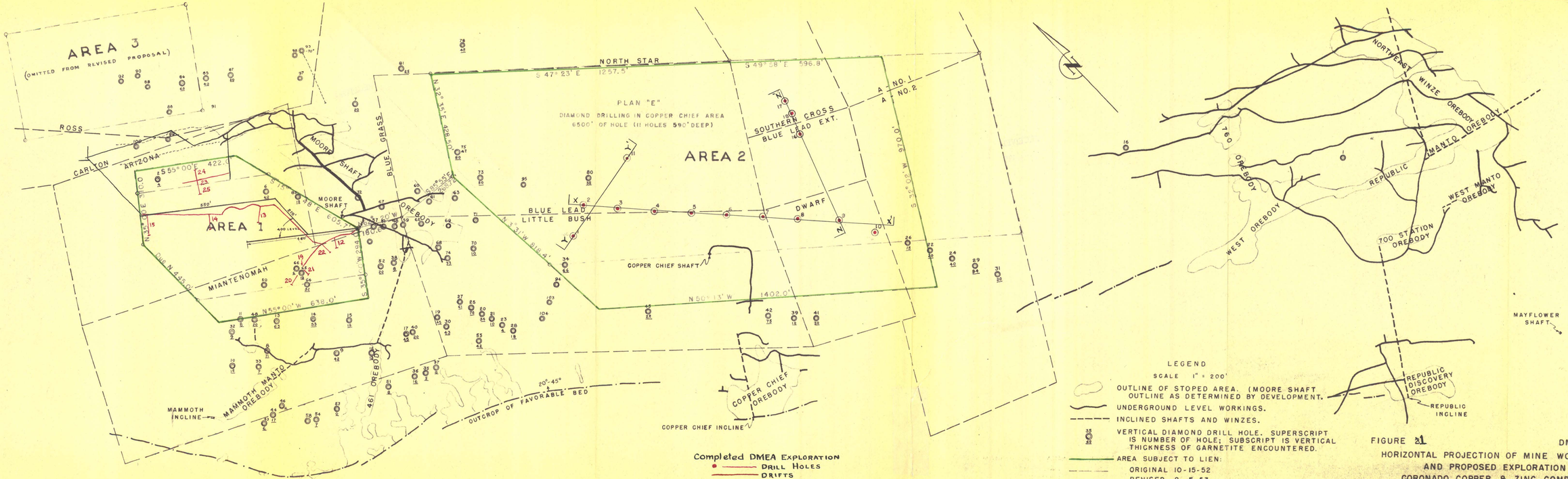


FIGURE 21

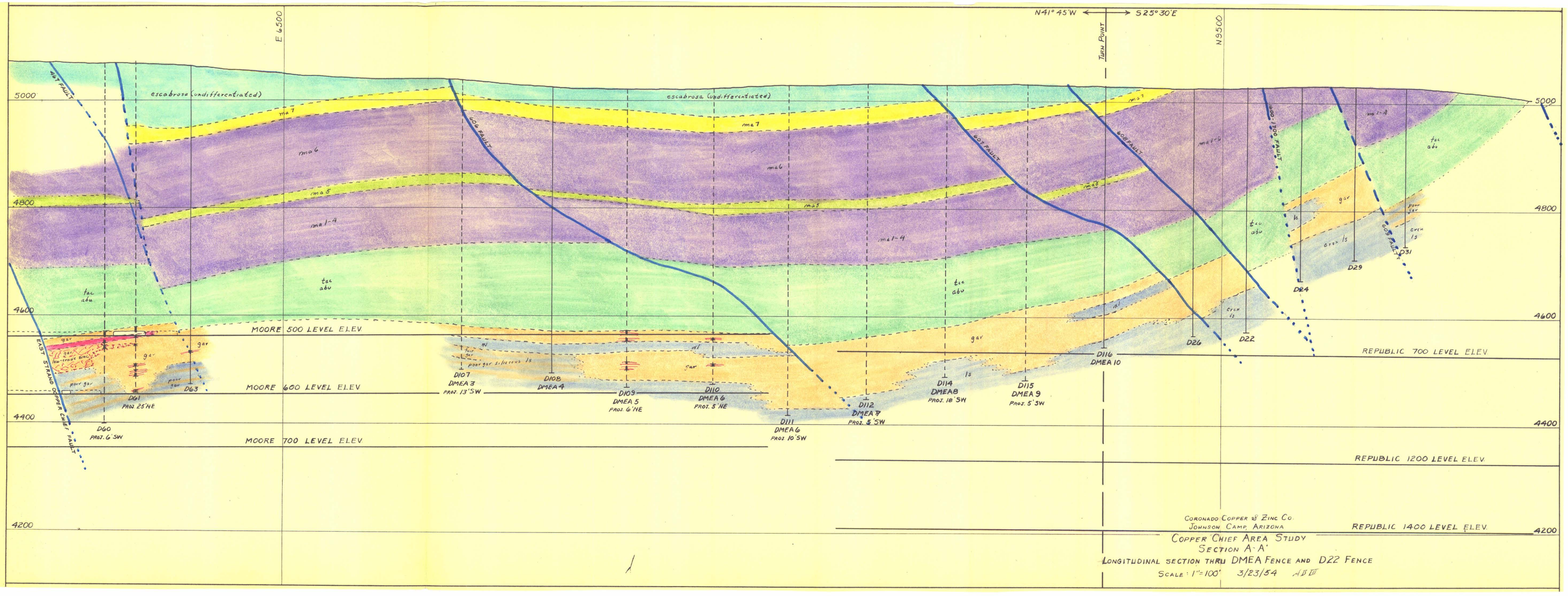
DMEA 2746

HORIZONTAL PROJECTION OF MINE WORKINGS AND PROPOSED EXPLORATION

CORONADO COPPER & ZINC COMPANY

COCHISE MINING DISTRICT COCHISE COUNTY, ARIZONA

FEBRUARY 1953



CORONADO COPPER & ZINC CO.
JOHNSON CAMP, ARIZONA

COPPER CHIEF AREA STUDY
SECTION A-A'
LONGITUDINAL SECTION THRU DMEA FENCE AND D22 FENCE
SCALE: 1" = 100' 3/23/54 ABW