DMEA Form 9
Rev. 6/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE — Idm-E NO. 33 — DMEA NO. 269X-B

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- [ ] Withdrawn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:

Folders 1+2

Left Side

- [x] Royalty Audits
- [x] Certification of Discovery
- [ ] Closing Letter
- [x] Cost Audits
- [x] 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 Completed analysis (final)
- All other material filed in chronological order including the following reports if checked:
- [ ] Field Team Semi-Annual Report for Certified Project
- [x] Final Field Team Report (Tab)
- [x] Operator's Final Report (Tab)
- [ ] Interim Field Team Reports
- [x] Operator's monthly reports and all attachments
- [x] On-site Exam Report (Tab)
- [ ] Settlement Sheets
- [ ] Drill Logs

Additional Folders:

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. 5 : Maps (Use pocket folder or envelope)

Folders No. 4 : Settlement Sheets

Folders No. _____ : Drill Logs

Folders No. _____ : Royalty material

17963

DEFENSE MINERALS EXPLORATION ADMINISTRATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

9/16 Chm 100
" Klaus

FIRST REPORT OF ROYALTY REVIEW

I have reviewed the files of the Executive Officer, DMEA Field Team, Region III, Denver, Colorado, pertaining to Contract Idm-R33, Docket No. DMA 269L-B (Copper), dated June 30, 1951, including Amendments Nos. 1 through 8, with

Banner Mining Company
2042 Comer Stravenue
Tucson, Arizona

for the purpose of determining the amount of royalties due the United States Government on the sale of copper ores and copper concentrates produced from the Copper Glance, Copper Queen and Copper King Claims located in Pima County, Arizona, during the period June 30, 1951 through September 8, 1958.

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

My review established the total sales of copper ores and copper concentrates for this period to be $58,190.28. (See Schedule I, attached) Royalty due the U. S. Government at the contract rates of 1½ to 5 percent is $2,593.44. The royalty paid and the balance due are as follows:

Total Royalty Due	$2,593.44
Total Royalty Paid	2,567.56
Balance of Royalty Due (See Schedule II)	$ 25.88

Donald F. Finch
Donald F. Finch, Auditor

September 9, 1958

STATUS OF THE PROJECT, DESCRIPTION OF REVIEW AND REASONS THEREFOR

CONTRACT IDM-R33 DOCKET DMA 269K-B

The project was completed by Termination Agreement dated October 19, 1953. A final audit report by Donald T. Finch, dated March 3, 1954, reflected accepted costs of $111,059.71 with Government participation on a 50 percent basis of $55,529.85. A Certificate of Discovery or Development was issued on March 19, 1954. In accordance with the contract, royalty is payable on the net smelter returns or other net proceeds realized from ore, concentrates or metal produced within ten years from the date of the contract, until the total amount contributed by the Government without interest, is fully repaid or said 10 years have elapsed, whichever occurs first.

The major portion of the production occurred during the exploration period. All sales but one minor shipment of 3.58 tons of concentrates consisted of crude ore. The examining engineer's semiannual reports indicate production ceased on June 5, 1957, and the property remains inactive at the present time. Production subsequent to that included in A.S.R. settlement no. 2897, August 2, 1956, was from unsubordinated land.

My review included a tabulation and recomputation of all ore settlement sheets from the American Smelting and Refining Company smelter at El Paso, Texas, in the files of the Executive Officer, DMEA Field Team, Region III, for the period June 30, 1951 through September 8, 1958. Royalties paid were reconciled with the DMEA Finance Office, Denver, Colorado.

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

(a) The Examining Engineer is of the opinion all sales of production are accounted for.

(b) 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 I

BARBER MINING COMPANY

CONTRACT NO. IDM-K33 DOCKET NO. 2692-B

SCHEDULE OF PRODUCTION AND DMEA ROYALTIES
PERIOD JUNE 30, 1951 THROUGH SEPTEMBER 8, 1958

Copper Ores Sold to A.S.& R.			
Gross Weight		8,953,690 Lbs.	
Moisture Content (Average 3.48%)		311,475	
Dry Weight		8,642,215 Lbs.	
Dry Weight		4321.1075 Tons	
Proceeds net of Smelter Charges		$77,791.78	
Allowable Deductions Paid by Smelter			
Freight, Switching and Tax	$16,304.76		
Hauling and Tax	3,725.08		
Umpire Fees	185.50		
Sampling Charges	9.00	20,164.34	
Net Value Subject to DMEA Royalties			$57,627.44
Average Value per Dry Ton, Crude Ore	$13.34		
Copper Concentrates Sold to A.S.& R.			
	LBS.	TONS	
Gross Weight	7,160	3.5800	
Less Moisture (11.37884%)	81	.0405	
Dry Weight	7,079	3.5395	
Proceeds Net of Smelter Charges		$582.39	
Less: Transportation Charges Paid by Smelter			
Freight, Switching and Tax	$15.68		
Hauling and Tax	3.87	19.55	
Net Value Subject to DMEA Royalty			$ 562.84
Total Net Value Subject to DMEA Royalty			$58,190.28
DMEA Royalty Due		$2,593.44	
DMEA Royalty Paid		2,567.56	
Balance Due (See Schedule II)			$ 25.88

The last settlement sheet in above is A.S.& R. #8897 dated August 2, 1956.
The last Certificate of Deposit is 57-35 dated September 11, 1956

SCHEDULE II

BARBER MINING COMPANY

CONTRACT NO. ID6-E33 DOCKET NO. ENA 269X-B

SCHEDULE OF BALANCE OF ROYALTIES DUE

DATE 1953	LIQUIDATION NUMBER	TOTAL ROYALTY DUE
4/14	967	$15.40
4/14	968	22.84
5/5	1444	82.49
5/6	1290	13.75
5/7	1329	52.97
5/12	1311	52.75
5/19	1371	47.46
5/20	1426	36.56
5/21	1397	39.63
5/26	1482	34.79
6/1	1549	7.43
6/2	1556	7.53
6/3	1594	59.21
6/5	1646	80.03
6/11	1703	60.25
6/16	1751	38.35
6/18	1760	8.76
6/26	1816	6.55
6/26	1817	29.73
6/25	1876	13.69
6/ 1	1899	31.05
6/29	1932	36.52
7/6	1993	35.18
7/2	2016	49.16
7/13	2087	60.55

Total Royalty Due on Above Settlements $922.03

Payments made applicable to above: -

1953				
6/3	Cert. of Deposit C-73 Ck. No. 234			$ 46.32
6/3	" " " C-73 " " A3246			240.16
7/8	" " " 54-C-4 " " A3291			402.99
8/11	" " " C-13 " " A4645			230.22

Total Payments Applicable to above	919.69	
Balance of Royalty Due on above		$ 2.34

1956			
8/2	Liquidation No. 2897 (ENMA Portion Only)	$ 28.14	
	Payment Received	4.60	
	Balance of Royalty Due		23.54
	Total Balance of Royalty Due		$25.88

CHECK SHEET OF EXAMINING ENGINEER

Operator's Name Banner Mining Company

Address 2042 Conner Stravenue

Tucson, Arizona

Exploration Contract No. Idm-E 33 Docket No. ~~XMEX~~ DMA-269XB

Copper Queen - Pima County, Ariz.

Mine has been inactive since June 5, 1957.
Data applicable for period of previous operations

	Check One	
	Yes	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 August 12, 1958

T. M. Romero
Mining Engineer
T. M. Romero

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Ching
Selfridge
Gould
Johnson

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

To: Banner Mining Company
[illegible] Cushman Stravenue
Tucson, Arizona

Pursuant to the provisions of Exploration Project Contract No. I-[illegible]-[illegible], dated June 30, 1953, Docket No. [illegible]-[illegible]-[illegible], 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 mineral deposit which is the subject of the exploration project, the Government considers and therefore certifies that a discovery or development has resulted from the work from which commercial production of ore may be made.

The Government's estimate of said discovery or development is particularly described and delineated as follows:

A copper ore body of the contact metamorphic type, occurring as a replacement deposit in limestone, has been discovered on the property described in Article 2 of the contract off the west end of the Queen mine. This deposit of commercial grade, and two other deposits of marginal grade, were found at widely scattered intervals along the northwest striking contact between granite and limestone which is the principal controlling structure of the project area.

Dated: MAR 1 9 1954

cc to: Operator (original)
Contract Adm. & Audit Div.
DMEA Field Team, Region IV (2)
Finance Office
Docket
Rare & Misc. Metals Div.
Mr. Irving Gumbel, Acting Director, LPS
Adm. Reading File
Operating Committee
Mr. Hedges, Rm. 460h
Mr. Thayer, Rm. 5216, GSA
F. E. Johnson
F. L. Krouse

UNITED STATES OF AMERICA

By [signature]
Administrator, Defense Minerals Exploration Administration

Ontin
Hotchkiss
Cramer
Hedges

3/25/54 gla

DEFENSE MINERALS EXPLORATION ADMINISTRATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

AUDIT CERTIFICATE

I have examined the records and transactions of:

Banner Mining Company
2042 Conner Stravenue
Tucson, Arizona

pertaining to Exploration Contract I-DMA-E33, Docket No. DMA 269XB, including Amendments Nos. 1 through 8, and termination agreement, covering a project of exploration for Copper, located in Pima County, Arizona, and commonly known as Twin Buttes Copper Glance Claim, for the period August 7, 1951 to April 30, 1953, including subsequent settlement March 2, 1954.

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

The audit disclosed the following facts in regard to the amount to be paid the Contractor:

Total Cost per MF-104		$117,959.19
Less Proceeds from Property Disposition		6,395.00
Net Claimed Costs		$111,564.19
Exceptions: (See Audit Report for Details)		
During this Audit	$451.48	
Prior to this Audit	53.00	504.48
		$111,059.71

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 Fifty Five Thousand Five Hundred Twenty Nine and 85/100ths Dollars

- $55,529.85 -

is valid and proper.

This certificate is issued on the provision 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.

Dated: March 3, 1954.

Donald T. Finch, Auditor

Audit Certificate
dated March 3, 1954

AUDIT REPORT

I. INTRODUCTION

A final audit was made on February 10 to 12, 1954 (covering the period August 7, 1951 to April 30, 1953, including subsequent settlement March 2, 1954) of the records and accounts of operations pertaining to Contract No. I-DMA-E33, Docket No. DMA 269XB, Amendments Nos. 1 through 8, and Termination Agreement dated October 19, 1953, with the:

Banner Mining Company
2042 Conner Stravenue
Tucson, Arizona

covering a project of exploration for copper located in Pima County, Arizona, commonly known as the Twin Buttes Copper Glance Claim.

The accounting records under the contract are in the company's office located at the Mineral Hill operation approximately 26 miles from Tucson, Arizona.

During the course of the audit, Mr. A. B. Bowman, General Manager, and Mr. E. C. Bowman, Mine Clerk, were consulted when necessary.

Mr. T. M. Romslo, Mining Engineer, Tucson Office, collaborated in the audit.

II. GENERAL INFORMATION ON RECORDS

The original records covering the costs of this project are recorded on monthly cost analysis sheets which form the basis for preparation of the Monthly MF-104 Reports. This audit, therefore, involved in general a check of original invoices, warehouse requisitions and payrolls against the monthly cost analysis sheets and reconciliation with the Monthly MF-104 Reports. Costs were recorded on a combination of cash and accrual basis.

Prior to the on-site audit, considerable pre-audit analysis was performed in the DMEA office at Denver, Colorado.

III. SCOPE OF AUDIT AND FINDINGS

The audit was limited to ascertaining the accuracy, propriety and validity of the costs as shown in the "Totals to Date" column of Form MF-104, Operator's Monthly Report and Voucher for April, 1953.

In view of the previous audits by T. H. Brading, DMEA Auditor, covering the period August 7, 1951 to January 31, 1953, except as otherwise indicated this audit was restricted to the costs claimed by the operator since that later date.

The extent of the audit and findings under each of the "Items of Cost" follows:

(1) Independent Contracts

A sub-contract for diamond drilling was executed on October 18, 1952, with G. S. Thatcher. The Executive Officer, DMEA Field Team, Region IV, approved this sub-contract on October 27, 1952. All sub-contract charges for the period February 1 to April 30, 1953, were supported by invoices which were examined. Analysis of the acceptable costs follows:

	Footage	Rate $2.50	Footage	Rate $3.00	Total Amount
Balance per previous audit	833.5 Ft.	$2083.75	365 Ft.	$1095.00	$3178.75
Period Febr. 1 to April 30, 1953	931. Ft.	2327.50	168 Ft.	504.00	2831.50
Accepted Totals	1764.5 Ft.	$4411.25	533 Ft.	$1599.00	$6010.25

(2) Labor and Supervision

(A) Labor

All charges for labor during the period February 1 to April 30, 1953, were supported by daily time cards approved by the Foreman which were checked in detail to monthly payrolls.

Rates were compared with the Exploration Contract and Amendments. All summation of hours and extensions were checked for March and approximately 10% for February and April, 1953. The acceptable labor cost consisted of the following:

Balance per previous Audit	$44,462.45
Period February 1 to April 30, 1953	4,315.09
Acceptable Total Labor	$48,777.54

(B) Supervision

All charges for supervision for the period February 1 to April 30, 1953, were checked in detail to monthly payrolls. Charges were based on actual time reported as applicable to the exploration operation at rates authorized by the Exploration Contract and Amendments.

The charges for supervision are considered reasonable and the accepted total consisted of payments to the following:

	Balance Previous Audit	Period Feb. 1 to April 30, 1953	Total
Allen Bowman, General Supt.	$ 4621.50	$ 738.79	$ 5360.29
W. H. Venable, Engr.-Geologist	1670.53	643.74	2314.27
E. C. Bray, Mine Foreman	3766.27	825.00	4591.27
Accepted Totals	$10058.30	$2207.53	$12265.83

(C) Technical Services

None.

(3) Operating Materials and Supplies

All charges for materials and supplies, including power, for the period February 1 to April 30, 1953, were supported either by vendor's invoices or warehouse requisitions which were examined for propriety and reasonableness. Materials and supplies are withdrawn from the operator's warehouse and charged to Exploration Project on an average cost basis without any mark up. This is the same basis used by the operator in charging its other operations.

A detailed analysis of all charges for materials and supplies, exclusive of power, was made during this audit for the period November 1, 1951 to April 30, 1953, in order to secure liquidation data. Miscellaneous Mine Supplies consisted of a multitude of small charges consisting of such items as nails, cable, chain, sundry hardware, nuts, bolts, paint, steel plate, pick and shovel handles, etc. The results of this analysis are as follows:

	Bal. per previous Audit	Period Febr. 1 to April 30, 1953	(1) Proceeds from Liquidation	Accepted Totals
Timber	$ 2596.08	$ 265.67		$ 2861.75
Explosives	495.51	213.42		708.93
Pipe	3116.09	47.94	$ 825.00	2339.03
Track	2370.83	123.75	685.00	1809.58
Sub-Total	$ 8578.51	$ 650.78	$1510.00	$ 7719.29
Other Supplies				
Gas, Oil & Truck Expense	$ 607.69	$ 211.31		$ 819.00
Transportation	402.36			402.36
Drill Steel	341.43	118.36	$ 120.00	339.79
Small Tools	301.60	26.76	100.00	228.36
Elec. Materials, Fittings & Supplies	1695.85	36.96	450.00	1282.81
Welding Supplies	194.26			194.26
Hoses and Fittings	293.23	46.99	115.00	225.22
Misc. Mine Supplies	1439.51	33.21		1472.72
Total Other Supplies	$ 5275.93	$ 473.59	$ 785.00	$ 4964.52

	Balance per Previous Audit	Period February 1- April 30, 1953	(1) Proceeds from Liquidation	Accepted Totals
(2) Power	$ 5696.08	$1002.92		$ 6699.00
Total Operating Materials & Supplies	$19550.52	$2127.29	$2295.00	$19382.81

(1) Operator's proposal in liquidation dated February 25, 1954, approved by Executive Officer, DMEA Field Team, Region IV, March 2, 1954.

(2) All power invoices for the period February 1 to April 30, 1954, were analyzed to determine that proper credit had been made against the Power Line Deposit. In this connection see paragraph No. 6 of this section of the report.

(4) Operating Equipment

(A) Rental

None.

(B) Purchase

The only purchase of operating equipment during the period February 1 to April 30, 1953, was one type TM-8 Coppus Electric Motor Driven Ventair Blower complete, equipped with G. E. Frame 324, 15 H.P., 440 Volt, A.C. 3 phase, 60 cycle, 3600 R.P.M. motor. This purchase was authorised by the Exploration Contract and was supported by an invoice which was examined.

The total acceptable cost of purchases of operating equipment consisted of:

1100 feet 3/4" Hoist Cable	$316.80	
2 Ingersoll Rand 50 H.P. Motor Pumps	2217.90	
1 Gardner Denver 3"x3½" Drifter & Accessories	1031.33	
1 Eimco 12B Mucking Machine & Accessories	3095.00	
5 Used Mine Cars	175.00	
Balance per previous audit report		$6836.03
Period February 1 to April 30, 1953, Coppus Blower described above		564.90
Total Purchases		$7400.93
Less: Proceeds from Disposition of Property		2450.00
Acceptable Cost		$4950.93

(C) Depreciation

All charges for depreciation during the period February 1 to April 30, 1953, were examined for propriety and reasonableness. The operator did not maintain time records on equipment used, with the exception of the Diamond T Truck. The depreciation charges were reviewed with the Supervising Engineer and are considered representative of the actual use of the equipment. Analysis of the acceptable charges for depreciation follows:

	Rate per Month	Balance per Previous Audit	Period February 1- April 30, 1953	Accepted Totals
Hoist	$41.66	$ 624.90	$124.98	$ 749.88
Pickup Truck	41.66	624.90	124.98	749.88
Compressor	225.00	3150.00	675.00	3825.00
Diamond T Truck - 2.00 per hour		365.00	14.00	379.00
Accepted Totals		$4764.80	$938.96	$5703.76

(5) Initial Rehabilitation and Repairs

There were no charges for initial rehabilitation and repairs during the period February 1 to April 30, 1953. Analysis of the account taken from previous audit is as follows:

Labor	$1914.48	
Supervision	1161.53	
Equipment Rental	106.74	
Repairs	99.72	
Timber	111.34	
Materials and Supplies	1545.16	
Compensation Insurance	308.44	
Payroll Taxes	106.86	
Balance per Previous Audit Report		$5354.27
Less: Proceeds from Disposition of Property		1650.00
Accepted Total Cost of Initial Rehabilitation and Repairs		$3704.27

(6) New Buildings and Improvements

According to the previous audit report the original charge to this category consisted of a deposit of $1765.00 with the Trico Electric Company in order to secure a power line extension to the exploration site from the main lines of the power company. According to the contract with the power

company the operator was to receive a 20% reduction in its monthly power bill until the deposit had been recovered. An examination of the monthly power invoices for the period February 1 to April 30, 1953, and review of the previous audit report disclosed the following:

Original Deposit		$1765.00
Less 20% of Monthly Power Bills applied as Credit:		
Period subsequent to January 31, 1953	$1116.17	
Period February 1 to April 30, 1953	198.60	1314.77
Balance, April 30, 1953		$450.23

The audit disclosed that the operator subsequently recovered all of the balance of $450.23 after April 30, 1953.

This item was discussed with Mr. A. B. Bowman and has been treated as a disallowance in this audit report with his consent.

(7) Miscellaneous

(A) Repairs to Equipment

All charges for repairs to equipment during the period February 1 to April 30, 1953, were supported by invoices which were examined. Analysis of the item follows:

	Balance per Previous Audit	Period February 1- April 30, 1953	Accepted Total
Pump Repairs	$289.83		$289.83
Compressor & Motor	644.99		644.99
Mucking Machine	9.00		9.00
Stoping Machine		$2.00	2.00
Rail Bender		4.84	4.84
Accepted Totals	$943.82	$6.84	$950.66

(B) Sampling and Analysis

All charges for sampling and analysis during the period February 1 to April 30, 1953, were supported by invoices which were examined and reviewed with the Supervising Engineer. Through oversight a charge for one copper assay costing $1.25 was made for an assay not applicable to the Exploration Contract and is therefore disallowed. The following is an analysis of the acceptable charges for sampling and analysis:

	Copper @ $1.25	Zinc @ $1.50	Copper & Silver @ $2.50	Molybdenum @ $4.00	Accepted Totals
Number of Assays	161	50	56	5	272
Amount:	$201.25	$75.00	$140.00	$20.00	$436.25

(C) Payroll Taxes

All charges for payroll taxes for the period February 1 to April 30, 1953, were confirmed by recomputation using rates which the company's files indicated as being in effect. These rates were F.I.C.A. 1.5%, F.U.C.A. 3/10%, and Arizona State Unemployment 1.7%.

The accepted total for payroll taxes consisted of:

Balance per previous audit	$1741.64
Period February 1 to April 30, 1953	229.43
Accepted Total	$1971.07

(D) Liability Insurance

All charges for liability insurance for the period February 1 to April 30, 1953, were confirmed by recomputation using rates which the company's files indicated as being in effect. These rates ranged from $4.52 to $8.7758 per $100.00 of applicable payroll. The acceptable cost of Liability Insurance (Workmen's Compensation) consisted of the following:

Balance per previous audit	$5273.44
Period February 1 to April 30, 1953	578.91
Accepted Total	$5852.35

A prior disallowance made in the previous audit of $53.00 had not been adjusted by the operator at the time of this audit. Concurrence with the disallowance is indicated in this report.

(E) Accountant's Salary

All charges for the portion of the accountant's salary charged to the project for the period February 1 to April 30, 1953, were examined. The monthly charge of $64.83 is considered very reasonable. The acceptable charges for accountant's salary consist of:

Balance per previous audit	$856.50
Period February 1 to April 30, 1953	197.49
Accepted Total	$1053.99

IV. CONCLUSIONS

The totals to date on the Operator's MF-104A Report for April, 1953, agree with the totals to date on the companion MF-104 Report.

The Exploration Contract has been terminated by Mutual Agreement dated October 19, 1953. There are, however, no costs claimed by the operator subsequent to April 30, 1953.

The operator's liquidation proposal dated February 25, 1954, was the highest of three bids and was accepted by the Executive Officer, DMEA Field Team, Region IV, on March 2, 1954.

There were no unused materials, supplies or other property to be disposed of for the joint account of the Operator and the Government other than that covered by waiver or liquidation.

This audit has disclosed that all costs as charged to this project with the exception of the disallowances itemized under (6) New Buildings and Improvements; (7)-B Sampling and Analysis, and (7)-D Liability Insurance, of the preceding section of this report, are reasonable and proper under the terms of the Contract, Amendments Nos. 1 through 8, Mutual Termination Agreement dated October 19, 1953, and Liquidation Proposal approved March 2, 1954.

The adjustments of items of costs as shown on the April, 1953, MF-104, the disallowances and approved amounts are summarized as follows:

	Total to Date MF-104 April 1953	Distribution Corrected	Prior Disallowances	Disallowed by Audit	Proceeds from Liquidation	Allowed by Audit
Independent Contracts						
Diamond Drilling	$ 6010.25	$ 6010.25				$ 6010.25
Labor and Supervision						
Labor	48711.28	48777.54				48777.54
Supervision	12265.83	12265.83				12265.83
Technical Services	- - -	- - -				- - -
Materials & Supplies						
Timber	2861.75	2861.75				2861.75
Explosives	708.93	708.93				708.93
Pipe	3136.19	3164.03			$ 825.00	2339.03
Track	2494.58	2494.58			685.00	1809.58
Other	5728.03	5749.52			785.00	4964.52
Power	6699.00	6699.00				6699.00

	Total to Date MF-104 April 1953	Distribution Corrected	Prior Disallowances	Disallowed by Audit	Proceeds from Liquidation	Allowed by Audit
Operating Equipment						
Rental	---	---	---	---	---	---
Purchase	$ 7400.93	$ 7400.93			$ 2450.00	$ 4950.93
Depreciation	5703.76	5703.76				5703.76
Initial Rehabilitation & Repairs	5354.27	5354.27			1650.00	3704.27
New Buildings & Improvements	450.23	450.23		$ 450.23		----
Miscellaneous						
Repairs to Equipment	999.99	950.66				950.66
Sampling & Analysis	437.50	437.50		1.25		436.25
Payroll Taxes	1971.07	1971.07				1971.07
Liability Insurance	5905.35	5905.35	$ 53.00			5852.35
Accountant's Salary	1120.25	1053.99				1053.99
TOTALS	$ 117959.19	$ 117959.19	$ 53.00	$ 451.48	$ 6395.00	$ 111059.71

At the conclusion of the audit the findings were discussed with Mr. A. B. Bowman, General Manager, Mr. E. C. Bowman, Mine Clerk, and the Executive Officer, DMEA Field Team, Region IV.

Date: March 3, 1954.

Donald T. Finch, Auditor

3/25/53g

DEFENSE MINERALS EXPLORATION ADMINISTRATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

SECOND INTERIM AUDIT CERTIFICATE

I have examined the records and transactions of:

Banner Mining Company
2042 Conner Stravenue
Tucson, Arizona

pertaining to Exploration Contract I-DMA-233, Docket No. 169XB including Amendments 1 to 7, covering a project of exploration for copper, for the period August 7, 1951 to January 31, 1953.

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

The audit disclosed the following facts in regard to the amount to be paid the Contractor:

Total Cost per MF-104	$103,938.00
Exceptions (per Audit Report)	53.00
Total Accepted Cost	$103,885.00

The contract calls for a 50 per cent participation of exploration expenses by the United States Government. Therefore, payment to the Contractor by the Government in the amount of Fifty one thousand nine hundred forty two Dollars and 00/100

-$51,942.00-

is valid and proper.

This certificate is issued on the provision 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.

Dated March 10, 1953

T. H. Brading, Auditor

Interim Audit Report 3/10/53

I. INTRODUCTION

A second interim audit was made on February 20 and 21 (covering the period of October 1, 1952 to January 31, 1953) of the records and accounts of operations pertaining to Contract I-DMA-E33, Docket No. 269XB, and amendments one to seven with the

Banner Mining Company
2042 Conner Stravenue
Tucson, Arizona

covering a project of exploration for copper.

The Cost Accounting, Payroll Records, and Daily Log under this contract are located in the company's office about twenty-six miles from Tucson, Arizona. The mine is about fourteen miles from the company office. Mr. J. W. Townsend, Mining Engineer-Denver, and Mr. T. M. Romslo, Mining Engineer-Tucson, collaborated in the audit.

During the course of the audit, the following officers and employees of the company were consulted as required:

Mr. W. H. Hardy - Secretary,Treasurer
Mr. A. B. Bowman - General Manager
Mr. W. H. Venable, - Engineer, Geologist
Mr. E. C. Bowman - Accountant, Tucson
Mr. Frank Bowman - Accountant, Lordsburg, N.M.

Their cooperation and assistance greatly facilitated the audit.

II. GENERAL INFORMATION ON RECORDS

The general ledger and related records are located in the home office of the company, 550 First National Bank Building, Oklahoma City, Oklahoma. Mr. Hardy had brought with him all cancelled checks for the period under review, as well as a transcript of the account with the power company.

The original records covering the costs of this project are recorded on Monthly Cost Analysis Sheets, which form the basis for

preparation of the Monthly MF-104 reports. These reports are prepared in Tucson by Mr. E. C. Bowman, Accountant, and reviewed and checked by Mr. A. B. Bowman, General Manager. Therefore, this audit involved in general, a check of original invoices, warehouse requisitions and payrolls against the Monthly Cost Analysis Sheets. All items except for incidental freight bills and small items of supplies purchased locally are recorded on an accrual basis.

III. SCOPE OF AUDIT AND FINDINGS

The audit was limited to ascertaining the accuracy, propriety and validity of the costs as shown in the "Totals to Date" column of Form MF-104, Operator's Monthly Report and Voucher for the month of January 1953. In view of the previous audit covering the period from August 7, 1951 to September 30, 1952, except as otherwise indicated, this audit was restricted to the costs claimed by the operator since that latter date. The extent of the audit and the findings under each of the "Items of Cost" follow.

(1) Independent Contracts

Sub-contract to perform certain diamond drilling was entered into with G. S. Thatcher on October 18, 1952. This sub-contract was approved by the Executive Officer of Region IV on October 27, 1952. Invoices covering charges as follows were examined:

Nov.&Dec.	Dec.&Jan.	Total		
565'	268.5'	833.5'	at 2.50'	$2083.75
180.5'	184.5'	365.'	at 3.00'	1095.00
	Total			$3178.75

Costs as shown are reasonable and allowable under the terms of the contract.

(2) Labor and Supervision

Balance January 31, 1953	$44,462.45
September 30, 1952	32,740.38
Costs October 1952 to Jan. 31, 1953	$11,722.07

All charges for labor were checked from Payroll records to the Monthly Cost Sheets. In order to verify the labor time, rates and charges on a test basis, labor costs for the month of November 1952 were checked from the Monthly Cost Sheets to the Payroll Records, to the daily time cards approved by the foreman. The audit disclosed that the costs properly allowable and chargeable under the terms of the contract were $11,722.07.

Balance January 31, 1953	$10,058.30
September 30, 1952	7,358.22
Costs Oct. 1 to Jan. 31,1953	$ 2,700.08

All charges for supervision were traced from Payroll Record to Monthly Cost Sheets. The audit disclosed that the amount of $2700.08 was allowable and chargeable for the period under review. These charges are broken down as follows:

Allen Bowman - General Superintendent	$972.58
W. H. Venable - Engineer & Geologist	707.33
E. C. Bray - Mine Foreman	1020.17
	$2700.08

Supervisory costs for the above-named individuals are based on time actually devoted to the project. Rates are in conformance with those shown in contract and amendments.

(3) Operating Materials and Supplies

All charges under this category were checked to Monthly Cost Sheets. An analysis was made to determine the propriety of the items

charged. All purchases for the period under review were verified by examination of vendors' invoices, payment of invoices test checked against cancelled checks. Requisitions from warehouse stock for the months of November 1952 were checked against stock records. It was determined that supplies and materials from company warehouse were charged to the project at cost, which is the same basis used in charging items of this nature to company operations.

The costs properly chargeable and allowable under this classification were found to be as follows:

	Balance Jan. 31, 1953	Balance Sept.30 1952	Allowable Cost
Timber	$2596.08	$2024.71	$571.37
Explosives	495.51	422.94 *	72.57
Pipe	3116.09	2910.53 *	205.56
Track	2370.83	2234.63 *	136.20
Other	5275.93	4413.08 *	862.85

Other supplies consists primarily of Drill Steel, Oil and Grease, Electrical Supplies and Small Tools.

* Adjusted to include freight and transportation charges.

Power

Electric power is purchased from Trico Electric Company, Tucson, Arizona. When the power transmission lines were extended to the company property from the main power lines of the Trico Electric Company, the Operator was required to make a deposit of $1765.00. Each month a deduction of 20% is made from the power bill charged and credited to this deposit. The Operator had followed the procedure of charging the net amount of the power bill as cost to the project. In order to show the true costs of the project, an analysis of the charges to power was made as follows:

Power Costs to Sept. 30, 1952	$2907.38
Discount to Sept. 30, 1952	714.57
Revised Costs to Sept. 30, 1952	$3621.95
Power Costs to Jan. 31, 1953	$4579.91
Discount to Jan. 31, 1953	1116.17
Revised Costs to Jan. 31, 1953	$5696.08
Revised Power Costs to Jan.31, 1953	$5696.08
Revised Power Costs to Sept.30, 1952	3621.95
Revised Power Costs Oct. 1,1952 to Jan. 31, 1953	$2074.13

Invoices together with related cancelled checks were examined. Revised costs of $2074.13 are considered as proper and allowable under the terms of the contract.

(4) Operating Equipment - Depreciation

Balance January 31, 1953	$4764.80
September 30, 1952	3495.52
Costs Oct. 1, 1952 to Jan. 31, 1953	$1269.28

With the exception of a Diamond T truck, the Operator did not keep a record of the time company-owned equipment was used on which depreciation was allowed since the project was in operation practically full time for the period under review.

All charges for depreciation were checked against Monthly Cost Sheets. Time for use of Diamond T truck was traced to Daily Log. The charges which are summarized below are considered proper and allowable under the terms of the contract.

	Rate	Time Used	Total Charge
Hoist	$41.66 per mo.	4 months	$166.64
Pick Up Truck	41.66 per mo.	4 months	166.64
Compressor	225.00 per mo.	4 months	900.00
Diamond T truck	2.00 per hr.	18 hours	36.00
			$1269.28

Labor charge Oct. 1, 1952 to Jan. 31, 1953	$11722.07
Supervision Charge Oct. 1, 1952 to Jan. 31, 1953	2700.08
	$14422.15

Amount charged Oct. through Jan.		$1,329.72
Allowable $14,422.15x8.77	$1264.82	
Accountant's Salary Oct. to Jan. $263.32x4.52	11.90	
Total allowable charge		1,276.72
Overcharge-Disallowed		$ 53.00

Accountant's Salary

Under the terms of Amendment Number 6, an allowance of $65.83 for compensation of Bookkeeper is granted. Charge for the four month period under review - $65.83 x 4 = $263.32.

IV. CONCLUSIONS AND RECOMMENDATIONS

The totals shown on MF-104A are in agreement with those shown on the MF-104 on January 31, 1953. In view of the fact that the contract calls for a total disbursement of $135,789.00 of which $103,938.60 has been disbursed through January 31, 1953, leaving a balance of $31,850.40 to complete the diamond drilling and 500 feet of cross cutting, it would appear that sufficient funds will be available to complete the contract, barring development of untoward circumstances.

This audit has disclosed that all costs, as charged to this project, with the exception of disallowances itemized under item (7) Miscellaneous, of the preceding section of this report, are reasonable and proper under the terms of the contract and amendments Nos. 1 to 7.

The adjustments between "Items of Costs" as shown on the January, 1953 MF-104, the recommended disallowances and approved amounts are summarized as follows:

	January 1953	Distribution Corrected	Disallowed by Audit	Allowed by Audit
Independent Contract	$3178.75	$3178.75		$3178.75
Labor & Supervision:				
Labor	44396.19	44462.45		44462.45
Supervision	10058.30	10058.30		10058.30
Material & Supplies:				
Timber	2596.08	2596.08		2596.08
Explosives	457.73	495.51		495.51
Pipe	2878.42	3116.09		3116.09
Track	2190.00	2370.83		2370.83
Other	4873.57	5275.93		5275.93
Power	4579.91	5696.08		5696.08
Operating Equipment:				
Purchase	6836.03	6836.03		6836.03
Depreciation	4764.80	4764.80		4764.80
Initial Rehab. & Repairs	7119.27	5354.27		5354.27
New Bldgs-Improve.		648.83		648.83
Repairs to Equip.	943.82	943.82		943.82
Sampling & Analysis	216.25	216.25		216.25
Payroll Taxes	1741.64	1741.64		1741.64
Liability Insurance	5326.44	5326.44	$53.00	5273.44
Transportation	858.64			
Accountant's Salary	922.76	856.50		856.50
	$103938.60	$103938.60	$53.00	$103885.60

At the conclusion of the audit, the findings were discussed with the General Manager (A. B. Bowman), and the Accountant, (E. C. Bowman). The company is preparing their next monthly MF-104 on the basis of the proper distribution of charged costs as shown in the second column of the above summary.

Dated: March 10, 1953

T. H. Brading
Auditor

First Interim audit report

See Idm-E 32 for copy of audit report

Docket Copy

TERMINATION OF WORK UNDER AN EXPLORATION PROJECT CONTRACT
BY AGREEMENT

It is agreed this 19th day of October, 1953, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and Banner Mining Company, hereinafter called the "Operator," parties to that certain Exploration Project Contract I-DMA-E33, Docket No. DMA-269X-B, dated June 30, 1951, as amended, that all exploration work under the said contract shall be terminated as of October 1, 1953.

Any work prosecuted or costs incurred by the Operator after April 30, 1953, shall be for the sole account of the Operator, except for (a) such necessary and reasonable costs and expenses as may be incurred in preserving and disposing of any facilities, buildings, fixures, equipment, or other items, to the cost of which the Government has contributed and in which the Government has an equity, and (b) the costs of any reports, accounts, and winding-up and settlement actions provided for in the contract.

The undersigned Operator hereby releases and agrees to save harmless the Government from all claims and demands under or arising out of said Exploration Project Contract, except as herein expressly otherwise provided.

Witness the following signatures as of the day and year first above written.

THE UNITED STATES OF AMERICA

By Frank E. Johnson
ACTING Administrator, Defense
Minerals Exploration
Administration

BANNER MINING COMPANY

By E. S. Bowman
E. S. Bowman, President

Rutin 10/14/53
Orig 10/18/53

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No. 8

AMENDMENT OF CONTRACT: No. I-DMA-E33

Contract Docket No. DMA 269X-B, dated June 30, 1951, between the United States of America and Banner Mining Company is hereby amended as follows, October 1, 1952:

Reference is made to Amendment No. 7, dated October 28, 1952, further referring to said Amendment No. 7, delete all matter beginning with the heading "7th Level of Queen Mine" and ending with the words "had been given", which constitute the last three words of the last paragraph beginning at the bottom of the first page and ending at the top of the second page of said Amendment No. 7, with the following exceptions: "The map referred to in the last paragraph on the first page of said Amendment No. 7, and which was made a part thereof, is now made a part of this Amendment." In lieu of the deleted matter within the limits and exceptions cited above, substitute the following:

The 525 foot level of the Glance mine and the 7th level of the Queen mine are at a common elevation and the connected drifts are sometimes cited as the 600 level.

Diamond Drilling, Crosscutting and/or raising
The tentative location and extent of drill holes and crosscuts are shown on the map entitled "Banner Mining Co., Geologic Plan of the 600 Level, Glance, Queen and King Mines" dated "4-16-52" which is now made a part of this Amendment. The exact locations and extent of drill holes and crosscuts may be varied depending on conditions encountered as the work progresses, subject to the approval of the DMEA Representative. The locations and extent of raises will depend on conditions encountered as the drilling and crosscutting progresses and must be acceptable to the DMEA Representative. Exploration work shall not be extended beyond the limits of ground on which the Banner Mining Company undertakes and agrees to pay all sums that may fall due and owing to the United States of America under the terms of said contract I-DMA-E33 in the same manner and to the same extent, as if the subordination agreement of the lessor had been given.

Maximum extent and estimated costs of Diamond Drilling, Crosscutting and/or Raising

Diamond Drilling - 2760 feet, estimated cost $4.00 per foot----------$11,040.00

Crosscutting and/or Raising-500 feet, estimated cost $30.00 per foot---------- 15,000.00

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may pay or the percentage of the costs which the Government may pay under the provisions of Article 11 of the contract form.

Dated: OCT 5 1953

BANNER MINING COMPANY

By E. S. Bowman
E. S. Bowman, President

Attest
James E Hoyle
Secy.

Seal

UNITED STATES OF AMERICA

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

DOCKET COPY

No. 7

AMENDMENT OF CONTRACT: No. I-DMA-E33

Contract Docket No. DMA 269X-B, dated June 30, 1951, between the United States of America and Banner Mining Company is hereby amended as follows, effective October 1, 1952:

Referring to Annex I, attached to Exploration Project Contract Form MF-200, add the following after the last paragraph:
(4) Scorpio Annex Claim (Unpatented), Recorded in Book 76, page 15, in the records of mining claims, Pima County, Arizona, and as described in the attached Lease and Option, which is made a part of this Amendment.

Referring to EXHIBIT "A" attached to Exploration Project Contract Form MF-200, item "(8) (b) Diamond Drilling, Drifting and Crosscutting program detailed as follows:", delete all matter following thereafter which pertains thereto and in lieu thereof substitute the following:

7th Level of Queen Mine

Drill diamond drill holes numbers 1, 1-A, 2, 3, 8 and 9, total footage 1270 feet, estimated cost $4.00 per foot..... $5,080.00

250 feet of crosscutting from the west end of this level, estimated cost $30.00 per foot..... 7,500.00

525 foot level of Glance Mine

Drill diamond drill holes numbers 4, 5, 6 and 7, total footage 1490 feet, estimated cost $4.00 per foot..... 5,960.00

250 feet of crosscut in a southerly direction from the 525 foot level to explore the Granite-Marble Contact, at a location acceptable to the DMA representative and after completion of drill holes numbers 4 and 5 above, estimated cost $30.00 per foot..... 7,500.00

The diamond drilling and crosscutting is depicted on the attached map titled "Banner Mining Co., Geologic Plan of the 600 Level, Glance, Queen & King Mines" dated "4-16-52", which is made a part of this Amendment, with the following exceptions: Exploration work shall not be extended beyond the limits of ground on which the operator undertakes and agrees to pay all sums that may fall due and

Department of the Interior
Defense Minerals Administration
OCT 8 1952

owing to the United States of America under the terms of said contract in the same manner and to the same extent as if the subordination agreement of the lessor had been given.

Work may be commenced prior to the completion of the clean-up work authorized for the first phase of the Exploration Project.

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may pay or the percentage of the costs which the Government may pay under the provisions of Article 11 of the contract Form.

Dated October 28, 1952.

BOWMAN MINING COMPANY

By E. S. Bowman
E. S. Bowman, President

Attest

By W. H. Hardy
Secretary

UNITED STATES OF AMERICA

By C. H. Mitchell
Administrator, DMEA

LEASE AND OPTION

THIS AGREEMENT, made and entered into this 1st day of June, A. D. 1952, by and between GUS GAVIN AND SOFIA GAVIN, husband and wife, of Tucson, Arizona, hereinafter referred to as the Lessors, and DANIEL MINING COMPANY, a Nevada corporation authorized to do business in Arizona, hereinafter referred to as the Lessee;

W I T N E S S E T H

That for and in consideration of the sum of Ten ($10.00) Dollars in hand paid by the Lessee to the Lessors, the receipt of which is hereby acknowledged, other good and valuable consideration, and the royalties reserved and rentals to be paid by Lessee to Lessors, and of the covenants and conditions hereinafter set forth, Lessors hereby lease and let to Lessee and its successors and assigns, upon the terms and conditions hereinafter set forth, the following described mining claims and real property situated in Pima County, State of Arizona, to-wit:

1. Description of Property:

Those certain unpatented lode mining claims situated in the Pima Mining District of Pima County, Arizona, known as and recorded in the records of mining claims in the said County of Pima, State of Arizona, as follows, to-wit:

NAME OF CLAIM	BOOK NUMBER OF MINES	PAGE
Georgia	70	[illegible]
Georgia No. 2	70	[illegible]
Georgia Extra	70	[illegible]
Georgia Triangle	70	[illegible]
[illegible]	[illegible]	[illegible]
Well No. 7	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible] No. [illegible]	70	[illegible]
	70	100

together with all of the rights appurtenant to said mining claims and all incidents thereto and all water rights and easements appurtenant to said claims.

The following described piece or parcel of land subject only to the reservations contained in the patent thereto, situated in Pima County, Arizona, to-wit:

Beginning at the southwest corner of the tract herein described, corner No. 1, the northwest corner, of the Copper Queen lode claim, patent survey number [illegible], identical with corner No. 1 of the Copper King lode claim, patent survey number [illegible], and corner No. 1, of the Standard Copper lode claim, patent survey number [illegible];

Thence N. 7 deg. [illegible] a distance of 36.36 feet to the northwest corner, a point at the intersection of the east end line of the said Standard Copper lode claim and the north line of Section [illegible] of T14S R13E, G&SRB;

Thence East a distance of 690.4 feet along the north line of the said section 6 to a point approximately on the center of the Twin Buttes-Continental road;

Thence S 51 deg. 13' E along the center line of the said road a distance of 401.6 feet;

Thence S 3[illegible] deg. 1[illegible]' E along the center line of the said road a distance of 2[illegible].5 feet;

Thence S 24 deg. 53' E a distance of 193.3 feet along the center line of said road to a point on the north side line of the Copper Queen lode claim, patent survey number [illegible];

Thence N 0[illegible] deg. [illegible]' [illegible] a distance of 1,[illegible]27.7 feet along the north side line of the said Copper Queen lode claim to its northwest corner, the point of beginning;

[illegible] a fractional part of the [illegible] section 6 of Tiddy, [illegible], Gila and Salt, Arizona, containing [illegible] acres, bounded on the [illegible] by the east end line of the Standard Copper lode claim, patent survey number [illegible], on the [illegible] by the [illegible] side line of the Copper Queen lode claim, patent survey number [illegible], on the [illegible] by the north line of the said section 6, and on the east by the Twin Buttes-Continental road.

All of the foregoing [illegible] on tracts, subject only to [illegible] corrections [illegible] the subject [illegible].

All of the land covered by and [illegible] seven (7) patented lode claims described above, to-wit:- Scorpion, Patent No. 2, Scorpion [illegible], Scorpion Fractional, [illegible], [illegible] No. 4, and Scorpion, the patented claims as the same are or as they may be amended, also [illegible] included in any fractional or isolated tracts formed by the intersection lines of the above (7) claims and the boundaries above described, except that the [illegible] reserve to themselves the mineral rights only on the following described property:

[illegible]:

A [illegible] tract [illegible], the Sun Devil mine [illegible] AND THE E½ SW¼ [illegible] section 6 of T. [illegible] N., R. [illegible] E., [illegible] County, Arizona, [illegible] tract between the said Tenney tract and the Twin Buttes road, both the [illegible] combined into one tract more particularly described as follows:

Beginning, at the northeast corner of the tract hereby described, a point in the approximate center of the Twin Buttes-Continental road from which the No. [illegible] (northwest) corner of the Copper Queen lode claim, patent survey number 2043, identical with the No. 3 (southeast) corner of the Copper Queen lode claim, patent survey number [illegible], bears N 9 deg. 20' E a distance of 1148.3 feet;

Thence S 35 deg. 1[illegible]' W a distance of 890.[illegible] feet to a corner post in the fence, the northwest corner

Thence S 19 deg. 50' W a distance of 349.0 feet to a corner post in the fence, the southwest corner;

Thence S 65 deg. 06' E a distance of 295 feet to the southeast corner, a point in the approximate center of the Twin Buttes-Continental road;

Thence N 16 deg. 26' E a distance of 496.9 feet to the northeast corner, the place of beginning.

It is the intention of the parties, and it is hereby agreed, that there is included within this lease and option the above described unpatented lode mining claims, and all of them, the land described by metes and bounds in fee and the land within the exterior boundaries of the first seven (7) mining claims mentioned above, and the fractions formed thereby in fee, except for the surface rights retained by the Lessors specifically described above.

2. Covenant and Ownership:

Lessors covenant and this lease and option is entered into by Lessee in specific reliance thereon that the Lessors are the owners of a good and merchantable title, subject only to the paramount title of the United States, to each of the mining claims hereinabove described, free, clear and unincumbered and have the right and power to enter into the within lease and option, Lessors further covenant that the said claims have been properly located and they are good, valid, unpatented lode mining claims and that the Lessors have complied with all of the laws of the United States of America and of the State of Arizona in the locating of said claims and in doing the annual labor necessary to preserve them as valid, subsisting mining claims and that there are no liens nor incumbrances against the same.

The Lessors further covenant and agree that they own the fee simple title to the land described by metes and bounds and the land covered by the seven (7) mining claims first above mentioned and any fractions formed by the exterior boundaries of said claims, with a good and merchantable title, subject only to the reservation of the minerals contained in the patent and that where the land is covered by both the patent and by the mining claims that the Lessors own the same without reservations.

3. Term of Lease:

The term of this lease and option, unless sooner forfeited, cancelled, terminated or surrendered as hereinafter provided, shall be for [illegible] (10) years from the date hereof.

4. Possession and Control of Property:

[illegible] Lessors, [illegible] and the whole and every part thereof, [illegible] lease to remain in the sole and exclusive possession and control thereof, and to investigate, measure, sample, examine, test, develop, work, mine, operate, use, manage, control the same, and to mine, extract and remove from said property the ores and min-

erals therein and appurtenant and belonging thereto, and to treat, mill, ship, sell or otherwise dispose of the same and receive full proceeds therefrom less the royalties reserved by the Lessors as per paragraph 6.

5. Entry, Manner of Work and Conformity with Laws:

The Lessee agrees that it will, in the working of said claims, cause the work to be done in a careful and miner-like manner and to conform, in all respects, to the mining laws and regulations of the State of Arizona.

6. Royalties and Rentals:

The Lessors hereby expressly reserve to themselves, their heirs, administrators, executors and assigns, a royalty, the equal seven and one-half (7½) per cent part of the net smelter or mill returns after deductions, as hereinafter defined, on all ores, minerals and concentrates or other products derived from ores mined from or taken from dumps on the leased property.

The royalties reserved shall be deducted by the purchaser of the ores and/or concentrates or other products and paid directly to Lessors accompanied by copies of the settlement sheets covering each lot of material purchased.

Net smelter or mill returns within the meaning of this agreement shall be the correct returns as shown by the liquidation or settlement sheets furnished by the smelter or mill treating such ores and concentrates after such smelter or mill shall have made deduction for transportation charges from mine to smelter and mill, treatment and usual smelting or milling deductions. No premiums or bonuses or amounts above market prices paid to the Lessee by any governmental agency shall be included in royalty settlements.

In the event Lessee shall construct its own mill for the treatment of ores no deduction shall be made by Lessee for the milling of ores produced from the above described premises in arriving at royalty payment, except transportation charges shall be deducted for the transporting of ores from the mines to the mill and transportation charges shall be deducted for transporting concentrates from the mill to the smelter and the other usual deductions and smelter charges. In such event the royalties reserved shall be computed and paid in the manner specified in Paragraph 7, hereof.

Provided, however, the Lessee agrees to pay to the Lessors as a minimum rental or royalty the sum of $1,250.00, at the time of the execution of this agreement, the receipt of which is hereby acknowledged. Quarterly thereafter on the first day of the quarter, that is on September 1, December 1, March 1, and June 1, the Lessee shall pay to the Lessors a minimum quarterly rental or royalty of $1,250.00, to and including March 1, 1955. Commencing on June 1, 1955, the Lessee shall pay minimum quarterly rental or royalty of $2,500.00, and on the first day of each third month thereafter during the term of this lease. The said minimum rental or royalty is to be paid from the seven and one-half (7½) per cent royalties above reserved or in the event that the said seven and one-half (7½) per cent royalty reserved does not amount at the end of each quarter to the aggregate amount to be paid during that quarter, then the difference thereof to be paid in cash by Lessee to Lessors; provided, further, however, that in

[illegible] quarters.

7. Erection of Mill:

Lessee may erect a mill upon the premises hereby leased for the purpose of milling ore from the claims above described, or it may erect its mill elsewhere and may mill ore from other claims in said mill and co-mingle the ore taken from the claims hereby leased with other claims being operated by the Lessee or otherwise. In the event of the co-mingling of ores from the claims above described and other claims, the royalties reserved to which Lessors are entitled as above set forth, shall be determined by and based upon dry weights and samples of ores and percentage of recovery made and taken by Lessee in accordance with good engineering practice, taken from the above described claims prior to the co-mingling and milling with other ore as aforesaid. In such event the royalties reserved shall be paid monthly on or before the 25th day of the succeeding month by Lessee direct to Lessors.

8. Protection from Liens and Damage:

The Lessee shall keep said property and the whole and every part thereof free and clear of liens for labor done or performed upon said property or materials furnished to it on or for said property, or for the development or operation thereof under this lease and while the same is in force and effect, and will save and keep harmless the Lessors from all costs, loss or damage which may arise by reason of injury to any persons employed by the Lessee in or upon said property or any part thereof which may arise by reason of injury to any persons, livestock or other property as the result of any work or operations of the Lessee or its possession and occupancy of the property.

9. Notice of Non-Liability:

The Lessee shall keep posted upon said property notices of non-liability for labor or materials furnished pursuant to laws of the State of Arizona, stating that neither Lessors nor the said property shall be liable for labor or material performed on or furnished to be used upon said property.

10. Payment of Taxes:

The Lessee shall pay, when due and before delinquent, all taxes upon said property falling due during the term of this lease and while the same is in force and effect and shall pay, when due and before delinquent, all taxes levied or assessed against any and all personal property, machinery and equipment placed upon said property by the Lessee during the term of this lease. The Lessee shall also pay all sales taxes and other taxes of every kind, character and description levied or imposed during the term of this lease upon the ores, minerals, concentrates or products of ores, produced, sold or otherwise disposed of by the Lessee, and all taxes levied against the Lessee as an employer of labor; - all such taxes to be promptly paid when due and before delinquent.

In the case of taxes for the calendar year in which this lease begins, and/or for the calendar year in which this lease

ends, there shall be an apportionment between the parties, the Lessors to bear the proportion of such taxes applicable to that part of the calendar year not included in this lease, and the Lessee to bear the balance of said taxes; provided, however, that the Lessors shall in no event be responsible for any portion of any taxes on machinery, equipment, or improvements placed upon the mining claims hereinabove described by Lessee, unless such machinery, equipment or improvements shall be left upon the property and shall inure to the benefit of the Lessors. The Lessee further agrees to pay all so-called sales taxes now or hereafter levied by the State of Arizona or the United States of America on the ores and concentrates shipped from said property.

11. Insurance:

The Lessee shall carry at all times during the term of this lease Workmen's Compensation and other insurance required by the laws and mining regulations of the State of Arizona, provided, however, that Lessee may qualify as a self-rater or self-insurer.

12. Reports and Maps:

The Lessee when requested in writing by Lessors shall furnish Lessors with copies of the logs of any holes that may be drilled on the property and with such sample or assay maps as may be made showing the position and assay value of samples taken on said property; provided, however, that said items shall not be furnished more often than quarterly from the date hereof.

13. Inspection:

The duly authorized representative of the Lessors shall be permitted to enter into and upon said property and the workings of the Lessee at all reasonable times for the purpose of inspection, and to inspect the records of production and sale of products.

14. Forfeiture Clause:

The failure of the Lessee to make or cause to be made any payment herein provided for, or pay over any royalty reserved, or to keep or perform any obligation on its part to be kept and performed, according to the terms and provisions hereof, and especially the failure of the Lessee to make the payments of the minimum royalties reserved or rent a ls stipulated in Paragraph 6, hereof, shall at the election of the Lessors, work a forfeiture hereof, and any and all moneys which have been paid to the Lessors in accordance with the terms of this agreement shall be deemed forfeited to the Lessors. Provided, however, that in the event of a default on the part of the Lessee and the election of the Lessors to terminate this lease on account thereof, the Lessors shall give to the Lessee a written notice of their intention to declare a forfeiture of this lease and to terminate the same on account thereof, specifying the particular default or defaults relied upon by them, and the Lessee shall have thirty (30) days after receipt of said notice in which to make good such default or defaults, in which event there shall be no forfeiture hereof.

In the event of a forfeiture of this agreement all obligation and liability of the parties hereto shall be terminated as of the date forfeiture is perfected as above provided.

15. Surrender of Lease:

The Lessee expressly reserves the right to cancel, terminate and surrender this lease and option and to relinquish all right, privileges and obligations hereunder at any time during the term hereof after having given the Lessors thirty (30) days' written notice of its intention and after having fully discharged all obligations previously incurred by Lessee under this agreement, to the date of such cancellation, and all the obligations and liability of Lessee under said lease and option shall terminate without further liability on the part of the Lessee as of the date of said cancellation, termination and surrender.

16. Force Majeure:

If the Lessee shall be delayed at any time in keeping or performing any agreement on its part to be kept or performed, according to the terms and provisions hereof, by Acts of God, strikes, lock-outs, fire, lack of market, unusual delay in transportation, orders of the government or any duly constituted instrumentality thereof, unavoidable casualties, or any causes beyond the control of the Lessee or a default on the part of the Lessee constituting a cause for forfeiture, in which event the Lessee shall be excused from complying with the provisions of this lease for the period of such interruption, provided that during any such periods the Lessee continues to pay the taxes as herein stipulated.

17. Surrender of Property by Lessee:

In the event of a valid forfeiture, cancellation, surrender or other termination of this lease, the Lessee will immediately surrender to the Lessors peaceable possession of said property and the whole and every part thereof.

18. Removal of Equipment, Etc., by Lessee:

The Lessee shall have, and it is hereby given and granted sixty (60) days after a valid forfeiture, cancellation, surrender or other termination of this lease to remove from said property all mills, mill buildings, milling machinery, structures, headframes, warehouse stock, merchandise, materials, tools, hoists, compressors, engines, motors, pumps, transformers, electrical accessories, metal or wooden chutes, bins, surface pipe lines and connections, mine cars and any and all other machinery and equipment erected or placed in or upon said property by it together with all ore broken in the stopes or workings, but this right of removal shall not extend to mine timbers, underground tracks or underground pipe. If, during the term of this lease the Lessee shall exercise its right to remove a headframe or building which it has placed upon said property and which headframe or building has replaced one now on the premises, the Lessee, at its own expense, will either replace the original headframe or building or will erect one of equal value to the original.

19. Option to Purchase:

Throughout the term of this lease the exclusive right,

privilege and option is hereby granted the Lessee to purchase the leased property above described, together with any improvements that may be situated upon the same, free and clear of all liens and incumbrances, for the sum of $130,000.00, lawful money of the United States of America, and in the event that this option is exercised all payments, rentals or reserved royalties previously made by the Lessee, under the terms of this agreement, shall be credited upon the said purchase price and the remaining balance of said purchase price shall be immediately due and payable upon the exercise of said option.

Lessors shall, within a reasonable time after the date hereof, furnish to the Lessee for its inspection a title policy or abstract reflecting ownership of the premises described above described in Lessors to the extent hereinbefore mentioned, and with a good and merchantable title, subject only to the exception or reservations mentioned in said descriptions.

Upon the payment of the purchase price in full, Lessors will execute and deliver to Lessee a good and valid title to all of said property.

20. Easements:

Lessors agree to give and grant, if requested by Lessee, easements on or over said property for the erection and construction of water lines and pipes and electrical power and transmission lines and roads.

21. Annual Assessment work:

Lessee agrees to do all annual assessment work as specified and required by federal law within the first six (6) months of each calendar year.

The Lessee shall have the right, at its option, to patent the above described unpatented mining claims in the name of the Lessors and for that purpose it is hereby given the right and power of attorney to execute any and all documents of whatsoever kind and character which may be proper or necessary in connection with such procedure. The cost of patenting said claims shall be borne by the Lessee in the event it exercises the right and option to patent said claims. The Lessors hereby agree to execute and acknowledge any documents or instruments necessary or proper to carry out the terms and provisions of this paragraph.

The claims, when so patented, shall be held subject to all the terms and provisions of this agreement. It is understood and agreed that the annual labor has already been done and performed for the current year and that the Lessee shall not be required to do any labor or file any proof for said current year.

22. Assignment:

Lessee, upon written approval of the Lessors first had and obtained, may assign this lease agreement and option to purchase or any of the rights contained herein to any [illegible] person or persons.

23. Legal Interpretation:

This lease agreement and option to purchase has been

accepted and will be performed by the parties in the State of Arizona and all questions pertaining to its validity, construction or interpretation shall be determined in accordance with the laws of the State of Arizona.

24. Inurement:

Time is of the essence of this lease and option. The terms, provisions, covenants and agreements herein contained shall extend to, be binding upon and inure to the benefit of the heirs, personal representatives, successors and assigns of the parties hereto.

25. Notices:

All notices herein provided for shall be written and given personally or by registered mail to the parties hereto and their heirs, personal representatives, successors and assigns, mailed to the addresses hereinafter given or hereinafter furnished; provided, however, that all parties shall be notified of assignments of interest hereunder. The time provided shall commence from the date of the receipt of said notice:

To the Lessors:

Gus Gavin and Sofia Gavin
P. O. Box Ruby Star Route, Box 241
Tucson, Arizona

To the Lessee:

Banner Mining Company
2042 Conner Stravenue
Tucson, Arizona

IN WITNESS WHEREOF, the said Gus Gavin and Sofia Gavin, his wife, have hereunto set their hands, and the Banner Mining Company, a corporation, has caused its corporate name and seal to be affixed hereto by E. S. Bowman, its president, the day and year first above written.

Gus Gavin
Gus Gavin

Sofia Gavin
Sofia Gavin

LESSORS

ATTEST:

Secretary
Secretary.

BANNER MINING COMPANY, a Corporation,

By E. S. Bowman
President

Lessee

STATE OF ARIZONA)
: SS
COUNTY OF PIMA)

The foregoing instrument was acknowledged before me this 29 day of _____, 1952, by Gus Gavin and _____ Gavin, his wife.

_____
Notary Public

My commission expires:
_____

STATE OF ARIZONA)
: SS
COUNTY OF PIMA)

This instrument was acknowledged before me this 30 day of May, 1952, by F. S. Bowman, president of the Banner Mining Company, a corporation.

Michael Cooke
Notary Public

My commission expires:
November 7, 1955.

DOCKET COPY

No. 6

AMENDMENT OF CONTRACT: No. I-DMA-E35

Contract Docket No. DMA 269-X-B, dated June 30, 1951, between the United States of America and Banner Mining Company is hereby amended as follows, effective September 1, 1952:

Referring to "Exhibit "D" attached to Exploration Project Contract Form MF-200, delete the two paragraphs following the reference "+Note-," which refer to the extent of time to be spent on the Project by the "Superintendent," "Foreman" and "Engineer."

Referring to the Amendment dated November 20, 1952, which amended "Exhibit "D" attached to Exploration Project Contract Form MF-200, delete items "2" and "3" and all matter following thereafter and pertaining thereto.

Referring to Amendment No. 3, dated 2-16, 1952, which amended "Exhibit D" attached to Exploration Project Contract Form MF-200, under the statement "Add, in lieu of matter deleted, the following:" delete the following:

+1-Superintendent	at	$381.00 per month
+1-Foreman	at	275.00 per month
+1-Engineer	at	120.00 per month

In lieu of deleted matter substitute the following:

+1-Superintendent	at	$381.00 per month
+1-Foreman	at	275.00 per month
+1-Engineer	at	240.00 per month
1-Bookkeeper	at	65.83 per month

+ - The above figures pertaining to the Superintendent, Foreman and Engineer reflect one-half of their monthly salary rates as only one-half of their time will be spent on the said contract work.

Referring to Exploration Project Contract Form MF-200, article "3. The Exploration Project," following the words "all property designed to bring the project to completion within a period of", delete "12 months" and in lieu thereof substitute "24 months."

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may pay or the percentage of the costs which the Government may pay under the provisions of Article 11 of the contract form.

Dated September 26, 1952

BANNER MINING COMPANY

By E. S. Bowman
President

ATTEST

W. H. Hardy
Secretary

UNITED STATES OF AMERICA

By W. K. King
Executive Officer - DMEA

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 29 1952

manuscript

E.O. Bowman

MINING DIVISION
REGION IV

August 28, 1952

Memorandum

To : W. M. King, Acting Chief, Mining Div., Region IV

From : Chief, Arizona-New Mexico Br., Mining Div., Region IV

Subject : Amendment to Contract I-DMA-L33, Docket DMA-269XB, Danner Mining Co's. Twin Buttes Copper Mines, Pima County, Ariz.

Attached are original and five copies of a request from the above company to amend contract I-DMA-L33 so one-half of the engineer's salary or $240, may be charged to this project. As shown on page 11, Exhibit D, Supervision and Engineering, only one-fourth of the engineer's time now is charged to this contract. However, because of increased work the engineer now is spending full time on this project and contract I-DMA-L32.

This same letter from the company also requests that the time limit for completion of this contract be changed from 18 to 24 months, or from December 30, 1952 to June 30, 1953. The work probably will not be completed by December 30.

As these requests are fair and just, and are for the good of the Government as well as the company, I recommend that an amendment be made to increase the engineer's salary to $240 (one-half his time), and change the completion time from 18 to 24 months or until June 30, 1953, unless all funds have been expended before that date.

Walter R. Storms

Walter R. Storms, Chief
Arizona-New Mexico Branch
Mining Division, Region IV

CC W. M. King (5)
DMA-269XB
DF

WRStorms:frj

August 27, 1952

Mr. W. H. Storms, Chief
Arizona-New Mexico Branch
Mining Division:- Region IV
P. O. Box 4097 University Station
Tucson, Arizona.

Dear Mr. Storms:-

I am writing with regard to our DMEA Contract Number I-DMA-533 p rtaining to the Twin Buttes Mine in Pima County, Arizona.

This contract specifies that we can use the services of an engineer for only one fourth of his time.

We cannot complete the necessary mapping, sampling and surveying if the engineer can spend only one fourth of his time on the project, especially now that we have been asked to submit monthly maps along with our reports.

For this reason we request that this contract be amended to allow for the services of an engineer for one half of his time in the amount of $ 240.00 per month.

In as much as we have not completed our work at Twin Buttes Mines and probably will not by December 30, 1952, and still have contract money remaining, we request that the contract be amended to extend the time limit to June 30, 1953 for completion of the project.

Sincerely yours,

Banner Mining Company

By A. B. Bowman
A. B. Bowman,
Superintendent

ABB:fmb

Docket Copy
Copper

No. 5

AMENDMENT OF CONTRACT: No. I-DMA-E33

Contract Docket No. DMA 269-XB, dated June 30, 1951, between the United States of America and Banner Mining Company is hereby amended as follows, effective July 14, 1952:

> Referring to Exhibit "A", attached to Exploration Project Contract Form MF-200, page 4, item (7), insert the following after the fourth paragraph:
>
> Beginning at a point approximately 70 feet westerly from the Queen Shaft on the 7th level of the Queen Mine (525 level of the Glance Mine) drifting around the caved workings may be substituted in lieu of rehabilitating the old workings as shown on the attached map entitled "Banner Mining Company","Plan Map of the Copper Queen Mine", "West End of the Seventh Level", which is made a part of this amendment.

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may pay or the percentage of the costs which the Government may pay under the provisions of Article 11 of the contract form.

Dated August 5, 1952.

BANNER MINING COMPANY

By E. S. Bowman
Pres.

ATTEST:

W. P. Hardy
Secretary

UNITED STATES OF AMERICA

By W. K. King
Executive Officer, DMEA

MINING DIVISION
REGION IV

July 3, 1952

Memorandum

To : W. M. King, Acting Chief, Mining Div., Region IV

From : Chief, Arizona-New Mexico Dr., Mining Div., Region IV

Subject : Proposed amendment, D.A Docket 209A D, Contract I-Ariz-133, Banner Mining Co's. Twin Buttes Copper Mines, Pima County, Ariz.

Enclosed are original and five copies of a letter requesting an amendment, and nine copies of the map which goes with this request, from the Banner Mining Co. As explained in the request it probably would be much cheaper to drift around the caved area on the Glance 525-foot level than to try to clean out the caved material. Our engineers, L. A. Stewart and T. M. Monsio, have examined this area and both are of the opinion that a drift around the area would be much cheaper than trying to clear the caved material.

Therefore, I recommend that this request for an amendment be approved because of the savings to be made. However, at the bottom of page 4 of the contract under Exhibit A, it states that "1245 feet of drifts and crosscuts connecting the 525 level of Glance mine to the 7th level of Queen Mine at $7.00 per foot - - - $8,715.00". The proposed drift cannot be driven for $7 a foot, but probably will cost $35 a foot for 160 feet, or a total of $5,600.00.

Walter R. Storms

Walter R. Storms

cc W. M. King (6)
D.A-209A D
DF

W.R.Storms:frj

July 2nd, 1952

Mr. Walter R. Storms, Chief
New Mexico-Arizona Branch
U. S. Bureau of Mines
Tucson, Arizona

Dear Mr. Storms:-

I am writing with regard to the amendment to our D. M. A. Contract #I-DMA-E-33 pertaining to the Twin Buttes Mines which I discussed with you recently.

We have reopened the 525 foot level of the Glance mine and its extension over ~~as~~ the Queen Shaft a distance of 1874 feet. This work has also been extended West from the Queen Shaft a distance of 70 feet. Water and air lines together with track have been installed to this present face from the Glance Shaft.

The contract as it now is provides for us to rehabilitate the workings of the Queen Mine to their West most part and for other work such as drifting and cross cutting together with diamond drilling on this same level provided this work is deemed advisable, after re-opening, by both the Banner Mining Company and the field team representing the Defense Minerals Administration.

At the point (X), 70 feet westerly from the Queen shaft on the 7th level of the Queen Mine, (note- 525' level of the Glance Mine is the 7th level in the Queen Mine) we have encountered extensive caving from the walls of the old stopes. (see attached plan map.) Huge boulders of wall rock and loose muck block the path of our advance to the West end of the mine.

After due study of the matter, we have come to the conclusion that it will be cheaper to drive a crosscut around the caved area than to try to re-open the old drifts which have been practically obliterated by the cave-ins.

To reopen the old drifts would require heavy timbering and considerable spiling. Even then the timbers would be subject to heavy pressures from the loose muck on the right side and above.

The ground through which the proposed crosscut will be driven is very solid garnet and marble and apparently will not require timbering. Gob space for the muck is available within 300 feet of starting point.

I estimate that this proposed crosscut, 160 feet long can be completed for about $ 35.00 per foot under present conditions and that it would take at least $ 60.00 per foot to reopen the old caved and inaccessible section.

In consideration of the above facts, I propose that contract #I-DMA-E-33 be amended to allow us to drive the proposed 160 foot crosscut as shown on attached map in lieu of reopening the remainder of the old drifts beyond point (X) Westerly on the 7th level of the Queen Mine.

Six copies of this application for an amendment are submitted along with 9 copies of the map showing location of the proposed work.

It is understood that this proposed amendment shall not be construed to increase the estimated total cost of this project, The aggregate total amount which the government may pay or the percentage of the costs which the government may pay under the provisions of Article 2 of the contract form.

I urge special consideration of this amendment as we are ready to commence the work.

Respectfully submitted,

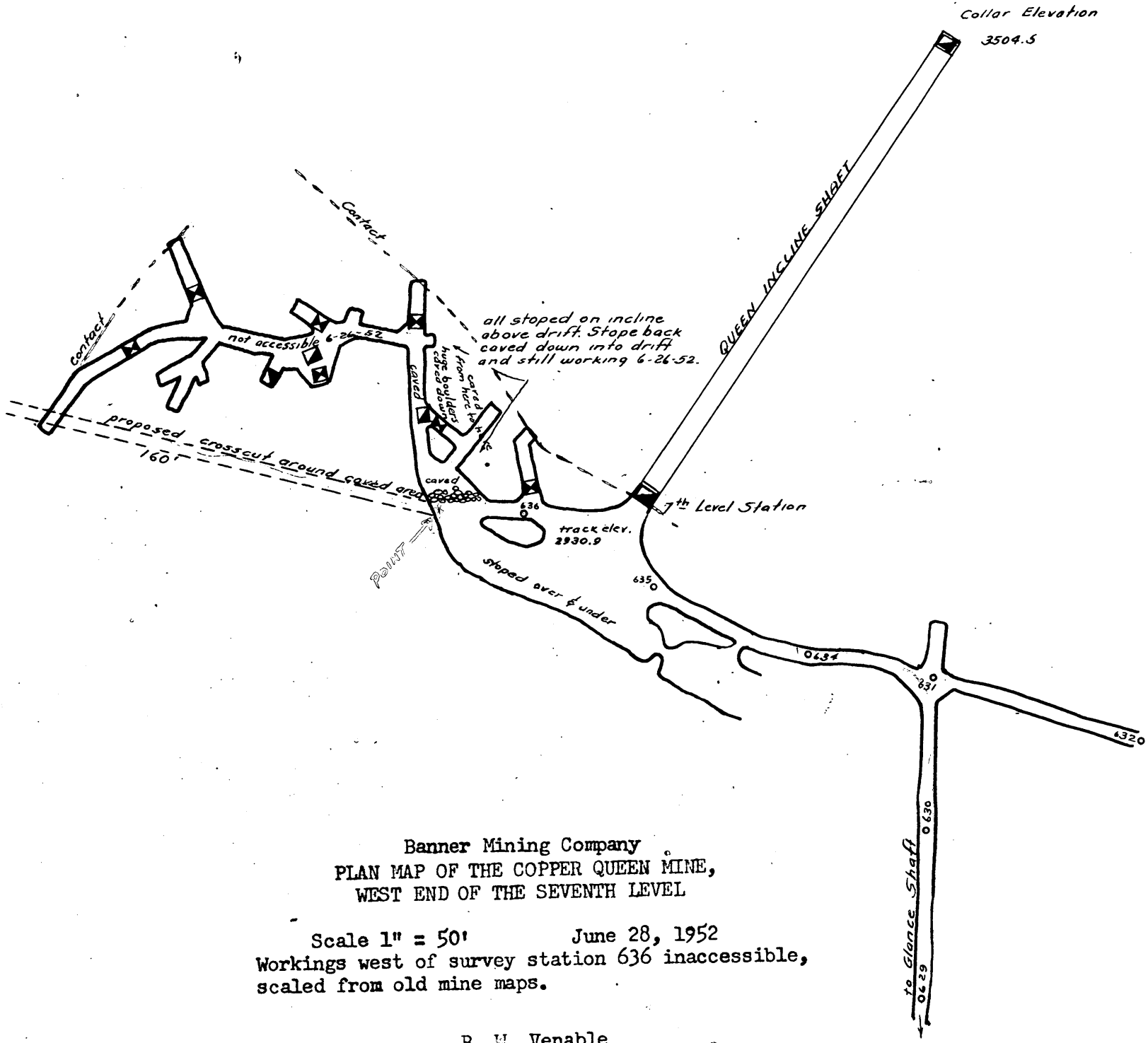
Banner Mining Company

A. B. Bowman

A. B. Bowman

ABB:ecb

COPY



Banner Mining Company
PLAN MAP OF THE COPPER QUEEN MINE,
WEST END OF THE SEVENTH LEVEL

Scale 1" = 50' June 28, 1952
Workings west of survey station 636 inaccessible,
scaled from old mine maps.

B. W. Venable

Docket Copy
No. 4

AMENDMENT OF CONTRACT: No. I-DMA-E33

Contract Docket No. DMA 269X-B, dated June 30, 1951, between the United States of America and Banner Mining Company is hereby amended as follows, effective as of December 21, 1951:

Referring to Exhibit D attached to Exploration Project Contract Form MF-200, and the amendment thereof dated February 16, 1952, which amended Exhibit D, to be effective December 21, 1951, under the subheading "Add, in lieu of matter deleted, the following," after the labor class of "watchman" add the following:

Number	Class	Base Pay Per 8-Hour Shift
3	Miners	13.56
3	Helpers	12.20
1	Hoistman	13.56

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may pay or the percentage of the costs which the Government may pay under the provisions of Article 11 of the contract form.

Dated ~~April 11~~, 1952.

BANNER MINING COMPANY

By E. S. Bowman, Pres.

ATTEST:

W. H. Handy
Secretary

UNITED STATES OF AMERICA

By J. H. Ewing
Executive Officer - DMA

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
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APR 14 1952

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

224 New Customhouse
Denver 2, Colorado

April 11, 1952

Memorandum

To: C. O. Mittendorf, Acting Administrator
Defense Minerals Exploration Administration

From Executive Officer, Field Team, Region IV

Subject: Amendment to Contract I-DMA-E33, Docket DMA-269X-B, Banner Mining Company

Enclosed are the original and two copies of an amendment to Contract I-DMA-E33. Copies of this amendment have been given to the Operator, the Fiscal Officer, Region IV, and we have retained a copy for our files.

J. H. East, Jr.

J. H. East, Jr.

Enclosures

APR 14 1952

Docket

No. 3

AMENDMENT OF CONTRACT: No. I-DMA-233

Contract Docket No. DMA-269X-B, dated June 30, 1951, between the United States of America and Banner Mining Company is hereby amended as follows, effective December 21, 1951:

Referring to Exhibit D attached to Exploration Project Contract Form MF-200, delete the following:

Number	Class	Base Pay Wage Per 8-Hour Shift
2	Shaft Leadman	$13.40 (a)
4	Shaftman	12.76 (a)
1	Carpenter	12.92 (a)
1	Mechanic	12.92 (a)
2	Helpers	10.92 (a)
1	Watchman	5.50 (a)

Supervision and Engineering

*1 - Superintendent @ $361.00 per month
*1- Foreman @ 255.00 " "
*1 - Engineer @ 110.00 " "

Under the same title, "Note, second paragraph, delete the following: "in the amount of $110.00 per month."

Add, in lieu of matter deleted, the following:

Number	Class	Base Pay Wage Per 8 - Hour Shift
2	Shaft Leadman	$ 15.04
4	Shaftman	14.40
2	Helpers	12.20
2	Hoistman, Single Drum	13.56
1	Carpenter	14.08
1	Mechanic	14.08
1	Miner or semi skilled shopman	13.56
2	Electricians	16.00
1	Watchman	6.64

Supervision and Engineering

*1 - Superintendent @ $381.00 per month
*1 - Foreman @ 275.00 " "
*1 - Engineer @ 120.00 " "

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
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MAR 14 1952

BL

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may pay or the percentage of the costs which the Government may pay under the provisions of Article 11 of the contract form.

Dated 2-16, 1952.

BARBER MINING COMPANY

By E. S. Bowman
Pres.

ATTEST:

W. H. Kent
Secretary

UNITED STATES OF AMERICA

By J. H. Eaton Jr.
Executive Officer - DIA

MS

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

224 New Customhouse
Denver 2, Colorado

March 11, 1952

Memorandum

To: C. O. Mittendorf, Acting Administrator
Defense Minerals Exploration Administration

From: Executive Officer, Field Team, Region IV

Subject: Amendment to Contract I-DMA-E33, Docket DMA 269XB, Banner Mining Company

Enclosed are the original and two copies of an amendment to Contract I-DMA-E33. Copies of this amendment have been given to the operator, the Fiscal Officer, Region IV, and a copy has been retained for our files.

J. H. East, Jr.

J. H. East, Jr.

Enclosures

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 14 1952

DEFENSE MINERALS ADMINISTRATION
WASHINGTON, D. C.
JUL 26 9 12 AM '51

AMENDMENT OF CONTRACT: No. I-DMA-E33

Contract Docket No. DMA-269KB, dated June 30, 1951, between the United States of America and Banner Mining Company is hereby amended as follows:

1.- Referring to Exhibit "A" attached to Exploration Contract Form MF-200 under the heading "Summary of Estimated Cost of Proposed Reopening and Rehabilitation of Copper Queen and Copper Glance Mines together with an exploration program," Paragraph (6), strike out the following:

"Install compressor at the Glance Shaft (500 cu. ft. per minute), $500.00",

and add the following:

"Install compressor at the Glance Shaft (800 cu. ft. per minute), $500.00".

2. Referring to Exhibit "C" attached to Exploration Contract Project Form MF-200 under the heading "Following is a list of additional equipment to be purchased for operating the project as a need for same arises", strike out the following:

"1-500 cu. ft. Compressor (for Glance Shaft), $9,000".

3. Referring to Exhibit "C" attached to Exploration Contract Project Form MF-200 under the heading "Following is a list of operating equipment to be furnished by the Operator with the allowable monthly rental and repair costs", strike out the following:

"1-500 cfm Compressor, Repair Cost Per Foot Advance, $0.04",

and under the same heading add the following:

"1-800 cubic feet Chicago Pneumatic X-type compressor operated by a direct-connected 125 H.P. synchronous motor, monthly depreciation - $225.00."

4. Referring to Note (c) under the same heading strike out the following:

"The 500 cfm Compressor,"

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

may pay or the percentage of the costs which the Government may pay under the provisions of Article 11 of the contract form.

Dated November 20, 1951.

BANNER MINING COMPANY

By [signature]

UNITED STATES OF AMERICA

By [signature]
Executive Officer - DMA

ptc
jwo

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D.C.
NOV 26 12 PM '51

AMENDMENT OF CONTRACT: No. I-DMA-233

Contract Docket No. DMA-269X-B, dated June 30, 1951, between the United States of America and Banner Mining Company is hereby amended as follows:

1. Referring to Exhibit "C" attached to Exploration Project Contract Form NF-200, under the title, "Following is a list of operating equipment to be furnished by the operator with the allowable monthly rental and repair costs" add the following:

   "1 6-Ton Diamond T flat bed winch truck at the rate of $2.00 per hour for time actually used on or for this project."

2. Referring to Exhibit "D" attached to Exploration Project Contract Form NF-200, under the title, "Following is a schedule of labor by numbers and classes with wage or salary for each class. Also shown are salaries for foreman, engineer and superintendent," add the following:

   "2 Electricians at $2.00 per hour".

3. Under the same title, subtitle, "Supervision and Engineering" add the following:

   "1 Bookkeeper at the rate of $65.83 per month".

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may pay or the percentage of the costs which the Government may pay under the provisions of Article 11 of the contract form.

Dated November 20, 1951.

BANNER MINING COMPANY

By [signature]

UNITED STATES OF AMERICA

By [signature]
Executive Officer - DMA

MF-200
(April 1951)

Docket No. DMA 269-X-B ~~1297-X-A~~
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I-DMA-E-33

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

EXPLORATION PROJECT CONTRACT[1]

It is agreed this ..... day of June, 1951, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration, hereinafter called the "Government," and[2] Banner Mining Company
2042 Conner Stravenue
Tucson, Arizona

hereinafter called the "Operator," as follows:

1. *Authority for contract.* This agreement is entered into under the authority of the Defense Production Act of 1950, pursuant to Mineral Order 5, entitled "Regulations Governing Government Aid in Defense Exploration Projects."

2. *Operator's property rights.* The exploration project shall be conducted on that certain property situated in the State of Arizona, County of Pima described as follows:[3]

See attached Annex I

with respect to which the Operator represents and undertakes:[4]

(*a*) That he is the sole 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:

Claims: "Copper Glance" "Copper Queen" and "Copper King." Howard H. Fields is lessee from William F. Foy ("Copper Queen Claim") and Twin Buttes Mining & Smelting Company, "Copper Glance" and "Copper King" claims who assigned their leases and purchase option to W. L. Allison, Sr., who assigned his leases and options to the Banner Mining Company.

properly desig... within a period of ..... from the date of this contract. The exploration project and the work to be performed are more fully described on Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, is made a part of this contract.

4. *Performance of the work.* The work shall be performed by the Operator, under his sole direction and control: *Provided,* That with the consent of the Government and its written approval of the contract or contracts, all or any part of the work may be performed by the Operator through contract or contracts with independent contractors. 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.

5. *Fixtures and improvements.* 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. Attached hereto, marked "Exhibit 'B'," is a detailed list of additional facilities, buildings, and fixtures, to be purchased, installed, or erected by the Operator, with the estimated cost of each, to which the Government will contribute its agreed pro-rata share of the cost. The difference between the cost of such additional facilities, buildings, or fixtures, and the salvage value thereof at the conclusion of the work, shall be charged as a cost of the project to which the Government has contributed its pro-rata share.

6. *Operating equipment.* Attached hereto, marked "Exhibit 'C'," is a detailed list of operating equipment divided into categories of items to be rented, purchased, or furnished by the Operator, with the allowable rental, purchase price, or rental value, as the case may be, annexed to each. As to equipment purchased for the project, the Government will contribute its agreed pro-rata share of the cost thereof, and the difference between the cost and the salvage value at the conclusion of the work shall be charged as a cost of the project to which the Government has contributed its pro-rata share.

[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.
[4] Strike out the provision not applicable.
[5] Name of mineral.
[6] Not in excess of 2 years.

7. *Title to and disposition of property.* All facilities, buildings, fixtures, equipment, and other items costing more than $50 each, paid for or purchased with funds contributed jointly by the Operator and the Government, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the termination of the contract, if they have any salvage value, shall be disposed of for their joint account unless the Government, in writing, waives its interest in any such items. The Government may require the dismantling, severance from land, and removal of any such items in order to realize its interest in the salvage value thereof, and the cost of any such removal and of the disposal of the items shall be for the joint account of the parties in proportion to their respective interests.

8. *Labor and supervision.* Attached hereto, marked "Exhibit 'D'," is an itemized schedule of labor, by numbers and classes (miners, muckers, millmen, etc.), and of supervisors, by numbers and positions, with the maximum wages or salaries that may be paid to each as an allowable cost of the project.

9. *Rehabilitation and repairs.* Attached hereto, marked "Exhibit 'E'," is a detailed schedule of existing facilities, buildings, installations, and fixtures, with a statement of the cost of any necessary rehabilitation or repairs to put into useful and operable condition, which cost shall be allowed as a cost of the project.

10. *Allowable costs of the project.* The allowable costs of the project in which the Government will participate are limited to the necessary, reasonable, direct costs of performing the exploration work, including the costs of materials, supplies, engineering, power, water, and utilities, including items of equipment costing less than $50 each; and the costs referred to in Articles 5, 6, 8, and 9, and the exhibits annexed to and referred to in the contract. Although the Government may pay part of the cost of new or additional facilities, structures, buildings, and equipment, only the depreciation on such items, computed as indicated in Articles 5 and 6, will be charged as a cost of the project. No items of general overhead, corporate management, interest, or any other indirect costs not expressly allowed by these regulations, or work performed or costs incurred before the date of this contract, shall be allowed as costs of the project in which the Government will participate.

11. *Participation by the Government.* At the end of the first full calendar month after the Operator has commenced work under the project, and at the end of each succeeding calendar month, the Operator shall submit to the Government a voucher for payment with a detailed statement of work done and allowable costs (as defined in Article 10 of this agreement) incurred, in a form and with supporting data acceptable to the Government. After approving the voucher, the Government shall pay to the Operator 50 percent of the sum of such costs incurred; *Provided,* That the aggregate total of all sums paid by the Government under this agreement shall not exceed $ 67,894.50, which is 50 percent of the agreed estimated total cost of this project, $ 135,789.

12. *Accounts and audits.* The Operator shall keep suitable records and accounts of operations, which the Government may inspect and audit at any time. The Government may at any time require an audit of the Operator's records and accounts by a certified public accountant, 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.

13. *Progress reports.* The Operator shall provide the Government with monthly reports of progress in form and content satisfactory to the Government, and upon the completion of the project or termination of the contract shall provide the Government with a comprehensive geologic and engineering report, including an estimate of ore reserves, to the best of his ability. Four copies of all reports shall be furnished to the Government.

14. *Repayment by Operator.* If, upon the completion of the exploration project or termination of the contract, the Government considers that a discovery or development has resulted from the work from which commercial production of ore may be made, the Government, within 6 months thereafter shall so certify to the Operator, particularly describing and delimiting its estimate of the discovery or the development. Thereafter, if and as ore is produced as a result of such discovery or development, the Operator and his successor in interest shall be and become obligated to pay to the Government a percentage royalty on the net smelter returns or other net proceeds realized from such ore, concentrates, or metal produced within ten (10) years from the date of this contract, until the total amount contributed by the Government, without interest, is fully repaid or said 10 years have elapsed, whichever occurs first, as follows:

Of net smelter returns or other net proceeds not in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent.

Of net smelter returns or other net proceeds in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent, plus one-half (½) percent additional for each full fifty cents ($0.50) in excess of eight dollars ($8.00) per ton of ore, but not in excess of a maximum of five (5) percent.

This obligation to repay from net returns or proceeds shall be and remain a claim and lien upon the property which is the subject of the exploration project and upon any production resulting from such discovery or development, in favor of the Government until fully paid, or until said 10-year period has elapsed; and this claim and lien and the Government's right to repayment shall survive any termination of the contract, whether by completion of the exploration project or otherwise. This article is not to be construed as imposing any obligation on the Operator or his successor in interest to produce ore from any such discovery or development.

15. *No assignment of contract.* Without the written consent of the Government, the Operator shall not assign or otherwise transfer or hypothecate this contract or any rights thereunder.

16. *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 worthwhile discovery and in the opinion of the Government further operations are not justified. Upon the completion of the project or any termination of the contract the Operator shall render to the Government a full and final accounting of his operations under the contract and his expenditures of money; shall dispose of any unused materials, supplies, and equipment for the joint account of the Operator and the Government in the proportion of their respective interests; and shall pay to the Government its pro-rata share of any money remaining.

Executed in triplicate the day and year first above written.

Banner Mining Company
(Operator)

By President

THE UNITED STATES OF AMERICA

By Administrator
Defense Minerals Administration

U. S. GOVERNMENT PRINTING OFFICE 16—64066-1

Banner Mining Company

Twin Buttes Mines

Annex I

Those certain mining claims located in the Pima Mining District known and described as follows:

(1)	Copper Glance Claim - Patented Survey	#2643
(2)	Copper Queen Claim - Patented Survey	#2643
(3)	Copper King Claim - Patented Survey	#2643

These claims are located on Sections 1 and 6 in Township 18 South, Ranges 12 and 13 East G. & S.R.M. and Sections 31 and 36, Township 17 South, Ranges 12 and 13 East, G & S.R.M. - Pima County, Arizona.

Twin Buttes Mines

Annex 2

WHEREAS, the subordination agreement of the lessor, required by paragraph numbered 2 (b) of the annexed contract, has not been obtained; and

WHEREAS, the United States of America has agreed to waive requirement of the lessor's subordination agreement.

NOW THEREFORE, in consideration of said exploration project contract and of the foregoing, the Operator hereby undertakes and agrees to pay all sums that may fall due and owing to the United States of America under the terms of said contract in the same manner and to the same extent as if the subordination agreement of the lessor had been given. If for any reason the net smelter returns from operations that would be subject under said contract to such payments to the Government are not available as a means of measuring the amount of such payments, then the Operator agrees and undertakes to make such payments according to the best estimates of the amounts that can reasonably be made, and in the event of dispute as to such estimates, the Operator agrees that the determination thereof by either the Administrator of Defense Minerals Administration or by the Director of the United States Bureau of Mines shall be final and binding upon the Operator.

Banner Mining Company

Twin Buttes Mines

Exploration Project Contract

Exhibit "A"

Question #3 - Form MF-200

Applicant proposes 1st, to rehabilatate the Copper Glance and Copper Queen Mines so the 3 lower levels of the underground workings of the Queen and the lower 2 levels of the Glance Mine can be made accessible for an examination to verify a reported underground ore reserve of about 30,000 tons averaging 6% copper in the Copper Glance Mine and an unknown amount of the same grade copper ore in the bottom of the Copper Queen Mine and to make an underground geological study on which to base an underground exploration program provided the examination proves additional exploration advisable, 2nd, to do the following exploration work provided the above is concluded successfully and the geological study indicates this work advisable: Diamond Drilling and cross cutting on 7th level of Copper Queen Mine west of shaft, Diamond Drilling from drift on 525 level connecting the two mines and drifting and crosscutting and diamond drilling on the 525 and 625 levels of the Glance Mine.

On the following attached sheets the exploration program is set forth in detail.

These mines were operated as early as the 1890's down to the year 1919. The Queen Mine was again operated from 1923 to 1926. The Copper Glance has produced to date 118,066 tons of ore averaging 6.72% copper with a value of $2,786,126. The Copper Queen has produced 75,186 tons of ore averaging 7.05% copper with a value of $1,747,852.

The ore bodies are vein-like to lense-like to pod-like in form and usually are found irregularly in masses of garnet and silicates that lie on the contact between granite and marble. The average thickness of the garnet ore zone is about 50 feet. It is said that in a given mineable ore body about 50 percent of the garnet mass is ore above 5% copper. The barren or lower grade garnet is either sorted out or avoided in mining. The ore is largely massive pyrite, chalcopyrite and bornite.

A number of factors seem to have controlled the localization of the ore. Most of the ore, excepting the King fissure and a few other ore bearing fissures, contacts the granite. All of it replaces limestone. All the ore bodies are closely associated with the northeast faults and in cases northwest bedding faults.

The stretch of contact (granite-limestone) between the Queen and Glance ore bodies and extending to the Bullion fissure has enough associated known influential structural factors to justify first attention in exploration. Next in importance for exploration attention would be the same northeast contact from the Queen through the Copper King and westward.

Exhibit A - Continued

Summary of Estimated Cost of Proposed Reopening and Rehabilitation of Copper Queen and Copper Glance Mines together with an exploration program.

(1)	Power Installation (Includes a substation at Queen and Glance Mines)	$ 5,000.00
(2)	Repair and retimber to make accessible and unwater the 646-foot vertical Glance shaft and install necessary water and air pipe lines and electric cables @ $23 per foot for first 400 feet and $32.00 per foot for remaining 246 feet	17,072.00
(3)	(a) Repair and retimber to make accessible and passable, as a ventilation shaft, the Copper Queen Shaft to its 7th level, unwater repair and make accessible the 130 feet of shaft below the 7th level to its bottom. Total inclined depth of this shaft is 737 feet. First 607 feet @ $30.00, bottom 130 feet @ $35.00 - totaling	22,767.00
(4)	Repair headframe and Bins at Glance shaft, install sheave wheel and install and repair hoist and repair hoist house.	1,600.00
(5)	(a) Repair headframe at Queen shaft, install sheave wheel, skip dump, attach motor to hoist, repair hoist and repair Bin and fill around collar of shaft.	1,600.00
(6)	Install compressor at the Glance shaft (500 c.ft. per minute).	500.00
(7)	Cleanout, retimber if necessary to hold open, the indicated drifts and crosscuts on attached plan maps, totaling about 3550 feet @ $7.00 per foot on the 525 and 626-foot levels of the Glance Mine and the 7th and 9th levels of the Queen Mine together with 380 feet of raises @ $10.00. This work is detailed as follows:	
	<u>525 Foot Level Glance Mine</u> 605 feet of drifts and crosscuts @ $7.00 per foot	4,235.00
	1245 feet of drifts and crosscuts connecting the 525 level of Glance Mine to the 7th level of Queen Mine @ $7.00 per foot.	8,715.00

Exhibit "A" - Continued

7th Level of Queen Mine 510 feet of drifts and crosscuts on 7th level of the Queen Mine @ $7.00 per foot	$3,570.00
626 Foot Level of Glance Mine 740 feet of drifts and crosscuts @ $7.00 per feet and 130 feet of Raise @ $10.00 per foot	6,480.00
9th Level of Queen Mine 450 feet of drifts and crosscuts @ $7.00 and 250 feet of raises @ $10.00 per foot.	5,650.00
Repair and retimber to make accessible and unwater the 60-foot winze below the 626-foot level of the Glance Mine and the 50-foot winze below the 9th level of the Queen Mine @ $35.00 per foot.	3,850.00

(8) (b) Diamond Drilling, Drifting and Crosscutting program detailed as follows:

7th Level of Queen Mine 250-foot crosscut from West end of this level to cut the Copper King fissure about 250 feet below known stopes above, @ $30.00 per foot.	7,500.00
2- 200 foot Diamond Drill holes (45° down) to intersect King fissure 100' below this level @ $4.00 per foot. D.D. holes #1 and #2	800.00
525 foot level Glance Mine From face east drift 250 feet of drifting on or near contact Eastward beneath the favorable garnet outcrop in this area @ $30.00	7,500.00

Exhibit A - Continued

	750 feet of Diamond drilling to locate ore shoots near the Easterly end of above drift @ $4.00 per foot - in possibly 3 holes Nos. 3, 4, and 5	$ 3,000.00
	Area between Queen and Glance Mines on 525- foot level. Test 1000 feet of unexplored contact zone between Copper Queen and Copper Glance workings by Diamond Drilling from stations along the above drift at intervals of 100 feet, totaling 10 holes, 5 flat and 5 down 45° - 1610 feet at $4.00 per foot	6,440.00
(9)	Sampling and assaying	2,100.00
(10)	Geological Study (Surveying and Mapping)	1,000.00
(11)	Estimated Compensation Insurance, social security and other taxes	5,300.00
	Total	$114,679.00

Summary of Total Cost including costs of new facilities and machinery and repairs to present facilities.

(1)	Cost of Work (Shown above)	$114,679.00
(2)	Additional Facilities (Buildings)	none
(3)	Additional Equipment (see Exhibit C)	21,110.00
(4)	Repairs to existing Facilities (included in line 1 total)	
	Total	$135,789.00

Exhibit A - Continued

Note -

(a) This Queen inclined shaft is needed mainly for ventilation as a second exit as prescribed by law down to its 7th level, so if after unwatering the Glance shaft, we find the Queen shaft is open then only such work will be done above its 7th level (525 feet level of Glance Mine) to comply with the mine inspectors regulations.

(b) This program will proceed after the unwatering, reopening and cleanup portions of the project have been completed and after the geological study has been made, provided the government engineers (field team) first give their approval of its advisability.

It is agreed that the entire existing mine and facilities are included in the exploration project, and that the existing mine and facilities and all ore deposits therein shall be subject to the Government's claim for repayment under Article 14 of the contract form regardless of whether any "discovery or development" results from the work carried on under this contract.

Exhibit "B"

Following is a detailed list of additional facilities, buildings and fixtures to be purchases, installed, or erected by the operator with the estimated cost of each:

No new facilities will be required.

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Banner Mining Co.

Exhibit "C"

Following is a list of additional equipment to be purchased for operating the project as a need for same arises:

1 -	1100 foot 3/4" Hoist Cable for Glance Shaft	$ 370.00
1 -	1200 foot 3/4" Hoist Cable for Queen Shaft	400.00
2 -	I.R. 50 Meter Pumps	2,500.00
2 -	Gardner-Denver 3-3½" Drifter Drills and Accessories	2,500.00
1 -	Eimco 12 B Muckin Machine with Accessories, Delivered at mine	3,190.00
1 -	500 Cu. Ft. Compressor (for Glance Shaft)	9,000.00
1 -	20 HP Champion Blower	700.00
1500 -	Feet of 16" Tubing for above Blower in 50' Sections	1,650.00
8 -	Used Mine Cars	800.00
	Total	$ 21,110.00

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Exhibit "C" - Continued

Following is a list of operating equipment to be furnished by the Operator with the allowable monthly rental and repair costs.

Equipment	Value	Life	Monthly Depreciation or Rental	Repair Cost Per Foot Advance
1-75 H.P. Hoist and Motor for Glance Shaft	$4,000.00	8 years	$ 41.66	$0.02
(a) 1-50 H.P. Hoist Motor for Queen Hoist	700.00	10 "	5.83	0.02
1-3/4 Ton G.M.C. Pickup	1,500.00	3 "	41.66	0.03
(c) 1-500 cfm Compressor	------	------	------	0.04
(c) Eimco 12 B Mucking Machine	------	------	------	0.02
(c) 2-I.R. 50 Motor Pumps	------	------	------	0.05
(c) 1-20 H.P. Champion Blower	------	------	------	0.01
(c) 2-G.D. Drifter (3"-3½") Drills	------	------	------	0.03
(a) (b) 50 H.P. Hoist at Queen Shaft	2,000.00	10 years	25.00	0.03
Totals			$114.15	$0.25

Note -

Total footage of this project including cleanout of drifts and raises, diamond drilling, shaft reopening, et cetera is 8683. Repair cost per foot advance is found by dividing the estimated total repair cost on each machine by 8683 feet.

Equipment rental cost per foot advance $\frac{114.15}{8683}$ = $0.013

Repair Cost per foot advance 0.25

Total Equipment Cost per Foot Advance $0.263

Notes: (a) The rent on this motor will only be charged during the time it is used to re-open and make the Queen Shaft accessible and passable, if necessary and to unwater and reopen said shaft below the 7th level.

(b) This hoist has been rented by the operator and we are charging exacting the monthly rental charged us by Mr. Foy.

(c) The 500 cfm Compressor, Eimco 12 B Mucking Machine, 2-I.R. - 50 H.P. Motor Pumps, 2 - Gardner-Denver Drifter drills and Champion blower are to be joint purchases of the government and Operator as indicated in previous page of Exhibit "C". Repair cost per foot advance is shown as a charge against this project.

Exhibit "D"

Following is a schedule of labor by numbers and classes with wage or salary for each class. Also shown are salaries for foreman, engineer and superintendent.

Number	Class	Base Pay Wage per 8-Hour Shift
2	Shaft Leadmen	$13.40 (a)
4	Shaftmen	12.76 (a)
1	Carpenter	12.92 (a)
1	Mechanic	12.92 (a)
2	Helpers	10.92 (a)
1	Watchman	5.50 (a)

Supervision and Engineering

*1 - Superintendent @ $361.00 per month
*1 - Foreman @ 255.00 " "
*1 - Engineer @ 110.00 " "

*Note - The above figures on the Superintendent and Foreman are one half of the monthly rates as 1/2 of their time will be spent on the Mineral Hill and 1/2 on the Twin Buttes project.

The Engineer will spend 1/2 of his time in Arizona on the 2 above mentioned projects and 1/2 of his time at our Lordsburg property. Therefore 1/4 of his salary will be charged to this project in the amount of $110.00 per month.

(a) In addition to the indicated base pay, Operator must pay time and one half (overtime for Saturday), night shift differential, contract bonus on headings and such labor charges as vacations, group insurance, Workmens Compensation Insurance. (Present rate for Workmens Compensation Insurance is 10% of the payroll.

Exhibit "E"

Following is a list of repairs to existing surface buildings and fixtures with a statement of necessary costs to put same in useful and operable condition.

(1)	(a) Install sheave wheel, install 75 H.P. Hoist and Motor at Glance Shaft and repair hoist house	$1,600.00
(2)	(a) Repair headframe at Queen Shaft, install sheave wheel, skip dump, pour base for electric motor and attach motor to hoist and repair Bin and fill around collar of shaft	1,600.00
	Total	$3,200.00

Note -

(a) This cost has already been included in items 4 and 5 of Exhibit "A".

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

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

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

DO NOT FILL IN THIS BLOCK

Docket No. DMA 269 B-X

Date received 5-26-51

Participation

Banner Mining Company
Twin Buttes Mines
2042 Conner Stravenue,
Tucson, Arizona

Name and address of applicant

Date May 16, 1951

FILL IN THIS BLOCK

Date of application December 18, 1950

Estimated cost $ 65,880.00

Mineral or metal Copper

Percentage of Government participation 50%

Location of mine Pima Mining District

Pima County, Arizona.

Date of filing MF-100 May 16, 1951

DMA Docket Number, if available 269 B-X

INSTRUCTIONS

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

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation? Corporation

*2. If a partnership, state names and addresses of partners. Not applicable.

*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders. See attached sheets

*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project. See attached sheets.

*5. Are you the owner or the lessee of the property? Lessee

6. If owner, state what claims, liens, or encumbrances, if any, are against the property. Not applicable

7. If lessee, attach a copy of the lease and state if it is in good standing. Leases are in good standing.

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

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement. See attached Sheets.

9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)? $ 32,940.00 Yes.

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

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THE PROPERTY

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

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

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

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

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

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

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

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

*16. History:

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

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

(*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations. See attached sheets, also previously furnished under DMA Docket Number 269

*17. Production:

(*a*) If mine is in production, furnish the following information: Not now in production.

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

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

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

(*b*) Submit available maps and assay data. Previously furnished under DMA Docket Number 269

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

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

THE EXPLORATION

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

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

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

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data. See attached sheets. Data previously furnished under D.M.A. Docket Number 269

THE REQUIREMENTS AND COSTS

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

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

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

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

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

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

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

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

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

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

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

CERTIFICATION

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

Banner Mining Company
(Name of company)

By [signature]
(Signature of authorized official)

May 16, 1951
(Date)

President
(Title)

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

*Same as footnote on page 1.

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

Banner Mining Company
2042 Conner Stravenue

Twin Buttes Mines
Tucson, Arizona.

MF - 103 Question 3.

OFFICERS

H.I.Grimes, President	316 N.W. 18th Street, Oklahoma City, Oklahoma
E.S.Bowman, 1st Vice-President	P.O.Box "X", Lordsburg, New Mexico
R.E.Garnett 2nd Vice-President	2131 N.W. 16th Street, Oklahoma City, Oklahoma
W.H.Hardy, Secretary-Treasurer	3529 N.W. 19th Street, Oklahoma City, Oklahoma

DIRECTORS

H.I.Grimes	316 N.W. 18th Street, Oklahoma City, Oklahoma
E.S.Bowman	P.O.Box "X", Lordsburg, New Mexico
R.E.Garnett	2131 N.W. 16th Street, Oklahoma City, Oklahoma
W.H.Hardy	3529 N.W. 19th Street, Oklahoma City, Oklahoma
L.L.Travis	6007 Glendora Avenue, Dallas, Texas.

FIVE LARGEST STOCKHOLDERS

H.I.Grimes	316 N.W. 18th Street, Oklahoma City, Oklahoma
E.S.Bowman	Post Office Box "X", Lordsburg, New Mexico
Mrs. Ruth Wallace	Post Office Box 2482, Waterloo, Iowa
L.L.Travis	6007 Glendora Avenue, Dallas, Texas.
W.S. Bellows	Post Office Box 2132, Houston, Texas.

Banner Mining Company Twin Buttes Mines

2042 Conner Stravenue Tucson, Arizona

MF - 103

Question 4

(a) Banner Mining Company has operated the Bonney and Miser's Chest Mines at Lordsburg, New Mexico together with its 500 ton Flotation Mill at the same location since 1935. During this period we have mined and milled a total of about 1,700,000 tons of low grade copper ores with a copper content in excess of 85,000,000 pounds.

(b) A. B. Bowman will be Superintendent of Arizona operations. He has been Superintendent of our Lordsburg Plant since 1945. He has been connected with the Company at Lordsburg since 1936, starting as Engineer.

Question 10

(a) The portions of the Twin Buttes Mines that come under this exploration project are described as follows:-

The Copper Glance Shaft and Mine, Copper Queen Shaft and Mine and the following claims on which they are located. (1) Copper Glance Claim Patent Survey Number 2643; and (2) The Copper Queen Claim, Patent Survey Number 2643. The Copper King Claim, Patent Survey Number 2643, may later be explored from the Copper Queen Shaft at a later date if deemed adviseable after the unwatering and an examination has been made. All of these claims are located on sections 1 and 6 in Township 18 South, Range 12 and 13 East G&S and Sections 31 and 36, Township 17 South, Range 12 and 13 East G & SRM in Pima County, State of Arizona.

(b) Same as above.

Question 11

These mines have been operated separately in the past, but the ones we expect to re-open at this time have always gone by the same names, namely:- Copper Glance, Copper Queen, and Copper King.

Question 12

The Twin Buttes Mines are about 8 miles southwest of Sahuarita, Arizona. Sahuarita is a station on the Southern Pacific Railroad between Tucson and Nogales, Arizona and is the point we will ship from. The road connecting Twin Buttes with Sahuarita is a well kept graded road eight miles in length with only a slight grade toward Sahuarita.

Question 12 - Continued

The Twin Buttes Camp is also connected with the Mineral Hill Mine by a well graded road and is 7½ miles distant.

Twin Buttes Camp is about 25 miles Southwest of Tucson, Arizona. Of this distance all but eight miles is paved. Most of our supplies will be bought in Tucson with Sahuarita being the receiving point of carload lots.

Question 13

(a) The Copper Glance shaft according to past records made about 50 gallons per minute and will be sufficient for our needs.

(b) The Trico Electric Company will make available 300 KVA of power at each the Copper Glance and Copper Queen Shafts in September of this year.

The following are the rates Trico Electric will charge us for power at each of these points of delivery. $1.75 per month per KW of billing demand; plus 2.0¢ per KWH for the first 50 KWH; 1.5¢ per KWH for the next 100 KWH; and .8¢ per KWH for all the remaining KWH used per month.

Question 14

At the Copper Glance Shaft the headframe is in place and will need a sheave wheel and small minor repairs to make it ready for use. A hoist house in bad repair is also available, but will need some repairs to make it serviceable for this first phase of the exploration work. A compressor house in fair repair is also available for our use.

Copper Queen Mine:-

A headframe and bins in fair condition are available for use together with a hoist house. A small hoist is also available, but would need overhauling and conversion to electric power.

Question 15

The ore from these mines in the past has averaged over 6% copper and is of shipping grade. It would be shipped from the mine to Sahuarita by truck and thence by rail. Three smelting points are available; American Smelting and Refining Company at El Paso, Texas and Hayden, Arizona; and the Inspiration Copper Company at Inspiration, Arizona.

Question 15 - Continued

It may be possible to have some of the lower grade ores milled at the Eagle Picher Mill at Sahuarita, seven miles away, if a steady tonnage could be provided.

Question 16

(a) Banner Mining Company controls about 8,000 feet along an east-west contact between granite and limestone along which the following mines are located:- Copper Bullion, Copper Glance, Copper Queen, Copper King and Minnie. Mining in this district dates from the 1890's. Production from the above mines to 1943 totaled more than 255,000 tons with a valuation in excess of 7,000,000 dollars and came mainly from the Copper Queen, Copper Glance and Minnie.

The depth of the lowest levels of these mines is respectively:- Minnie 325', Copper King 350', Copper Queen 670', and Copper Glance 626'.

Most of these mines suspended operations after the first World War, with the exception of the Queen Mine which operated as late as 1926; mainly on account of lowered prices on metals.

Good profits were made on these mines during the time they were operated.

(b) The Morgan Mine about one mile south of Twin Buttes Camp had a production in excess of $2,000,000.00 up to the time it closed down after the first World War. It has not been operated since.

(c) Two copies of Geologic reports by Dr. Harrison Schmitt, Howard Fields and the U. S. Bureau of Mines were submitted with our original application. Please refer to the application - D.M.A. Docket number 269.

Question 18

(a) In general the ore deposits form as replacements in the contact zone between the limestone and underlying granite and are referred to as contact metamorphic.

The ore bodies are lense like to pod like in form and usually are found irregularly in masses of garnet and silicates that lie on the contact between granite and marble. The average thickness of the garnet zone is about 50 feet. The ore is largely massive pyrite, chalcopyrite and bornite. Gangue minerals include garnet, calcite, magnetite and sidenite.

Question 18 - Continued

(b) A Geologic Map, Level Maps, Vertical Sections, etc., were submitted in duplicate with our original application. Please refer to these in your file D.M.A. Docket Number 269.

(c) According to the U.S. Bureau of Mines Report there are about 30,000 tons of 6% copper ores present in the Copper Glance Mine below and just above the 525 foot level. Ore averaging between 6% and 7% copper is reported in the lower levels of the Queen Mine, but no estimate is given as to amount.

In Harrison Schmitt's report he indicates that 1,000,000 tons of ore are geologically probable from structural features, volume of unexplored graound, and amount of ore per given block, etc.

Question 19

According to Fields report a vertical diamond drill hole was drilled down from the 625 foot level of the Glance Mine to a depth of 500 feet with the bottom of the hole still in limestone. This suggests that we can expect the continuance of the known ore shoots in these mines to at least a depth of another 500 feet.

All of the ores produced from these mines so far has been of direct shipping grade. Undoubtedly there is a considerable amount of lower grade milling ores left on the fringe of stopes, etc.

The water level in the Glance Mine now stands at 407 feet below the collar of this shaft.

Please refer to the maps, reports, etc., submitted with our original application for a more complete picture and details of this project under Defense Mineral Administration Docket Number 269.

Question 20

This exploration work will be conducted to find copper minerals mainly chalcopyrite and bornite. The Mineralization associated with these deposits is of the contact metamorphic type.

Question 21

The work required by this re-opening phase of this mine consists of:-

(1) Installing Hoists and Compressors.
(2) Repairing Surface Buildings and bins.
(3) Repairing, retimbering and unwatering the Copper Glance and Copper Queen Mines.

I estimate that this work should be completed in January 1952 if this project is approved immediately. Power will not be available until September of this year. All of the preliminary work on the surface and to a limited depth in the shafts will be done prior to receiving the power in September.

Question 22

Past production on this one contact has totalled 255,000 tons with a value over $7,000,000.00 and with a copper content in excess of 32,000,000 pounds.

A diamond drill hole in the Queen proves that we can expect this contact to go at least 500 feet deeper.

The following is a statement from Harrison Schmitt's geological report:- " A number of factors seem to have controlled the localization of the ore. Most of the ore, excepting the Copper King fissure and an few other ore bearing fissures, contacts the granite. All of it replaces limestone. All of the ore bodies are closely associated with the Northeast faults and in cases, northwest bedding faults." " The known favorable limestone and marble beds are in continuous contact with the granite between the Copper Glance and Copper Queen mines and four or more Northeast faults and fissures intersect the contact in this area."

Level Maps, Vertical Sections, and geological reports were incluede in our original application D.M.A. Docket Number 269. Please refer to it for further details.

Question 23

Our estimated cost of this re-opening exploration project is shown below and includes labor, supplies and equipment purchases and rentals. Labor rates and salaries will be listed below together with all other information asked for under this question. For the items of equipment which we own and will use on the project for a fair rental rate as listed below, we will expect a credit against our half of the costs incurred.

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Question 23 - Continued

SUMMARY OF ESTIMATED COST OF PROPOSED UNWATERING, REOPENING, AND REPAIRS TO THE COPPER QUEEN AND COPPER GLANCE SHAFTS

Power Installation	$ 5,000.00
Cost of Machinery (Two year usage) and Rentals	15,880.00
Repair and Unwater Glance Shaft	20,000.00
Repair and Unwater Queen Shaft	25,000.00
Total	$ 65,880.00

(a) Six Shaftmen at $ 1.59½ per hour.
Two Hoistmen at $ 1.49½ per hour.
One Carpenter at $ 1.61½ per hour.
Two Helpers at $ 1.36½ per hour.
One Mechanic at $ 1.61½ per hour.

I estimate that the total labor cost of the project at approximately $25,000.00 which amount is included in the above Summary of Costs.

(b) One - General Superintendent at $ 361.00
One - General Foreman at $ 255.00
One - Part Time Engineer at $ 200.00

Note:- Total cost of Supervision and Engineering estimated at $ 5,100.00. One half of regular salaries of Supervision and engineering is chargeable to Twin Buttes project and one half to the Mineral Hill project. The above figures are one half of the monthly salary rates. The above $ 5,100.00 total estimated cost of supervision and engineering for this project is already included in the Summary of Estimated Costs.

(c) Repair and retimber and unwater Glance Shaft $ 19,000.00
*Repair and retimber and Unwater Queen Shaft 24,000.00
Total $ 43,000.00
*(This includes some repairs to existing buildings which will be used for benefit of shaft work.)

(d) Installation of Hoists and Compressors 2,000.00

(e)

Two Compressors	$ 17,000.00	? 10 yrs.
One - 75 H.P. S.D. Hoist	9,000.00	? "
Two 1100 foot hoisting cables	2,200.00	
Four Drills	1,900.00	
Miscellaneous Supplies	800.00	?
Two Mucking Machines	5,000.00	
Two I.R. 50 H.P. Motor Pumps	2,500.00	
Total	$ ~~39,700.00~~ 38400	

Two Years usage - Using a five year life as basis. 15360.00 ~~15,880.00~~

(f) None

TOTAL CARRIED FORWARD $ ~~60,880.00~~ 60 360.00

Question 23 - Continued

TOTAL BROUGHT FORWARD	60 360.00 ~~$ 60,880.00~~
(g) One - 1950 GMC 3/4 ton pick-up truck $75.00 per month. 7 months!	
Note:- The cost of this equipment rental is included in the above Summary of Estimated Costs. We expect a credit against our half of the costs incurred. where? what age	520.00
(h) Cost of supplies included in the above summary of costs.	
(i) Power Installation	5,000.00
GRAND TOTAL	$ 65,880.00

Question 24

I expect to have the following work completed by September when power will become available provided the project is approved immediately.

Copper Glance Shaft

(1) Surface work completed including installation of hoist and compressor.
(2) Shaft repaired to ~~400 level~~.
(3) Repair work on existing buildings.

Copper Queen Shaft

(1) Surface work completed including installation of hoist
(2) Shaft retimbered and repaired possible to 200 foot level.
(3) Repair existing building and headframe.

The following money is expected to be expended by September 1, 1951.

Power Installation	$ 5,000.00
200 Feet of Queen Shaft repaired and retimbered and repair work on surface.	5,500.00
400 Feet Glance Shaft repaired and retimbered where necessary with pipes and electric cables installed. Surface repairs and machinery installation completed	14,000.00
Machinery & Supplies Purchased (2 year use basis)	16,520.00 ?
Total	$ 41,020.00

From September on through December the balance of the money will be spent in approximately equal monthly installments of $ 6,200.00 completing the work early in January 1952.

BANNER MINING COMPANY
BALANCE SHEET
MARCH 31, 1951

ASSETS

CURRENT			
Cash in Banks		$ 32,801.97	
Cash Deposits		660.00	
Accounts Receivable		65,817.57	$ 99,279.54
INVENTORIES			
Mine and Mill Supplies			46,500.00
FIXED			
Automobiles and Trucks	$ 22,102.98		
Furniture - Office Equipment	10,864.30		
Mine and Mill Plant and Equipment	347,885.17		
Oil Lease Equipment (New Casing)	39,345.93		
	420,198.38		
Less Depreciation Reserve	319,740.05	100,458.33	
Mining Claims (Cost)	275,354.70		
Mining Claims (Development Cost)	254,946.22		
	530,300.92		
Less Depletion Reserve	357,330.76	172,970.16	
Oil and Gas Leases (Cost)	24,301.77		
Oil and Gas Leases (Schedule Att'd)	204,962.50		
Oil and Gas Royalty (Cost)	56,209.76		
Oil and Gas Royalty (Schedule Att'd)	73,560.00		
Oil Payment (Cost)	3,114.00		
Oil Investment - Joint Venture	15,914.16	378,062.19	
Real Estate (Unimproved)		2,108.27	
DEFERRED			
Contingent Accounts Receivable		17,648.29	671,247.23
TOTAL			$ 817,026.77

LIABILITIES

CURRENT			
Accounts Payable	1,504.01		
Notes Payable (First Nat'l Bank)	50,000.00		
Vouchers Payable	39,728.93	91,232.94	
DEFERRED			
Reserve for Taxes		7,901.32	99,134.26
CAPITAL AND SURPLUS			
Capital Stock (Common) Issued		241,528.00	
Surplus (Capital)	78,877.50		
Surplus (Earned)	397,487.01	476,364.51	717,892.51
TOTAL			$817,026.77

_____
Treasurer

BANNER MINING COMPANY

SCHEDULE

OIL AND GAS LEASES AND ROYALTIES - APPRECIATED VALUES

OIL LEASE - WORKING INTEREST

Garvin County, Oklahoma

Lease consists of 145 acres which has been communitized with surrounding leases of other owners, thus creating lease block of 240 acres, which lease block is divided into 6 units of 40 acres each. One well has been completed on Unit #1 and one well has been completed on Unit #2, both of which are producing wells. Four wells are yet to be drilled, one on each of remainig four units.

March, 1951, Production (Gross)	2,976 bbls	$7,488.79	
March, 1951, Production, Banner	735 bbls	1,851.77	
Ultimate Estimated Recovery of Two Producing Wells - 80 Acres @ 6000 bbls. per acre	480,000 bbls	$1272,000.00	
Banner Share of Ultimate Recovery		409,925.00	
Estimated present Sales Value Banner Interest based on Ultimate Recovery - 50% of $409,925.00			$ 204,962.50

OIL ROYALTY

Grayson County, Texas

Undivided 3/16 Royalty Interest or 82.08 Royalty Acres under 437.785 Acre tract of land covered by two leases:			
1. Magnolia Petroleum Co.	264.785 acres		
2. Duncan and Howell	173. acres		
One completed producing well on lease 2. Banner present monthly income		$ 270.00	
Present market value of royalty is $750.00 per acre. Value of Banner Interest (82.08 acres)			61,560.00

Beckham County, Oklahoma

Undivided 4 acres royalty interest (Producing)			
Banner present monthly income		112.00	
Present market value of royalty is $3,000.00 per acre.			
Value of Banner Interest (4 acres)			12,000.00
			$73,560.00

BANNER MINING COMPANY

OPERATING STATEMENT

JANUARY 1, 1951 TO MARCH 31, 1951

MINING OPERATIONS

INCOME			
Concentrate Ore Sales		$153,883.05	
OPERATING COSTS			
Mining	$127,596.92		
Milling	21,879.43		
Smelting and Freight	18,242.63		
Mine Development	23,658.12		
Depreciation (Estimated)	4,050.00	195,427.10	
GROSS PROFIT - MINING			($41,544.05)

OIL OPERATIONS

INCOME			
Royalty Oil and Gas Sales	$ 444.47		
Working Interest - Oil Sales	7,859.46		
Oil Lease Rental Receipts	163.17	8,467.10	
OPERATING COSTS			
Production Costs	426.11		
Lease Rentals Paid	360.50	786.61	
GROSS PROFIT - OIL			7,680.49
COMBINED GROSS PROFIT			($33,863.56)

OTHER COSTS

Administrative	19,065.30	
Taxes Paid	13,843.30	
Contributions - Gifts	20.00	32,928.60
COMBINED NET PROFIT		($66,792.16)

Form MF-100
(March 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Form approved.
Budget Bureau No. 42-R1026.

GENERAL TECHNICAL DATA
FOR USE UNDER THE
DEFENSE PRODUCTION ACT OF 1950

NOT TO BE FILLED IN BY APPLICANT

Docket No. dmal 269B-X

Date received 5-26-51

Banner Mining Company
Twin Buttes Mines,
2042 Conner Stravenue,
Tucson, Arizona.

Name and address of applicant

Date May 16, 1951

INSTRUCTIONS

This form is to be filed with Defense Minerals Administration, Department of the Interior, Washington 25, D. C. It should be accompanied by appropriate application form when a specific type of Government assistance is requested, in the form of (1) loan, (2) purchase contract, (3) Government guarantee of a private loan, (4) ~~Necessity Certificate pursuant to the provisions of Sec. 124 (A) (Amended) Priorities and Allocation of Materials~~ priorities or allocation of mining equipment, and maintenance, repair and operating supplies, and (6) other forms of Government assistance that might arise under the Act. Submit four (4) signed copies of the form and accompanying papers. Name and address should be stamped or typed on each sheet of this form and all accompanying papers. *When a question is inapplicable it should be so stated on the form.* Additional sheets may be attached in answering any questions or in supplying additional information. (IF YOU CANNOT ANSWER A QUESTION, SO STATE.) If a question is answered elsewhere indicate where answered. It is not necessary to answer it again.

5 GENERAL TECHNICAL DATA

Supply the following information on separate sheets, arranged, numbered, and lettered as indicated:

1. Materials produced:
   (*a*) What are the chief mine, mill, or smelter products? See attached sheets.
   (*b*) What are the byproducts, if any? See attached sheets.
2. Name(s) and type(s) of mine(s), mill(s), smelter(s), refinery(ies), pit(s), quarry (ies), drilling operation(s). Include old names of property, if any. Show extent of workings, including the following:
   (*a*) Linear feet of shafts. See attached sheets
   (*b*) Linear feet of drifts and crosscuts. see attached sheets.
   (*c*) Linear feet of tunnels or adits. See attached sheets
   (*d*) Linear feet of other mine openings (explain briefly). See attached sheets.
   Indicate whether mine is flooded or not. Describe any pumping problems. Give size or productive capacity. See att. sheets.
3. For each operation listed above supply the following:
   (*a*) Distance and direction from nearest town and shipping point. See attached sheets.
   (*b*) Mining district. See attached sheets.
   (*c*) Township, Section, Range. See attached sheets
   (*d*) County, State. See attached sheets.
4. (*a*) State whether or not property is now in operation, and if in operation, by whom operated. See attached sheets
   (*b*) Are you operating this property as:
   - ☐ Owner.
   - ☒ Lessee. See attached sheets
   - ☐ Contractor.
5. Number of years in production See attached sheets
   If not in production or operation, estimated date when production will begin See attached sheets
6. Experience of operators:
   Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who manage the project. See attached sheets
7. History:
   (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for suspension of operation. See attached sheets
   (*b*) State briefly the known history and production of adjoining and neighboring properties. See attached sheets
   (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations. See attached sheets

8. Names and addresses of Officers, Directors, or Partners, and in addition thereto, the five largest stockholders if applicant is a corporation. See attached sheets.

Name and Address (a)	Official Title (If officer is also director indicate by "D") (b)	Total of Annual Salary, Commissions, Bonuses, Etc., Received From Applicant and Affiliates During Last Fiscal Year (c)	Estimated Net Worth Outside of Interest in Applicant (d)	Number of Shares Held in Applicant Corporation: Common (e)	Number of Shares Held in Applicant Corporation: Preferred (f)	Life Insurance Carried for Benefit of Applicant: Amount (g)	Life Insurance Carried for Benefit of Applicant: Net Cash Surrender Value After Loans (h)
** H.I.Grimes Oklahoma City, Oklahoma	President "D"	6,100	100,000	101,570	-0-	-0-	-0-
** E.S.Bowman Lordsburg, New Mexico	1st Vice-Pres. "D"	8,650	25,000	11,000	-0-	-0-	-0-
Garnett, R.E. Oklahoma City, Oklahoma	2nd Vice-Pres. "D"	-0-	25,000	1,650	-0-	-0-	-0-
W.H.Hardy Oklahoma City, Oklahoma	Sect.-Treas. "D"	6,000	10,000	2,000	-0-	-0-	-0-
** L.L.Travis Dallas, Texas.	"D"	-0-	50,000	10,000	-0-	-0-	-0-
** Mrs. Ruth Wallace Waterloo, Iowa				17,300	-0-	-0-	-0-
** W.S.Bellows Houston, Texas.				8,000	-0-	-0-	-0-
** Five Largest Stockholders	Total	20,750	x x x x x	126,220		x x x x x	x x x x x

If more lines are needed continue on separate sheet.

9. Capital Stock Issues:

For Corporate Applicants

Item	Authorized (a)	Outstanding (b)	Par Value (c)	Number of Shares Outstanding (d)	Dividend Rate Last Paid* (e)
Common stock	$ 500,000	$ 241,528	$ 1.00	241,528	10%
Preferred stock	$ -0-	$ -0-	$ -0-	-0-	-0-

*Indicate period covered.

10. Production:

Item	Kind of Product (a)	1948 Total (b)	1949 Total (c)	1950 Total (d)	Present Average Monthly (e)
1. Quantity of product mined or quarried (Short, long, metric tons; barrels; pounds; etc.)		NONE	NONE	NONE	NONE
2. Quantity of product processed (specify unit of measure and type of process)		NONE	NONE	NONE	NONE
3. Quantity and grade of product sold or shipped (specify units of measure)		NONE	NONE	NONE	NONE

11. Do you contemplate a change in the present average monthly rate of production? If so, state estimated maximum monthly production and basis of change. Not until mine has been reopened and the necessary exploration work completed.

12. Ore or Mineral Reserves:

(a) Describe the ore or mineral deposit briefly. Accompany the application by any available report on the geology and ore reserves. See attached sheets.

(*b*) If deposit is other than placer: See attached sheets

(1) Submit assay plans and/or sections showing location and size of proved (measured) and probable (indicated) ore or mineral reserve. See attached sheets

(2) State the tonnage (indicate type of ton) and grade of each class of ore reserve, as above, and show how computed. Tabulated total ore reserve as follows: See attached sheets.

TOTAL ORE OR MINERAL RESERVES

Ore or Mineral Reserve	Estimated Tons (a)	Metal or Mineral Content Per Ton (Grade) (b)	Gross Value Per Ton (c)	Recoverable Unit Value Per Ton (d)	Estimated Cost of Production Per Ton (e)
Measured (proved)					
Indicated (probable)					

(*c*) If placer: Not applicable.

(1) Give estimated total yardage and average marketable mineral content of each deposit.

(2) Submit map showing location of placer deposit and surrounding area, with all test holes or pits. Submit logs of each hole and test pit with depth and average value of each.

(3) Describe gravel, stating whether fine, medium or coarse; loose, tight, cemented, or frozen, and whether it contains stumps or boulders more than 1 foot in diameter; if so, how large, and in what proportion.

(4) Describe bedrock, giving type (granite, sandstone, shale, etc.) and state whether it is hard or soft, smooth, uneven or rough.

(5) Describe overburden, stating whether loose, tight, or cemented; fine or coarse textured; furnish estimate of average thickness and total amount.

(6) Tabulate the reserves using the form outlined above for ore or mineral reserves.

13. Access Roads:

Give road distances to shipping, supply and residence points, stating kind and condition of roads. See attached sheets

14. Water Supply: See attached sheets.

State source and quantity of water available for operations and whether sufficient for all seasons of year.

15. Power:

State amount of power used, rate per hour, and source thereof. See attached sheets.

16. Labor: See attached sheets

State number and classes (miners, muckers, millmen, etc.) of men employed during a recent representative payroll period.

17. Equipment and Facilities:

Describe present equipment on the property, including buildings. (State condition.) List major pieces of equipment now owned or controlled and in serviceable condition available for this operation. See attached sheets

18. Are there any particular conditions or circumstances affecting your operations that are not described above? If so, explain. See attached sheets.

CERTIFICATION

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

Banner Mining Company
(Name of company)

By [signature]
(Signature of authorized official)

May 16, 1951
(Date)

President
(Title)

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

U. S. GOVERNMENT PRINTING OFFICE 16—63792-1

Banner Mining Company Twin Buttes Mines

2042 Conner Stravenue Tucson, Arizona

D.M.A. Docket Number 269 MF-100

Question 1

(a) Copper when mine last operated.

(b) Small amount of silver.

Question 2

(a) About 2,000 feet of shafts.

(b) Estimated about 7,500 feet.

(c) None

(d) Considerable stoping and raising. Am unable to determine the exact amount.

Question 3

(a) These mines are about 8 miles Southwest of Sahuarita, Arizona which is the nearest shipping point on the Southern Pacific Railroad.

(b) Pima Mining District, Pima County, State of Arizona.

(c) (d) These mines are located in sections 36 and 31 of Township 17 South, Range 12 and 13 East and Sections 1 and 6 of Township 18 South, Range 12 and 13 East G&SRM in the Pima Mining District, Pima County, State of Arizona.

Question 4

(a) Property is not now in operation.

(b) Lessee

Question 5

From early 1900's to 1919 and from 1923 to 1926. Sometime in 1952.

Question 6

(a) Banner Mining Company has operated the Bonney and Miser's Chest Mines at Lordsburg, New Mexico together with its 500 ton Flotation Mill at the same location since 1935. During this period we have mined and milled a total of about 1,700,000 tons of low grade copper ores with a copper content in excess of 85,000,000 pounds.

(b) A. B. Bowman will be Superintendent of the Arizona operations. He has been Superintendent of our Lordsburg Plant since 1945. He has been connected with the Company at Lordsburg since 1936, starting as engineer.

Question 7

(a) Banner Mining Company controls about 8,000 feet along an east-west contact between granite and limestone along which the following mines are located:- Copper Bullion, Copper Glance, Copper Queen, Copper King and Minnie. Mining in this district dates from the 1890's. Production from the above mines to 1943 totaled more than 255,000 tons with a valuation in excess of 7,000,000 dollars and came mainly from the Copper Queen, Copper Glance and Minnie.

The depth of the lowest levels of these mines is respectively:- Minnie 325', Copper King 350', Copper Queen 670', and Copper Glance 626'.

Most of these mines suspended operations after the first World War, with the exception of the Queen Mine which operated as late as 1926; mainly on account of lowered prices on metals.

Good profits were made on these mines during the time they were operated.

(b) The Morgan Mine about one mile south of Twin Buttes Camp had a production in excess of $2,000,000.00 up to the time it closed down after the first World War. It has not been operated since.

(c) Two copies of Geologic reports by Dr. Harrison Schmitt, Howard Fields and the U. S. Bureau of Mines were submitted with our orignal application. Please refer to the application - D.M.A. Docket number 269.

Question 12

These mines, the Copper Glance and Copper Queen, have not been operated since 1919 and 1926 respectively and are at present under water below the 400 level of the Copper Glance Mine.

(a) The ore is largely massive pyrite, chalcopyrite and bornite which in places contain some chalcocite and sphalerite in a garnet gangue. Other gangue minerals are magnetite, calcite and siderite. The ore bodies are lense-like to pod-like in form and usually are found irregularly in masses of garnet and other silicates that lie on the contact between granite and marble.

(b) Duplicate copies of all available maps, geological and engineering reports were submitted with the original application which is D.M.A. Docket number 269. Please refer to these for details.

The U. S. Bureau of Mines report of 1943 estimated that 30,000 tons of 6% cppper ore was available just above and below the 525 foot level of the Copper Glance Mine. Ore averaging between 6 and 7% copper is reported in the lower levels of the Queen mine, but no estimate is given as to amount.

In Harrison Schmitt's report, he indicates that 1,000,000 tons of ore are geologically probable from structural features, volume of unexplored ground, and amount of ore per given block, etc.

Question 13

The Twin Buttes Mines are about 8 miles Southwest of Sahuarita, Arizona over good graded roads. Sahuarita is a station on the Southern Pacific Railroad between Tucson and Nogales, Arizona.

These mines are about 25 miles Southwest of Tucson, Arizona Where most supplies will be obtained, and where most of the men will live. 17 miles of this total are hard surfaced roads. The other 8 miles are improved graded road in good condition. No steep grades are involved.

Question 14

The Copper Glance Shaft according to past operating records makes about 50 gallons of water per minute and will be sufficient for our needs.

Question 15

The Trico Electric Company is making available in September of this year 300 KVA of power at both the Glance and the Queen mines for this

Question 15 - Continued

project at the following rates:- $1.75 per month per KW of billing demand; plus 2.0/ per KWH for the first 50 KWH; 1.5¢ per KWH for the next 100 KWH; and .8¢ per KWH for all the remaining KWH used per month.

Question 16

Two Shaftmen were employed at the Copper Queen Shaft during January and February of 1951, doing preparatory work around the headframe and collar of this shaft.

Question 17

Thirty foot headframes are on both the Copper Queen and Copper Glance Shafts, but will need some repair work and sheave wheels,

A Hoist house and compressor house are located at the Copper Glance Shaft, but will need considerable repairs to make them serviceable. A single drum hoist is also at the property, but has no motor and will need considerable repairing, but will use it if at all possible.

There is a hoist house at the Queen Shaft which is in fair repair.

Question 18

For further information see our application form MF-103 covering the Mineral Hill Mine and our original application, D.M.A. Docket Number 269.

March 26, 1951

Memorandum

To: P. T. Allsman

Charles Anderson

From: DMA Field Team, Region IV

Subject: DMA Docket 269, Banner Mining Company, Twin Buttes and Mineral Hills Mine

We enclose the application of the Twin Buttes and Mineral Hills mines, Banner Mining Company, Pima county, Arizona. You will note in the covering letter of the Copper Commodity Committee that this proposal has been changed to an exploration project by mutual agreement.

Please contact the Banner Mining Company, Mr. Bowman, Superintendent, and determine exactly what they propose to do and make the necessary investigation and report. Since this is an exploration loan, please arrange to do this as promptly as possible. The brochure is being sent to Mr. Allsman for transmittal to Mr. Storms and Mr. Anderson.

J. H. East, Jr.

J. H. East, Jr.

A. H. Koschmann

A. H. Koschmann

Attachments

Banner Mining Company letters, 12/12/50, 2/11/50, 2/13/51, Harrison Schmitt report, The Mineral Hill Camp, Exhibits A through M, and Harrison Schmitt report, Twin Buttes Mining District

JHE/cl

cc-DMA files

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

March 8, 1951

Air Mail

Memorandum

To: Executive Officer, DMA Field Team, Region IV

From: Chairman, Copper Commodity Committee

Through: Operation Committee

Subject: DMA No. 269, Twin Buttes and Mineral Hills Mine, Pima County, Arizona, Banner Mining Company, 2042 Connor Stravenue, Tucson, Arizona

The Commodity Committee has investigated the requested loan of this Company for these mines and has decided to treat this as an exploration project. This has been discussed with the applicant and is agreeable to him. It was agreed also to consider the Mineral Hill and the Twin Buttes as separate projects. Perhaps each should be set up in two steps, first to reopen and examine thoroughly, second to explore for more ore.

To proceed with this matter we are asking you to have an examination made of the company's proposed explorations.

For your convenience we are enclosing all of the information pertaining to this property. Please return this file when you have completed your report.

Tom Lyon, Chairman
Copper Commodity Committee

Enclosure

Approved:

Tom Lyon
Chairman, Operating Committee

Lowell B. Moon
Member, Bureau of Mines

Olaf N. Rove
Member, Geological Survey

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

March 8, 1951

Re: Docket No. DMA-269

Mr. A. B. Bowman, Superintendent
Banner Mining Company
2042 Conner Stravenue
Tucson, Arizona

Dear Mr. Bowman:

Your application for assistance under the Defense Production Act of 1950 on behalf of the Mineral Hill and Twin Buttes mine will be considered as an exploration project. As you know the plan for assistance on exploration projects is to be announced soon.

In accordance with your discussion with us on March 2, we are requesting an investigation by the Defense Minerals Administration Field Team of Region IV. You may expect to hear from Mr. J. H. East, Jr., Executive Officer of the Field Team, with reference to the matter.

Very truly yours,

Tom Lyon, Director
Supply Division

DMA-269

BANNER MINING COMPANY

POST OFFICE BOX-X

LORDSBURG, NEW MEXICO

ADDRESS REPLY TO
ALLAN B. BOWMAN
SUPERINTENDENT
LORDSBURG MINES
BOX-X LORDSBURG, N. M.

December 12, 1950

HOME OFFICE
1910 FIRST NAT'L BLDG.
OKLAHOMA CITY, OKLA.

Mr. J. H. East Jr.
Regional Director, Bureau of Mines,
Region IV,
224 New Customhouse,
Denver 2,
Colorado.

INTERNAL INSPECTIONS
OFFICE
DEC 1 1950

Dear Sir:-

Enclosed please find our applications for two reopening, Development, and Exploration Projects at (1) the Mineral Hill and Plumed Knight Mines and (2) the Copper Glance, Copper Queen, and Copper King Groups of Mines at Twin Buttes together with supporting data and reports. All of these mines are located in the Pima Mining District between 16 and 25 miles Southwest of Tucson, Arizona.

It is expected that the reopening of these mines will bring into production, within 1½ years after work commences, enough ores, with grades from 2½% to 6% copper, to operate a 300 ton flotation mill in the district for many years.

It is our plan to commence reopening of these mines at once and then proceed with the development and exploration work as outlined for each property. If this work proves the necessary ore reserves, and all present available information on past development and production together with present ore reserves and possible ore reserves bears this out, we then would expect to build the 300 ton flotation mill to handle the ores from both groups of mines. The mill would probably be built on the Mineral Hill property as its ores are lower in grade and more abundant than those in the Twin Buttes Area. Also another determining factor would be the nearness to a good source of power 3/4 of a mile away. Another factor is the fact that the Mineral Hill Mine makes enough water to operate the mill.

It is almost certain that we can begin some production from both projects after the respective mines have been unwatered to the 4th. level. These ores may be shipped direct to a smelter at El Paso, Texas or Miami, Arizona. The Eagle Picher mill at Sahuarita, Arizona is willing to take some of this production. These outlets are available for initial production providing we can get a guarantee on copper price to afford us a profit.

The American Smelting and Refining Company, who has smelted ores from both these groups of mines, has given us a preliminary basic rate of $1.75 per dry ton for ores whose value is $15.00 or lower. The rate then increases at the rate of 15% of the ore value over $15.00.

It is intended to take some experienced men from our Lordsburg operation under the following departments to form a nucleus for the new organization at these mines:- (1) Management, (2) Mining, (3) Engineering, (4) Shops. As far as labor and miners are concerned we understand that there is generally a good supply as the climate and living conditions are ideal.

One general office will serve both groups of mines. This is also true for our shops and Engineering staff and will save considerable expense by avoiding duplication of effort. At the outset our Lordsburg shops and personnel will be available in readying various items of equipment for use at the Arizona Properties.

We have enough extra equipment at our Lordsburg Operation to almost completely outfit the Mineral Hill property for the first phase of the re-opening and unwatering of the mine and also to prepare it for production as is outlined in the application. The two hoists we plan to install on the Mineral Hill shafts will be large enough for the production phase of this mine. We also have the pumps to unwater the mine and a station pump to install to hold the water thereafter. .

The Mineral Hill ores are for the most part of milling grade and would need the help of a subsidy under present inflationary costs to make ends meet. It has been estimated that 500,000 tons of ore assaying better than 3% copper have been partially blocked in this mine with only a small portion of the mine developed at present. Production from the Mineral Hill Mine totals 46,631 tons of ore which will average 3.80% copper and 0.77 ounces of silver per ton. The net smelter returns on this ore after deducting freight and smelter charges totaled $433,913.26. The gross value of the partially blocked ore in this mine under present prices is estimated at $ 7,000,000.00.

As to the Twin Buttes Operation we have considerable equipment on hand that will aid in the reopening of these mines including 75 H.P. hoist, Power Cable, Signal Cables, Pipe, Track, Mine Timbers, etc., but it will be necessary to purchase some as is listed on the equipment purchase schedule.

The ores from the Twin Buttes Area for the most part average about 6% copper and will be of shipping grade. However, we feel certain that there will be a good deal of milling grade ore besides. The U. S. Bureau of Mines Report states that ores containing 15,000,000 pounds of copper of shipping grade and 9,000,000 pounds of copper in milling grade ore can be obtained from these mines.

The mines of the Twin Buttes area namely: The Copper Glance, Copper Queen, Copper King, Morgan, Minnie, and Copper Bullion have had a gross production of 388,231 tons of ore which averaged 6.17% copper with a total value of $ 9,225,597.30 according to a U. S. Bureau of Mines Report of 1943.

The ores from both mines contain chalcopyrite and bornite in a gangue of massive pyrite and garnet so we do not anticipate any milling troubles which cannot be surmounted.

After these mines are put in shape for production we will ask the government to aid us in the building of the mill. Under present conditions it is estimated that a 300 ton flotation mill will cost at least $600,000.00 to build.

The applications for initial government aid by way of Reopening, Development, and Exploration Projects together with supporting data, maps, and reports are enclosed for your information and it is hoped they will receive your immediate attention. If further information is required we will be glad to cooperate to the fullest extent.

Yours very truly,

Banner Mining Company

By A. B. Bowman
A. B. Bowman,
Superintendent,
Lordsburg Mines.

ABB:fmb

DMA-269

TWIN BUTTES MINES

Pima County, Arizona

Banner Mining Company controls through assignment of Leases and Options the following mines in the Twin Buttes Area of the Pima Mining District about 22 miles South of Tucson, Arizona.

(1) Copper Glance
(2) Copper Queen
(3) Copper King
(4) Morgan
(5) Minnie
(6) Copper Bullion

These mines are about 8 miles Southwest of Sahuarita, Arizona. Sahuarita is a station on the Southern Pacific Railroad between Tucson and Nogales, Arizona. The 450 ton custom mill of the Eagle Picher Company is located at Sahuarita. Power is available from the Tucson Electric Company line about 4½ miles from the mines.

Production up to 1943 from all these mines totaled 338,231 tons of ore which averaged 6.17% copper and about 2 ounces of silver per ton. The total value of this production was $ 9,225,597.30. This production was taken from the U. S. Bureau of Mines report of 1943. The Copper Queen, Copper Glance, and Minnie Mines produced about two thirds of this total. These three mines together with the Copper King are the ones we are mainly interested at the present time.

In general the ore deposits form as replacements in the contact zone between the limestone and underlying granite and are referred to as contact metamorphic. The claims controlled by our company cover an area roughly 8000 feet along this contact. The main orebodies found so far seem to be controlled by Northeast faults and fissures at their intersection with the contact between the limestone and granite. There are a number of other spots where these same geologic conditions prevail but have not been thoroughly prospected if at all. (See Geologic report on these mines by Harrison Schmitt, Howard Fields, and U. S. Bureau of Mines report.)

ORE RESERVES

According the the Bureau of Mines Report there are about 30,000 tons of 6% copper ores present in the Copper Glance Mine below and just above the 525 foot level. Ore between 6 and 7% copper is reported in lower levels of the Queen Mine, but no estimate is given as to amount.

In Harrison Schmitt's report he indicates that 1,000,000 tons of ore are geologically probable from structural features, volume of unexplored graound, amount of ore per given block, etc. This only three times as much as was previously mined on the northeast contact.

The most favorable places picked for first exploration and development work at the present time are: (1) the Glance Mine both at depth and eastward on the 525 out underthe heavy garnet surface outcrops. (2) Cross-Cutting and Diamond Drilling the 525 level of the Queen Mine out under the area between the Queen and King Mines. Also to prospect the contact at the intersection with the King fracture. (3) Cross-Cutting and diamond drilling area between the Copper Queen and Copper Glance Mines. The known favorable limestone and marble beds are in continuous contact with the

granite in this area and at least four northeast faults and fissures intersect the contact in this area.

According to Field's report a vertical diamond drill hole was drilled down from the 625 foot level of the Glance Mine to a depth of 500 feet with the bottom of the hole still in limestone. This suggests that we can expect the continuance of the known ore shoots in these mines to at least a depth of another 500 feet.

The grade of most of this ore is high enough to make direct shipments to the smelter as has been done in the past and will pay its own way after development and exploration set up in our program has been completed. The completion of this development and exploration program should put these mines in shape for a long period of production.

Attached hereto and made a part hereof is a report on this district by Harrison Schmitt marked Exhibit A. Mr. Schmitt's report includes reports by Howard Fields and one by the U. S. Bureau of Mines made in 1943 as a War Mineral Report. These three reports give a history of the district and a very clear picture of what can be expected in the way of future production by a well directed development and exploration program.

Power is available from the lines of the Tucson Gas & Electric Company about 4½ miles north. Attached hereto and marked Exhibit B, is a cost estimate on bringing power to these mines. We think that electric power is a must for these mines and will pay for itself in a short time. Tucson Electric will install these lines at a figure as shown in Exhibit B to be advanced by user and will give a credit of 50% on each monthly power bill until the line has been fully paid.

The shaft of the Copper Glance Mine is vertical and according to Fields report makes only about 50 gallons of water per minute. We will unwater and repair this shaft as our first work, and at about the same time we will repair and rehabilitate the Copper Queen Shaft. These two mines are connected on the 525 foot level. This work will put us in position to explore the Copper Glance and Copper Queen Mines at depth and laterally and also to get out under the Copper King Mine from the Copper Queen. It will also provide us with two escapeways as provided by law.

Our Company will be operating the Mineral Hill Mine in this district which will allow our engineering and management personnel to take care of both operations.

Exhibit C which is attached hereto lists the equipment we will have to buy to start this project. We have plenty of mine cars, one electric hoist of 75 H.P., electric cable, electric signal cables, pipe, track at our Lordsburg New Mexico Plant to put these two mines in operation. Our Lordsburg shops are also available for repair and maintenance work. Work can be commenced on these properties early in January of 1951 if this project is passed. According to Fields, who saw the Glance Mine down to the 525 foot level during the past war, "There exists on the 400 and 525 levels faces of ore which will mine 4% copper making it possible to begin some production as soon as these levels are unwatered. When these levels were unwatered, I had an opportunity to take a few check samples to confirm this".

Fields in his report also states that he would put the probable ore reserves in the Copper Queen and Copper Glance and Minnie Mines at 157,400 tons of 6.53% copper ores plus a reserve of possible ore in these three mines at 285,466 tons of 6.23% copper ore.

We feel that after power is made available we should be able to unwater the Copper Glance and Copper Queen Mines to the 525 foot levels within three months and some production would be available along with the development and exploration work from this date on. The program as outlined on Exhibit C can be completed within two years, but we can expect a production of about 100 tons of ore per day after the first year which should average between 4 and 6% copper.

The following maps and reports are attached hereto as exhibits:-

Exhibit A - (1) Report by Harrison Schmitt
(2) Report by Howard Fields
(3) Report by U. S. Bureau of Mines.
Exhibit B - Cost Estimate of Installing Electric Power to Copper Queen and Copper Glance Mines.
Exhibit C - Equipment Purchase Schedule.
Exhibit D - Cost of Reopening, Development and Exploration Project exclusive of the costs of installing electric power.
Exhibit E - Longitudinal Section of Copper Queen Mine.
Exhibit F - Cross Section of Copper Queen Mine.
Exhibit G - Plan Map of Copper Queen Mine.
Exhibit H - Plan Map of Copper Glance and Copper Queen Mines.
Exhibit I - Longitudinal Section of Copper Glance Mine.
Exhibit J - Cross Section of Copper Glance Mine.
Exhibit K - Claim Map of Holdings.
Exhibit L - Longitudinal Section of all Mines on Granite-Limestone contact prepared by the U. S. Bureau of Mines

We respectfully make application to the government for a Reopening, Development, and Exploration Program on these three mines to be financed by the government in the amount of $ 194,230.00. This total is made up as follows:-

Cost of Reopening, Development and Exploration Work	$ 123,850.00
Cost of Installing Power	54,500.00
Equipment Purchase Schedule	15,880.00
Total	$ 194,230.00

Banner Mining Company

By A. B. Bowman

A. B. Bowman,
Superintendent,
Lordsburg Mines.

TWIN BUTTES MINING DISTRICT
Pima County, Arizona

Harrison Schmitt
July, 1950

EXHIBIT— A

July 13, 1950

Mr. Allan B. Bowman
Assistant Gen. Manager
Banner Mining Co.
Box 482,
Lordsburg, New Mexico

From: Harrison Schmitt

Subject: Twin Buttes District, Pima County, Arizona.

References: Maps and other data supplied by W. F. Foy; Howard Fields, Report of March 1947 (in Appendix); U.S. Bureau of Mines, Report of Feb. 1943 (in Appendix); U. S. Bureau of Mines Map; Surface map by Dr. E. Wilson, Arizona Bureau of Mines.

Geography

The Twin Buttes District is about eight miles southwest of Sahuarita, Arizona. Sahuarita is a station on the branch of the Southern Pacific R. R. which connects Tucson and Nogales, Arizona. The district is about 25 miles S15W from Tucson. The Sierrita mountains lie about 6 miles to the west. There are good road connections with Sahuarita and Tucson. The closest available electric power is at Sahuarita. There is water in some of the local mine shafts such as the Gladstone and Morgan. The Glance shaft is said to make about 50 GPM. The area is one of low hills favorable for mining operations. The climate is very dry with mild agreeable winters and hot summers.

Mines-Production-Grade

The mines of the northern part of the area and presently of chief interest are, listed from west to east, the Minnie, Copper Butte, King, Queen, Glance and Bullion. The depth in feet to their lowest levels is respectively: Minnie 325, Butte 359, King 330, Queen 670, Glance 626 and Bullion 500.

Of these the Minnie, King, Queen and Glance were the chief producers. Production to 1947 is listed below. The data are from Fields and the US Bureau of Mines reports and basically from W. F. Foy. The Senator Morgan and the Contention mines production is included. These mines are about 1 1/2 miles southwest of the area but are properly part of the district.

Mine	Tons	Grade	Pounds Cu	Value
Bullion	Nil	----	-------	-----
Glance	118,066	6.72% Cu	15,870,493	$ 2,786,126.54*
		(Early production included with Morgan)		
Queen	75,186	7.05%	10,608,048	$ 1,747,852.56*
King	(Included with Morgan)			$ 275,000.00*
Buttes	Nil	----	-------	-------
Minnie	62,477	4.71% Cu	5,865,333	$ 1,339,804.15*
Morgan	132,402	5.92% Cu	15,688,237	$ 2,035,306.57*
	(Includes King and early Queen)			
Total	388,231	6.17% Cu	48,032,111	$ 8,184,089.92* ($ 9,225,597.30)**
Contention	8,000	13-14% Zn* 2% Cu* 1.7% oz.Ag*		

The above information was obtained from the War Minerals Report #47 (U. S. B. of M.), Foy*, and Fields' report**.

The grade is good and makes direct shipping possible under certain conditions. The Minnie, Queen and Glance together produced $5,685,596 gross averaging about 6.0% Cu and 2.0 oz Ag according to Fields.

Geology

A good surface geological map on a scale of 200 ft. to the inch made by Dr. Eldred Wilson of the Arizona Bureau of Mines was available for this report. The underground data on hand are limited to maps of the workings and which

show here and there locations of the granite sedimentary contact. Nevertheless the general and structural geology is fairly clear in a broad way when studied with Wilson's map and the various available reports as a basis. I have visited the district and viewed the surface geology many times but have done no formal mapping.

The part of the district lying from the Minnie shaft to the Bullion shaft is characterized by an elongated block of sedimentary rocks about 7,500 ft. long and 2,500 ft. wide largely or wholly surrounded by an igneous mass classified as granite. The long axis of the block bears about N70W.

Wilson's work shows that the area contains marble, limestones, shales, noviculite and quartzites. One limestone is indicated as Devonian in age. The beds in most of the block dip from 65 to 90 degrees to the northeast but do not appear to be isoclinally folded since beds are not repeated. In the northwest section of the block dips vary from 45 to 80 degrees to the southwest. One end or the other of the block must have been overturned since the beds seem to be the same continous series from northwest to southeast. If the beds on the southwest edge are the older then the northwest part of the block is overturned. The sedimentary rocks obviously have undergone strong dynamic action. The steep dips suggest dynamics of a thrusting nature.

The fact that the block is surrounded by granite suggests that it is a roof pendant. In other words it may make contact with the granite in depth. Fields reports that a vertical diamond drill hole in the Glance mine drilled from the 625 level was in limestone down to 500 ft., the bottom of the hole.

The block is cut by prominent northeast high-angle faults. Dips are not shown on these faults on the copy of Wilson's map so whether they are normal or reversed faults cannot be made out from the map. In some cases the northwest walls have moved northeast, in other cases southwest, They

may be tear faults related to thrustin movements. Some bedding faults and fissures are reported associated with the ore deposits.

At the surface a moderate to strong amount of metamorphism is evident. This appears to be the result of both dynamic and thermal metamorphism. The limestones have been marbleized, the shales converted to hornfels or hornstone and there is prominent quartzite and novaculite. Relatively small areas of green and brown garnet and epidote occur particularly along the north contact with the granite. The known ore deposits have been found along this contact only. The garnet is said to be more prominent with depth. The surface exposures of garnet are not as extensive as is the case of most deposits classified as contact metamorphic (more accurately contact pyrometasomatic).

The many "marker" beds and a fair regularity of the structure will make it possible to develop a much more accurate picture of the structure if sufficient data are collected and integrated.

Ore Deposits

The ore bodies are vein-like to lense-like to pod-like in form and usually are found irregularly in masses of garnet and silicates that lie on the contact between granite and marble. The average thickness of the garnet-ore zone is about 50 ft. It is said that in a given mineable ore body about 50 per cent of the garnet mass is ore above 5% Cu. The barren or lower grade garnet is either sorted out, or avoided in mining. The ore is largely massive pyrite, Chalcopyrite and bornite and in places contains sphalerite. Oxidized ore was mined near the surface. Gangue minerals include garnet, pyroxene, magnetite, calcite, and siderite.

A number of factors seem to have controlled the localization of the ore. Most of the ore, excepting the King fissure and a few other ore bearing fissures, contacts the granite. All of it replaces limestone. All the ore bodies are closely associated with the northeast faults and in cases northwest bedding faults. The northeast faults are the cause of at least some of the "rolls" on the

granite contact discribed by Fields in his report.

The Glance and Queen mineralization replaces a certain bed of marble which lies just northeast of "marker" bed chg of Wilson's map. This bed appears to be about 200 ft. thick. The Copper Butte and Minnie mineralization occurs in a bed or beds that are lower (?) in the section. The Bullion fissure is along bedding of limestone higher (?) in the section. Both the Queen and Glance ore bodies pitch southeast. They appear to be following the intersection of limestone or marble bedding with the granite contact where the area is cut by northeast and bedding plane faults.

It is usually a mistake to assume that any one factor or combination of factors exclusively controls the localization of a given set of ore bodies. As a rule thinking in this matter is too narrow. With many miners it is almost a fetish to explore a "contact" thus neglecting ground which may become later productive. Nevertheless, it would seem that the stretch of contact between the Queen and Glance ore bodies and extending to the Bullion fissure has enough associated, known influential structural factors to justify first attention in exploration. The known favorable limestone and marble beds are in continous contact with the granite and four or more northeast faults and fissures intersect this contact. Next in importance for exploration attention would be the same northeast contact from the Queen through the King and Copper Butte areas to the Minnie. This section is crossed by a number of northeast faults. Experience has shown that in general if ore bodies are not too deep they usually have some sort of expression at the surface if the surface does not have a post-ore cover or mantle (Schmitt, "Outcrops of Ore Shoots", Ec. Geol. pp 654-673, 1939). The known deeper ore in the area occured below small surface workings from which oxidized ore was mined. Apparently most surface showings of consequence have been explored in depth and in most cases resulted in mines. The

lack of other important unexplored surface showings is on the unfavorable side, but is off-set to a large degree by the fact that about one third of the northeast contact is covered by post-ore mantle rock. The exploration to date along this contact by drilling and minor drifting does not seem to have been adequate, judging by reports available. It is true that we do not have detailed maps of this work. Particularly we do not have accurate data on the diamond drill holes.

Considering the good character and grade of the ore and the large amount of ground between the known ore bodies the district seems to be inadequately prospected. Modern methods of mapping and compilation of data and the laying out of headings and diamond drill holes should have good results.

Just why the district was not reopened and explored in an adquate manner since its active stage during World War I is not clear, though it seems to have been due to certain property difficulties and perhaps also because of the general prejudice against contact metamorphic deposits. There appears to be no factual basis for such a prejudice (Schmitt, "The Contact Pyrometasomatic Aureoles", Pp 607, AIME Tech. Pub 2356, 1948).

Reports by the Bureau of Mines and others inducate a moderately large tonnage of ore in depth in the Glance and Queen mines. The Bureau of Mines (WMR 47) estimated in 1943 that the following ore reserves were present:

Mine	Grade Cu	Grade Zn	Tons	Remarks
Minnie	3.15		?	Grade of last ore shipped
Copper King			?	Zinc and copper ore reported
Copper Queen	6.0		?	Ore reported left in lower levels
Copper Glance	6.0		30,000	Below and just above 525 level.
Contention Mine	2.0	17	15,000	± 8,000 tons mined in the past several years

The above reserves might be called reserves of reasonable certainty. They would normally be placed in the category of probable in an engineering estimate.

The term geologically prospective is one which I have found useful to designate the category of ore which includes that inferred as geologically probable. Such an inference is normally based on: (1) the concentration of ore or ore bodies known to a given volume of ground, i.e., amout of ore per given block, (2) the geological probability for the existance of blocks of ground of similar character and (3) the total volume of such unexplored favorable ground. One's first attention, of course turns to the blocks of favorable unexplored ground on the northeast limestone-granite contact. This contact also is known to exist in depth and to the southwest of the limestone block. On the northeast side it appears to be at least 7500 x 2000 ft. in area. By estimate about one-half of this area has been moderately well explored. (This amounts to about eight 1000 ft. sq. blocks out of about sixteen 1000 ft. sq. blocks.)

The last table gives some indication of the more firmly assured reserves. Since the ore shipped was usually above 5 per cent there is probably milling grade ore remaining in pillars and untouched blocks especially in the Minnie, Glance and Queen mines. Such ore could exceed several hundred thousand tons considering the amount of high-grade previously shipped. Thus the probable ore, plus the lower grade milling ore, plus the geologically prospective ore at the contact on the northeast, on the contact in depth, and on the contact to the southwest justifies an engineering estimate plus a geological guess of tonnage totaling 1,000,000. This is only three times as much as was previously mined on the northeast contact. Most of this tonnage would be in the category of geologically prospective.

Fields has rehabilitated the Glance shaft down to the level. This would

put the 30,000 tons of 6.0% Cu probable ore within fairly easy reach. I think this shaft should by the first to be reopened. The ore is of direct shipping grade and would help support the preliminary exploration work.

Favorable areas for first exploration, in addition to the longer unexplored inter-mine areas along the contact, appear to be: (1) The King fissure in depth and at the contact, (2) The area between the King and Queen ore bodies, (3) The Queen ore shoot in depth, (4) the Glance ore shoot in depth, (5) the Bullion bedding-plane fissure and cross faulting in depth. Detailed mapping and study will doubtless indicate other favorable objectives, including some not on the main contact.

The Twin Buttes district seems to be one of those inadequately explored in the past. For several decades I have been in favor of renewed exploration there and have so expressed myself in several previous written reports and verbal discussions. Of six carefully studied districts in the Southwest selected by me for recommendation for exploration a few years ago I put the Twin Buttes District at the top of the list. Dr.s B. S. Butler of the University of Arizona and Eldred Wilson of the Arizona Bureau of Mines have several times stated their liking for the district.

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Harrison Schmitt

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A P P E N D I X

C O P Y

REPORT

TWIN BUTTES GROUP COPPER MINES

TWIN BUTTES, PIMA COUNTY, ARIZONA

By

Howard H. Fields

March 1947

TWIN BUTTES

LOCATION:

The Twin Buttes Mining District lies in the Sierrita Mountains, about 6 miles west of Sahuarita, a station on the Southern Pacific Railroad, 25 miles south of Tucson, Arizona, toward Nogales. The Tucson-Nogales oiled highway also passes through Sahuarita. A very good graded gravel road connects the camp with Sahuarita, so transportation is most exonomical. The following are the principal mines of the district:

Morgan, Minnie, Copper Buttes, Copper King, Copper Queen, Copper Glance, and Copper Bullion.

CLIMATE:

The climate is typically that of Tucson and southern Arizona - hot days, cool nights, with summer showers. The vegetation is sparse and that of the arid desert section. Water for domestic use and for mine operation is available at the Gladstone Shaft, which is under lease.

LABOR:

Labor is largely Mexican and seems to be abundant in this particular section. The proximity to the border assures a fair supply. The camp has practically all the buildings necessary to begin operation, though the ore bins, etc., will need repairs before commencement of operation.

HISTORY:

The known history of Twin Buttes mining district dates from the nineties, when four prospectors gophered various surface outcrops of copper carbonates, hauling same to Tucson by wagon. This continued up to the year 1905, when a group of men headed by David S. Rose, then Mayor of Milwaukee, formed the Twin Buttes Mining and Smelting Co., which acquired all the Favorable property in the district. They built a standard guage railroad from Tucson to Twin Buttes, 28 miles in length, and began mining operation in 1906, erecting a smelter near the Santa Cruz River, 9 miles from the mines. They operated until the spring of 1913, directing most of their attention on the Morgan Group, as this particular group had the best surface showing.

During these operations the Twin Buttes Mining and Smelting Co. produeed a gross of $3,110,000. Most of this came from the Morgan Mine, the balance from the Copper Glance, Copper Queen and Copper King, the latter group being on a different contact with very little surface showing, and was not worth considering at that time. However, later operations proved this contact to be the richest zone of the district, higher grade ore and larger ore bodies. The gross production from this contact to date is, $6,115,597.30. This, with the old company's production of $3,110,000.00 makes a grand total of $9,225,597.30 for the district.

The contact is known for a distance of 9,000 feet and the recognized "rolls" which have been named for the claims on which they occur, are from east to west - Copper Bullion, Copper Glance, Copper Queen, Copper King, Copper Buttes, and Minnie. The Copper Glance, Copper Queen and Minnie have been developed into good producing mines. The Copper King has produced an estimated $150,000.00 from a small fracture. The Copper Bullion has encountered a strong fracture filled with leached oxidezed ore (not commercial), Neither of these developments has reached the contact so their present interesting showings warrant the expectance of ore bodies on the contact similar to those found in the other three mines.

There is an unprospected "roll" between the Glance and Queen, which could be prospected from the drift connecting these two shafts, and which was driven off the contact for permanence. Also, there are several other areas where "rolls" can be expected, as between the King, Buttes and Minnie.

The outcrops of contact garnet, or ore, are so inconspicuous as to have been practically non-existant. The small mineralized fracture on the surface at the King is the best. In the Queen and Glance the surface showed a very small fracture filled with oxidized copper ore but no commercial ore bodies were encountered until a depth of 300 feet was reached. However, from this point the ore has been practically continuous to their present bottoms, which are in ore.

In general, five "rolls" have been found in the 9,000 feet of known contact, leaving a good chance for a similar number to be found by intelligent prospecting.

The ore found to date is almost entirely a massive pyrite containing bornite and chalcopyrite, there being almost no oxidized ore in any of the mines. These ore minerals are found in the garnet in irregular shaped ore bodies typical of replacement deposits. There has been no sign of diminution in intensity of mineralization or grade to the present depth.

MINE WORKINGS:

Copper Bullion:

This shaft is in solid limestone and is open all the way. It contains little seepage water and has no surface improvements at present.

Copper Glance:

The shaft has been retimbered to 525 level, which has been unwatered for inspection. The level is in fair shape permitting access to all the stopes. The drift to connect with the Queen is open. The workings below the 525 level are probably all in good shape since they are relatively new. The headframe has been put in good shape and the shaft is operated by a 15 H.P. gasoline hoist.

On the 400 and 525 levels there exists ore faces which will mine 4% copper, making it possible to begin production at once. When we unwatered

these levels, I had an opportunity to take a few check samples to confirm this.

Copper Queen:

The shaft has caved around the collar for a depth of 3-4 sets, requiring reopening ventilation in the Glance and Queen mines through the 525 drift, which is the 7th. level of the Queen. Unwatering the Glance, takes the Queen water to the 7th level, but supplementary equipment is needed in each case to unwater the bottom of the mine. It is confidently expected the Queen mine will prove similar to the Glance in that fairly recent timbering, which has been under water, will be in such shape it will not have to be replaced. The Queen has a headframe, hoist house and 50 HP hoist.

Copper King:

The shaft has been re-laddered and the timbering repaired. It has no surface improvements. The rehabilitation to the 200 level was for the purpose of preparing for diamond drilling to the contact.

ORE RESERVES:

The calculation of ore reserves in lime replacement bodies is a difficult matter, but the following is good practice and details the manner in which the Copper Glance reserves are estimated.

The ore occurs in connected lenses in a large mass of garnet, which occurs along the contact of the granite and overlying limestones. Using the known tonnage mined above the 525 level and below the 300 level from the garnet area there, we find a block 100 feet by 200 feet extending from the 300 to the 525, an incline distance of 270 feet. This block contains 5,400,000 cu. ft. of garnet or 540,000 tons of garnet zone, which actually has produced 118,066 tons of ore averaging 6.72% copper.

From the 525 level to the bottom of the 626 winze, which is still in ore, using the same manner of calculation, we are justified in expecting 400,000 tons of garnet ore zone which could produce 87,400 tons of ore at similar grade. The partial development of these lower levels does not show any dimunition in size or grade.

An average of all the mine samples taken during the last 40 days operation shows:

525 level workings assayed	6.80% copper
625 level workings assayed	7.70% "
AVERAGE	7.45% "

There is no reason to expect the ore bodies to bottom at the present level as diamond drilling shows the limestones, which are essential to ore formation, continue at least 500 feet deeper.

This diamond drill hole was drilled from the 625 level so there is 400 feet of limestone below the 700 level. The 400 feet of limestone from the 300 to the 700 level produced 118,066 tons and is estimated to contain 87,400 tons ore, a total of 205,466 tons. It is possible the succeeding 400 feet will contain a similar amount of similar grade.

Copper Queen:

The Queen has been mined to a greater depth than the Glance, but an estimate using similar reasoning shows approximately 40,000 tons reasonably expected, and a possible additional 50,000 tons averaging 6.50% copper.

Copper Bullion:

Copper King:

These two areas have just as good a chance of developing substantial ore bodies as the Glance and Queen had, and of similar grade. It is remarkable that the three mines on this contact that were developed to the contact in the favorable "roll" area, all proved very profitable, and adds to the possibility of that two unknown areas may also develop similarly. In addition to these, there are other likely "roll" areas between the Glance and the Queen, and the King and the Minnie.

	Production		Probable Ore		Possible Ore	
	Tons	%Cu	Tons	%Cu	Tons	%Cu
Copper Glance	118,066	6.72	87,400	7.45	205,466	6.00
Copper Queen	75,086	7.03	40,000	7.00	50,000	6.50
Minnie	62,477	4.71	30,000	3.25	30,000	4.00
	255,629	6.35	157,400	6.53	285,466	6.23

In the unprospected "rolls", Copper King and Copper Bullion, it is possible they will each contain a somewhat similar tonnage to the average of the three, which is 232,830 tons, averaging 6.35% copper.

There is a good"roll" between the Glance and Queen mines, which can be prospected from the 525 level of the Glance, and it also could develop a similar tonnage and grade like that estimated in the Copper King and Copper Bullion.

The property has an entirely possible chance of producing four or five times the quantity in the future that it has produced in the past.

COST OF PRODUCTION:

Since the Copper Queen mine was unwatered, rehabilitated, and put into production in 1919, under circumstances existing today in a similar way, costs and outcome could be very much alike. Mr. Foy started with a capital of $21,000.00, copper price averaged 13.83¢, shafts were caved and mine full of water. The net profits for 1923-1926 were $412,216.00 on 59,952 tons.

The detailed costs at that time were as follows:- (1923-1926)

Direct	Per Ton	Indirect	Per Ton
Labor	$ 1.686	Prospect Outside Mines	$ .688
Labor Ins.	.083	General	.062
Power	.097	Repairs Renewals	.112
Explosives	.179	Taxes - St. & Co.	.218
Smelter Represent.	.058	Taxes - Federal	.476
Pumping	.076		
Timber	.022		
Total Direct	$2.372	Total Indirect	$ 1.556

Total all costs $ 3.928

Future costs of mining will not include "prospect outside mines", but labor will be higher, so a cost of $4.00 per ton is estimated.

Cost of Smelting - Transportation and Outcome:

Assuming the first production would come from the Copper Glance mine, and using an approximation of the average assays of the last 58 railroad cars 3,154.3 tons, namely, copper 6.0%, silver 2.0 oz, the following figures will show the outcome:

The price of copper is considered basically at 12¢. I have two premiums "A" of 5¢ and "B" of 7¢, but will only consider "A", as the extension of "B" after July 1st. is problematical. If the "A" premium is not extended, the ceiling price of copper will be raised, so the net should be about the same.

Pay		
Silver 2.0 oz less 0.5 oz at 70¢		$ 1.05
Copper 6.0% 120# less 12# 108% at 12¢ less 216¢		10.15
		$11.20
Deduct		
Hayden Smelting	$ 2.50	
RR Frt. plus 5% H_2O	1.50	4.00
		$ 7.20
Royalty 10%	.72	
Trucking	.80	
Mining	4.00	5.52
		$ 1.68
Premium "A" 97% of 120# at 5¢		5.82
Net Profit per ton		$ 7.50

The R.F.C. loan must be paid as it is an obligation of the lease, but the local officers assure me that 5% royalty per ton is about what may be expected, as a basis for reimbursement.

FUTURE OPERATIONS:

To reopen this group of mines, several plans may be followed:

1. A diamond drilling campaign from the surface and shallow open workings to prospect the possible ore areas.

Copper King	3,	200-ft holes
Copper Bullion	3,	200-ft holes

Deeper drilling to prove vertical extensions of known ore bodies.

Copper Glance	2,	1,000-ft. holes
Copper Queen	2,	1,000-ft. holes

If this program proved successful, then the reopening of the mine would follow and be guided by the information gaind from such drilling.

II. Commence reopening the Glance mine, followed by the Queen reopening, with subsequent or simultaneous diamond drilling. With the equipment installed, the shaft practically repaired, headframes repaired, and the small amount of water remaining in mine, the reopening of the Glance seems logical.

Shipments could begin within 90 days after work commences and should furnish the funds for reopening the Queen and do the drilling necessary to develop the new possible shoots.

The estimated cost of getting into production and amount of operating capital needed, is:

Hoist	Move 50 Hp Diesel Hoist Queen Mine to Glance Extend building foundations, small repairs	$ 750.00
Shaft	Repair, tighten guides and sets ladders to 625 /.....	500.00
Levels	Cleanup 525,625. Repair, install track	1,000.00
	Ore Bin Repair	250.00
	Unwater 500, 625 levels, 625 winze with Cameron Pump	1,000.00
Air Receiver	Install	75.00
Equipment:		
	3 Jackhammer type drills, hose, tanks, 1 cradle, 1 stoper, hose tank line oilers	1,200.00
	4000# drill steel (use Contention sharpener....	750.00
	2500 ft. 12# rail and spikes (5 Ton)	300.00
	10 Mine cars (used)	1,000.00
	2500 ft. 2" Pipe - 21¢	525.00
	2500 ft. 1/2" pipe - 15¢	375.00
	1000, "1" pipe - 12¢	120.00

Estimate cost, etc. .....

Equipment (cont'd)

Fittings, valves, etc.....	$ 250.00
Air Hoist - 625 Winze	500.00
Air Pump - " "	250.00
Shovels, picks, wrenches, misc. tools	250.00
	$ 9,095.00
Reopening Queen Shaft for ventilation	1,350.00
Carload miscellaneous timber (repairs and operation)	1,450.00
30 Day payroll - 1,000 tons	4,000.00
Pickup Truck	1,000.00
TOTAL	$ 16,895.00

In order to meet any undorseen contigencies, a fund of $25,000.00 should be available.

All the maps and records were furnished by Mr. W. F. Foy, who was the manager under the last operations. When I was ore purchasing agent for the American Smelting and Refining Company, I bought the copper Queen prodruction from Mr. Foy during 1923-1926. I saw his operations and was so very favorably impressed that I have confidence in all this data. The evidence disclosed in unwatering to date has confirmed his statements.

Considering the history of production and profits from these mines, and reviewing the maps and considering Mr. Foy's statements concerning the ore in the Glance mine available for immediate production, it is entirely probable that more than enough ore can be easily and quickly produced to repay the capital investment, a drilling and development campaign, and furnish profits soon after production begins.

With intelligent management, the purchase price of the mines can be accomplished through royalty payments, ore can be developed for the future, and along time mining operation of fair size can be developed.

(Signed) Howard H. Fields
Howard H. Fields
March 21, 1947.

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WAR MINERAL REPORT

United States Department of the Interior - Bureau of Mines

W.M.R. 47 - Copper, Zinc February 1943

TWIN BUTTES CAMP
Pima County, Arizona

SUMMARY

The mines of the Twin Buttes Camp are at contacts of intrusive granite with older sediments, largely limestone. The ores are principally the contact metamorphic type and are localized in the hanging wall sediments at the junction of small fissure veins with the granite contact. No important ore bodies were exposed at the surface, but were discovered by sinking on the fissure veins to the contact zone. Masses of garnetized rock in the contact zone also serve as possible indicators of underlying ore bodies.

Five mines in the area,- Minnie, Copper King, Copper Queen, Copper Glance, and Senator Morgan - have yielded 388,000 tons of ore averaging 6.17 percent copper and a small tonnage of high grade oxidized zinc ore. Developed reserves in two of these mines amount to 30,000 tons of 6 percent copper ore. The Contention mine, on another segment of the granite contact, has 15,000 tons of developed zinc-copper ore averaging 17 percent zinc and 2 percent copper. Ore development is in progress at this mine, financed by a $20,000 Reconstruction Finance Corporation loan.

All of the copper mines except the Senator Morgan lie along an 8,000 foot east-west segment of the granite-sedimentary contact. Two other shafts, which yielded no production, were sunk on this contact, so that some 6,300 feet of the contact zone is accessible for underground exploration. Geologic conditions favorable to ore deposition are found along some 2,500 linear feet of unexplored portions of this contact zone.

All of these mines are controlled by the owner and operator of the Copper Queen and Contention mines, who holds the other mines under lease. Financing has been arranged for extracting shipping ore now exposed on the lower levels of the Copper Queen and Copper Glance mines and for continued development and mining. Preliminary rehabilitation if under way. Four of the shafts have been made accessible, and the lower levels of the Copper Queen and Copper Glance, now under water, will be unwatered soon.

Mining cost of shipping ore is estimated at $5.00 per ton. Ore of lower grade than 5 percent copper will yield little profit when shipped to the smelter.

The Bureau of Mines has begun an exploration program in which it is planning to include (1) mapping and geologic study, both at outcrop and underground; (2) sampling of underground workings and diamond drill testing of parts of the Twin Buttes contact zone for extensions of known ore bodies and search for new ones: and (3) sampling the Contention mine and diamond

drilling to prove extensions of that ore body. About 4,000 feet of diamond drilling and 500 feet of underground drifting will be needed. The total cost of the project is estimated at $45,000.00. This program has a dual purpose- first, to disclose additional reserves of shipping ore, and second, to estimate the tonnage of milling grade ore and if the available tonnage of the latter is sufficient to justify the erection of a mill, to make metallurgical tests and proposals for a custom mill in this camp.

This program offers and opportunity to disclose ore bodies that should yield copper ore and zinc-copper ore of shipping grade. The expectation is 25,000,000 pounds of copper to be produced from 1943 to 1947 inclusive.

INTRODUCTION

The Twin Buttes Camp embraces eight mines that lie along a contact of granite with Paleozoic limestones and quartzite. Five of these have been producers: another is in active development and has some Zinc-copper ore blocked out. There is known reserve for some copper ore in two of the old producers.

In June, 1942, when a Bureal of Mines engineer investigated these mines, only one of them was accessible. Maps of the others are available, as well as records and smelter settlements covering the greater part of the copper produced from the camp, and a geological report on the Twin Buttes district by Ronald L. Brown in the Univ. of Ariz. library. The present operator, who has been connected with these mines since 1916, supplied much information.

The Senator Morgan group, under lease to Charles Taylor of Tucson, Arizona, is owned by the Twin Buttes Mining and Smelting Co. of Milwaukee Wisconsin, which also owns the Copper Glance, Copper Buttes, Copper Bullion, and Copper King mines. These are leased to William Foy, of Twin Buttes, until 1948.

The Midland Copper Co., now defunct, owned the Copper Queen mine. William Foy, a former shareholder in that company, has been paying taxes on the mine for several years.

The Ariz. Buttes (Minnie) group of claims and the contention group, all unpatented, are held by William Foy.

The Taurus claim (unpatented) is held by G.Gavin, Box 13, Ruby Star Route, Tucson, Arizona.

Work has been started at the Copper Glance to rehabilitate the shaft and unwater the mine and the Copper Queen, which is connected the Copper Glance in the seventh level. William Foy has unwatered the Contention mine and is doing development work there.

HISTORY

The first locations are said to have been made in 1876. Little mining was done before 1904, when D. S. Rose, of Milwaukee, organized the Twin Buttes Mining and Smelting Co., and acquire the more promising claims in the area,

except the Minnie Group. This company built 28 miles of standard gage railroad from Twin Buttes to Tucson and erected a smelter on the Santa Cruz river. It operated from 1906 to 1913, but was not highly successful. It produced 132,500 tons of ore averaging 5.92 percent copper, mainly from the Morgan mine, but some of it from the Copper Glance and Copper King mines.

Ed Bush leased the Morgan mine in 1913 and produced a few carloads of low grade ore. He relinquished that lease in 1914 and took a lease and purchase option on the Minnie mine, which he developed and operated from 1914 to 1917.

Ed Bush and associates organized the Midland Copper Co. in 1917 and took the Copper Glance and Copper Queen mines under lease and purchase option. The Copper Queen was paid for out of royalties. The lease on the Copper Glance was surrendered in 1918, and the mine has since lain idle. It has produced 118,066 tons of ore, averageing 6.72 percent copper. Bush died in 1920. The company reopened the Copper Queen mine in 1922 under the management of William Foy, and shipped ore from 1923 to 1926. The Copper Queen produced 75,186 tons of 7.05 percent copper ore from 1917 to 1926. William Foy produced a little ore from the Minnie mine in 1928.

Total production from the camp has amounted to 388,231 tons averaging 6.17 percent copper, contributed as follows:-

Mine	Dry Tons	Copper, percent	Copper Content, pounds
Senator Morgan[1]	132,502	5.92	15,688,237
Copper Glance	118,066	6.72	15,870,493
Copper Queen	75,186	7.05	10,608,048
Minnie	62,477	4.71	5,865,333
	388,231	6.17	48,032,111

[1]Production credited to the Senator Morgan mine includes all of the ore produced from the Copper King and the early production from the Copper Glance.

PHYSICAL FEATURES

The Twin Buttes Camp, in the Pima Mining District, is 28 miles south of Tucson on the Tucson-Continental County road. It is 6 miles south of Mineral Hill. Almost half of the road is paved and the remainder is well graded. A graded road 9 miles long connects the camp with Sahuarita, on the Nogales branch of the Southern Pacific Railraod and on paved U. S. Highway89.

Topographic relief is not great. The altitude is about 3,400 feet, wherefore temperatures are somewhat lower than at Tucson.

Potable water is obtainable from three old prospect shafts in the area, but the nearest supply is rather scant in dry weather. Mine water is used for other than camp purposes.

Although labor is not abundant, a few experienced men are available, and some ordinary laborers can be obtained.

GEOLOGY

The ore deposits of the camp, as indicated by past development, are mainly the contact-metamorphic type and are at or near the contacts of intrusive granite with Paleozoic limestones and quartzites. The ore shoots lie in metamorphosed sediments adjacent to a zone of garnet rock that separates the ore from the footwall granite.

The principal group of copper mines lies along the north side of a sedimentary ridge that may be completely surrounded by granite. The greater part of the contact is masked by alluvium. The claims lie end to end, with their side lines roughly parallel to a nearly east-west segment of the granite-sedimentary contact, which is about 8,000 feet long (fig.1). From west to east the mines are Minnie (Arizona Buttes), Copper Buttes, Copper King, Copper Queen, Copper Glance, and Copper Bullion. The contact is approximately defined by outcrops toward the west but is masked by a thick mantle of alluvium toward the east. The dip of the contact is south. Some transverse faulting has been noted along this segment of the contact.

The Contention zinc-copper ore body on the North Star Claim about 3,500 feet south of the Minnie Mine, is on the granite sedimentary contact at the northeast side of another block of sediments. The intervening contact line between the mine and the Twin Buttes group is several miles long, within which interval the granite presents many phases, grading from true granite to diorite. Quartz segregations and lamprophric dikes also occur.

The old Senator Morgan mine, adjoining the Contention at the southeast, if near a faulted segment of the same granite-limestone contact that trends northwesterly. Several faults are noted in this general area.

ORE DEPOSITS

The Copper Bullion, Copper Glance, Copper Queen, Copper King, and Minnie form a geologic unit. Mining on the Glance, Queen, and Minnie has shown that these are contact-metamofphic deposits. Chalcopyrite, together with a little bornite, is the principal copper mineral, although copper carbonates and native copper are found. The gangue consists of garnet, epidotized limestone, and some specular hematite. The three mines have the following characteristics:

(1. Initial work was on small fissure veins containing copper carbonate ore.

2. The veins led to contact metamorphic deposits of economic importance.

3. The contact metamorphic ore bodies did not outdrop.

4. The ore shoot developed, in each instance, has an easterly rake and consists of connected, irregularly shaped ore bodies within the contact zone. The shoots are lenticular in general outline, have an average thickness of 30-80 feet, and are about half replaced by copper ore above 5 percent grade.

5. At the surface and in the vicinity of the upward projection of the ore bodies, is a zone of garnetization, containing minor amounts of copper carbonates.

6. Progressively from west to east, the contact metamorphic bodies occur at greater depth below the surface.

7. The depth of these bodies is a function of the horizontal distance between the granite contact and the fissure vein appearing over each body.

8. The importance of the underlying ore body appears to be reflected in the strength of garnetization, where the limestones are of equal amenability to contact metamorphism.

The water table is about 425 feet below the collar of the Copper Glance shaft. That mine makes 50 gallons of water a minute at the 625 foot horizon.

DESCRIPTION OF MINES

Minnie (Arizona Buttes) - This was the first of the group to be explored. Most of the fissure vein over the ore shoot has been eroded, so that strong mineralization was evident at the surface. The ore shoot lies between limestone and a footwall wedge of quartzite. The thin edge of the wedge being towards the east. This was passed in drifting east on the 325 foot level where granite was encountered on the footwall of the mineralized zone. The copper content there fell below 3 percent. Mineralization appears to have been localized by transverse fractures that pass from the granite through the quartzite into the limestone hanging wall. The quartzite is partly mineralized adjacent to these fractures and yielded some ore.

The ore shoot, as developed, is about 500' along its pitching axis, roughly oval in cross section and about 70' wide. Total production has amounted to 62,477 tons with average grade of 4.71% copper. The ore diminished in grade on the lowest level; 5,100 tons mined there in 1929 averaged 3.15 percent copper. Ore of similar grade remains in the mine, according downward. Future exploration in this mine had best be directed eastward along the granite limestone contact toward the Copper Buttes shaft about 1,400 feet away. The 325' level was driven 375' east on this contact without encountering shipping ore. This exploration is not recommended at present.

Copper Buttes - There is a moderate development of banded garnetization between the Minnie and the Buttes shaft. A small mineralized fissure vein outcrops at the Buttes Shaft, which was sunk on this vein at an inclination of about 60 degrees southerly. The shaft entered the footwall granite at 100' and was continued in granite to 300' on the slope. Crosscuts were driven to the hanging wall limestone at the 200 and 300' levels. Drifting along the contact on these levels aggregates about 225'. The contact, where exposed underground, has a leached zone with some mineralization that averages

about 5' in width. This zone contains some chalcopyrite in garnet rock, but the material is below commercial grade. Exploration, if undertaken, should be directed westward along the contact toward the Minnie; that is, not contemplated as part of the Bureau's present work.

Copper King - The King shaft was started early in the century on a fissure vein containing copper carbonate. The shaft was last used in 1913 and is reported to be 300 feet deep. The vein is in limestone and dips steeply toward the south. It is exposed for a length of 250 feet at the surface, where it pinches and swells along the strike; underground openings show the same variation in width down the dip. Average width is about 5 feet. Leasers are now mining at the surface working westward toward the granite contact which is masked with alluvium.

Mine records show that oxidized zinc ore was found in the foot wall limestone a short distance north of the vein. Smeltersettlements indicate that 2,183 tons of ore carrying 27 to 34 percent zinc was shipped to Kansas and Colorado smelters.

There is a moderate development of garnet in the hanging wall limestone over the King fracture. Eastwardly the surface trace of the fracture fades out into a heavy body of garnet rock overlying the Queen stopes. Although the King fissure is well within the hanging wall (perhaps 300 feet), relative to the Queen shaft, it is not unlikely that it connects with the Queen ore body. The intervening block of ground, about 400 feet measured along the rake of the Queen ore shoot, will be explored through stoping in the two mines.

The block of ground below the King workings is considered a promising potential source of copper ore and possibly of zinc ore, also. An ore shoot should be found at the junction of the King fissure with the granite contact, assuming that ore deposition here followed the pattern exposed by development at the Minnie Mine to the west and at the Queen and Glance mines immediately to the east. The strike and the attitude of the granite foot wall are unknown between the Queen mine and the Copper Bute shaft, so that the distance from the lowest level of the King workings to the granite foot wall is unpredictable.

Copper Queen - The first work at the Queen mine was on a small fracture filling of copper carbonate ore, as at the Minnie, King, and Glance mines. A shaft was sunk on the fracture about 100 feet, almost vertically. In view of geologic conditions already proved at the Minnie and Glance mines, this shaft was abandoned and another one was started, inclined 72 degrees south. This second shaft intersected the hanging wall limestone and encountered the metamorphic ore body at 440 feet inclined depth, and has been sunk to 740 feet. Ore was stoped from above the 440 down to the 700 foot level. The ore body is said to diminish in thickness and grade in the backs of the stopes above the 440 foot level. Complete assay records of this last work indicate that the grade of ore is about the same as that of the ore mined above. Selective mining is necessary, as at the Glance and Minnie mines. About half the material in the ore shoot is shipping ore of 6 percent grade.

The shaft cut the granite contact at an inclindd depth of 570 feet; on the 700 foot level it is 70 feet in the foot wall granite. A wall of granite was encountered 175 feet west of the shaft on the 700 foot level. The calculated dip of the contact between these points is 45 degrees south. Ore was mined from the reentrant angle, and the granite was followed 60 feet toward the hanging wall without finding its contact with the limestone. There is low grade mineralization along this crosscut. A similar granite projection wasfound east of the Queen stopes on the 650 foot level about 300 feet east of the shaft. Here it is clearly the result of transverse shearing. The ore continued well back into the foot wall granite. Neither of these projections was found on the higher levels. If they continue downward, they may form the western and eastern limits of the Queen ore body. They are 500 feet apart where observed, but it is reported that they incline slightly toward each other downward. The major ore shoot has a width of about 200 feet, although some ore has been mined along the entire strike, length of 500 feet.

The Copper Queen could be explored at both upper and lower ends of the developed part of the ore zone. The upper and westerly projection would be difficult and costly to reach by diamond drilling. Continuation to depth could be proved only by sinking on the ore body or crosscutting into the hanging wall and diamond drilling.

The Copper Queen has produced 75,186 tons of ore containing 7.05 per cent copper and about 2 oz. silver per ton.

Copper Glance - The first work at the Copper Glance was an inclined shaft on a small fissure in limestone that strikes N. 60 degrees W. and dips steeply south. Two ore shoots were found on opposite sides of the shaft, about 100 feet apart, on the 150 foot level. This first shaft was abandoned, and a vertical shaft was sunk, directed at the western ore shoot. This shaft entered the contact zone between granite and limestone at 330 feet. Two lobes of ore were developed, which join on the 400 level and connect with the eastern ore body found on the 150 foot level in the fissure vein. The ore in the contact zone was developed easterly and downward to a vertical depth of 550 feet.

The shaft intersected the granite contact at 380 feet and was sunk in the foot wall granite to 625 feet, where the crosscut to the ore zone is 150 feet long. Two winzes were sunk in ore on the 625 foot level. The ore is similar in grade to that mined at higher levels. The ore shoot rakes to the east. It has been developed for a length of 400 feet; it is about 200 feet wide and 60 feet thick. About half of the shoot is ore.

A west drift on the 525 foot level connects with workings of the Queen mine. This drift was carried along the granite foot wall for 365 feet from the Glance workings, and thence, due to the undulating contact surface, in the limestone hanging wall for the final 1,000 feet.

Above the 450 foot level, the Glance Stopes are almost entirely west of the shaft, but the ore body lies directly in front of the shaft on the 625 foot level.

Drifts were carried about 275 feet east of the shaft in the contact zone on the 450 foot and 525 foot levels. No profitable ore was found in these drifts nor in short crosscuts driven north and south from them.

Considerable diamond drilling has been done from underground stations in both the Glance and the Queen mines. These holes were all directed into the hanging wall at various angles, but so far as known, none was directed toward the granite contact.

Copper Bullion - A vertical shaft on the Copper Bullion claim was sunk 500 feet to explore a strong vein in the cherty Cambrian limestone known as the Abrigo formation. The vein has an average width of 18 feet, dips steeply northward, and strikes N 60 degrees W in conformity with the bedding of the formation. The cherty country rock suffered little alteration, but there is some garnetization in the fissure filling. The shaft is in the vein to a depth of 50 feet and in the hard, cherty limestone footwall below the depth. Crosscuts were driven to the vein at the 100, 200 and 300 foot levels, and raises were carried up in the vein from these crosscuts. A 100 foot winze was sunk in the vein on the 300 foot level. A crosscut was started toward the vein on the 500 foot level but was not finished. A diamond drill hole 380 feet deep and almost horizontal was directed northeasterly and did not reach the granite contact.

The Copper Bullion vein filling is largely iron oxide, garnet, and partly garnetized limestone, with streaks of copper sulfide and oxide. A little shipping ore was mined from the upper part of the vein. The Copper Bullion fissure appears to be on the projected strike of the Copper Glance fissure but in a different type of limestone. The horizontal distance between the shafts is about 1,300 feet. No ore exposures were observed except minor occurrences of copper carbonates in garnet near the Glance shaft.

The granite contact north of the Copper Bullion shaft is marked by a heavy mantle of alluvium. The probable line of junction between the vein and the contact is indeterminate but is certainly at considerable depth. There appears to be ample room here for a deep deposit of copper ore.

Contention Mine - An exceptionally strong development of dark garnet rock occurs at the Contention mine. Thin beds of unreplaced limestone remain in the garnet zone, which is nearly 100 feet wide. The zone is separated from the granite here and there by unreplaced limestone and at some places by a thin bed of quartzite. The contact zone is irregular and is interrupted by faulting.

There is one vertical shaft 221 feet deep. A crosscut on the 150 foot level was driven southwesterly and encountered a thin vein at 100 feet from the shaft. This was drifted upon to the south for a distance of 157 feet and was crosscut at two places. Three raises were connected by a sublevel 80 feet above the drift. All of this work is in ore. One raise was continued to 60 feet above the subdrift, where its face is partly in ore. Two winzes were sunk in ore from the 150 foot level. It is reported that a crosscut was driven to the ore on the 210 foot level (under water at date of examination) and that the vein was drifted on, in ore, for 150 feet, southward.

Development is insufficient to determine the structural relationship. The pitching of the ore to the north is probably related to a fault that

outcrops a little north of the shaft. An east-west arroyo probably marks the trace of this fault. Beds on the two sides of the arroyo show almost no horizontal displacement but differ by 35 degrees in strike.

The ore shoot contains masses of irregularly distributed garnet. It has a foot wall slip, below which the beds have not been prospected. A zone of radially bladed actinolite may mark the hanging wall, but this has not been crosscut outward from the ore body. Widths across the ore range from 4 to 22 feet, but the average thickness is not less than 12 feet.

A class B development loan of $20,000.00 has been granted by the R.F.C. to be used to develop ore reserves to the south at a depth of 300 feet.

It is worthwhile noting that this ore body did not outdcop and that there were no proven ore bodies in the immediate vicinity. Ed Bush, following his experience at other mines in the district, sank 150 feet on the garnet zone and the crosscut toward the hanging wall limestone to discover the ore. A similar exploration program on the Gladstone claim, undertaken later, was unsuccessful.

Taurus - This is an unpatented claim of irregular shape adjoining the North Star (Contention) claim on the southeast. The heavily garnetized contact zone on the North Star claim continues southeasterly across the Taurus claim but pinches out near the southeast end line of that claim. On the Taurus, about 800 feet southeast of the Contention shaft, measured along the contact (500 feet southeast of the nearest proposed diamond drill hole) is an outcrop containing copper carbonates enclosed in the garnetized and epidotized limestone. This copper streak is about one foot wide. There is no development except a few test pits.

ORE RESERVES

Minnie Mine - Records and assay maps indicate that the developed ore shoot in the Minnie mine may be nearly exhausted. Both grade and thickness of the ore is diminishing at the edges of the stoped areas. The last ore shipped averaged 3.15 percent copper, which is not shipping grade at this time. No reserves are credited to this mine.

Copper King Mine - Ore probably remains in the King fracture. Both zinc and copper ores were being shipped from the mine when the Twin Buttes Mining & Smelting Co. suspended operation in 1913. No assay maps are available. The shaft has been cleaned out and retimbered.

Copper Queen Mine - Assay records indicate that ore of the same grade as that mined above (about 6 percent copper) can be mined from the lowest levels. The thickness of the oreshoot diminished within the lowest 100 feet of its depth.

Copper Glance Mine - The Copper Glance ore shoot has been proved on the 525 and 625 foot levels but only partly extracted there. Reserve is estimated at 30,000 tons of 6 percent copper ore, based on past production from higher levels.

Contention Mine - Proved reserve is about 15,000 tons of ore that will average about 17 percent zinc and 2 percent copper.

Total reserves are thus 30,000 tons of 6 percent copper ore and 15,000 tons of zinc-copper ore at 17 percent zinc and 2 percent copper.

MINING COSTS

Mining cost per ton of shipping ore at the Copper Queen mine from 1923 to 1926 were as follows:

Labor	$1.668	
Insurance	.083	
Power and Air	.097	
Explosives	.197	
Smelter representation	.058	
Pumping	.076	
Miscellaneous supplies	.171	
Timber	.022	
		$ 2.372
Prospecting and Development		.688
Overhead:		
General Office expense	.062	
Repairs and renewals	.112	
Taxes, State and Co.	.218	
Taxes, Federal, Inc.	.477	
		.869
Total cost per ton of shipping ore	3.929	
Estimated present cost	5.00	

Smelter returns at the mine, according to American Smelting and Refining Co. schedule, on copper delivered at Hayden, are as follows:-

Cu. 13.85¢ Ag. 70¢

On 4.5 percent copper, 2 oz. per ton silver	$ 5.87
Less royalty 10% of net smelter returns	.59
Net per ton at the mine	$ 5.28
On 5 percent copper, 2 oz. per ton silver	7.48
Less royalty 10 percent of net smelter returns ;;;	
Net per ton at the mine	$ 6.73
On 6 percent copper ore, 2 oz per ton Ag	$ 11.10
Less royalty 10% of net smelter returns	1.10
Net per ton at the mine	$ 9.99

The lease terms under which the mines will be operated are not known, but a royalty of 10 per cent of net smelter returns is a general standard on this grade of ore. According to the above calculations there will be no profit in shipping 4.5 per cent ore, and 5 percent copper will be probably cutoff for shipping ore.

PROPOSED EXPLORATION BY BUREAU OF MINES

The complete program includes the following items, at their estimated costs:

1. Surveying and mapping surface and underground workings and preliminary character sampling /.....	$ 4,000.00
2. Rehabilitation of mine to give access for drilling, mapping, and cutting of underground drill stations	3,000.00
3. Surface trenching	2,000.00
4. Diamond Drilling, including supervision, sampling, and analyses, 4,000 feet at $6.00 per ft.....	24,000.00
5. Driving exploratory headings to favorable areas, 500 feet at 14 dollars a ft.	7,000.00
6. Mine sampling	3,000.00
7. Contingencies	2,000.00
	$ 45,000.00

For the immediate future, work will be limited to item 3, the results of which will largely determine the advisability of further procedure.

Copper King Mine: Objectives are to extend the known ore reserve and determine its grade. Diamond Drilling is proposed to test the Copper King fracture down to the granite contact and also the contact zone. It is proposed to drive a crosscut 100 ft into the hanging wall on the 300 ft level and to cut a diamond drill station at its end. Drill holes totalling 1,310 feet will be directed at different angles to crosscut the vein at intervals down to its junction with the contact andl also to crosscut the contact zone. Some holes will be continued into the footwell of the vein to test the continuity downward of the footwall zinc ore body, from which it is estimated that 1,100,000 lbs of zinc has been shipped in ore.

Copper Queen and Copper Glance: It is proposed to test a 1,000 ft gap of unexplored contact zone between Copper Queen and Copper Glance workings by diamond drilling from stations in the long drift on the 525 ft level of the Glance. The drill holes will be spaced at 100 ft intervals and will be directed northeasterly with 45° downward inclination. The total footage to be drilled is estimated at 1,375 ft.

Copper Glance: The Operator proposes to extend the east drift on the 525 level 250 feet eastward, and to drive along the limestone hanging wall, thus leaving most of the contact zone unexplored. The contact zone contiguous to the proposed drift seems particularly promising because of its proximity to known ore and because it is under a very heavy mass of garnet rock at the surface. The Bureau of Mines proposes to drill five holes from this drift northerly into the granite footwall. The holes will be inclined about 45° downward and will be about 100 feet deep. The total drilling is estimated at 400 feet. This may disclose an ore shoot similar to the Glance ore body.

Copper Bullion: The drilling proposed on this claim is to determine the copper content of an 18-ft vein at and below the 500 ft level. The vein has been exposes near the shaft to the 400 ft level. It is leached and oxidized and has spots of copper mineralization to that depth. The drill will be stationed at the bottom of the shaft. If the test holes find profitable ore, divergent holes will be drilled to explore the ore body along the strike as far as is practicable from one station. The proposal calls for 340 ft of initial and 845 feet of supplementary drilling. This work may disclose an ore body extending to considerable depth.

Contention: The proposed drilling is directed toward proving the continuation of this ore body in depth and along the strike. It will also test the zone between the footwall of the proved ore body and the granite contact. About 1,300 feet of drilling is required. This is expected to increase the present reserve of zinc-copper ore. It will also test the type of mineralization that prevails at greater depth. It is suspected that the copper content of the ore will increase and the zinc content decreases as depth is attained. If a fairly large tonnage of zinc-copper ore should be developed, a mill will be required to beneficiate this ore.

Taurus: It is proposed to drill two holes on the Taurus claim unless the results of drilling on the Contention are discouraging. The holes are designed to cut the contact at vertical depths of 150 and 250 feet underthe surface showing of copper ore. This drilling may discover an ore shoot similar to those already proved along this contact.

CONCLUSIONS

It is believed that the above program should disclose additional ore bodies. The work will decide whether a custom mill should be built in the district. There are two possible sources of mill ore-copper ore at the Twin Buttes group of mines too low in grade to ship directly to a smelter and zinc-copper ore at the Conention mine that will need both concentration and separation.

The Bureau's sampling will determine the available tonnage of such ores. If the tonnage is high enough to justify a mill, then ore dressing tests will be made by the Bureau of Mines Metallurgical Laboratory followed by proposals for a custom mill. It is probable, however, that enough mill ore will be indicated to recommend a 100 ton milling unit that can begin operation by the end of 1943.

EXPECTED PRODUCTION

	COPPER, POUNDS	
	From Smelting Ore	From Milling Ore
1943	2,192,000	2,386,000
1944	3,288,000	2,386,000
1945	3,288,000	2,386,000
1946	3,288,000	2,386,000
1947	3,288,000	2,386,000
	15,344,000	9,544,000

Production of zinc probably will not be high, its amount cannot be estimated at this time because it is likely that the zinc content of the Contention ore will decline as depth is attained.

TWIN BUTTES MINES

ESTIMATED COST OF POWER LINES

4 3/4 Miles 44,000 Volt Power Line	$ 20,000.00
Substation at Kine Mine 44,000 V to 2400 V to 440 V	16,000.00
2500 Feet 2400 Volt Power Line to Queen and Glance Shafts	2,500.00
Substation at Glance Mine 2400 V to 440 V	8,000.00
Substation at Queen Mine 2400 V to 440 V	8,000.00
TOTAL ESTIMATED POWER LINES COST	$ 54,500.00

300 KVA

15.000

EXHIBIT B

TWIN BUTTES MINES

ESTIMATE OF MACHINERY NEEDED FOR PROJECT

2 - 445 Cubic Foot Compressors	$ 17,000.00
1 - 75 Horsepower Single Drum Hoist - Queen & Glance Mines	9,000.00
2 - 1100 Foot Hoisting Cables	2,200.00
2 - DA 30 Drifters	1,700.00
2 - IR 58 Stopers	1,200.00
Miscellaneous Supplies and Equipment for Above	800.00
2 - Mucking Machines	5,000.00
Miscellaneous Small equipment - Pipe, Hoses -	2,500.00
2 - IR 50 Motor Pumps	2,500.00
TOTAL	$ 39,700.00
Life of above machines estimated at 5 years.	
Salvage Value After 2 years	$ 23,820.00
COST OF TWO YEARS USAGE	$ 15,880.00

EXHIBIT C

TWIN BUTTES MINES

COST ESTIMATE OF EXPLORATION WORK

GLANCE MINE

(1) Extend 525' level 300 feet to east beneath heavy Garnet outcrops @ $ 27.00		$ 8,100.00
(2) Repair and unwater Glance Shaft		20,000.00
(3) Diamond Drilling from 525' level 900 Feet @ $ 4.50		4,050.00
(4) Raising and Cross-Cutting on 600 level to prospect for ore.		
200 feet of Raises @ $ 22.00		4,400.00
300 Feet of Cross-Cuts @ $ 27.00		8,100.00
TOTAL GLANCE MINE		$ 46,650.00

KING MINE

Drifting and Cross-Cutting from 525' level on Queen Mine to explore King Fracture and Contact of granite and Limestone at King Fracture and area between King and Queen 500 feet A $27.00		13,500.00
Diamond Drilling King Mine from Queen Mine 1500 feet @ $4.50		6,750.00
TOTAL KING MINE		$ 20,250.00

QUEEN MINE

(1) Unwater mine from 525 to 750 and repair and re-timber shaft from surface to 750 level. Install Hoist and repair collar of shaft and headframe - reopen 525' level between Glance and Queen		25,000.00
(2) Diamond Drilling on 525' Level between Queen and Glance Mine 1500 feet @ $ 4.50		6,750.00
(3) Cross-Cutting between Queen and King Ore bodies 200' @$27.00		5,400.00
(4) Prospecting Queen Orebody on the 825' level		
100' of shaft at $ 90.00	$ 9,000.00	
400' Cross-Cutting & Drifting	10,800.00	19,800.00
TOTAL QUEEN MINE		$ 56,950.00
GRAND TOTAL		$ 123,850.00

EXHIBIT D

Pima - 267

TWIN BUTTES MINING DISTRICT
Pima County, Arizona

Harrison Schmitt
July, 1950

EXHIBIT A

July 13, 1950

Mr. Allan B. Bowman
Assistant Gen. Manager
Banner Mining Co.
Box 482,
Lordsburg, New Mexico

From: Harrison Schmitt

Subject: Twin Buttes District, Pima County, Arizona.

References: Maps and other data supplied by W. F. Foy; Howard Fields, Report of March 1947 (in Appendix); U.S. Bureau of Mines, Report of Feb. 1943 (in Appendix); U. S. Bureau of Mines Map; Surface map by Dr. E. Wilson, Arizona Bureau of Mines.

Geography

The Twin Buttes District is about eight miles southwest of Sahuarita, Arizona. Sahuarita is a station on the branch of the Southern Pacific R. R. which connects Tucson and Nogales, Arizona. The district is about 25 miles S15W from Tucson. The Sierrita mountains lie about 6 miles to the west. There are good road connections with Sahuarita and Tucson. The closest available electric power is at Sahuarita. There is water in some of the local mine shafts such as the Gladstone and Morgan. The Glance shaft is said to make about 50 GPM. The area is one of low hills favorable for mining operations. The climate is very dry with mild agreeable winters and hot summers.

Mines-Production-Grade

The mines of the northern part of the area and presently of chief interest are, listed from west to east, the Minnie, Copper Butte, King, Queen, Glance and Bullion. The depth in feet to their lowest levels is respectively: Minnie 325, Butte 359, King 330, Queen 670, Glance 626 and Bullion 500.

Of these the Minnie, King, Queen and Glance were the chief producers. Production to 1947 is listed below. The data are from Fields and the US Bureau of Mines reports and basically from W. F. Foy. The Senator Morgan and the Contention mines production is included. These mines are about 1 1/2 miles southwest of the area but are properly part of the district.

Mine	Tons	Grade	Pounds Cu	Value
Bullion	Nil	----	-------	-----
Glance	118,066	6.72% Cu	15,870,493	$ 2,786,126.54*
		(Early production included with Morgan)		
Queen	75,186	7.05%	10,608,048	$ 1,747,852.56*
King	(Included with Morgan)			$ 275,000.00*
Buttes	Nil	----	-------	-------
Minnie	62,477	4.71% Cu	5,865,333	$ 1,339,804.15*
Morgan	132,402	5.92% Cu	15,688,237	$ 2,035,306.57*
	(Includes King and early Queen)			
Total	388,231	6.17% Cu	48,032,111	$ 8,184,089.92* ($ 9,225,597.30)**
Contention	8,000	13-14% Zn* 2% Cu* 1.7% oz.Ag*		

The above information was obtained from the War Minerals Report #47 (U. S. B. of M.), Foy*, and Fields' report**.

The grade is good and makes direct shipping possible under certain conditions. The Minnie, Queen and Glance together produced $5,685,596 gross averaging about 6.0% Cu and 2.0 oz Ag according to Fields.

Geology

A good surface geological map on a scale of 200 ft. to the inch made by Dr. Eldred Wilson of the Arizona Bureau of Mines was available for this report. The underground data on hand are limited to maps of the workings and which

show here and there locations of the granite sedimentary contact. Nevertheless the general and structural geology is fairly clear in a broad way when studied with Wilson's map and the various available reports as a basis. I have visited the district and viewed the surface geology many times but have done no formal mapping.

The part of the district lying from the Minnie shaft to the Bullion shaft is characterized by an elongated block of sedimentary rocks about 7,500 ft. long and 2,500 ft. wide largely or wholly surrounded by an igneous mass classified as granite. The long axis of the block bears about N70W.

Wilson's work shows that the area contains marble, limestones, shales, noviculite and quartzites. One limestone is indicated as Devonian in age. The beds in most of the block dip from 65 to 90 degrees to the northeast but do not appear to be isoclinally folded since beds are not repeated. In the northwest section of the block dips vary from 45 to 80 degrees to the southwest. One end or the other of the block must have been overturned since the beds seem to be the same continous series from northwest to southeast. If the beds on the southwest edge are the older then the northwest part of the block is overturned. The sedimentary rocks obviously have undergone strong dynamic action. The steep dips suggest dynamics of a thrusting nature.

The fact that the block is surrounded by granite suggests that it is a roof pendant. In other words it may make contact with the granite in depth. Fields reports that a vertical diamond drill hole in the Glance mine drilled from the 625 level was in limestone down to 500 ft., the bottom of the hole.

The block is cut by prominent northeast high-angle faults. Dips are not shown on these faults on the copy of Wilson's map so whether they are normal or reversed faults cannot be made out from the map. In some cases the northwest walls have moved northeast, in other cases southwest, They

may be tear faults related to thrustin movements. Some bedding faults and fissures are reported associated with the ore deposits.

At the surface a moderate to strong amount of metamorphism is evident. This appears to be the result of both dynamic and thermal metamorphism. The limestones have been marbleized, the shales converted to hornfels or hornstone and there is prominent quartzite and novaculite. Relatively small areas of green and brown garnet and epidote occur particularly along the north contact with the granite. The known ore deposits have been found along this contact only. The garnet is said to be more prominent with depth. The surface exposures of garnet are not as extensive as is the case of most deposits classified as contact metamorphic (more accurately contact pyrometasomatic).

The many "marker" beds and a fair regularity of the structure will make it possible to develop a much more accurate picture of the structure if sufficient data are collected and integrated.

Ore Deposits

The ore bodies are vein-like to lense-like to pod-like in form and usually are found irregularly in masses of garnet and silicates that lie on the contact between granite and marble. The average thickness of the garnet-ore zone is about 50 ft. It is said that in a given mineable ore body about 50 per cent of the garnet mass is ore above 5% Cu. The barren or lower grade garnet is either sorted out, or avoided in mining. The ore is largely massive pyrite, Chalcopyrite and bornite and in places contains sphalerite. Oxidized ore was mined near the surface. Gangue minerals include garnet, pyroxene, magnetite, calcite, and siderite.

A number of factors seem to have controlled the localization of the ore. Most of the ore, excepting the King fissure and a few other ore bearing fissures, contacts the granite. All of it replaces limestone. All the ore bodies are closely associated with the northeast faults and in cases northwest bedding faults. The northeast faults are the cause of at least some of the "rolls" on the

granite contact discribed by Fields in his report.

The Glance and Queen mineralization replaces a certain bed of marble which lies just northeast of "marker" bed chg of Wilson's map. This bed appears to be about 200 ft. thick. The Copper Butte and Minnie mineralization occurs in a bed or beds that are lower (?) in the section. The Bullion fissure is along bedding of limestone higher (?) in the section. Both the Queen and Glance ore bodies pitch southeast. They appear to be following the intersection of limestone or marble bedding with the granite contact where the area is cut by northeast and bedding plane faults.

It is usually a mistake to assume that any one factor or combination of factors exclusively controls the localization of a given set of ore bodies. As a rule thinking in this matter is too narrow. With many miners it is almost a fetish to explore a "contact" thus neglecting ground which may become later productive. Nevertheless, it would seem that the stretch of contact between the Queen and Glance ore bodies and extending to the Bullion fissure has enough associated, known influential structural factors to justify first attention in exploration. The known favorable limestone and marble beds are in continous contact with the granite and four or more northeast faults and fissures intersect this contact. Next in importance for exploration attention would be the same northeast contact from the Queen through the King and Copper Butte areas to the Minnie. This section is crossed by a number of northeast faults. Experience has shown that in general if ore bodies are not too deep they usually have some sort of expression at the surface if the surface does not have a post-ore cover or mantle (Schmitt, "Outcrops of Ore Shoots", Ec. Geol. pp 654-673, 1939). The known deeper ore in the area occured below small surface workings from which oxidized ore was mined. Apparently most surface showings of consequence have been explored in depth and in most cases resulted in mines. The

lack of other important unexplored surface showings is on the unfavorable side, but is off-set to a large degree by the fact that about one third of the northeast contact is covered by post-ore mantle rock. The exploration to date along this contact by drilling and minor drifting does not seem to have been adequate, judging by reports available. It is true that we do not have detailed maps of this work. Particularly we do not have accurate data on the diamond drill holes.

Considering the good character and grade of the ore and the large amount of ground between the known ore bodies the district seems to be inadequately prospected. Modern methods of mapping and compilation of data and the laying out of headings and diamond drill holes should have good results.

Just why the district was not reopened and explored in an adquate manner since its active stage during World War I is not clear, though it seems to have been due to certain property difficulties and perhaps also because of the general prejudice against contact metamorphic deposits. There appears to be no factual basis for such a prejudice (Schmitt, "The Contact Pyrometasomatic Aureoles", Pp 607, AIME Tech. Pub 2356, 1948).

Reports by the Bureau of Mines and others inducate a moderately large tonnage of ore in depth in the Glance and Queen mines. The Bureau of Mines (WMR 47) estimated in 1943 that the following ore reserves were present:

Mine	Grade Cu	Grade Zn	Tons	Remarks
Minnie	3.15		?	Grade of last ore shipped
Copper King			?	Zinc and copper ore reported
Copper Queen	6.0		?	Ore reported left in lower levels
Copper Glance	6.0		30,000	Below and just above 525 level.
Contention Mine	2.0	17	15,000	± 8,000 tons mined in the past several years

The above reserves might be called reserves of reasonable certainty. They would normally be placed in the category of probable in an engineering estimate.

The term geologically prospective is one which I have found useful to designate the category of ore which includes that inferred as geologically probable. Such an inference is normally based on: (1) the concentration of ore or ore bodies known to a given volume of ground, i.e., amout of ore per given block, (2) the geological probability for the existance of blocks of ground of similar character and (3) the total volume of such unexplored favorable ground. One's first attention, of course turns to the blocks of favorable unexplored ground on the northeast limestone-granite contact. This contact also is known to exist in depth and to the southwest of the limestone block. On the northeast side it appears to be at least 7500 x 2000 ft. in area. By estimate about one-half of this area has been moderately well explored. (This amounts to about eight 1000 ft. sq. blocks out of about sixteen 1000 ft. sq. blocks.)

The last table gives some indication of the more firmly assured reserves. Since the ore shipped was usually above 5 per cent there is probably milling grade ore remaining in pillars and untouched blocks especially in the Minnie, Glance and Queen mines. Such ore could exceed several hundred thousand tons considering the amount of high-grade previously shipped. Thus the probable ore, plus the lower grade milling ore, plus the geologically prospective ore at the contact on the northeast, on the contact in depth, and on the contact to the southwest justifies an engineering estimate plus a geological guess of tonnage totaling 1,000,000. This is only three times as much as was previously mined on the northeast contact. Most of this tonnage would be in the category of geologically prospective.

Fields has rehabilitated the Glance shaft down to the level. This would

put the 30,000 tons of 6.0% Cu probable ore within fairly easy reach. I think this shaft should by the first to be reopened. The ore is of direct shipping grade and would help support the preliminary exploration work.

Favorable areas for first exploration, in addition to the longer unexplored inter-mine areas along the contact, appear to be: (1) The King fissure in depth and at the contact, (2) The area between the King and Queen ore bodies, (3) The Queen ore shoot in depth, (4) the Glance ore shoot in depth, (5) the Bullion bedding-plane fissure and cross faulting in depth. Detailed mapping and study will doubtless indicate other favorable objectives, including some not on the main contact.

The Twin Buttes district seems to be one of those inadequately explored in the past. For several decades I have been in favor of renewed exploration there and have so expressed myself in several previous written reports and verbal discussions. Of six carefully studied districts in the Southwest selected by me for recommendation for exploration a few years ago I put the Twin Buttes District at the top of the list. Dr.s B. S. Butler of the University of Arizona and Eldred Wilson of the Arizona Bureau of Mines have several times stated their liking for the district.

Original signed

Harrison Schmitt

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APPENDIX

C O P Y

REPORT

TWIN BUTTES GROUP COPPER MINES

TWIN BUTTES, PIMA COUNTY, ARIZONA

By

Howard H. Fields

March 1947

TWIN BUTTES

LOCATION:

The Twin Buttes Mining District lies in the Sierrita Mountains, about 6 miles west of Sahuarita, a station on the Southern Pacific Railroad, 25 miles south of Tucson, Arizona, toward Nogales. The Tucson-Nogales oiled highway also passes through Sahuarita. A very good graded gravel road connects the camp with Sahuarita, so transportation is most exonomical. The following are the principal mines of the district:

Morgan, Minnie, Copper Buttes, Copper King, Copper Queen, Copper Glance, and Copper Bullion.

CLIMATE:

The climate is typically that of Tucson and southern Arizona - hot days, cool nights, with summer showers. The vegetation is sparse and that of the arid desert section. Water for domestic use and for mine operation is available at the Gladstone Shaft, which is under lease.

LABOR:

Labor is largely Mexican and seems to be abundant in this particular section. The proximity to the border assures a fair supply. The camp has practically all the buildings necessary to begin operation, though the ore bins, etc., will need repairs before commencement of operation.

HISTORY:

The known history of Twin Buttes mining district dates from the nineties, when four prospectors gophered various surface outcrops of copper carbonates, hauling same to Tucson by wagon. This continued up to the year 1905, when a group of men headed by David S. Rose, then Mayor of Milwaukee, formed the Twin Buttes Mining and Smelting Co., which acquired all the Favorable property in the district. They built a standard guage railroad from Tucson to Twin Buttes, 28 miles in length, and began mining operation in 1906, erecting a smelter near the Santa Cruz River, 9 miles from the mines. They operated until the spring of 1913, directing most of their attention on the Morgan Group, as this particular group had the best surface showing.

During these operations the Twin Buttes Mining and Smelting Co. produced a gross of $3,110,000. Most of this came from the Morgan Mine, the balance from the Copper Glance, Copper Queen and Copper King, the latter group being on a different contact with very little surface showing, and was not worth considering at that time. However, later operations proved this contact to be the richest zone of the district, higher grade ore and larger ore bodies. The gross production from this contact to date is, $6,115,597.30. This, with the old company's production of $3,110,000.00 makes a grand total of $9,225,597.30 for the district.

In 1913, after some of the older officials of the company had died or passed out of the picture, operations ceased. From then on until 1918 the Morgan Mine was worked by leasers. In 1914, Ed. Bush from Butte, Mont., who had been leasing at the Morgan, took a lease and bond on the old Minnie mine, which lay on the Glance-King contact adjoining the Copper Butte on the west. Bush and his partners netted over $400,000.00 in the years 1914-15 and 16. It was while operating the Minnie and seeing the possibilities of this contact that Bush took a lease and bond on the Copper Glance, which had been previously worked by the old company. This contract was for $300,000.00 for 3 years on a 10% royalty basis, during 1916-17-18, until the drop of copper after the Armistice. Bush paid $233,796.16 in royalties to the old company and netted a substantial sum besides.

In 1917, being more convinced than ever of the possibilities of the Copper Queen, Bush took a 3 year lease and bond for $100,000.00 on this property. He paid this $100,000.00 in royalties after the second year and netted besides $180,643.72 for himself and partners.

W. F. Foy became associated with Bush in 1917, when they took over the Copper Queen, and Foy carried on operations after Bush's death in 1920, by reopening the Copper Queen, and during 1923-26 paid dividends totalling $412,000.00, besides sinking a 500' shaft on the Bullion and a 400' shaft on the Gladstone. This expense was absorbed in operating costs.

Foy purchased the properties from his associates in 1928, forming the Buttes Copper Company, embracing all the properties in the district, but the panic halted this project and the properties reverted to their original owners.

In 1938 Mr. Foy arranged a new deal and I became associated with him in 1942. A loan of $9,000.00 was granted by the R.F.C. to start unwatering the mines and show sufficient evidence to warrant additional funds to equip and place them in production. Due to difficult operation conditions, this was not sufficient, and I, personally advanced some $15,500.00 to complete it. The Glance and Queen mines were unwatered to the 525 level, where a personal examination showed the ore expected did exist. The shaft was retimbered, the headframe repaired, 2,310 cu. ft. Chicago Pneumatic air compressors were brought and installed, air and water lines installed in the shaft and a Cameron sinking pump obtained. The small amount of water remaining can be easily removed with this equipment and the mine equipped for production.

Mr. Foy eventually relinquished his contract so I could arrange a more favorable one. The mines held under the present lease and option are:

Copper Glance	Pat. No. 2643
Copper Bullion	" " "
Copper King	" " "
Copper Buttes	" " "

The terms of the lease-option from the owners, Twin Buttes Mining and Smelting Co., Room 112, 229 East Wisconsin Ave., Milwaukee 2, Wisconsin are:

Date, Feb. 1, 1945. Term 6 yrs. Royalty 10%
Price, $60,000.00. Minimum payments $100.00 monthly

Foy owns the Minnie and Copper Queen mines and will include the Queen in any deal which I make for the balance of the group, in a separate agreement.

The following gives details of shipments from the various mines. These were shipped to the Southern Pacific Railroad at Sahuarita over the Twin Buttes railroad, a company road now abandoned and dismantled.

Mine	Date	Cu Price	R.R. Cars	Dry Tons	%Cu	Gross Cu. & Ag	Net Profits
Minnie	1914 1918	22.73¢	1370	62,477	4.71	$1,282,202	$ 293,805
Queen	1917 1920	19.145¢	310	15,234	9.14	556,396	180,648
Queen	1923 1926	13.83¢	1078	59,952	6.55	1,060,872	412,218
Glance	1916 1919	18.001¢	2432	118,066	6.72	2,786,126	629,282
			TOTAL	255,729		$ 5,685,596	$1,715,953

GEOLOGY:

In general, the geology is that common to replacement in a contact zone between bedded limestones and underlying granite. This contact has roughly an east-west strike and dips to the south at about 60 degrees. The contact lies in the form of a shallow arc, whose continuity is broken in several places by rolls, which are usually accompanied by cross fracturing. These rolls probably were occasioned by pressure due to the granite intrusions, which also may have caused the fracturing.

The lime is metamorphosed along the contact to a garnet and these garnet occurences extend into the limestone for considerable distances at the location of the rolls and fractures. All of the ore found to date in the garnet in the "roll" area.

The lime beds have been tilted by the granite intrusion and faulting but in general the contact crosses the beds, so there is a variation in the garnetization from the surface down, due to variations in the solubilitites of the beds traversed.

The persistence of the lime is shown by a diamond drill hole, drilled vertically from the 725 level of the Glance mine, which showed lime to a further depth of 500 feet, with the hole bottom still in lime.

The contact is known for a distance of 9,000 feet and the recognized "rolls" which have been named for the claims on which they occur, are from east to west - Copper Bullion, Copper Glance, Copper Queen, Copper King, Copper Buttes, and Minnie. The Copper Glance, Copper Queen and Minnie have been developed into good producing mines. The Copper King has produced an estimated $150,000.00 from a small fracture. The Copper Bullion has encountered a strong fracture filled with leached oxidezed ore (not commercial), Neither of these developments has reached the contact so their present interesting showings warrant the expectance of ore bodies on the contact similar to those found in the other three mines.

There is an unprospected "roll" between the Blance and Queen, which could be prospected from the drift connecting these two shafts, and which was driven off the contact for permanence. Also, there are several other areas where "rolls" can be expected, as between the King, Buttes and Minnie.

The outcrops of contact garnet, or ore, are so inconspicuous as to have been practically non-existant. The small mineralized fracture on the surface at the King is the best. In the Queen and Glance the surface showed a very small fracture filled with oxidized copper ore but no commercial ore bodies were encountered until a depth of 300 feet was reached. However, from this point the ore has been practically continuous to their present bottoms, which are in ore.

In general, five "rolls" have been found in the 9,000 feet of known contact, leaving a good chance for a similar number to be found by intelligent prospecting.

The ore found to date is almost entirely a massive pyrite containing bornite and chalcopyrite, there being almost no oxidized ore in any of the mines. These ore minerals are found in the garnet in irregular shaped ore bodies typical of replacement deposits. There has been no sign of dimunition in intensity of mineralization or grade to the present depth.

MINE WORKINGS:

Copper Bullion:

This shaft is in solid limestone and is open all the way. It contains little seepage water and has no surface improvements at present.

Copper Glance:

The shaft has been retimbered to 525 level, which has been unwatered for inspection. The level is in fair shape permitting access to all the stopes. The drift to connect with the Queen is open. The workings below the 525 level are probably all in good shape since they are relatively new. The headframe has been put in good shape and the shaft is operated by a 15 H.P. gasoline hoist.

On the 400 and 525 levels there exists ore faces which will mine 4$ copper, making it possible to begin production at once. When we unwatered

these levels, I had an opportunity to take a few check samples to confirm this.

Copper Queen:

The shaft has caved around the collar for a depth of 3-4 sets, requiring reopening ventilation in the Glance and Queen mines through the 525 drift, which is the 7th. level of the Queen. Unwatering the Glance, takes the Queen water to the 7th level, but supplementary equipment is needed in each case to unwater the bottom of the mine. It is confidently expected the Queen mine will prove similar to the Glance in that fairly recent timbering, which has been under water, will be in such shape it will not have to be replaced. The Queen has a headframe, hoist house and 50 HP hoist.

Copper King:

The shaft has been re-laddered and the timbering repaired. It has no surface improvements. The rehabilitation to the 200 level was for the purpose of preparing for diamond drilling to the contact.

ORE RESERVES:

The calculation of ore reserves in lime replacement bodies is a difficult matter, but the following is good practice and details the manner in which the Copper Glance reserves are estimated.

The ore occurs in connected lenses in a large mass of garnet, which occurs along the contact of the granite and overlying limestones. Using the known tonnage mined above the 525 level and below the 300 level from the garnet area there, we find a block 100 feet by 200 feet extending from the 300 to the 525, an incline distance of 270 feet. This block contains 5,400,000 cu. ft. of garnet or 540,000 tons of garnet zone, which actually has produced 118,066 tons of ore averaging 6.72% copper.

From the 525 level to the bottom of the 626 winze, which is still in ore, using the same manner of calculation, we are justified in expecting 400,000 tons of garnet ore zone which could produce 87,400 tons of ore at similar grade. The partial development of these lower levels does not show any dimunition in size or grade.

An average of all the mine samples taken during the last 40 days operation shows:

525 level workings assayed	6.80% copper
625 level workings assayed	7.70% "
AVERAGE	7.45% "

There is no reason to expect the ore bodies to bottom at the present level as diamond drilling shows the limestones, which are essential to ore formation, continue at least 500 feet deeper.

This diamond drill hole was drilled from the 625 level so there is 400 feet of limestone below the 700 level. The 400 feet of limestone from the 300 to the 700 level produced 118,066 tons and is estimated to contain 87,400 tons ore, a total of 205,466 tons. It is possible the succeeding 400 feet will contain a similar amount of similar grade.

Copper Queen:

The Queen has been mined to a greater depth than the Glance, but an estimate using similar reasoning shows approximately 40,000 tons reasonably expected, and a possible additional 50,000 tons averaging 6.50% copper.

Copper Bullion:

Copper King:

These two areas have just as good a chance of developing substantial ore bodies as the Glance and Queen had, and of similar grade. It is remarkable that the three mines on this contact that were developed to the contact in the favorable "roll" area, all proved very profitable, and adds to the possibility of that twonknown areas may also develop similarly. In addition to these, there are other likely "roll" areas between the Glance and the Queen, and the King and the Minnie.

	Production		Probable Ore		Possible Ore	
	Tons	%Cu	Tons	%Cu	Tons	%Cu
Copper Glance	118,066	6.72	87,400	7.45	205,466	6.00
Copper Queen	75,086	7.08	40,000	7.00	50,000	6.50
Minnie	62,477	4.71	30,000	3.25	30,000	4.00
	255,629	6.35	157,400	6.53	285,466	6.23

In the unprospected "rolls", Copper King and Copper Bullion, it is possible they will each contain a somewhat similar tonnage to the average of the three, which is 232,830 tons, averaging 6.35% copper.

There is a good"roll" between the Glance and Queen mines, which can be prospected from the 525 level of the Glance, and it also could develop a similar tonnage and grade like that estimated in the Copper King and Copper Bullion.

The property has an entirely possible chance of producing four or five times the quantity in the future that it has produced in the past.

COST OF PRODUCTION:

Since the Copper Queen mine was unwatered, rehabilitated, and put into production in 1919, under circumstances existing today in a similar way, costs and outcome could be very much alike. Mr. Foy started with a capital of $21,000.00, copper price averaged 13.83¢, shafts were caved and mine full of water. The net profits for 1923-1926 were $412,216.00 on 59,952 tons.

The detailed costs at that time were as follows:-

Direct	Per Ton	Indirect	Per Ton
Labor	$ 1.686	Prospect Outside Mines	$ .688
Labor Ins.	.083	General	.062
Power	.097	Repairs Renewals	.112
Explosives	.179	Taxes - St. & Co.	.218
Smelter Represent.	.058	Taxes - Federal	.476
Pumping	.076		
Timber	.022		
Total Direct	$2.372	Total Indirect	$ 1.556

Total all costs $ 3.928

Future costs of mining will not include "prospect outside mines", but labor will be higher, so a cost of $4.00 per ton is estimated.

Cost of Smelting - Transportation and Outcome:

Assuming the first production would come from the Copper Glance mine, and using an approximation of the average assays of the last 58 railroad cars 3,154.3 tons, namely, copper 6.0%, silver 2.0 oz, the following figures will show the outcome:

The price of copper is considered basically at 12¢. I have two premiums "A" of 5¢ and "B" of 7¢, but will only consider "A", as the extension of "B" after July 1st. is problematical. If the "A" premium is not extended, the ceiling price of copper will be raised, so the net should be about the same.

Pay		
Silver 2.0 oz less 0.5 oz at 70¢		$ 1.05
Copper 6.0% 120# less 12# 108% at 12¢ less 216¢		10.15
		$11.20
Deduct		
Hayden Smelting	$ 2.50	
RR Frt. plus 5% H_2O	1.50	4.00
		$ 7.20
Royalty 10%	.72	
Trucking	.80	
Mining	4.00	5.52
		$ 1.68
Premium "A" 97% of 120# at 5¢		5.82
Net Profit per ton		$ 7.50

The R.F.C. loan must be paid as it is an obligation of the lease, but the local officers assure me that 5% royalty per ton is about what may be expected, as a basis for reimbursement.

FUTURE OPERATIONS:

To reopen this group of mines, several plans may be followed:

1. A diamond drilling campaign from the surface and shallow open workings to prospect the possible ore areas.

Copper King ..... 3, 200-ft holes
Copper Bullion ..... 3, 200-ft holes

Deeper drilling to prove vertical extensions of known ore bodies.

Copper Glance ..... 2, 1,000-ft. holes
Copper Queen ..... 2, 1,000-ft. holes

If this program proved successful, then the reopening of the mine would follow and be guided by the information gaind from such drilling.

II. Commence reopening the Glance mine, followed by the Queen reopening, with subsequent or simultaneous diamond drilling. With the equipment installed, the shaft practically repaired, headframes repaired, and the small amount of watef remaining in mine, the reopening of the Glance seems logical.

Shipments could begin within 90 days after work commences and should furnish the funds for reopening the Queen and do the drilling necessary to develop the new possible shoots.

The estimated cost of getting into production and amount of operating capital needed, is:

Hoist	Move 50 Hp Diesel Hoist Queen Mine to Glance Extend building foundations, small repairs	$ 750.00
Shaft	Repair, tighten guides and sets ladders to 625 /.....	500.00
Levels	Cleanup 525,625. Repair, install track	1,000.00
	Ore Bin Repair	250.00
	Unwater 500, 625 levels, 625 winze with Cameron Pump	1,000.00
Air Receiver	Install	75.00
Equipment:		
	3 Jackhammer type drills, hose, tanks, 1 cradle, 1 stoper, hose tank line oilers	1,200.00
	4000# drill steel (use Contention sharpener....	750.00
	2500 ft. 12# rail and spikes (5 Ton)	300.00
	10 Mine cars (used)	1,000.00
	2500 ft. 2" Pipe - 21¢	525.00
	2500 ft. 1/2" pipe - 15¢	375.00
	1000, "1" pipe - 12¢	120.00

Estimate cost, etc. .....

Equipment (cont'd)

Fittings, valves, etc.....	$ 250.00
Air Hoist - 625 Winze	500.00
Air Pump - " "	250.00
Shovels, picks, wrenches, misc. tools	250.00
	$ 9,095.00
Reopening Queen Shaft for ventilation	1,350.00
Carload miscellaneous timber (repairs and operation)	1,450.00
30 Day payroll - 1,000 tons	4,000.00
Pickup Truck	1,000.00
TOTAL	$ 16,895.00

In order to meet any undorseen contigencies, a fund of $25,000.00 should be available.

All the maps and records were furnished by Mr. W. F. Foy, who was the manager under the last operations. When I was ore purchasing agent for the American Smelting and Refining Company, I bought the copper Queen prodruction from Mr. Foy during 1923-1926. I saw his operations and was so very favorably impressed that I have confidence in all this data. The evidence disclosed in unwatering to date has confirmed his statements.

Considering the history of production and profits from these mines, and reviewing the maps and considering Mr. Foy's statements concerning the ore in the Glance mine available for immediate production, it is entirely probable that more than enough ore can be easily and quickly produced to repay the capital investment, a drilling and development campaign, and furnish profits soon after production begins.

With intelligent management, the purchase price of the mines can be accomplished through royalty payments, ore can be developed for the future, and along time mining operation of fair size can be developed.

(Signed) Howard H. Fields
Howard H. Fields
March 21, 1947.

COPY

WAR MINERAL REPORT

United States Department of the Interior - Bureau of Mines

W.M.R. 47 - Copper, Zinc February 1943

TWIN BUTTES CAMP
Pima County, Arizona

SUMMARY

The mines of the Twin Buttes Camp are at contacts of intrusive granite with older sediments, largely limestone. The ores are principally the contact metamorphic type and are localized in the hanging wall sediments at the junction of small fissure veins with the granite contact. No important ore bodies were exposed at the surface, but were discovered by sinking on the fissure veins to the contact zone. Masses of garnetized rock in the contact zone also serve as possible indicators of underlying ore bodies.

Five mines in the area,- Minnie, Copper King, Copper Queen, Copper Glance, and Senator Morgan - have yielded 388,000 tons of ore averaging 6.17 percent copper and a small tonnage of high grade oxidized zinc ore. Developed reserves in two of these mines amount to 30,000 tons of 6 percent copper ore. The Contention mine, on another segment of the granite contact, has 15,000 tons of developed zinc-copper ore averaging 17 percent zinc and 2 percent copper. Ore development is in progress at this mine, financed by a $20,000 Reconstruction Finance Corporation loan.

All of the copper mines except the Senator Morgan lie along an 8,000 foot east-west segment of the granite-sedimentary contact. Two other shafts, which yielded no production, were sunk on this contact, so that some 6,300 feet of the contact zone is accessible for underground exploration. Geologic conditions favorable to ore deposition are found along some 2,500 linear feet of unexplored portions of this contact zone.

All of these mines are controlled by the owner and operator of the Copper Queen and Contention mines, who holds the other mines under lease. Financing has been arranged for extracting shipping ore now exposed on the lower levels of the Copper Queen and Copper Glance mines and for continued development and mining. Preliminary rehabilitation if under way. Four of the shafts have been made accessible, and the lower levels of the Copper Queen and Copper Glance, now under water, will be unwatered soon.

Mining cost of shipping ore is estimated at $5.00 per ton. Ore of lower grade than 5 percent copper will yield little profit when shipped to the smelter.

The Bureau of Mines has begun an exploration program in which it is planning to include (1) mapping and geologic study, both at outcrop and underground; (2) sampling of underground workings and diamond drill testing of parts of the Twin Buttes contact zone for extensions of known ore bodies and search for new ones: and (3) sampling the Contention mine and diamond

drilling to prove extensions of that ore body. About 4,000 feet of diamond drilling and 500 feet of underground drifting will be needed. The total cost of the project is estimated at $45,000.00. This program has a dual purpose-first, to disclose additional reserves of shipping ore, and second, to estimate the tonnage of milling grade ore and if the available tonnage of the latter is sufficient to justify the erection of a mill, to make metallurgical tests and proposals for a custom mill in this camp.

This program offers and opportunity to disclose ore bodies that should yield copper ore and zinc-copper ore of shipping grade. The expectation is 25,000,000 pounds of copper to be produced from 1943 to 1947 inclusive.

INTRODUCTION

The Twin Buttes Camp embraces eight mines that lie along a contact of granite with Paleozoic limestones and quartzite. Five of these have been producers: another is in active development and has some Zinc-copper ore blocked out. There is known reserve for some copper ore in two of the old producers.

In June, 1942, when a Bureal of Mines engineer investigated these mines, only one of them was accessible. Maps of the others are available, as well as records and smelter settlements covering the greater part of the copper produced from the camp, and a geological report on the Twin Buttes district by Ronald L. Brown in the Univ. of Ariz. library. The present operator, who has been connected with these mines since 1916, supplied much information.

The Senator Morgan group, under lease to Charles Taylor of Tucson, Arizona, is owned by the Twin Buttes Mining and Smelting Co. of Milwaukee Wisconsin, which also owns the Copper Glance, Copper Buttes, Copper Bullion, and Copper King mines. These are leased to William Foy, of Twin Buttes, until 1948.

The Midland Copper Co., now defunct, owned the Copper Queen mine. William Foy, a former shareholder in that company, has been paying taxes on the mine for several years.

The Ariz. Buttes (Minnie) group of claims and the contention group, all unpatented, are held by William Foy.

The Taurus claim (unpatented) is held by G.Gavin, Box 13, Ruby Star Route, Tucson, Arizona.

Work has been started at the Copper Glance to rehabilitate the shaft and unwater the mine and the Copper Queen, which is connected the Copper Glance in the seventh level. William Foy has unwatered the Contention mine and is doing development work there.

HISTORY

The first locations are said to have been made in 1876. Little mining was done before 1904, when D. S. Rose, of Milwaukee, organized the Twin Buttes Mining and Smelting Co., and acquire the more promising claims in the area,

except the Minnie Group. This company built 28 miles of standard gage railroad from Twin Buttes to Tucson and erected a smelter on the Santa Cruz river. It operated from 1906 to 1913, but was not highly successful. It produced 132,500 tons of ore averaging 5.92 percent copper, mainly from the Morgan mine, but some of it from the Copper Glance and Copper King mines.

Ed Bush leased the Morgan mine in 1913 and produced a few carloads of low grade ore. He relinquished that lease in 1914 and took a lease and purchase option on the Minnie mine, which he developed and operated from 1914 to 1917.

Ed Bush and associates organized the Midland Copper Co. in 1917 and took the Copper Glance and Copper Queen mines under lease and purchase option. The Copper Queen was paid for out of royalties. The lease on the Copper Glance was surrendered in 1918, and the mine has since lain idle. It has produced 118,066 tons of ore, averageing 6.72 percent copper. Bush died in 1920. The company reopened the Copper Queen mine in 1922 under the management of William Foy, and shipped ore from 1923 to 1926. The Copper Queen produced 75,186 tons of 7.05 percent copper ore from 1917 to 1926. William Foy produced a little ore from the Minnie mine in 1928.

Total production from the camp has amounted to 388,231 tons averaging 6.17 percent copper, contributed as follows:-

Mine	Dry Tons	Copper, percent	Copper Content, pounds
Senator Morgan[1]	132,502	5.92	15,688,237
Copper Glance	118,066	6.72	15,870,493
Copper Queen	75,186	7.05	10,608,048
Minnie	62,477	4.71	5,865,333
	388,231	6.17	48,032,111

[1]Production credited to the Senator Morgan mine includes all of the ore produced from the Copper King and the early production from the Copper Glance.

PHYSICAL FEATURES

The Twin Buttes Camp, in the Pima Mining District, is 28 miles south of Tucson on the Tucson-Continental County road. It is 6 miles south of Mineral Hill. Almost half of the road is paved and the remainder is well graded. A graded road 9 miles long connects the camp with Sahuarita, on the Nogales branch of the Southern Pacific Railraod and on paved U. S. Highway89.

Topographic relief is not great. The altitude is about 3,400 feet, wherefore temperatures are somewhat lower than at Tucson.

Potable water is obtainable from three old prospect shafts in the area, but the nearest supply is rather scant in dry weather. Mine water is used for other than camp purposes.

Although labor is not abundant, a few experienced men are available, and some ordinary laborers can be obtained.

GEOLOGY

The ore deposits of the camp, as indicated by past development, are mainly the contact-metamorphic type and are at or near the contacts of intrusive granite with Paleozoic limestones and quartzites. The ore shoots lie in metamorphosed sediments adjacent to a zone of garnet rock that separates the ore from the footwall granite.

The principal group of copper mines lies along the north side of a sedimentary ridge that may be completely surrounded by granite. The greater part of the contact is masked by alluvium. The claims lie end to end, with their side lines roughly parallel to a nearly east-west segment of the granite-sedimentary contact, which is about 8,000 feet long (fig.1). From west to east the mines are Minnie (Arizona Buttes), Copper Buttes, Copper King, Copper Queen, Copper Glance, and Copper Bullion. The contact is approximately defined by outcrops toward the west but is masked by a thick mantle of alluvium toward the east. The dip of the contact is south. Some transverse faulting has been noted along this segment of the contact.

The Contention zinc-copper ore body on the North Star Claim about 3,500 feet south of the Minnie Mine, is on the granite sedimentary contact at the northeast side of another block of sediments. The intervening contact line between the mine and the Twin Buttes group is several miles long, within which interval the granite presents many phases, grading from true granite to diorite. Quartz segregations and lamprophric dikes also occur.

The old Senator Morgan mine, adjoining the Contention at the southeast, if near a faulted segment of the same granite-limestone contact that trends northwesterly. Several faults are noted in this general area.

ORE DEPOSITS

The Copper Bullion, Copper Glance, Copper Queen, Copper King, and Minnie form a geologic unit. Mining on the Glance, Queen, and Minnie has shown that these are contact-metamofphic deposits. Chalcopyrite, together with a little bornite, is the principal copper mineral, although copper carbonates and native copper are found. The gangue consists of garnet, epidotized limestone, and some specular hematite. Thethree mines have the following characteristics:

(1. Initial work was on small fissure veins containing copper carbonate ore.

2. The veins led to contact metamorphic deposits of ecomamic importance.

3. The contact metamorphic ore bodies did not outdrop.

4. The ore shoot developed, in each instance, has an easterly rake and consists of connected, irregularly shaped ore bodies within the contact zone. The shoots are lenticular in general outline, have an average thickness of 30-80 feet, and are about half replaced by copper ore above 5 percent grade.

5. At the surface and in the vicinity of the upward projection of the ore bodies, is a zone of garnetization, containing minor amounts of copper carbonates.

6. Progressively from west to east, the contact metamorphic bodies occur at greater depth below the surface.

7. The depth of these bodies is a function of the horizontal distance between the granite contact and the fissure vein appearing over each body.

8. The importance of the underlying ore body appears to be reflected in the strength of garnetization, where the limestones are of equal amenability to contact metamorphism.

The water table is about 425 feet below the collar of the Copper Glance shaft. That mine makes 50 gallons of water a minute at the 625 foot horizon.

DESCRIPTION OF MINES

Minnie (Arizona Buttes) - This was the first of the group to be explored. Most of the fissure vein over the ore shoot has been eroded, so that strong mineralization was evident at the surface. The ore shoot lies between limestone and a footwall wedge of quartzite. The thin edge of the wedge being towards the east. This was passed in drifting east on the 325 foot level where granite was encountered on the footwall of the mineralized zone. The copper content there fell below 3 percent. Mineralization appears to have been localized by transverse fractures that pass from the granite through the quartzite into the limestone hanging wall. The quartzite is partly mineralized adjacent to these fractures and yielded some ore.

The ore shoot, as developed, is about 500' along its pitching axis, roughly oval in cross section and about 70' wide. Total production has amounted to 62,477 tons with average grade of 4.71% copper. The ore diminished in grade on the lowest level; 5,100 tons mined there in 1929 averaged 3.15 percent copper. Ore of similar grade remains in the mine, according downward. Future exploration in this mine had best be directed eastward along the granite limestone contact toward the Copper Buttes shaft about 1,400 feet away. The 325' level was driven 375' east on this contact without encountering shipping ore. This exploration is not recommended at present.

Copper Buttes - There is a moderate development of banded garnetization between the Minnie and the Buttes shaft. A small mineralized fissure vein outcrops at the Buttes Shaft, which was sunk on this vein at an inclination of about 60 degrees southerly. The shaft entered the footwall granite at 100' and was continued in granite to 300' on the slope. Crosscuts were driven to the hanging wall limestone at the 200 and 300' levels. Drifting along the contact on these levels aggregates about 225'. The contact, where exposed underground, has a leached zone with some mineralization that averages

about 5' in width. This zone contains some chalcopyrite in garnet rock, but the material is below commercial grade. Exploration, if undertaken, should be directed westward along the contact toward the Minnie; that is, not contemplated as part of the Bureau's present work.

Copper King - The King shaft was started early in the century on a fissure vein containing copper carbonate. The shaft was last used in 1913 and is reported to be 300 feet deep. The vein is in limestone and dips steeply toward the south. It is exposed for a length of 250 feet at the surface, where it pinches and swells along the strike; underground openings show the same variation in width down the dip. Average width is about 5 feet. Leasers are now mining at the surface working westward toward the granite contact which is masked with alluvium.

Mine records show that oxidized zinc ore was found in the foot wall limestone a short distance north of the vein. Smeltersettlements indicate that 2,183 tons of ore carrying 27 to 34 percent zinc was shipped to Kansas and Colorado smelters.

There is a moderate development of garnet in the hanging wall limestone over the King fracture. Eastwardly the surface trace of the fracture fades out into a heavy body of garnet rock overlying the Queen stopes. Although the King fissure is well within the hanging wall (perhaps 300 feet), relative to the Queen shaft, it is not unlikely that it connects with the Queen ore body. The intervening block of ground, about 400 feet measured along the rake of the Queen ore shoot, will be explored through stoping in the two mines.

The block of ground below the King workings is considered a promising potential source of copper ore and possibly of zinc ore, also. An ore shoot should be found at the junction of the King fissure with the granite contact, assuming that ore deposition here followed the pattern exposed by development at the Minnie Mine to the west and at the Queen and Glance mines immediately to the east. The strike and the attitude of the granite foot wall are unknown between the Queen mine and the Copper Bute shaft, so that the distance from the lowest level of the King workings to the granite foot wall is unpredictable.

Copper Queen - The first work at the Queen mine was on a small fracture filling of copper carbonate ore, as at the Minnie, King, and Glance mines. A shaft was sunk on the fracture about 100 feet, almost vertically. In view of geologic conditions already proved at the Minnie and Glance mines, this shaft was abandoned and another one was started, inclined 72 degrees south. This second shaft intersected the hanging wall limestone and encountered the metamorphic ore body at 440 feet inclined depth, and has been sunk to 740 feet. Ore was stoped from above the 440 down to the 700 foot level. The ore body is said to diminish in thickness and grade in the backs of the stopes above the 440 foot level. Complete assay records of this last work indicate that the grade of ore is about the same as that of the ore mined above. Selective mining is necessary, as at the Glance and Minnie mines. About half the material in the ore shoot is shipping ore of 6 percent grade.

The shaft cut the granite contact at an inclinedd depth of 570 feet; on the 700 foot level it is 70 feet in the foot wall granite. A wall of granite was encountered 175 feet west of the shaft on the 700 foot level. The calculated dip of the contact between these points is 45 degrees south. Ore was mined from the reentrant angle, and the granite was followed 60 feet toward the hanging wall without finding its contact with the limestone. There is low grade mineralization along this crosscut. A similar granite projection wasfound east of the Queen stopes on the 650 foot level about 300 feet east of the shaft. Here it is clearly the result of transverse shearing. The ore continued well back into the foot wall granite. Neither of these projections was found on the higher levels. If they continue downward, they may form the western and eastern limits of the Queen ore body. They are 500 feet apart where observed, but it is reported that they incline slightly toward each other downward. The major ore shoot has a width of about 200 feet, although some ore has been mined along the entire strike, length of 500 feet.

The Copper Queen could be explored at both upper and lower ends of the developed part of the ore zone. The upper and westerly projection would be difficult and costly to reach by diamond drilling. Continuation to depth could be proved only by sinking on the ore body or crosscutting into the hanging wall and diamond drilling.

The Copper Queen has produced 75,186 tons of ore containing 7.05 per cent copper and about 2 oz. silver per ton.

Copper Glance - The first work at the Copper Glance was an inclined shaft on a small fissure in limestone that strikes N. 60 degrees W. and dips steeply south. Two ore shoots were found on opposite sides of the shaft, about 100 feet apart, on the 150 foot level. This first shaft was abandoned, and a vertical shaft was sunk, directed at the western ore shoot. This shaft entered the contact zone between granite and limestone at 330 feet. Two lobes of ore were developed, which join on the 400 level and connect with the eastern ore body found on the 150 foot level in the fissure vein. The ore in the contact zone was developed easterly and downward to a vertical depth of 550 feet.

The shaft intersected the granite contact at 380 feet and was sunk in the foot wall granite to 625 feet, where the crosscut to the ore zone is 150 feet long. Two winzes were sunk in ore on the 625 foot level. The ore is similar in grade to that mined at higher levels. The ore shoot rakes to the east. It has been developed for a length of 400 feet; it is about 200 feet wide and 60 feet thick. About half of the shoot is ore.

A west drift on the 525 foot level connects with workings of the Queen mine. This drift was carried along the granite foot wall for 365 feet from the Glance workings, and thence, due to the undulating contact surface, in the limestone hanging wall for the final 1,000 feet.

Above the 450 foot level, the Glance Stopes are almost entirely west of the shaft, but the ore body lies directly in front of the shaft on the 625 foot level.

Drifts were carried about 275 feet east of the shaft in the contact zone on the 450 foot and 525 foot levels. No profitable ore was found in these drifts nor in short crosscuts driven north and south from them.

Considerable diamond drilling has been done from underground stations in both the Glance and the Queen mines. These holes were all directed into the hanging wall at various angles, but so far as known, none was directed toward the granite contact.

Copper Bullion - A vertical shaft on the Copper Bullion claim was sunk 500 feet to explore a strong vein in the cherty Cambrian limestone known as the Abrigo formation. The vein has an average width of 18 feet, dips steeply northward, and strikes N 60 degrees W in conformity with the bedding of the formation. The cherty country rock suffered little alteration, but there is some garnetization in the fissure filling. The shaft is in the vein to a depth of 50 feet and in the hard, cherty limestone footwall below the depth. Crosscuts were driven to the vein at the 100, 200 and 300 foot levels, and raises were carried up in the vein from these crosscuts. A 100 foot winze was sunk in the vein on the 300 foot level. A crosscut was started toward the vein on the 500 foot level but was not finished. A diamond drill hole 380 feet deep and almost horizontal was directed northeasterly and did not reach the granite contact.

The Copper Bullion vein filling is largely iron oxide, garnet, and partly garnetized limestone, with streaks of copper sulfide and oxide. A little shipping ore was mined from the upper part of the vein. The Copper Bullion fissure appears to be on the projected strike of the Copper Glance fissure but in a different type of limestone. The horizontal distance between the shafts is about 1,300 feet. No ore exposures were observed except minor occurrences of copper carbonates in garnet near the Glance shaft.

The granite contact north of the Copper Bullion shaft is marked by a heavy mantle of alluvium. The probable line of junction between the vein and the contact is indeterminate but is certainly at considerable depth. There appears to be ample room here for a deep deposit of copper ore.

Contention Mine - An exceptionally strong development of dark garnet rock occurs at the Contention mine. Thin beds of unreplaced limestone remain in the garnet zone, which is nearly 100 feet wide. The zone is separated from the granite here and there by unreplaced limestone and at some places by a thin bed of quartzite. The contact zone is irregular and is interrupted by faulting.

There is one vertical shaft 221 feet deep. A crosscut on the 150 foot level was driven southwesterly and encountered a thin vein at 100 feet from the shaft. This was drifted upon to the south for a distance of 157 feet and was crosscut at two places. Three raises were connected by a sublevel 80 feet above the drift. All of this work is in ore. One raise was continued to 60 feet above the subdrift, where its face is partly in ore. Two winzes were sunk in ore from the 150 foot level. It is reported that a crosscut was driven to the ore on the 210 foot level (under water at date of examination) and that the vein was drifted on, in ore, for 150 feet, southward.

Development is insufficient to determine the structural relationship. The pitching of the ore to the north is probably related to a fault that

outcrops a little north of the shaft. An east-west arroyo probably marks the trace of this fault. Beds on the two sides of the arroyo show almost no horizontal displacement but differ by 35 degrees in strike.

The ore shoot contains masses of irregularly distributed garnet. It has a foot wall slip, below which the beds have not been prospected. A zone of radially bladed actinolite may mark the hanging wall, but this has not been crosscut outward from the ore body. Widths across the ore range from 4 to 22 feet, but the average thickness is not less than 12 feet.

A class B development loan of $20,000.00 has been granted by the R.F.C. to be used to develop ore reserves to the south at a depth of 300 feet.

It is worthwhile noting that this ore body did not outdcop and that there were no proven ore bodies in the immediate vicinity. Ed Bush, following his experience at other mines in the district, sank 150 feet on the garnet zone and the crosscut toward the hanging wall limestone to discover the ore. A similar exploration program on the Gladstone claim, undertaken later, was unsuccessful.

Taurus - This is an unpatented claim of irregular shape adjoining the North Star (Contention) claim on the southeast. The heavily garnetized contact zone on the North Star claim continues southeasterly across the Taurus claim but pinches out near the southeast end line of that claim. On the Taurus, about 800 feet southeast of the Contention shaft, measured along the contact (500 feet southeast of the nearest proposed diamond drill hole) is an outcrop containing copper carbonates enclosed in the garnetized and epidotized limestone. This copper streak is about one foot wide. There is no development except a few test pits.

ORE RESERVES

Minnie Mine - Records and assay maps indicate that the developed ore shoot in the Minnie mine may be nearly exhausted. Both grade and thickness of the ore is diminishing at the edges of the stoped areas. The last ore shipped averaged 3.15 percent copper, which is not shipping grade at this time. No reserves are credited to this mine.

Copper King Mine - Ore probably remains in the King fracture. Both zinc and copper ores were being shipped from the mine when the Twin Buttes Mining & Smelting Co. suspended operation in 1913. No assay maps are available. The shaft has been cleaned out and retimbered.

Copper Queen Mine - Assay records indicate that ore of the same grade as that mined above (about 6 percent copper) can be mined from the lowest levels. The thickness of the oreshoot diminished within the lowest 100 feet of its depth.

Copper Glance Mine - The Copper Glance ore shoot has been proved on the 525 and 625 foot levels but only partly extracted there. Reserve is estimated at 30,000 tons of 6 percent copper ore, based on past production from higher levels.

Contention Mine - Proved reserve is about 15,000 tons of ore that will average about 17 percent zinc and 2 percent copper.

Total reserves are thus 30,000 tons of 6 percent copper ore and 15,000 tons of zinc-copper ore at 17 percent zinc and 2 percent copper.

MINING COSTS

Mining cost per ton of shipping ore at the Copper Queen mine from 1923 to 1926 were as follows:

Labor	$1.668	
Insurance	.083	
Power and Air	.097	
Explosives	.197	
Smelter representation	.058	
Pumping	.076	
Miscellaneous supplies	.171	
Timber	.022	
		$ 2.372
Prospecting and Development		.688
Overhead:		
General Office expense	.062	
Repairs and renewals	.112	
Taxes, State and Co.	.218	
Taxes, Federal, Inc.	.477	
		.869
Total cost per ton of shipping ore	3.929	
Estimated present cost	5.00	

Smelter returns at the mine, according to American Smelting and Refining Co. schedule, on copper delivered at Hayden, are as follows:-

Cu. 13.85¢ Ag. 70¢

On 4.5 percent copper, 2 oz. per ton silver	$ 5.87
Less royalty 10% of net smelter returns	.59
Net per ton at the mine	$ 5.28
On 5 percent copper, 2 oz. per ton silver	7.48
Less royalty 10 percent of net smelter returns ;;;	
Net per ton at the mine	$ 6.73
On 6 percent copper ore, 2 oz per ton Ag	$ 11.10
Less royalty 10% of net smelter returns	1.10
Net per ton at the mine	$ 9.99

The lease terms under which the mines will be operated are not known, but a royalty of 10 per cent of net smelter returns is a general standard on this grade of ore. According to the above calculations there will be no profit in shipping 4.5 per cent ore, and 5 percent copper will be probably cutoff for shipping ore.

PROPOSED EXPLORATION BY BUREAU OF MINES

The complete program includes the following items, at their estimated costs:

1. Surveying and mapping surface and underground workings and preliminary character sampling /..... $ 4,000.00

2. Rehabilitation of mine to give access for drilling, mapping, and cutting of underground drill stations 3,000.00

3. Surface trenching 2,000.00

4. Diamond Drilling, including supervision, sampling, and analyses, 4,000 feet at $6.00 per ft..... 24,000.00

5. Driving exploratory headings to favorable areas, 500 feet at 14 dollars a ft. 7,000.00

6. Mine sampling 3,000.00

7. Contingencies 2,000.00

$ 45,000.00

For the immediate future, work will be limited to item 3, the results of which will largely determine the advisability of further procedure.

Copper King Mine: Objectives are to extend the known ore reserve and determine its grade. Diamond Drilling is proposed to test the Copper King fracture down to the granite contact and also the contact zone. It is proposed to drive a crosscut 100 ft into the hanging wall on the 300 ft level and to cut a diamond drill station at its end. Drill holes totalling 1,310 feet will be directed at different angles to crosscut the vein at intervals down to its junction with the contact andl also to crosscut the contact zone. Some holes will be continued into the footwell of the vein to test the continuity downward of the footwall zinc ore body, from which it is estimated that 1,100,000 lbs of zinc has been shipped in ore.

Copper Queen and Copper Glance: It is proposed to test a 1,000 ft gap of unexplored contact zone between Copper Queen and Copper Glance workings by diamond drilling from stations in the long drift on the 525 ft level of the Glance. The drill holes will be spaced at 100 ft intervals and will be directed northeasterly with 45° downward inclination. The total footage to be drilled is estimated at 1,375 ft.

Copper Glance: The Operator proposes to extend the east drift on the 525 level 250 feet eastward, and to drive along the limestone hanging wall, thus leaving most of the contact zone unexplored. The contact zone contiguous to the proposed drift seems particularly promising because of its proximity to known ore and because it is under a very heavy mass of garnet rock at the surface. The Bureau of Mines proposes to drill five holes from this drift northerly to the granite footwall. The holes will be inclined about 45° downward and will be about 100 feet deep. The total drilling is estimated at 400 feet. This may disclose an ore shoot similar to the Glance ore body.

Copper Bullion: The drilling proposed on this claim is to determine the copper content of an 18-ft vein at and below the 500 ft level. The vein has been exposes near the shaft to the 400 ft level. It is leached and oxidized and has spots of copper mineralization to that depth. The drill will be stationed at the bottom of the shaft. If the test holes find profitable ore, divergent holes will be drilled to explore the ore body along the strike as far as is practicable from one station. The proposal calls for 840 ft of initial and 845 feet of supplementary drilling. This work may disclose an ore body extending to considerable depth.

Contention: The proposed drilling is directed toward proving the continuation of this ore body in depth and along the strike. It will also test the zone between the footwall of the proved ore body and the granite contact. About 1,300 feet of drilling is required. This is expected to increase the present reserve of zinc-copper ore. It will also test the type of mineralization that prevails at greater depth. It is suspected that the copper content of the ore will increase and the zinc content decrewas as depth is attained. If a fairly large tonnage of zinc-copper ore should be developed, a mill will be required to beneficiate this ore.

Taurus: It is proposed to drill two holes on the Taurus claim unless the results of drilling on the Contention are discouraging. The holes are designed to cut the contact at vertical depths of 150 and 250 feet underthe surface showing of copper ore. This drilling may discover an ore shoot similar to those already proved along this contact.

CONCLUSIONS

It is believed that the above program should disclose additional ore bodies. The work will decide whether a custom mill should be built in the district. There are two possible sources of mill ore-copper ore at the Twin Buttes group of mines too low in grade to ship directly to a smelter and zinc-copper ore at the Conention mine that will need both concentration and separation.

The Bureau's sampling will determine the available tonnage of such ores. If the tonnage is high enough to justify a mill, then ore dressing tests will be made by the Bureau of Mines Metallurgical Laboratory followed by proposals for a custom mill. It is probable, however, that enough mill ore will be indicated to recommend a 100 ton milling unit that can begin operation by the end of 1943.

EXPECTED PRODUCTION

	COPPER, POUNDS	
	From Smelting Ore	From Milling Ore
1943	2,192,000	2,386,000
1944	3,288,000	2,386,000
1945	3,288,000	2,386,000
1946	3,288,000	2,386,000
1947	3,288,000	2,386,000
	15,344,000	9,544,000

Production of zinc probably will not be high, its amount cannot be estimated at this time because it is likely that the zinc content of the Contention ore will decline as depth is attained.

DMA 269x A.

Exhibit A.

The applicant proposes to unwater and rehabilitate the Mineral Hill Mine, to prove the existence of 200 000 tons of ore averaging 3.36 percent copper that is indicated in old mine records, and to make possible further exploration of favorable areas. This project offers excellent probabilities of discovering new orebodies that will expand the national reserves.

Summary of cost of project:

Power installation	10,000.00
Repair and retimber 500 foot Vertical Shaft	20,000.00
Repair, retimber, and unwater 700 foot Incline Shaft	25,000.00
Excavating for, and installation of Hoist at Incline Shaft	7,500.00
Head frame and Bins at Incline Shaft	6,300.00
Repair Headframe at Vertical Shaft and install Hoist	1,500.00
Re open and retimber the three lower levels and raises	28,000.00
Surface Buildings (Shop, Warehouse, Change room, Hoist Houses and Office	25,000.00
Equipment rentals and Purchases	6,050.00
Compensation Insurance, Social Security and other Taxes	4,500.00
Total	133,850.00

DMA 269x A.

Exhibit B.

23 d. Surface Buildings

Changeroom, Warehouse, Shop and Office	25,000.00
Excavation, and Build Hoist House at Incline Shaft	7,500.00
Headframe and Bins at Incline Shaft	6,300.00
Hoist Installation at Vertical Shaft	750.00
Total	39,550.00

DMA 269x A.

Exhibit C.

23 e.

Arc Welder and Accessories	640.00
1- 1075 foot Hoist Cable 3/4" for Incline Shaft	375.00
1- 750 foot Hoist cable 3/4" for Vertical Shaft	360.00
1- Electric Saw for Framing	175.00
1- Blower for Lower Levels of Incline Shaft	600.00
1- Typewriter	170.00
1- Adding Machine	230.00
Total	2550.00

23 f.

Rental Gardner - Denver Compressor, 445 cfm capacity, 7 months at $150 per mo	1050.00
$10,900 purchase price	

23 g.

1- 75 HP Single Drum Hoist at $100 per month		$8,100
1- 20 HP Single Drum Hoist at $50 per month		4,200
2- 50 HP I.R. Centrifugal Pumps	total $ 130 per month	2,680
1- Concrete Mixer - New -	$ 50 per month	1,200
1- 15 HP Cut off Saw 24"	$20 per month	800
Total	$350 per month - 7 mos	$2450.00

DMA 2698 A

Exhibit D

23 a

6 - Shaftmen at $1.59½ per hour
1 - Hoistman at $1.49½ per hour
1 - Carpenter at $1.61½ per hour
2 - Helpers at $1.36½ per hour
1 - Warehousemanat $1.25 per hour The man will be a combination warehouseman, time keeper and clerk.

b, 1 General Superintendent at $361.00
1 General Foreman at $255.00
1 Part time Engineer at $200.00

Exhibit E.

23 c

Repair and Retimber 500 foot Vertical Shaft	20000.00
Repair and Retimber and unwater 700 foot Incline Shaft	25000.00
Repair Headframe at Vertical Shaft	750.00
Reopen and Retimber where necessary the three lower levels and raises	28,000.00
Total	73750.00

ANALYSIS OF PROPERTIES, INVESTMENTS AND ADVANCES OF BARNSDALL CORPORATION AND SUBSIDIARY COMPANIES

DECEMBER 31, 1919

	Number of shares owned	% of outstanding stock owned by Barnsdall Corporation	As carried in Consolidated Balance Sheet	Market or Fair Value
OIL AND GAS PROPERTIES:				
Barnsdall Oil Company		100%	$13,114,392.06	$15,000,000.00
Victor Oil Company		100%	321,667.56	3,000,000.00
Miscellaneous Oil and Gas Properties			234,205.73	250,000.00
Totals, Oil and Gas Properties			$13,670,265.35	$18,250,000.00
MINING PROPERTIES:				
Barnsdall Zinc Company		100%	$1,114,640.65	$5,000,000.00
American Tripoli Company		100%	256,429.72	500,000.00
Barnsdall Coal Company		100%	461,903.25	750,000.00
Miscellaneous Mining Properties			1,177,992.13	1,500,000.00
Totals, Mining Properties			$3,010,965.75	$7,750,000.00
REAL ESTATE AND MISCELLANEOUS PROPERTIES:			$351,486.01	$500,000.00
Total Properties			$17,032,717.11	$26,500,000.00
INVESTMENT IN SHARES OF OIL AND GAS COMPANIES:				
Potter Gas Company—Common	37,619	88.1%	$452,015.00	$3,761,000.00
Potter Gas Company—Preferred	3,303	60.2%	165,150.00	165,150.00
Pittsburgh Oil and Gas Company	332,770	66.5%	860,543.79	4,991,550.00
Imperial Osage Development Company	14,000	70%	300,000.00	300,000.00
Ashland Oil Company	84,390	84.4%	36,820.84	843,900.00
Moncton Tramways Electric & Gas Co., Ltd.	7,052	62.7%	105,780.00	105,780.00
Miscellaneous Oil and Gas Securities			147,403.41	147,403.41
Total Investment in Shares of Oil and Gas Companies			$2,067,713.04	$10,315,683.41
INVESTMENT IN SHARES OF MINING AND MISCELLANEOUS COMPANIES:				
Mineral Hill Consolidated Copper Company—Common	2,070,962	69.7%	$ 590,364.60	$ 1,500,000.00
Mineral Hill Consolidated Copper Company—Preferred	194,010	97%		
Miscellaneous mining and other securities			138,268.50	1,000,000.00
Total Investment in Shares of Mining and Miscellaneous Companies			$ 728,633.10	$ 2,500,000.00
BONDS AND MORTGAGES OWNED			$ 279,986.09	$ 279,986.09
ADVANCES TO AFFILIATED COMPANIES			$1,426,006.21	$ 1,426,006.21
Total Investments in and Advances to Affiliated Companies			$4,502,338.44	$14,521,675.71
GRAND TOTAL OF PROPERTIES, INVESTMENTS, AND ADVANCES:			$21,535,055.55	$41,021,675.71

MINERAL HILL CONSOLIDATED COPPER CO.

Incorporated under Laws of Arizona.

CAPITAL STOCK: Authorized—Preferred $200,000.00; Common $3,000,000.00. Outstanding—Preferred $200,000.00; Common $2,972,000.00.
Barnsdall Corporation owns 71%

DIRECTORS

Robt. Law, Jr.
F. H. Minard
Jas A. Dunn
W. D. Blackmer
E. B. Reeser

OFFICERS

F. H. Minard, President
E. O. Bartlett, Vice President
J. T. Furlong, Treasurer
Jas. A. Dunn, Secretary

The properties belonging to this company are in one of the best copper sections of the State of Arizona and are located in Pima County, twenty miles south of Tucson, at an elevation of 3500 ft. The climatic conditions are ideal and a railroad spur of 8 miles is all the track required to give through rail communication to all the southwestern smelters. There is plenty of water for all mining and milling purposes and Mexican labor is employed throughout the camp. The group consists of 55 claims, or about 1100 acres, a portion of which has already been patented.

The company has carried on development work for a number of years which has reached a depth of 700 feet in the west end of the property. This work has explored only a small fraction of the property, but it has developed a body of copper ore carrying some precious metal values which will average between 3% and 4%, and many veins are found running as high as 10% and 12%. There are practically in sight 500,000 tons of this grade of ore and our development is constantly extending the size of the ore body both laterally and in depth.

There are several other shafts on the property from the workings of which ore has been shipped to the smelter and they will be developed just as soon as adequate machinery and power can be made available. All of these workings show the same grade of copper and development is expected to show large bodies of milling ore.

Negotiations are now under way to build the necessary 8 miles of railroad and plans are being drawn for the erection of a 300 ton concentrating mill, located directly on the property. It is expected to begin shipment of concentrates July 1st of this year and at the present price of copper the property will earn $250,000.00 a year net.

As the property is developed it is expected to add other units to the mill, thereby increasing the earnings very considerably. The property is a large one and there are many indications of ore bodies which have not yet been developed and the character of the deposits are of such a nature that it is fully expected that this property will be a steady producer for many years, as it has all the characteristics of the well known lime-stone ore bodies of Arizona.

F. H. MINARD,
President.

ASSIGNMENT OF MINING LEASE AND OPTION

KNOW ALL MEN BY THESE PRESENTS:

That HOWARD H. FIELDS and EVELYN FIELDS, his wife, hereinafter referred to as ASSIGNORS, for and in consideration of the sum of Ten ($10.00) Dollars in hand paid, the receipt of which is hereby acknowledged, and other good and valuable considerations to them in hand paid by W. L. ALLISON, SR., hereinafter referred to as ASSIGNEE, do by these presents grant, bargain, sell, assign, transfer and set over to said Assignee all of their right, title, claim and interest in and to that certain mining lease and option dated 12 day of July, 1950, by and between William F. Foy and Irene Foy, his wife, wherein referred to as Lessors, and Howard F. Fields, therein referred to as Lessee, whereby the said William F. Foy and Irene Foy, his wife, as Lessors did lease and option unto the said Howard H. Fields, as Lessee, the following described lode mining claims located in Pima County, State of Arizona:

That certain patented lode mining claim known as COPPER QUEEN, covered by United States Mineral Survey No. 2643, located in Section Six (6), Township Eighteen (18) South, Range Thirteen (13) East of the Gila and Salt River Base Meridian in the County of Pima, State of Arizona;

Those certain unpatented lode mining claims known as and recorded in the record of mining claims in the County of Pima, State of Arizona, as follows, to-wit:

CLAIM	BOOK	PAGE
Arizona	72	466
Arizona #1	72	469
Arizona #2	72	467
Arizona Butte	72	468

That certain unpatented lode mining claim known as Reina Blanca, the location notice of which is recorded in Book 74 of the records of mining locations at page 225 of the records of Pima County, Arizona, (Said Reina Blanca claim is situated immediately north and contiguous to and adjoins the North side line of the above mentioned Copper Queen claim.)

Together with all buildings and structures and all other personal property of the Lessors located in or upon said claims, and all rights, water rights and easements appurtenant thereto, including but not by this specific reference limited to headframes, machinery, compressors, pumps, hoists, ore bins, pipes and pipe-fittings, track, and various supplies.

Assignors giving and granting unto Assignee all of the Assignor's rights and interests of any nature whatsoever acquired and held by virtue of said lease and option with full power and authority to enforce the terms of said lease and option as fully and completely as Assignors may have done were these presents not executed.

Assignee agrees to abide by and perform all of the terms and conditions of said lease and option, including the payment of all sums accruing while Assignee is in possession of said premises under the terms of said lease and option. Assignee reserves the right to cancel, terminate and surrender said lease and option as provided

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in Section Fifteen (15) thereof and all the obligations and liabilities of Assignee under said lease and option shall terminate without further liability on the part of Assignee as of the date of said cancellation, termination and surrender.

The covenants herein shall extend to and be binding upon the heirs, legal representatives, successors and assigns of the parties hereto.

IN WITNESS WHEREOF Assignors and Assignees have caused these presents to be executed by hereunto setting their hands this 1st day of July, 1950.

Howard H. Fields
Howard H. Fields

Evelyn Fields
Evelyn Fields

ASSIGNORS

W. L. Allison
W. L. Allison, Sr.

ASSIGNEE

STATE OF ARIZONA)
(SS
COUNTY OF MARICOPA)

The foregoing instrument was acknowledged before me this 29th day of July, 1950, by W. L. ALLISON, SR.

David P. Jones
Notary Public

My commission expires:
5-21-53

STATE OF ARIZONA)
(SS
COUNTY OF Santa Cruz)

The foregoing instrument was acknowled ed before me this 5th day of July, 1950, by HOWARD H. FIELDS and EVELYN FIELDS, his wife.

Thomas L. Hall
Notary Public

My commission expires:
December 18, 1953

A S S I G N M E N T

KNOW ALL MEN BY THESE PRESENTS:

That W. L. Allison, Sr., and Ethel Allison, his wife, hereinafter referred to as assignors, for and in consideration of the royalties reserved in that certain assignment hereinafter mentioned and for other good and valuable consideration to them in hand paid by Banner Mining Company, a corporation, hereinafter referred to as the assignee, do by these presents grant, bargain, sell, assign, transfer and set over to said assignee all of their right, title, claim, and interest in and to that certain "Extension of and Supplement to Mining Lease", dated July 28, 1950, by and between Twin Buttes Mining and Smelting Company, a corporation, therein designated as first party, and Howard H. Fields, therein designated as second party, being an extension of and supplement to the mining lease between the same parties dated October 1, 1948, which original lease was heretofore assigned by Howard H. Fields and Evelyn Fields, his wife, to assignors on July 5, 1950, and by the assignors to the assignee on July 28, 1950. Said extension and supplement hereby assigned was assigned to assignors by Howard H. Fields and Evelyn Fields, his wife, the 26th day of August, A. D. 1950.

Assignors hereby give and grant unto assignee all of assignors' rights and interest of any nature whatsoever acquired and held by virtue of said extension and supplement, with full power and authority to enforce the terms of the same as fully and completely as assignors may have done were these presents not executed.

This assignment is made in compliance with the terms and provisions of said original assignment dated July 28,1950, and all of the terms and provisions of said original assignment are confirmed hereby. The parties hereto agree that all of the terms and provisions of said original assignment shall apply to this assignment and shall be effective and valid for the additional term mentioned and provided by said extension and supplement, all as modified and extended by said extension and supplement.

4 T.R. #5

IN WITNESS WHEREOF, assignors have hereunto set their hands and assignee has caused its corporate name to be hereunto subscribed and its seal affixed by its duly authorized officers on this 26th day of August, A. D. 1950.

W. L. Allison, Sr.

Ethel Allison

ASSIGNORS

BANNER MINING COMPANY,
A Corporation

ATTEST:

W. H. Hardy
Secretary

By H. I. Grimes
President

ACKNOWLEDGMENTS

STATE OF ARIZONA)
COUNTY OF MARICOPA (SS

The foregoing instrument was acknowledged before me this 26th day of August, 1950, by W. L. Allison, Sr., and Ethel Allison, his wife.

My commission expires:
5-21-53

David P. Jones
Notary Public

STATE OF OKLAHOMA)
COUNTY OF OKLAHOMA (SS

On this 8th day of September, 1950, before me, the undersigned officer, personally appeared H. I. Grimes, and W.H. Hardy, who acknowledged themselves to be the President and Secretary, respectively, of the Banner Mining Company, a corporation, and that they, as such president and secretary, being authorized so to do, executed the foregoing instrument for the purposes and consideration therein expressed and contained by signing the name of the corporation and attesting the same by themselves as such president and secretary.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Jennie Judson
Notary Public

My commission expires:
Oct. 1, 1950

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ASSIGNMENT OF MINING LEASES AND OPTIONS

KNOW ALL MEN BY THESE PRESENTS:

That W. L. ALLISON, SR., and ETHEL ALLISON, his wife, hereinafter referred to as ASSIGNORS, for and in consideration of Ten ($10.00) Dollars in hand paid, the receipt of which is hereby acknowledged, the payments hereinafter provided for and other good and valuable considerations to them in hand paid by BANNER MINING COMPANY, a corporation, hereinafter referred to as ASSIGNEE, do, by these presents, grant, bargain, sell, assign, transfer and set over to said assignee all of their right, title, claim and interest in and to the following leases, options, extensions, supplements and assignments, including all of said assignors' interest in and to the mining claims and personal property and rights and easements relating thereto, to-wit:

1. That certain mining lease and option dated October 1, 1948, by and between Twin Buttes Mining & Smelting Company, a corporation, therein referred to as Lessor, and Howard H. Fields, therein referred to as Lessee, together with that certain extension of and supplement to mining lease and option dated July _____, 1950, between the same parties and that certain assignment of mining lease and option dated July _____, 1950, between Howard H. Fields and Evelyn Fields, his wife, therein referred to as assignors, and W. L. Allison, Sr., therein referred to as assignee, said lease and option being recorded in the office of the County Recorder of Pima County, Arizona, in Docket _____, pages _____, and said assignment being recorded in said office in Docket _____, pages _____.

2. That certain mining lease and option dated July _____, 1950, by and between William F. Foy and Irene Foy, his wife, therein referred to as Lessors, and Howard H. Fields, therein referred to as lessee, together with that certain assignment of mining lease and option dated July _____, 1950, between Howard H. Fields and Evelyn Fields, his wife, therein referred to as assignors, and W. L. Allison, Sr., therein referred to as assignee, said mining lease and option being recorded in the office of the County Recorder of Pima County, Arizona, in Docket _____, pages _____, and said assignment being recorded in said office in Docket _____, pages _____.

Assignors giving and granting unto assignee all of assignors' rights and interests of any nature whatsoever acquired and held by virtue of the written instruments above referred to with full power and authority to enforce the terms of the same as fully and completely as assignors may have done were these presents not executed.

E. A. WLA

In consideration of said assignment it is agreed as follows, to-wit:

1. Assignors hereby reserve to themselves, their heirs and assigns as an overriding royalty the sum of twenty-five (25¢) cents for each and every ton of ore mined or taken from any or all of the claims covered by the above mentioned written instruments, or taken from the dumps on said claims. By the term "ore" as herein used is meant all ore that is milled or processed or shipped from said claims for milling or processing but does not include waste material handled in mining, exploratory or development work. Weights are to be based upon a dry ton.

2. The amount due assignors shall be paid to them by assignee monthly on a calendar monthly basis on or before the twentieth (20th) day of the succeeding month by check mailed to assignors at Post Office Box 6067, Phoenix, Arizona.

3. The payments hereinabove provided to be made to assignors shall continue and be payable by assignee to assignors for the whole period of time that assignee or its successors or assigns shall have any interest, direct or indirect, in any or all of the mining claims above referred to and the exercise of any option to purchase shall not in any manner whatsoever relieve assignee from its obligation and liability to pay the amounts above mentioned. Nothing contained herein shall be construed so as to prevent the assignee from cancelling, terminating or surrendering said leases and options as provided therein and as hereinafter provided.

4. Assignors hereby specifically reserve the right to approve in writing any assignments of said leases and options or any rights acquired thereunder by assignee and no assignment of said leases or options or rights acquired thereunder may be made by assignee without first obtaining written approval and consent of the assignors to said assignment.

5. Assignee shall at all times keep a complete set of books and records as to production and shipment of ore, which books and records are to be at all reasonable times available to the inspection of assignors or their agents, and they may enter the premises at any reasonable time for such purpose.

6. Assignee must inform assignors of their intention to cancel, surrender or terminate either of said leases or any of its rights thereunder in writing at Post Office Box 6067, Phoenix, Arizona, sixty (60) days prior to the effective date of said cancellation or surrender or termination.

Assignee must immediately inform assignors in writing at Post Office Box 6067, Phoenix, Arizona, of any notice of forfeiture received by them from the above referred to lessors or their successors or assigns or heirs and personal representatives.

In the event assignee intends to cancel, surrender, or terminate either of said leases or any rights acquired thereunder or in the event of a valid forfeiture as provided by said leases, assignee will forthwith and prior to the effective date of any such cancellation, surrender, termination or forfeiture, at assignors' written request, assign all of assignee's interest in and to said leases, options, extensions, supplements and assignments above referred to, to assignors. In the event the assignee receives a notice of forfeiture as provided in said leases, or either of them, nothing contained in this assignment shall be construed to prevent it from resisting said forfeiture, nor from complying with the lease in order to avoid such forfeiture, the provision hereof to apply only in the event that the assignee intends to cancel, surrender or terminate the lease or in the event it intends to allow a forfeiture thereof.

7. Assignee agrees to indemnify assignors and hold them harmless from any and all liability created by reason of the performance of the obligations incurred by assignee under this assignment, and the written instruments above referred to, up to the date of cancellation, termination or surrender of the rights of the assignee under said leases or either of them. Assignee will secure insurance protecting Assignors from any and all liability relating hereto.

8. Until cancelled, surrendered or otherwise terminated the assignee agrees to abide by and perform all of the terms and conditions of the written instruments above referred to including, but not limited to, the payment of all sums accruing while assignee is in possession of said premises under the terms of said written instruments.

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Assignee, however, reserves the right to cancel, terminate and surrender said leases and options as provided therein and all obligations and liabilities of assignee under said leases and options shall terminate as of the date of said cancellation, termination and surrender provided assignor shall be entitled to royalties on ore removed to the date of such termination.

9. Time is declared to be of the essence of this assignment and the covenants herein shall extend to and be binding upon the heirs, legal representatives, successors and assigns of the parties hereto.

10. It is specifically understood and agreed that the assignee may surrender the property covered by one of the leases, together with its rights under said lease and assignment, and terminate and cancel the same without surrendering its rights under the other lease and assignment thereof and that likewise it may allow a forfeiture of one such lease without allowing a forfeiture as to the other.

IN WITNESS WHEREOF, assignors have hereunto set their hands and assignee has caused its corporate name to be hereunto subscribed and its seal affixed by its duly authorized officers on this 29th day of July, 1950.

W. L. Allison
W. L. Allison, Sr.

Ethel Allison
Ethel Allison

ASSIGNORS

ATTEST:

W. H. Hardy
Secretary

BANNER MINING COMPANY, a corporation

By H. I. Grimes
President

ACKNOWLEDGMENTS

STATE OF ARIZONA)
COUNTY OF MARICOPA (SS

The foregoing instrument was acknowledged before me this 29th day of July, 1950, by W. L. Allison, Sr., and Ethel Allison, his wife.

David P. Jones
Notary Public

My commission expires:
5-21-53

STATE OF OKLAHOMA)
COUNTY OF OKLAHOMA (SS

On this 4th day of August, 1950, before me, the undersigned officer, personally appeared H. I. Grimes, and W. H. Hardy, who acknowledged themselves to be the President and Secretary, respectively, of the Banner Mining Company, a corporation, and that they, as such president and secretary, being authorized so to do, executed the foregoing instrument for the purposes and consideration therein expressed and contained by signing the name of the corporation and attesting the same by themselves as such president and secretary.

IN WITNESS WHEREOF I hereunto set my hand and official seal.

Jessie Jackson
Notary Public

My commission expires:
October 1, 1950

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COPY

MINING LEASE AND OPTION

THIS AGREEMENT Made and entered into as of this 1st day of October, 1948, by and between

TWIN BUTTES MINING & SMELTING COMPANY, an Arizona Corporation, first party, Lessor, and

HOWARD H. FIELDS of Prescott, Arizona, second party, Lessee, canceling and superseding all prior contracts and agreements of lease and option on the described property and more particularly that agreement between first party and Howard H. Fields made as of the 1st day of February, 1945, as per Quit Claim Deed from Howard H. Fields to be attached hereto and also canceling that agreement dated as of November 18, 1947, whereby first party granted to Howard H. Fields permission to assign the aforementioned contract with certain modifications and amendments to Allison Steel Manufacturing Company and also that certain agreement of lease and option between first party and Allison Steel Manufacturing Company dated as of April 1, 1948, as per Quit Claim Deed from said Allison Steel Manufacturing Company to be attached hereto

WITNESSETH:

ARTICLE 1. Description of Property.

That the lessor being the lawful owner of the described property, for and in consideration of the sum of one hundred dollars ($100.00) paid by the lessee to the representative of the lessor receipt whereof is hereby acknowledged as representing one half of the minimum royalty for the month of October, 1948, and for and in consideration of the royalties or rentals to be paid by the lessee and of the covenants and agreements hereinafter set forth, does hereby lease unto the lessee, his successors and assigns, upon the terms and conditions hereinafter set forth, which are hereby accepted by the lessee, the following patented lode mining claims in three separate and distinct groups or parcels as follow all located in the Pima Mining District, County of Pima, State of Arizona.

T.B. #1
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NORTHERN GROUP	Survey No.
Copper Prince (Dodge)	2641
Senator Stewart	2642
James G. Blaine	2640
Garfield	2640
Admiral Dewey	2640
McKinley Lode	2640
Hobson Copper	2640
Copper Hill	2640
CENTRAL GROUP	
Copper Butte	2643
Copper King	2643
Copper Glance	2643
Copper Bullion	2643
Bullion #2	2643
Copper Eagle	2643
Standard Copper	2643
SOUTHERN GROUP	
Gladstone	2030
Summit Fraction	2030
Senator Morgan	2030
Senator Morgan #2	2030
Daily News	2030
Nellie	2030
Margaret or Margarita	2030

Also certain structures, dumps of ore and personal property thereon situated.

ARTICLE 2. Term of Lease.

The term of this lease, unless sooner forfeited, cancelled, terminated or surrendered, shall be for five (5) years from the date hereof.

ARTICLE 3. Possession and Control of Property.

The lessee shall have and he is hereby given and granted the right to enter into and take over immediately ~~and~~ the sole and exclusive possession and control of the above described property and the whole and every part thereof, and during the term of this lease to remain in the sole and exclusive possession and control thereof, and to investigate, measure, sample, examine, test, develop, work, mine, operate, use, manage and control the same, and to mine, extract and remove from said property the ores and minerals therein and appurtenant and belonging thereto, and to treat, mill, ship, sell or otherwise dispose of the same and receive the full proceeds therefrom less the royalties payable to the lessor as per Article 5.

ARTICLE 4. Entry, Manner of Work and Conformity with Laws.

The lessee agrees to take possession of said property within thirty days from the date hereof, and to cause all examination, work,

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development and mining to be done in a careful and minerlike manner, and conforming in all respects to the mining laws and regulations of the State of Arizona.

ARTICLE 5. Royalties and Rentals.

The lessee hereby agrees to pay to the lessor royalties on all ores and minerals and on concentrates or other products derived from ores mined from or taken from dumps on the leased property as follows:

(a) On all ores and concentrates or other products derived from ores from which there is a net return of $10.00 or more per ton of ore, the royalty shall be 10% of the net returns.

(b) On all ores and concentrates or other products derived from ores from which there is a net return of less than $10.00 per ton of ore, the royalty shall be reduced by one per cent for each decrease of one dollar in the return from the ore down to a minimum of 5% royalty on ores having a net return of $5.00 or less per ton e. g.

on	$9.00	ore	the	royalty	shall be	9%
on	8.00	"	"	"	"	" 8%
"	7.00	"	"	"	"	" 7%
"	6.00	"	"	"	"	" 6%
"	5.00 or lower value ore the royalty shall be					5%

Said royalty shall be deducted by the purchaser of the ores and/or concentrates or other products and paid directly to the owner or to its authorized agent accompanied by copies of the settlement sheets covering each lot of material purchased.

The net returns to which reference has been made in this article shall be deemed to represent all sums paid to the lessee for the values in the ores or other products after deducting any transportation charges from mine to smelter or mill which may actually be paid by the purchaser.

The net returns from the ore or other products sold in each calendar month shall be based upon the average return for the said ore or other products during the said month and upon the average monthly

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quotation for the metals contained and paid for as published in the Engineering and Mining Journal. All payments of royalty due for any one month and not deducted by the purchaser shall be made by the 20th of the next succeeding month.

It is however expressly understood and agreed that the minimum royalty or rental for the use and occupancy of the leased property shall be the sum of two hundred dollars ($200.00) per month during the life of this agreement and an amount sufficient to make up these minimum payments shall be paid by the lessee to the lessor or its authorized agent before the twentieth (20th) of the next succeeding month for each and every month when the amount paid as royalty from the sale of the ores or other products has fallen below the stipulated minimum payments.

ARTICLE 6. Protection from Liens and Damages.

The lessee shall keep said property and the whole and every part thereof free and clear of liens for labor done or performed upon said property or materials furnished to him on or for said property, or for the development or operation thereof under this lease and while the same is in force and effect, and will save and keep harmless the lessor from all costs, loss or damage which may arise by reason of injury to any persons employed by the lessee in or upon said property or any part thereof or which may arise by reason of injury to any persons, live-stock or other property as the result of any work or operations of the lessee or his possession and occupancy of the leased property.

ARTICLE 7. Notices of Non-Liability.

The lessee will post and keep posted upon said property such notices of non-liability for labor or materials furnished as may be prepared by the lessor to be posted thereon, pursuant to laws of the State of Arizona.

ARTICLE 8. Payment of Taxes.

The lessee shall pay, when due and before delinquent, all taxes upon said property falling due during the term of this lease and while

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the same is in force and effect, and shall pay, when due and before delinquent, all taxes levied or assessed against any and all personal property, machinery and equipment placed upon said property by the lessee prior to or duringthe term of this lease. The lessee shall also pay all sales taxes and other taxes of every kind, character and description levied or imposed during the term of this lease upon the ores, minerals, concentrates or products of ores, produced, sold or otherwise disposed of by the lessee, and all taxes levied against the lessee as an employer of labor;-all such taxes to be promptly paid when due and before delinquent.

ARTICLE 9. Insurance.

The lessee shall carry at all times during the term of this lease Workmen's Compensation, Liability and other insurance required by the laws and mining regulations of the State of Arizona.

ARTICLE 10. Reports and Maps.

The lessee shall furnish the lessor quarterly with copies of the logs of any holes that may be drilled on the property and with such sample or assay maps as may be made showing the position and assay values of samples taken on said property and with all data pertaining to any geophysical surveys or other exploration work that may be conducted on the leased property.

ARTICLE 11. Inspection.

The duly authorized representative of the lessor shall be permitted to enter into and upon said property and the workings of the lessee at all reasonable times for the purpose of inspection, and to inspect the books of accounts and records of production and sale of products.

ARTICLE 12. Forfeiture.

The failure of the lessee to make or cause to be made any payment herein provided for, or to keep or perform any obligation on his part to be kept and performed, according to the terms and provisions hereof, and especially the failure of the lessee to make the payments of the minimum royalty or rental stipulated in Article 5, hereof,

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shall at the election of the lessor, work a forfeiture hereof, and any and all moneys which have been paid to the lessor in accordance with the terms of this agreement shall be deemed forfeited to the lessor. Provided, however, that in the event of a default on the part of the lessee and the election of the lessor to terminate this lease and option on account thereof, the lessor shall give to the lessee a written notice of its intention to declare a forfeiture of this agreement and to terminate the same on account thereof, specifying the particular default or defaults relied upon by it, and the lessee shall have thirty (30) days after receipt of said notice in which to make good such default or defaults, in which event there shall be no forfeiture hereof.

ARTICLE 13. Surrender of Lease and Option.

The lessee expressly reserves the right to cancel, terminate and surrender this agreement and to relinquish all rights, privileges and obligations hereunder at any time during the term hereof after having given to the lessor thirty days written notice of his intention and fully discharged all obligations previously incurred.

ARTICLE 14. Force Majeure.

If the lessee shall be delayed at any time in keeping or performing any agreement on his part to be kept or performed according to the terms and provisions hereof by strikes, lockouts, fire, lack of market, unusual delay in transportation, orders of the Government or any duly constituted instrumentality thereof, unavoidable casualties, or any causes beyond the control of the lessee, such delay shall not be deemed a breach of this agreement or a default on the part of the lessee constituting a cause for forfeiture; provided that during any such periods the lessee continues to pay the taxes as herein stipulated and one half of the minimum rental or royalty provided in Article 5 hereof.

ARTICLE 15. Surrender of Property by Lessee.

In the event of a valid forfeiture, surrender or other termination of this lease, the lessee will immediately surrender to the lessor peaceable possession of said property and the whole and every part thereof

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and execute a Quit Claim Deed to the lessor relinquishing all of his rights to the leased property.

ARTICLE 16. Removal of Equipment, Etc. by Lessee.

The lessee shall have, and he is hereby given and granted sixty (60) days after a valid forfeiture, surrender or other termination of this lease to remove from said property all warehouse stocks, merchandise, materials, tools, hoists, compressors, engines, motors, pumps, transformers, electrical accessories, metal or wooden tanks, pipes and connections, mine cars and any and all other machinery and equipment erected or placed in or upon said property by him together with all ore broken in the stopes or workings; but this right of removal shall not extend to mine timbers and underground mine tracks and pipe lines in place on the levels or in the shafts, nor to permanent improvements, including all buildings and other structures attached to the soil. Provided, but only provided, that the lessee is not at that time in default in respect to any payments due to the lessor or in respect to any of the terms of this agreement the non-performance of which might involve the lessor in any present or future liability. Until such obligations have been fully discharged, the lessor shall hold a first and prior lien upon all of the moveable equipment and other personal property of the lessee placed upon the leased property.

ARTICLE 17. Option to Purchase.

Throughout the term of this lease the exclusive right, privilege and option is hereby granted the lessee to purchase the leased property free and clear of all liens and encumbrances for the sum of one hundred and five thousand dollars ($105,000.00) lawful currency of the United States of America and in the event that this option is exercised all payments of rental or royalty previously made by the lessee under the terms of this agreement shall be credited against the said purchase price, one half of the balance of which shall then be paid in cash and the remaining balance within one year thereafter.

Upon the completion of the purchase price, the lessor will execute a good and valid title to the said property.

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ARTICLE 18. Assignment.

During the term of this lease and option the lessee may assign the same and all of his rights and privileges hereunder to another party provided that the terms of such an assignment and the responsibility and intentions of his assignee have first been approved in writing by the lessor and that a copy of such approval and of the assignment is duly recorded by the lessee in the records of Pima County.

ARTICLE 19. Legal Interpretation.

This Lease Agreement and Option to Purchase has been accepted and will be performed by the parties in the State of Arizona and all questions pertaining to its validity, construction or interpretation shall be determined in accordance with the laws of the State of Arizona.

ARTICLE 20. Inurement.

Time is of the essence of this Lease and Option. The terms, provisions, covenants and agreements herein contained shall extend to, be binding upon and inure to the benefit of the successors and assigns of the parties hereto.

ARTICLE 21. Notices.

All notices herein provided for shall be given by mail at the following addresses, until otherwise changed by written request of the parties hereto, to-wit:

To the Lessor.

Twin Buttes Mining & Smelting Company
229 East Wisconsin Avenue
Milwaukee, Wisconsin.

or

C/o G. M. Colvocoresses, their Authorized Representative
1102 Luhrs Tower
Phoenix, Arizona.

To the Lessee.

Howard H. Fields
Apt. 182
Hermosillo, Sonora, Mexico.

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IN WITNESS WHEREOF, the lessor and lessee have caused their names to be hereunto subscribed and their corporate seals hereunto affixed and attested by their duly authorized officers, in duplicate counterparts, as of the day and year first above written.

TWIN BUTTES MINING & SMELTING CO., Lessor

By HENRY J. NUNNEMACHER
President

(CORPORATE SEAL)

ATTEST:

Recommended for execution.

H. B. DREYER
Secretary

G. M. COLVOCORESSES.

HOWARD H. FIELDS, Lessee

HOWARD H. FIELDS

STATE OF WISCONSIN)
County of Milwaukee) SS.

This instrument was acknowledged before me this 29 day of Sept 1948, by Henry J. Nunnemacher as President and H. B. Dreyer as Secretary of Twin Buttes Mining & Smelting Company, a Corporation, for and on behalf of said corporation.

My Commission expires Sept 18, 1949

(NOTARIAL SEAL)

HAROLD SCHULDT
Notary Public

STATE OF ARIZONA)
County of Santa Cruz) SS.

This instrument was acknowledged before me this 21 day of Dec. 1948, by Howard H. Fields, known to me to be the party herein referred to as the Lessee.

My Commission expires Aug. 25, 1951

(NOTARIAL SEAL)

CZARINA SOTOMAYOR
Notary Public

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ASSIGNMENT OF MINING LEASE AND OPTION

KNOW ALL MEN BY THESE PRESENTS:

That HOWARD H. FIELDS and EVELYN FIELDS, his wife, hereinafter referred to as ASSIGNORS, for and in consideration of a reserved royalty of two and one-half (2½) per cent of the net smelter returns as hereinafter defined on all ores, minerals and concentrates or other products derived from ores mined from or taken from dumps on the lode mining claims comprising the leased property hereinafter referred to and described as hereinafter provided and other good and valuable considerations to them in hand paid by W. L. Allison, Sr., hereinafter referred to as Assignee, do by these presents grant, bargain, sell, assign, transfer and set over to said Assignee all of their right, title, claim and interest in and to that certain mining lease and option dated October 1, 1948, together with any and all amendments or extensions thereof, by and between TWIN BUTTES MINING & SMELTING CO., a Wisconsin corporation, therein referred to as Lessor, and Howard H. Fields, therein referred to as Lessee, whereby the said Twin Buttes Mining & Smelting Co., a Wisconsin corporation, as Lessor did lease and option unto the said Howard H. Fields, as Lessee, the following described lode mining claims:

Senator Morgan or Southern Group comprising the claims known as:

Summit Fraction	Senator Morgan
Gladstone	Senator Morgan No. 2
Margarita or Margaret	Nellie

Daily News

All covered by U. S. Mineral Survey No. 2030 and located in the Pima Mining District in Sections 1, 2 and 12 of Township 18 South, Range 12 East, Gila and Salt River Base and Meridian in the County of Pima, State of Arizona;

Together with all buildings, structures and all other personal property of the Lessor located on said claims and all rights and easements appurtenant thereto excepting only certain water rights on the Gladstone Claim referred to in said lease and option.

McKinley or Northern Group comprising the claims known as:

Copper Prince (Dodge)	Admiral Dewey
Senator Stewart	The McKinley ~~Lode~~ Copper
James G. Blaine	Hobson Copper
Garfield	Copper Hill

Covered by Patent Surveys Nos. 2640, 2641, and 2642 and located in said Pima Mining District, Pima County, Arizona, in Sections 25 and ~~26~~ 36 of Township 17 South, Range 12 East and in Sections 30 and 31 of Township 17 South, Range 13 East, Gila and Salt River Base and Meridian.

Central Group comprising the claims known as:

Bullion #2	Copper Butte
Copper Eagle	Copper Bullion
Standard Copper	Copper Glance

Copper King

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All covered by Patent Survey #2643 and located in said Pima Mining District in Section 6, Township 18 South, Range 13 East, in Section 36, Township 17 South, Range 12 East, and in Section 31, Township 17 South, Range 13 East, Gila and Salt River Base and Meridian.

Assignors giving and granting unto Assignee all of Assignor's rights and interests of any nature whatsoever acquired and held by virtue of said lease and option and amendments and extension thereof with full power and authority to enforce the terms of the same as fully and completely as Assignors may have done were these presents not executed.

Assignee agrees to abide by and perform all of the terms and conditions of said lease and option, including the payment of all sums accruing while Assignee is in possession of said premises under the terms of said lease and option. Assignee reserves the right to cancel, terminate and surrender said lease and option as provided in Section Fifteen (15) thereof and all the obligations and liabilities of Assignee under said lease and option shall terminate without further liability on the part of Assignee as of the date of said cancellation, termination and surrender.

Assignors agree to assign to Assignee all amendments and extensions of said lease and option immediately after the same have been executed by Lessor, particularly in reference to those matters and things set forth in that certain letter dated June 20, 1950, addressed to Assignors from Twin Buttes Mining & Smelting Company relating to the aforementioned lease and option.

Net smelter or mill returns within the meaning of this assignment shall be the correct returns as shown by the liquidation or settlement sheets furnished by the smelter or mill treating such ores and concentrates after such smelter or mill shall have made deduction for transportation charges from mine to smelter or mill, treatment, and usual smelting or milling deductions. No premiums or bonuses or amounts above market prices paid to the Lessee by any governmental agency shall be included in reserved royalty settlement.

In the event Assignee shall construct his own mill for the treatment of ores no deduction shall be made by Assignors for the milling of ores produced from the above described premises in arriving at said reserved royalty payment, except transportation charges shall be deducted for the transporting of ores from the mines to the mill and transportation charges shall be deducted for transporting concentrates from the mill to the smelter and the other usual deductions and smelter charges.

Assignee may erect a mill upon the premises herein leased for the purpose of milling ore from the claims above described and may mill ore from other claims in said mill. In the event of the co-mingling of ores from the claims above described and other claims the royalties to which Assignors are entitled as above set forth shall be determined by and based upon weights and samples of ores, and percentage of recovery, made and taken by Assignee in accordance with good engineering practice, taken from the above described claims prior to the co-mingling and milling with other ore as aforesaid. In such event payments shall be made monthly on or before the 20th day of the succeeding month by Assignee direct to Assignors.

Provided, however, that the aggregate of said reserved royalties to be paid to Assignors shall in no event exceed Fifty-five Thousand ($55,000.00) Dollars without interest. Provided further, however, that in the event said lease and option is terminated and cancelled as provided for in said lease and option the obligation to pay said reserved royalty shall cease and terminate.

Assignors represent, warrant and agree that they are the owners and holders of the above mentioned lease and option and that there are no liens, encumbrances or obligations against their interest in said

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lease and option or the property described therein. Assignors agree to save Assignee harmless from any claim of any person, firm, corporation or governmental agency, and particularly the Reconstruction Finance Corporation and the Federal Reserve Bank of Dallas as custodian for it in connection with a certain note and chattel mortgage, being Loan No. 2898, given to Reconstruction Finance Corporation on February 19, 1943, due January 1, 1944, in the sum of Nine Thousand ($9,000.00) Dollars with interest.

The covenants herein shall extend to and be binding upon the heirs, legal representatives, successors and assigns of the parties hereto.

IN WITNESS WHEREOF Assignors and Assignee have caused these presents to be executed by hereunto setting their hands this 5th day of July, 1950.

Howard H. Fields
Howard H. Fields

Evelyn Fields
Evelyn Fields

ASSIGNORS

W. L. Allison
W. L. Allison, Sr.

ASSIGNEE

STATE OF ARIZONA)
COUNTY OF Santa Cruz) SS

The Foregoing instrument was acknowledged before me this 5th day of July, 1950, by HOWARD H. FIELDS and EVELYN FIELDS, his wife.

My commission expires:
December 18, 1953

Thomas L. Hall
Notary Public

STATE OF ARIZONA)
COUNTY OF MARICOPA) SS

The foregoing instrument was acknowledged before me this 29th day of July, 1950, by W. L. ALLISON, SR.

David P. Jones
Notary Public

My commission expires:
5-21-53

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A S S I G N M E N T

KNOW ALL MEN BY THESE PRESENTS:

That Howard H. Fields and Evelyn Fields, his wife, hereinafter referred to as assignors, for and in consideration of the royalties reserved in that certain assignment hereinafter mentioned and for other good and valuable consideration to them in hand paid by W. L. Allison, Sr., hereinafter referred to as the assignee, do by these presents grant, bargain, sell, assign, transfer and set over to said assignee all of their right, title, claim and interest in and to that certain "Extension of and Supplement to Mining Lease", dated July 28, 1950, by and between Twin Buttes Mining and Smelting Company, a corporation, therein designated as first party, and Howard H. Fields, therein designated as second party, being an extension of and supplement to the mining lease between the same parties, dated October 1, 1948, which was heretofore assigned by the assignor to the assignee, said assignment being dated July 5, 1950.

Assignors hereby give and grant unto assignee all of assignors' rights and interest of any nature whatsoever acquired and held by virtue of said extension and supplement, with full power and authority to enforce the terms of the same as fully and completely as assignors may have done were these presents not executed.

This assignment is made in compliance with the terms and provisions of said original assignment and all of the terms and provisions of said original assignment are confirmed hereby. The parties hereto agree that all of the terms and provisions of said original assignment shall apply to this assignment and shall be effective and valid for the additional term mentioned and provided by said extension and supplement, all as

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modified and extended by said extension and supplement.

IN WITNESS WHEREOF, assignors and assignee have caused these presents to be executed by hereunto setting their hands this 26th day of August, A. D. 1950.

Howard H. Fields
Evelyn Fields
Assignors

W L Allison Sr
Assignee

STATE OF ARIZONA)
SS
COUNTY OF)

The foregoing instrument was acknowledged before me this 9th day of September, 1950, by HOWARD H. FIELDS and EVELYN FIELDS, his wife.

My commission expires:
February 8th 1952

Notary Public

STATE OF ARIZONA)
SS
COUNTY OF MARICOPA)

The foregoing instrument was acknowledged before me this 26th day of August, 1950, by W. L. ALLISON, Sr.

My commission expires:
5-21-53

Notary Public

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MINING LEASE AND OPTION

THIS AGREEMENT made and entered into this 1st day of July, 1950, by and between WILLIAM F. FOY and IRENE FOY, his wife, hereinafter referred to as LESSORS, and HOWARD H. FIELDS, hereinafter referred to as LESSEE,

W I T N E S S E T H

That for and in consideration of the sum of Ten ($10.00) Dollars in hand paid by Lessee to Lessors, the receipt of which is hereby acknowledged, other good and valuable considerations, and the royalties reserved and rentals to be paid by Lessee to Lessors and of the covenants and conditions hereinafter set forth, Lessors hereby lease and let unto Lessee and his heirs, personal representatives, successors and assigns upon the terms and conditions hereinafter set forth the following lode mining claims located in Pima County, State of Arizona.

1. **Description of Property:**

That certain patented lode mining claim known as COPPER QUEEN, covered by United States Mineral Survey No. 2643, located in Section Six (6), Township Eighteen (18) South, Range Thirteen (13) East of the Gila and Salt River Base Meridian in the County of Pima, State of Arizona;

These certain unpatented lode mining claims known as and recorded in the record of mining claims in the County of Pima, State of Arizona, as follows, to-wit:

CLAIM	BOOK	PAGE
Arizona	72	466
Arizona #1	72	469
Arizona #2	72	467
Arizona Butte	72	468

That certain unpatented lode mining claim known as Reina Blanca, the location notice of which is recorded in Book 74 of the records of mining locations at page 225 of the records of Pima County, Arizona (Said Reina Blanca claim is situated immediately North and contiguous to and adjoins the North side line of the above mentioned Copper Queen claim.)

HHF
WFF

Together with all buildings and structures and all other personal property of the Lessors located in or upon said claims, and all rights, water rights and easements appurtenant thereto, including but not by this specific reference limited to head frames, machinery, compressors, pumps, hoists, ore bins, pipes and pipe-fittings, track, and various supplies.

2. **Covenant and Ownership:**

Lessors covenant, and this lease and option is entered into by Lessee in specific reliance thereon, that they are the owners of a good and merchantable title to each of the three mining claim groups hereinabove described, and all of said personal property, free, clear and unencumbered and have the right and power to enter into the within lease and option.

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3. **Term of Lease:**

The term of this lease and option unless sooner forfeited, cancelled, terminated or surrendered, as hereinafter provided, shall be for eight (8) years from the date hereof.

4. **Possession and Control of Property:**

The Lessee shall have and he is hereby given and granted the right to enter into and take over immediately the sole and exclusive possession and control of the above described property and the whole and every part thereof, and during the term of this lease to remain in the sole and exclusive possession and control thereof, and to investigate, measure, sample, examine, test, develop, work, mine, operate, use, manage, control the same, and to mine, extract and remove from said property the ores and minerals therein and appurtenant and belonging thereto, and to treat, mill, ship, sell or otherwise dispose of the same and receive full proceeds therefrom less the royalties reserved by the Lessors as per Paragraph 6.

5. **Entry, Manner of Work and Conformity with Laws:**

The Lessee agrees to take possession of said property within thirty (30) days from the date hereof, and to cause all examination, work, development and mining to be done in a careful and minerlike manner, and to conform in all respects to the mining laws and regulations of the State of Arizona.

The Lessee shall, within sixty (60) days from the date of this agreement, commence work around the collar of the Copper Queen shaft and shall, within a reasonable time thereafter, do sufficient work to prevent the headframe from falling down the shaft and to prevent further material from caving or from falling into the said shaft from the surface area.

6. **Royalties and Rentals:**

The Lessors hereby expressly reserve to themselves, their heirs, administrators, executors and assigns, as royalty, the equal ten (10%) per cent part of the net smelter or mill returns after deductions, as herein defined, on all ores, minerals and concentrates or other products derived from ores mined from or taken from dumps on the leased property.

Said royalties reserved shall be deducted by the purchaser of the ores and/or concentrates or other products and paid directly to Lessors accompanied by copies of the settlement sheets covering each lot of material purchased.

Net smelter or mill returns within the meaning of this agreement shall be the correct returns as shown by the liquidation or settlement sheets furnished by the smelter or mill treating such ores and concentrates after such smelter or mill shall have made deduction for transportation charges from mine to smelter and mill, treatment and usual smelting or milling deductions. No premiums or bonuses or amounts above market prices paid to the Lessee by any governmental agency shall be included in royalty settlements.

In the event Lessee shall construct his own mill for the treatment of ores no deduction shall be made by Lessee for the milling of ores produced from the above described premises in arriving at royalty payment, except transportation charges shall be deducted for the transporting of ores from the mines to the mill and transportation charges shall be deducted for transporting concentrates from the mill to the smelter and the other usual deductions and smelter charges. In such event the royalties reserved shall be computed and paid in the manner specified in Paragraph 7, hereof.

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Provided, however, that Lessee agrees to pay Lessors a minimum rental or royalty of $200.00 each month, to be paid monthly, commencing one month from the date hereof, said minimum rental or royalty to be paid from the ten (10%) per cent royalties above reserved, or in the event said ten (10%) per cent does not amount at the end of each month to an aggregate of $200.00, then the difference thereof to be paid in cash by Lessee to Lessors; provided, further, however, that in the event said ten (10%) per cent royalty reserved in any one month shall exceed the minimum royalty or rental of $200.00, herein provided for, then any and all excess over and above said $200.00 in said month shall be carried over and applied to the payment of the minimum rental or royalty due in the succeeding month or months

7. Erection of Mill:

Lessee may erect a mill upon the premises herein leased for the purpose of milling ore from the claims above described and may mill ore from other claims in said mill. In the event of the co-mingling of ores from the claims above described and other claims the royalties reserved to which Lessors are entitled as above set forth, shall be determined by and based upon dry weights and samples of ores, and percentage of recovery, made and taken by Lessee in accordance with good engineering practice, taken from the above described claims prior to the co-mingling and milling with other ore as aforesaid. In such event the royalties reserved shall be paid monthly on or before the 20th day of the succeeding month by Lessee direct to Lessors.

8. Protection from Liens and Damages:

The Lessee shall keep said property and the whole and every part thereof free and clear of liens for labor done or performed upon said property or materials furnished to him on or for said property, or for the development or operation thereof under this lease and while the same is in force and effect, and will save and keep harmless the Lessors from all costs, loss or damage which may arise by reason of injury to any persons employed by the Lessee in or upon said property or any part thereof which may arise by reason of injury to any persons, livestock or other property as the result of any work or operations of the Lessee or his possession and occupancy of the property.

9. Notice of Non-Liability:

The Lessee will keep posted upon said property notices of non-liability for labor or materials furnished pursuant to laws of the State of Arizona, stating that neither Lessors nor the said property shall be liable for labor or material performed on or furnished to be used upon said property.

10. Payment of Taxes:

The Lessee shall pay, when due and before delinquent all taxes upon said property falling due during the term of this lease and while the same is in force and effect, and shall pay, when due and before delinquent, all taxes levied or assessed against any and all personal property, machinery and equipment placed upon said property by the Lessee during the term of this lease. The Lessee shall also pay all sales taxes and other taxes of every kind, character and description levied or imposed during the term of this lease upon the ores, minerals, concentrates or products of ores, produced, sold or otherwise disposed of by the Lessee, and all taxes levied against the Lessee as an employer of labor; - all such taxes to be promptly paid when due and before delinquent.

In the case of taxes for the calendar year in which this lease begins, and/or for the calendar year in which this lease ends,

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there shall be an apportionment between the parties, the Lessors to bear the proportion of such taxes applicable to that part of the calendar year not included in this lease, and the Lessee to bear the balance of said taxes; provided, however, that the Lessors shall in no event be responsible for any portion of any taxes on machinery, equipment, or improvements placed upon the mining claims hereinabove described by Lessee, unless such machinery, equipment or improvements shall be left upon the property and shall inure to the benefit of the Lessors. The Lessee further agrees to pay all so-called sales taxes now or hereafter levied by the State of Arizona or the United States of America on the ores and concentrates shipped from said property.

11. Insurance:

The Lessee shall carry at all times during the term of this lease Workmen's Compensation, Liability and other insurance required by the laws and mining regulations of the State of Arizona, provided, however, that Lessee may qualify as a self-rater or self-insurer.

12. Reports and Maps:

The Lessee when requested in writing by Lessors shall furnish Lessors with copies of the logs of any holes that may be drilled on the property and with such sample or assay maps as may be made showing the position and assay value of samples taken on said property; provided, however, that said items shall not be furnished more often than quarterly from the date hereof.

12. Inspection:

The duly authorized representative of the Lessors shall be permitted to enter into and upon said property and the workings of the Lessee at all reasonable times for the purpose of inspection, and to inspect the records of production and sale of products.

14. Forfeiture Clause:

The failure of the Lessee to make or cause to be made any payment herein provided for, or pay over any royalty reserved, or to keep or perform any obligation on his part to be kept and performed, according to the terms and provisions hereof, and especially the failure of the Lessee to make the payments of the minimum royalties reserved or rentals stipulated in Paragraph 6, hereof, shall at the election of the Lessors, work a forfeiture hereof, and any and all moneys which have been paid to the Lessors in accordance with the terms of this agreement shall be deemed forfeited to the Lessors. Provided, however, that in the event of a default on the part of the Lessee and the election of the Lessors to terminate this lease on account thereof, the Lessors shall give to the Lessee a written notice of their intention to declare a forfeiture of this lease and to terminate the same on account thereof, specifying the particular default or defaults relied upon by them, and the Lessee shall have thirty (30) days after receipt of said notice in which to make good such default or defaults, in which event there shall be no forfeiture hereof.

In the event of a forfeiture of this agreement all obligation and liability of the parties hereto shall be terminated as of the date forfeiture is perfected as above provided.

15. Surrender of Lease:

The Lessee expressly reserves the right to cancel, terminate and surrender this lease and option and to relinquish all right,

privileges and obligations hereunder at any time during the term hereof after having given to the Lessors thirty (30) days written notice of his intention and after having fully discharged all obligations previously incurred by Lessee under this agreement, to the date of such cancellation, and all the obligations and liability of Lessee under said lease and option shall terminate without further liability on the part of Lessee as of the date of said cancellation, termination and surrender.

16. Force Majeure:

If the Lessee shall be delayed at any time in keeping or performing any agreement on his part to be kept or performed according to the terms and provisions hereof by acts of God, strikes, lockouts, fire, lack of market, unusual delay in transportation, orders of the government or any duly constituted instrumentality thereof, unavoidable casualties, or any causes beyond the control of this lease or a default on the part of the Lessee constituting a cause for forfeiture in which event the Lessee shall be excused from complying with the provisions of this lease for the period of such interruption, provided that during any such periods the Lessee continues to pay the taxes as herein stipulated.

17. Surrender of Property by Lessee:

In the event of a valid forfeiture, cancellation, surrender or other termination of this lease, the Lessee will immediately surrender to the Lessors peaceable possession of said property and the whole and every part thereof.

18. Removal of Equipment, Etc., by Lessee:

The Lessee shall have, and he is hereby given and granted sixty (60) days after a valid forfeiture, cancellation, surrender or other termination of this lease to remove from said property all mills, mill buildings, milling machinery, structures, headframe, warehouse stocks, merchandise, materials, tools, hoists, compressors, engines, motors, pumps, transformers, electrical accessories, metal or wooden tanks, bins, surface pipe lines and connections, mine cars and any and all other machinery and equipment erected or placed in or upon said property by him together with all ore broken in the stopes or workings, but this right of removal shall not extend to mine timbers, underground tracks or underground pipe. If, during the term of this lease the Lessee shall exercise his right to remove a headframe or building which he has placed upon said property and which headframe or building has replaced one now on the premises, the Lessee, at his own expense, will either replace the original headframe or building or will erect one of equal value to the original.

19. Option to Purchase:

Throughout the term of this lease an exclusive right, privilege and option is hereby granted the Lessee to purchase the leased property above described together with all of the buildings, structures and personal property free and clear of all liens and encumbrances for the sum of Fifty Thousand ($50,000.00) Dollars lawful money of the United States of America and in the event that this option is exercised all payments, rentals or reserved royalties previously made by the Lessee under the terms of this agreement shall be credited upon the said purchase price and the remaining balance of said $50,000.00 shall be immediately due and payable upon the exercise of said option.

Lessors shall within a reasonable time after the date hereof furnish to the Lessee for his inspection a title policy or abstract reflecting ownership of the premises hereinabove described in Lessors, with a good and merchantable title free and clear of all liens and en-

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cumbrances, subject, however, to the paramount title of the United States in and to said unpatented claims.

Upon the payment of the purchase price in full Lessors will execute and deliver to Lessee a good and valid title to all of said property.

20. Easements:

Lessors agree to give and grant, if requested by Lessee, easements on or over said property for the erection and construction of water lines and pipes and electrical power and transmission lines.

21. Annual Assessment Work:

Lessee agrees to do all annual assessment work as specified and required by federal law within the first six (6) months of each calendar year.

The Lessee shall have the right, at his option, to patent the above described unpatented mining claims in the name of the Lessors and for that purpose he is hereby given the right and power of attorney to execute any and all documents of whatsoever kind and character which may be proper or necessary in connection with such procedure. The cost of patenting said claims shall be borne by the Lessee in the event he exercises the right and option to patent said claims. The Lessors hereby agree to execute and acknowledge any documents or instruments necessary or proper to carry out the terms and provisions of this paragraph.

The claims, when so patented, shall remain subject to all the terms and provisions of this agreement.

22. Assignment:

Lessee upon written approval of the Lessors first had and obtained may assign this lease agreement and option to purchase or any of the rights acquired hereunder to any responsible person or persons. Consent and approval are hereby given to the assignment of this lease agreement and option to purchase to W. L. Allison, Sr., and to the assignment by W. L. Allison, Sr., to Banner Mining Company, a corporation.

23. Legal Interpretation:

This lease agreement and option to purchase has been accepted and will be performed by the parties in the State of Arizona and all questions pertaining to its validity, construction or interpretation shall be determined in accordance with the laws of the State of Arizona.

24. Inurement:

Time is of the essence of this lease and option. The terms, provisions, covenants and agreements herein contained shall extend to, be binding upon and inure to the benefit of the heirs, personal representatives, successors and assigns of the parties hereto.

25. Notices:

All notices herein provided for shall be written and given personally or by registered mail to the parties hereto and their heirs, personal representatives, successors and assigns, mailed to the addresses hereinafter given or hereinafter furnished; provided, however, that all parties shall be notified of assignments of interest hereunder. The time provided shall commence from the date of the receipt of said notice:

To the Lessors

13 William F. Foy and Irene Foy, his wife
c/ Box 81
Tucson, Arizona

To the Lessee

Howard H. Fields
Carbo
Sonora, Mexico

In witness whereof the Lessors and Lessee have hereunto set their hands the day and year first above written.

William F. Foy
William F. Foy

Irene Foy
Irene Foy

LESSORS

Howard H. Fields
Howard H. Fields

LESSEE

STATE OF ARIZONA)
COUNTY OF PIMA) SS

The foregoing instrument was acknowledged before me this 1st day of July 1950, by William F. Foy and Irene Foy, his wife.

William Lott
Notary Public

My commission expires: 10/6/52

* * * * * * * * * * * * * * * * *

STATE OF ARIZONA)
COUNTY OF Pima) SS

The foregoing instrument was acknowledged before me this 1st day of July, 1950, by HOWARD H. FIELDS.

William Lott
Notary Public

My commission expires:
My com. expires Oct. 6, 1952.

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Banner

EXTENSION OF AND SUPPLEMENT TO MINING LEASE

THIS AGREEMENT made and entered into this 28th day of July, 1950, by and between TWIN BUTTES MINING & SMELTING COMPANY, a corporation, hereinafter referred to as FIRST PARTY, and HOWARD H. FIELDS, hereinafter referred to as SECOND PARTY,

RECITALS:

1. The parties hereto have heretofore and on October 1, 1948, entered into a mining lease and option in writing in which First Party has leased and optioned to Second Party certain mining claims in the Pima Mining District, County of Pima, State of Arizona, particularly described in said mining lease and option.

2. First Party has heretofore and on June 20, 1950, written Second Party that the term of said mining lease and option had been extended so as to expire on October 1, 1958, and that the percentages of royalty provided for in said mining lease and option had been changed to a flat seven and one-half (7½) per cent on all ores shipped or milled and that an assignment of said mining lease and option by Second Party to W. L. Allison, Sr., had been consented to and approved.

NOW, THEREFORE, in consideration of the sum of One ($1) Dollar in hand paid by Second Party to First Party, the receipt of which is hereby acknowledged, the mutual promises of the parties hereto, and other good and valuable considerations IT IS AGREED THAT SAID LEASE AND OPTION BE, AND IT IS HEREBY AMENDED AS FOLLOWS:

1. The term of the mining lease and option made and entered into by and between the parties hereto on and dated October 1, 1948, is, unless sooner forfeited, cancelled, terminated or surrendered, as provided for in said lease and option, extended to October 1, 1958.

2. The royalties and rentals provided for in said lease and option are changed and modified to a flat seven and one-half (7½) per cent of the net smelter or mill returns as defined in said lease and option or this supplement on all ores shipped or milled. Said First Party hereby expressly reserves to itself, its successors and assigns, as royalty, the said equal seven and one-half (7½) per cent part of the said net smelter or mill returns on all ores, minerals and concentrates or other products derived from ores mined from or taken from dumps on the leased property during the term hereof. Whenever said original lease mentions royalty to be paid it is hereby amended to be royalty reserved by first party as herein mentioned and provided.

3. The assignment of said lease and option together with the within extension and supplement to W. L. Allison, Sr., is hereby approved and consented to.

4. Second Party may erect a mill upon other premises or upon the premises leased in said lease and option for the purpose of milling ore from the claims therein described and may mill ore from other claims in said mill. In the event of the co-mingling of ores from the claims described in said lease and option and other claims the royalties reserved to which First Party is entitled as above set forth shall be determined by and based upon dry weights and samples of ores, and percentage of recovery, made and taken by Second Party in accordance with good engineering practice, taken from the claims described in said lease and option prior to the co-mingling and milling with other ores as aforesaid. In such event the royalties reserved shall be paid monthly on or before the 20th day of the succeeding month by Second Party direct to First Party.

5. Net smelter or mill returns within the meaning of said lease

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and option and this extension and supplement shall be the correct returns as shown by the liquidation or settlement sheets furnished by the smelter or mill treating such ores and concentrates after such smelter or mill shall have made deduction for transportation charges from mine to smelter and mill, treatment and usual smelting or milling deductions. No premiums or bonuses or amounts above market prices paid to Second Party by any governmental agency shall be included in royalty settlement.

6. In the event Second Party shall construct his own mill for the treatment of ores no deduction shall be made by Second Party for the milling of ores produced from the premises described in said lease and option in arriving at royalty payment, except transportation charges shall be deducted for the transporting of ores from the mines to the mill and transportation charges shall be deducted for transporting concentrates from the mill to the smelter and the other usual deductions and smelter charges. In such event the royalties reserved shall be computed and paid in the manner specified in Paragraph 4, hereof.

7. The assignment of said lease and option together with the within extension and supplement by W. L. Allison, Jr., to Banner Mining Company, a corporation, is hereby approved and consented to.

8. The claim mentioned in the original lease as "McKinley Lode" is intended to and does mean and include the claim actually known as "The McKinley Copper", lode claim.

9. All the terms, conditions and provisions of the said mining lease and option dated October 1, 1948, shall remain in full force and effect except as herein specifically changed or modified.

10. The terms, provisions, covenants and agreements herein contained shall extend to, be binding upon and inure to the benefit of the heirs, personal representatives, successors and assigns of the parties hereto.

IN WITNESS WHEREOF, First Party has caused its corporate name to be hereunto subscribed and its corporate seal affixed by its duly authorized officers and Second Party has set his hand on the day and year first above written.

TWIN BUTTES MINING & SMELTING COMPANY,
a corporation,

By Henry J. Nunnemacher
President

ATTEST:

H B Dreyer
Secretary

FIRST PARTY

Howard H. Fields
Howard H. Fields,

SECOND PARTY

STATE OF WISCONSIN)
SS
COUNTY OF MILWAUKEE)

On this 28th day of July, 1950, before me, the undersigned officer, personally appeared Henry J. Nunnemacher and H B Dreyer who acknowledged themselves to be the President and Secretary, respectively of

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TWIN BUTTES MINING & SMELTING COMPANY, a corporation, and that they, as such president and secretary, being authorized so to do, executed the foregoing instrument for the purposes and consideration therein expressed and contained by signing the name of the corporation and attesting the same by themselves as such president and secretary.

IN WITNESS whereof I hereunto set my hand and official seal.

Harold Schuldt
Notary Public

My commission expires:
Sept 13, 1953

STATE OF ARIZONA)
SS
COUNTY OF Santa Cruz

The foregoing instrument was acknowledged before me this 17th day of July, 1950, by HOWARD H. FIELDS.

[illegible]
Notary Public

My commission expires:
Dec. 5 1951

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SUBLEASE OF MINING PROPERTY AND OPTION

From: ANNE M. PHIPPEN and DANIEL KIRBY PHIPPEN and CHARLES C. CHAFFEE, Jr. and ANNE CHAFFEE, husband and wife, and EVERETT H. DOBBS and VERA L. DOBBS, husband and wife, as

OPTIONORS,

To

BANNER MINING COMPANY, a Nevada corporation, as

OPTIONEE

THIS SUBLEASE AND OPTION AGREEMENT, Made and entered into as of the first day of October, 1950, by and between ANNE M. PHIPPEN, the surviving wife of C. F. Phippen, and DANIEL KIRBY PHIPPEN, the only child of C. F. Phippen, and CHARLES C. CHAFFEE, Jr. and ANNE CHAFFEE, husband and wife, all of Boise, Ada County, Idaho, and EVERETT H. DOBBS and VERA L. DOBBS, husband and wife, of Seneca, Missouri, the parties of the first part, hereinafter referred to as the optionors, and BANNER MINING COMPANY, a corporation organized and existing under and by virtue of the laws of the State of Nevada, and qualified to do business in the State of Arizona, under the Constitution and laws thereof, party of the second part, hereinafter referred to as the optionee,

W I T N E S S E T H:

WHEREAS, the optionors own and hold Mining Leases identified and described as follows, to-wit:

Mining Lease dated April 20, 1948, executed between Barnsdall Mining Company of Delaware, a Delaware corporation, therein designated as "Lessor", and the said C. F. Phippen, therein designated as "Lessee", for the term of ten years

commencing on the 1st day of May, 1948, and ending on the 30th day of April, 1958, covering the following designated patented mining claims and property situate in Pima County, Arizona, known as the Mineral Hill Group, to-wit:

NAME OF CLAIM	WHERE RECORDED BOOK	PAGE
Daisy	32	134
Aimee (Annie)	32	134
Little Mammoth	32	134
Surprise (Sunrise)	32	134
Winnie	32	134
Carbonate	32	134
Ninety-Six	32	134
Crest	32	134
Copper Hill	32	134
Banes	32	134
Asurite No. 4	32	134
Jupiter	32	134
Milton	32	134
Crown Prince	32	115
Crown Prince No. 1	32	115
Crown Prince No. 3	32	115
Crown Prince No. 4	32	115
Crown Prince No. 5	32	115
Crown Prince No. 6	32	115
Crown Prince No. 7	32	115
Crown Prince No. 8	32	115
Crown Prince No. 9	32	115
Crown Prince No. 10	32	115
Hughes No. 1	32	121
Black Prince	32	141

a copy of which said Mining Lease is attached hereto, marked Exhibit A, and made a part hereof; and,

Mining Lease dated April 20, 1948, executed between Barnsdall Mining Company of Delaware, a Delaware corporation, therein designated as "Lessor", and the said C. F. Phippen, therein designated as "Lessee", for the term of ten years commencing on the 1st day of May, 1948, and ending on the 30th day of April, 1958, covering the

following designated mining claims and property situate in Pima County, Arizona, known as the Plumed Knight Group, to-wit:

NAME OF CLAIM	WHERE RECORDED BOOK	PAGE
Plumed Knight	DD Records of Mines	74
Plumed Knight No. 2	KK Records of Mines	439
Lake George	GG Records of Mines	216
Lake George No. 2	KK Records of Mines	440
South Side	HH Records of Mines	390
South Side No. 2	KK Records of Mines	438
Out Side	KK Records of Mines	156
Out Side No. 2	KK Records of Mines	441
Sunny Side	KK Records of Mines	155
Sunny Side No. 2	KK Records of Mines	437
Martha B. Ketz	KK Records of Mines	157
Martha B. Ketz No. 2	KK Records of Mines	440
Eida B.	KK Records of Mines	435
Eida B. No. 2	KK Records of Mines	436

a copy of which said Mining Lease is attached hereto, marked Exhibit B, and made a part hereof; and,

WHEREAS, each said Mining Lease provides option in the Lessee therein to purchase the property covered thereby; and,

WHEREAS, each said Mining Lease, copy whereof is attached hereto and made a part hereof, provides that the right of the Lessee thereunder "shall not be assigned or transferred except with the written consent of the Lessor first had and obtained"; and,

WHEREAS, the optionee desires a lease with an option to purchase the said mining claims and property covered by both said Mining Leases, copy of both whereof is attached hereto marked Exhibits A and B, respectively, and made a part hereof, and optionors desire to give to optionee a lease with an option to purchase the same, under the terms and conditions hereinafter set forth;

NOW, THEREFORE, For and in consideration of the sum of

Ten Dollars ($10.00) and other valuable consideration by the optionee to the optionors in hand paid, the receipt whereof is hereby acknowledged, and in consideration of the covenants and agreements hereinafter contained and on the part of the optionee to be done and performed and in consideration of the royalties reserved and the rentals to be paid by the optionee, the optionors hereby sublease unto the optionee and do hereby give and grant unto the optionee the exclusive right, privilege and option to purchase, all said mining claims and property, upon the terms and conditions hereinafter set forth.

IT IS UNDERSTOOD AND AGREED, HOWEVER, That each said Mining Lease (Exhibits A and B, respectively) provides that the rights of the Lessee thereunder "shall not be assigned or transferred except with the written consent of the Lessor first had and obtained"; and, that this sublease and option shall have no force nor effect until, nor unless, the optionors shall secure from the Lessor in each said Mining Lease (Exhibits A and B, respectively) a consent to this sublease and option to the optionee herein, and that when such consent shall be obtained this sublease and option shall relate back to the day and date hereof and shall be effective as of the day and date hereof, and IT IS FURTHER UNDERSTOOD AND AGREED That if such consent shall not be obtained before the 1st day of December, 1950, this agreement shall be wholly and completely at an end.

The term of this lease and option unless forfeited, cancelled, terminated or surrendered as hereinafter provided, shall expire on the 30th day of April, 1958.

IT IS FURTHER UNDERSTOOD AND AGREED That from the effective date of this lease and option agreement the optionee shall thereafter at its own cost and expense duly and punctually perform all and singular the terms, provisions and conditions of each said Mining Lease (Exhibits A and B respectively) on the part of the Lessee therein (the optionors herein) to be done and performed and shall make all payments, including royalties and rental and all other payments to be made under the terms of each said Mining Lease, to the end that each said Mining Lease shall continue in full force and effect and that the optionee may enter upon said mining claims and exercise all of the rights and privileges of the Lessee under the terms and conditions of each said Mining Lease except the right to relinquish the same, but subject to all of the covenants, agreements and conditions on the part of the Lessee therein to be done and performed;

And, the optionors represent that none of the terms of either said Mining Lease have been performed up to the date hereof but warrant that each said Mining Lease is still in full force and effect;

The optionors hereby expressly reserve to themselves, their heirs, administrators, executors and assigns, as royalty, the equal ten percent (10%) part of the net smelter returns on all ore and minerals of every kind which shall be mined or taken from said mining property and milled, smeltered, or otherwise turned to account, deducting therefrom and less the royalty required by said Mining Leases (Exhibits A and B) to be paid to Barnsdall Mining Company of Delaware, including also all royalty which shall be paid such Lessor on all gold, silver and other metals

recovered from said property in addition to copper, zinc and lead. In determining the net smelter return on which royalty shall be computed there shall be deducted, in addition to charges of the smelter, the railroad freight, if any, to the smelter if shipped to a smelter, and charges for trucking or hauling the ore from the mine to the railroad and/or smelter, and/or mill. The royalty to be paid to the optionors shall become due on each smelter return and shall be paid by the optionee to the optionors within ten days after receipt by the optionee of the net smelter return upon which such royalty payment shall be due. Said royalties reserved shall be deducted by the purchaser of the ores and/or concentrates or other products and paid directly to optionors accompanied by copies of the settlement sheets covering each lot of material purchased.

PROVIDED, HOWEVER, that the optionee agrees to pay to optionors, in addition to all royalties and payments to be paid to Barnsdall Mining Company of Delaware under the terms and conditions of each said Mining Lease Exhibits A and B, a minimum rental or royalty as follows:

The said sum of Three Hundred Dollars ($300.00) paid coincident with the execution hereof and the sum of Three Hundred Dollars ($300.00) on the 10th day of October, 1950, and on the 1st day of each month thereafter to and including the month of August, 1952 and on the 1st day of September, 1952 the sum of Six Thousand Four Hundred Dollars ($6,400.00), and on the 1st day of September, 1953 the sum of Ten Thousand Dollars ($10,000.00), and the further annual sum of Ten Thousand Dollars ($10,000.00) on the 1st day of September in each year thereafter to and including the year 1957, and on the 30th day of April, 1958 the sum of Thirty-six Thousand Four Hundred Dollars ($36,400.00); PROVIDED,

FURTHER, however, that in the event such ten percent (10%) royalty after deducting the amounts to be paid to Barnsdall Mining Company of Delaware as reserved by said Mining Leases Exhibits A and B, shall exceed the minimum royalty or rental next thereafter to be paid, then any and all excess shall be carried over and applied to the payment of the minimum rental or royalty next becoming due.

In the event of the comingling of ores from the claims above described and other claims the royalties reserved to which the optionors shall be entitled as above set forth shall be determined by and based upon dry weights and samples of ores, and percentage of recovery, made and taken by optionee in accordance with good engineering practice, taken from the above described claims prior to the comingling and milling with other ores aforesaid. In such event, royalties to be paid to the Barnsdall Mining Company of Delaware under the terms of said Mining Leases shall be paid direct to said Barnsdall Mining Company of Delaware, and the royalties reserved to be paid to the optionors herein shall be paid direct to the optionors by the optionee.

The parties hereto understand that said Mining Lease covering the Mineral Hill Group, copy whereof is attached hereto as Exhibit A, provides option to purchase the property therein described for the sum of Thirty Thousand Dollars ($30,000.00), all payments of royalty and other payments to apply thereon, and that said Mining Lease covering the Plumed Knight Group, copy whereof is attached hereto as Exhibit B, provides option to purchase the property therein described for the sum of Thirty Thousand Dollars ($30,000.00), all payments of royalty and other payments to apply thereon, and that throughout the term of this lease the optionee shall have the right, privilege and option to exercise on behalf of the optionors

the said option to purchase in each said Mining Lease Exhibits A and B and upon the terms in each such Mining Lease set forth and, that throughout the term of this lease the optionee shall have the exclusive right, privilege and option to purchase from the optionors all said leased property by paying in addition to all royalties and purchase moneys to be paid to Barnsdall Mining Company of Delaware under the terms of each said Lease, the further and additional sum of One Hundred Thousand Dollars ($100,000.00) lawful money of the United States of America which sum shall be paid to the optionors, and which sum shall, as hereinbefore stated be, in addition to the purchase moneys to be paid to Barnsdall Mining Company of Delaware for said property as specified in said Mining Leases Exhibits A and B. As stated in each said Mining Lease all royalties and intermittent payments which shall be made under the terms thereof shall apply on the purchase price to Barnsdall Mining Company of Delaware, and in the event this option is exercised to purchase said properties from the optionors, all payments, rentals or reserved royalties previously paid by the optionee or in its behalf under the terms of this agreement to the optionors, but not including royalties paid to Barnsdall Mining Company of Delaware, shall be credited upon the said purchase price of One Hundred Thousand Dollars ($100,000.00) to be paid to the optionors and the remaining balance of said purchase price of One Hundred Thousand Dollars ($100,000.00) to be paid to the optionors shall be immediately due and payable upon the exercise of this option to purchase from optionors.

THE OPTIONEE FURTHER AGREES AS FOLLOWS:

1. To furnish copies of results of drilling and prospecting

to the optionors within a reasonable time after drilling and prospecting shall have been performed;

2. To record and post the statutory notices now or hereafter required by the laws of the State of Arizona to keep the mining claims covered by said mining lease free and clear of all claims for labor or materials;

3. To do all work that shall be performed upon and in such mining claims in a good and miner-like manner;

4. To keep the said mining claims and property free and clear of all liens and encumbrances suffered by the optionee;

5. After optionee begins mining operations upon said mining claims to make monthly reports to the optionors, with duplicate returns and statements of receipts and/or statements of revenues, showing the amount of royalties payable;

6. To permit the optionors, or their agents, at reasonable times to examine the books relating to the mining operations of said property and the sale of the mining products therefrom, and examine said property and the mining operations conducted thereon or therein;

7. Furnish optionors with copies of reports made by the optionee to Barnsdall Mining Company of Delaware and file one copy thereof with the escrow holder; and,

8. The optionees agree to be bound by all of the terms and conditions of each said lease from Barnsdall Mining Company of Delaware, copy whereof is attached hereto, one as Exhibit A and the other as Exhibit B, and to comply with all of the terms and conditions thereof and to keep each said lease in full force and effect.

Upon default by optionee in making any of the payments hereinbefore provided, or to perform any of the covenants hereof or to make any payment provided to be made in either said Mining Lease from Barnsdall Mining Company of Delaware or to perform any of the covenants thereof, the optionors shall have the right, in addition to any other rights and remedies, to declare this mining lease and all rights of optionee under and by virtue of this instrument to be forfeited and terminated, said right to be exercised by the optionors giving written notice to optionee by registered mail specifying the particulars wherein the optionee is then in default, and providing that unless the delinquent payment is made or the failure to perform corrected within twenty (20) days from the date of said notice, this agreement shall be immediately forfeited and terminated, and upon such forfeiture or termination, all payments that shall have been made to optionors on the purchase price shall be considered as rents and royalties and shall be owned by optionors free and clear of any right or claim of optionee, and in this connection time is the essence of this agreement.

Failure of optionors to declare a forfeiture upon default in any payment or payments, or in the performance of any other provisions hereof, shall not be considered a waiver of optionors' right to declare forfeiture in the event of any succeeding default.

Optionee shall not incur any indebtedness for which the Owner shall be liable or which may become a lien or charge upon the property, and it is expressly understood and agreed that the optionee is not the Owner's agent for the doing of any work or

the contracting of any indebtedness, but has only the right and interest of an optionee under this agreement. Optionee shall at all times during the life of this agreement keep the property, and the whole thereof, free and clear of all liens and encumbrances, and the owner shall not be liable for any expenditures made by optionee or any obligations incurred or contracts entered into by optionee, and optionee shall so inform all persons doing labor on or furnishing materials for use on said premises and property at the instance or request of optionee. Optionee, at its office and at the entrance of each mine being operated hereunder, shall post and keep posted in a conspicuous place, printed or typewritten notices advising all persons furnishing labor or materials the mines are being operated under a lease agreement, and that neither the owner nor the properties are liable for, or chargeable with the cost of labor or materials furnished for use on said premises, but that the optionee is individually and solely liable therefor.

In the event any law shall be enacted in the State of Arizona making mining property subject to lien for, or make it liable for the payment of, any obligations incurred by optionee, then and thereupon optionee shall at once make arrangements satisfactory to optionors to fully protect and indemnify the optionors against any such lien or liability, and failure of optionee to promptly furnish such protection or indemnity to optionors shall be sufficient cause for the cancellation and termination of this agreement by the optionors upon notice in writing, as provided herein; PROVIDED, however, that in the event the optionee shall comply with the laws of the State of Arizona relating to labor and materials to be

furnished in the mining and/or development of such mining claims, to keep at all times said mining claims and every part thereof free of any claim for labor or materials, then no further security or indemnity to the optionors shall be required.

Optionee shall have the right to use all buildings, machinery and equipment now on said premises in connection with the work and developing of said mining property under this lease, and it may, at its own cost and expense, alter, change and repair the same as it may deem necessary, in carrying on such mining operations, and it may, at its own cost and expense, erect such other buildings thereon and install such other machinery and equipment as it may deem necessary for carrying on such mining operations. Upon the termination of this lease for any cause, the optionee may remove any and all machinery and equipment, pipe, and other property except buildings, which it may have placed on said premises, pursuant to this agreement.

The optionee, at its sole discretion and expense, shall have the right to erect upon and at such mining claims such buildings and structures and to install such machinery, equipment and other property as it shall deem necessary or advisable in carrying on milling operations on said property. The optionee shall also have full rights of ingress and egress upon and across all such premises for all purposes connected with its milling operations of any said described property. Title to all machinery, equipment and other property, except permanent buildings, shall remain in the optionee at all times, and in the event of a forfeiture, cancellation or termination of this agreement any and all machinery,

equipment and other property, except permanent buildings, may be removed from said premises by the optionee within the period of one year from the time of such termination. All permanent buildings which shall be placed upon said described mining claims by the optionee shall become a part thereof and shall not be removed but the optionee shall have the right to make such alterations thereof and change in the location thereof as it may deem advisable from time to time in its mining operations and in its use thereof.

The optionors shall, upon demand in writing therefor at any time after July 1, 1951, furnish and deliver to the optionee abstract of title or abstracts of title to all said described mining claims, which said abstracts shall be continued to and certified as of a date subsequent to the date of the said demand, by a duly licensed and bonded abstracter. The optionee shall make its objections, if any, with respect to the titles to said property, within ninety (90) days from the delivery to it of such abstracts of title. Such objections shall be only to such conditions in the title of such property as shall render the title unmarketable or which shall constitute an encumbrance on the property. Taxes for the purposes of this provision of this agreement shall not be considered an encumbrance. Upon report in writing to the optionors of the optionee's objections, if any, to the titles as disclosed by such abstracts, then the optionors shall thereafter diligently undertake and consummate such proceedings and acts as shall be requisite to make such titles marketable and free of encumbrance.

In the event of and whenever any notice of forfeiture shall be given to any of the optionors herein under and by virtue of the terms of either said lease Exhibit A or B, the optionors

shall immediately notify the optionee herein of such notice and the contents thereof to the end that the optionee herein may remove any default upon which such notice of forfeiture may be predicated.

This agreement is an entirety and it may not be divided or severed by either of the parties hereto into any separate parts without the express written consent of the other party, and in this connection it is expressly understood that among other things, optionee may not assign separately from the lease herein the right to purchase the property.

This agreement shall be binding upon the parties hereto, their heirs, devisees, executors, administrators, successors and assigns, but the rights of optionee hereunder shall not be assigned or transferred except with the written consent of optionors first had and obtained.

Notwithstanding any of the foregoing provisions hereof, it is agreed and understood that optionee and its assigns shall have the right, at any time, by first giving the optionors thirty (30) days' notice of its election so to do, to surrender this lease and agreement and to re-deliver possession of said property to the optionors and to be relieved of all obligations thereafter to be performed under the terms of this agreement, provided that at the time of such surrender, all obligations on the part of the optionee shall have been fully and completely performed to the date of surrender. If the date fixed for surrender falls on any day subsequent to the 30th day of June

in any year, then as a condition precedent to its right to surrender, optionee shall, in addition to all other obligations, be required to first pay all taxes for that entire year.

Provided, further, that such surrender by optionee shall fully terminate this lease and relieve optionors of all further obligations hereunder, but such surrender shall not relieve optionee or its assigns from the payment of any royalties due or to become due on any ores or mineral that may have been mined prior to the actual surrender of the property, nor shall it relieve either party from any obligation, debt, claim or demand actually incurred and accrued to the other prior to the date of such surrender. Upon any such surrender by optionee, all payments that have been made to optionors, both as royalties and as payment on the purchase price of the property covered hereby, shall belong to optionors and shall be considered as rent and royalties hereunder, and upon such surrender, optionee or its assigns shall have no further right to buy the premises and shall be considered to have automatically forfeited all rights created hereunder to purchase the property covered hereby.

All notices of either party to the other shall be addressed to them respectively as follows: To optionors at: c/o Eugene H. Anderson, 504 Idaho Building, Boise, Idaho; to optionee at: 1910 First National Bank Building, Oklahoma City, Oklahoma.

IN WITNESS WHEREOF, the said parties of the first part have hereunto set their hands, and the said party of the second part has hereunto caused its corporate name to be hereunto

subscribed by its officers first thereunto duly authorized by resolution of its Board of Directors, this 7th day of November, 1950, but all as of the day and year herein first above written.

Anne M. Phippen
Anne M. Phippen

Daniel Kirby Phippen
Daniel Kirby Phippen

By: Anne M. Phippen
Anne M. Phippen, HIS ATTORNEY-IN-FACT.

Charles C. Chaffee
Charles C. Chaffee, Jr.

Anne Chaffee
Anne Chaffee

Everett H. Dobbs
Everett H. Dobbs

Vera L. Dobbs
Vera L. Dobbs

OPTIONORS

BANNER MINING COMPANY

By: N. Grimes
President

ATTEST:

W. H. Hardy
Secretary

OPTIONEE

STATE OF IDAHO, }
COUNTY OF ADA, } ss.

On this 7th day of November, 1950, before me, the undersigned, a Notary Public in and for said State, personally appeared Anne M. Phippen, known to me to be the person whose name is subscribed to the within instrument as the attorney-in-fact of Daniel Kirby Phippen, and acknowledged to me that she subscribed the name of Daniel Kirby Phippen thereto as principal, and her own name as attorney-in-fact.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

Ferne Witt
Notary Public for Idaho,
Residing at Boise, Idaho.
My commission expires: 4/8/54

STATE OF IDAHO, }
COUNTY OF ADA, } ss.

On this 7th day of November, 1950, before me, the undersigned, a Notary Public in and for said State, personally appeared Charles C. Chaffee, Jr. and Anne Chaffee, husband and wife, and Anne M. Phippen, known to me to be the persons whose names are subscribed to the within instrument, and acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

Ferne Witt
Notary Public for Idaho,
Residing at Boise, Idaho.
My commission expires: 4/8/54

STATE OF MISSOURI, }
COUNTY OF NEWTON, } ss.

On this 10th day of November, 1950, before me, the undersigned, a Notary Public in and for said County and State, personally appeared Everett H. Dobbs and Vera L. Dobbs, husband and wife, known to me to be the persons whose names are subscribed to the within instrument, and acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

Notary Public for the County of Newton,
State of Missouri.
Residing at Seneca, Missouri.
My commission expires: June 29, 1951

STATE OF OKLAHOMA, }
COUNTY OF OKLAHOMA, } ss.

This instrument was acknowledged before me this 17th day of November, 1950, by N. A. Grimes as the President of Banner Mining Company, a corporation.

Notary Public for the County of Oklahoma,
State of Oklahoma.
Residing at Oklahoma City, Oklahoma.
My commission expires: October 1, 1954

SUPPLEMENTAL AGREEMENT AND CONSENT

The undersigned, Everett H. Dobbs and Vera L. Dobbs, husband and wife, as grantees and assignees of Barnsdall Mining Company of Delaware, lessor in each of the within described mining leases dated April 20, 1948, and to which copies thereof are appended thereto as Exhibits A and B, do hereby consent and agree to the within and foregoing "Sublease of Mining Property and Option" between Anne M. Phippen and her son Daniel Kirby Phippen and Charles C. Chaffee, Jr. and Anne Chaffee, husband and wife, and Everett H. Dobbs and Vera L. Dobbs, husband and wife, as optionors and Banner Mining Company, a Nevada corporation, as optionee, and to all of the terms thereof and to all of the conditions thereof not contained in said original leases from Barnsdall Mining Company of Delaware, and the parties to said sublease and the undersigned further agree that the royalty to be paid under the terms of said leases Exhibits A and B for gold, silver and other metals recovered from the mining claims therein described, in addition to the copper, zinc and lead, shall be five per cent (5%) and in all other respects as defined in said mining leases Exhibits A and B, and that so long as the optionee in the foregoing sublease shall comply with the laws of the State of Arizona relating to labor and materials furnished for the development or operation of the mining claims in such sublease described, to keep such mining claims clear of all liens or claims for labor or materials, no further bond or other security shall be required of Banner Mining Company.

IN WITNESS WHEREOF the said Everett H. Dobbs and Vera L. Dobbs, as grantees and assignees of Barnsdall Mining Company of

Delaware with respect to the said mining leases and the property therein described, and as parties to the within and foregoing Sublease and Option, and the said Anne M. Phippen and Daniel Kirby Phippen, and Charles C. Chaffee, Jr. and Anne Chaffee, have hereunto subscribed their names, and the said Banner Mining Company, a Nevada corporation, has hereunto caused its corporate name to be subscribed, all this 7th day of November, 1950.

Everett H. Dobbs

Everett H. Dobbs

Vera L. Dobbs

Vera L. Dobbs

Anne M. Phippen

Anne Phippen

Daniel Kirby Phippen

Daniel Kirby Phippen

By Anne M. Phippen His Attorney in Fact
Anne M. Phippen

Charles C. Chaffee

Charles C. Chaffee, Jr.

Anne Chaffee

Anne Chaffee

BANNER MINING COMPANY

By [redacted] President

ATTEST: W. H. Hand
Secretary

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STATE OF IDAHO, }
COUNTY OF ADA, } ss.

On this 7th day of November, 1950, before me, the undersigned, a Notary Public in and for said State, personally appeared Anne M. Phippen, known to me to be the person whose name is subscribed to the within instrument as the attorney-in-fact of Daniel Kirby Phippen, and acknowledged to me that she subscribed the name of Daniel Kirby Phippen thereto as principal, and her own name as attorney-in-fact.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

Ferne With
Notary Public for Idaho,
Residing at Boise, Idaho.
My commission expires: 4/8/54

STATE OF IDAHO, }
COUNTY OF ADA, } ss.

On this 7th day of November, 1950, before me, the undersigned, a Notary Public in and for said State, personally appeared Charles C. Chaffee, Jr. and Anne Chaffee, husband and wife, and Anne M. Phippen, known to me to be the persons whose names are subscribed to the within instrument, and acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

Ferne With
Notary Public for Idaho,
Residing at Boise, Idaho.
My commission expires: 4/8/54

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STATE OF MISSOURI, }
COUNTY OF NEWTON, } ss.

On this 10th day of November, 1950, before me, the undersigned, a Notary Public in and for said County and State, personally appeared Everett H. Dobbs and Vera L. Dobbs, husband and wife, known to me to be the persons whose names are subscribed to the within instrument, and acknowledged to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

Notary Public for the County of Newton,
State of Missouri.
Residing at Seneca, Missouri.
My commission expires: June 29 1951

STATE OF OKLAHOMA, }
COUNTY OF OKLAHOMA, } ss.

This instrument was acknowledged before me this 17th day of November, 1950, by H. L. Grimes as the President of Banner Mining Company, a corporation.

Notary Public for the County of Oklahoma,
State of Oklahoma.
Residing at Oklahoma City, Oklahoma.
My commission expires: October 4, 1954

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EXHIBIT A

MINING LEASE

THIS AGREEMENT, Made and entered into this 20th day of April, 1948, by and between BARNSDALL MINING COMPANY OF DELAWARE, a Delaware corporation, duly authorized to do business in the State of Arizona, hereinafter designated "Lessor", party of the first part, and C. F. PHIPPEN of Boise, Idaho, hereinafter designated "Lessee", party of the second part,

WITNESSETH:

Lessor is the owner of the following described lands, mining claims and mineral rights situated in Pima County, Arizona, known as the Mineral Hill Group, to-wit:

	WHERE RECORDED	
NAME	BOOK	PAGE
Daisy	32	134
Aimee (Annie)	32	134
Little Mammoth	32	134
Surprise (Sunrise)	32	134
Winnie	32	134
Carbonate	32	134
Ninety-Six	32	134
Crest	32	134
Copper Hill	32	134
Banes	32	134
Asurite No. 4	32	134
Jupiter	32	134
Milton	32	134
Crown Prince	32	115
Crown Prince No. 1	32	115
Crown Prince No. 3	32	115
Crown Prince No. 4	32	115
Crown Prince No. 5	32	115
Crown Prince No. 6	32	115
Crown Prince No. 7	32	115
Crown Prince No. 8	32	115
Crown Prince No. 9	32	115
Crown Prince No. 10	32	115
Hughes No. 1	32	121
Black Prince	32	141

The parties hereto desire that Lessor shall lease to Lessee the above described property, with all buildings and

improvements thereon and tenements, hereditaments and appurtenances pertaining thereto or used in connection therewith, and all water rights owned by Lessor and used in connection with said property, for mining purposes, and that Lessee shall have certain rights to purchase said property, which lease and rights to purchase are more particularly hereinafter set forth.

THEREFORE, in consideration of the premises and of the mutual covenants and agreements herein contained, the parties hereto agree as follows:

1. Lessor hereby lets and leases unto Lessee all of the above described mining property, including the water rights, machinery, equipment and personal property thereon or used in connection therewith, and all tenements, hereditaments and appurtenances appertaining thereto or situate thereon and used in connection with the property, and grants unto Lessee the exclusive right to enter into the immediate possession thereof and to prospect on said properties for copper, lead, zinc, and other minerals, and to develop and operate said properties, and to mine, extract, mill or smelt the ores and minerals therefrom, and to sell and dispose of the ores and minerals so extracted during the term hereof, and subject to the covenants, terms and conditions herein provided.

2. This agreement is for the term of ten (10) years, commencing the 1st day of May, 1948, and ending on the 30th day of April, 1958. Lessee shall enter into immediate possession of said property, and continue in possession thereof as long as this agreement is in force, and he shall, at his own cost and expense, do or cause to be done all acts or things that may be necessary to protect and maintain in full

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force and effect the right, title and interest of Lessor in and to said property, and Lessee shall pay all taxes that may be levied or assessed against the property or any part thereof and the business being conducted thereon that accrue during the term of this lease or as a result of the operations thereon, and Lessee shall furnish to Lessor, on or before the 1st day of May -, of each year, satisfactory evidence showing payment of all accrued taxes and compliance by Lessee with the terms hereof.

3. While in general the extent of the prospecting, developing and operating work on the property shall be left to the judgment and discretion of Lessee, this agreement is nevertheless on the express condition that Lessee in any event shall expend not less than Three Thousand Dollars ($3,000.00), during the first two (2) years of the term of this lease, and a similar amount during each succeeding two (2) year period during the term of this lease, in working, developing, and equipping said property. On or shortly before two (2) years from date hereof, Lessee shall deliver to Lessor a sworn statement showing the amount of mining operations conducted on the property and the amounts expended thereon. In the event Lessee has failed to expend the amount above provided during said two (2) year period, or in the event Lessee fails to deliver said statement to Lessor within said time, then Lessor shall have the right and option to cancel and terminate this lease to be exercised by mailing to Lessee a notice of cancellation and termination within twenty (20) days after receipt of said written statement or within twenty (20) days after

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the time said statement was due. On or shortly before the expiration of each succeeding two (2) year period thereafter, a similar statement covering each succeeding two (2) year period shall be delivered by Lessee to Lessor, and Lessor shall have a similar option and right of cancellation and termination upon failure of Lessee to expend said amount during any of said two (2) year periods or failure of Lessee to deliver said statements in due time.

4. All mining operations by the Lessee in and upon the said properties shall be conducted in a proper and workmanlike manner, but Lessee shall not be liable for the caving or loss of the old mine workings now on the property; provided that nothing herein contained shall be construed to exempt Lessee from liability for damages to Lessor or to others by reason of the negligence of Lessee, his agents, servants, employees, successors, or assigns in operating and developing said properties.

5. Lessee shall pay, or cause to be paid, to the Lessor, royalties as listed below on net smelter returns on all ore and minerals of every kind mined or taken from the property and milled, smeltered or otherwise turned to account.

(a) Copper: - 5% as long as the price of copper remains at or below 25¢, but increasing 1% for each additional 1¢ increase until the royalty reaches 10%.

(b) Zinc: - 5% as long as the price of zinc remains at or below 16¢, but increasing 1% for each additional 1¢ increase until the royalty reaches 10%.

(c) Lead: - 5% as long as the price of lead remains at or below 18¢, but increasing 1% for each additional 1¢ increase until the royalty reaches 10%.

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In determining the net smelter return on which the royalty shall be computed, there shall be deducted, in addition to the charges of the smelter, the railroad freight, if any, and charges for trucking or hauling the ore from the mine to the railroad or smelter. The royalty which shall become due on each smelter return shall be paid by the Lessee to the Lessor within ten (10) days after receipt by the Lessee of the net smelter return upon which such royalty payment shall be due. At the time of making each such payment of royalty, the Lessee shall transmit to the Lessor a duplicate smelter return statement of the smelter return upon which royalty was then being paid.

It is specifically agreed that Lessee shall, during the first three (3) years of the term of this Lease, pay to Lessor a minimum sum of Five Thousand Dollars ($5,000.00) in royalties; if the amount of royalties payable to Lessor on ore and minerals produced and marketed, based on the schedule of royalties above set out, is less than Five Thousand Dollars ($5,000.00) for the first three (3) years of the term hereof, then the difference between the amount paid to Lessor under the above schedule and the sum of Five Thousand Dollars ($5,000.00) shall be paid Lessor at the end of the period of three (3) years from date hereof.

6. The Lessor agrees to sell, and Lessee agrees to buy said property for the sum of Thirty Thousand Dollars ($30,000.00), which shall be paid on or before ten (10) years from date hereof. All royalties paid by the Lessee thereunder, including the minimum royalty payment, shall be credited upon the said purchase price.

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Upon payment in full of the said Thirty Thousand Dollars ($30,000.00) purchase price, the Lessor shall execute and deliver to Lessee a good and sufficient deed conveying said described property to the Lessee free and clear of all encumbrances, save and except only those that may be caused and created by the Lessee, or which Lessee by the terms hereof is required to discharge during the term of the lease.

7. Upon default by Lessee in making any of the payments hereinbefore provided, or to perform any of the covenants hereof, the Lessor shall have the right, in addition to any other rights and remedies, to declare this mining lease and all rights of Lessee under and by virtue of this instrument to be forfeited and terminated, said right to be exercised by the Lessor giving written notice to Lessee by registered mail specifying the particulars wherein the Lessee is then in default, and providing that unless the delinquent payment is made or the failure to perform corrected within thirty (30) days from the date of said notice, this agreement shall be immediately forfeited and terminated, and upon such forfeiture or termination, all payments that shall have been made to Lessor on the purchase price shall be considered as rents and royalties and shall be owned by Lessor free and clear of any right or claim of Lessee, and in this connection time is the essence of this agreement.

Failure of Lessee to declare a forfeiture upon default in any payment or payments, or in the performance of any other provisions hereof, shall not be considered a waiver of Lessee's right to declare forfeiture in the event of any succeeding default.

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8. Lessee shall not incur any indebtedness for which the owner shall be liable or which may become a lien or charge upon the property, and it is expressly understood and agreed that the Lessee is not the owner's agent for the doing of any work or the contracting of any indebtedness, but has only the right and interest of a lessee under this agreement. Lessee shall at all times during the life of this agreement keep the property, and the whole thereof, free and clear of all liens and encumbrances, and the owner shall not be liable for any expenditures made by Lessee or any obligations incurred or contracts entered into by Lessee, and Lessee shall so inform all persons doing labor on or furnishing materials for use on said premises and property at the instance or request of Lessee. Lessee, at his office and at the entrance of each mine being operated hereunder, shall post and keep posted in a conspicuous place, printed or typewritten notices advising all persons furnishing labor or materials the mines are being operated under a lease agreement, and that neither the owner nor the properties are liable for, or chargeable with the cost of labor or materials furnished for use on said premises, but that the Lessee is individually and solely liable therefor.

In the event any law shall be eneacted in the State of Arizona making mining property subject to lien for, or make it liable for the payment of, any obligations incurred by Lessee, then and thereupon Lessee shall at once make arrangements satisfactory to Lessor to fully protect and indemnify the Lessor against any such lien or liability, and failure of Lessee to promptly furnish such protection or indemnity to Lessor shall

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be sufficient cause for the cancellation and termination of this agreement by the Lessor upon notice in writing, as provided in Paragraph 6 hereof.

9. Lessee agrees to permit Lessor, or its representatives, at all reasonable times, to enter upon the properties and inspect all workings and mining operations and to make such surveys and take such samples as Lessor or his representatives may desire.

10. Lessee shall have the right to use all buildings, machinery and equipment now on said premises in connection with the work and developing of said mining property under this lease, and he may, at his own cost and expense, alter, change and repair the same as he may deem necessary in carrying on such mining operations, and he may, at his own cost and expense, erect such other buildings thereon and install such other machinery and equipment as he may deem necessary for carrying on such mining operations. Upon the termination of this lease for any cause, the Lessee may remove any and all machinery and equipment, except buildings, which he may have placed on said premises, pursuant to this agreement.

11. This agreement is an entirety and it may not be divided or severed by either of the parties hereto into any separate parts without the express written consent of the other party, and in this connection it is expressly understood that among other things, Lessee may not assign separately from the lease herein the right to purchase the property.

12. This agreement shall be binding upon the parties hereto, their heirs, devisees, executors, administrators, successors and assigns, but the rights of Lessee hereunder shall not be assigned or transferred except with the

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written consent of Lessor first had and obtained.

13. Notwithstanding any of the foregoing provisions hereof, it is agreed and understood that Lessee and his assigns shall have the right, at any time, by first giving the Lessor thirty (30) days notice of his election so to do, to surrender this lease and agreement and to re-deliver possession of said property to the Lessor and to be relieved of all obligation thereafter to be performed under the terms of this agreement, provided that at the time of such surrender, all obligations on the part of the Lessee shall have been fully and completely performed to the date of surrender. If the date fixed for surrender falls on any day subsequent to the 30th day of June in any year, then as a condition precedent to his right to surrender, Lessee shall, in addition to all other obligations, be required to first pay all taxes for that entire year.

Provided further that such surrender by Lessee shall fully terminate this lease and relieve Lessor of all further obligations hereunder, but such surrender shall not relieve Lessee or his assigns from the payment of any royalties due to the Owner on any ores or mineral that may have been mined prior to the actual surrender of the property, nor shall it relieve either party from any obligation, debt, claim or demand actually incurred and accrued to the other prior to the date of such surrender. Upon any such surrender by Lessee, all payments that have been made to Lessor, both as royalties and as payment on the purchase price of the property covered hereby, shall belong to Lessor and shall be considered as rent and royalties hereunder, and upon such surrender, Lessee or his assigns shall have no further right to buy the premises and shall be considered to have automaticaaly for-

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feited all rights created hereunder to purchase the property covered hereby.

All notices of either party to the other shall be addressed to them respectively as follows: To Lessor, at P. O. Box 2039, Tulsa 2, Oklahoma; to Lessee, at 309 North Fourth Street, Boise, Idaho.

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

BARNSDALL MINING COMPANY OF DELAWARE

ATTEST: (SEAL)

By Jas. A. Dunn
President.
LESSOR

Frank Braman
Secretary.

C. F. Phippen
C. F. Phippen

LESSEE

STATE OF NEW YORK)
COUNTY OF NEW YORK) SS.

This instrument was acknowledged before me this 3rd day of May, 1948, by JAS. A. DUNN, President of BARNSDALL MINING COMPANY OF DELAWARE, a corporation.

(SEAL)
My commission expires:
Wm. Dewey Loucks, Jr.,
Notary Public, Westchest County
Certificate Filed In
N. Y. Co. Clk's No. 374, Reg. No. 680-L-M
Commissioner Expires March 30, 1950

Wm. Dewey Loucks, Jr.
Notary Public.

STATE OF OKLAHOMA)
COUNTY OF TULSA) SS.

This instrument was acknowledged before me this 20th day of April, 1948, by C. F. Phippen.

(SEAL)

Clarice Pinkerton
Notary Public

My commission expires:
March 8, 1950

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EXHIBIT B

MINING LEASE

THIS AGREEMENT, Made and entered into this 20th day of April, 1948, by and between BARNSDALL MINING COMPANY OF DELAWARE, a Delaware corporation, duly authorized to do business in the State of Arizona, hereinafter designated "Lessor", party of the first part, and C. F. PHIPPEN of Boise, Idaho, hereinafter designated "Lessee", party of the second part,

WITNESSETH:

Lessor is the owner of the following described lands, mining claims and mineral rights situated in Pima County, Arizona, known as the Plumed Knight Group, to-wit:

	WHERE RECORDED	
NAME	BOOK	PAGE
Plumed Knight	DD Records of Mines	74
Plumed Knight No. 2	KK Records of Mines	439
Lake George	GG Records of Mines	216
Lake George No. 2	KK Records of Mines	440
South Side	HH Records of Mines	390
South Side No. 2	KK Records of Mines	438
Out Side	KK Records of Mines	156
Out Side No. 2	KK Records of Mines	441
Sunny Side	KK Records of Mines	155
Sunny Side No. 2	KK Records of Mines	437
Martha B. Ketz	KK Records of Mines	157
Martha B. Ketz No. 2	KK Records of Mines	440
Eida B.	KK Records of Mines	435
Eida B. No. 2	KK Records of Mines	436

The parties hereto desire that Lessor shall lease to Lessee the above described property, with all buildings and improvements thereon and tenements, hereditaments and appurtenances pertaining thereto or used in connection therewith, and all water rights owned by Lessor and used in connection with said property, for mining purposes, and that Lessee shall have certain rights to purchase said property, which lease and

rights to purchase are more particularly hereinafter set forth.

THEREFORE, in consideration of the premises and of the mutual covenants and agreements herein contained, the parties hereto agree as follows:

1. Lessor hereby lets and leases unto Lessee all of the above described mining property, including the water rights, machinery, equipment and personal property thereon or used in connection therewith, and all tenements, hereditaments and appurtenances appertaining thereto or situate thereon and used in connection with the property, and grants unto Lessee the exclusive right to enter into the immediate possession thereof and to prospect on said properties for copper, lead, zinc, and other minerals, and to develop and operate said properties, and to mine, extract, mill or smelt the ores and minerals therefrom, and to sell and dispose of the ores and minerals so extracted during the term hereof, and subject to the covenants, terms and conditions herein provided.

2. This agreement is for a term of ten (10) years, commencing the 1st day of May, 1948, and ending on the 30th day of April, 1958. Lessee shall enter into immediate possession of said property, and continue in possession thereof as long as this agreement is in force, and he shall, at his own cost and expense, do or cause to be done all acts or things that may be necessary to protect and maintain in full force and effect the right, title and interest of Lessor in and to said property, and Lessee shall pay all taxes that may be levied or assessed against the property or any part thereof and the business being conducted thereon that accrue during the

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term of this lease or as a result of the operations thereon, and Lessee shall furnish to Lessor, on or before the 1st day of May, of each year, satisfactory evidence showing payment of all accrued taxes and compliance by Lessee with the terms hereof.

3. While in general the extent of the prospecting, developing and operating work on the property shall be left to the judgment and discretion of Lessee, this agreement is nevertheless on the express condition that Lessee in any event shall expend not less than Three Thousand Dollars ($3,000.00), during the first two (2) years of the term of this lease, and a similar amount during each succeeding two (2) year period during the term of this lease, in working, developing, and equipping said property. On or shortly before two (2) years from date hereof, Lessee shall deliver to Lessor a sworn statement showing the amount of mining operations conducted on the property and the amounts expended thereon. In the event Lessee has failed to expend the amount above provided during said two (2) year period, or in the event Lessee fails to deliver said statement to Lessor within said time, then Lessor shall have the right and option to cancel and terminate this lease to be exercised by mailing to Lessee a notice of cancellation and termination within twenty (20) days after receipt of said written statement or within twenty (20) days after the time said statement was due. On or shortly before the expiration of each succeeding two (2) year period thereafter, a similar statement covering each succeeding two (2) year period shall be delivered by Lessee to Lessor, and Lessor shall have a similar option and right of cancellation and termination

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upon failure of Lessee to expend said amount during any of said two (2) year periods or failure of Lessee to deliver said statements in due time.

4. All mining operations by the Lessee in and upon and said properties shall be conducted in a proper and workmanlike manner, but Lessee shall not be liable for the caving or loss of the old mine workings now on the property; provided that nothing herein contained shall be construed to exempt Lessee from liability for damages to Lessor or to others by reason of the negligence of Lessee, his agents, servants, employees, successors, or assigns in operating and developing said properties.

5. Lessee shall pay, or cause to be paid, to the Lessor, royalties as listed below on net smelter returns on all ore and minerals of every kind mined or taken from the property and milled, smeltered or otherwise turned to account.

(a) Copper: - 5% as long as the price of copper remains at or below 25¢, but increasing 1% for each additional 1¢ increase until the royalty reaches 10%.

(b) Zinc: - 5% as long as the price of zinc remains at or below 16¢ but increasing 1% for each additional 1¢ increase until the royalty reaches 10%.

(c) Lead: - 5% as long as the price of lead remains at or below 18¢, but increasing 1% for each additional 1¢ increase until the royalty reaches 10%.

In determining the net smelter return on which the royalty shall be computed, there shall be deducted, in addition to the charges of the smelter, the railroad freight, if any, and charges for trucking or hauling the ore from the mine to

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the railroad or smelter. The royalty which shall become due on each smelter return shall be paid by the Lessee to the Lessor within ten (10) days after receipt by the Lessee of the net smelter return upon which such royalty payment shall be due. At the time of making each such payment of royalty, the Lessee shall transmit to the Lessor a duplicate smelter return statement of the smelter return upon which royalty was then being paid.

It is specifically agreed that Lessee shall, during the first three (3) years of the term of this lease, pay to Lessor a minimum sum of Five Thousand Dollars ($5,000.00) in royalties; if the amount of royalties payable to Lessor on ore and minerals produced and marketed, based on the schedule of royalties above set out, is less than Five Thousand Dollars ($5,000.00) for the first three (3) years of the term hereof, then the difference between the amount paid to Lessor under the above schedule and the sum of Five Thousand Dollars ($5,000.00) shall be paid Lessor at the end of the period of three (3) years from date hereof.

6. The Lessor agrees to sell, and Lessee agrees to buy said property for the sum of Thirty Thousand Dollars ($30,000.00), which shall be paid on or before ten (10) years from date hereof. All royalties paid by the Lessee thereunder, including the minimum royalty payment, shall be credited upon the said purchase price.

Upon payment in full of the said Thirty Thousand Dollars ($30,000.00) purchase price, the Lessor shall execute and deliver to Lessee a good and sufficient deed conveying

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said described property to the Lessee free and clear of all encumbrances, save and except only those that may be caused and created by the Lessee, or which Lessee by the terms hereof is required to discharge during the term of the lease.

7. Upon default by Lessee in making any of the payments hereinbefore provided, or to perform any of the covenants hereof, the Lessor shall have the right, in addition to any other rights and remedies, to declare this mining lease and allrights of Lessee under and by virtue of this instrument to be forfeited and terminated, said right to be exercised by the Lessor giving written notice to Lessee by registered mail specifying the particulars wherein the Lessee is then in default, and providing that unless the delinquent payment is made or the failure to perform corrected within thirty (30) days from the date of said notice, this agreement shall be immediately forfeited and terminated, and upon such forfeiture or termination, all payments that shall have been made to Lessor on the purchase price shall be considered as rents and royalties and shall be owned by Lessor free and clear of any right or claim of Lessee, and in this connection time is the essence of this agreement.

Failure of Lessee to declare a forfeiture upon default in any payment or payments, or in the performance of any other provisions hereof, shall not be considered a waiver of Lessee's right to declare forfeiture in the event of any succeeding default.

8. Lessee shall not incur any indebtedness for which the Owner shall be liable or which may become a lien or

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charge upon the property, and it is expressly understood and agreed that the Lessee is not the owner's agent for the doing of any work or the contracting of any indebtedness, but has only the right and interest of a lessee under this agreement. Lessee shall at all times during the life of this agreement keep the property, and the whole thereof, free and clear of all liens and encumbrances, and the owner shall not be liable for any expenditures made by Lessee or any obligations incurred or contracts entered into by Lessee, and Lessee shall so inform all persons doing labor on or furnishing materials for use on said premises and property at the instance or request of Lessee. Lessee, at his office and at the entrance of each mine being operated hereunder, shall post and keep posted in a conspicuous place, printed or typewritten notices advising all persons furnishing labor or materials the mines are being operated under a lease agreement, and that neither the owner nor the properties are liable for, or chargeable with the cost of labor or materials furnished for use on said premises, but that the Lessee is individually and solely liable therefor.

In the event any law shall be enacted in the State of Arizona making mining propertysubject to lien for, or make it liable for the payment of, any obligations incurred by Lessee, then and thereupon Lessee shall at once make arrangements satisfactory to Lessor to fully protect and indemnify the Lessor against any such lien or liability, and failure of Lessee to promptly furnish such protection or indemnity to Lessor shall be sufficient cause for the cancellation and termination of

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this agreement by the Lessor upon notice in writing, as provided in Paragraph 6 hereof.

9. Lessee agrees to permit Lessor, or its representatives, at all reasonable times, to enter upon the properties and inspect all workings and mining operations and to make such surveys and take such samples as Lessor or his representatives may desire.

10. Lessee shall have the right to use all buildings, machinery and equipment now on said premises in connection with the work and developing of said mining property under this lease, and he may, at his own cost and expense, alter, change and repair the same as he may deem necessary in carrying on such mining operations, and he may, at his own cost and expense, erect such other buildings thereon and install such other machinery and equipment as he may deem necessary for carrying on such mining operations. Upon the termination of this lease for any cause, the Lessee may remove any and all machinery and equipment, except buildings, which he may have placed on said premises, pursuant to this agreement.

11. This agreement is an entirety and it may not be divided or severed by either of the parties hereto into any separate parts without the express written consent of the other party, and in this connection it is expressly understood that among other things, Lessee may not assign separately from the lease herein the right to purchase the property.

12. This agreement shall be binding upon the parties hereto, their heirs, devisees, executors, administrators, successors and assigns, but the rights of Lessee here-

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under shall not be assigned or transferred except with the written consent of Lessor first had and obtained.

13. Notwithstanding any of the foregoing provisions hereof, it is agreed and understood that Lessee and his assigns shall have the right, at any time, by first giving the Lessor thirty (30) days notice of his election so to do, to surrender this lease and agreement and to re-deliver possession of said property to the Lessor and to be relieved of all obligation thereafter to be performed under the terms of this agreement, provided that at the time of such surrender, all obligations on the part of the Lessee shall have been fully and completely performed to the date of surrender. If the date fixed for surrender falls on any day subsequent to the 30th day of June in any year, then as a condition precedent to his right to surrender, Lessee shall, in addition to all other obligations, be required to first pay all taxes for that entire year.

Provided further that such surrender by Lessee shall fully terminate this lease and relieve Lessor of all further obligations hereunder, but such surrender shall not relieve Lessee or his assigns from the payment of any royalties due to the Owner on any ores or mineral that may have been mined prior to the actual surrender of the property, nor shall it relieve either party from any obligation, debt, claim or demand actually incurred and accrued to the other prior to the date of such surrender. Upon any such surrender by Lessee, all payments that have been made to Lessor, both as royalties and as payment on the purchase price

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of the property covered hereby, shall belong to Lessor and shall be considered as rent and royalties hereunder, and upon such surrender, Lessee or his assigns shall have no further right to buy the premises and shall be considered to have automatically forfeited all rights created hereunder to purchase the property covered hereby.

All notices of either party to the other shall be addressed to them respectively as follows: To Lessor, at P. O. Box 2039, Tulsa 2, Oklahoma; to Lessee, at 309 North Fourth Street, Boise, Idaho.

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

ATTEST: (SEAL)

Frank Braman
Secretary

BARNSDALL MINING COMPANY OF DELAWARE

By Jas. A. Dunn
President.

LESSOR

C. F. Phippen
C. F. Phippen

LESSEE

STATE OF IDAHO)
(SS
COUNTY OF NEW YORK)

This instrument was acknowledged before me this 3rd day of May, 1948, by Jas. A. Dunn, President of Barnsdall Mining Company of Delaware, a corporation.

(SEAL)

My commission expires:
March 30, 1950 (rubber stamp)

Wm. Dewey Loucks, Jr.
Notary Public

STATE OF OKLAHOMA)
) SS
COUNTY OFTULSA)

This instrument was acknowledged before me this 20th day of April, 1948, by C. F. Phippen.

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(SEAL)

My commission expires:
March 8, 1950

Clarice Pinkerton
Notary Public

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
8/9		~~300~~
	Arizona	500
		140
8-11	Brown	140
	App'd. Sol. OM	
8/14	Talbert	800
8/14	Graham	120
"	Johnson	110
		220

INTERIOR DEPT.
AUG 10 1961
SOLICITOR

Mr. E. S. Bowman
General Manager
Banner Mining Company
2042 Conner Stravenue
Tucson, Arizona

AUG 14 1961

FROM SOLICITOR
AUG 11 1961
FOR SIGNATURE

Re: DMA-269X-B (Copper)
Banner Mining Company
Twin Buttes Copper Mines
Pima County, Arizona
Contract I-DMA-E33

Dear Mr. Bowman:

By the terms of the subject Exploration Project Contract, as amended, and the certification of discovery or development, dated March 19, 1954, all minerals mined or produced from June 30, 1951, to June 30, 1961, were subject to the Government's percentage 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.

Director

GLAult/gla
8-9-61
cc to: Director's Reading File
CA&A Division
Region III (2)
Docket
Code 500

RECEIVED
AUG 10 1961
ASSOC. SOLICITOR
MINERAL RESOURCES

43683

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
REGION III

OFFICIAL FILE COPY
O. M. E.
RECEIVED AUG 7 1961

DATE	INITIALS	CODE
8-7	gad	VNC
52		100
	August 4,	1961
8/7		110
88		800
	Insured	220

Memorandum

To: Hugh M. Connors, Acting Field Officer, OME, Region III

From: A. S. Konselman, Acting Chief, Division of Mineral Resources

Subject: Docket DMEA 269 X - B(Copper)
Contract Idm - E33 Banner Mining Co.

With this is a memorandum report on the visit made to the Banner Mining Co. on your behalf, on July 31, 1961, by W. R. Hardwick. Returned also are map and contract.

Hardwick interviewed Allen Bowman, vice-president and general manager of the company, and obtained from him the information you requested in your letter to Mr. Geehan, dated July 24, 1961.

A. S. KONSELMAN
A. S. Konselman

cc: Robert W. Geehan
W. R. Hardwick

Selfridge (2)

REGIONAL DIRECTOR
OFFICE
REGION III
AUG 3 - 1961
RECEIVED
BUREAU OF MINES
DENVER, COLORADO

OFFICIAL FILE COPY
O. M. E
AUG 7 1961
DATE | INITIALS
July 31, 1961
Certified Mail

Memorandum

To: Robert W. Geehan, Regional Director, Region III

From: W. R. Hardwick, Tucson, Arizona

Subject: Docket DMEA 269X-B (Copper) - Contract Idm-E33, Banner Mining Co.

In accordance with instructions in your memorandum of July 21, 1961, I visited the offices of Banner Mining Company on Thursday, July 27, 1961. I discussed the status of the subject contract with Allen Bowman, vice president and general manager, who stated

(1) There has been no production for subordinated land since August 1956.

(2) No ore from subordinated land has been stockpiled.

After discussing the contract with Mr. Bowman I visited the Twin Buttes property and examined the surface facilities at the Copper Queen and Glance shafts. The water level is maintained at slightly below the 525 level (7th level). The 525 level, connecting the two shafts, is in bad condition. There is no indication of recent production.

In the course of my conversation with Mr. Bowman he stated that all of the company's efforts had been directed toward the development of Mineral Hill property since 1956. As I understood Hugh M. Conners, all he required was confirmation of the two points in this memorandum, therefore, I will not prepare a formal report on the examination unless requested.

Contract and map are attached for return to Hugh M. Conners.

W R Hardwick
W. R. Hardwick

CC R. W. Geehan
269X-B
DF

WRHardwick:frj

OFFICIAL FILE COPY O. M. E. RECEIVED JUL 26 1961		
DATE	INITIALS	CODE
7-26	gad	110
		140
7/26	407	800
		500
"	[illegible]	500
		220

Building 20 - Federal Center
Denver 25, Colorado

July 24, 1961

Memorandum

To: Robert W. Graham, Regional Director

From: Hugh M. Connors, Acting Field Officer, OME, Region III

Subject: Docket No. EMFA 269X-B (Copper)
Contract I4m-833
Banner Mining Company
(Copper Glance, Copper Queen, and Copper King claims)
Pima County, Arizona

This has further reference to my memorandum to you dated July 11, 1961 and your memorandum to W. R. Hardwick dated July 21, 1961 on the subject contract.

A further clarification of the status of this contract is as follows:

The amount the Government expended on this contract was $55,529.85 which amount was repayable to the Government from royalty on production, or until June 30, 1961, whichever occurred first.

As of August 1956 the Operator had repaid the Government from royalty on production $2,593.44 leaving a balance repayable to the Government of $52,936.41 from any production of ore between August 1956 and June 30, 1961.

Only two things are to be determined.

(1) Has there been any production from the subordinated land since August 1956?

(2) Has any ore from the subordinated land been stockpiled?

Original Signed By

Hugh M. Connors

cc: W. R. Hardwick
Project coordinator, Tucson, Arizona
George C. Selfridge, Chief
Division of Field Operations, OME
A. S. Konselman
Acting Chief, Division of Mineral Resources

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
REGION III

OFFICE OF
REGIONAL DIRECTOR

224 NEW CUSTOM HOUSE
DENVER 2, COLORADO

July 21, 1961

OME
DEPARTMENT OF THE INTERIOR

Certified Mail

Memorandum

To: W. R. Hardwick, Project Coordinator, Tucson

From: Regional Director, Region III

Subject: Docket DMEA 269X-B (Copper) - Contract Mm-E33, Bonner Mining Company

Attached is OME (DMEA) Docket No. 269X-B along with a memorandum from Hugh M. Connors asking us to make a final inspection.

Mr. Connors' memorandum is a little ambiguous with regard to royalty due. No royalty is due. The loan has been paid off. In order to formally close out the docket, OME would like to have information on production since August 1956; however, as the loan is paid off it will not be essential to investigate as thoroughly as would be the case where there were obligations outstanding.

Please take care of this final inspection.

/s/ Robert W. Geehan
Robert W. Geehan

Attachments
cc: A. S. Konechman
Hugh Connors

OFFICIAL FILE COPY
O. M. E
RECEIVED JUL 14 1961

DATE	INITIALS	CODE
7-14	gad	1710
		1410
7/14	[illegible]	800
		500
"	Returned	500
		220

Building 20 - Federal Center
Denver 25, Colorado

July 11, 1961

Memorandum

To: Robert W. Goehan, Regional Director, Region III

From: Hugh M. Connors, Acting Field Officer, OME, Region III

Subject: Docket EMEA 269X-B (Copper)
Contract Ism-E33
Banner Mining Company
(Copper Glance, Copper Queen, and Copper King claims)
Pima County, Arizona
FINAL INSPECTION

The expiration date of royalty payments to the Government was June 30, 1961 on the subject contract. As we previously discussed, a final inspection of the property by one of your Tucson engineers would be appreciated.

The information desired by the Washington Office OME deals solely with the possibility of unreported production of ore from the Copper Glance, Copper Queen, and Copper King claims which were subordinated to the Government by the subject contract.

The last shipment of concentrates of which we have knowledge, and on which royalty was paid, was smelter lot No. 2897, which was received by the El Paso ASARCO Smelter on August 2, 1956. A Report of Royalty Review in September 1958 showed that the total amount of royalty due was $2,593.44 which sum has been paid the Government. It appears that the only thing to be determined is whether or not any production has been made from the subordinated land since August 1956 and that there has been no ore stockpiled.

Attached is our copy of the contract and a map "Geologic Plan of the 600 Level, Glance, Queen, and King mines". Will you please return the contract and map with the report on the final inspection of this property.

Original signed by

Hugh M. Connors

Attachments

cc Chief, Division of Field Operations, OME

cc: Royalty Corres E33
Chron

OFFICIAL FILE COPY O. M. E. RECEIVED JAN 28 1960		
DATE	INITIALS	CODE
1-28	gad	VVO
"	[illegible]	800
"	[illegible]	500
		225

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION
Building 20 - Federal Center
Denver 25, Colorado

January 25, 1960

Mr. Allan Bowman
Banner Mining Company
Tucson, Arizona

Re: Docket No. DMA 269X-B (Copper)
Contract No. I-DMA E33
(Twin Buttes Copper mines)
Pima County, Arizona

Dear Mr. Bowman:

In reference to the "Certification by the United States of America of a Discovery or Development under an exploration Project Contract" and the instructions in the Washington Office letter of transmittal of the Certification on the captioned project, please indicate your answer to the following questions and return one copy of the questionnaire immediately to this office.

Very truly yours,
Original signed by

J. W. Townsend
Executive Officer, OME
Field Team, Region III

1. Has the property been sub-leased or any change made in ownership other than this office has been notified? Yes ___ No___. If yes, please furnish details of the transaction on a separate sheet and include a true or signed copy of any instrument that was executed in conjunction with the matter.

2. Has there been production from the land subordinated under the referenced contract since January 1, 1959? Yes___ No___. If yes, and shipments made, who was the purchaser? _____

3. Is any of the following material stockpiled? Yes___ No___.

(a) Ore, Tons _____ Estimated grade _____
(b) Concentrates, lbs. _____ Estimated grade _____
(c) Low grade ore, tons _____ Estimated grade _____
Place stockpiled _____

Signed _____

Title _____ Date _____

TMR:ltm cc: Roy. Corres. Chmn. Op. Comm. Chron.

Surname
Docket Copy

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

Ching
Ellis
Rubin
Hoffman
Chamber
Guild
Hedges
Selfridge
Johnson

Mr. Irving Gumbel, Acting Director MAR 22 1954
Materials Division, Emergency Procurement Service
General Services Administration Building, Room 5002
7th and D Streets, S. W.
Washington 25, D. C.

Re: Docket No. DMA-269X-B (Copper)
Contract No. I-DMA-E33
Banner Mining Company
Twin Buttes Copper Mines
Pima County, Arizona

Dear Mr. Gumbel:

Enclosed is a copy of a certification of discovery or development of the captioned project.

The project contract was dated June 30, 1951, and covers an exploration project estimated to cost $135,789.00, with Government participation to the extent of 50 percent, or $67,894.50. Project work under the contract was started August 15, 1951, and was terminated by agreement on October 1, 1953. A final audit of expenditures during the life of the contract is not yet available, but tentative figures indicate total expenditures of $117,388.45 from which the salvage value of project equipment and supplies will eventually be deducted.

The contract authorized the rehabilitation of 1383 feet of shafts and 3240 feet of drifts, crosscuts, raises, and winzes in the old Copper Queen and Copper Glance mines, the driving of 660 feet of new drifts, crosscuts and raises, and the drilling of 2760 feet of diamond drill holes.

The work accomplished consisted of rehabilitation of 4346 lineal feet of shafts, drifts, crosscuts, and a winze, also 181 feet of new drifting, 43 feet of new raising, and 2297.5 feet of diamond drilling. A workable ore body was discovered and mined which contained 4,059 tons of 4.95 percent copper ore. Two other orebodies were disclosed which contain approximately 60,000 tons of 1.6 percent copper ore and are not economically workable under present conditions.

The results of the project were somewhat disappointing because of the small tonnage of exploitable ore exposed. The discovery was sufficiently significant, however, to warrant a certification of discovery or development, especially in view of the larger tonnage of low-grade ore that may be utilized in the future.

Sincerely yours,

C. O. Mittenderf (for)

Administrator

FLKnouse/MChing/gla 3-17-54
cc to: Adm. Reading File
Operating Committee
Mr. Hedges, Rm. 4604
Mr. Thayer, Rm. 5216, GSA
Enclosure
Docket
DMEA Field Team, Region IV (2)

F. E. Johnson
Code 700

F.L.Knouse
M.Ching

Surname
Docket copy

700

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

MAR 22 1954

Ching
Ellis
Rubin
Hoffman
Chandler
Guild
Hedges
Selfridge

Mr. E. S. Bowman, General Manager
Banner Mining Company
2042 Conner Stravenue
Tucson, Arizona

Re: Docket No. DMA-269X-B (Copper)
Contract No. I-DMA-E33
Twin Buttes Copper Mines
Pima County, Arizona

Dear Mr. Bowman:

Enclosed is a "Certification by the United States of America of a Discovery or Development Under an Exploration Project Contract." This certification covers all the land described in Article 2 of the above-described contract.

By the terms of the Exploration Project Contract, as amended, and of the certification, all copper and other valuable minerals produced from the claims described in Article 2 of the contract, from June 30, 1951, the date of the contract, are subject to the Government's percentage royalty as set forth in the contract until the sum which the Government has advanced as its participating interest is repaid, or until June 30, 1961, whichever occurs first.

Payments should be made to Mr. W. H. King, Executive Officer, DMEA Field Team, Region IV, 224 New Customhouse Building, Denver 2, Colorado. Checks should be payable to the Treasurer of the United States. The purchaser should be advised to deduct the royalties from the amount due on each shipment and forward the check directly to the Executive Officer. Royalty payments to the Government should be accompanied by suitable evidence, such as copies of settlement sheets, showing quantity and grade of the products sold, the name of the purchaser, and the price and charges, certified to be correct by the purchaser.

You are requested to notify Mr. King of any changes in ownership or production rights that might have any effect on the Government's right to its percentage royalty. Also, if production ceases at any time for an extended period, please notify Mr. King at six-month intervals that no production has been made, when that is the case.

Sincerely yours,

G. O. Wilkinson (fw)

Administrator

FLKnouse/MChing/gla
3-17-54
cc to: Adm.Reading File
Operating Committee
Mr. Thayer, Rm. 5216,GSA
Mr. Hedges, Rm. 4604
Docket
Code 700
F. E. Johnson
F. L. Knouse M. Ching
DMEA Field Team, Region IV (2)

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

MAR 19 1954

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

Re: Idm-E33, DMA-269XB (Copper)
Banner Mining Company
Pima County, Arizona

Dear Mr. Finch:

Please refer to my letter of March 12, 1954 regarding certain changes of your audit report of the above-cited project, and to your letter of March 15, 1954, transmitting revised pages two and three of the audit report.

This is to confirm that the report may be released.

Sincerely yours,

(Signed) J. L. Chambers

Jay L. Chambers, Chief
Contract Administration
and Audit Division

WBorovies/wb
March 19, 1954

Cipy to: Docket
Admr. Reading File
Mr. Chambers

R.C.G.

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

DOCKET COPY

224 New Customhouse
Denver 2, Colorado

March 12, 1954

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMA-269XB (Copper), Contract I-DMA-E33, Banner Mining Company, Pima County, Arizona

In compliance with your request by teletype of March 12, 1954, there are enclosed one copy each of the operator's and engineer's final reports relative to work under the subject contract.

The Field Team's final report will be forwarded upon receipt of the geologic report and final payment to the operator.

W H King
W. H. King

Enclosures

Note: The attachments were retained for Division contract file to facilitate issuance of certification of discovery

Robert Wm. Davis

gla

Surname
Docket copy

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

Re: Docket No. DMA-269X-B (Copper)
Contract No. Idm-E33
Banner Mining Company

FLKnouse/gla

T E L E T Y P E

DMEA - Department of the Interior

[redacted]

MAR 12 1954 11X3923.970 Working Fund - DMEA

W. H. KING, EXECUTIVE OFFICER
DMEA FIELD TEAM, REGION IV
224 NEW CUSTOMHOUSE BUILDING
DENVER 2, COLORADO

REURTT MARCH 10 DMA-269X-B, BANNER MINING COMPANY FURNISH COPY

REPORTS NOW AVAILABLE.

George C. Selfridge

GEORGE C. SELFRIDGE, CHAIRMAN
OPERATING COMMITTEE

FLKnouse/gla
3-11-54
cc to: Adm. Reading File
Operating Committee
Docket
Mr. Knouse
Code 700
Confirmation to DMEA Field Team, Region IV

SENT
MAR 12 1954
Clerical Service Section

3-12-54

Docket
Chamberlin

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

MAR 12 1954

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

Re: Idm-E33, DMA-269XB (Copper)
Barmer Mining Company
Pima County, Arizona

Dear Mr. Finch:

Reference is made to your Audit Certificate and Audit Report on the above-cited project.

As a whole the audit is satisfactory. Twice, however, in recent months the General Accounting Office has called my attention to what they term as inadequacy of the "audit report" or the "audit program" in regard to the scope and extent of verification of work performed. We, of course, do get your audit reports but we do not get copies of the audit program. Furthermore, we do not want such programs sent to Washington. Because of these criticisms by the General Accounting Office and because we do not want to further enlarge our files with audit programs I am requesting that you in the future delineate more thoroughly the scope and extent of verification of work.

To illustrate my point I wish to call your attention of the above-cited audit report. In the second paragraph of this report under (2) Labor and Supervision, the following statement is made: "Rates were compared with the Exploration Contract and Amendments. The summation of hours and extensions were thoroughly test checked." The word thoroughly is indicative but it is not very specific. Therefore, I am requesting you to make a footnote after the sentence quoted above and give the percentage of items checked or the extent you checked them. I am holding our copies and will add the footnote upon your response to this request.

On page 3 of your audit report the second sentence under paragraph (3) Operating Materials and Supplies states: "Materials and supplies are withdrawn from the operator's warehouse on an average cost basis." Some indication should be given as to whether the same costs are made to the operator's own activities as is made to the exploration project. Or better still, determine that the degree of mark-up over actual cost, if any is fair or reasonable. I think it would also be well for you to add a footnote on your copies of the audit report to this effect, and I'll likewise add the footnote on copies here.

R.C.B.
3-12-54

On the same page under a listing of supplies you have an item entitled "Misc. Mine Supplies". I think it would be well to have a sentence on this item stating that it includes items such as ——, to cover an indicative number of such supplies.

The chances are that your work papers include this information but the General Accounting Office has a statement to the effect that your work papers do not cover such items sufficiently. You will receive in a few days a copy of a letter written by Robert L. Long, Director of Audits, General Accounting Office, to Mr. Mittendorf, in regard to the audits of exploration projects in Region II.

In the future I think it would also be well to indicate that there was no inventory of materials or equipment left or that if such inventory exists the engineer either made or did not make an inventory account. I realize, of course, that this particular duty has been assigned to the Field Team and not to the Audit Division but I do believe it will prevent future letters from the General Accounting Office if the audit covers this phase in the manner outlined here. Your audit otherwise was satisfactory and the copies may be distributed according to procedure after the above additions have been made.

A letter of instruction on points of this type is being prepared for use of our auditors.

Sincerely yours,

(Signed) J. L. Chambers

Jay L. Chambers, Chief
Contract Administration
and Audit Division

JLChambers/wb
March 12, 1954

Copy to: Docket
Admr. Reading File
Mr. Chambers

C

Defense Minerals Administration
RECEIVED
MAR 10 1954

Mr. C. O. Mittendorf
March 11, 1954
(Unattended service after 4:15)

BUR MINES DN 235 3-10-54 4-03 PM

C O MITTENDORF

REURTT 3-10-54, DOCKET DMA-269X-B, BANNER MINING COMPANY. RECOMMENDATIONS RELATIVE TO CERTIFICATION OF DISCOVERY FORWARDED SEPTEMBER 17,1953. HAVE RECEIVED OPERATOR S AND ENGINEER S REPORTS BUT NOT GEOLOGIST S. WILL FORWARD ONE COPY OF EACH REPORT FOR YOUR USE NOW IF YOU DESIRE.

W H KING

Denver Colo.

MAR 11 8 35 AM '54
BUREAU OF MINES
MAIL ROOM
WASHINGTON D. C.

Surname
Docket copy

700

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

FLKnouse/gla 3-10-54

T E L E T Y P E

DMEA - Department of the Interior

[redacted]

14X3923.970 Working Fund, DMEA

W. H. KING, EXECUTIVE OFFICER
DMEA FIELD TEAM, REGION IV
224 NEW CUSTOMHOUSE BUILDING
DENVER 2, COLORADO

REFERENCE TO FEBRUARY 5, DMA-269X-B BANNER MINING COMPANY, ADVISE STATUS FIELD TEAM AND OPERATOR'S REPORTS ALSO WHEN THEY WILL BE FORWARDED.

FINAL DATE FOR CERTIFICATION IS MARCH 31.

C. O. MITTELSTAEDT, ADMINISTRATOR

cc to: Adm. Reading File
Docket file
Messrs. CHJohnson, Rm. 3621
ARKinkel, Jr. Rm. B-242A, GSA
FLKnouse
Code 700
Confirmation to DMEA Field Team, Region IV

SENT
MAR 10 1954
Clerical Service Section

R.C.G. 3-10-54

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

224 New Customhouse
Denver 2, Colorado

February 5, 1954

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMA 269X-B (Copper), Contract I-DMA-E33, Banner Mining Co., Pima County, Arizona

Reference is made to your letter of February 2, 1954, wherein you request to be advised when the final reports of the operator and the Field Team will be forwarded to Washington.

We have been advised by the Tucson office of the Bureau of Mines that the operator's and engineer's reports will be completed about February 20, 1954. We are advised that the geologic report will be completed about the same time.

We will forward the reports to you as soon as they are made available to this office.

W H King

W. H. King

Surname
DOCKET COPY

700

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

F.L. Knouse
Ellis
Selfridge
CHJohnson
Mattendorf

FEB - 2 1954

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

Re: Docket No. DMA-269L-B (Copper)
Contract No. I-DMA-E33
Banner Mining Company
Copper Glance, Copper Queen,
and Copper King claims
Pima County, Arizona

Dear Mr. King:

Reference is made to your memorandum to the Administrator under date of September 22, 1953, recommending the issuance of a certification of discovery or development on the captioned project. The work was terminated on this project by notice effective as of October 1, 1953.

We would appreciate being advised when the final reports of the Operator and the Field Team will be forwarded to Washington in order that we may proceed with the certification within the time limit specified in the contract.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (JHB)

APPROVED:

J. H. Hodges

Member, Bureau of Mines (JHB)

s/ Philip W. Guild

Member, Geological Survey (JHB)

FLKnouse/gla
1-29-54
cc to: Adm. Reading File
Operating Committee
Docket
Messrs. CHJohnson, Rm. 3621
ARKinkel, Jr., Rm. B-242A, GSA
Ellis
Knouse

R.C.S.
2-2-54

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

224 New Customhouse
Denver 2, Colorado

November 17, 1953

Memorandum

To: C.O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMA 269X-B (Copper), Contract I-DMA-E33, Banner Mining Company, Twin Buttes Mine, Pima County, Arizona

Enclosed are the Government, Docket, and Division copies of "Termination of Work Under an Exploration Project Contract by Agreement" which was prepared and executed in Washington to effect termination of the subject contract. Also enclosed are three sets of data relevant to the termination.

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

J. W. Townsend
For, W. H. King

Enclosures

MINING DIVISION
REGION IV

Memorandum

September 4, 1953

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

From : Lincoln A. Stewart for Walter A. Storms, Chief Mining Methods Br., Mining Div., Region IV

Subject : Termination of Contract Idm-233, DMA-269X-3, Banner Mining Co.'s Twin Buttes Mine, Pima County, Ariz.

Enclosed are original and 5 copies of memorandum from T. M. Romslo on the above subject. Logical reasons for termination of this contract, as of April 30, 1953 are given by the company in its letter dated June 1, 1953, addressed to your office. Romslo's memorandum concurs with this request.

It appears that the results of this exploration project to date have fulfilled the purpose of the Government's participation, and royalties will be forthcoming regardless of this termination. For the above reasons I recommend that this request for termination of the contract be granted.

LINCOLN A. STEWART

Lincoln A. Stewart, Mining Engineer
for Walter A. Storms, Chief
Mining Division, Region IV

CC W. H. King 5
DMA-269X3
DF

LAStewart:frj

MINING DIVISION
REGION IV

September 4, 1953

Memorandum

To : W. H. Storms, Chief, Mining Methods Br., Mining Div., Region IV, Tucson, Ariz.

From : T. M. Romslo, Mining Engineer, Tucson, Ariz.

Subject : Operator's request for termination of Contract I-DMA-233, DMA-269X-B, Banner Mining Co.'s Twin Buttes Mines, Pima County, Ariz.

I recommend that the contract be terminated April 30, 1953, as requested in the Operator's letter of June 1, for the following reasons:

1. The major portion of allowable funds will have been expended and remaining work that could be covered by the contract probably will be completed by the Operator. The remaining work, drifting and diamond drilling west and southwest of present workings, probably will be done because the cost of testing the favorable zone will not be excessive.

2. Termination of the contract will allow the Operator to simultaneously conduct both exploratory work and development and mining operations without becoming involved in potential conflicts in the allowable costs of an Exploration Contract. The development and mining operations are justified while copper prices remain at the present high level.

3. Reimbursement of the Government's equity in the project will not be jeopardized because the obligation to pay royalties on all ore shipped from the claims of the contract will still be effective.

4. The Banner Mining Co.'s desire to conduct further explorations in this district without Governmental assistance was demonstrated several months ago when they withdrew an application for an exploration project near their Mineral Hill mine. This project, diamond drilling geophysical anomolies, is presently being conducted with exceptionally favorable results.

TMRomslo

T. M. Romslo, Mining Engineer
Mining Methods Branch
Mining Division, Region IV

CC W. H. King (Orig. & 5)
DMA-269XB
DF

TMRomslo:frj

COPY June 1, 1953

Defense Minerals Administration
224 New Customhouse Building
Denver 2, Colorado

Re:-Contract #I-DMA-E-33, regarding the Twin Buttes Mines Southwest of Tucson, Arizona.

Gentlemen:-

You have under consideration at this time our request of April 7, 1953 for an amendment to our Contract #I-DMA-E-33. This requested amendment was for the purpose of allowing us to expend the balance of work and funds left in this project west and southwest of the Queen Shaft. This is the only area under this exploration project in which commercial ore has been found.

It is my understanding that until this amendment is processed that no further work can be done under the contract without express permission of the field team.

We feel that this amendment should be completed to allow Banner Mining Company to charge the crosscutting, diamond drilling and raising etc up through April 30th, 1953 to the project. The raise was 43 feet high as of the above date.

The contract requires at its completion or termination that we furnish an estimate of ore reserves. It is impossible to make a reliable estimate on the basis of the diamond drill holes only.

To determine the rough extent of the ore located in the diamond drill holes, it was necessary to do some crosscutting and raising in the ore. We were certainly not justified in developing the area or preparing it for mining on the basis of the drill holes only as they were drilled in one plane.

Arizona law requires a second outlet (which would have to be the Queen Shaft) before mining can commence. This would entail a large expenditure and would require a fairly large block of ore to justify same.

From what we know now, after raising about 70 feet in the ore body above the 7th level of the Queen Mine, we would like to make preparations to develop and mine some of this orebody while the price for copper remains at its present high level. We also intend to develop

this same orebody at higher levels in the Queen Shaft. We also intend to do exploration work west and southwest of the present faces on the Queen 7th level that may be covered by an amendment as asked for in our letter of April 7th, 1953.

In view of this varied work program for the coming months which will involve elaborate accounting and cost breakdowns which, I am sure, may involve conflicts in allowable costs under the Exploration Project, we believe that the best arrangement all around will be to terminate the Exploration Project as of April 30, 1953. We are making this as a formal request for termination as of this date.

In asking that the exploration project be stopped, we want to make it clear that Banner Mining Company realizes its obligation under Exploration Contract #I-DMA-E-33 and is willing that royalties be paid the Government on all ores shipped from the mining claims named in this contract and amendments according to terms of paragraph 14 of the contract form.

Please advise us at an early date of your decision in this matter.

We have not received checks for the Government's share in this project since the one covering the month of December 1952. Our reports through March have gone in on schedule. The report for the month of April is being held in abeyance pending completion of the requested amendment.

Yours very truly,

Banner Mining Company

/s/ A. B. Bowm
A. B. Bowman
Manager

ASB:ecb

FILE COPY
SURNAME

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

OCT 1 9 1953

Mr. [illegible]
[illegible] Office, [illegible]
Field Team, [illegible]
22[illegible] New Custom House Building
Denver 2, Colorado

Re: Lease No. [illegible] - Copper [illegible]
Denver Mining Company
Contract No. I-[illegible]A-33

Dear Mr. [illegible]:

Reference is made to your memorandum to the Administrator, dated October [illegible], with which you transmitted two copies of a proposed "Termination Agreement" of the subject contract. These are returned to you and there are also enclosed, duly signed by the Administrator, two original and five copies of a revised termination agreement. All six copies should be signed by the Operator, and the usual distribution made.

We do not plan to issue the certificate of discovery or development until the Final Field Team and Operator's Reports are received. [illegible], kindly forward these reports as soon as they are available.

Sincerely yours,

George C. Selfridge (GCS)
Chairman, Operating Committee

Enclosures

[illegible]

J. H. Hedges (GCS)
Director, Land [illegible] Division

T. P. Thayer (GCS)
Director, [illegible] Division

ALKane/ema/db
10-16-53
cc: Mails & Files
Adm. R. File
Op. Comm.
Mr. Thayer
Mr. Hedges
Mr. Ellis
Mr. A. L. Kane
Mr. J. L. Hofflund
Chron
Pending

ALKane
Rejn
J. L. Hofflund
Chandler
Selfridge
F. J. Zeller

R. C. G.
10-19-53

140

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

OCT 1 9 1953

Mr. . E. King
Executive Officer, DMEA
Field Team, Region IV
22h New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMA-269X-P - Copper
Banner Mining Company
Contract No. I-DMA-433

Dear Mr. King:

Reference is made to your memorandum to the Administrator, dated October 9, with which you transmitted two copies of a proposed "Termination Agreement" of the subject contract. These are returned to you and there are also enclosed, duly signed by the Administrator, the original and five copies of a revised termination agreement. All six copies should be signed by the Operator, and the usual distribution made.

We do not plan to issue the certificate of Discovery or Development until the Final Field Team and Operator's Reports are received. Therefore, Kindly forward these reports as soon as they are available.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

Enclosures

APPROVED:

J. H. Hedges

Member, Bureau of Mines

T. P. Thayer

Member, Geological Survey

AEKane/ema/db
10-16-53
cc: Mails & Files
Adm. R. File
Op. Comm.
Mr. Thayer
Mr. Hedges
Mr. Ellis
Mr. A. E. Kane
Mr. J. L. Hofflund
Chron
Pending

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

224 New Customhouse
Denver 2, Colorado

October 9, 1953

10-12

AIRMAIL

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMA 269X-B (Copper), Contract I-DMA-E33, Banner Mining Company, Twin Buttes Mine, Pima County, Arizona

Reference is made to the conversation by telephone with Frederick L. Knouse on October 9, 1953 relative to the execution of "Termination of Exploration Project Contract by Agreement After Commencement but Before Completion of the Work" relevant to work under the subject contract.

Enclosed are two copies of the "Termination Agreement" which was prepared in conformance with the authority contained in the teletype from Frank E. Johnson, Acting Administrator, dated September 17, 1953.

The original and five copies of the Termination Agreement were forwarded to the operator for execution, through the Tucson office of the Bureau of Mines, on September 24, 1953, after receipt of executed Amendment No. 8. The copies of the Termination Agreement have not been returned by the operator, nor have they been executed by this office for the Government.

We will defer execution of the Termination Agreement until the Agreement has been reviewed by the Washington office and we have received your advice in the matter.

W H King
W. H. King

Enclosures

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

RECEIVED
OCT - 8 1953

224 New Customhouse
Denver 2, Colorado

October 5, 1953

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMA 269X-B (Copper), Contract I-DMA-E33, Banner Mining Company, Twin Buttes Mine, Pima County, Arizona

Enclosed are the original and two copies of Amendment No. 8 to the subject contract which has been executed by this office in conformance with teletype from the Chairman of the Operating Committee, dated August 27, 1953. Amendment No. 8, effective October 1, 1952, amends Amendment No. 7 by modifying the description of the project work.

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

Four sets of data relevant to the amendment were forwarded to you by our memorandum of August 11, 1953.

Notice of termination of the contract by mutual agreement, effective April 30, 1953, has been processed and forwarded to the operator for execution, as stipulated in teletype from Frank E. Johnson, Acting Administrator, dated September 17, 1953.

W. H. King

W. H. King

Enclosures

RECEIVED
OCT 13 1953
GENERAL COUNSEL
DEFENSE MINERALS
ADMINISTRATION

cc
10-6

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

224 New Customhouse
Denver 2, Colorado

September 22, 1953.

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Certification of Discovery - Docket No. DMA-269XB, Contract No. I-DMA-E33, Banner Mining Company.

Enclosed are four copies of a Certification of Discovery covering Contract I-DMA-E33.

W. H. King

W. H. King

Enclosures

DEPARTMENT OF THE INTERIOR
Bureau of Land Management
RECEIVED
SEP 30 1953

MINING DIVISION
REGION IV

September 17, 1953

Memorandum

Air Mail

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

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

Subject : Certification of Discovery, Contract I-DMA-E33, Docket DMA-269XB, Banner Mining Co.'s Twin Buttes Copper Mines, Pima County, Ariz.

As requested in your telephone conversation of yesterday afternoon we are enclosing 6 copies of a "Certification by the United States of America of a Discovery or Development under an Exploration Project Contract" for contract I-DMA-E33.

A substantial amount of copper ore was discovered by exploration work under this contract by diamond drill holes, drifts, and a raise off the west end of the Queen mine 600-foot level. To date a substantial amount of copper ore has been mined and shipped to American Smelting & Refining Co.'s El Paso smelter from this area, and royalties on same have been paid to the Government.

Walter R. Storms

Walter R. Storms

CC W. H. King (5)
DMA-269XB
DF

WRStorms:frj

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

To: Banner Mining Co.
2042 Conner Stravenue
Tucson, Arizona

Pursuant to the provisions of Exploration Project Contract No. I-DMA-E33, dated June 30, 1951, Docket No. DMA-269XB, 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: Copper ores, occurring in a replacement deposit in limestone, have been discovered off the west end of the Queen mine 600-foot level by diamond drill holes, drifts, and a raise. This discovery is on the Copper Queen claim, Patent Survey No. 2643, but the ore deposit may extend into the Copper King claim, Patent Survey No. 2643. Although no ore has been discovered to date in the Copper Glance claim, Patent Survey No. 2643, any ore discovered on this claim also would be subject to Government royalty. All claims are in Sections 1 and 6 of Township 18 South, Ranges 12 and 13 East, and Sections 31 and 36 of Township 17 South, Ranges 12 and 13 East, Gila and Salt River Meridian, Pima Mining District, Pima County, Arizona.

Dated _____

UNITED STATES OF AMERICA

By _____
C. O. Mittendorf, Administrator
Defense Minerals Exploration
Administration.

FILE COPY
SURNAME:

Ellis
Orrane
Rubin
Chamberlain
F. Johnson

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

SEP 17 1953

DMEA

5295 4640

14X3923.970 Revolving Fund, Interior, DMEA

W. S. King, Executive Officer, DMEA Field Team, Region IV,
224 New Customhouse Bldg., Denver 2, Colorado.
Docket No. DMEA-269-X-B, Banner Mining Company, Contract I-DMA-33
(Copper) Pima County, Arizona

REFERTT SECTION 15, BANNER MINING COMPANY, DMEA-269X-B, Contract
I-DMA-33, YOU ARE AUTHORIZED TO TERMINATE CONTRACT BY MUTUAL
AGREEMENT AS OF APRIL 30, 1953 PROVIDED AMENDMENT NO. 8 IS EXECUTED
FIRST.

Frank E. Johnson (fw)

F. E. JOHNSON, ACTING ADMINISTRATOR

EWEllis/gla
9-16-53
cc to: Adm. Reading File
Docket
Messrs. C. H. Johnson, Rm. 3621
A. R. Winkel, Jr. Rm. B-242-A, GSA
Ellis
Confirmation to DMEA Field Team, Region IV

SENT
SEP 17 1953
Clerical Service Section

R.C.G.
9-17-53

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

September 16, 1953

Memorandum

To: Docket File

From: Ernest Wm. Ellis, Chief
Rare and Misc. Metals Division

Subject: Amendment No. 8 to
Contract No. I-DMA-E33
Docket No. DMA-269X-B
Banner Mining Company
Pima County, Arizona

In a telephone conversation today with Mr. W. H. King, Executive Officer, Region IV, it was learned that Amendment No. 8 is still in the process of being formulated. Amendment No. 8 takes the place of Amendment No. 7 and applies to work done on or prior to April 30, 1953.

Work done under the contract reveals sufficient ore upon which to issue a certification of discovery or development and information recommending such certification will be forwarded in the near future.

Applicant is in production and wishes to expand production and does not wish to be bothered with any additional work remaining under the contract or, if such work is necessary, will do it with private funds.

Ernest Wm. Ellis

Ernest Wm. Ellis

Mr. C. O. Mittendorf
Sept. 15, 1953
2:58 P.M.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 15 1953

DN 235 BUREAU MINES 9-15-53 11-50 AM

C O MITTENDORF

REFERENCE DOCKET 269XB, CONTRACT IDAXXX IDMA-E33, BANNER MINING COMPANY—RESULTS OF EXPLORATION WORK TO APRIL 30,1953 HAVE FULFILLED THE PURPOSE OF THE PROJECT TO SATISFACTION OF GOVERNMENT AND COMPANY REPRESENTATIVES. RECOMMENDATIONS FOR THE ISSUANCE OF A CERTIFICATION OF DISCOVERY OR DEVELOPMENT WILL BE FORWARDED AS SOON AS THE INFORMATION IS RECEIVED FROM THE FIELD. PLEASE TELETYPE AUTHORIT Y TO TERMINATE THE CONTRACT BY MUTUAL AGREEMENT AS OF APIXXX APRIL 30,1953.

W H KING

Denver, Colo.

SEP 15 3 54 PM '53
BUREAU OF MINES
MAIL ROOM
WASHINGTON, D.C.

FILE COPY
SURNAME:

FL Knouse
AEKane
Brin
Hoffman
Ellis
Lassrater
Kinkel
Stellwagen
Austenberg

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

FLKnouse/AEKane/jla
8-26-53

cc to: Adm. Reading File
Operating Committee
Docket
Messrs. C.H.Johnson, 3621
A.R.Kinkel, Jr. B-242A DMEA GSA Bldg.

Legal Div. (2)
Ellis
Knouse
Confirmation - Reg. IV

5295 4640

14X3923.970 Working Fund, Interior, DMEA

AUG 27 1953

[illegible] King, Executive Officer, DMEA Field Team, Region IV,
224 New Customs [illegible] Building, Denver 2, Colorado
Docket No. DMA-269X-B, Contract No. I-[illegible]A-833, Banner Mining Company
Pima County, Arizona (Copper)

RETURNING AUGUST 11 DMA-269X-B BANNER MINING COMPANY [illegible]
AMENDMENT NO. 8. [illegible] AMENDMENT [illegible] BY [illegible]
IN LIEU OF [illegible] YIELD IN AMENDMENT NO. 7 PROVIDED TOTAL
CONTRACT COST [illegible] INCREASED.

[illegible]
ACTING CHAIRMAN, [illegible] COMMITTEE

SENT
AUG 27 1953
Clerical Service Section

R.C.B.
8-27-53

FILE COPY
SURNAME:

F L Knouse
Ellis
Martin
Selfridge

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

AUG 7 1953

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

Re: Docket No. DMA-269YB (Copper)
Contract No. I-dma-533
Banner Mining Company
Pima County, Arizona

Dear Mr. King:

Reference is made to the narrative in your "Operating Project Report" for July 1953, concerning the captioned project. We note the Operator now desires to terminate the contract in order to start production from the new ore body which has been discovered.

Before a termination agreement is executed it should be forwarded to this office for approval with all the pertinent data for review, which is in accordance with Operating Committee Memorandum No. 18 dated March 9, 1953.

Sincerely yours,

W. S. Martin 657
ACTING Chairman, Operating Committee

MDF 8-17-53

APPROVED:

J. H. Hedges 657
Member, Bureau of Mines

A. R. Kinkel, Jr.
657
Member, Geological Survey

FLKnouse/dh
8-13-53
cc to: Adm. Reading File
Operating Committee
Docket
Messrs: C.H.Johnson, Rm. 3621
A.R.Kinkel, Rm. B-242A, GSA
Ellis
Knouse

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

Defense Minerals Administration
RECEIVED
AUG 14 1953

224 New Customhouse
Denver 2, Colorado

August 11, 1953

Memorandum

DOCKET COPY

To: C.O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMA-269XB (Copper), Contract I-DMA-E33, Banner Mining Company, Twin Buttes Copper Mine, Pima County, Arizona

Enclosed is the following material relevant to work performed on the project which is not in conformance with the contract as amended by Amendment No. 7, executed by you.

1. Original and three copies of letter from the operator, dated June 1, 1953.

2. Four sets of data consisting of the original and four copies of the following:

(a) Letter from the operator, dated July 8, 1953, wherein he requests an amendment to the contract to authorize work as actually performed. The operator's letter was originally received in April 1953, but was returned for additional information.

(b) Memorandum report, dated July 9, 1953, from T.M. Romslo, Mining Engineer, Tucson, Arizona, relative to the operator's request and wherein he justifies his position in authorizing the change in the drilling program.

(c) Memorandum, dated July 14, 1953, from the Chief, Mining Methods Branch, Mining Division, Region IV, in transmittal of the above documents.

3. Form MF-104A, Operator's and Engineer's narrative reports relative to the work performed during the month of January 1953.

4. Form MF-104A, Operator's and Engineer's narrative reports relative to the work performed during the month of February 1953.

5. Form MF-104A, Operator's and Engineer's narrative reports relative to the work performed during the month of March 1953.

The material under items 3, 4, and 5 is part of the Washington office copy of the operator's monthly report. Forms MF-104 for the three months will be forwarded if or when the reports are processed by this office.

Amendment No. 7 to Contract I-DMA-E33 authorizes the following work from the Queen and Glance mines:

"7th level of Queen Mine

Drill diamond drill holes numbers 1, 1-A, 2, 3, 8 and 9, total footage 1270 feet, estimated cost $4.00 per foot.....$5,080.00

250 feet of crosscutting from the west end of this level, estimated cost $30.00 per foot..... 7,500.00

525 foot level of Glance Mine

Drill diamond drill holes numbers 4, 5, 6 and 7, total footage 1490 feet, estimated cost $4.00 per foot..... 5,960.00

250 feet of crosscut in a southerly direction from the 525 foot level to explore the Granite-Marble Contact, at a location acceptable to the DMEA representative and after completion of drill holes numbers 4 and 5 above, estimated cost $30.00 per foot..... 7,500.00"

The above work is further qualified as follows:

"The diamond drilling and crosscutting is depicted on the attached map titled 'Banner Mining Co., Geologic Plan of the 600 level, Glance, Queen & King Mines' dated '4-16-52', which is made a part of this Amendment, with the following exceptions: Exploration work shall not be extended beyond the limits of ground on which the operator undertakes and agrees to pay all sums that may fall due and owing to the United States of America under the terms of said contract in the same manner and to the same extent as if the subordination agreement of the lessor had been given."

The 525 foot level of the Glance mine and the 7th level of the Queen mine are at a common elevation, and the connected workings are sometimes cited as the 600 level.

There is no provision in Amendment No. 7, or the map which is made a part thereof, which allows any variation in the work as described depending on conditions encountered as the work progressed. However, the operator and the Government's inspecting engineer, through their lack of familiarity with the terms of the Amendment, mutually agreed on the location and extent of work which was in divergence from the location and extent of work described in the Amendment.

There follows a tabulation of the drilling actually performed in relation to that approved by Amendment No. 7. The holes are shown on the map attached to the material under item "2".

Drill holes approved by Amendment No. 7		Holes actually drilled	
Hole No.	Footage	Hole No.	Footage
	7th level of Queen Mine		
1	100' or to contact	14	78.5'
1A	100' or to contact	—	—
—	—	20	120.0'
—	—	22	175.0'
—	—	23	128.0'
2	380'	18	199.5'
3	250'	—	—
8	220'	—	—
9	220'	—	—
	1270'		701.0'
	525 foot level of Glance Mine		
4	380'	12	184.0'
5	380'	13	172.5'
6	380'	24	162.0'
7	350'	—	—
—	—	15	199.0'
—	—	16	304.0'
—	—	19	229.0'
—	—	25	156.0'
—	—	26	163.0'
	1490'		1571.5'
	2760'		2272.5'

The numbers assigned to the holes drilled followed the company system of identifying the drilling and the missing numbers are holes which were drilled elsewhere on the property at no expense to the DMEA project.

With reference to the drilling from the 525 foot level of the Glance mine, the operator and inspecting engineer justify the change in the objectives of the drilling program because of the results obtained from the Company hole No. 6 which was drilled from the surface to explore the small anomalous area on the Minnehaha Falls claim. No evidence of mineralization was encountered in hole No. 6 which was the basis for the belief that it would be useless to explore the anomalous area on the Scorpio Annex claim at the depth proposed for holes No. 4, 5, 6 and 7. Therefore, in lieu of the foregoing approved holes, holes No. 12, 13, 24, 25 and 26 were drilled to explore the Granite-limestone contact. Hole No. 25 was drilled above hole No. 24 to explore the contact at a slightly higher elevation.

From an office analysis of the data at hand it appears that the small spread between holes 12 and 13, and 24, 25, and 26 resulted in an expense inconsistent with the information obtained, and that the holes were not located or directed on a sound engineering basis. It also appears that at least one of holes 12, 13 or 24 should have been extended to explore the anomalous area as originally proposed.

With reference to the drilling from the 7th level of the Queen mine, only two holes were drilled at locations and in the direction originally proposed. Hole No. 14 was drilled in lieu of and at the location proposed for hole No. 1, and hole No. 18 was drilled in lieu of proposed hole No. 2. However, hole No. 18 was not extended to the objective depth of proposed hole No. 2.

Hole No. 3 was proposed to explore for the King vein at its projected position, but hole No. 16 was drilled in a different direction for apparently the same objective, which was some distance greater than it would have been had the hole been drilled where proposed for hole No. 3.

Hole No. 15 was drilled in lieu of the crosscutting proposed for that area and did provide valuable information at less expense than by crosscutting.

Holes Nos. 20, 22 and 23 were drilled fanwise on a vertical plane in the general locality and objective of proposed hole No. 1A. The drilling of these holes resulted in the discovery of a small body of commercial grade ore and provided valuable information relative to the continuity of the ore and the manner of its deposition.

Hole No. 19 was also drilled in the general locality and with the objective as proposed for hole No. 1A.

On most drilling programs involved with faulted conditions, such as this project, it is impractical to attempt to exactly follow a predetermined drilling program. All drilling programs should be cited with a specific objective but give a certain amount of flexibility so that the extent or location of work can be varied depending on conditions encountered as the work progresses. Such variation should be contingent on revisions of the program which are to the best interest of the parties concerned, as mutually agreed upon between the operator and the Government's field representative.

The operator has belatedly requested an amendment to Amendment No. 7 to authorize the drilling as actually performed. A large portion of the drilling was not in conformance with the contract as amended by Amendment No. 7. However, the work was performed as mutually agreed upon between the operator and the Government's field representative. The work resulted in a discovery of commercial grade ore on which the Government can execute a Certificate of Discovery.

In considering all facts of the case we believe it to be in the best interests of the Government that the contract be amended in a manner which will authorize reimbursement to the operator for the prescribed percentage of the Government's participation in the costs of performing the work.

The operator has also requested authorization so that the unexpended portion of the previously approved aggregate footage of drilling be expended in further exploratory drilling at locations acceptable to the DMEA representative. The operator further requests that part of the crosscutting footage approved for the Queen and Glance areas be transferred to raising to further explore the ore encountered in drill holes No. 20, 22 and 23.

We recommend that the necessary amendment be prepared and are forwarding the matter for your consideration and appropriate action.

W. H. King

W. H. King

A. H. Koschmann

A. H. Koschmann

Enclosures

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Mines Administration
RECEIVED
AUG 4 1953

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Date received
JUL 16 1953
BUREAU OF MINES
Denver, Colorado

SOUTHWEST EXPERIMENT STATION
Box 4097
UNIVERSITY STATION

MINING DIVISION
REGION IV

TUCSON, ARIZONA

July 14, 1953

Memorandum

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

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

Subject : Proposed Amendment No. 8 to contract I-DMA-E33, Docket DMA-269XB, Banner Mining Co.'s Twin Buttes Mine, Pima County, Ariz.

Enclosed are original and 5 copies of the following:

(1) Request for an amendment to Contract I-DMA-E33 by the Banner Mining Co. with map;

(2) Report by Bureau of Mines engineer with maps, recommending approval of this amendment and explaining what has been done since Amendment No. 7 was approved.

This amendment request originally was submitted by the company in April after it was found that Amendment No. 7 was not being followed. This original request later was returned to the company for revision.

Although somewhat late in making this recommendation, I recommend that this request for an amendment be approved so that all or part of the work done since Amendment No. 7 was approved may be paid for.

Walter R. Storms

Walter R. Storms

CC W. H. King (5)
DMA-269XB
DF

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

SOUTHWEST EXPERIMENT STATION
Box 4097
UNIVERSITY STATION

MINING DIVISION
REGION IV

TUCSON, ARIZONA

July 9, 1953

Memorandum

To : W. R. Storms, Chief, Mining Methods Br., Mining Div., Region IV, Tucson, Ariz.

From : T. M. Romslo, Mining Engineer, Tucson, Ariz.

Subject : Proposed Amendment No. 8 to Contract I-DMA-E33, Docket DMA-269X-B, Banner Mining Co.'s Twin Buttes Mine, Pima County, Ariz.

The proposed amendment No. 8 is a request for a revision of Amendment 7, dated October 28, 1952. It is recommended for approval for the following reasons:

1. Geological conditions encountered shortly after initiation of the drilling program showed that divergence from the contract was necessary in order to serve the best interests of the Government and the operator;

2. I had not familiarized myself with the contents of Amendment No. 7 and consequently was unaware that a portion of the drilling was not in accordance with the contract. However, I did keep in very close contact with the project through monthly inspections and from information obtained from numerous conversations with the Operator. As a result, I was certain that all work was in conformance with good geological and engineering practices.

The following explanation gives the reasons for the necessary deviations from the contract and Amendment No. 7, and makes reference to the attached plan map, and vertical sections through a proposed raise, and the diamond drill holes.

NUMBERING OF HOLES

The specified hole numbers were changed from those shown in Amendment No. 7 to conform with the company's system of giving consecutive numbers to diamond drill holes. As 11 holes had been drilled elsewhere at company expense, the first hole drilled on the project was given number 12, instead of the number as shown on the Amendment No. 7 map.

CC W. H. King (5)
DMA-269XB
DF

DEPTHS OF HOLES

All holes designed to test geophysical anamolies were stopped short of the objective for the following reasons:

1. Surface diamond drill hole No. 6 was put down by the company at no expense to the Government to a depth of 601 feet in one of the stronger anamolous areas (see map). It was drilled during the period between the application for Amendment 7 and before initiation of the project drilling program. The hole encountered no ore nor any evidence that would indicate the presence of nearby ore mineralization.

2. The anamolous areas were developed from self-potential readings. Experience gained from a geophysical survey and diamond drilling in an area close to the company's nearby Mineral Hill Mine, showed that testing at self-potential anamolies was not justified unless such anamolies were first verified by another method (Magnatometer) of geophysical surveying. Further, the depth to which self-potential readings are believed to be effective under optimum conditions is between 200 and 300 feet, or 300 to 400 feet above the zone that would have been tested by the drill holes.

3. The limestone-granite contact, along which all known ore at the Queen and Glance mine has been found, was believed to underlie the anamolous holes 12, 13, 24, 25 and 26. These holes encountered no indications of ore mineralization and showed the contact was outside the anamolous area.

4. The surface of the anamolous areas shows no geologic structures favorable to ore mineralization. Under this condition, surface drilling would be the preferred method of exploring below the areas.

HOLES DRILLED

Holes 12, 13, 14, 18, and 24 were drilled on the specified courses of approved holes 4, 5, 1, 2, and 6 respectively of Amendment No. 7. Deviations from specified courses were necessary for holes 16 and 26 which were Amendment No. 7 holes 3 and 7. Holes 15, 19, 20, 22, 23 and 25 were in addition to those specified.

Queen Mine

Hole 14 had encountered a second fault, "B" fault. Hole 15 then was drilled to cut the objective, the limestone-granite contact. It was stopped in the granite footwall at 130 feet. Hole 16 then was drilled with the object of testing the projected King fissure and to

find the contact (this hole was substituted for Amendment 7 hole 3). The King fissure was not encountered. Hole 17 was drilled elsewhere and was not charged to the project. Hole 18 then was drilled on data that indicated the contact would be encountered between holes 15 and 16. As it did not find the contact, hole 15 was deepened. It encountered the contact. Testing the contact for ore mineralization west of "B" fault was not feasible from available drill sites. This work, the original objective, should be carried out later. Testing of the block between faults "A" and "B" was advisable because evidence indicated it might contain a faulted section of the Queen ore body. The following evidence was used in the design of the remaining holes, 19, 20, 22, and 23:

(1) The main ore body appears to bottom between the 600 and 700 levels where mineralization changes from copper minerals to magnetite;

(2) The main ore body is a dropped block with corresponding horizons higher west of "A" fault;

(3) "B" fault is probably a normal fault with vertical displacement;

(4) Magnetite cut by hole 15 indicated the bottom of the ore body.

Hole 19 was drilled to cut the contact above the level west of "B" fault, assuming "B" fault dipped the same as "A" fault, or 70 degrees. "B" fault was not encountered. Hole 20 was drilled for the same purpose. As it did not cut the fault, hole 22 was drilled at a flatter angle. Hole 22 was stopped before cutting the fault. Hole 23 then was drilled at the lowest possible angle with the result that it cut the fault. Hole 22 then was drilled through the fault. Dip of "B" fault was estimated, from the intersections of holes 22 and 23, at 50 degrees southwesterly.

Holes 20, 22, and 23 were drilled for structural information. They cut a small section of ore but yielded little information as to the extent of the ore body because they were necessarily drilled in a single plane as shown on the attached vertical section.

Glance Mine

Holes 12, 13, 24 and 26 were drilled to test favorable zones along the limestone-granite contact. The favorable zones, as indicated on the map, were at or near interesections of the contact with either

quartz-pyrite fissures or faults. Hole 25 then was drilled at the maximum upward inclination possible from the existing drill station. It also tested a favorable zone in this upthrown block east of the Queen ore body at a higher horizon than penetrated by holes 12, 13, 24 and 26. The possibility of encountering ore was based on the finding of ore in the up-thrust block west of the Queen ore body.

Although no ore was encountered by the above holes, there is a geologic possibility of ore occurrence at still higher horizons, Testing of the higher horizons of this zone, by drilling from other mine workings or from the surface, may be done later by the company.

DRIFTS, CROSSCUTS AND RAISE

The 250 feet of crosscut in a southerly direction from the 525 level, Glance Mine, as authorized by Amendment No. 7, will not be driven because results of diamond drilling in this area were unfavorable.

The 250 feet for drifting and crosscutting, and the 50-foot raise as requested in proposed Amendment No. 8, are for: Drifting through the ore zone of holes 20, 22, and 23 to a drill site to be established for testing of the contact west of "B" fault; the 50-foot raise will be driven to determine if the above ore zone is extensive enough to justify development.

T. M. Romslo, Mining Engineer
Mining Methods Branch
Mining Division, Region IV

PHONE 6-9271

HOME OFFICE
1910 FIRST NATIONAL BLDG.
OKLAHOMA CITY, OKLA.

BANNER MINING COMPANY

2042 CONNER STRAVENUE TUCSON, ARIZONA

A. B. BOWMAN
SUPT.
ARIZONA OPERATIONS

H. I. GRIMES ° PRESIDENT

July 8, 1953

Defense Minerals Administration
224 New Customhouse Building
Denver 2, Colorado

Re:- DMA Contract No. I-DMA-E-33, Docket Number 269-X-B, Pertaining to the Twin Buttes Property South of Tucson, Arizona.

Gentlemen:-

Due to conditions which have arisen in our diamond drilling program at this property since amendment number 7 to the contract was approved, we find that further revision of this amendment is necessary. This application is a revision of our letter dated April 7, 1953.

During March we realized it was necessary to diverge from amendment 7 and that it would be necessary to amend the contract to provide for a more flexible drilling program, I discussed with Mr. T.M. Romslo of the Bureau of Mines the necessary changes in the drilling program. At this time Mr. Romslo agreed that the changes were necessary and that Banner should ask for an amendment to the contract to provide for the necessary flexibility to meet conditions as new data from the drilling became available. Due to pressing matters in arranging a contract with the Government for production of ores from the Mineral Hill Mine, DMA-269-XA it has not been possible for me to prepare the application for the amendment to allow for the necessary flexibility and changes in the drilling program until this date. Considerable work had been completed before it was realized that we had diverged to some extent from the amendment #7 to the contract. It was my impression that this amendment was considerably more flexible in its provisions for laying out directions and depth of exploratory work.

We request that the total footage of 2,760 feet as set forth in the contract and amendment number 7 be allowed to complete the diamond drilling in the two zones as shown on the attached map, and as described below.

All drilling to be subject to prior approval of the DMEA field representative.

(1) Scorpio Annex Area - Zone - 1

Allow for diamond drilling to prospect for favorable areas along contact at intersections with quartz-pyrite fissures and faults in Zone 1.

(2) West Queen Area - Zone - 2

Allow for diamond drilling in Zone 2 to test for ore mineralization in faulted segments along the contact west of the present workings in the Queen Mine.

We propose that the 250 feet of crosscutting as set forth in amendment 7 of the contract at the west end of the 7th level of the Queen Mine be amended to allow for the same footage of crosscutting, drifting and raising on courses to be determined by geological information and data developed in the drilling program. The raising as referred to above to consist of a maximum of 50 feet, an amount sufficient to indicate enough ore to justify its being developed. All of this work to be subject to the prior approval of the DMEA field representative.

It is understood that this proposed amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may pay or the percentage of the costs which the Government may pay under the provisions of Article 2 of the contract form.

We urge that this amendment be handled as expediently as possible and that it be considered as a request for the revising of Amendment 7.

Many thanks for your consideration in this matter.

Yours very truly,

Banner Mining Company

A. B. Bowman

A. B. BOWMAN
General Manager

ABB:ecb

PHONE 6-9271

HOME OFFICE
1910 FIRST NATIONAL BLDG.
OKLAHOMA CITY, OKLA.

BANNER MINING COMPANY

2042 CONNER STRAVENUE TUCSON, ARIZONA

A. B. BOWMAN
SUPT.
ARIZONA OPERATIONS

H. I. GRIMES ° PRESIDENT

Mining Division
Date Rec'd.
JUN 3 - 1953
BUREAU OF MINES
Denver, Colorado

June 1, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 1 4 1953

Defense Minerals Administration
224 New Customhouse Building
Denver 2, Colorado

Re:- Contract #I-DMA-E-33, regarding the Twin Buttes Mines Southwest of Tucson, Arizona.

Gentlemen:-

You have under consideration at this time our request of April 7, 1953 for an amendment to our Contract #I-DMA-E-33. This requested amendment was for the purpose of allowing us to expend the balance of work and funds left in this project west and southwest of the Queen Shaft. This is the only area under this exploration project in which commercial ore has been found.

It is my understanding that until this amendment is processed that no further work can be done under the contract without express permission of the field team.

We feel that this amendment should be completed to allow Banner Mining Company to charge the crosscutting, diamond drilling and raising etc up through April 30th, 1953 to the project. The raise was 43 feet high as of the above date.

The contract requires at its completion or termination that we furnish an estimate of ore reserves. It is impossible to make a reliable estimate on the basis of the diamond drill holes only.

To determine the rough extent of the ore located in the diamond drill holes, it was necessary to do some crosscutting and raising in the ore. We were certainly not justified in developing the area or preparing it for mining on the basis of the drill holes only as they were drilled in one plane.

Arizona law requires a second outlet (which would have to be the Queen Shaft) before mining can commence. This would entail a large expenditure and would require a fairly large block of ore to justify same.

From what we know now, after raising about 70 feet in the ore body above the 7th level of the Queen Mine, we would like to make preparations to develop and mine some of this orebody while the price for copper remains at its present high level. We also intend to develope

this same orebody at higher levels in the Queen Shaft. We also intend to do exploration work west and southwest of the present faces on the Queen 7th level that may be covered by an amendment as asked for in our letter of April 7th, 1953.

In view of this varied work program for the coming months which will involve elaborate accounting and cost breakdowns which, I am sure, may involve conflicts in allowable costs under the Exploration Project, we believe that the best arrangement all around will be to terminate the Exploration Project as of April 30, 1953. We are making this as a formal request for termination as of this date.

In asking that the exploration project be stopped, we want to make it clear that Banner Mining Company realizes its obligation under Exploration Contract #I-DMA-E-33 and is willing that royalties be paid the Government on all ores shipped from the mining claims named in this contract and amendments according to terms of paragraph 14 of the contract form.

Please advise us at an early date of your decision in this matter.

We have not received checks for the Government's share in this project since the one covering the month of December 1952. Our reports through March have gone in on schedule. The report for the month of April is being held in abeyance pending completion of the requested amendment.

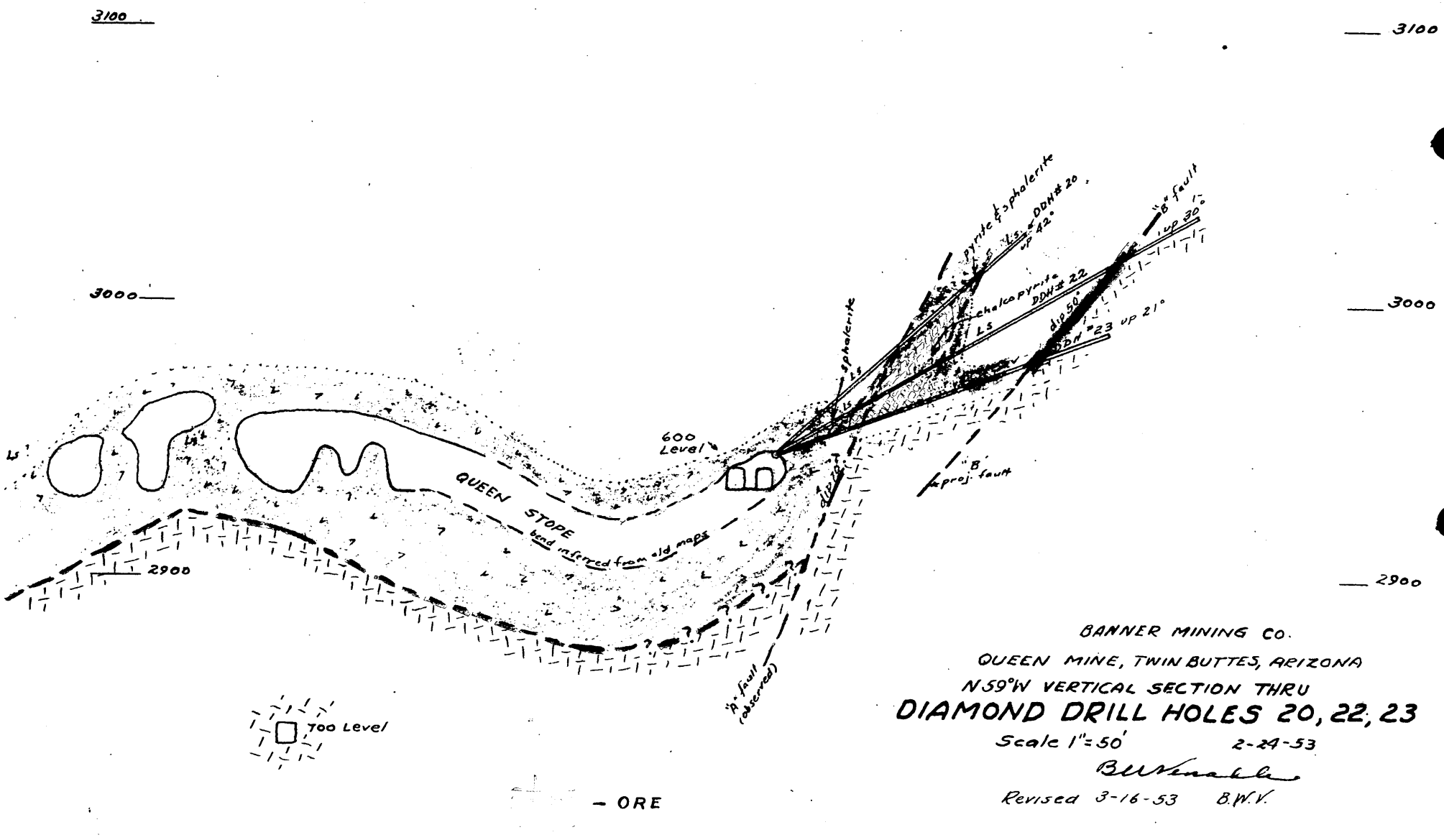
Yours very truly,

Banner Mining Company

A. B. Bowman

A. B. Bowman
Manager

ABB:ecb



BANNER MINING CO.

QUEEN MINE, TWIN BUTTES, ARIZONA

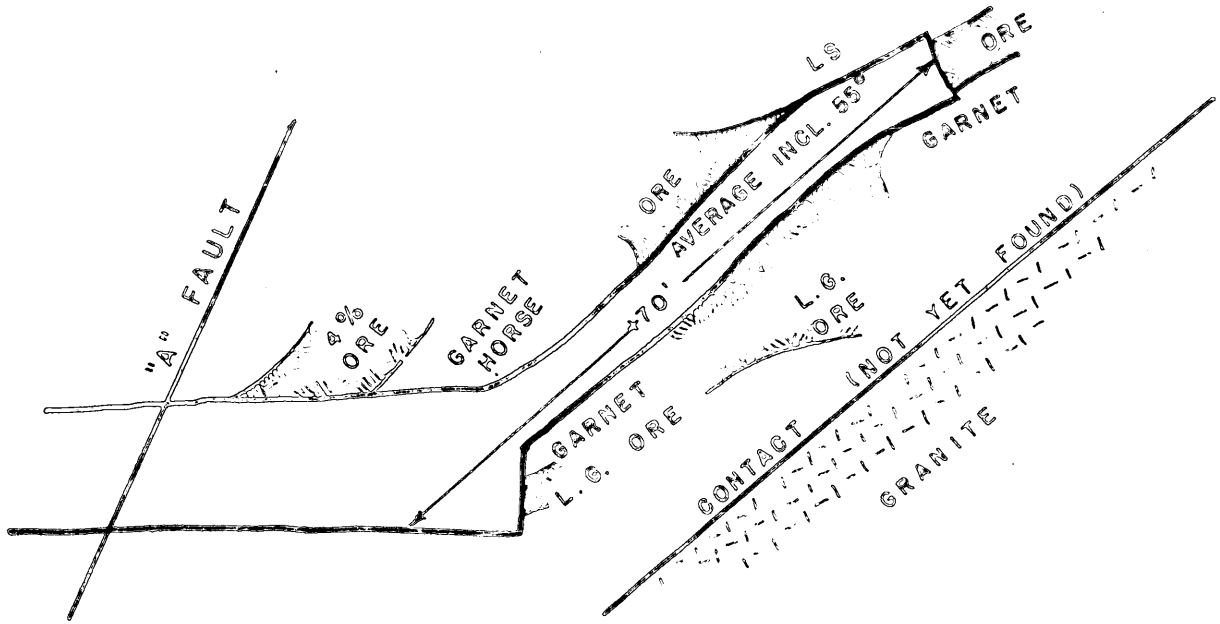
N 59°W VERTICAL SECTION THRU

DIAMOND DRILL HOLES 20, 22, 23

Scale 1" = 50' 2-24-53

B.W. Vanable

Revised 3-16-53 B.W.V.



NO SCALE

DMA 269X-B

APRIL 1953

LONGITUDINAL VERTICAL SECTION THROUGH QUEEN WEST RAISE

ROUGHLY NORTH-SOUTH

BANNER MINING COMPANY'S TWIN BUTTES MINE

PIMA COUNTY, ARIZONA

FILE COPY
SURNAME:

Docket
Ellis
Chandler
Selfridge
Johnson
Stephenson

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

Mr. W. H. King
Executive Officer
DMEA Field Team, Region IV
22h New Customhouse Building
Denver 2, Colorado

JUL 6 1953

Re: Docket No. DMA-269XB (Copper)
Contract No. Dm-433
Banner Mining Company
Pima County, Arizona

Dear Mr. King:

With reference to your memorandum dated June 26, 1953, it is noted that you request our opinion as to the correctness of the Government royalty calculations which you made on captioned Operator's smelter lots 967, 968, 1044, 1290, 1311, and 1329.

We find your method of calculation is correct and the total amount due the Government from said shipments should be $236.77 as you have shown. If the Operator has paid you $286.48 as the total royalty due from these shipments, then it is true an overpayment of $49.71 has been made and the Operator is entitled to a credit of that amount.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee (GCS)

APPROVED:

W. M. Hedges
Member, Bureau of Mines (GCS)

A. R. Kinkel, Jr.
Member, Geological Survey (GCS)

EWEllis/db
7-1-53
cc to: Adm. Reading File
Operating Committee
Docket
Messrs: C.H.Johnson, Rm. 3621
A.R.Kinkel, Rm.B-242A, GSA
Ellis
DMEA Field Team, Region IV (2)

R.C.S. 7-10-53

7/8/53 gla

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

224 New Customhouse
Denver 2, Colorado

July 3, 1953

Mr. W. H. Hardy
Assistant Treasurer
Banner Mining Company
550 First National Building
Oklahoma City, Okla.

Re: Contract I-IMA-E33

Dear Mr. Hardy:

We have received settlement sheets covering nine shipments of ore from the Banner Mining Company during the period from March 27, 1953 to April 27, 1953, and settlement sheets covering nine shipments of ore for the month of May, 1953.

The total royalty paid on the first group of shipments was $286.48. The total royalty on the second group of shipments was $402.99. The charges for trucking the ore from the mine to the railroad was not deducted in calculating the net smelter value per ton for the purpose of determining the royalty rate and the net value upon which the royalty is computed. The haulage and trucking charges may be deducted from the gross value if paid by the purchaser; in this case the smelter, in determining the royalty rates as well as the amount of the royalty due the Treasurer of the United States.

We have recalculated the amount of royalty due the Government on this basis. A copy of each of our calculation sheets is attached. According to our calculations, the Banner Mining Company made an overpayment of $49.71 in the first group of shipments and an overpayment of $30.50 in the second group. The amount of overpayment of $80.21 may be deducted from your next royalty check.

Very truly yours,

W. H. King

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

JFS:es

cc: Contract
Chron.
Storms
Mittendorf
ABBowman
Koschmann (2)

BANNER MINING COMPANY

CONTRACT I-IMA-E33

ROYALTY CALCULATION BY U. S. B. M.

MARCH 27, 1953 to APRIL 27, 1953

Lot Number	Net Smelter Value	Net Value per ton	Royalty Rate	Royalty Due
967	$ 511.75	$ 9.66	3%	$15.35
968	554.39	10.58	4%	22.18
1444	2062.24	10.69	4%	82.49
1290	456.50	9.49	2½%	11.41
1311	1051.07	16.36	5%	52.55
1329	1055.78	17.23	5%	52.79
				$236.77
			Overpayment -	$ 49.71

MAY, 1953

1371	$ 949.23	$14.08	5%	$47.46
1397	800.54	15.25	5%	40.03
1426	728.01	13.84	5%	36.40
1482	698.38	11.85	5%	34.92
1549	493.02	8.29	1½%	7.40
1556	499.92	8.16	1½%	7.50
1594	1180.39	21.43	5%	59.02
1646	1594.39	28.23	5%	79.72
1703	1200.70	22.43	5%	60.04
				$372.49
			Overpayment -	$ 30.50

6/30/53 gla

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

224 New Customhouse
Denver 2, Colorado

June 26, 1953

Memorandum

To: C. O. Mittendorf
Attention: E. W. Ellis

From: Executive Officer, DMEA Field Team, Region IV

Subject: Banner Mining Company, Docket DMEA 269-X-B, Contract Idma-E33 - Royalties

During our telephone conversation of June 25, you stated that you agreed with our calculation of royalties for Lots Nos. 967, 968, 1444, 1290, 1311 and 1329 shipped by the Banner Mining Company. The calculation results in a credit of $49.71 to the Banner Company.

As we told you, the GAO is auditing DMEA very conscientiously. It occurred to us that a letter from you concurring in our calculation of the royalty would be excellent substantiating evidence in case of further auditing.

W. H. King

W. H. King

FILE COPY
SURNAME:

Chambers

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

BW

MAR 18 1953

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

Re: DMA-269XB, Idm-E33
Banner Mining Company

J. C. 3/18/53

Dear Mr. Brading:

Reference is made to the Audit Report and Certificate on Banner Mining Company, transmitted by your letter of March 12, 1953.

On page 5 of audit report the heading of item (4) Operating Equipment-Purchases should be changed to Operating Equipment-Depreciation. I have corrected our copies accordingly. Please have all field copies corrected.

You may distribute the above Audit Report in the regular manner.

Sincerely yours,

(Signed) J. L. Chambers
Jay L. Chambers, Chief
Contract Administration
and Audit Division

JLChambers/wb
March 17, 1953

Copy to: Docket
Admr. Reading File
Mr. Chambers

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

224 New Customhouse
Denver 2, Colorado

December 3, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
DEC 3 1952

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Amendment No. 7 to Contract I-DMA-E33, Docket DMA 269X-B, Banner Mining Company

Enclosed are the original and two copies of Amendment No. 7 to Contract I-DMA-E33. Copies of this 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

cal 12-8

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

224 New Customhouse
Denver 2, Colorado

WASHINGTON 25, D. C.

October 30, 1952

Memorandum

To: C. O. Mittendorf

From: Executive Officer, Field Team, Region IV

Subject: DMA Docket 269X-B, Contract I-DMA-E33, Banner Mining Co.

Enclosed are the original and two copies of a diamond core drilling contract and our Approval between Banner Mining Company and G. S. Thatcher for the performance of diamond drilling at the Queen and Glance mines, Twin Buttes area, Pima County, Arizona.

W. H. King

W. H. King

Enclosures

RECEIVED

GENERAL COUNSEL
DEFENSE MINERALS
ADMINISTRATION

RECEIVED

GENERAL COUNSEL
DEFENSE MINERALS
ADMINISTRATION

cae
11-3

Docket Copy
Copy

APPROVAL OF SUBCONTRACT

To: Banner Mining Company, Pima County, Arizona

That certain contract, a copy of which you have submitted with your request for approval, dated October 18, 1952, between you and G. S. Thatcher for the performance of the following work: Diamond core drilling, Queen and Glance Mines which is all or a specific element of the work described in an Exploration Project Contract dated June 30, 1951, I-DMA-E33, Docket No. DMA-269X-B is hereby approved by the United States of America, subject to the following terms and conditions:

1. The Government shall not be nor be considered to be a party to said independent contract, and the Government's right to terminate the exploration project contract under any of its provisions shall not in any manner be affected by reason of said independent contract.

2. Regardless of the provisions of said independent contract, the Government will participate in the payments to the independent contractor only on account of work actually performed and that conforms with the provisions of the exploration project contract, and onlyto the extent that the Government deems the unit prices for the work under the independent contract to be reasonable and necessary.

3. The said independent contract shall not have the effect of increasing the estimated total cost of the exploration project contract or the maximum amount which the Government will pay as provided in the exploration project contract.

Dated: October 27, 1952

THE UNITED STATES OF AMERICA

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

CERTIFICATE OF THE LIBRARY
Defense Intelligence Agency
Washington, D.C.
RECEIVED
FEB 2 1962

CONTRACT

1. Banner Mining Company, a Nevada Corporation, Party of the First Part, authorized to do business in the state of Arizona, is operating certain mines in the Twin Buttes area of the Pima Mining District, Pima County, Arizona and is desirous of doing some underground diamond core drilling. Mr. G. S. Thatcher (Party of the Second Part) of Humboldt, Arizona, a diamond core drilling contractor has agreed to do this work under the following conditions:-

2. Party of the second part undertakes to perform this diamond drilling in such places and in such directions as prescribed by the party of the first part.

3. Party of the second part will furnish necessary labor, equipment and supplies needed for the diamond core drilling to take an EX core. Party of the second part agrees to do this diamond core drilling in a proper and workmanlike manner and will charge the following rates for each foot of hole completed:-

a. On holes up to but not over 200 feet in depth $2.50 per foot.

b. On holes over 200 feet but not over 500 feet in depth $3.00 per foot.

4. Party of the second part agrees to obtain a minimum return of 75% of the drilling water when he is in ore or in potentially ore bearing ground as directed by party of the first part and that he will use only the five foot double core barrel in this same section.

5. Party of the first part will furnish the compressed air and water to each drilling site for use in such diamond drilling at no cost to the party of the second part.

6. Where necessary, party of the first part will excavate the stations for each diamond drill hole site and will make stations large enough to allow for at least a 20 foot pull on the rods on holes in excess of 200 feet in depth.

7. Party of the second part will furnish the labor to take the sludge samples at 5 foot spacings WHEN HE IS IN ORE OR POTENTIALLY ORE BEARING GROUND and will deliver daily the recovered cores together with the sludge samples to the warehouse building at the Mineral Hill Mine. A.S. G.T.

8. Party of the second part will cement the holes where necessary at no extra cost above that shown in paragraph three (3).

9.. Party of the first part hereby guarantees that a minimum of 1,000 feet of total drilling will be done under this contract.

DATED THIS 18th DAY OF OCTOBER, A. D. 1952.

BANNER MINING COMPANY, A CORPORATION

BY A. S. Bowman
General Manager

G. S. Thatcher
G. S. Thatcher

STATE OF ARIZONA)
COUNTY OF PIMA (SS

The foregoing instrument was acknowledged before me this 18th day of October, 1952, by A. B. Bowman, General Manager of the Banner Mining Company, a corporation.

Arden B. Smith
Notary Public

My commission expires:

Feb 4, 1954

STATE OF ARIZONA)
COUNTY OF ~~PIMA~~ Yavapai (SS

The foregoing instrument was acknowledged before me this 16 day of October, 1952 by G. S. Thatcher.

Laura R. Upton
Notary Public

My commission expires:

Oct. 25, 1954

FILE COPY
SURNAME:

FEJohnson

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

n.s. in R. & R.

Bl

Defense Minerals Exploration Administration
Frank E. Johnson
5369 4624

14X3923.970 Working Fund, Interior, DMEA
October 24, 1952

W. H. King, Executive Officer, Region IV, Denver, Colorado

DMA 269X-B - Banner Mining Company

Reurett 10-23-52, Banner Mining Company, DMA 269X-B, Amendment No. 6 approved but changed to Amendment No. 7 as there is previous Amendment No. 6. Approved Amendment mailed October 24, 1952.

(signed) FRANK E. JOHNSON

Chairman, Operating Committee

FEJohnson/bih 10/24/52

cc to: Docket
Admr's. Reading File
Messrs. Ellis
FEJohnson

Confirmation to Region IV

SENT
OCT 2

Clerical Service Section

FILE COPY
SURNAME:

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

I 2 Cases
Hoffman
Chamberlain
Merrill.

OCT 24 1952

Mr. [illegible] King
Executive Officer, Region IV
DMA Field Team
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. [illegible]-169 -
Contract I-[illegible]- 33
Denver Mining Company

Dear Mr. King:

There is enclosed herewith duly signed by the Administrator, your proposed Amendment No. 6 to the contract, which has been changed to Amendment No. 7 since there is another Amendment No. 6, dated September 25, 1952.

Sincerely yours,

(signed) FRANK E. JOHNSON

Chairman, Operating Committee

Approved:

Charles N. Merrill
Member, Bureau of Mines

A. R. Kinkel, Jr.
Member, Geological Survey

Attachments
cc to: Adm. Reading File
Docket
Messrs. Chadbourne-3621
Kinkel-5214
Hoffland
Lane
Flanoure
Mr. Committee
Field Team, Region IV

P.S. It is noted that the "Field Team's Copy" was received with only the map attached. We assume that a copy of the Lease and Option has been retained in your office for attachment to this copy of the amendment.

C.O. Mittendorf
10-23-52
4:03 pm.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
OCT 24 1952

BUR MINES DN235 GA PLS
NPLS ANNC AGAIN WA
WASH DC BU MINES 310 GA PLS

BUR MINS DN 235 10-23-52 1-55 PM

O MITTENDORF

REFERENCE OUR TRANSMITTAL DATED OCTOBER 3,1952 OF AMENDMENT NO. 6, DMA DOCKET 269-X-B, CONTRACT I-DMA-E33, BANNER MINING COMPANY. DRILLING CONTRACT IS IN THIS OFFICEFOR APPROVAL. PLEASE ADVISE YOUR DECISION AND STATUS OF THE AMENDMENT.

WH KING EXECUTIVE OFFICER

OCT 24 8 16 AM '74
BUREAU OF MINES
MAIL ROOM
WASHINGTON, D. C.

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

224 New Customhouse
Denver 2, Colorado

October 3, 1952

Memorandum

To: C. O. Mittendorf

From: Executive Officer, Field Team, Region IV

Subject: Amendment No. 6, Contract I-DMA-E33, Docket DMA-269X-B, Banner Mining Company

Enclosed are six copies of Amendment No. 6 to Contract I-DMA-E33. The Lease and Option, as well as the map, is made a part of this amendment. Also enclosed are three copies of each of two letters from A. B. Bowman, Manager of Banner Mining Company, to W. R. Storms, Chief, Arizona-New Mexico Branch, Mining Division, requesting this amendment and three copies of a letter from the Arizona-New Mexico Branch recommending this amendment. The request was studied in this office and we believe that the amendment should be allowed. We accordingly notified the operator that an amendment would be prepared in accordance with his request. Our lawyer believes that this amendment does not come within the delegated authority of the Executive Officer, Region IV, and that it should be signed by the Administrator. His opinion is based on the grounds that additional property had been included and the work changed considerably.

If you believe this amendment falls within our delegated authority, please return all copies. If not, please prepare for execution by the Administrator. A prompt decision would be appreciated.

W. H. King

W. H. King

Enclosures

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 29 1952

224 New Customhouse
Denver 2, Colorado

September 26, 1952

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Amendment No. 6 to Contract No. I-DMA-E33, Docket DMA 269X-B, Banner Mining Company

Enclosed are the original and two copies of Amendment No. 6 to Contract No. I-DMA-E33. Copies of this amendment 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 a letter from the operator requesting this amendment and three copies of a memorandum from the Chief, Arizona-New Mexico Branch, Mining Division, recommending this amendment.

W. H. King

W. H. King

Enclosures

SDS
9/29/52

UNITED STATES
DEPARTMENT OF THE INTERIOR

Arizona-New Mexico Branch
[redacted]
Box 4097
UNIVERSITY STATION

BUREAU OF MINES
MINING DIVISION
REGION IV

TUCSON, ARIZONA

Mining Division
Date Received
SEP 23 1952
BUREAU OF MINES
Denver, Colorado

OCT 8 52

September 22, 1952

AIR MAIL

Memorandum

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

From : L. A. Stewart for Chief, Arizona-New Mexico Branch, Mining Division, Region IV

Subject : Amendment to Contract I-DMA-E33, Docket DMA-269XB, Banner Mining Co's. Twin Buttes Copper Mines, Pima County, Ariz.

Attached are original and five copies of a request to amend subject contract so that the second stage may be started before completion of the first stage and so that part of the work under the second stage may be done on property not covered on the contract. Three extra copies of the map are enclosed.

As received, the request contained the original and 4 copies. An attempt to obtain an additional copy was unsuccessful because Mr. Bowman had left town to attend the mining convention at Denver. As forwarded, one of the copies contains unsigned letters copied at this office and is not accompanied by lease and option agreement. In the event Bowman's signature of the copy is necessary and another copy of the lease and option agreement is needed it is hoped that this information can be obtained direct from Denver while the request is being processed. This will serve to expedite action on the amendment, as requested by Mr. Bowman.

Romslo recommends the amendment be approved for the reasons given by Mr. Bowman. He also stated that Storms, now in Denver, had indicated he would recommend approval.

O.K. W.H.K.

Lincoln A. Stewart

Lincoln A. Stewart, Mining Engineer
for Walter R. Storms, Chief
Arizona-New Mexico Branch,
Mining Division, Region IV

CC: W. H. King (Orig. & 5)
DMA 269 XB
DF

PHONE 6-9271

HOME OFFICE
1910 FIRST NATIONAL BLDG.
OKLAHOMA CITY, OKLA.

BANNER MINING COMPANY

2042 CONNER STRAVENUE TUCSON, ARIZONA

A. B. BOWMAN
SUPT.
ARIZONA OPERATIONS

H. I. GRIMES ° PRESIDENT

September 20th, 1952

Mr. W. R. Storms, Chief
Arizona-New Mexico Branch
U. S. Bureau Of Mines
P. O. Box 4097 University Station
Tucson, Arizona

Dear Mr. Storms:-

I was unable to get hold of Harrison Schmitt before he left New Mexico but finally reached him by phone in New York City.

I told him we would like him to make a memorandum of his recommendations regarding second phase work at Twin Buttes. I sent copies of our maps to him in New York at his request but he did not receive same until he was leaving for Peru, South America. He wired me from New York stating he would send a letter but did not know when for sure.

I will send you copies of Schmitt's letter just as soon as it is received.

While at the Twin Buttes Property recently, he expressed the desirability of driving a drift to the south on one of the strong mineralized fissures over to the contact and exploring same for an orebody. This is over into the Scorpio Annex Claim.

In Harrison Schmitt's original report to us on the Twin Buttes District he made the following statement:-

" Favorable areas for first exploration, in addition to the longer unexplored inter-mine areas along the contact, appear to be; (1) The King Fissure in depth and at the contact, (2) The area between the King and Queen ore bodies."

Yours very truly,

Banner Mining Company

A. B. Bowman
Manager

ABB:ecb

PHONE 6-9271

HOME OFFICE
1910 FIRST NATIONAL BLDG.
OKLAHOMA CITY, OKLA.

BANNER MINING COMPANY

2042 CONNER STRAVENUE TUCSON, ARIZONA

A. B. BOWMAN
SUPT.
ARIZONA OPERATIONS

H. I. GRIMES ° PRESIDENT

September 19th, 1952

Mr. W. R. Storms, Chief
Arizona-New Mexico Branch
U. S. Bureau of Mines
P. O. Box 4097 University Station
Tucson, Arizona

WRS

Dear Mr. Storms:-

As you know, we have completed our cleanup and rehabilitation work at the Glance Mine under our DMA Contract I-DMA-E-33. The only work left in the first phase of this project is to unwater the Queen Shaft between its 7th and 9th levels, the cleanup of the 9th level 100 feet below and the unwatering of a 50 foot winze below the 9th level.

The crew that we now have is sufficient to commence work on the diamond drilling and drifts and crosscuts earmarked for the second phase of the project provided the work we have in mind meets with your approval.

To be able to commence work on part of the second phase of the project at this time along with the unwatering of the lower 100 feet of the Queen Shaft will enable us to hold the experienced crew we now have. This second phase work can be done now without any increase in our supervisory, engineering and clerical personnel which will result in lower overhead costs per foot of advance.

Under the contract we are supposed to complete the first phase before commencing the second phase. The second phase could only be commenced upon recommendation of the government field team. If we are to complete the first phase before any further work can be started, it will be necessary to let part of our crew go and take our chances later on getting other good men.

We think that the geological conditions west of the stopes in the Queen Mine and over into the Copper King Claim together with the area in the faulted block covered by the Scorpio Annex unpatented claim are sufficiently good for the finding of new orebodies to justify going ahead with this phase of the project at this time.

Our work in the Glance Mine has been discouraging in that the amount and grade of ore has been somewhat lower than the old reports stated.

Our sampling to date of the ore left in this (GLANCE) mine runs from 1% up to 3½% copper and averages less than 2% copper. The grade and quanity of this ore would certainly not justify us to prepare to mine it at this time as it would not be commercial under present price conditions.

We feel that the second phase work which was set up for the east side of the 525' level of the Glance Mine could be done to better advantage in the area covered mainly by the Scorpio Annex Claim and that part of the Queen Claim which adjoins it.

Banner Mining Company controls the Scorpio Annex unpatented claim by virtue of a ten year lease and option agreement with Gus Gavin and his wife, Sonia Gavin, dated at Tucson, Arizona June 1st, 1952. Banner Mining Company is willing that this claim be added to those already under the contract. A photostat copy of this contract is attached for your information.

At the time of the writing of the contract no geological maps of the underground workings were available. Our estimate of the location of the contact between granite and marble showed it to be entirely on the Copper Queen, Copper Glance and Copper King Claims. However since mapping the underground geology, we find that a segment of the contact approximately 900 feet in length between the Queen and Glance Mines has been displaced about 600 feet to the south by faulting east of the Queen Stopes. This segment has not been prospected.

We believe that the most likely area for mineralization in this faulted segment at the elevation of the 525 foot level is that portion of the contact under the Scorpio Annex unpatented claim. Strong mineralized fissures traversing the granite in a generally north easterly-south westerly direction apparently cut the contact in this area.

A geophysical survey by the natural potential method was made of this area by C. H. Sandberg of the Geophysical Branch of the U. S. Bureau of Mines in 1945. The map and report of this survey shows several potential lows (Anomalies), in the vicinity of the Queen Mine. The largest of which is located on the Scorpio Annex Claim over the proposed exploration work.

The large stopes west of the Queen Shaft (see map) are now caved but are of such size as to certainly justify prospecting west and southwest along the contact and on the King Vein. Anomalies were also found by Sandberg in this area. According to the War Mineral Report by the U. S. Bureau of Mines in 1943, 75,186 tons of ore were shipped from the Queen Mine which averaged 7.05% copper.

The second phase of the project as stated in the contract calls for a total of 2760 feet of diamond drilling and 500 feet of drifts and crosscuts.

We propose that our contract be amended to allow us to do 1270 feet of diamond drilling in holes #1, 1A, 2, 3, 8 and 9 and 250 feet of crosscutting (6'x8') west and southwest of the Queen Mine Stopes together with 1490 feet of diamond drilling in holes #4, 5, 6 and 7 together with 250 feet of crosscutting in the area of the Scorpio Annex Claim. (See attached plan map). At least two stations will have to be excavated for the diamond drill setups. The total footage of diamond drilling and drifting and crosscutting remains the same as now shown in the contract. O.K. WRG

This proposal will eliminate any second phase work on the Copper Glance Claim.

We also propose that we be allowed to commence immediately the second phase work as outlined above and as shown on the attached map.

We urge that this amendment be handled as expediently as possible as we are about ready and able to commence this work.

It is understood that this proposed amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the government may pay or the percentage of the costs which the government may pay under the provisions of Article 2 of the contract form.

Ten copies of the map are attached hereto as per your request.

Respectfully submitted,

Banner Mining Company

A. B. Foreman

Manager

ABB:ecb

9/14/52 gla

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration
SEP 15 1952

224 New Customhouse
Denver 2, Colorado

September 9, 1952

Memorandum

To: Secretary to the Operating Committee, Defense Minerals Exploration Administration

From: Executive Officer, Field Team, Region IV

Subject: DMA Docket 269X-B, Contract I-DMA-E33, Banner Mining Co., Twin Buttes Project

Reference is made to your letter of August 27 in which you ask for further clarification regarding Amendment No. 5, amending Contract I-DMA-E33, Banner Mining Company, Twin Buttes Project.

When the contract was entered into, the exact extent or the condition of the old workings were unknown. The accuracy of the old maps were questionable. The figure of "about 3500" feet of drifts and crosscuts was considered as an estimate as was the cost per foot for rehabilitation.

When the old workings on the 7th level west of the Queen shaft were found to be badly caved, the operator requested an amendment to bypass this section. This would result in a saving to the project inasmuch as drifting around this caved section was estimated to be much cheaper than cleaning up the cave. Exploration work, both drifting and diamond drilling, is scheduled from the western-most workings on the 7th level of the Queen mine, and the extent of such work will depend on geologic data obtained as the work progresses. Therefore, the additional expense involved in drifting around caved workings to reach the original objective is deemed within the intent of the contract.

The funds allocated for rehabilitation are interpreted to be estimates and if it is necessary to exceed the funds allocated to reach the objective, amounts required would necessarily come from other allocations wherever available within the total estimated cost of the project. As long as funds are available from other allocations, it was not thought necessary to specifically stipulate from where the additional funds would be made available as long as funds are available within the total estimated cost of the project.

It appears that Mr. Storms, in his memorandum of July 3, 1952, was referring to the wrong work items when comparing the cost of the revised work to that authorized in the contract.

W. H. King

W. H. King

FILE COPY
SURNAME:

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

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

Subject: Banner Mining Company
Docket 269X-B, Contract
Idm-K33 (Copper)
Amendment No. 5

Dear Mr. King:

Reference is made to your memorandum of August 5, to the Acting Administrator, enclosing three copies of Amendment No. 5 covering the subject project.

As we understand the amendment, when it is read together with the explanation made in the memorandum dated July 2, of A. B. Bowman, the 160' of drift around the caved workings is substituted for the first item on page 5 of Exhibit "A" which calls for rehabilitation of 510' of drifts and crosscuts at an estimated cost of $7.00 per foot, or $3,570. The effect of this substitution is to increase the estimate for the substituted item by the amount of $2,030. While it is recognized from Mr. Bowman's memorandum that the original estimate for the 510' of rehabilitation was too low, Amendment No. 5 does not provide for and none of the memoranda explains, how the increased cost of the substituted work is to be provided for, such as by deletion of some other work, or because some other costs were overestimated, without increasing the total estimated cost of the contract.

On the other hand, the memorandum dated July 3, of Mr. Storm, refers to the last item on page 4 of Exhibit "A" as affected by the amendment, but does not explain whether part of these funds for this item are still available, or how otherwise this item is pertinent to this amendment.

In view of the disparity in the two memoranda concerning the effect of the amendment, and also in view of the fact that the objective

to be accomplished by the amendment is expected to cost more than originally estimated for rehabilitation of the old workings, it is requested that a further explanation be made of the amendment and its effect on the costs of other items of work under the contract.

Sincerely yours,

8/27/52

N. F. Feller (KB)
ACTING Chairman, Operating Committee

Approved:

C. H. Johnson (KB)
Member, Bureau of Mines

S. M. Lemmon (KB)
Member, Geological Survey

AEKane/HCRubin/pa
8/22/52

Copy to: Mails and Files
Adm. Reading File
Operating Committee
J. H. Hedges
T. P. Thayer
E. W. Ellis
J. L. Hofflund
A. E. Kane
chron.
pending

FILE COPY
SURNAME:

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

cc Kane
Hollhund
Ellis

8/-

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

Subject: Banner Mining Company
Docket 269X-B, Contract
Idm-E33 (~~Zinc-Lead~~) Copper
Amendment No. 5

Dear Mr. King:

Reference is made to your memorandum of August 5 to the Administrator, enclosing two copies of Amendment No. 5. When read in conjunction with the attached letter of justification from Walter R. Storms, this amendment is not comprehensible to this office.

Mr. Storms refers to the 1,245 feet of drifting connecting the 525-foot level of the Glance Mine with the 7th level of the Queen Mine as indicated on page 4 of Exhibit "A", and states that the proposed drift around the caved area will probably cost $35.00 per foot for 160 feet (a total of $5,600) as against the original estimate of $7.00 a foot for rehabilitating these old workings. However, the amendment and the map attached thereto show no connecting workings between the Glance Mine and the Queen Mine, and apparently refer to the 510 feet of drifting indicated on the top of page 5 of Exhibit "A". If this is the drifting referred to, since it was originally estimated to cost $3,750, the cost of the proposed new drift would exceed it by $2,030, and you would have no authority in the field to enter into such an amendment as the Government's participation in this contract already exceeds $25,000. The statement that the amendment should not be construed to increase the estimated total cost of the project cannot permit such an obvious increase in cost.

Furthermore, in authorizing the new draft, if it was intended to eliminate any of the drifting originally specified, the amendment should have clearly deleted the portion of the drifting which was to have been eliminated and altered the estimated cost thereof, and there should have been inserted the estimated cost of the proposed new drifting.

Finally, the reference in the amendment to the insertion of new material after the "fourth paragraph" in Item 7 on page 4 of Exhibit "A" is unclear because there is no fourth paragraph on page 4, and you may have been referring to the first paragraph on page 5.

Kindly restate this amendment or furnish a further explanation thereof.

Sincerely yours,

Chairman, Operating Committee

Approved:

Member, Bureau of Mines

Member, Geological Survey

AEKane/HCRubin/pa

AEKane/em
8/15/52

Copy to: Mails and Files
Adm. Reading File
Operating Committee
J. H. Hedges
T. P. Thayer
~~H. F. Keller~~ E. W. Ellis
J. L. Hofflund
A. E. Kane
chron.
pending

FILE COPY
SURNAME:
700

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

AUG 7 1952

Mr. [illegible] H. King
Executive Officer, Region IV
Field Team
224 New Customhouse Building
Denver 2, Colorado

Re: Dockets [illegible]-269-[illegible]
[illegible]-269[illegible] (Lower)
[illegible] Mining Company
[illegible] and [illegible] projects
[illegible], [illegible]
Progress Reports

Dear Mr. King:

Reference is made to the project dockets [illegible] the captioned projects.

[illegible] is requested to furnish [illegible] progress report, [illegible] showing formations penetrated, [illegible] and assays taken as well as advances [illegible]. In the case of the diamond drilling the location and [illegible] of holes is to be shown on a map; logs and assays also are to be submitted.

Sincerely yours,

(signed) FRANK R. [illegible]

Chairman, Operations Committee

F.N. 8-7-52

Approved: J. H. Hedges (JB)
Member, Bureau of Mines

[illegible] (JB)
Member, Geological Survey

FRKnouse/jem
8/4/52
cc to: Adm. Reading File
Docket 269A
Docket 269
Messrs. CHJohnson-3621
Neal Nelson-4216
Ellis Knouse
Opr. Committee
Field Team, Region IV

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

224 New Customhouse
Denver 2, Colorado

August 5, 1952

Memorandum

To: C.O. Mittendorf, Acting Administrator
Defense Minerals Exploration Administration

From: Executive Officer, Field Team, Region IV

Subject: Amendment No. 5 to Contract I-DMA-E33, Docket 269X-B, Banner Mining Company (Zinc-Lead)

Enclosed are the original and two copies of Amendment No. 5 to Contract I-DMA-E33. Copies of this amendment have been given to the operator, Fiscal Officer, Region IV, and a copy has been retained for our files.

Also enclosed are three copies of a letter from the operator requesting this amendment and three copies of a memorandum from the Chief, Arizona-New Mexico Branch, Mining Division, Region IV, recommending this amendment.

W. H. King

W. H. King

Enclosures

RECEIVED

AUG 12 1952

GENERAL COUNSEL
DEFENSE MINERALS
ADMINISTRATION

5D

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

22[illegible] New Customhouse
Denver 2, Colorado

July 28, 1952

Mr. E. S. Bowman, President
Banner Mining Company
2042 Connor Stravenue
Tucson, Arizona

Re: DMA Docket 269X-B
Contract I-DMA-E33

Dear Mr. Bowman:

Consistent with authority delegated the Executive Officer, DMEA Field Team, Region IV, we hereby waive the requirement for you to provide documentary support of Form MF-104 (Revised-April 1952) Operator's Monthly Report and Voucher, beginning with the month of July 1952, or the first monthly report using the revised forms, MF-104 and MF-104A, except for support of equipment purchases for which the individual costs exceed $50.00 as explained on the reverse side of Form MF-104 (Revised).

In lieu of documentary support of the monthly voucher, an auditor from the Contract Administration and Audit Division will make interim audits of your books, and will make a final audit on completion or termination of the contract, before the final voucher is processed for reimbursement.

This waiver does not forego the requirement for a concise but complete narrative that must accompany the original and each copy of the Monthly Report.

Very truly yours,

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

WHK:jp
cc Oper. Committee (2)
Fiscal Off, Reg IV
THBrading
WRStorms
JWTownsend
Contract
Koschmann (2)
Chron
Chief, Contract Adm. & Audit Div.

FILE COPY
SURNAME:

410

FLKnouse
Matt

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

November 28, 1951

Memorandum

To: Reports and Records Section

From: Acting Administrator

Subject: Docket No. DMA 269X-B
Banner Mining Company
Exploration Project Contract I-DMA-E33

Enclosed is an original of a memorandum dated November 21, 1951, from Mr. J. H. East, Jr., Executive Officer, Region IV, transmitting two amendments, which are also enclosed, to the captioned Exploration Contract. Please attach the amendments to your copy of the contract.

C. O. Mittendorf (fw)

cc
11/30

Enclosures

FLKnouse/meb

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

OFFICE OF THE ADMINISTRATOR

Mr. Kaufman

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

DEFENSE MINERALS ADMINISTRATION
WASHINGTON, D. C.

DEPARTMENT OF THE INTERIOR
RECEIVED
NOV 26 1951
Defense Minerals Administration
Production Expansion Division

Nov 26 9 12 PM '51

224 New Customhouse
Denver 2, Colorado

November 21, 1951

Memorandum

To: C. O. Mittendorf, Director, Production Expansion Division
Defense Minerals Administration

From: Executive Officer, DMA Field Team, Region IV

Subject: Amendments to Contract I-DMA-E33, DMA Docket 269X-B, Banner Mining Company

Enclosed are the original and two copies of each of two amendments to the above contract.

Copies of these amendments have been sent to the operator and to the Fiscal Officer, Region IV. One copy has been retained for DMA files.

J. H. East, Jr.

Enclosures

FILE COPY
SURNAME:

Mittendorf

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

July 5, 1951

Mr. Frank McAtee, Jr.
Contract Service Section
General Accounting Office
4th Floor, New GAO Building
Washington 25, D.C.

Re: Docket DMA-269XB
Exploration Project Contract
I-DMA-E33
Banner Mining Company
Tucson, Arizona

Dear Mr. McAtee:

Enclosed for recording in your office is the original, signed copy of an Exploration Project Contract executed between the operator named in the above reference and the Government of the United States.

Sincerely yours,

C. O. Mittendorf

C. O. Mittendorf, Director
Production Expansion Division

Enclosure-1

COMittendorf/fw

cc to: Admr. Reading File
Mr. Strobel
Mr. Gowen
Mr. Lyon
Mr. Knouse
Field Team, Reg. IV
FILES
Mr. Mittendorf, Mr. Olund

FILE COPY
SURNAME: G. E. C.

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

FLK
Mittendorf (for)

July 3, 1951

Mr. J. H. East, Jr.
Executive Officer
Region IV
724 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMA - 269 XB
Exploration Contract I DMA 4-E-33

Dear Mr. East:

We are enclosing three signed and approved copies of Exploration Contract Docket No. DMA 269 XB, Banner Mining Company, 2042 Conner Stravenue, Tucson, Arizona, together with a memorandum dated July 3, 1951, written by Mr. F. L. Knouse to Mr. C. O. Mittendorf.

Please transmit one copy of the contract to the applicant and have the engineering field team verify the beginning points of each sub-project contained in this contract.

Sincerely yours,

C. O. Mittendorf

C. O. Mittendorf, Director
Production Expansion Division

Enclosures-4

FLKnouse/meh
cc to: Messrs. Mittendorf, Olund
Strobel
Gowen
Lyon
Knouse
Field Finance Office
Contract Serv. Office G.A.O.
FILES
Chron. Copy

FILE COPY
SURNAME:

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

July 3, 1951

Memorandum

TO: Mr. C. O. Mittendorf, Director
Production Expansion Division

FROM: F. L. Knouse
Mining Engineer

SUBJECT: Docket No. DMA-269-X-B
Commodity: Copper
Recommended for Exploration
Applicant: Banner Mining Company
2042 Conner Stravenue
Tucson, Arizona
Mines: Twin Butte Project
Copper Glance and Copper Queen Mines

Summary and Recommended Participation by DMA

Total cost of project applied for2/	$ 65,880.00
Total cost of project recommended	135,789.00
1/ Equipment purchase	21,110.00
Rehabilitating mine, cleaning out and retimbering to make accessible for an examination; shafts, drifts, crosscuts, raises, and winzes	72,339.00
Installing facilities; hoists, head frames, compressor, hoist house, power, engineering, sampling and insurance	17,100.00
Diamond drilling, drifting and cross-cutting	25,290.00
Participation DMA funds	67,894.50

1/ Includes two 50 HP pumps, two drifter drills with accessories, 1 Eimco mucking machine, 1 500 C.F.M. compressor, one 20 HP blower with 1500' of 16" vent tube, 8 used mine cars, and 2300 feet of 3/4" steel hoist cable.

2/ The difference in the amount applied for and the amount allowed in the contract covers the cost of examining the lower levels and additional crosscutting and diamond drilling which are subject to the approval of the engineering field team.

Management

The applicant has operated the Bonney and Miser's Mines at Lordsburg, New Mexico, together with a 500 t.p.d. flotation mill since 1935; during which time it has proven its competency by a continuous record of profitable operation. The applicant has a long term lease on the Twin Butte group of mines. Production from this group for the period 1890 to 1943 totals 388,231 averaging 6.17% copper. The major part of this production was obtained from the Senator Morgan, Copper Queen, Copper Glance and Minnie mines. The applicant proposes to operate this exploration project jointly with the Mineral Hill exploration project. If after the exploration program a reserve of ore can be developed in both projects, the applicant plans to construct a mill to concentrate the ore.

Mines

This program applies to the Copper Glance, Copper Queen, and Copper King mines or claims. These mines have been explored by shafts, drifts, crosscuts, raises, and winzes. The Copper Glance having a 625' vertical shaft plus a 60' winze off the lower level; the Copper Queen with an incline shaft having a 670' depth plus a 60' winze off the lower level; and the Copper King with a vertical shaft having a vertical depth of 350 feet. The Copper Glance and Copper Queen shafts are connected by lateral workings from the 525 foot level of the Copper Glance shaft. Maps of the underground indicate a substantial amount of lateral and vertical workings as well as stoped areas. These maps indicate ore exists in the winze off the bottom level from the Copper Glance shaft, and in the winze off the bottom level from the Queen shaft. On the 525 and 625 foot levels of the Copper Glance mine (War Minerals Report 47 - U.S. Bureau of Mines, P. 16, 1943) there is reported 30,000 tons containing 6% copper. The data on which this estimate is based is not known, neither is the information regarding the existence of the ore in the other reported occurrences conclusive.

The ore bodies are reported to occur as lense to pod-like in form and are usually found in irregular masses of garnet and silicates that occur on or near the contact of granite and marble. The average thickness of the garnet zones is about 50 feet.

Applicant's Proposal:

Applicant proposes to reopen the Copper Glance and Queen shaft to make the underground workings accessible for examination together with a geological study and additional underground exploration.

It is proposed to first unwater, clean out, and retimber (to make accessible) the Copper Glance shaft to the 525' level, then explore the workings eastward and westward to the Queen Shaft and to the west extent of the workings. If after the Copper Glance shaft is dewatered and the connecting workings to the Queen shaft are opened, the Queen shaft to that level is not opened and the state mine inspector requires them to open the Queen shaft, they will then reopen this shaft and make it accessible as required to make the examination. After the examination of the workings on the 525 level (Copper Glance shaft and 7th level Queen shaft) if it is deemed advisable, the examination will proceed by dewatering and making accessible the workings below the 525 level in the Copper Glance and Queen shafts. When the examination and geological study is completed (with the Government field engineering team's approval) applicant proposes to extend the exploration program (1) by drifting or crosscutting eastward from the drift face 250 feet from the 525 level (Copper Glance shaft), for diamond drill position. Then diamond drill 3 holes to prospect for mineralization along the granite marble contact and/or indicated mineralization that may extend from the surface; (2) the lateral workings between the Queen and Glance shaft, 525' level, are reported to have many cross fissures filled with copper mineralization striking toward the contact. It is proposed to drill 10 diamond drill holes to explore this unexplored contact area; (3) west of the Queen shaft (7th level equivalent to 525' level - Copper Glance shaft) drive crosscut 250' from the existing west drift or crosscut face and drill two diamond drill holes to explore for the downward extension of the ore shoot mined in the King shaft.

The question of being able to successfully diamond drill from the surface to prove the existence or non-existence of the reported sub-surface mineralized bodies is similar to the problem of drilling the Mineral Hill property. It is estimated about 25-600' holes would be required to diamond drill this property at a cost of about $75,000.00

In addition to the underground work, equipment required to do this work is to be purchased, some equipment to be rented from the applicant and installed, as well as facilities repaired and constructed. These items are detailed in the contract and appear reasonable.

Summary of estimated cost of proposed re-opening examinations and additional exploration program of the Copper Queen, Copper Glance, and Copper King workings follows:

(1)	Power Installation (Includes a substation at Queen and Glance Mines)	$ 5,000.00
(2)	Repair and retimber to make accessible and unwater the 646-foot vertical Glance shaft and install necessary water and air pipe lines and electric cables @ $23 per foot for first 400 feet and $32 per foot for remaining 246 feet	17,072.00
(3)	(a) Repair and retimber to make accessible and passable, as a ventilation shaft, the Copper Queen shaft to its 7th level, unwater repair and make accessible the 130 feet of shaft below the 7th level to its bottom. Total inclined depth of this shaft is 737 feet. First 607 feet @ $30.00, bottom 130 feet @ $35.00 - totaling	22,767.00
(4)	Repair headframe and Bins at Glance shaft, install sheave wheel and install and repair hoist and repair hoist house	1,600.00
(5)	(a) Repair headframe at Queen shaft, install sheave wheel, skip dump, attach motor to hoist, repair hoist and repair Bin and fill around collar of shaft.	1,600.00
(6)	Install compressor at the Glance shaft (500 c. ft. per minute).	500.00
(7)	Cleanout, retimber if necessary to hold open, the indicated drifts and crosscuts on attached plan maps, totaling about 3550 feet @ $7.00 per foot on the 525 and 626 foot levels of the Glance Mine and the 7th and 9th levels of the Queen Mine together with 380 feet of raises @ $10.00. This work is detailed as follows:	
	<u>525 Foot Level Glance Mine</u>	
	605 feet of drifts and crosscuts @ $7.00 per foot	4,235.00

1245 feet of drifts and crosscuts connecting the 525 level of Glance Mine to the 7th level of Queen Mine @ $7.00 per foot	$ 8,715.00
<u>7th Level of Queen Mine</u> 510 feet of drifts and crosscuts on 7th level of the Queen Mine @ $7.00 per foot	3,570.00
<u>626 Foot Level of Glance Mine</u> 740 feet of drifts and crosscuts @ $7.00 per foot and 130 feet of Raise @ $10.00 per foot	6,480.00
<u>9th Level of Queen Mine</u> 450 feet of drifts and crosscuts @ $7.00 and 250 feet of raises @ $10.00 per foot	5,650.00
Repair and retimber to make accessible and unwater the 60-foot winze below the 626-foot level of the Glance Mine and the 50-foot winze below the 9th level of the Queen Mine @ $35.00 per foot	3,850.00

(8) (b) Diamond drilling, Drifting and Crosscutting program detailed as follows:

<u>7th Level of Queen Mine</u> 250-foot crosscut from West end of this level to cut the Copper King fissure about 230 feet below known stopes above, @ $30.00 per foot	7,500.00
2- 200 feet Diamond Drill holes (45° down) to intersect King fissure 100' below this level @ $4.00 per foot. D.D. holes #1 and #2	800.00
<u>525 foot level Glance Mine</u> From face east drift 250 feet of drifting on or near contact Eastward beneath the favorable garnet outcrop in this area @ $30.00	7,500.00

	750 feet of Diamond drilling to locate ore shoots near the Easterly end of above drift @ $4.00 per foot - in possibly 3 holes Nos. 3, 4, and 5	$ 3,000.00
	<u>Area between Queen and Glance Mines on 525-foot level</u> Test 1000 feet of unexplored contact zone between Copper Queen and Copper Glance workings by Diamond Drilling from stations along the above drift at intervals of 100 feet, totaling 10 holes, 5 flat and 5 down 45° - 1610 feet at $4.00 per foot	6,440.00
(9)	Sampling and assaying	2,100.00
(10)	Geological Study (Surveying and Mapping)	1,000.00
(11)	Estimated Compensation Insurance, social security and other taxes	5,300.00
	Total	$114,679.00

Summary of Total Cost including costs of new facilities and machinery and repairs to present facilities

(1)	Cost of Work (Shown above)	$114,679.00
(2)	Additional Facilities (Buildings)	none
(3)	Additional Equipment (see Exhibit C)	21,110.00
(4)	Repairs to existing Facilities (included in line 1 total)	
	Total	$135,789.00

NOTE -

(a) This Queen inclined shaft is needed mainly for ventilation as a second exit as prescribed by law down to its 7th level, so if after unwatering the Glance shaft,

they find the Queen shaft is open then only such work will be done above its 7th level (525 foot level of Glance Mine) to comply with the mine inspectors regulations.

(b) This program will proceed after the unwatering, reopening and cleanup portions of the project have been completed and after the geological study has been made, provided the government engineers (field team) first give their approval of its advisability.

Conclusions and Recommendations:

1. There is no available criteria on which to base the existence of the reported ore underground (that the reported ore has not been mined). Therefore, this application is recommended for an exploration project.

2. The above exploration program is recommended provided it meets the approval of the field engineering team, and also provided the field engineering team verifies the beginning of each proposed sub-project.

3. Because of the length of diamond drill holes, number of holes required, questionable drill core recovery, and comparative cost with the cost of the proposed program, the proposed program outlined by the applicant is recommended.

4. Any mineralized bodies found (including the bodies indicated on the maps attached to the contract) resulting from this program, if mined during the period of this contract is to be subject to the contract provisions of repaying the exploration loan.

5. The proposed additional drifting or crosscutting and diamond drilling program must have the prior approval of the Government engineers.

6. This proposed program should be done with a minimum amount of rehabilitation, equipment, construction, etc., to make the workings accessible to complete this program.

F. L. Knouse

FLKnouse/ecl

cc to: Messrs. Mittendorf - Olund
Strobel
Lyon
Coordinating Committee
Gowen
Field Team, Reg. IV
Knouse
F I L E S

FILE COPY
SURNAME:

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

June 25, 1951

Memorandum

To: C. O. Mittendorf, Director
Production Expansion Division

From: General Counsel

Subject: Banner Mining Company, Proposed Exploration Contract (Copper Glance, Copper Queen and Copper King Claims)

I am unable to give legal approval to the subject contract which was submitted to me this date. The reasons are the same, except for the amounts involved, as set forth in my memorandum of this date concerning a proposed contract with the same company for the Banes, Copper Hill, and Milton claims.

J. L. Hofflund

J. L. Hofflund

JLHofflund/af

Copy to: Files
Adm. Reading File
Mr. Strobel
Mr. Hofflund (2)

FILE COPY
SURNAME:

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

June 25, 1951

Memorandum

To: C. O. Mittendorf, Director, Production Expansion Division

From: General Counsel

Subject: Banner Mining Company, Proposed Exploration Project Contract (Banes, Copper Hill & Milton Claims)

I am unable to give legal approval to the subject contract which was submitted to me this date.

The contract calls for work in the estimated total amount of $120,786, in which the Government would participate in the amount of 50%, or $60,393.

The work consists of the unwatering of a well known copper mine which has operated in the past. It is proposed to unwater the mine, either to prove or disprove the reports of existing minable ore there, which was reported to be there when the mine closed down. If, after the unwatering, it is determined that continued mining is not feasible, it is proposed to do some exploration work by diamond drilling, drifting, and crosscutting.

The cost of the unwatering is placed at $81,100, and the cost of exploration is placed at $25,000. The unwatering program apparently would put the mine in condition for operation if the supposed ore is found to be there. The unwatering program includes such items as:

(1)	Power installation	$10,000
(2)	Vertical 2-compartment shaft	15,000
(3)	Repairing and retimbering	27,000
(4)	Repair headframe and install hoist	1,500

and other items which seem obviously in the nature of permanent improvements.

The definition of "exploration project" in the regulations (MO-5) states that: "The work shall not go beyond a reasonable delineation and sampling of the ore, and shall not include work prosecuted primarily for mining or preparation for mining."

Whether the actual exploration work on this project could be performed without unwatering the mine, is not for this office to determine. I would suppose that it could be done by diamond drilling without unwatering the mine. Assuming, however, that the unwatering of the mine is necessary for the performance of the actual exploration work, I would still be unable to approve the proposal under our exploration regulations. I think that in this case the exploration work, as it were, is the tail that wags the dog. I think that in any case where as much as half of the cost of the work is in the nature of permanent improvements and preparation for mining, the project should not be allowed as an exploration project.

I think that this project would be suitable for a loan under Section 302 of the Act. The difference to the Government, of course, is that a loan would be repayable regardless of any discovery of new ore deposits, but an exploration grant would be repayable only if and to the extent that new deposits of ore should be found.

Any project which involves work that is beneficial to a known and existing mine must always be viewed with some doubt when it is presented as an exploration project. When the benefits to the known and existing mine are out of all proportion to the exploration work, it seems to me that even from a legal standpoint it is necessary to reject the application.

J. L. Hofflund

J. L. Hofflund

JLHofflund-af

Copy to: Files
Adm. Reading File
Mr. Strobel
Mr. Hofflund (2)

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION

1201

(58)

W. P. MARSHALL, PRESIDENT

SYMBOLS

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LA141

L LGA021 PD= LORDSBURG NMEX 15 151P= 1951 JUN 15 PM 3 58

PAGE BLAKEMORE=

ROOM 4070 INTERIOR BLDG WASHDC=

GRIMES AND I WILL ARRIVE WASHINGTON SUNDAY NIGHT 17TH=

BANNER MINING CO A B BOWMAN=

Defense Materials Administration
RECEIVED
JUN 18 1951
LANDON F. STROBEL
Executive Secretary

BUREAU OF LABOR
WASHINGTON D.C.

JUN 15 PM 4 28

1951 JUN 18 AM 8 35

DLY

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WESTERN UNION

W. P. MARSHALL, PRESIDENT

1201 Blakemore

(07)

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LA151

1951 JUN 15 PM 4 19

L.LGA022 PD= LORDSBURG NMEX 15 206P=

PAGE BLAKEMORE=

ROOM 4070 INTERIOR BLDG WASHDC=

ACCOUNT PLANE RESERVATIONS UNABLE TO LEAVE SUNDAY AS PLANNED STOP WILL ARRIVE MONDAY 18TH=

BANNER MINING CO A B BOWMAN=

RECEIVED
JUN 18 1951
LANDON F. STROBEL
Executive Secretary

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

BUREAU OF MINES
WASHINGTON, D. C.

1951 JAN 18 AM 8 35

M 4 36

6/5/51

Defense Minerals Administration

JUN 1951

Review of Application for Exploration Assistance

Docket No. DMA 269 x B

Commodity Copper

Total Amount $65880

Govt. Participation $32940

1. Name and Address of Applicant Banner Mining Co. Twin Butte Mines, 2042 Conner Stravenue, Tucson, Arizona

2. Location of Property Twin Buttes Mine, 8 miles SW of Sahuarita in Pima County Arizona.

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

If not, application will be rejected.

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

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

a) Good yes - Field Team Exam.

b) Poor

c) None

d) Don't know—needs field examination no, has been done

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

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

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

Does the lease have sufficient time to run to cover a future productive period? yes

*question numbers are those of MF-103

7. Are subordination agreements necessary? Yes

a) MF-201? no

b) MF-202 yes

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

a) Available manpower Yes

b) Equipment and supplies Yes
(Question 14 plus general knowledge of availability)*

c) Accessibility (question 12)* Yes

d) Water (question 13)* No water problem.

e) Power (question 13)* Will be available in September

Is a field check needed on any of these points? No - has been done.

9. Does the experience of the applicant appear to be adequate to assure that he can properly conduct the proposed project? (question 4)* Yes. Applicant is a successful mine operator.

Is a field check needed on this point? no

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

a) Is the project adequately described? Yes

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

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

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

If not, what part of it is?

Is this part a worthwhile exploration project?_____

d) Are the cost estimates detailed? Yes

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data? Yes If so, attach a draft.

e) Are the cost estimates reasonable? Yes

f) Should more information be requested from applicant? No

g) Is a field examination necessary to complete Exhibit A? Has been done

11. Exhibit B (question 23-d)*

a) Is it applicable? Yes

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

c) Is a field check needed? No. Has been done

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

a) Is it applicable? Yes

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

c) Are rents and charges reasonable? Yes

d) Is a field check needed? No. Has been done.

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

a) Are there sufficient data? Yes

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

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

d) Are the proposed wages and salaries reasonable? Yes

e) Is a field check needed? No. Has been done.

14. Exhibit E (question 23-c)*

a) Is it applicable? Yes

b) Sufficient data? Yes

c) Reasonable? Yes

d) Field check needed? Has been done

15. In your judgment, can the proposed work be done in the proposed time? Yes

(All exploration must be completed within two years)

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

17. If field examination is needed, do you have any special instructions for the field team not indicated by your answers to the foregoing question? The project was examined by a Field Team who recommend that the project be approved. The Copper Branch has reviewed the application and recommends approval.

Reviewed by: J B Gowin

C. H. Johnson

D R Mackay

Date 6/11/51

OK

Tom Lyon

97692

Exhibit A

DMA 269X-B

The project is to unwater and reopen the Copper Glance and Copper Queen mines in order to substantiate their inferred reserves. This will necessitate installation of electric power, hoists, compressors, pumps, etc., ~~and~~ rehabilitation of surface facilities and underground workings.

Estimated Cost

Power Installation	$5,000
Cost of Machinery (2-year usage)	15,360
Rental of Machinery	520
Installation of equipment	2,000
Repair and unwatering of Glance shaft	19,000
Repair and unwatering of Queen shaft	24,000
Total	$65,880

DMA 269X B

Exhibit B.

d.

Installation of hoists and compressors $2000.00

Exhibit C

e.

2 Compressors	$17000.00
1 - 75 HP S.D. Hoist	9000.00
2 - 1100 foot Hoisting Cables	2200.00
4 - drills	1900.00
Miscellaneous Supplies	800.00
2 - mucking machines	5000.00
2 - IR 50 HP Motor Pumps	2500.00
Total	$38400.00

f. none

g.

One 1950 GMC 3/4 ton pick up truck
7 (-) months at 75.00 per mo $520.00

DMA 269x B

Exhibit D.

a.

6 Shaftmen at $1.59½ per hour
2 Hoistmen at $1.49½ per hour
1 Carpenter at $1.61½ per hour
2 helpers at $1.36½ per hour
1 Mechanic at $1.61½ per hour

b. 1 General Superintendent at $361.00
1 General Foreman at $255.00
1 Part time Engineer at $200.00

Exhibit E.

c.

Repair and retimber and unwater Glance Shaft	$19,000.00
*Repair and retimber and unwater Queen Shaft	24,000.00
Total	43,000.00

* Includes some repairs to existing building which will be used for benefit of shaft work.

Draft. Mac. Lara — May 31, 1950

Docket No 0880-2000.13 (Twin Buttes)
Banner Mining Company
Copper.

Recommendations

To: Director, Production Expansion Division

From: Supply Division

Subject: Banner Mining Co. Expansion Project, 50 percent Government Participation

A. Banner Mining Company owns Copper Stringers in Pima County, Arizona

B. Twin Buttes mine is in Pima County, Arizona 25 miles southwest of Sahuarita

C. Conclusions:

1. This project is geologically sound for copper production.
2. It is technically feasible.
3. It is considered economically feasible.
4. The company is willing and able to provide 50 percent funds, which will be $65,880.00. Government share is $32,940.00.
5. The Banner Mining Company is a corporation

D. Recommendations

Financial assistance in the form of a 50 percent participation exploration contract is recommended.

E. Applicant proposes to mine and exploit the Twin Buttes mine. It is claimed there are 30 million tons of 1 percent copper in the 525 foot thick copper. The Government engineers estimated tonnage and the average of 1 percent copper in the lower levels of the Green Stringer and more than a billion tons in the upper levels. Further exploration of the mine is necessary.

F. This project offers a certain potential of the economy and should be considered for material assistance.

G. Technical.

1. The Field Team report the known exposures are of the contact anitaxmylite type, occurring in bands along an intrusive granite contact, and they feel it is highly probable that additional zones will be found in unexplored areas along the contact and faults. It is necessary that the present workings be developed and rehabilitated before definite estimates of production can be formulated.

2 to 5 Not applicable.

6. Development and rehabilitation should be completed during January 1952.

H. 1. Repairs:

Underground, surface, and rehandling shaft	$ 19,000.00
Underground, surface, and rehandling shaft, hoisting equipment	24,000.00
Source of labor charged as rental against project	
1-1950 GMC 1½ ton pickup truck @ 75.00 per month	
Cost of rental is included in Necessary & Extended Costs.	

2. Construction:

Installation of hoists and compressors	$ 2,100.00
Installation of pumps	5,000.00
To be purchased:	
2-Compressors	17,000.00
1-75 H.P. Single drum hoist	9,000.00
2-1100 foot hoisting cables	2,200.00
4-drills	1,900.00
2-Mucking machines	3,000.00
2-IR 50 H.P. air pumps	2,500.00
Miscellaneous supplies	500.00
Total	$ 38,700.00
Two year usage covering a five year life outlook	$ 15,480.00

3. Very good gravel road to Nebraska, which goes to the Lincoln Regale road highway.

4. Labor appears to be sufficient for ordinary purposes.

6 shoulders at $1.50½ per day

1 driver at 1.99½ per day

1 carpenter at 1.61½ per day

2 helpers at 1.36½ per day

1 watchman at 1.36½ per day

1 watchwoman at 1.25 per day. This was a very low combination in a lumber, tie, cheese & cheese

Estimated total cost of labor $42,000.00

1 Steam dragline hoist (Watson) at $361.00

1 Steam Fireman (Watson) at 255.00

1 Engineer (Watson) at 200.00

Estimated total cost of superintendent & Engineer (Watson) $5,100.00

Balance of time charged to Lincoln Butte.

5. Power Electrification. Power on Butte is generated from 300 kw. with transformers back to about December 1, 1931, daylight power would be available within a month.

I. Financing

1. Government 50 percent aid exploration project.

2. Government funds $32,990.00 appears adequate for this project. Detailed cost sheets.

Summary of Estimated cost of installation of Prospecting Plant Installation $

Power installation 5,000.00

Cost of operating (two years energy) 19,880.00

Variable cost of repair of power shaft & hoist 20,000.00

Variable cost of repair of Power Shaft & hoist 25,000.00

TOTAL $65,800.00

3. Not applicable

4. Repayment of advances made by government agencies is to be on the basis of processes set up under the exploration program of the DMA. Subordinating agreements required by lessors have not yet been submitted.

5. Not applicable.

J. Banner Mining Company is a reputable organization with a history of successful operation of copper properties in Tonderburg, New Mexico, and is a thoroughly energy-start organization.

K. Correspondence submitted in accompanying file:

1. Last mailed with memorandum and accompanying file Docket: DMA-2698-A.

Accompanying this memorandum is application including exhibits. Report and recommendations of Field Team are with memorandum and accompanying file Docket, DMA-2698-A.

Tom Lyon, Director
Supply Division

Attachments:

Copy to: J.H. East, Jr. 224 New Customhouse, Denver 2 Colorado (2)
Executive secretary
Copper Branch
M. Lyon
M. Hardman
Files

Rammer Mining Company -
Twin Butte Mines
Exploration Project Contract
"Exhibit A"

Question No. 3, Form MF. 200

This Project will consist of the following:

~~Exhibit A~~ Exhibit A DMA-269X-B

The project is to unwater and reopen the Copper Glance and Copper Queen mines in order to substantiate their inferred reserves. This will necessitate installation of electric power, hoists, compressors, pumps, etc., and considerable retimbering and rehabilitation of the surface plant, and underground workings

DMA 269x B.

Exhibit A.

Extract from Field Team Memorandum:

"The proposed exploration plan for the Twin Buttes area includes steps to explore the most promising objectives. They are essentially the same steps that have been recommended by several geologists who have studied the area. They cannot be carried out until the deeper levels of the mines have been made accessible."

"The purpose of rehabilitating and unwatering the mine is to make available for mining certain ores which are reported to be in place, to further explore and define ore zones on the lower levels and to explore for possible extensions of known ore and new ore bodies."

Estimated Cost

Power installation	$5000.00
Cost of Machinery (Two year usage)	15360.00
Rental of machinery	520.00
Installation of equipment	2000.00
Repair and unwatering of Glance Shaft	19000.00
Repair and unwatering of Queen Shaft	24000.00
Total	65,880.0

DMA 269X B

Exhibit B.

d.

Installation of hoists and compressors $2000.00

Exhibit C

e.

2 Compressors	$17000.00
1 - 75HP S.D. Hoist	9000.00
2 - 1100 foot Hoisting Cables	2200.00
4 - drills	1900.00
Miscellaneous Supplies	800.00
2 - mucking machines	5000.00
2 - IR 50HP Motor Pumps	2500.00
Total	$38400.00

f. none

g.

One 1950 GMC 3/4 ton pick up truck
7 (-) months at 75.00 per mo $520.00

DMA 269x B

Exhibit D.

a.

6 Shaftmen at $1.59½ per hour
2 Hoistmen at $1.49½ per hour
1 Carpenter at $1.61½ per hour
2 helpers at $1.36½ per hour
1 Mechanic at $1.61½ per hour

b. 1 General Superintendent at $361.00
1 General Foreman at $255.00
1 Part time Engineer at $200.00

Exhibit E.

c.

Repair and retimber and unwater Glance Shaft	$19,000.00
*Repair and retimber and unwater Queen Shaft	24,000.00
Total	43,000.00

* Includes some repairs to existing building which will be used for benefit of shaft work.

Dma-269
Mr. Lower

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

OFFICE OF
REGIONAL DIRECTOR

REGION IV

224 NEW CUSTOMHOUSE
DENVER 2, COLORADO

May 9, 1951

Memorandum

To: C. H. Johnson, Defense Minerals Administration

From: DMA Field Team, Region IV

Subject: DMA Docket 269, Banner Mining Company, Twin Buttes and Mineral Hill mines

In accordance with your telephone conversation today, we are attaching the application on the above docket.

P. T. Allsman, Alternate

Enclosures
Twin Buttes Mines, with Exhibits A through L
Mineral Hill Property, with Exhibits A through H

~~LANDON STROBEL~~
Mr. Garner
Dma - 269x
A + B

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

OFFICE OF
REGIONAL DIRECTOR

REGION IV

224 NEW CUSTOMHOUSE
DENVER 2, COLORADO

May 1, 1951

Memorandum

To: Landon Strobel, Executive Secretary, Defense Minerals Administration

From: DMA Field Team, Region IV

Subject: Memorandum regarding DMA Docket 269, Twin Buttes and Mineral Hill mines, Banner Mining Company, Pima county, Arizona

ON SITE EXAM.

We are enclosing two copies of a memorandum regarding DMA Docket 269.

The Field Team concurs with the recommendation of the field men contained in the memorandum.

J. H. East, Jr.

J. H. East, Jr.

A. H. Koschmann

A. H. Koschmann

Attachments

Mining Division
Region IV

May 1, 1951

Memorandum

To: BMA Field Team, Region IV

From: Chief, Mining Division

Subject: BMA 269, Twin Buttes - Mineral Hill mines, Pima County, Arizona

The memorandum on the above two mines indicates that the operators are able and willing to enter into a contract for opening, unwatering, and investigating.

The examiners recommend approval. I concur with the recommendation.

F. T. Allaman

Attachment

Dma-269

DEFENSE MINERALS ADMINISTRATION

Tucson, Arizona

April 19, 1951

Memorandum

To : W. R. Storms, Chief, Arizona-New Mexico Branch, Mining Division, Region IV, Bureau of Mines, Tucson, Ariz.
and
C. A. Anderson, District Supervisor, Arizona-New Mexico, U. S. Geological Survey, Tucson, Ariz.

From : Grant R. Rubly, Mining Engineer, Arizona-New Mexico Branch, Mining Division, Region IV, Bureau of Mines, Tucson, Ariz.
and
Nels P. Peterson, U. S. Geological Survey

Subject : Banner Mining Co., Twin Buttes and Mineral Hill Mines, Pima County, Arizona, DMA Docket No. 269

It is recommended that financial assistance in the form of an exploratory loan be granted to the Banner Mining Co. for rehabilitation and unwatering of the mines at Mineral Hill and at Twin Buttes, DMA Docket No. 269. Estimated costs are $197,180, of which the applicant is to contribute half. These estimated costs were prepared by the applicant and are reasonable.

On December 12, 1950, the Banner Mining Co. made application for assistance for two reopening, development and exploration projects, (1) the Mineral Hill and Plumed Knight Mines and (2) the Copper Glance, Copper Queen and Copper King group of mines at Twin Buttes. These mines are located respectively 16 miles and 25 miles southwest of Tucson, Arizona in the Pima Mining District.

The Copper Commodity Committee investigated the requested loan and decided with the consent of the applicant, to treat this

CC Storms (DMA 269)
Anderson - 2
Allsman - 2
Koschmann
DF

as two separate exploration projects under DMA Docket No. 269.

On April 16, 1951, Grant R. Rubly and Nels P. Peterson visited the Mineral Hill and Twin Buttes properties. An examination of surface exposures was made. As underground workings are not yet available for study all conclusions are from the study of available reports, maps, and records.

The applicant has plans for rehabilitating and unwatering both properties and is actively engaged in this work. The past record of production coupled with a study of all available data indicate that substantial production of copper can be expected from these mines. The Banner Mining Co. is a reputable company with a history of successful operation of copper mines near Lordsburg, New Mexico. It is therefore recommended that the rehabilitating and unwatering of these mines be considered as exploration and that assistance be granted to the applicant. After the mines are unwatered and available for detailed investigation, which will be in October or November, 1951, it may be desirable to allow additional funds for development and a program of exploration.

Summary of estimated cost of proposed rehabilitation:

Mineral Hill	$ 131,300
Twin Buttes	65,880
Total	$ 197,180

Power for unwatering and hoisting is not yet available at the property but the Rural Electrification Administration has agreed to furnish 300 kva with transformer banks by about Sept. 1, 1951. Single phase 110 volt power will be available within a month.

The rocks that crop out in the Mineral Hill and Twin Buttes areas are a steeply dipping and, in places, overturned sequence of sedimentary formations composed of Cambrian quartzite and limestone; Devonian, Mississippian, and Pennsylvanian limestones; and Permian limestones and gypsiferous beds. The sedimentary formations occur in isolated blocks, generally less than a square mile in extent, which apparently are remnants of roof pendants in a mass of coarse-grained granite that is the basement rock of the region.

The mineral deposits are of the contact metamorphic type. They are replacements of limestone along the intrusive granite contact and along faults that intersect the contact. The largest ore bodies in the Twin Buttes area are irregular replacement bodies that formed along the intersections of faults with the granite contact. A massive relatively pure limestone bed in the Mississippian system appears to have been especially favorable for replacement, but beds in the Pennsylvanian Naco limestone and Cambrian Abrigo limestone also contain ore bodies.

The ore minerals are chiefly pyrite and chalcopyrite in a gangue of quartz, garnet, and other metamorphic lime silicates. Oxidation has been relatively shallow, and sulfides are commonly present within a foot or two of the surface.

Mineral Hill

The Banner Mining Co. has a lease and option on thirty-eight patented mining claims comprising the Mineral Hill group. The claims were located in the late 1800's but major production took place between 1915 and 1917. A total of 46,631 tons averaging 3.80 percent

copper and 0.77 ounces silver were shipped to the smelter of the American Smelting and Refining Co. at El Paso. From 1917 to 1921, the Barnsdall Mining Co. did a substantial amount of development work at lower levels.

On the basis of assay plans of the fifth and sixth levels, approximately 200,000 tons of indicated ore averaging 3.36 percent copper can be expected. So far as can be determined, this ore is still in place.

Only a relatively small part of the contact in the Mineral Hill area has been adequately prospected. It appears highly probable that additional reserves will be found. However, no definite plan for exploration of the Mineral Hill area can be formulated until the mine has been unwatered and the workings examined.

At the present time the inclined shaft is being retimbered; a new concrete collar has been placed. Excavation for hoist house is being made and mine yard is being graded. A large wood and steel building with concrete floor has been erected as a combination shop, warehouse and office. Headframe timbers are all framed and ready for erection.

Banner Mining Co. has almost all of the equipment required for the rehabilitation program at its shops in Lordsburg, New Mexico.

The purpose of rehabilitating and unwatering the mine is to make available for mining certain ores which are reported to be in place, to further explore and define ore zones on the lower levels and to explore for possible extensions of known ore and new ore bodies.

The estimated cost of the proposed reopening program is as follows:

Power installation.	$ 10,000
Repair and retimber 500 ft. vertical shaft.	20,000
Repair, retimber and unwater 700 ft. incline shaft.	25,000
Excavation, installation hoist house.	7,500
Headframe and bins at inclined shaft.	6,300
Repair headframe at vertical shaft and install hoist.	1,500
Reopen and retimber three levels and raises.	28,000
Surface buildings.	25,000
Equipment rentals and purchases.	3,500
Insurance, social security and other taxes.	4,500
Total	$ 131,300

As this is to be considered as an exploration loan, 50 percent of the above amount of $131,300 is to be contributed by the applicant. Repayment of advances made by governmental agencies is to be on the basis of provisions set up under the exploration program of the Defense Minerals Administration.

It is recommended that assistance be granted the applicant under the terms of an exploration program.

Twin Buttes

The Banner Mining Co. has a lease and option on the major claims of this area and holds others by location. The claims are said to have been located in the 1870's. Little mining was done before 1905. A standard guage railroad was built from Twin Buttes to Tucson and a smelter erected on the Santa Cruz River. Total production from the camp has amounted to 388,231 tons averaging 6.17 percent copper. This was contributed as follows:

Mine	Dry tons	Percent copper
Senator Morgan	132,502	5.92
Copper Glance	118,066	6.72
Copper Queen	75,186	7.05
Minnie	62,477	4.71
Total	388,231	6.17

On the 525- and 625-foot levels of the Copper Glance mine, the Bureau of Mines[1/] estimated reserves of 30,000 tons containing 6 percent copper. The data on which this estimate is based are not known. These reserves probably should be classed as inferred ore.

In the Twin Buttes area, there are unprospected intervals in which the favorable limestone bed is adjacent to the contact. Several steeply dipping faults of minor displacement crop out and in depth will presumably intersect the contact between the granite and the favorable limestone bed. Ore bodies are known to occur in other limestones, but they are reported to be smaller and poorer in grade than those in the most favorable bed.

The proposed exploration plan for the Twin Buttes area includes steps to explore the most promising objectives. They are essentially the same steps that have been recommended by several geologists who have studied the area. They cannot be carried out until the deeper levels of the mines have been made accessible.

At the present time but little work has been done by the applicant. The collar of the Queen mine has been concreted and new concrete piers placed under the headframe. Work of preparing the

1/ War Minerals Report 47, U. S. Bureau of Mines, p. 16, 1943.

surface installations is planned for the near future but pumping and reconditioning of the shafts will await installation of power lines by the Rural Electrification Administration. This is expected by about September 1, 1951.

The purpose of rehabilitating and unwatering the mine is to make available for mining certain ores which are reported to be in place, to further explore and define ore zones on the lower levels and to explore for possible extensions of known ore and new ore bodies.

The estimated cost of the proposed reopening program is as follows:

Power installation	$ 5,000
Cost of machinery (2 year usage)	15,880
Repair and unwater Glance shaft	20,000
Repair and unwater Queen shaft	25,000
Total	$ 65,880

As this is to be considered an exploration loan, 50 percent of the $65,880 is to be contributed by the applicant. Repayment of advances made by governmental agencies is to be on the basis of provisions set up under the exploration program of the Defense Minerals Administration.

It is recommended that assistance be granted the applicant under the terms of an exploration program.

Grant R. Rubly

Grant R. Rubly

Nels P. Peterson by G. F. Shinde

Nels P. Peterson

March 23, 1951

Re: Docket No. 269

Mr. A. B. Bowman, Superintendent
Banner Mining Company
2042 Comner Stravenue
Tucson, Arizona

Dear Mr. Bowman:

This is to acknowledge receipt of your letter of March 17, 1951 with reference to the power supply for your Mineral Hill and Twin Buttes project near Tucson, Arizona.

I am very glad that your negotiation with the Trico Electric Company appears to have worked out to the advantage of these proposed projects. Copies of the letter are being appended to your application and a copy will be sent to the field team for its information.

Thank you for keeping us advised.

Very truly yours,

Tom Lyon, Chief
Copper Branch

CHJohnson:pf

Copy to: Executive Officer, DMA Field Team, Region IV,
224 New Customhouse, Denver 2, Colorado w.c.i.
Executive Secretary w.c.i.
Copper Commodity Committee w.c.i.
Files

BANNER MINING COMPANY
Post Office Box-X
LORDSBURG, NEW MEXICO

Address Reply to
Allan B. Bowman
Superintendent
Lordsburg Mines
Box-X Lordsburg, N.M.

March 17, 1951

Home Office
1910 First Nat'l Bldg.
Oklahoma City, Okla.

Mr. Tom Lyon, Chief
Copper Branch
Defense Minerals Administration
Washington, D. C.

Dear Mr. Lyon:-

Please refer to our application on the Mineral Hill and Twin Buttes mines near Tucson, Arizona. This application has been given a DMA docket number of 269.

We have been able to make a large saving in the cost of obtaining power for this project. While in Washington we negotiated with the R. E. A. for the necessary power through their outlet in Tucson, The Trico Electric Company. They have agreed to furnish 300 KVA at each of the following outlets together with the necessary transformer stations: Mineral Hill mine, Copper Glance Mine and the Copper Queen Mine.

The cost to us for each installation has been set up as follows:- (1) Mineral Hill mine-deposit on account of cost of facilities - $9700.00, (2) Copper Glance mine-deposit $1765.00, (3) Copper Queen Mine-deposit $1765.00. These deposits will be returned to us in the form of a credit of 20% on each monthly bill for services. This is about one fifth of the cost to us as proposed by the Tucson Gas and Electric Company, whose proposal was used in our application on these mines.

The rates under the proposed five year contract for each mine are as follows:- $225.00 minimum monthly charge. $1.75 per month per KW of billing demand. 2.0¢ per KWH for the first 50 KWH, 1.5¢ per KWH for the next 100KWH, 0.8¢ per KWH for all remaining KWH used per month.

Will you please make this letter a part of our application on the above named mines. It will reduce the cost over the original estimate by about $60,000.00.

Yours very truly,

BANNER MINING COMPANY

/S/

A. B. Bowman, Sup't.

COPY

FILE COPY
SURNAME:

Lyn
Strobel 3/21

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

March 21, 1951

Hon. Clinton P. Anderson
United States Senate
Washington 25, D. C.

My dear Senator Anderson:

After reading your letter of March 12, regarding the statements Mr. Allen Bowman, of the Banner Mining Company, is reputed to have made, I carefully read the minutes of the meeting of the Copper Advisory Committee held on March 2, 1951. I can find nothing in these minutes to indicate that the DMA had concluded to try first to increase the production of the big companies before considering any of the smaller companies. It is true that several of the large comapnies have offered to bring in large tonnages of additional copper. They have offered to do this if given procurement contracts in which the government guarantees a price floor, which in most cases is considerably lower than the market price. I wish to point out that to date the DMA has made no procurement commitments for copper, lead, or zinc at prices above the market.

The Banner Mining Company made an application for a loan for the purpose of increasing its production. In its application the company asked for a guaranteed price of 33 cents per pound. In denying the application, it was pointed out to the Banner Mining Company that to date we have been able to obtain sufficient copper to fulfill our program without agreeing to pay anything above the market price.

In Public Law 774, Chapter 932, Second Session of 81st Congress, Section 303 (b) it is stated:

> "Subject to the limitations in subsection (a), purchases and commitments to purchase and sales under such subsection may be made without regard to the limitations of existing law, for such quantities, and on such terms and conditions, including advance payments, and for such periods, as the President deems necessary, except that purchases or commitments to purchase involving higher than currently prevailing market prices or anticipated loss on resale shall not be made unless it is determined

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that supply of the materials could not be effectively increased at lower prices or on terms more favorable to the Government, or that such purchases are necessary to assure the availability to the United States of overseas supplies."

You can see from the above section of the law that we are powerless to pay premiums for the production of metal which we are able to obtain at market prices. My sympathies are naturally with the small operator. Their troubles are many. They are usually under-capitalized and are very rarely in position to modernize their plants for cheap production.

The D.M.A. is charged with recommending loans and other procedures for increasing production. We are also charged with using discretion in recommending loans. In other words, before a loan is recommended, we require the applicant to furnish valid evidence that the government has reasonable chance of recovering its money.

Regarding the last paragraph of your letter, it should be noted that the "matching" program applies only to exploration and not to the operation of mines, large or small. This program contemplates a participation by the government in the search for new ore bodies. In the case of lead, zinc, and copper, the government will furnish 50% of the money expended on an exploration project. In the case of the highly strategic metals that are in short supply, the government will participate up to 90% of the cost of exploration. I am sure you will agree that terms like this are eminently fair. The individuals or companies requesting loans for the purpose of exploration will also have a financial interest in the project and will not expend their own and government monies on foolish or hopeless exploration programs. The purpose is to prevent waste of public funds.

Regarding the aluminum program, which is mentioned by Mr. Bowman, we are in the process of aiding several smaller companies to get into the aluminum business. You probably have noticed that the Aluminum Company of America now has two large competitors. According to our plans there will be several others in the field shortly.

Regarding the Alcoa plant for the northwest, the company expects to spend about $60,000,000 of its own money to construct this plant. It has asked the government for rapid amortization of its capital investment in the event the plant is built and also a procurement contract on the aluminum it produces. The government is involved only to this extent in the proposed Alcoa plant.

I trust this has corrected some misapprehensions that have arisen from Mr. Bowman's visit to Washington.

If there is anything further I can do for you at any time, please do not hesitate to call on me.

Sincerely yours,

JAMES BOYD

Administrator

TLyon/apd

cc: Administrator
Deputy Administrator
Executive Secretary
Files

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C. M. MOUSER, CHIEF CLERK

MAR 13 1951

Mr. Lyon

United States Senate

COMMITTEE ON
AGRICULTURE AND FORESTRY

March 12, 1951

answered
J. Lyon/opd
3/16/51

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

Dear Jim:

I have had some correspondence with Mr. C. H. McIntosh of the Atwood Copper Mines, Lordsburg, New Mexico, in regard to the assistance that is being given to the small marginal mine owners in helping them get into production for the defense effort. In a letter dated March 8 he tells me about a visit of Mr. Allen Bowman, of Lordsburg, to Washington, at which time he attended the meeting of the Advisory Council called by your office to discuss the copper situation. I am quoting below part of his letter pertaining to this matter and would appreciate any comments you have to make about it:

> "Allen Bowman has just returned from Washington where he attended a meeting of an Advisory Council called by the Administrator of the DMA, relative to copper, of which Advisory Council Mr. Grimes, of Oklahoma City, President of Banner Mining Company, is a member. Mr. Bowman is General Superintendent of the Banner Mine here, a notable producer of copper among the small mines of the west, and probably is one of the leaders in the category to which the Atwood Mine belongs. Mr. Bowman is also in charge of a development operation by the Banner Company of a lead-zinc property south of Tucson, Arizona.
>
> "Bowman brings some disconcerting and disturbing news relative to the meeting of the Advisory Council which he attended in Washington. He says that the Administrator stated to them while he was there, that there were positively no special plans nor any procedural program to apply to the small and marginal mines, and that while they knew that something must be done on that score, they had concluded first to try to increase production by the big companies. A recent grant to Alcoa for an aluminum plant

in the Pacific Northwest, illustrates the attitude of the powers that be, - at least as Bowman views it, - and I must say that from such information as I have to date, we must agree with him. Bowman further states that it was made plain at this meeting that no help would be afforded small and marginal mines except on a matching basis, with the Government advances to be repaid from developed ore. As Congressman Baring so aptly put it on a floor address (extension, Congressional Record, February 26th), if the small and marginal miner had that kind of money, he would be getting out ore with it instead of crying for help, as the Big Boys, with all the finances in the world, are doing."

Sincerely yours,

Clinton P. Anderson

CPA-CEW/vf

BUREAU OF MINES
WASHINGTON, D. C.

MAR 14 5 54 PM '51

LANDON F. STI...

BANNER MINING COMPANY

POST OFFICE BOX-X

LORDSBURG, NEW MEXICO

March 12, 1951

ADDRESS REPLY TO
ALLAN B. BOWMAN
SUPERINTENDENT
LORDSBURG MINES
BOX-X LORDSBURG, N. M.

HOME OFFICE
1910 FIRST NAT'L BLDG.
OKLAHOMA CITY, OKLA.

Mr. Tom Lyon, Chief
Copper Branch
Defense Minerals Administration
Interior Building
Washington, D. C.

Dear Mr. Lyon:-

You will perhaps recall our talks with you and Mr. Charles Johnson regarding our Misers Chest Mine at Lordsburg, New Mexico together with the Mineral Hill and Twin Buttes properties, which we have under lease and option, near Tucson Arizona.

Mr. Johnson suggested that we make up plan and vertical projection maps showing the relationship of the Bonney and Misers Chest Mines and which would better outline the proposed work necessary to the opening of the lower levels of the Misers Chest Mine. Prints of these maps are enclosed for your information and are to be made a part of our application on the Misers Chest Mine.

Mr. Lyon, we are losing money on the operation of the Misers Chest Mine under present inflated conditions. We feel very strongly that we have been placed in this undesirable position by policies of the government and that they should give us immediate relief to allow us to continue operations. Thanking you for your early consideration in this matter of utmost importance to our company, I am

Yours very truly

BANNER MINING COMPANY

A. B. Bowman

A. B. Bowman, Sup't.

MAR 12 2 31 PM '51
DEFENSE MINERALS ADM. D.C.

3/17/15
to Tom for you w/o attachments
for reply

FILE COPY
SURNAME:

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

February 20, 1951

Mr. A. B. Bowman
Superintendent
Banner Mining Company
Post Office Box-X
Lordsburg, New Mexico

Dear Mr. Bowman:

Your letter to Mr. Williston, dated February 11, has been received and we will consider your application under the new conditions you have set forth.

We have also received your letter of February 11, together with a report by Dr. Harrison Smith. This report will be of great assistance in our consideration of your application.

Very truly yours,

Tom Lyon

Tom Lyon, Chief
Copper Branch

TLyon/apd

Copper Committee
Executive Secretary
Files

BANNER MINING COMPANY

POST OFFICE BOX-X

LORDSBURG, NEW MEXICO

February 13, 1951

ADDRESS REPLY TO
ALLAN B. BOWMAN
SUPERINTENDENT
LORDSBURG MINES
BOX-X LORDSBURG, N. M.

FEB 13 12 31 PM '51
DEFENSE MINERALS
WASHINGTON, D. C.
HOME OFFICE
1910 FIRST NAT'L BDG.
OKLAHOMA CITY, OKLA.

Mr. S. H. Williston
Director, Supply Division
Defense Minerals Administration
Washington 25, D. C.

Lyon
2-19-51
dma
269

Re; D. M. A. Docket #269 -- Banner Mining Company-Arizona

Dear Mr. Williston:-

Please refer to my letter of February 11, 1951 regarding our application for aid on behalf of the Mineral Hill and Twin Buttes Mines Southwest of Tucson, Arizona.

I have just received Dr. Harrison Schmitts' report on the Mineral Hill mine and am enclosing a copy of same which is to be made a part of our application on this mine.

I hope you will be able to give our amended application your prompt attention.

Yours very truly

BANNER MINING COMPANY

A. B. Bowman

A. B. Bowman, Sup't.

LANDON F. STROBEL

BANNER MINING COMPANY

POST OFFICE BOX-X

LORDSBURG, NEW MEXICO

February 11, 1951

ADDRESS REPLY TO
ALLAN B. BOWMAN
SUPERINTENDENT
LORDSBURG MINES
LORDSBURG, N. M.

HOME OFFICE
1918 FIRST NAT'L BLDG.
OKLAHOMA CITY, OKLA.

FEB 18 7 59 PM '51
BUREAU OF MINES
WASH. D. C.

Mr. S. F. Williston
Director, Supply Division
Defense Minerals Administration
Washington 25, D. C.

2-19-51
Williston
reply.

Re: D. M. A. Docket #269 Banner Mining Company- Arizona

Dear Mr. Williston:-

I have just received your letter regarding our application for assistance under the Defense Production Act of 1950 for the Mineral Hill and Twin Buttes mines. These mines are located Southwest of Tucson, Arizona.

In our application on these mines, I was anticipating the inevitable higher future costs in figuring the amount of aid necessary. It was our experience during World War II that if we waited until higher costs were upon us before asking for aid, that generally costs had gone much higher than the application called for before action could be taken by the government agency involved. As a result we generally came out on the small end.

The escalated floor price you mention in your letter will no doubt take care of this condition of higher future costs.

I have consulted with the officials of our company and we are all willing to proceed with the project as set forth in our application but amending the part asking for above market prices to read "at market prices" provided that the escalated floor price clause to cover possible future cost increases is inserted.

The labor supply at the mines is good at present and I am sure we can get this project in motion in a very short time. I have taken options on buildings, pumps and other necessary machinery since making our application and have already saved some money over present costs. I wish to call to

attention the fact that the power company here in Tucson have advised me that they have the necessary supplies and equipment to build these lines and sub-stations at present. How long this situation will exist is problematical. I feel that it would be wise to tie up this source of power just as soon as we are certain the project will be approved so as to insure a good power source.

We have had Dr. Harrison Schmitt of Silver City, New Mexico make an examination and a report on the Mineral Hill Mine in support of our application for aid and I will forward it to you just as soon as it is received. I can say at present that he was favorably impressed and will give a favorable report.

We have operated at Lordsburg, New Mexico for over 15 years on ores that will average 3% or less so we feel we are well equipped to handle the problems involved in operating low grade copper mines and mills.

I trust that this amended application will receive your early approval as I am certain that an early start will help us to hold costs within limits of the application.

Please send any future correspondence on this subject to me at 2042 Conner Stravenue, Tucson, Arizona.

If there is any further information you require kindly advise.

Yours very truly

BANNER MINING COMPANY

A. B. Bowman, Sup't.

January 19, 1951

Re: Docket No. DMA-269
Banner Mining Co.
New Mexico.

Memorandum

To: Operating Committee, DMA

From: Copper Commodity Committee

Subject: Application on Twin Buttes and Mineral Hill near Tucson, Arizona.

The critical feature of this application is the request for a premium price of six cents a pound on all copper produced. Since we have not yet had to negotiate over-the-market contracts it is recommended that this particular feature be rejected.

However, the property has considerable merit as a DMA project and it is hoped that the applicant can and will revise his terms. A proposed letter to the applicant is attached.

J. K. RICHARDSON

J. K. Richardson, Chairman
Copper Commodity Committee, DMA

Attachment

For Approval:

JKRichardson:jkd
cc - Strobel
Copper Commodity Committee
Files

Chairman, Operating Committee

O. N. Rove

J. H. Hedges

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

January 19, 1951

Re: DMA - 269
Banner Mining Co.,
Arizona

Mr. A. B. Bowman
Superintendent, Lordsburg Mines
Banner Mining Company
P. O. Box - X
Lordsburg, New Mexico

Dear Mr. Bowman:

Your application for assistance under the Defense Production Act of 1950 on behalf of the Mineral Hill and Twin Butte mines, southwest of Tucson, Arizona, has been assigned the docket number above and has been considered by the Copper Branch.

First, we wish to compliment you on a well-prepared application which appears to offer a very worthwhile project.

One feature of your present application which would slow down consideration of it is your request for above market price. We are still working on assistance applications that only require market prices. Later we will be forced to consider others.

Is there any possibility of your proposing other terms that would eliminate this feature? Many substantial applications have been received on the basis of market quotations (currently 24½ cents) with an escalated floor price which would cover possible future cost increases.

We will be very much interested to hear from you further.

Sincerely yours,

S. H. WILLISTON

S. H. Williston
Director, Supply Division

JRRichardson:spd

Cc - Mr. East, Ex. Off., Field Team IV
Mr. Strobel - 4623
Copper Commodity Committee - 3425
Files

FILE COPY
SURNAME:

Richardson
Strobel

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

January 9, 1951

Hon. Clinton P. Anderson

United States Senate

Banner Mining Co.

A. B.

My dear Senator Anderson:

The applications referred to by Mr. Bowman were forwarded to our Copper Branch on January 5 where they will be given every consideration for assistance.

The Banner Mining Company, as you so ably point out, has a splendid record of production performance and able management. I can assure you that they will be shortly contacted by our field team for checking of estimates and other essential data needed to determine the feasibility of these projects.

With warmest and kindest personal regards to you, I am

Sincerely yours,

JAMES BOYD

Administrator

cc - J. K. Richardson
L. F. Strobel
Files

851.8

Defense Minerals Administration

ELMER THOMAS, OKLA., CHAIRMAN
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United States Senate

COMMITTEE ON
AGRICULTURE AND FORESTRY

January 3, 1951

answ'd 1/9/51 by JMR.

Dr. James Boyd
Director, Bureau of Mines
Department of the Interior
Interior Building
Washington, D. C.

Dear Dr. Boyd:

I am enclosing for your attention and consideration a letter which I have just received from the Banner Mining Company of Lordsburg, New Mexico, which will be self-explanatory.

These are really very fine people and have had a long, hard struggle to keep their mines going when the production of copper was so vitally necessary. I hope you will do everything possible to try to help them. I will be glad to have your comments with the return of the attached letter.

Sincerely yours,

Clinton P. Anderson

Clinton P. Anderson

CPA-VLFw

BUREAU OF MINES
WASHINGTON, D. C.

JAN 5 8 54 AM '51

BANNER MINING COMPANY

POST OFFICE BOX-X

LORDSBURG, NEW MEXICO

ADDRESS REPLY TO
ALLAN B. BOWMAN
SUPERINTENDENT
LORDSBURG MINES
BOX-X LORDSBURG, N. M.

December 31, 1950

HOME OFFICE
1910 FIRST NAT'L BLDG.
OKLAHOMA CITY, OKLA.

Hon. Clinton P. Anderson
U. S. Senate Building,
Washington, D. C.

Dear Mr. Anderson:-

I have your letter of December 26th. in which you state the government is urging the mining industry to do all that it can to increase the supply of raw materials essential to the defense effort.

Our company, The Banner Mining Company here at Lordsburg, is in a particularly good position to aid the defense effort by increasing production of copper which is in critical supply at the present time.

During the last war we were urged by the War Production Board to increase production at the expense of normal development and exploration work with the promise that if we would do this at that critical time the government would help us at a later date. Senator Anderson, we produced and sold through normal channels our total developed ore reserves in the Bonney Mine at prices which would not have given us a profit had we done regular development and exploration work at the same time. We actually lost about $ 270,000.00 by aiding the defense effort. Then when our developed reserves were gone we were told the government could get copper cheaper elsewhere than by aiding us in developing new reserves. This about put our company on the rocks and we have struggled along without a dividend to the stockholders from 1943 to 1950.

Mr. Grimes, the President of our company, and I went to Denver on December 18th. and presented two projects to Mr. J. H. East Jr., Regional Director of the Bureau of Mines (1) Asking for a Development and Exploration project at our Miser's Chest Mine at Lordsburg and for an immediate increase in the price of copper to meet advancing costs and (2) a Reopening, Development and Exploration Project at the Mineral Hill and Twin Buttes Copper Mines just South of Tucson, Arizona.

Here at Lordsburg we are mining and milling 200 tons of copper ores daily of marginal grade and have a capacity in our mill for 400 tons per day. With the aid requested we are certain we can increase our ore reserves to a point where we can produce for a number of years and without which we will be forced to close soon because we cannot now meet the labor rates of nearby mines and other costs and still make a profit.

The Mineral Hill Mine, just sixteen miles south of Tucson on a highway and only one mile from power, according to the best records obtainable has

about 500,000 tons of 3% copper ores partially blocked out. Only a portion of this property has been explored. I think if properly developed it will produce millions of tons of copper ore.

We also control the Minnie, Morgan, Copper Glance, Copper Queen and Copper King Mines at Twin Buttes, Arizona which lie just seven miles South of the Mineral Hill Mine over good roads. These mines had a total production, which was mainly copper, of over $ 9,000,000.00. They have not operated on a large scale since the first world war. The Bureau of Mines made a report on these mines during the latter part of World War II and suggested that considerable work be done there to open up ores for a Flotation Mill. Dr. Harrison Schmitt of Silver City also made a report on these mines in which he estimates that 1,000,000 tons of ore similar to that already produced from these mines is geologically possible.

We feel that these two groups of mines will, if properly developed, produce ores for many years and will make it possible to erect a concentrating mill in this district with a capacity of at least 300 tons daily.

The Bureau of Mines and the War Production Board has paid us compliments on our ability as mine and mill operators.

The projects mentioned above were presented to the Bureau of Mines in detail at their Denver Office together with all available Engineering, Geological reports and maps. We have almost enough equipment on hand to outfit the Mineral Hill Mine for production.

We are not too well acquainted with procedures in Washington and would appreciate any help or suggestions you can give us in expediting the needed aid. If you think adviseable, I could come to Washington to present our case in person to the proper officials.

We have produced and milled a total of 1,600,000 tons of marginal copper ores from our Lordsburg properties. At the present time we have 115 men on our payroll in Lordsburg.

Thanking you very kindly for your interest in us, I am,

Yours very truly,

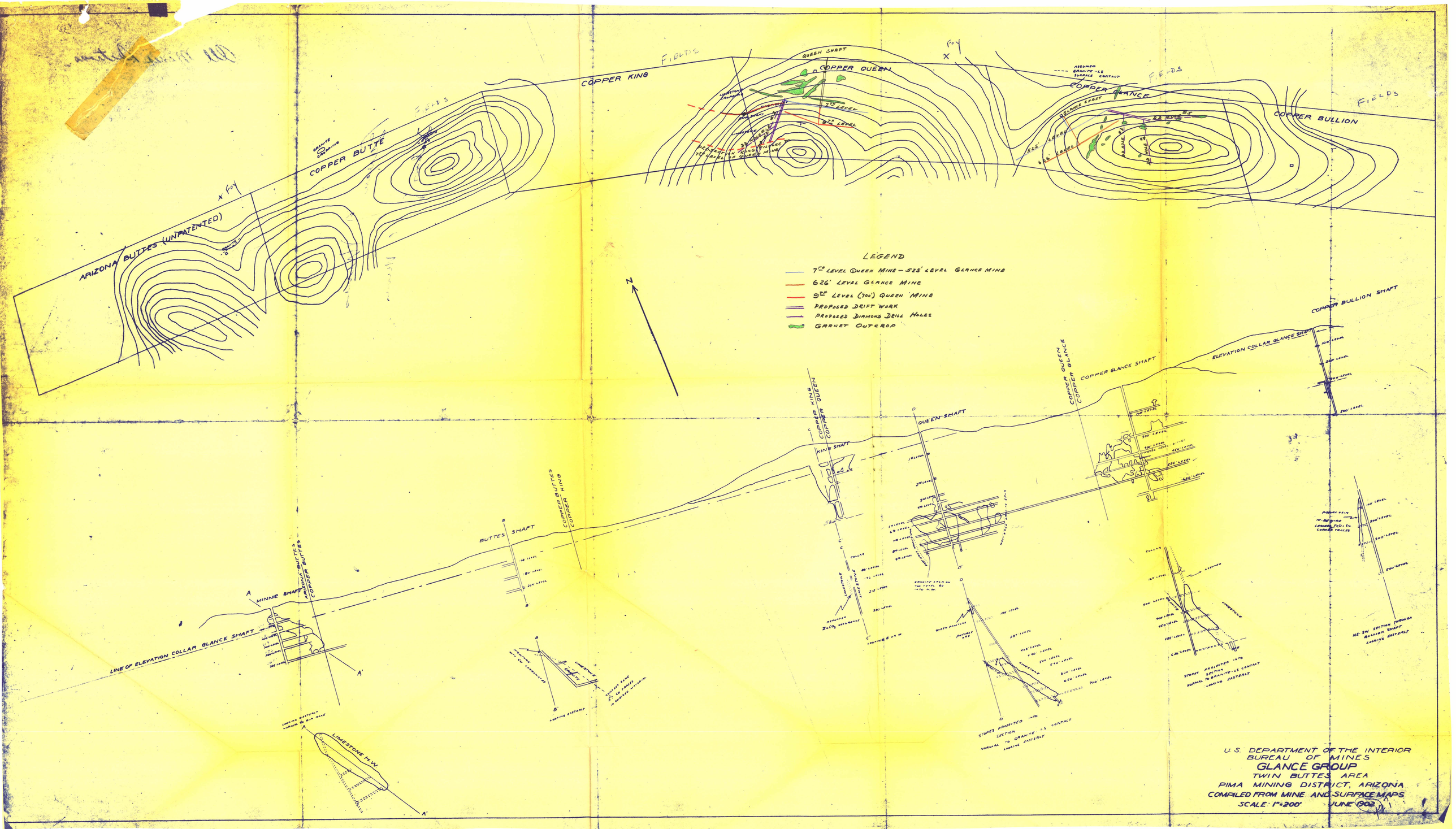
Banner Mining Company

By A. B. Bowman

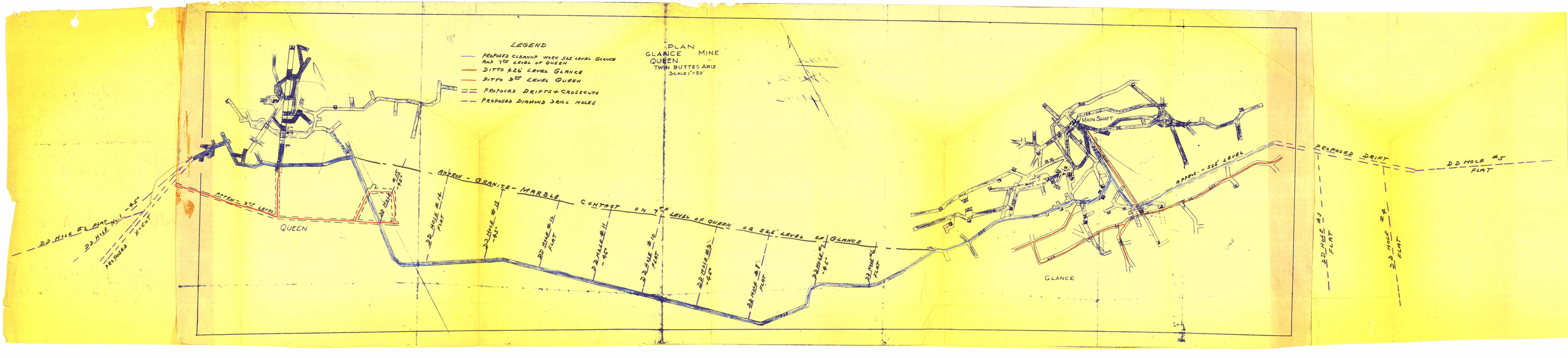
A. B. Bowman,
Superintendent.
Lordsburg Mines.

ABB:fmb

CC - F. I. Grimes - Oklahoma City, Oklahoma.
L. L. Travis - Longview, Texas



U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
GLANCE GROUP
TWIN BUTTES AREA
PIMA MINING DISTRICT, ARIZONA
COMPILED FROM MINE AND SURFACE MAPS
SCALE: 1" = 200' JUNE 1902


PLAN
GLANCE MINE
QUEEN
TWIN BUTTES ARIZ
SCALE 1" = 50'
LEGEND
PROPOSED CLEANUP WORK 526' LEVEL GLANCE AND 7TH LEVEL OF QUEEN
DITTO 626' LEVEL GLANCE
DITTO 3RD LEVEL QUEEN
PROPOSED DRIFTS + CROSSCUTS
PROPOSED DIAMOND DRILL HOLES
APPROX - GRANITE - MARBLE CONTACT ON 7TH LEVEL OF QUEEN OR 526' LEVEL OF GLANCE
APPROX - 3RD LEVEL
QUEEN
DD HOLE #2 FLAT
DD HOLE #1
PROPOSED X-CUT
DD HOLE #14 FLAT
DD HOLE #13 -45°
DD HOLE #12 FLAT
DD HOLE #11 -45°
DD HOLE #10 FLAT
DD HOLE #9 -45°
DD HOLE #8 FLAT
DD HOLE #7 -45°
DD HOLE #6 FLAT
MAIN SHAFT
APPROX - 526' LEVEL
GLANCE
PROPOSED DRIFT
DD HOLE #5 FLAT
DD HOLE #3 FLAT
DD HOLE #4 FLAT