Form NSRB-146
(Nov. 1950)

UNITED STATES GOVERNMENT

APPLICATION FOR GOVERNMENT LOAN UNDER SEC. 302 OF DEFENSE PRODUCTION ACT OF 1950

FORM APPROVED
BUDGET BUREAU NO. 25-R002

AMOUNT OF LOAN REQUESTED

TERMS OF LOAN REQUESTED

DATE OF APPLICATION

TO BE FILLED IN BY DELEGATE AGENCY

(DATE RECEIVED)

COMM.

AGRIC.

INT.

D.T.A.

FILE NO.

NAME AND ADDRESS OF APPLICANT (Street, City, Zone, State)

U. S. COPPER AND OIL COMPANY
3033 N. Humboldt Avenue
Milwaukee 12
Wisconsin

INSTRUCTIONS

Application should be filed with the Department of Commerce, Department of Agriculture, Department of Interior, or the Defense Transport Administration, whichever has the primary interest in the facilities, products, or processes involved. However, for convenience of the applicant, he may file with any government agency with which he has contract or other pertinent relationships and such agency will arrange for the transmittal of the application to the appropriate office.

Submit four (4) signed copies of the application. Name and address of applicant should be stamped or typed for identification of each sheet of the application and all accompanying papers. When a question is inapplicable, this should be so stated on the form. Additional sheets may be attached in answering any questions or in providing other supporting information.

1. PURPOSE OF LOAN

Give a brief general statement of the purpose of the loan requested, including in the table below estimated amounts for such major purposes as land acquisition, building construction, purchase of plant, purchase of equipment, working capital, repayment of debt, etc. Statement should make clear whether funds will be used for expansion of capacity, development of technological processes, or production of essential materials.

General Statement

Funds required to mine and produce manganese ore, including machinery, equipment and tools necessary therefor and camp buildings and other structures, and working capital.

NATURE OF EXPENDITURE	AMOUNT
CAPITAL SCHEDULE:	
Surface construction, mine buildings, camp, water supply, ore bins	$15,000.00
Mining Machinery & Equipment -	
4 drifters, 3 jack hammers, 3 stopers, mechanical mucker, 9 tram cars	8,000.00
2 Compressors, diesel power, portable	10,000.00
Electric power plant	1,000.00
Shop tools and equipment	2,500.00
Truck and pick up, and 2 - 10 Yd. trucks	24,000.00
Continued on separate sheet. Carried Total amount applied for Fwd.	60,500.00

U. S. Copper and Oil Company, Milwaukee, Wisconsin

BROUGHT FORWARD		$ 60,500.00
EXPENSE SCHEDULE		
Surveying and Engineering	$ 5,500.00	
Road Construction	4,000.00	
Trenching and excavating	3,000.00	
Tunnel and level workings	70,000.00	
Main raise	12,000.00	
Sampling and assaying	3,500.00	
Supervision, administrative routine engineering, legal, mess hall and camp operation, repair and maintenance of equipment and trucks, etc. estimated for 4 months	25,000.00	123,000.00
CAPITAL EQUIPMENT FOR FULL SCALE PRODUCTION		
Head Frame and ore bins	$ 25,000.00	
Hoist	20,000.00	
Shop and equipment	10,000.00	
Power Plant for 200 H. P. electric energy consumption	25,000.00	
Water supply (tanks, pipe, pumps 1000 g.p.m.)	25,000.00	
Compressed air plant	20,000.00	
Change House, bunk house, commissary	50,000.00	
Timber framing equipment, warehouse	10,000.00	
Surface equipment, diesel power crane	30,000.00	
Mine cars, mucking machines, jumbos, tuggers, flushers, mining machinery, skips, mine lighting, etc.	50,000.00	265,000.00
Electric power line to be built by the Mohave Electric Co-operative, Inc., P. O. Box 711, Kingman, Arizona	$ 19,000.00	
Hack Concentrator to be supplied by Hack Machine Co., 549 West Washington St. Chicago, Illinois	100,000.00	
Sintering Hearths by The Mace Co., Denver 5, Colorado	40,000.00	159,000.00
Operating Capital		100,000.00
First payment on Mining Lease and Option contract		9,500.00
TOTAL AMOUNT APPLIED FOR		$717,000.00

2. **PROPOSED METHOD FOR REPAYMENT OF LOAN**

State sources of funds, and proposed schedule of repayment

From the sale of manganese, net proceeds to be used in payment of loan.

Five yearly payments with interest, first payment to be made one year after day of loan.

3. **NATURE OF BUSINESS AND DESCRIPTION OF PROJECT**

Describe fully the business activity for which the funds are intended. In so doing, identify the materials and services to be produced, describe the facilities and processes involved, and explain in detail any research activity and the nature of the results expected. Attach blueprints and specifications, if available, and furnish other technical details to the extent that they are not covered elsewhere in the application.

The mining and reduction of manganese ores, for Government stock piling and other demands, and the use of modern mining methods, the Mack Concentrator and the Mace Sintering Hearths to produce manganese for shipping.

4. **Relationship to National Defense.** Explain carefully how the expenditure of the funds will contribute to national defense. As a part of such explanation, the following questions should be answered to the extent possible:

(a) What evidence exists as to current shortages of the materials or services to be produced?

Government records and authentic reports show the need of manganese for general and emergency demands.

(b) What evidence exists as to future shortages of the materials or services to be produced?

U. S. manganese deposits must be developed quickly to forestall enemy action and to meet present emergencies.

(c) Are such shortages, if any, regional or national in scope?

NATIONAL

(d) In what respects will the use of the funds aid directly in expediting the carrying out of government defense contracts? (A listing of defense contracts, if any, held by applicant is required in item 8 below.)

Aiding in production of products requiring manganese as an alloy and the existing need of the same.

4. **Relationship to National Defense** - Continued

(e) In what respects will the use of the funds aid indirectly in expediting the carrying out of government defense contracts or related operations?

By supplying for use a greatly needed and essential alloy vital to industry.

(f) Are there available alternative methods or facilities to accomplish the same purpose as that for which these funds are intended? (For instance, unused capacity, possibility of multiple shift operations, idle facilities, readily convertible equipment, sub-contracting?) If answer is yes, explain why alternatives are not used.

NO.

5. **Maximum Designed Production**

List separately materials or services identified in item 3 (a)	Unit of measure (b)	Maximum designed production with existing facilities (c)	Average percentage of maximum designed production used in quarter preceding filing of application (d)	Maximum designed production including use of funds applied for (e)
Manganese ore	Long T.	X	X	100 T per day

6. **Employment**

(a) Number currently employed at location(s) where funds are to be used. (Use pay period ending nearest 15th of month preceding filing of application.)

Surveying by engineers and geologists. Two (2)

(b) Maximum feasible employment with existing facilities.

(1) Single shift operation.

Incidental to surveys and reports to be made.

(2) Multiple shift operation (specify how many shifts).

NONE

(c) Estimated additional employees required by the use of the funds applied for. **FORTY (40)**

7. **Timing**

(a) On what date(s) are the requested funds needed?

All of the loan as soon as possible.

(b) On what expected date(s) will applicant begin to use such funds and obtain output from the use of such funds? Wherever possible, give planned schedule of output.

Immediately on receipt of funds, work will begin to construct the camp buildings, to build necessary roadway, lay tramways, install crane with clam shell bucket, start open pit mining prior to sinking shaft, begin stock piling ore within 30 days and 3 months thereafter the concentrator will be put in use. At the end of 4 months a regular production of 100 tons of ore will be attained, per day.

8. Output from the use of funds applied for will be for the following purposes:
a. For the following principal prime defense contracts (if any) with the United States Government:

Date of contract (a)	Contracting Government Agency (b)	Program symbol (2 digits) or other contract identification (c)	Materials or services (d)	Delivery date(s) (e)	Amount *(Dollars)* (f)
	Production for government and defense purposes.				

b. For the following subcontracts (if any) with U.S. Government prime defense contractors:

Date of contract (a)	Materials or services (b)	Supplied to *(Give name and address of firm)* (c)	Delivery date(s) (d)	(e) Government agency receiving end product or services (f) Program symbol (2 digits) or other contract identification	Amount *(Dollars)* (g)
		As above Pending production		(e) (f)	
				(e) (f)	
				(e) (f)	

c. For the following classes or types of customers not covered by contracts listed above (list materials or services to be provided and, wherever possible, also indicate final product use):

To authorized users, for defense and commercial purposes.

9. **Feasibility**

(a) Estimate anticipated requirements for manpower, equipment, raw materials, energy, fuel, transportation facilities, water supply, housing, community facilities, and other factors of production, for (1) preparation of the facilities and (2) actual operation thereof. (The estimates may be limited to those factors of substantial significance to the preparation and operation of the facilities for which the funds are intended.)

Machine operators, miners, laborers, foremen, managers, engine operators, cranesmen.

Electric power proposed under negotiations.

Fuel oil for sintering process.

Hired trucks for transportation of sintered material to the rails 40 miles to Santa Fe R.R.

Operation - Mining, Concentrating, sintering, transporting.

(b) Discuss and evaluate the availability of each of the above factors in the area(s) where the funds will be used.

Electric power can be brought in by the Mohave Electric Co-operative, Inc. P. O. Box 711, Kingman, Arizona. $19,000.00
Fuel oil to be hauled in by motor-tank trucks.
Mack Concentrators, 100 T. Capacity will be supplied by the Mack Machine Co., 549 W. Washington St., Chicago, Ill. Est. installed 100,000.00
Sintering Hearths, by The Race Company, Denver 5, Colorado, Est. installed 40,000.00
Transportation by motor trucks has been tentatively arranged for at 10¢ per ton mile.
Miners and laborers can be obtained locally, at prevailing rates.

10. The following applications for necessity certificates for tax amortization (Under Section 124A of the Internal Revenue Code) for facilities at the location(s) covered by this application have been filed since January 1, 1950.

Date of application (a)	Government file number (b)	(Estimated) Total of facilities in dollars on each application (c)	(d) If final action has been taken, give date of	
			Issuance	Denial
	NONE FILED			

11. **Recent Efforts to Obtain Credit**

(a) Banks—List names and addresses of all Banks of Deposit of Applicant within the last 5 years: *(Mark with an asterisk (*) bank or banks in which deposits are now kept)*

The CITY BANK AND TRUST COMPANY, 735 N. Second St., Milwaukee 3, Wisconsin, in which we carry a checking account. No credit requested except for a loan for operating our manganese claims.

THE CITY BANK AND TRUST COMPANY

735 N. SECOND STREET
MILWAUKEE

March 5th, 1951

United States Copper & Oil Company
Milwaukee, Wisconsin

Gentlemen:

Our Loan Committee has considered your request for a $1,500,000.00 loan for the purpose of acquiring land for concentrating plant and equipment in addition to some mine development, to run for a period of five years, in connection with your properties located in Arizona.

We regret to advise you that the Bank's loaning policies do not permit extension of credit for the purposes outlined.

Yours very truly,

President

WmBFrank-FF

HOME SAVINGS BANK

N. THIRD STREET AT W. GARFIELD AVENUE

MILWAUKEE, WIS.

March 5, 1951

Mr. George S. Ankarlo, President
U. S. Copper & Oil Co.
3033 North Humboldt Avenue
Milwaukee 12, Wisconsin

Dear Mr. Ankarlo:

We have considered your request for financing of development of U. S. Copper & Oil Co. properties; however, upon consideration of it we do not feel that this bank can advance monies and make loans for the development of such properties. This is essentially financing of a capital nature and this should not be done by our bank.

The banking structure has been requested by Federal Authorities to curtail its lending activities in the overall fight against inflation and, as this financing is essentially of a capital nature, we regret to inform you of the negative decision of our bank.

Yours very truly,

HOME SAVINGS BANK

Jacobus Kruyne

Jacobus Kruyne

President

JK:dm

11. **Recent Efforts to Obtain Credit** - Continued

(b) State efforts to obtain credit, within 60 days preceding date of application, from banks, the Reconstruction Finance Corporation, or other sources, results, and reasons if refused. (NOTE.- Section 302 of the Defense Production Act of 1950 states that a loan may be extended "only to the extent that it is not otherwise available on reasonable terms." Accordingly, Applicant should show that it has applied to each bank named in (a) above, or explain the reason for not doing so. The fact that a loan of the particular maturity and terms applied for is refused by a bank or banks is not sufficient to comply with the statute, if credit on reasonable terms is available. State whether a bank will participate in the loan, and if so, state name of bank and amount of participation. Full particulars must be given.) List the names and addresses of banks and other lending institutions to which applications for credit have been made, and in each case state date of application, amount of credit available, if any, maximum term for which credit is available, what consideration, if any, was given to possible guarantee of loan under Federal Reserve Regulation V, and reason for refusal or reason loan was not obtained. Indicate whether or not application was definitely refused for further credit on any basis.

Our attorney, Gilbert E. Vandercook, Suite 403, 207 W. Michigan Ave. Milwaukee 2, Wisconsin, made application to *The CITY BANK AND TRUST COMPANY, Milwaukee, Wisconsin, for a loan but it was refused as the banker said they did not make this type of loan.

Private investors have been approached but without results.

We applied to the *Home Savings Bank, 2200-2206 North Third Street, Milwaukee, Wisconsin.

*See attached letters.

12. What other forms of government financial assistance, if any, have been received or requested by the applicant in connection with the purposes of the loan herein applied for? If applicant plans to request such assistance in the future, give details.

No application prior to this.

13. **HISTORY, MANAGEMENT, LEASED AGREEMENTS, INSURANCE, ETC.**

These subjects should be fully covered in statements attached hereto. Outline past management experience or other basis for showing competence of the Applicant to perform in accordance with expressed purpose of the application. If plant was purchased, state price, form and terms of payment, date of purchase, from whom and under what circumstances purchase was made. If it is proposed to construct or acquire new facilities (including equipment), state estimated cost and basis of such estimate, form and terms of payment, and from whom purchases of facilities will be made. State whether Applicant, or the business or plant, has been in receivership, bankruptcy, Chapter X, XI or XII, in hands of creditors, committee, or whether Applicant has effected a compromise with creditors, and if so, discuss fully. Indicate whether business is conducted in leased premises and whether any facilities are leased from others and describe terms of any lease agreements. List type and amount of insurance carried on plant property. Describe briefly any pending or threatened litigation affecting Applicant.

U. S. Copper & Oil Co., Milwaukee, Wisconsin, is a Wisconsin corporation, capitalized for $250,000, the certification of incorporation dated May 19, 1949, for the purpose of owning, leasing and operating mining and oil and other properties, and of conducting any and all transactions connected with such operations. Except for contracts on leases for claims and properties, as set forth in this application for this loan. U. S. Copper & Oil Co. has no debts or due obligations. Herewith are submitted copies of leases and contracts together with engineer's report.

The duly elected president is George S. Ankarlo, with approximately thirty years of work and experience in engineering and management connected with various industries and with successful service. U. S. Copper & Oil Co. was organized to give force and effect in the mining and development of properties examined and approved of by Ankarlo.

Vice President, W. Merrill Shakoheany. Experienced in business management and personnel work. Is at present partner in a manufacturing plant in Madison.

Secretary-Treasurer, Wallace R. Harris. Wisconsin Registered Professional Engineer S-316, bookkeeper on R. R. Construction. President, two engineering companies, one in U. S., one in Canada, Managing Director, (Canada) writer, author, editor.

14. NAMES AND ADDRESSES OF OFFICERS, DIRECTORS, OR PARTNERS, AND IN ADDITION THERETO, THE FIVE LARGEST STOCKHOLDERS IF A CORPORATION.

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 Applicant (d)	Number of shares held in applicant: Common (e)	Number of shares held in applicant: 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)
Geo. E. Anzarlo	President D	None	50,000.00	35000	x	None	
W.M. Shakshasky	V. Pres. D	none	50,000.00	35000	x	None	
W. R. Harris	Secy-Treas.	None	12,000.00	10000	x	None	
C. S. Deakin	Director	None	75,000.00	35000	x	None	
G. E. Vandercook	Director	None	15,000.00	10000	x	None	
Lloyd Sanders	Stockholder	None	50,000.00	12500	x	None	
	Total		x x x x x			x x x	x x x

15. 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	$ 250,000	$ 137,500	$ 1.00	137,500	None
Preferred stock	$ None	$ None	$ None	None	None

16. PURCHASE AND SALES RELATIONS WITH OTHERS

Does Applicant buy from, sell to, or use the services of, any concern or partnership in which an officer, director, large stockholder, or partner of the Applicant has a substantial interest? If not, so state. If so, give names of such officers, directors, stockholders, and partners, and names of such concerns or partnerships.

No.

Does any officer, director, large stockholder, or partner of Applicant receive any commission, bonus, or other payment in cash or services from any concern or partnership with which Applicant has business dealings? If not, so state. If so, give names of such officers, directors, stockholders, or partners and amounts of such commissions, bonuses, or payments.

No.

17. COMPENSATION SCHEDULE

INSTRUCTIONS: The schedule shall show the amount of compensation being paid to all employees of Applicant receiving compensation at a rate in excess of $10,000 per annum, including employees paid on a part-time basis where the rate of compensation exceeds $10,000 per annum computed on a full-time basis. If Applicant is a corporation, the schedule should show the compensation, regardless of amount, being paid to all officers, directors, and such stockholders as have an interest in Applicant's business of 10 percent or more. If Applicant is a partnership, the schedule should show the compensation being paid to, or being withdrawn by, all partners for their personal use. If Applicant is an individual, the schedule should show the amount being withdrawn by Applicant for his personal use. In each case the listed person's connection with the business should be indicated (i.e., whether an officer, director, stockholder, partner, owner, etc.). The calendar basis for the compensation should likewise be shown. Attorneys or firms of attorneys on a regular retainer or salary basis should be included. The schedule should include a separate notation indicating the source and amount of any compensation being paid by a company or firm directly or indirectly controlling, affiliated with, or controlled by, Applicant. If the space provided herein is insufficient, the schedule should be continued on the reverse side or appropriate continuation sheets should be attached.

ADDRESSES OF OFFICERS, DIRECTORS AND STOCKHOLDER

President,
George S. Ankario
3033 N. Humboldt Avenue, Milwaukee 12, Wisconsin

Vice President,
W. Merrill Shakshesky,
Room 602, 1 Main Street, Madison 3, Wisconsin.

Secretary-Treasurer
Wallace R. Harris,
1420 W. Wisconsin Avenue, Milwaukee 3, Wisconsin.

Gilbert S. Deakin, Director
3065 E. Washington Street, Madison, Wisconsin

Gilbert E. Vandercook,
Suite 403, 207 E. Michigan Street, Milwaukee 2, Wisconsin

Lloyd Sanders, Shareholder,
Madison, Wisconsin

17. **COMPENSATION SCHEDULE** - Continued

The term "compensation", as used herein and such schedule, shall include all salaries, fees, bonuses, commissions, retainers, regular drawing accounts, and other payments, direct or indirect, in money or otherwise, for personal services.

Name (a)	Position (b)	Compensation paid during previous fiscal year (c)	Present compensation (d)
George S. Ankarlo *	President	NONE	$ 12,000.00
W. M. Shakshesky *	Vice President	NONE	5,000.00
Wallace R. Harris *	Secretary-Treas.	NONE	8,000.00
John P. Jordan *	Chief Engineer	NONE	8,000.00
Raymond P. Jones *	Mgr. Operations	NONE	6,000.00

*Compensation as stated above to begin when active work starts at the mine.

18. **COLLATERAL**

(a) The applicant offers the following described collateral as security for repayment of the loan applied for.

Description (a)	Date acquired (b)	Cost (c)	Book Value (Net) (d)	Appraised* value (e)
Property now held:				
Black Diamond Mine (Mn)	Mar. 8, 1951	$800,000.00	3,500,000	See Engineer's Report
Eber Gold Mine	Feb. 19, 1951	24,000.00	125,000	
Hack Contract for concentrating process of ores		100,000.00	500,000	
To be acquired:				

* This column need be filled in only if a recent appraisal has been made. If so, identify appraiser below.

Name (a)	Title (b)	Date (c)

(b) Describe existing liens, if any, on property listed above.

No Liens.

PERFORMANCE AGREEMENT

Memorandum of an agreement entered into by and between U. S. Copper and Oil Company, a Wisconsin corporation, of Milwaukee, Wisconsin, and Frank W. Hack of 549 West Washington Street, Chicago, Illinois, this 5th day of March, 1951.

WHEREAS, the said Frank W. Hack, for himself and associates, is desirous of securing finances for the further development of a dry process of concentration of ores, of which he has the patents pending and is the owner thereof, and for the reconstruction of the apparatus pertaining thereto, said apparatus now being located at Phoenix, Arizona, the said process and machinery being owned by the said Frank W. Hack and known as the Hack Centru-Grav Friation System. Said Hack has developed this process to a state of commercial practicability having expended considerable time and money in its development.

The U. S. Copper and Oil Company is desirous of entering with Hack into an agreement for the sale and use of said process and equipment, and to operate same on mining claims and properties owned and under lease to said company in the development of said mining properties and in the recovery of ores therefrom. Said company offers to finance Hack in the manufacture and further development of said process and equipment. The equipment referred to is substantially represented by blueprints now in the possession of the U. S. Copper and Oil Company.

The considerations for such financial cooperation are as follows:

a. That U. S. Copper and Oil Co. will supply Frank W. Hack with funds, obtained by loan from the U. S. Government or elsewhere, to be used at his discretion to reconstruct the pilot plant now located in Arizona at a cost of not more than $20,000.00 and also supply not more than the sum of $100,000.00 likewise for the construction of one large unit having an estimated capacity of 5 tons per hour of crude ore as per blueprints above referred to. Said funds to be earmarked for these purposes and no other, and shall be made available at the rate of not less than 25% per month as the work progresses, the title to said pilot unit shall remain with Frank W. Hack but maintenance shall be at the expense of the U. S. Copper and Oil Co. The title to any large unit built shall remain with Frank W. Hack until paid for in full.

b. Hack shall undertake this work upon receipt of a written order from U. S. Copper and Oil Co. on the basis of cost plus 15% and shall be authorized to include the sum of One Thousand ($1,000.00) Dollars per month as personal expenses and compensation against said costs.

c. Hack shall, for and in consideration of the above performance by the U. S. Copper and Oil Co. grant to said company a sales license and free rights to sell and use said process and equipment anywhere in the United Stated and Canada, Hack in connection therewith acknowledges receipt of One Thousand One Hundred ($1,100.00) Dollars as a token payment against said sums.

Hack will further grant an exclusive sales and operational license to U. S. Copper and Oil Co. for the territory above mentioned upon receipt of an order from U. S. Copper and Oil Co. for 10 machines at prices then prevailing, with satisfactory provisions for said financing provided by U. S. Copper and Oil Co.

Hack agreed to use every means at his disposal, based upon past tests with the pilot plant, to develop said process and equipment to as high a degree of efficiency as his scientific and mechanical skill can attain, consistant with funds appropriated under this agreement.

Frank W. Hack as a common stock holder of U. S. Copper and Oil Co. concurs in authorizing George Ankarlo as President of said corporation to negotiate with the U. S. Government and others, for funds required to comply with the contract.

Hack reserves the right to build at his own expense and for his own use only, such equipment as he chooses, but in the event of the eventual sale of such equipment such sale shall be consummate through the U. S. Copper and Oil Co. at a commission of 20% of the net selling price.

Nothing in this contract shall be binding upon either party in the event of act of God or war, making performance impossible by either party.

If the U. S. Copper & Oil Co. fail to provide funds as herein provided and in the event of complete collapse of said financial program, then Hack shall be free to cancel said agreement.

Signed in the presence of

Elsie Zenor /s/ /s/ Frank W. Hack (SEAL)

John R. Rosinski Jr. /s/ /s/ George S. Ankarlo (SEAL)
President, U. S. Copper and Oil Company

MINING LEASE AND OPTION CONTRACT

FOR AND IN CONSIDERATION of the sum of Five Hundred and no/100 ($500.00) Dollars, the receipt whereof is hereby acknowledged, Claude K. Neal, Carroll S. Farley, Raymond F. Jones, and Mark Hall, all of Kingman, Arizona, parties of the first part, do hereby give and grant unto U. S. Copper and Oil Company, a corporation organized under the laws of the State of Wisconsin, and duly qualified to do business in Mohave County, Arizona, with principal office at 3033 North Humboldt Avenue, Milwaukee 12, Wisconsin, the party of the second part, the exclusive lease upon and the exclusive right, privilege and option to purchase the lode mining claims hereinafter described, upon the following terms and conditions:

1. PROPERTY: Those certain unpatented lode mining claims, located and situate in the Owens Mining District, Mohave County, Arizona, the names of which and the Book and Page where the location notices thereof are of record in the office of the County Recorder of Mohave County, Arizona, being as follows, to wit:

NAME	BOOK OF MINES	PAGE
SNOWFLAKE	3-V	214
SNOWFLAKE NO. 2	3-W	337
SNOWFLAKE NO. 3	3-W	338
BLACK DIAMOND NO. 4	3-W	277
SNOWFLAKE NO. 4	3-X	483-484
SNOWFLAKE NO. 5	3-X	485-486
SNOWFLAKE NO. 6	3-X	487-488
SNOWFLAKE NO. 7	3-X	489-490
SNOWFLAKE NO. 8	3-X	491-492
SNOWFLAKE NO. 9	3-X	493-494
SNOWFLAKE NO.10	3-X	495-496

2. PURCHASE PRICE: Eight Hundred Thousand ($800,000.00) Dollars payable in installments as follows:

$500.00 in cash on the execution of this agreement, as aforesaid;

$9,500.00 on or before April 22, 1951;

Thereafter, independent of production or as royalties from production, not less than One Hundred ($100.00) Dollars on or before the 22nd day of each of the months of May, 1951, June, 1951, July, 1951, and August, 1951; commencing thereafter on or before September 22, 1951, not less than Five Hundred ($500.00) Dollars and not less than Five Hundred ($500.00) Dollars on or before the 22nd day of each calendar month thereafter until the total purchase price shall have been paid.

It is understood that the minimum monthly royalty payments are to be made for each month, regardless of whether or not production during any month of the life of this contract results in a royalty for any such month in excess of the minimum amount required hereby; in the event the earned royalties during any one month are less in amount than the minimum herein provided for, second party shall be obligated to independently pay the deficiency. All payments, independent or earned, shall apply on the purchase price.

3. POSSESSION AND OPERATION: Second party is granted the immediate possession of said premises and the right to operate and work the same and extract the ores therefrom, provided the same is worked and operated in a minorlike fashion, timbering all

workings where necessary, and with the view of developing said property into a workable mine, and all mine openings shall be kept clear of obstructions and in a condition so that they can be entered.

4. ROYALTIES: There is hereby reserved, and second party agrees to pay, a royalty of Ten Per Cent (10%) of the gross value of all ores extracted, milled and/or smelted from said property, and said royalties shall be paid monthly as follows: The royalty from proceeds of ores removed from the property by second party during a calendar month shall be settled for on or before the 22nd day of the month following, and all such payments shall apply on the purchase price; but if such royalties exceed the minimum monthly payment, the excess shall not apply on the minimum payment for the succeeding month. Royalties payments shall be accompanied by true copies of the settlement sheets and a monthly report of mind development and production.

By "gross value" is meant the assay value without any deduction whatsoever.

5. ESCROW DEED: Upon written demand by second party, parties of the first part agree to execute and cause to be placed in escrow, in The Valley National Bank, Kingman, Arizona, a good and sufficient mining deed, transferring said mining claims and property to said party of the second part, free and clear of all encumbrances, and said deed shall be held by said Bank in escrow and delivered to the said party of the second part upon the full

payment of said purchase price, at the time and in the amount and manner in this agreement specified.

Second party agrees to make, execute and deliver to said escrow agent a quit-claim deed, conveying all of its interest in said premises and property to first parties, with instructions to deliver same to them in the event of the termination of this agreement.

The parties hereto hereby agree to make and execute such other instructions as may be demanded by said escrow agent.

Until such time as said escrow may be opened, all payments made hereunder shall be paid to first parties direct, c/o said Claud K. Neal, Hackberry, Arizona; thereafter payment to said escrow agent shall constitute payment under this contract.

6. TAXES: The party of the second part hereby agrees to pay all taxes hereafter lawfully levied and assessed against said property prior to delinquency, and second party further agrees to promptly pay all taxes on any output of the mine during the life of this agreement, as well as Social Security, Unemployment, Income Tax Withholding and other taxes which may be imposed on its operations, so that same may never become a charge against the property itself or first parties.

7. MACHINERY REMOVAL: All machinery, equipment, ore bins and tools placed in or upon said property by said party of the second part during the life of this contract, except headframe, laid car tracks, pipe and underground timbering, shall be subject to removal by second party in the event of a termination of this

contract by default or abandonment on its part, but such removal shall be made within thirty (30) days after such termination.

8. NOTICE OF NON-LIABILITY: Party of the second part shall at no time during the life of this option incur any debts or liens against said property, or any part thereof, and shall at all times keep the same free and clear and shall immediately record and post, and keep posted, notice of non-liability in the manner by law required, which notices will be furnished by first parties.

9. ACCESS TO WORKINGS AND RECORDS: Parties of the first part, and/or their duly authorized agent, shall, during the life of this contract, have free access to all the workings on said premises and the mill and mining books and records appertaining to same, all of which shall be without unreasonable inconvenience to the party of the second part.

10. INDUSTRIAL INSURANCE AND MINE REGULATIONS: Party of the second part shall at all times, at its own expense, carry Arizona Industrial and Occupational Disease Disability insurance upon all workmen employed in or upon said property and shall also comply with all requirements and regulations of the Arizona Industrial Commission and the Arizona State Mine Inspector, and of all the labor laws of the State of Arizona.

11. REPRESENTATIONS: Party of the second part declares it has entered into this option contract relying on its own knowledge or judgment of said mining property and not upon any representations made by the first parties, or their agents or representatives, touching the merits, character or quality thereof, except

that first parties do represent that the title to said property is valid and that such title is marketable and free and clear of any and all encumbrances, save and except for the paramount title of the United States, it being understood said mining claims are unpatented.

12. ASSIGNMENT OF OPTION: Party of the second part shall notify parties of the first part, in writing, of any assignment made of this lease and option or any interest herein, giving the date and name and address of the party to whom assigned.

13. NATURE OF THIS CONTRACT-Essence: Time is of the essence of this contract, and the terms thereof shall extend to and be binding upon the heirs, executors, administrators, successors and assigns of the respective parties hereto. This agreement is and shall be construed as a continuing option at all times to and until the payment of the final amount due or to become due upon said purchase price, and is not a sale, nor is it a contract for the conveyance of real property, but merely grants to second party the exclusive right and privilege to operate and purchase and does not vest in it any title to the property whatever, and any down payment or intervening or intermediate payments, whether in the form of royalties, installments payments, or otherwise, or the deposit of an escrow deed at any time during the life of this agreement, shall not be, nor shall it or they be construed as, an exercise of this option or as a conversion of same into a contract of sale obligating said party of the second part to pay the balance or any part of said purchase price.

14. DEFAULT: In the event second party shall default in the payment of said purchase price, or any of the installments thereof, in the manner hereinabove provided, or shall in any manner violate the terms and conditions hereof, said first parties may, at their option, terminate this contract on thirty (30) days written notice to second party, and if second party fails to make good such default or any other violation of this contract before the expiration of said thirty (30) days, then this contract shall thereupon become null and void and of no further effect, and all monies theretofore paid under this contract and all non-removable improvements placed on the property by second party, except as above specified, shall be and remain the property of said first parties as rent for the use and occupancy of said premises, as liquidated damages and as the consideration for which this agreement is executed.

Said notice may be given by registered mail directed to said second party, or its assigns, at its post office address as shown herein, and said thirty (30) day period shall run from the date of mailing said notice in any United States Post Office in Arizona.

Provided, further, that if second party defaults this contract, fails to make good such default, and further fails to remove such equipment and property as he is permitted hereunder, in such event, to remove, such equipment and property shall, upon the expiration of the removal period, be and become the property

of the first parties, as additional rental and liquidated damages. However, before it may remove same, full settlement shall be made with first parties for all earned royalties, a first lien being hereby impressed upon second party's removable equipment, tools and supplies, as security for the payment thereof. In the event of default, it is further agreed that all ores broken by second party and on the premises at the time of default shall be and belong to the first parties as a party of the realty.

If second party fails to remedy such default, within the time herein specified, the first parties may then re-enter the possession of said property and remove all persons therefrom, wither with or without process of law, all damages for such re-entry being hereby waived.

Provided, further, that if the payment due April 22, 1951, is not made, this contract shall forthwith thereupon terminate and be and become null and void without any notice whatsoever, and, in such event, if second party has entered into the possession of the property, it covenants and agrees to surrender possession thereof to first parties and leave the same in as good a condition as they now are, reasonable wear and tear excepted.

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be duly executed, in triplicate, this 3rd day of March, 1951.

/s/ Carroll S. Farley

/s/ Claude K. Neal

/s/ Raymond P. Jones

/s/ Mark Hall
(Parties of the First Part)

U. S. COPPER AND OIL COMPANY

/s/ George S. Ankarlo
President (Party of the Second Part)

ATTEST:

Wallace R. Harris
Secretary

STATE OF ARIZONA }
COUNTY OF MOHAVE } SS

On this 3rd day of March, 1951, before me, Charles P. Elmer, the undersigned officer, personally appeared Claude K. Neal, Carroll S. Farley, Raymond P. Jones and Mark Hall, known to me to be the persons whose names are subscribed to the within instrument, and acknowledged to me that they executed the same for the purpose and consideration therein contained.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal.

/s/ Charles P. Elmer
Notary Public

My commission expires December 30, 1954.

STATE OF WISCONSIN }
COUNTY OF MILWAUKEE } SS

On this 8th day of March, 1951, before me, Martin Gedler, the undersigned officer, personally appeared George S. Ankarlo, who acknowledged himself to be the President of U. S. Copper and Oil Company, a corporation, and that he, as such President, being authorized so to do, executed the foregoing instrument for the purpose and consideration therein contained, by signing the name of the corporation by himself as President.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal.

/s/ Martin Gedler
Notary Public

My commission expires December 13, 1953.

EXHIBIT A - CURRENT FINANCIAL STATEMENT

As of _____

(Date not more than 30 days prior to date of application)

ASSETS

CURRENT ASSETS

1. Cash in City Bank & Trust Co. as of today			$ 1,321.61
2. Notes receivable		$ NONE	
Less reserve for doubtful notes			
3. Accounts receivable:			
Current	$ NONE		
Past due not over 4 months	NONE		
Past due over 4 months	NONE	$	
Less reserve for doubtful accounts		NONE	
4. Inventories:			
Raw materials	$ NONE		
Work in process	NONE		
Finished goods	NONE	$	
Less reserve for inventory losses		NONE	
5. Other current assets (describe)		NONE	
TOTAL CURRENT ASSETS		NONE	$

FIXED AND OTHER ASSETS

6. Plant used in business:			
Land Incl. in mine values	$		
Buildings	NONE		
7. Machinery	NONE		
8. Equipment, furniture, and fixtures	NONE	$	
Less reserve for depreciation	NONE		
9. Investments—stocks and bonds			NONE
10. Investments in affiliated companies			NONE
11. Receivables due from affiliated companies			NONE
12. Real estate not used in business			NONE
13. Due from officers, directors, employees, stockholders			NOTHING
14. Deferred charges			NONE
15. Other assets			NONE
TOTAL ASSETS			$ 1,321.61

LIABILITIES

CURRENT LIABILITIES

16. Notes payable (see schedule 1, page 10):			
Banks		$ NONE	
Trade creditors		NONE	
Officers, stockholders, relatives		NONE	
Insurance companies		NONE	$
17. Accounts payable		NONE	
18. Other current liabilities:			
Delinquent taxes — Real estate		$ NONE	
Delinquent taxes — Federal		NONE	
Wages and salaries		NONE	
Due officers		NONE	
Accrued interest, rent, taxes, wages, etc		NONE	
TOTAL CURRENT LIABILITIES			$ NONE

FIXED AND OTHER LIABILITIES

19. Machinery liens			NONE
20. Mortgage debts (see schedule 2, page 10)			NONE
21. Bonds or debentures (see schedule 2, page 10)			NONE
22. Other liabilities			NONE

NET WORTH

23. Common stock (if Applicant is incorporated)		$ NONE	
24. Preferred stock (if Applicant is incorporated)		NONE	
25. Surplus (if Applicant is incorporated)			NONE
26. Capital and Surplus Account (if Applicant is partnership or individual)			NONE
TOTAL LIABILITIES			$ NONE

27. Contingent liabilities (explain) _____ $

NOTE.— Submit copy of last available audit or of financial statement at close of last fiscal period (if such date differs from date of above statement).

SCHEDULE I - Notes Payable (in detail)

Name and address	Maturity	Amount	State amount and character of collateral	Name of guarantor(s) and/or endorser(s)
NONE				

SCHEDULE 2 - Mortgage Debt (real estate and/or chattels) or Bond Issue

Names and addresses of holders	Date of maturity	Interest rate	Unpaid principal amount	Date to which interest is paid
NONE			$	
TOTAL	X X X X X X X	X X X X X X	$	X X X X X X X X X X X X X X X X

If mortgage secures a bond issue, state whether bonds are principally held by management and/or stockholders or by others, and attach copy of mortgage indenture.

EXHIBIT B - CONDENSED COMPARATIVE STATEMENT OF INCOME AND EXPENSES

For years ended _____

(Insert date of end of fiscal year)

(000.00 omitted)

	(Figures for 3 preceding years)			Current year as of date of Exhibit A
	19 51	19	19	
1. Net sales	NONE			
2. Cost of goods sold				
3. Gross profit on sales (line 1 minus line 2)				
4. Other income (itemize)				
5. Total (line 3 plus line 4)				
6. Salaries (officers or partners)*				
7. Selling and all other expenses				
8. Total of lines 6 and 7				
9. Profit or loss before depreciation and Federal taxes (line 5 minus line 8)				
10. Depreciation				
11. Federal Income and Excess Profits Taxes				
12. Net profit or loss (line 9 minus lines 10 and 11)	NONE			
ANALYSIS OF SURPLUS				
13. Total surplus at beginning of period	NONE			
14. Net profit or loss for period				
15. Line 13 plus line 14 if profit; line 13 minus line 14 if loss				
Add:				
16. Surplus paid in during period				
17. Surplus resulting from revaluation of assets				
18. Other additions to surplus (itemize)				
19. Total of lines 15 to 18, inclusive				
Deduct:				
20. Dividends				
21. Other charges to surplus (itemize)				
22. Total of lines 20 and 21				
23. Surplus at end of period (line 19 less line 22), MUST AGREE WITH SURPLUS AS SHOWN IN BALANCE SHEETS	NONE			

* To include all payments of any kind (commissions, bonuses, withdrawals) to officers or partners.

NOTE—If years included in the above tables are not adequately representative of applicant's financial experience, information may be submitted for additional years.

EXHIBIT C - CONDENSED COMPARATIVE STATEMENT OF CONDITION

For years ended December 31, 1951
(Insert date of end of fiscal year)

(000.00 omitted. Use figures to nearest thousand. For instance, the figure $3,489.36 should be written as 3; the figure $3,689.36 should be written as 4)

ASSETS	(Figures for 3 preceding years) 19	19	19	Current year as of date of Exhibit A
CURRENT ASSETS:				
1. Cash				1.
2. Receivables (after deducting reserves)				NONE
3. Inventories				NONE
4. Other current assets:				NONE
TOTAL CURRENT ASSETS				1.
FIXED AND OTHER ASSETS:				
5. Plant accounts (before depreciation):				
Machinery, equipment, etc.				NONE
Delivery equipment				NONE
Real estate and buildings used in business				NONE
6. Other assets (as investments, real estate not used in business, etc.):				NONE
TOTAL ASSETS				1.
LIABILITIES				
CURRENT LIABILITIES:				
8. Notes payable				NONE
9. Accounts payable				NONE
10. Accrued liabilities				NONE
11. Other current liabilities:				NONE
TOTAL CURRENT LIABILITIES				NONE
FIXED AND OTHER LIABILITIES:				
12. Mortgage debts				NONE
13. Debentures				NONE
14. Other fixed liabilities:				NONE
RESERVES:				
15. Reserve for depreciation				NONE
16. Other reserves:				NONE
NET WORTH:				
17. Common stock (issued) (if Applicant is incorporated)				137,500.00
18. Preferred stock (issued) (if Applicant is incorporated)				NONE
19. Surplus (if Applicant is incorporated)				NONE
20. Capital and surplus account (if Applicant is partnership or individual)				
TOTAL LIABILITIES				137,500.00

NOTE— If years included in the above table are not adequately representative of applicant's financial experience, condition statements may be submitted for additional years.

EXHIBIT D

AGREEMENT AS TO COMPENSATION FOR SERVICES RENDERED OR TO BE RENDERED TO APPLICANT IN CONNECTION WITH APPLICATION AND/OR LOAN

To induce the United States Government and its agencies to make a loan under Sec. 302 of the Defense Production Act of 1950 to U. S. Copper and Oil Company (hereinafter called "Applicant") and in consideration of the making of a loan to Applicant, the undersigned, having been retained by Applicant for the purpose of rendering professional or other services in connection with its application for a loan or loans, hereby represents, warrants, and agrees that the undersigned has not been paid, has not made any agreement with the Applicant to be paid, and has not procured any person to pay or agree to pay, and will not, directly or indirectly, charge or receive any bonus, fee, or commission in any form in connection with the said application for, or the obtaining of, the loan applied for by the Applicant, or any compensation in any form for services rendered or to be rendered in connection therewith except for the services and in the amounts stated below:

Name	Description of services	Amount paid	Amount to be paid
No one employed to render professional services in obtaining this proposed loan.		$	$

To induce the making of the loan and the employment of the undersigned by Applicant, the undersigned hereby further warrants, covenants and agrees, upon the consideration herein specified, and in consideration of the employment of the undersigned by Applicant, as above recited, that if the amount of compensation stated above for any such services shall not be deemed reasonable by any agency of the United States Government, the undersigned will reduce the charge for such services to such amount as shall be deemed reasonable by such agency, and will not, directly or indirectly, charge or collect from the Applicant or any other person, any sum in excess of the amount so deemed reasonable; and that if the undersigned has heretofore collected, from the Applicant or any other person, as compensation for any such services, any amount deemed by such agency to be unreasonable, the undersigned will refund to Applicant or such other person such sums as are in excess of the amount deemed reasonable. The undersigned further warrants, covenants and agrees that if the amount of the compensation for any such services is not determinable at the date of application, or is not stated above, it will not collect or charge any sum as compensation for such services without the prior written approval of the Government agency with which this application is officially filed as to the nature of the services for which such compensation is to be paid and the amount of such compensation.

Witness: _____

Address of witness: _____

Dated _____, 19____

NOTE—Corporations must execute foregoing certificate in corporate name, by duly authorized officer, and seal must be affixed and duly attested; partnerships must execute in firm name, together with signature of a general partner. If no compensation is paid or to be paid for services rendered in connection with application or loan, this should be so stated and the Applicant should sign this Exhibit.

CERTIFICATION

The Applicant hereby certifies that the statements made in the foregoing application, and all exhibits and documents submitted in connection therewith, are true and correct statements to the best of Applicant's information and belief and are submitted as a basis for credit. The Applicant agrees to reimburse any agency of the United States Government upon demand for any expenses incurred in connection with or arising out of this application or any loan made pursuant hereto.

Dated MARCH 8, 1951

Witness: _____ (For individual applicants)

_____ (Signature)

Witness: _____ (For partnership applicants)

_____ (Full name of firm)

By _____, a general partner.
(Signature)

(CORPORATE SEAL)

(For corporate applicants)

U. S. Copper and Oil Company
(Full corporate name of applicant)

Attest: Wallace R. Harris
(Signature) Secretary

By George S. Ankarlo
(Signature) President (Title)

_____ (Title)

The United States Criminal Code, 18 U.S.C., Sec. 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: 1950 O - 916171

January 24, 1951

LETTER OF TRANSMITTAL

U. S. Copper and Oil Company
3033 N. Humboldt Ave.
Milwaukee 12, Wisconsin

Attention: Mr. George S. Ankarlo

Dear Sir:

I hand you herewith a report containing cost estimates of development and operation of the Black Diamond Manganese Property entitled, "REPORT, AND SUMMARY OF ESTIMATED COSTS OF MINE PREPARATION AND MINE PRODUCTION AT THE BLACK DIAMOND MANGANESE PROPERTY, ARTILLERY PEAK MINING DISTRICT, MOHAVE COUNTY, ARIZONA."

This report, as per your instructions, summarizes my conclusions in regard to the Black Diamond Property. You already are in possession of the reconnaissance map of the property prepared by me and included with an earlier preliminary report.

Respectfully,

/s/ John Jordan

J. T. Jordan

JTJ:bw
Report enclosed

REPORT, AND SUMMARY OF ESTIMATED COSTS OF MINE PREPARATION AND MINE PRODUCTION AT THE BLACK DIAMOND MANGANESE PROPERTY ARTILLERY PEAK MINING DISTRICT MOHAVE COUNTY, ARIZONA

by

JOHN T. JORDAN
Geologist-Mining Engineer
Kingman, Arizona

January 24, 1951

REPORT, AND SUMMARY OF ESTIMATED COSTS OF MINE PREPARATION AND MINE PRODUCTION AT THE BLACK DIAMOND MANGANESE PROPERTY ARTILLERY PEAK MINING DISTRICT MOHAVE COUNTY, ARIZONA

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REPORT, AND SUMMARY OF ESTIMATED COSTS OF MINE PREPARATION AND MINE PRODUCTION AT THE BLACK DIAMOND MANGANESE PROPERTY ARTILLERY PEAK MINING DISTRICT MOHAVE COUNTY, ARIZONA

PREFACE:

It must be understood that the writer of this report has made only the most superficial examination of the property herein discussed. Two and one-half days were spent in the field, of which 80% of the time was devoted to establishing a reconnaissance control survey and to surface channel sampling, thus leaving one-half day for geologic study.

The sampling method and the coverage of the exposed outcrop were necessarily inadequate, considering local variability of metal content in the veins, and has furnished only a very general guide to quality of the ore.

As to tonnage available, scarcely more than remotely accurate guess can be made. However, stope lengths are available and the estimates of mining costs will be based upon tons per vertical foot of depth attained, using an arbitrary figure of 500 feet depth.

The cost figures presented in this report are estimates based upon prevailing costs elsewhere in the mining industry. No mining operation under the several unique conditions existent at this property is available for a guide, therefore the figures shown are adjusted to reflect the possible influence of these conditions.

A GENERAL STATEMENT

The property herein discussed is situated approximately three miles west of the confluence of the Big Sandy River with the Santa Maria River, which confluence is named the Bill Williams River, approximately two miles southeast of Artillery Peak, and approximately two and one-half miles north of the Bill Williams River. A precise location cannot be made until a Public Survey monument is located and a tie made.

BLACK DIAMOND PROPERTY

Twelve claims comprise the Black Diamond group. None have been surveyed by the writer but are reported by the owners to be full rectangular claims, each 1500 feet in length with a width of 300 feet each way from their lode lines.

B.
PRODUCT

Manganese concentrate is the only mineral contemplated or indicated for production. The minerals observed in the ore bodies are psilomelane and pyrolusite. The vein gangue material is predominately crystalline calcite with minor amounts of barite and small quantities of sandstone and granite inclusions.

C
TOPOGRAPHIC AND GEOLOGIC CONDITIONS

Topography

This property is located in the Southeast part of the Artillery Mountain at an approximate altitude of 2000 feet. The topographic relief of the claimed area and adjacent vicinity amounts to about 600 feet.

The topography of this area is of early maturity stage of the erosion cycle. Evidence of differential uplift of relatively recent period is apparent.

The commercial significance of the topographic character is that the precipitous slopes adversely affect the cost of road building and truck haulage to some degree and also permit access to the 200 feet or 300 feet level below the upper outcrop of the veins by tunnel drift exploration, which if proven feasible will reduce upper level mine preparation by a considerable amount by elimination of that depth of shaft sinking.

The vegetation is typical of arid region uplands. The ground cover is sparse in grasses but includes small shrubs of the broomweed and sage type; larger shrubs of greasewood, manzanita, and palo verde; and various cacti, the most common being cohoya, barrel cactus, and giant saguarro. No timber suitable for mine use grows in the vicinity.

The climate is suitable for year round operation, provided equipment is installed for cooling of living areas during the summer months when temperatures may exceed 120° F. If the camp is situated on the higher elevations some relief from summer heat is obtained. The winters are very mild with freezing temperatures occurring only on a few nights in December and January.

BLACK DIAMOND PROPERTY

Cultural Features

The property lies about six miles from the Yucca-Wenden road, a dirt road.

No electric power is available in this area.

A railroad shipping point on the Santa Fe Railroad is 40 miles from the property at Wenden, Yuma County, Arizona. Supplies may be obtained at Kingman, Yuma, and Wickenburg, all within one hundred miles radius.

Ample water for mine, mill, and camp is available at the Bill Williams River and the Big Sandy River, the source used to be determined by location of the camp and greatest economy of pipe line installation.

A road has been "roughed out" by bulldozer from the Bill Williams River to the claim group, a distance of about 2-1/2 miles. This existing road requires improving and stabilizing for heavy-duty truck and trailer traffic. Approximately 3/4 miles of additional service and access road must be constructed.

GEOLOGY

Stratigraphy and Structure

Stream gravels, recent fan alluvial deposits, talus, and valley fills comprise the recent sediments and are of no economic importance.

Two important sediments occur on the property. They are considered as separate units in this report but may be subphases of one period.

The Gila conglomerate occurs in the greatest abundance as an uplifted, dissected fan composed of several hundred feet of rounded granite cobbles and boulders.

A red ferruginous sandstone or lake bed siltstone caps the conglomerate in several places on the property.

A few hundred feet east of the property boundary the sediments contact a few high mountainous granitic mass, which was probably a source of some of the alluvial Gila conglomerate. No important Manganese deposition was noted at this contact. A number of narrow and scanty calcite-manganese stringers occur in the granite but none of commercial importance have been observed.

No petrographic studies of these rocks have been made so they have not been exactly classified. It is sufficient for the purpose of this report to refer to the plutonic mass as granite and differentiates thereof.

The most important structural features are the series of fissures striking northwest-southeast which occur with a marked frequency in the conglomerate within the area covered by this claim group. These fissures are remarkably persistent both as to alignment and horizontal length. Their total extent has not been mapped by survey as yet, but several of the fissures have been "walked out" for distances of approximately 2000 feet and continue an undetermined distance beyond. These fissures are filled with calcite vein deposit and are the seat of the manganese ore bodies. This feature will be discussed further in the section on economic geology.

Jointing and folding of importance do not appear in ore deposition.

Lime (?) cementing of the conglomerate material in the vicinity of the fissures, while not complete over the total lengths of the structures, is of great importance where it did occur in that the wall rock is thereby greatly strengthened. The benefit of this feature will be directly reflected in reduced mining costs.

Economic Geology

The manganese ores of the Black Diamond property are somewhat unique in the Artillery Peak District in that they have the characteristics of hypogene fissure vein filling associated with epithermal calcite. The manganese-oxide minerals generally occur in this district as either supergene deposits or as syngenetic components of various sediments.

The calcite was first deposited in the fissures and followed at a later period, after fracturing and reopening of the veins, by the manganese stage. The manganese occurs in its present state as psilomelane, pyrolusite, and possibly manganite, of very pure quality. The penalizing impurities are either entirely lacking or of such low concentration to be negligible.

The manganese content of the veins is dependent entirely upon the amount of open space available to deposition during the Manganese stage. Therefore, where fracturing of the calcite was intense, or where incomplete filling of the fissure by calcite left open cavities, the subsequent filling by manganese minerals made a higher grade ore than in localities where reopening was not so great. This condition of mineralization necessitates accurate ore evaluation determined only by a uniform drill sampling pattern or by actual underground lateral development.

BLACK DIAMOND PROPERTY

The small number of surface samples taken to date, together with field observation along the outcrops, lead to the belief that a general average grade will be established somewhere between 12% and 20% manganese content over most of the length of the two important veins. Extension to depth is unpredictable except that the type of deposition leads to the possibility of the grade being maintained for several hundred feet of depth below the lowest presently observed elevation.

A dozen or more narrow veins and stringers occur on the property. These structures are roughly parallel in strike, occupying the northwest-southeast fissures described earlier in this report. Regardless of the fact that many of the veins contain 30% to plus 40% manganese ore, they will not be considered in this paper because they are either too narrow for economic mining or are mineralized with small ore shoots of mineable grade separated by too great amounts of barren calcite to be more than a small scale supplement to the major structures discussed herein.

Several hundred feet east of the small vein area are the two large veins which are the principal subject of this report. As stated previously, they have been traced approximately 2000 feet on the outcrop. The "West" vein is the larger, varying in width from about five feet at the southerly end to widths as high as 20 or 25 feet, but averaging about twelve feet mineable width for a distance of 1000 feet, and seven feet width for 500 feet lengths. The "East" vein is about 100 feet east of, and paralleling the "West" vein. It will average about eight feet in width for a distance of 750 feet and about five feet for a distance of at least 450 feet and possibly much farther. These two veins strike northwest-southeast and dip about 75° or 80° northeast. They cut through both the coarse conglomerate and various thicknesses of the finer grained siltstones.

In mining, the walls of siltstone will probably be self-supporting for sufficient time in the stopes to allow for extracting the ore and filling with waste, with a small amount of timber support if a cut and fill method of mining is used. The same is true in areas where the conglomerate is cemented. Where the conglomerate is loose it will require immediate support and back filling will have to be accomplished in the shortest possible time. Drifting and raising within the vein will be, as in any other calcite vein, timbered where weakness or heavy fracturing requires, and standing alone where strength of the material safely permits it.

BLACK DIAMOND PROPERTY

Summary of Economic Geology Data:

1. Criteria are favorable for exploration laterally and possibly to depth.

2. No serious post-ore structural features have been detected which would complicate or increase the cost of mining.

3. The walls must be examined as development work progresses to determine type and amount of support required when stopping.

4. The two mineable veins are so situated as to permit working them both from one shaft or adit as the case may be.

5. Topographic conditions permit initial underground exploration via tunnel entry thereby eliminating present day excessive shaft sinking cost until sufficient information is obtained to warrant deeper exploration.

D

EXISTING DEVELOPMENT

To date the only development consists of shallow prospect cuts on the outcrops of the veins.

Sampling

Sampling has been limited to a small number of channel samples taken on the "West" vein with a steel mail and four pound hand hammer. Assays ranged from a low value of 6% Mn, taken at the leanest part of the vein that could be found, to a high value of 25% Mn. As stated previously, the average, determined from the few samples taken will fall between 12% and 20% Mn, with an average width of approximately 12 feet mineable ore.

This type of sampling will be reliable only if carefully cut channels are taken at close, regular intervals of five or seven and one-half feet along the whole outcrop. Actual mill runs and closeups are necessary to determine the amount of recoverable manganese in the ore. The results of concentration tests are not available for this report and must be furnished by other parties at this time.

BLACK DIAMOND PROPERTY

Ore Reserves

With the present state of nondevelopment, any ore reserve computations would be purely conjectural.

However for the purpose of computing tonnage per vertical foot based upon length and width of mineralized vein exposed at the surface, the following data is presented:

West Vein

1000 ft. length x 12 ft. width (12% to 20% Mn estimated grade) per 1 foot depth= 1200 short tons. 500 ft. x 7 ft. width per 1 ft. depth = 350 short tons or a total of 1550 tons per vertical foot for 1500 feet of stope length.

No information is available as to depth of the mineralized body or as to its lateral dimensions at depth. For the purpose of computing tonnage figures necessary to make the cost estimates to follow, an arbitrary value of 500 feet is herein selected as the depth. It is well within logical possibility that the ore extends to this level and if future investigation shows this untrue there will be no reasonable basis for the size operation contemplated. A possible but unsubstantial tonnage figure is then developed in the amount of 775,000 short tons in the "West" vein.

East Vein

750 ft. length x 8 ft. width per 1 ft. depth = 6000 cu. ft. = 600 short tons.
450 ft. length x 5 ft. width per 1 ft. depth = 225 short tons or a total of 825 short tons per vertical foot for 1200 feet of stope length.

Again assuming a depth of 500 feet, the total figure will amount to 412,500 short tons.

The totals thus obtained for the "East" and "West" veins combined gives an arbitrary figure of 1,187,500 short tons or 1,060,200 long tons.

Inventory

At the present time no physical inventory of any sort exists on the property.

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Metallurgy

The metallurgy of the ores must be furnished by other persons at this time because the results of any tests have not been made available to the writer.

E
PROPOSED DEVELOPMENT

Development work is justified in the light of present critical need of manganese and the present trend in price improvement. The amount and grade of tonnage that can ultimately be blocked out cannot be predicted for reasons brought out earlier in this report, and before plans are made for full scale production an exploration-development program must be carried out.

A plan of operation, based upon very limited information gained during a short field study is as follows:

1. Survey the property, establish all claim corners by survey, map topography where necessary, select and establish mill site, make survey and prepare maps and data for water appropriation.

   Cost: About $2,000.00

2. Map areal geology, establish engineering control by transit survey, prepare base working maps, select and stake portal site, survey and stake necessary roads, building sites, water lines.

   Cost: About $3,500.00

3. Finish present road; extend new roads to tunnel adit site, water storage area, and camp site. Approximately 3/4 miles minimum.

   Cost: About $4,000.00

4. Prepare tunnel adit area; excavate bench for shop, office, compressor and warehouse buildings; bench at lower level for stockpile dump; prepare ground for ore bins. Approximately 1000 yards of excavation.

   Cost: About $3,000.00

5. Construct shop, change house, compressor house, warehouse temporary makeshift buildings, set up water storage, camp.

   Cost: About $15,000.00

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6. Drive tunnel on West vein 1500 feet
Crosscut to East vein 100 feet
Drift on East vein 1200 feet
Crosscuts connecting East and West veins 400 feet
7 ft. x 8 ft. areas section total 3200 feet
will make 1-1/2 tons ore per foot of advance - 4800 T. Any recovered value over loading, hauling, and milling cost will apply toward defraying tunnel cost.

Cost: About $70,000.00

7. If ore on tunnel level is of sufficient length, width, and grade to be economic stoping ore, a small volume pilot concentrator should be installed at this time. Preparation should be made for stoping between the tunnel level and the surface, and stoping operations should begin.

If the work on the tunnel level brings discouraging results as to continuation of ore to depth, the project can be abandoned at this time.

8. Build ore bins - 200 ton capacity.

Cost: About $5,000.00

9. Raise to surface at shaft site. Probably 300 feet.
2 compartment shaft Cost: About $12,000.00
3 compartment shaft Cost: About $18,000.00

10. Sink shaft to depth determined by economic aspect of the ore. Drift laterally at each 100 ft. level reached. Prepare for stoping. Proceed with ore extraction using stoping method to be determined by underground conditions.

11. Sampling and assaying to be carried on continuously with progress of all work.

Ultimate assaying cost in tunnel level only, both veins:

440 car samples
880 channel samples
880 drill hole samples
2200 samples $3,200.00
supplemental sample assays 300.00
Probable Assay Cost $3,500.00

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Routine surveying, engineering, and sampling costs for tunnel-level development: About $2,500.00.

RECAP OF PROPOSED DEVELOPMENT COSTS

Capital Schedule:

Surface construction, including mine buildings camp, water supply, ore bins	$15,000.00
Mining machinery and equipment 4 drifters 3 jack hammers 3 stopers mechanical mucker 9 tram cars	8,000.00
2 compressors, diesel power, portable	10,000.00
Electric power plant	1,000.00
Shop tools and equipment	2,500.00
Truck & pickup	4,000.00

Expense Schedule

Surveying and engineering	$ 5,500.	
Road construction	4,000	
Benching and excavation	3,000	
Tunnel level workings	70,000	
Main raise	12,000	
Sampling and assaying	3,500	
Supervision, administrative routine engineering, legal, mess hall and camp operation, repair and maintenance of equipment and truck, etc., figured for 4 months	12,000	110,000.00
TOTAL		$150,500.00

The above recap of development costs does not include costs of sinking and development below the tunnel level. Such work would only be undertaken if proven reasonable by the tunnel work, at which time the mine would be producing from stopes and able to pay the cost of lower level development, or would be abandoned.

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The figures shown in the expense schedule are the ultimate costs for completing the amount of work outlined earlier in this paper as necessary to develop the ore shoot at the tunnel level. At any stage of progress before actual completion of the defelopment work, if the ore exposed warranted, the mine could be put into production. This means that if ore in sufficient quantity of adequate grade was exposed in the first 500 feet of the two veins that stope preparation would be in order and mining carried on as the remainder of the development progressed. Thus the greater part of the development expenses would be paid for out of ore production.

Future Production

It is anticipated by the operators that if development work shows a satisfactory ore body, the production goal will be 300 to 500 tons per day.

Taking a middle figure of 400 tons per day as a base, the following costs will be applied to mining:

Winze, downward extension of main raise, 200 ft. at $250 per foot equipped	$ 50,000
Raises, stope preparation 30,000 ft. at $20.00 per foot	600,000
Cost per ton to break ore, transport, timber, waste fill = $8.00 per ton (An approximate figure dependent upon prevailing geologic conditions, mining method required, cost of labor, materials and other unforeseeable features)	

Capital Equipment for full scale production:

Head frame and ore bins	$25,000
Hoist	20,000
Shops and equipment	10,000
Power plant for 200 h.p. electric energy consumption	25,000
Water supply (tanks, pipe, pumps 1000 g.p.m.)	25,000
Compressed air plant	20,000
Change house, bunk house, commissary	50,000
Timber framing equipment, warehouse	10,000
Trucks and surface mobile equipment	40,000
Mine cars, mucking machines, jumbos, tuggers, slushers, mining machines, skips, lighting, etc.	50,000
Total Capital Equipment	$275,000

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Total capital equipment	$275,000
Operating capital	50,000
Unforeseen expense	———
Purchase price and royalty	———
Total, excluding $8.00 per ton cost to break ore, etc.	$975,000.00
Development cost	150,500.00
Tons of ore: 1,000,000	$1,125,500.00

Cost per ton $1.125
8.000 per ton to break ore, etc.

Total cost per ton ore mines $9.125

No allowance has been made for ore dilution or unforeseen occurences in mine.

For accelerated depreciation, 5 years depreciation period allowed.

To these costs must be added capital mill cost (depreciation), mill operating cost, tailing loss, truck haulage of supplies into mine, and ore to mill and concentrate to shipping point and maintenance of equipment.

The total of all cost per ton of ore establishes the break even point of ore mineable which in turn establishes the actual ore reserves developed.

Water in Mine

Water in the mine is not anticipated until the 600 or 700 foot level is reached.

F

MARKETING OF PRODUCT

It is expected that the manganese concentrate will be sold by contract negotiation directly to government stockpiling agencies at prices prevailing at time of bid. At the date of this writing, the price for 48% manganese concentrate is approaching 1.00 per unit Mn per long ton.

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CONCLUSION

Based on the foregoing data, I consider the Black Diamond Mine worthy of the development expenses outlined.

J. T. Jordan