UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE

Terminated (~~or cancelled~~) without certification. DMEA No. 1323

This is the official contract file containing all official records of the project. Duplicate material has been removed. The records contained in the files are checked and are arranged in this manner:

Left Side

Certificate of Audit (Final).

Interim Audit(s).

✓ Report of Review.

✓ Closing letter
Termination Notice or Agreement.

Recision Notice.

Assignment of Contract.

Contract Amendments (latest on top).

✓ Contract with all exhibits and annexes.

Owner's Consent to Lien.

Subordination Agreement.

Leases and assignments of leases.

✓ Application and attachments.

Schedule of Collections.

✓ Operator's monthly reports and all attachments (latest on top).

Right Side

✓ Project summary.

✓ Work completed analysis.

✓ All other material is filed in chronological order with correspondence including the following reports as checked:

✓ Final Field Team Report. (Tab)

✓ Operator's Final Report.

✓ Interim Reports.

✓ On-site Exam Report(s). (Tab)

Settlement Sheets.

If additional folders are required because of volume of records, show folder numbers and contents below:

Maps in folder number_____

Operator's Monthly Reports in folder number _____

gla
Reviewer's Initials

DEFENSE MINERALS EXPLORATION ADMINISTRATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF REVIEW

I have examined the Monthly Report of

Ute Mining Company
Durango, Colorado

pertaining to Exploration Project Contract No. Idm-E316, Docket No. DMA 1323X, for the period of July 17, 1952 to August 17, 1952.

My review included an examination of the Operator's Monthly Report and Voucher (Form MF-104) and supporting documents attached thereto, comparison of the costs claimed with the contract and pertinent schedules, consultation with the Government representative who visited and examined the project, and a determination of the reasonableness and propriety of the costs.

This review was made in lieu of an audit of the operator's accounts and records for the reasons indicated by an "X" below.

"X"-- The administrative cost to the Government of an audit would be excessive in relation to the value of the contract or the estimated amount of the possible disallowances thereunder.

"X"--The Monthly Report was supported by documentary proof of the costs incurred under the contract.

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

Total Cost as billed by the Contractor	$3,378.80
Exceptions:	
(Schedule attached),	378.80
Total Accepted Cost	$3,000.00 X

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 one thousand five hundred dollars and no/100

- $1,500.00 -

is considered valid and proper.

December 4, 1952

T. H. Brading
Auditor

UTE MINING COMPANY
DURANGO, COLORADO

Total Footage - 501' at $6.744'	$3378.80
Total Contract - 450' at $6.666'	3000.00
Amount overexpended	$ 378.80

Contractor has voluntarily agreed to assume amount overexpended due to 51' driven in excess of contract, and increase in cost of .078 per foot.

FILE COPY
SURNAME:

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

FEB 1 6 1953

Ellis
Anhome
Hoffmeister
Chambers
Lemmon
Hedges
Selfridge

BW.

Mr. Fred . Rinker, President
Ute Mining Company
Durango, Colorado

Re: Docket No. DMA-1323X (Copper)
Ute Mining Company
Contract No. Ids- 316
La Plata County, Colorado

Dear Mr. Rinker:

J.C. 2/16/53

This is with reference to the subject exploration project contract between a partnership consisting of Ernest . Loveless, Fred . Rinker, Neil . Miller, Edward Kelloway, Ute Mining Company and the Government.

An final audit of the contract expenditures and the final reports of the operator on the field work have been received and accepted by this administration. The total amount approved under the contract, or $3,000.00, was expended, plus $377.00 in excess of the total amount of the contract which was borne by yourselves, and the Government's share of $2,000.00, was returned. There were furnished material, supplies or equipment to be disposed of for the joint account of the operator and the Government.

Although the results of the exploration project were unfavorable, the work was completed in a satisfactory manner. It is, therefore, not our intention to make any certification to the Department which would create a lien against the project property, and we are closing our files on recordin with respect to this project. Your attention is called, however, to Article 11 of the contract which requires the operator to "...keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract."

Your interest in the exploration program of the Defense Minerals Exploration Administration and your willingness to participate therein are appreciated.

Sincerely yours,

C. O. Mittendorf (fw)

Administrator

Ellis/Gla/jem 2/11/53
cc to: Adm. Reading File
Docket
Spr. Con.
Messrs: C.H.Johnson-3021
Zhkinkel-Rm. 4234
Ellis Hoffland Chambers
Region IV (2)

10/7/52 gla

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

224 New Customhouse
Denver 2, Colorado

September 16, 1952

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, Field Team, Region IV

Subject: Approval of Subcontracts, Docket DMEA 1323X, Contract Idm-E316, Ute Mining Company (Copper)

Enclosed are the original and two copies of our approvals of the following subcontracts:

Ute Mining Company and Joy Manufacturing Company, dated May 29, 1952

Ute Mining Company and J. F. Hanks, dated July 7, 1952

Ute Mining Company and Dominick Franch, dated July 7, 1952

Also enclosed are three copies of each of the subcontracts.

W. H. King

W. H. King

Enclosures

DEPARTMENT OF THE INTERIOR
Defense ...
SEP 1 ... 1952

APPROVAL OF SUBCONTRACT

To: Ute Mining Company, acting for a partnership consisting of Lottie M. Loveless, Jean M. Brinker, Gail M. Miller, Downs McClosky and Ute Mining Company

That certain contract, six copies of which you have submitted with your request for approval, dated July 7, 1952, between you and J. F. Hanks, for the performance of the following work: Building roads and preparing drill sites with bulldozer, which is all or a specific element of the work described in an Exploration Project Contract dated May 13, 1952, Idm-E316, Docket No. DMA 1323X, 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 only to 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: July 17, 1952.

THE UNITED STATES OF AMERICA

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

APPROVAL OF SUBCONTRACT

To: Ute Mining Company, acting for a partnership consisting of Lottie M. Loveless, Jean M. Brinker, Gail M. Miller, Downs McClosky and Ute Mining Company

That certain contract, six copies of which you have submitted with your request for approval, dated July 7, 1952, between you and Dominick Franch, for the performance of the following work: Rental of 4-wheel drive truck, which is all or a specific element of the work described in an Exploration Project Contract dated May 13, 1952, Idm-E316, Docket No. DMEA 1323X, 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 only to 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: July 17, 1952

THE UNITED STATES OF AMERICA

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

Government Copy
Copper

APPROVAL OF SUBCONTRACT

To: Ute Mining Company, acting for a partnership consisting of Lottie M. Loveless, Jean M. Brinker, Gail M. Miller, Downs McClosky and Ute Mining Company

That certain contract, six copies of which you have submitted with your request for approval, dated May 29, 1952, between you and Joy Manufacturing Company, for the performance of the following work: Surface diamond drilling, which is all or a specific element of the work described in an Exploration Project Contract dated May 13, 1952, Idm-E316, Docket No. DMEA 1323X, 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 only to 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: July 17, 1952

THE UNITED STATES OF AMERICA

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

CORE DRILLING AGREEMENT

NO.
PAGE

1. **THIS AGREEMENT**, made and entered into this 29th day of May, 19 52 by and between UTE MINING COMPANY of Durango, Colorado the party of the first part and the JOY MANUFACTURING COMPANY, of Pittsburgh, Pennsylvania, party of the second part,

Witnesseth:

2. In consideration of certain payments hereby agreed to be made by the said first party to the said second party, the said second party hereby agrees to drill, sink or prospect with a diamond core drill from underground in or near Silverton, Colorado at site # to be selected by the said first party, subject to the conditions hereinafter mentioned. It is further agreed by the said first party that the depth of none of the herein specified drill holes shall exceed a depth of -200- feet, and the total amount as guaranteed must be drilled in not more than ..... holes.

3. The said second party agrees to use for the above described work One Diamond Core drill.., and men skilled in operating same; to operate the drill.., both day and night whenever practicable, and to furnish only such person as the said first party may designate by written order, all core taken out of said prospect hole #. Size of core to be approximately 1-1/8" inches in diameter. The said first party shall provide suitable boxes if it desires to save the core, and if it also desires may have a man at the drill at all times to remove and take charge of said core. No information whatever regarding the records and results of this drilling is to be given any other party, without the written consent of the said first party.

4. The said first party hereby agrees to pay to said second party the following price.. for the herein described drilling.

- From surface to a depth of 200 feet ..... $5.25 per foot.

5. In accordance with this agreement, the said first party hereby guarantees the said second party a minimum total of -400- feet of drilling at the price.. as herein provided in Clause Four.

The said second party shall have the option of withdrawing from this contract after a total of -400- feet have been drilled under the terms of this agreement.

In the event the said first party should stop the drilling before the guaranteed footage has been drilled, it agrees to pay the said second party half the price per foot for the undrilled balance, in addition to payment at full price for the footage actually drilled.

JOY MANUFACTURING COMPANY

Form 6215 (1A)—2-49—BPC 21295

CORE DRILLING AGREEMENT

6. The party of the first part hereby agrees to furnish the said second party at each of the herein described prospect hole~~s~~, free of charge, an ample supply of water ..... for the proper prosecution of the herein-described work.

....- The party of the first part will prepare suitable drilling stations in the .....mine so that there will be at least 18' distance in line with each hole to .....be drilled.....

....- The party of the first part will transport the gasoline and other supplies, ...furnished by the first party, to the hole sites.....

.....

.....

.....

7. The said first party also agrees to transport the drilling outfit and supplies of the said second party from the nearest railway station or truck carrier to the location of the first prospect hole, and from one hole to another and back to the nearest railway station or truck carrier at the termination of the work under this contract.

8. Should the party of the first part fail to perform its part of the contract of furnishing water, ...and transportation, or locate sites, as herein agreed, regardless of cause, or should the party of the first part issue instructions that delay operations for any reason or in any other way interrupt the continuous operation of the said diamond drill, it shall pay the second party the labor expense of drilling crew while idle through such delay, at the rate of

$ 40.00.....per shift, consisting of 8 hours, for each shift or part thereof that the operation of the said drill is delayed.

9. It is hereby agreed that should a cavity, or loose and caving material, be encountered at a depth which should prevent successful drilling,the party of the second part does not guarantee to drill or sink said prospect hole.. to any specified depth, but will drill or sink as deep as is practicable under the conditions, and the party of the first part shall pay for every foot actually sunk or drilled.

It is further agreed by both parties hereto that should cavities, soft, broken or caving material be encountered so that the drill hole will not remain open after being bored, and it becomes necessary or advisable to resort to cementing or reaming and casing in order to protect same until the depth desired by said first party is reached, then the said first party agrees to pay the actual cost of doing such reaming, casing and cementing in addition to the price per foot paid for the drilling.

....- Reaming, Casing, and Cementing will be done at the rate of $40.00 per 8 hr. .....shift, plus actual cost of material used or ordered left in the hole.....

.....

10. The party of the second part agrees to cover its employees with Workmen's Compensation Insurance under the State Laws of ..Colorado..... and agrees to furnish the first party with insurance certificate as evidence of such coverage.

CORE DRILLING AGREEMENT

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.....

11. The payments for the herein-described work are to be made on the first of each month for all invoices rendered for work done up to the 25th day of the previous month.

12. The party of the second part hereby agrees to ship the outfit for the herein described work within.....days from the date of notification of acceptance of this agreement, but the said second party shall not be responsible for delays caused by strikes, railroad accidents or blockades. **This proposition is for immediate acceptance,** but although accepted does not constitute a contract until approved by an officer of the Joy Manufacturing Company, at its office in Pittsburgh, Pennsylvania, U. S. A., and is subject to change or withdrawal until so approved.

It is expressly agreed that there are no promises, agreements or understandings outside of this contract, and that no agent or salesman has any authority to obligate the Joy Manufacturing Company, by any terms, stipulations or conditions not herein expressed. This contract may be altered only by written consent of both parties hereto.

JOY MANUFACTURING COMPANY

By .....

IN WITNESS WHEREOF, the parties hereto have set their hands and seals. Dist. Mgr

Accepted by

Ute Mining Company

By Fred A. Brunker

Title Pres

Approved by JOY MANUFACTURING CO.

By .....

Date .....

Title .....

Form 6215 (3A)—2-49—BPC 21295

UTE MINING COMPANY
Box 1388
DURANGO, COLORADO

July 7, 1952

Mr. Dominick Franch
Silverton, Colorado

Dear Mr. Franch:

This will confirm our verbal agreement for you to furnish the Ute Mining Company at the Copper Hill property the following during the core drilling program to start this month:

One Army Type 4-Wheel Drive truck including all expense of operating truck to haul equipment, supplies and men

Contract rate $ 12.50 per day operated.

Above truck with one man to operate truck

Contract rate $ 25.00 per day operated.

Yours very truly,

Ute Mining Company

By Fred A. Brinker
President

Accepted Dominick Franch

Date 7/7/1952

UTE MINING COMPANY
Box 1388
DURANGO, COLORADO

July 7, 1952

Mr. J. F. Hanks
Durango, Colorado

Dear Mr. Hanks:

This will confirm our agreement as to the "Cat" work at the Copper Hill property near Hesperus, Colorado.

For moving into the site	$ 20.00
For actual working time	8.00 per hour.

Yours very truly,

Ute Mining Company

By Fred A. Smith
President

Accepted J F Hanks.

Date July 10-52

MF-200
(June 1951)

Docket No. DMA 1323X
Commodity Copper

Idm-E316

GOVERNMENT'S COPY

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

EXPLORATION PROJECT CONTRACT [1]

It is agreed this 13th day of May, 1952, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration, hereinafter called the "Government," and [2] a partnership consisting of: Lottie M. Loveless, Jean M. Brinker, Gail M. Miller, Downs McClosky and Ute Mining Company

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 Colorado, County of La Plata described as follows: [3]

See Annex No. 1

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: None

(*b*) ~~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:~~

3. *Exploration project.* The Operator, within sixty days from the date of this contract shall commence work on a project of exploration for [5] copper; shall prosecute the work efficiently, expertly, in a workmanlike manner, in accordance with good mining standards, with suitable and adequate equipment, materials, and labor, all properly designed to bring the project to completion within a period of [6] four (4) months 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. Any 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 currently its agreed pro rata share, are listed in Exhibit "A" attached hereto. 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.* Any operating equipment to be rented, purchased, or furnished by the Operator, with the allowable rental, purchase price, or depreciation, as the case may be, is listed under appropriate headings in Exhibit "A" attached hereto. 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, or 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.* 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 is set forth in Exhibit "A" attached hereto.

9. *Rehabilitation and repairs.* A statement of the cost of any necessary rehabilitation or repairs to put existing facilities, buildings, installations, and fixtures into useful and operable condition and which are to be allowed as costs of the project is included in Exhibit "A."

10. *Allowable costs of the project.* The 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, analytical work, accounting, 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 this 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, taxes, or any other indirect costs not expressly allowed by these provisions, 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. *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.

12. *Progress reports.* The Operator shall provide the Government with monthly reports of work performed under the contract upon forms to be provided by the Government. Each monthly progress report shall bear the certification of the Operator and shall constitute the Operator's invoice of costs incurred on the project during the period covered by the report.

13. *Payment to the Operator.* The monthly progress report (invoice), to the extent approved by the Government, shall be processed for payment by the Government. Payment shall be made in the amount of 50 percent of the approved costs incurred; *Provided,* That the aggregate total of all sums paid by the Government under this agreement shall not exceed $1,500.00, which is 50 percent of the agreed estimated total cost of this project, $3,000.00.

14. *Final reports by Operator.* Upon completion of the project or termination of this contract, the Operator 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.

15. *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 for each additional 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 mineral deposit 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.

16. *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.

17. *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 sextuplicate the day and year first above written.

LMM Lottie M Lawrence
(Operator)

JMB By Jean M Brunker

GMM Gail M. Miller

DM Thomas McCloskey

UTE MINING COMPANY

LM By Fred A. Brunker Pres

THE UNITED STATES OF AMERICA

By J. H. Ewart
Executive Officer, DMEA
Field Team, Region IV

U. S. GOVERNMENT PRINTING OFFICE 16—64066-2

Annex No. 1

Form MF-200

2. Operator's property rights. The following locations in the California Mining District of La Plata County, Colorado:

Copper Hill Location recorded in Book 107 page 331
Willow Springs Location recorded in Book 107 page 374
Esmerelda Location recorded in Book 107 page 302
Snow Bird Location recorded in Book 217 page 306
Butterfly Location recorded in Book 145 page 571
Jean Location recorded in Book 246 page 183
Gail Location recorded in Book 246 page 184
Ute Location recorded in Book 246 page 185

All recorded in the office of the Clerk and Recorder of La Plata County, Durango, Colorado

The exploration will be on the Copper Hill Location.

EXHIBIT A

Exploration Project

The project consists of exploring the downward extension of the Copper Hill ore body by diamond drilling, and by unwatering and sampling the 14-foot winze in the northeast corner of the glory hole. It also consists of rehabilitating the road to the drill site. A diamond drill hole will be drilled vertically to a depth of approximately 100 feet from a site near the center of the glory hole. Fig. 1 shows the location of the glory hole with reference to the property lines. Fig. 2 shows the location of the diamond drill hole. If, in the opinion of the DMEA representative, sufficient ore is disclosed, additional drill holes will be authorized to establish the trend of the extension of the ore. The location, direction, and depth of these drill holes must be acceptable to the DMEA representative. The total depth of all diamond drill holes is estimated at 450 feet.

The estimated working time is one month.

The following costs are estimated:

Rental of equipment	$ 600.00
Depreciation of equipment	75.00
Labor and Supervision	2,000.00
Supplies	325.00
	$3,000.00

Fixtures and Improvements

None

Operating Equipment

To be rented:

Bulldozer with operator, 10 hours @ $12.00/hr.	$120.00
Pickup Truck with water tank @ $.10/mile (includes gas, oil, repair and driver)	200.00
Air Compressor 185 cu. ft. per month	280.00
Total -	$600.00

To be purchased:

None

To be furnished by Operator:

Diamond drill, allowable monthly depreciation - $75.00

Labor and Supervision

Diamond driller and helper @ $4.00/foot	$ 1,800.00
1 Laborer @ $12.50/day	50.00
1 Supervisor, part time	150.00
Estimated cost of labor and supervision -	$ 2,000.00

Supplies

Bits, assaying, core boxes	$ 125.00
Pipe loaned by operator at no charge	
Gasoline, oil, grease	200.00
Estimated cost of supplies -	$ 325.00

Rehabilitation and Repairs

None

Form MF-103
(April [illegible])

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-1323X

Date received 5/28/51

Participation

Copper Hill Mine
Ute Mining Company, Agent
Durango, Colorado

Name and address of applicant

Date May 20, 1951

FILL IN THIS BLOCK

Date of application May 20, 1951

Estimated cost $6,000.

Mineral or metal Copper-Platinum metals

Percentage of Government participation 50%

Location of mine 9 miles north of Hesperus, Colo

Hesperus is 12 miles west of Durango, Colorado

Date of filing MF-100

DMA Docket Number, if available DMA-1323X

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?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.
*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is 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.
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)?

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

16—64067-1

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.

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

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.

*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.

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

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

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

*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.

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

(*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

*17. Production:

(*a*) If mine is in production, furnish the following information:

	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.

(*b*) Submit available maps and assay data.

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

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

THE EXPLORATION

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

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

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.

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.

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

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

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

(*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.

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

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

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

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

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.

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.

Copper Hill Mine
Ute Mining Company, Agent
(Name of company)

By Fred A. Brunker
(Signature of authorized official)

May 20, 1951 (Date)

President of Ute Mining Company

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

Copper Hill Mine
Ute Mining Company, Agent
Durango, Colorado

Form MF-103
Page 1

1. Group of interests with Ute Mining Company as Agent

2. Ute Mining Company a Corporation acting as agent for

	Interest
E. N. HEach, Deceased, 1941 So. Acoma St Denver, Colo	1/4
J. M. Brinker, Durango, Colo	1/6
Gail M. Miller, Durango, Colo	1/6
Downs McCloskey, 736 Burleigh Drive, Pasadena, Calif	1/6
Ute Mining Company, Durango, Colorado	1/4

3. No corporation.

4. (a)
The Ute Mining Company was incorporated August 31, 1943 for the purpose of developing and operating small mining properties in the San Juan district of Colorado.

During 1943 and 1944 the company was associated with the Blanding Mines Company in it's vanadium operation near Blanding, Utah.

In 1943 it secured a long term lease on the Red Arrow property in Montezuma County, Colorado and operated this property during 1946 and 1947. In 1948 the lease was terminated because of it's being a gold property with marginal ore.

In 1944 the Little Ida property in San Juan County, Colorado was purchased but the company has not operated this property on it's own account. It has been leased part of this time.

In the last several years the company has acquired interest in the Hermes property at Animas Forks, San Juan County, Colorado; the Herbert Placer at Gladstone, San Juan County, Colorado; the Copper Hill property, La Plata County, Colorado; and the Blanding Mines Company, Blanding, Utah. The company has not operated these properties for production but has conducted some exploratory work in preparation for active development work.

(b)
Fred A, Brinker
Colorado School of Mines graduate 1921, E. M.
1921 to 1931 worked for Metals Exploration Company of Denver,
American Smelting and Refining Company at Durango,
Anaconda Copper Mining Company, Great Falls, Montana
The Ruth Company, Denver, Colorado

1931 to 1935 developing flotation processes for personal account.
1935 to 1939 manager, Denver Flotation and Cyanide Company of Denver, and Sales Manager and Chief of Ore Testing Denver Equipment Company, Denver, Colorado
1939 to present operating and consulting in San Juan district of Colorado including designing and building 7 small mills in district; managing Pride of West, Highland Mary and Blanding properties: and doing consulting work for the Shenandoah-Dives, The King Lease, Telluride Mines and others.

5. Owner of the property.

6. None.

7. Not lessee.

8. Net worth of all interests except E. N. Beach, Deceased in excess of $10,000.

9. $3,000. It is sufficient to pay applicant part of project.

10. (a) The following locations in the California Mining District of La Plata County, Colorado:

Copper Hill Location recorded in Book 107 page 331
Willow Springs Location recorded in Book 107 page 374
Esmeralda Location recorded in Book 107 page 302
Snow Bird Location recorded in Book 217 page 306
Butterfly Location recorded in Book 145 page 571
Jean Location recorded in Book 246 page 183
Gail Location recorded in Book 246 page 184
Ute Location recorded in Book 246 page 185

All recorded in the office of the Clerk and Recorder of La Plata County, Durango, Colorado

(b) The exploration will be on the:

Copper Hill Location recorded in Book 107 page 331

11. Copper Hill Mine.

12. See War Minerals Report attached.

13. " " " " "

14. None.

15. to 19. See War Minerals Report attached.

20. Copper and small amounts platinum metals.

21. 700 feet core drilling as indicated in red on Figure 4, Drg. No. H-154 attached. This drilling to be done in the No. 2 Tunnel shown on Figure 5, Drg. No. H-156 attached. This No. 2 Tunnel level is 183 feet below bottom of Glory Hole. This drilling should determine the downward extension of the Glory Hole ore mined above. In the War Minerals Report attached a core drilling program was recommended from the bottom of the Glory Hole. We prefer to drill from the No.2 Tunnel level as we believe more information will result for less expenditure.

    500 feet of additional core drilling to extend any holes in the above 700 feet of drilling that encounters encouraging ore values.

    Time to complete the project 3 months excluding the months December, January, February, March and April.

22. See War Minerals Report attached.

23. Drilling contract @ 5.00 per foot.
    1200 feet --$6,000.

24. Project should be completed in 3 months excluding the months of December, January, February, March and April.

    400 feet of drilling should be completed per month.

    $2,000. per month expected to be spent.

COPY

W.M.R. January 1944

WAR MINERALS REPORT*

Report of the Bureau of Mines to Secretary of the Interior, Harold L. Ickes

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COPPER HILL MINE
La Plata County, Colorado

-Copper-Silver-

Summary

A number of low grade copper deposits in the La Plata Mountains of southwestern Colorado have been investigated by the Bureau of Mines for the purpose of determining their commercial importance.

The deposits occur in the west half of T. 36 N., R. 11 W., La Plata County which, together with other lands, was withdrawn from entry, sale, and lease by the Government in March 1943.1/

The locality of most promise is at Copper Hill, 9 miles north of the coal mining village of Hesperus which is situated on the Rio Grande Southern Railroad, 12 miles west of Durango.

During the 6-year period ending in 1917, approximately 2,300 tons of ore containing 4.75 percent copper is reported to have been shipped from a glory hole at Copper Hill to the American Smelting and Refining Company at Durango. The amount of profit derived from these shipments is not known.

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* The War Minerals Report of the Bureau of Mines are issued by the United States Department of the Interior to give official expression to the conclusions reached on various investigations relating to domestic minerals. These reports are based upon the field work of the Bureau of Mines and upon data made available to the Department from other sources. The primary purpose of these reports is to provide essential information to the war agencies of the United States Government and to assist owners and operators of mining properties in the production of minerals vital to the prosecution of the war.

Examination and Report by Edward W. Ames, Mining Engineer

1/ U. S. Department of the Interior, Public Land Order No. 86.

Sampling at Copper Hill by the Bureau of Mines indicates a roughly oval area approximately 4,000 square feet in extent on the No. 1 tunnel level in which the rock contains an average of 1.87 percent copper, 0.49 ounces silver, and 0.005 ounce of platinum metals per ton.

A tunnel, 183 feet below the No. 1 level, passes directly under the sampled area, and shows an average copper content of 0.115 percent, which apparently limits the vertical extent of economic ore. It is possible, however, that the higher grade part of the deposit may pitch easterly or westerly in such a way as to avoid penetration by the lower tunnel, a condition that could readily be tested by core drilling.

Metallurgical tests by the Bureau of Mines show the ore to be amenable to flotation with an indicated recovery of approximately 90 percent of the copper in a 27.6 percent concentrate.

Assuming the "A" Government premium of 5 cents per pound of copper to be available, such an ore should, if concentrated on or near the property, yield an operating profit of approximately $1.35 per ton. This amount would have to be assessed for taxes, and the costs of a mill and mining plant, as well as preliminary development.

Obviously with so small a margin of profit, it would be necessary to establish the existence of an extensive deposit before making other considerations.

A large deposit cannot be predicted on present data, and further exploration of the ground by core drilling is recommended as a Bureau of Mines undertaking. The cost of the proposed work should not exceed $10,500.

Introduction

The area under present investigation by the Bureau of Mines is a large low-grade copper deposit situated in the W½ of T. 36 N., R. 11 W., La Plata County, Colorado, in what is known as the California mining district. It is on the west side of the La Plata River between Boren and Bedrock Creeks, and extends as a belt 3,000 feet wide, from the old mining village of La Plata to the divide, 2.5 miles to the northwest, as shown on figure 2. The area is part of the La Plata Mountains uplift around the margins of which several productive gold mines have been operated in the past.

Most of the development has been done at Copper Hill and in the Allard Tunnel, which are approximately 1 mile apart. Although most of the data obtained to date pertain to these two deposits, the copper-bearing area extends beyond their limits.

The Area was brought to the attention of the Bureau of Mines District Office after a geological survey had been completed by the U. S. Geological Survey in cooperation with the Colorado State Geological Survey Board and the Colorado Metal Mining Fund. This survey was made at the suggestion of the Economics and Statistics Branch of the Bureau of Mines, and the results were published by the Colorado Scientific Society in 1936[2] and 1938[3]. The data contained in these publications have been used freely by the Bureau of Mines in the preparation of this report.

2/ Resurvey of the Geology and Ore Deposits of the La Plata Mining District, Colorado, Colorado Scientific Society Proceedings, vol. 13, No. 9, 1936.
3/ Copper Ores of the La Plata District, Colorado, and their Platinum content, Colorado Scientific Society Proceedings, vol. 13, No. 12, 1938.

The Bureau of Mines conducted a preliminary investigation of the La Plata district during parts of July and August 1943. For the purpose of the investigation, two tunnels were reopened and the Copper Hill and Allard Tunnel workings were completely sampled.

History and Present Property Ownership

In 1878, prospectors found gold and several mines were opened in the mountains on the east side of the La Plata River, Records show that prior to 1938 approximately six million dollars in gold and silver had been produced in this region.4/

During the search for gold, copper-bearing rock was found in the area west of the La Plata River between Bedrock and Boren Creeks. Other deposits were found as far away as the high mountain ridge which here forms the boundary between La Plata and Montezuma Counties.

Many claims were located on Copper Hill prior to 1902. The first production of record was in 1911 when the Copper Hill Mining Company shipped 464 tons of crude ore to the American Smelting and Refining Company's plant at Durango. This smelter is no longer in existence. The ore is said to have been very desirable to the smelter on account of its high silica content. The reports5/on the metal content of ore shipped from Copper Hill during its productive period are summarized as follows:

	Ore Dry Tons	Gold Ounces	Silver Ounces	Copper Pounds	Copper Percent
1911	464	-	1,271	73,133	7.9
1912	36	11.62	54	82	-
1913	1,347	-	2,468	110,602	4.1
1914	235	.18	295	13,503	2.9
1915-16	----------No Production----------				
1917	254	.46	390	26,545	5.2
	2,336	12.26	4,478	223,865	4.75

4/ Henerson, C.W., Supervising Engineer, U. S. Bureau of Mines, Denver, Colorado, personal communication.
5/Op. Cit. (2).

Smelter statements furnished by Mr. E. M. Beach for 31 shipments aggregating 1,811 net tons, some of which represents sorted ore, showed an average copper content of 6.5 percent and an average of 2.06 ounces of silver per ton.

There are no records of production from Copper Hill prior to 1911, and no production has been made since 1917.

There is little authentic information concerning copper prospecting in the general area prior to the opening of the Copper Hill mine. However, the Copper Age claim, 1 mile air line northwest of the Copper Hill Claim and near the Allard Tunnel, was patented in June 1887. This suggests that some prospecting for copper in the area was done prior to that year.

The few patented claims in the Allard and Copper Hill areas belong to La Plata County. Mr. E. M. Beach of Congress, Arizona, and Mr. Reese McCloskey, attorney, Durango, Colorado, claim the ownership of six unpatented claims on Copper Hill. All of the remaining unpatented land in the vicinity of Copper Hill and the Allard Tunnel appears either to be unlocated as mining claims or to have reverted to the public domain. B y order of the Secretary of the Interior, a large part of Township 36 and 36 North in Ranges 11 and 12 West of the New Mexico Principal Meridian recently have been withdrawn from lands subject to mineral entry. The Copper Hill property, the Allard Tunnel workings, and the surrounding areas that may be within the scope of the proposed Bureau of Mines exploratory project are covered by the withdrawl.

From the productive period ending in 1917 until 1926, there has been no production from Copper Hill. During 1926, Mr. E. M. Beach obtained deeds to the claims and in 1927, the La Plata Mines Company took charge of the property and erected a plant to supply power for Copper Hill and the Gold King Mine, 2 miles upstream from La Plata. Some construction and prospecting work was done at Copper Hill, but no ore was produced. The salable materials at the mine and the power plant, except the building, have since been dismantled and sold.

Physical Features and Communications

Acess to La Plata from most points in Colorado is by way of Durango, a city of 5,500 people, on the Denver and Rio Grande Western and Rio Grande Southern narrow gauge railroads. Durango is served by U.S. Highways 160 and 550. A county road branches from U. S. Highway 160 at Hesperus, 12 miles west of Durango and follows the La Plata River 8.5 miles north to La Plata. From La Plata, there is an unused but easily repaired truck trail three quarters of a mile long on an even grade up the east side of Bedrock Creek to Copper Hill. Another disused truck trail 1 mile up the west side of Bedrock Creek leads to the Allard Tunnel. The altitude at La Plata is 9,200 feet and at the upper tunnel of the Copper Hill mine, it is 10,383 feet. A pack trail from La Plata to East Mancos Creek crosses the divide northwest of Copper Hill.

Heavy snows are common from January to April; however, the main road is kept open by the county when work is in progress in the area.

The nearest supply points are Durango, 20 miles distant, for hardware, small tools, and camp supplies, and Denver, 360 miles away, for mining machinery and supplies. Truck and bus lines running on regular schedules pass through Hesperus and connect with lines to the north and south at Durango.

Bedrock and Boren Creeks do not carry enough water for large milling operations. However, a choice of adequate mill sites is available near the village of La Plata on the La Plata River about 2,000 feet in a direct line from the Copper Hill Mine workings. The same site would serve the Allard Tunnel property, about one mile distant.

The La Plata River is a perennial stream. Stream gages at Hesperus showed a maximum of 18.80 second-feet and a minimum of 4.2 second-feet for the year of 1941.6/ It may be assumed in the absence of investigation that the water is appropriated for irrigation purposes below Hesperus, and that an agreement would be necessary for the use of the water and its returns to the stream.

Timber in the district is plentiful. The largest sawmill in Colorado is at McPhee, 44 miles northwest of Hesperus. If demand should warrant a sawmill at La Plata, the supply of timber would be sufficient for local uses, as the mountain slopes on both sides of the river are fairly well forested.

An electric power line from Hesperus formerly passed through La Plata to the Gold King mine and mill 12 miles upstream. The line is now dismantled and removed except for poles, insulators, and a small amount of wires. About 8.5 miles of new line would be needed to supply La Plata with power. This power would be furnished by the Western Colorado Power Company whose local representative is at Durango, Colorado. Power on a 500 to 1,500 horsepower demand basis should cost from 1.0 to 1.5 cents per killowatt hour.

The nearest railroad is the narrow-gauge Rio Grande Southern at Hesperus. Shipments would go via Rico and Ridgway to Montrose, Colorado on the narrow gauge road, and thence by standard gauge to the Utah smelters. The above rates include transfer charges.

Labor and Living Conditions

Local labor is no longer available for a large mining operation. The problem at the Rico Argentine mine at Rico, Colorado, some 20 miles to the north, has been partly solved by transferring Navajo Indians from the reservations in New Mexico and training them for mine work. The plan has worked well for positions requiring little skill, and some able machine men have been developed among those showing the most aptitude for the work.

The prevailing wage rates in the District as of October 1943 are 80 cents per hour for miners and 72 cents for muckers.

An adequate site for a large mining camp is available at or near the former mining village of La Plata. At present, there are from 15 to 20 abandoned cabins and small houses, that, with slight repairs, could be conditioned to serve exploratory and development crews. A Boarding house would have to be provided. The local water supply is adequate for all needs.

There is a country store and post office at Hesperus, 8.5 miles distant. The gold mines in the vicinity probably employed 200 to 300 men during their peak production in 1907; however, their living quarters have either been destroyed or are largely deteriorated.

6/ Follansbee, Robert, U. S. Geological Survey, Personal Communication.

Properties

Figure 3 shows the claims in the area between La Plata and the top of the divide to the west which includes the Copper Hill and Allard Tunnel areas. The claims that are patented or surveyed for patent are shown with their respective survey numbers. Titles have not been investigated by the Bureau of Mines. Some of the claims are said to be open for tax sale by La Plata County.

Mr. E. W. Beach of Congress, Arizona and Mr. Reese McCloskey, a Durango attorney, claim a two-thirds undivided interest in the six unpatented claims on Copper Hill. The remaining one-third interest appears to be in the La Plata Mines Company but subject to transfer to Messrs. Beach and McCloskey, according to statements made by them. The six claims referred to are the Copper Hill, Willow Springs, Numeralda, Ida May, Snow Bird, and Butterfly.

No other claims are known to be held in the area west of the La Plata River that were located prior to the withdrawl from entry by the Secretary of Interior of lands in the west half of the town ship.

Description of the Deposits

The La Plata Mountains are the result of an uplift which formed a dome 12 to 15 miles in diameter. The structure is extensively intruded by igneous dikes, sills, and stocks which have further distorted the older formations. Laccolithic intrusion is thought to be largely responsible for the doming of the structure, although other contributory causes may have had their effects.7/

Two copper deposits in the area, exposed at Copper Hill and in the Allard Tunnel, appear to have economic possibilities. The geologic features of these deposits and their relations to each other have a definite bearing on the possible existence of a sufficiently large quantity of ore to warrant large scale operations.

The area between Madden and Boren Creeks from the La Plata River northwest to the divide is characterized by a syenite stock 1 mile wide. The stock is shown in figure 2 with its central point in Bedrock Gulch. Copper Hill and the Allard Tunnel are within this area, and other smaller showings of copper have been found associated with dikes and sills several miles distant from the exposed stock.

The syenite stock is intensely fractured and seamed and almost everywhere contains disseminated pyrite and chalcopyrite. Although the low copper content does not indicate that the stock as a whole is commercially important, it may contain areas sufficiently rich to be mined.

Due to the thick cover of soil and vegetation, it is not possible to follow mineralized zones on the surface between Copper Hill and the Allard Tunnel. North and northeast of the tunnel where outcrops are numerous, the rock is highly altered and difficult to classify, but it is thought to be a continuation of the syenite stock. This rock contains a higher percentage of pyrite and smaller amounts of chalcopyrite than are to be found at lower elevations to the southeast.

7/ Op. Cit., Geol. Folio 60 - page 9.

Copper Hill

The Copper Hill deposit is located on the southwest shoulder of a ridge between Boren and Bedrock Creeks. It is best exposed in a large glory hole at an altitude of 10,400 feet.

The syenite in and near the glory hole is intermeshed with threads and seams of solid metallic sulfides, largely chalcopyrite. Microscopic examination of the rock disclosed many disseminated particles of chalcopyrite as small as 560 mesh. The part of the deposit containing most copper is nearly circular in plan and about 60 feet in diameter.

There is an abrupt change in copper content from an average of about 2 percent within the flory hole zone to less than 0.2 percent in the tunnels leading from it. The change is not clearly marked by structural or other features. However, the change in copper content on the southeast side of the glory hole occurs near a fissure which strikes N. 50°W. and dips southwest 45°. This fissure is only slightly more prominent than others both inside and outside of the glory hole, but being near the point of change in copper content, it may have special significance. Likewise, on the southwest side of the ore body and either at or near the points of change from higher to lower copper content are two fissures that strike N. 82°W. and N. 50°W. respectively and are nearly vertical. The projected planes of these three fissures intersect from 32 to 75 feet below the tunnel level of the glory hole on its southwest side. If these planes limit the ore body, it is either a shallow deposit of small proportions or it has been separated from the main ore shoot by faulting. No ore is found in tunnel No. 2, part of which extends from south to north and is 183 feet vertically below the west part of the flory hole. If the ore body extends below the No. 2 tunnel, it must pitch easterly or westerly in such a way as to pass downward to the side of the tunnel.

The size and shape of the ore body on the upper tunnel level are shown on figure 4. Its shape in depth and its vertical extent can be determined only by further exploration.

The minerals are largely chalcopyrite and pyrite. No oxidation of these minerals is apparent.

Allard Tunnel

The Allard Tunnel is approximately 5,000 feet northwest of the Copper Hill glory hole. The portal is located on the west side of Bedrock Creek at an altitude of 10,250 feet, and the tunnel is in the syenite stock that included the Copper Hill deposit.

Copper minerals are exposed throughout the workings. Midway between the portal and the breast of the tunnel is a 150 foot zone in which the average copper content is 0.7 percent. On both sides of this zone, the content varies between 0.1 and 0.4 percent. The average of all samples shows approximately 0.003 ounce platinum metals and 0.25 ounce of silver per ton.

The syenite at the Allard Tunnel is lothologically similar to that at Copper Hill, but contains more augite, garnet, and fluorite.

A detailed petrographic study of the different phases of the syenite might yield useful information concerning the downward extent of the ore.

Near Burwell Peak and within the monzonite stock northwest of the head of Bedrock Creek, is a third copper-bearing area worthy of investigation.

Development

Copper Hill

Most of the exploratory work has been done on the Copper Hill and Allard Tunnel properties.

The development at Copper Hill is shown in figure 3. Tunnel No. 1 extends 290 feet slightly south of east from the portal, which is at an altitude of 10,383 feet. The tunnel has two branches about 40 feet apart, each of which extends approximately 165 feet in a northeasterly direction. Another branch from a point 65 feet from the portal extends south 50 feet and thence east 77 feet. At 80 feet from the portal, tunnel No. 1 enters the circular glory hole, which is 40 feet in diameter at the base and from 30 to 50 feet high where it opens on the steep southwest side of the hill.

The portal of tunnel No. 2 is 400 feet southwest of tunnel No. 1 at an altitude of 10,200 feet. The tunnel extends northeasterly for a distance of 258 feet and then follows a northerly course 345 feet to a point below the west side of the glory hole.

All tunnels were driven in hard tough rock in which no timbering was needed. They are now open except for small amounts of caved material near their portals. Rails and pipe have been removed. The tunnels are well drained, and the air circulation is good. The shop and ore bins are still standing but are in a somewhat dilapidated condition.

The Esmeralda Tunnel, approximately 600 feet southeast of tunnel No. 2, is at present inaccessible. It is said to have been driven on a quartz vein as a gold prospect and later abandoned.

Allard Tunnel

The location of the tunnel in relation to the Copper Hill workings is shown on figure 2, and the underground development is shown on figure 4.

The tunnel adit is located approximately 200 feet west of Bedrock Creek. It enters the mountainside in a southwesterly direction and at a point 40 feet from the portal, changes its course to N.38°W. and continues 640 feet straight to the breast. At 474 feet north from the turn, a side tunnel was driven southwestward 120 feet and then turned northwest 84 feet to the breast. This tunnel is in good condition except for some debris near the portal. It is 6 x 7 feet in cross section and the ventilation is good. A small amount of seepage water runs from the adit. All buildings have been removed. There is no timbering and none is needed except at the portal. All track has been removed.

It is reported that the original objective of the main tunnel was the gold bearing pyrite deposit west of the divide which is about 2,250 feet higher and some 4,500 feet distant.

Within a quarter of a mile of the tunnel are several discovery cuts and short tunnels, all of which show pyrite and usually some copper carbonate stain.

Sampling

The Bureau of Mines took 232 samples, the distribution of which is shown below:

Location	Number of Samples
Copper Hill	
Glory hole area	36
Tunnel No. 1 outside glory hole area	80
Willow Springs Tunnel	47
Open-cut	1
Dump	1
Allard Tunnel	67
Total	232

All mine samples were cut as shallow channels 5 feet long across the grain of the rock. The relatively large number of samples shows consistency in results.

The position and number of each sample was marked conspicuously for further reference. Figures 4 and 5 show the locations and assays of the samples. A tabulation of all samples and assay results are appended to this report.

The Ore

The ore is essentially chalcopyrite with pyrite in a quartz gangue. Occasional grains of apatite, chlorite, feldspar, and epidote are enclosed in the quartz. The quartz may have been introduced contemporaneously with the sulfides.

The results of sampling in the Copper Hill Glory Hole are listed as follows:

Sample No.	Copper	Insol.	Iron	Sulfur	Gold	Silver
	----------percent----------				----ounces/ton------	
110	1.00	86.2	3.2	0.5	tr.	0.3
111	2.87	77.4	5.1	3.3	0.02	0.6
112	3.60	76.4	5.85	3.4	nil	1.0
113	1.20	89.2	2.4	0.6	nil	0.4
114	4.12	80.8	5.7	4.3	tr.	1.4
115	1.57	84.8	3.6	1.1	nil	0.4
116	3.87	77.4	5.35	4.2	nil	1.0
117	2.12	80.4	4.6	3.4	nil	0.5
118	5.72	71.4	7.35	6.4	nil	1.2
119	0.82	77.4	7.25	4.1	nil	0.3

Sample No.	Copper	Insol[illegible]	Iron	Sulfur	G[illegible]d	Silver
	- - - - - -percent- - - - - - -				- - ounces/ton- - - -	
120	1.37	80.8	5.1	2.7	nil	0.3
121	2.45	81.0	4.2	2.5	nil	0.6
122	0.45	88.2	3.1	0.2	tr.	0.15
123	1.15	84.2	4.25	1.1	nil	0.3
124	1.40	83.2	4.7	2.0	nil	0.4
125	1.95	80.6	3.7	3.0	nil	0.3
126	1.05	83.2	4.85	1.1	tr.	0.3
127	1.00	87.0	2.8	0.6	tr.	0.5
128	1.25	85.0	3.65	1.8	tr.	0.4
129	2.10	83.8	3.9	2.8	nil	0.5
173	2.45	83.6	3.20	2.55	tr.	0;75
174	2.21	86.2	3.40	2.30	0.03	1.00
175	2.97	79.6	4.40	2.95	0.04	0.75
176	2.60	84.0	3.80	2.90	0.03	0.80
177	1.50	87.8	3.40	1.65	tr.	0.25
178	1.55	87.6	3.00	1.70	nil	0.20
179	0.75	87.8	3.40	0.80	tr.	0.15
180	1.25	91.4	2.60	1.35	nil	0.15
181	3.25	87.8	4.00	3.35	tr.	0.85
182	0.70	86.2	3.30	1.10	tr.	0.15
183	0.40	83.0	4.80	1.50	nil	0.15
184	1.47	82.8	3.50	2.15	nil	0.35
193	0.95	85.4	4.20	1.55	0.03	0.20
194	1.12	83.8	4.80	1.50	tr.	0.25
212	1.62	79.0	6.20	2.10	tr.	0.30
213	1.35	81.2	5.00	2.50	0.02	0.50
Averages	1.87	83.2	4.27	2.28	tr.	0.490

Assays of the platinum metals were made on composites of ten samples each and average 0.005 ounce per ton.

Assays by the U. S. Geological Survey of selected samples rich in chalcopyrite from the Copper Hill mine dump gave the following results:

Sample No	Copper Percent	Platinum	Palladium	Gold	Silver
		- - - - - -ounces per ton- - - - - -			
1	17.66	0.24	0.30	0.04	1.21
2	13.10	0.14	0.12	0.01	2.52

These assays are of interest in comparison with those of the general glory hole samples, as they show that the platinum group metals increase substantially with the increase of copper above 1.5 percent.

The sample locations and copper assays in the Allard Tunnel are shown on figure 6. The assays are grouped as to copper content, and a middle zone 150 feet long averages 0.70 percent copper, 0.23 ounce silver, and 0.003 ounce platinum metals per ton. If the chosen zone is 300 feet long, the average copper content is reduced to 0.54 percent. The end zones aggregating 435 feet show less than0.20 percent copper.

Results of Metallurgical Tests

A composite of samples 110 to 129 inclusive was sent to the Bureau of Mines Intermountain Experiment Station in Salt Lake City for preliminary metallurgical testing; the analysis by the Bureau was as follows:

Copper	2.3 per cent
Lead	0.05 "
Zinc	nil "
Silica	51.0 "
Iron	4.4 "
Lime	2.6 "
Sulphur	3.0 "
Alumina	17.6 "
Magnesia	0.35 "
Gold	nil "
Silver	0.6 ounces per ton
Platinum Metals	0.009 " " "

The oxide copper amounts to 0.12 percent, and the insoluble matter to 82.6 percent.

The details of the preliminary metallurgical test by the Bureau of Mines are summarized as follows: "Generally, satisfactory results were obtained by flotation although grinding approximately 70 percent through 200 mesh appeared necessary for optimum results."

A minus 10 mesh sample of ore was batch ground for 15 minutes with CaO plus NA_2SiO_3. A copper concentrate was floated and cleaned. Metallurgical data resulting from the test are tabulated as follows:

Product	Weight	Weight PerCent	Copper	Insol	Iron	Copper	Insol	Iron
			----percent-------			Distribution - percent		
Cleaner Conct.	40.2	7.61	27.6	13.0	25.9	91.31	1.21	43.49
Cleaner Conct.	13.4	2.54	2.75	42.4	19.3	3.04	1.32	10.82
Rougher Tail	474.6	89.85	.15	89.0	2.3	5.65	97.47	45.69
Calc. Head	528.2	100.00	2.30	82.03	4.53	100.00	100.00	100.00
Rougher Conct		10.15	21.38	21.37	20.39	94.35	2.53	54.31

The average metal content of the samples in the area outlined on Figure 4 is 1.87 percent copper and 0.49 ounce silver per ton. As this is somewhat lower than that of the ore used in the metallurgical tests, it is assumed the copper recovery in milling will be 89 percent instead of 91.31 percent. This will produce a concentrate assaying 27.6 percent copper and 4.87 ounces silver per ton with a concentrate ratio of 16.57 into one.

Such a concentrate, sold to the American Smelting and Refining Company at Garfield, Utah, should yield the following returns:

Net Returns for Copper Hill Ore

Payments: (Per ton of concentrate)		
537 pounds copper at $.09417 per pound	$ 50.57	
4.37 ounces silver at $.70625 per ounce	3.08	
Total payments		$ 53.65
Deductions: (Per ton of concentrate)		
Treatment charge	$ 5.75	
Freight, Durango to Garfield (10 percent moisture)	9.78	
		$ 15.53
Net smelter payment per ton of concentrate		$ 38.12
Net smelter payment per ton of ore		$ 2.30
Costs: (Per ton of ore)		
Mining and tramming to mill	$ 1.00	
Development	.50	
Milling	1.00	
Haulage concentrate, mill to Hesperus	.05	
Total costs		$ 2.55
Net loss per ton of ore		.25
"A" Government premiums per ton of ore		1.62
		$ 1.37

Assuming a production rate of 200 tons per day and 330 working days per year, the annual operating profit exclusive of taxes should be $90,420. From this amount, interest and principal payments would have to be made to cover the costs of a 200-ton concentrating plant, mining equipment, and preliminary development.

Ore Reserves

The glory hole on the Copper Hill deposit may be regarded as a hub from which tunnels extend in four directions on the No. 1 level which corresponds roughly to the bottom of the pit. The walls of the pit and the tunnels were sampled on this level at close intervals, and the horizontal economic limit of the ore body was placed where the copper values were found to drop off somewhat abruptly below one percent.

The resulting area contains approximately 4,000 square feet and would include 333 tons of ore per foot of depth below it. Sampling within the area on the No. 1 level shows average values of 1.87 percent copper, 0.49 ounce silver, and 0.005 ounce platinum metals per ton.

However, the No. 2 tunnel which passes directly under the area and 183 feet below it does not contain copper values over 0.2 percent which indicates that the values shown on the No. 1 level do not extend vertically downward for any great distance.

Assuming that the values decrease constantly with depth between the Nos. 1 and 2 levels, the ore should depreciate to 1 percent copper at a depth of 96 feet below the No. 1 level. If the perimeter of the area on No. 1 level is projected vertically downward, a block of 32,000 tons with a content of 1.45 percent copper can be inferred, which would last approximately 5½ months at a 200-ton daily production rate.

It is evident that an ore reserve large enough to be regarded as commercial cannot be based on the above assumption.

The possibility that the mineralized shoot pitches to the east or west of the No. 2 tunnel would have to be investigated by core drilling before reserves could be extended on that principle.

The largest reserve that can be consistently inferred from present data is 32,000 tons of inferred ore with a metal content of 1.45 percent copper and .42 ounces silver per ton.

Exploratory work herein proposed should yield additional information on which to base a more definite estimate of the available reserve tonnage.

Plans for Company Operation

No plans have been made for company operation of the property.

Exploration Recommended for the Bureau of Mines

The following drilling program is outlined for the purpose of determining the nature and extent of the Copper Hill deposit below the No. 1 tunnel level. For this purpose, it is proposed to drill six holes on the No. 1 level in the bottom of the glory hole at the locations shown on figure 4 to a minimum length of 100 feet each as follows:

Hole No.	Direction	Declination
1	N.85° W.	60 Degrees
2	S.45° W.	60 "
3	S.30° E.	60 "
4	S.85° E.	60 "
5	N.45° E.	60 "
6	N.30° W	60 "

All holes are to be drilled to lengths of 100 feet each regardless of the assay values of the cores. Any hole yielding a core which assays 1 percent copper or more at a depth of 100 feet is to be continued as far as such value persists and 20 feet farther to a maximum total length of 600 feet. Sufficient water for drilling purposes is available within 1 mile of the drilling site.

Summary of Major Costs

-Basis; two drilling shifts per day-

	Minimum	Maximum
Drilling contract; 600 feet B-x hole at $5.00 per foot	$3,000.00	
Drilling contract; 600 feet B-x hole at $5.00 per foot plus 1,000 feet A-x hole at $4.50 per foot		$7,500.00
1 Foreman; 18 to 45 days at $10.00 per day	180.00	450.00
2 Samplers; 18 to 45 days each at $8.00 per day	288.00	720.00
	3,468.00	$8,670.00
Contingencies; 20 percent of major costs	693.60	1,734.00
Totals	$4,161.60	$10,404.00

Conclusions

Sixty-seven samples taken by the Bureau of Mines how that the copper in the Allard Tunnel is too low for further consideration.

The Copper Hill deposit, which is of slightly higher grade, can be considered as commercial only if it is proved to be sufficiently large to permit the use of large-scale, low-cost mining methods.

Extensive sampling of the Copper Hill workings discloses an area of 4,000 square feet on the No. 1 tunnel level in which the average metal content is 1.87 percent copper, 0.49 ounce silver, and 0.005 ounce platinum metals per ton.

The ore is amenable to flotation and if concentrated on or near the property and sold to Utah smelters at present O.P.A. ceiling prices plus the "A" Government premium for copper, the net profit should be approximately $1.35 per ton.

However, as there is no concentrating plant available to treat the ore and all mining equipment and installations are lacking, an initial expenditure of $200,000 or more would be necessary before production on a 200-ton per day basis could be begun.

The No. 2 tunnel passes directly under the sampled area mentioned above and is 183 feet lower in elevation. This tunnel contains no copper values over 0.2 percent, and appears definitely to limit the vertical downward extent of the ore.

If the grade of the ore decreases at a constant rate from the upper to the lower level, a lower limit of 1.0 percent copper should be reached at a depth of 96 feet below the No. 1 level. The ore body thus inferred would contain approximately 32,000 tons of ore averaging 1.45 percent copper and 0.42 ounce silver per ton, which obviously does not constitute a large reserve.

There remains the possibility, however, that the deposit pitches at such an angle as to avoid contact with the lower tunnel in which case the existence of a much larger reserve is possible. This condition could readily be investigated by a small number of well-placed core drill holes.

Recommendations

In the belief that the Copper Hill deposit warrants further investigation, the Bureau of Mines hereby recommends the core drilling program outlined on page 13 of this report.

Should encouraging results be obtained by drilling, a more extensive drilling program would be advisable to define the limits of the deposit more definitely.

If the results of drilling indicate a commercial deposit, it is also recommended that additional geological investigation for similar occurences, possibly supplemented by drilling or trenching by the Bureau of Mines, be carried out in the surrounding area.

APPENDIX I

Tabulation of Samples and Assay Results

Copper Hill and Vicinity, La Plata Co., Colorado

I COPPER HILL

Sample Number	Location	Copper Percent	Silver -ounces/per ton	Gold	Platinum Metals
110	Glory Hole area	1.00	0.3	tr	
111	Glory hole area	2.87	0.6	0.02	(Average
112	Glory hole area	3.60	1.0	No	(for
113	Glory hole area	1.20	0.4	No	(composite
114	Glory hole area	4.12	1.4	Tr	(of
115	Glory hole area	1.57	0.4	No	(110 to 119
116	Glory hole area	3.27	1.0	No	(Inc.
117	Glory hole area	2.12	0.5	No	(.006 oz/ton
118	Glory hole area	5.72	1.2	No	(
119	Glory hole area	0.82	0.3	No	(
120	Glory hole area	1.37	0.3	No.	(
121	Glory hole area	2.45	0.6	No	(
122	Glory hole area	0.45	0.15	Tr	(
123	Glory hole area	1.15	0.3	No	(
124	Glory hole area	1.40	0.4	No	(120-129
125	Glory hole area	1.95	0.3	No	(.004
126	Glory hole area	1.05	0.3	Tr	(
127	Glory hole area	1.00	0.5	Tr.	(
128	Glory hole area	1.25	0.4	Tr.	(
129	Glory hole area	2.10	0.5	No	(
130	Tunnel No. 1, outside g.h. area	0.25	tr	Tr	(
131	Do	0.25	Tr	Tr	(
132	Do	0.15	Tr	Tr	(
133	Do	0.20	Tr	Tr	(
134	Do	0.10	Tr	No.	(
135	Do	0.20	Tr	No	(130-139
136	Do	0.15	Tr	No	(.004
137	Do	0.20	Tr	Tr	(
138	Do	0.15	Tr	Tr	(
139	Do	0.20	Tr	Tr	(
140	Do	0.30	Tr	Tr	(
141	Do	0.15	Tr	Tr	(
142	Do	0.10	Tr	Tr	(
143	Do	0.10	Tr	Tr	(
144	Do	0.15	Tr	Tr	(140-147
145	Do	0.20	Tr	Tr	(.006
146	Do	0.25	Tr	No	(
147	Do	0.15	Tr	No	(

148 to 164 inclusive not used.

APPENDIX I

Copper Hill cont'd.

Sample Number	Location	Copper Percent	Silver	Gold	Platinum Metals
			-------ounces/per ton-------		
165	Tunnel No.1,outside g.h. area	0.16	0.10	Tr	(
166	Do	0.07	Tr	Tr	(
167	Do	0.07	Tr	Tr	(
168	Do	0.20	0.10	Tr	(165-174
169	Do	0.07	0.20	Tr	(.0075
170	Do	0.13	0.10	Tr	(
171	Do	0.14	1.0	Tr	(
172	Do	0.15	0.80	0.01	(
173	Glory hole area	2.45	0.75	Tr	(
174	Do	2.21	1.00	0.03	(
175	Do	2.97	0.75	0.04	(
176	Do	2.60	0.20	0.03	(
177	Do	1.50	0.25	Tr	(
178	Do	1.55	0.20	No	(
179	Do	0.75	0.15	Tr	(175-184
180	Do	1.25	0.15	No	(.009
181	Do	3.25	0.85	Tr	(
182	Do	0.70	0.15	Tr	(
183	Do	0.40	0.15	No.	(
184	Do	1.47	0.35	No	(
185	Tunnel Nol, branch	0.47	0.15	Tr	(
186	Do	0.25	0.20	No	(
187	Do	0.18	0.20	No	(
188	Do	0.25	0.15	Tr	(185-194
189	Do	0.10	Tr	No	(.0095
190	Do	0.10	Tr	Tr	(
191	Do	0.15	0.35	Tr	(
192	Do	0.20	Tr	Tr	(
193	Glory hole area	0.95	0.20	0.03	(
194	Do	1.12	0.25	Tr	(
195	Do	0.12	Tr	Tr	(
196	Do	0.07	0.15	0.01	(
197	Do	0.12	Tr	No	(
198	Do	0.12	Tr	Tr	(195-204
199	Do	0.03	0.10	0.02	(.008
200	Do	0.12	0.10	0.01	(
201	Do	0.03	Tr	No	(
202	Do	0.07	Tr	No	(
203	Do	0.10	Tr	Tr	(
204	Do	0.10	0.10	No	(
205	Do	0.07	0.10	No	(
206	Do	0.05	6.90	Tr	(
207	Do	0.15	Tr	Tr	(
208	Do	0.05	0.10	Tr	(

Copper Hill cont'd.

Sample Number	Location	Copper Percent	Silver	Gold	Platinum Metals
			------ounces per ton------		
209	Glory hole area	0.07	Tr	Tr	(
210	Do	0.07	Tr	No	(
211	Do	0.05	Tr	Tr	(
212	Do	1.62	0.30	Tr	(
213	Do	1.33	0.50	0.02	(
214	E. Branch Tunnel No. 1	0.12	Tr	Tr	(
215	Do	0.15	Tr	Tr	(
216	Do	0.10	Tr	Tr	(
217	Do	0.13	Tr	Tr	(
218	Do	0.07	Tr	No	(215-224
219	Do	0.08	Tr	Tr	(.0015
220	Do	0.15	Tr	No	(
221	Do	0.05	Tr	No	(
222	Do	0.05	Tr	No	(
223	Do	0.09	Tr	No	(
224	Do	0.10	Tr	No	(
225	Do	0.09	Tr	No	(
226	Do	0.10	7.65	Tr	(
227	Do	0.17	0.20	Tr	(
228	Do	0.15	Tr	Tr	(
229	Do	0.10	Tr	Tr	(225-234
230	Do	0.14	Tr	Tr	(.0025
231	Do	0.10	Tr	No	(
232	Do	0.10	Tr	Tr	(
233	Tunnel, north from glory hole	0.10	Tr	Tr	(
234	Do	0.05	Tr	Tr	(
235	Do	0.05	Tr	No	(
236	Do	0.12	Tr	No	(
237	Do	0.05	Tr	No	(
238	Do	0.05	Tr	No	(235-244
239	Do	0.30	0.25	Tr	(.0045
240	Do	0.10	Tr	Tr	(
241	Do	0.17	Tr	Tr	(
242	Do	0.17	Tr	No	(
243	Do	0.10	0.15	Tr	(
244	Do	0.10	Tr	Tr	(
245	Dump sample, glory hole	1.60	0.4	Tr	(
246	Tunnel No. 2 (Willow Springs)	0.15	0.20	No	(
247	Tunnel No. 2 (Willow Springs)	0.10	0.10	No	(
248	Tunnel No. 2 (Willow Springs)	0.15	0.30	No	(
249	Tunnel No. 2 (Willow Springs)	0.20	0.40	No	(
250	Tunnel No. 2 (Willow Springs)	0.12	0.20	No	(245-254
251	Tunnel No. 2 (Willow Springs)	0.07	0.10	No	(.006
252	Tunnel No. 2 (Willow Springs)	0.05	Tr	No	(
253	Tunnel No. 2 (Willow Springs)	0.10	0.40	No	(
254	Tunnel No. 2 (Willow Springs)	0.10	0.30	Tr	(
255	Tunnel No. 2 (Willow Springs)	0.17	0.3	Tr	(

Copper Hill cont'd.

Sample Number	Location	Copper Percent	Silver	Gold	Platinum Metals
			------ounces per ton--------		
256	Tunnel No. 2 (Willow Springs)	0.05	Tr	Tr	(
257	Do	0.06	Tr	Tr	(
258	Do	0.05	Tr	Tr	(255-264
259	Do	0.05	0.3	Tr	(.0025
260	Do	0.04	0.2	Tr	(
261	Do	0.05	Tr	Tr	(
262	Do	0.05	0.10	Tr	(
263	Do	0.05	Tr	No	(
264	Do	0.07	Tr	Tr	(
265	Do	0.12	Tr	Tr	(
266	Do	0.07	0.2	Tr	(
267	Do	0.05	Tr	Tr	(
268	Do	0.06	Tr	Tr	(
269	Do	0.17	0.3	Tr	(265-274
270	Do	0.05	Tr	Tr	(.004
271	Do	0.15	0.2	Tr	(
272	Do	0.05	0.3	Tr	(
273	Do	0.07	1.2	Tr	(
274	Do	0.12	Tr	Tr	(
275	Do	0.07	0.2	Tr	(
276	Do	0.06	Tr	No	(
277	Do	0.10	Tr	No	(
278	Do	0.05	0.2	No	(
279	Do	0.07	0.2	Tr	(275-284
280	Do	0.05	Tr	Tr	(.002
281	Do	0.04	0.15	Tr	(
282	Do	0.07	0.20	Tr	(
283	Do	0.05	Tr	Tr	(
284	Do	0.05	0.20	Tr	(
285	Do	0.05	0.1	Tr	(
286	Do	0.04	Tr	Tr	(
287	Do	0.05	0.1	Tr	(
288	Do	0.06	0.2	Tr	(
289	Do	0.10	0.2	Tr	(
290	Do	0.12	0.3	Tr	(286-294
291	Do	0.15	0.3	Tr	(.0025
292	Do	0.07	0.1	Tr	(
293	100 feet southeast of glory hole	1.10	1.2	Tr	(

II Allard Tunnel

Sample Number	Location	Copper Percent	Silver	Gold	Platinum Metals
			-------ounces		per ton------
294	Main Tunnel	0.12	0.1	Tr	(
295	Do	0.15	Tr	Tr	(
296	Do	0.15	0.3	Tr	(
297	Do	0.10	Tr	No	(
298	Do	0.27	0.2	Tr	(
299	Do	0.25	0.4	Tr	(295-304
300	Do	0.20	0.5	Tr	(.0015
301	Do	0.20	0.2	No	(
302	Do	0.12	0.5	No	(
303	Do	0.30	Tr	No	(
304	Do	0.27	0.3	Tr	(
305	Do	0.52	0.4	Tr	(
306	Do	0.40	Tr	Tr	(
307	Do	0.37	Tr	No	(
308	Do	0.32	0.3	No	(305-314
309	Do	0.75	Tr	No	(.003
310	Do	0.30	0.2	Tr	(
311	Do	0.60	0.2	No	(
312	Do	0.45	0.2	No	(
313	Do	2.35	0.7	Tr	(
314	Do	0.47	0.2	No	(
315	Do	0.32	0.2	Tr	(
316	Do	0.58	0.2	No	(
317	Do	0.45	0.3	Tr	(
318	Do	0.75	0.3	No	(
319	Do	0.62	Tr.	Tr	(
320	Do	0.47	0.3	Tr	(315-324
321	Do	0.30	0.2	Tr	(.0025
322	Do	0.27	0.3	Tr	(
323	Do	0.25	0.3	Tr	(
324	Do	0.42	Tr	Tr	(
325	Do	0.45	0.3	Tr	(
326	Do	0.25	0.2	Tr	(
327	Do	0.22	0.2	Tr	(
328	Do	0.31	0.2	No	(
329	Do	0.32	0.2	No	(
330	Do	0.06	0.2	Tr	(325-334
331	Do	0.10	0.2	Tr	(.004
332	Do	0.17	0.2	Tr	(
333	Do	0.22	Tr	Tr	(
334	Do	0.12	0.1	Tr	(
335	Do	0.07	Tr	Tr	(
336	Do	0.10	Tr	Tr	(
337	Do	0.17	0.3	No	(
338	Do	0.15	Tr	No	(

Allard Tunnel Cont'd.

Sample Number	Location	Copper Percent	Silver	Gold	Platinum Metals
			--------ounces	per ton-------	
339	Main Tunnel	0.15	0.2	No	(335-344
340	Do	0.12	0.2	Tr	(Tr
341	Do	0.10	0.2	Tr	(
342	Do	0.07	0.1	No	(
343	Do	0.07	0.15	No	(
344	Do	0.12	0.1	No	(
345	Do	0.10	0.1	No	(
346	Do	0.10	0.15	No	(
347	Branch Tunnel	0.22	0.4	No	(
348	Do	0.27	0.1	No	(
349	Do	0.77	0.2	No	(345-354
350	Do	0.60	0.3	Tr	(.002
351	Do	0.22	Tr	No	(
352	Do	0.72	0.2	Tr	(
353	Do	0.50	0.4	Tr	(
354	Do	0.67	0.3	No	(
355	Do	0.34	Tr	Tr	(
356	Do	0.25	0.3	Tr	(
357	Do	0.17	Tr	No	(355-360
358	Do	0.62	0.4	Tr	(Tr
359	Do	0.47	0.2	Tr	(
360	Do	0.50	0.3	Tr	(

F[redacted]F-104 (Rev.)
(April 1952)

UNITED STATES
[redacted]PARTMENT OF THE INTERIOR[redacted]
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1636.3.
Approval expires 6-30-63.

DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration
RECEIVED
DEC 22 1952

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of July 17 to August 16, 195 2 Docket No. DMEA 1323X Contract No. Idn E 316

Operator's Name Ute Mining Company Minerals Copper

Address Durango, Colorado

Contract Amount, $ 3,000. Government Participation: 50 % Amount, $ 1,500.

ITEMS OF COSTS	FOR OPERATOR'S USE: Monthly Total	Totals Previously Reported	Totals To Date	FOR GOVERNMENT USE ONLY: Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:	July August					
Drilling						
Bulldozing						
Crosscutting						
Drifting						
(2) Labor and Supervision:						
Labor						
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
Core Boxes	63.60		63.60			
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis						
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
Contract Bulldozer [illegible]			[illegible]			
Contract Building [illegible]			[illegible]			
Contract Drucker [illegible]			[illegible]			
TOTALS	3372.60 (*)		3372.60	3000.00		3000.00

I certify that the above bill is correct and just and that payment therefor has not been received.

Date 9/9/52 *Payee Ute Mining Company

Per Fred A. Brinker Title President

*When a voucher is signed or receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary," or "Treasurer," as the case may be.

→ NOTE.—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.

(Instructions on reverse)

(*)Excess of 372.60 over 3,000. for our account

Pursuant to authority vested in me, I certify that this account is correct and proper for payment in the amount of:

$1500.00

Signature [illegible]
(Authorized Certifying Officer)

Date 12/15/52 Vou. No. DMA 53-70
(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

I certify that to the best of my knowledge and belief the contractor submitting this voucher is operating a Defense Minerals Exploration Administration project under Contract No. E 316 in accordance with the terms of the contract.

Signature [illegible] 1500 [illegible] $500.00 Title Mining Engineer Date 9/26/52

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature W. H. King Title Executive Officer Date 2/8/53

MONTHLY REPORT OF OPERATOR

The Operator (Contractor) of an exploration project is required to make a monthly report to the Government through the Regional Executive Officer. This report consists of three parts as follows:

(a) *Form MF-104—Operator's Monthly Report and Voucher.*—This form details expenditures and constitutes a voucher for reimbursing the Operator for the Government's share of costs;

(b) *Form MF-104A—Operator's Unit Cost and Progress Report.*—This is a statistical report of expenditures which shows costs for the various types of operation; and

(c) *Narrative.*—A concise narrative description of progress made, results accomplished, and any unusual difficulties encountered must be furnished as an attachment to this Report and Voucher. Wherever possible, the narrative is to be illustrated with maps or sketches showing formations penetrated and location and assays of samples taken as well as advances in workings. In the case of diamond drilling or churn drilling, the location and inclination of holes is to be shown on a map; logs and assays also are to be submitted.

The Monthly Report of Operator should be prepared in an original and four copies all of which must be sent to the Executive Officer of the Region not later than the 15th of the month following.

Preparation of Form MF-104—Operator's Monthly Report and Voucher.—All the applicable spaces in Form MF-104 should be filled in by the Operator, and the Operator or his agent should sign the certification in the lower left corner of the form.

The items of costs are arranged in the order they appear in Article 6 (a) of Form MF-200 (Revised February 1952), however, this form is readily adaptable for use in reporting activities under other contract forms.

Under Item (1) delete words "Short Form" if the contract is a sub-contract under Form MF-200; and delete word "Independent" if the contract reported is on Form MF-200 (A). Also, report work paid for on a unit basis under contract Form MF-200 as though it were performed under an independent contract.

Under Item (2) include labor, supervision and technical services incurred for the exploratory operations. Do not include labor, supervision and technical services used for work performed under items (5) and (6).

Under Item (3) include the costs of material and supplies used in the project other than that used under items (5) and (6).

Under Item (4) appear the three types of operating equipment expenditures, that is, rental, purchase and depreciation. The expenditures made for renting equipment belonging to a third party will be reported under "Rental". The amount paid or duly obligated for payment for the purchase of equipment will be reported under "Purchase". The amount of expenditures due the Operator to reimburse him for depreciation of equipment owned will be reported under "Depreciation".

Item (5) comprises costs of labor, supervision, technical services, materials, etc., which are used in the initial rehabilitation and repair of existing buildings, installations, fixtures, and equipment. These costs, therefore, should not be reported under items (2) and (3).

Item (6) includes the labor, supervision, technical services, materials, etc., used in the installation or construction of new buildings, fixed improvements, etc., necessary for the project. These costs, therefore, should not be reported under items (2) and (3).

Item (7) covers miscellaneous types of expenditure such as payroll taxes, liability insurance, workmen's compensation insurance, repairs to equipment and sampling and analysis. Only that part of payroll taxes, liability insurance and workmen's compensation which are paid by the operator should be reported under item (7). The share paid by the employee as a payroll deduction is to be included under item (2) as labor costs.

Item (8) includes any unforeseen costs not included in the other seven categories.

The original of Form MF-104 when submitted for reimbursable expenses incurred under contract Form MF-200 must be supported by original documentation or by certified copies of purchase orders, payrolls or transcripts of payrolls, unless such documentation has been waived by the Regional Executive Officer. This certification may be stated thus, "Certified True Copy (or Transcript)", followed by appropriate signature. If the Executive Officer of the Region determines that a contract under Form MF-200 should have an "on-site" audit, that is, a Government auditor should make an audit of the Operator's books and records of account, the Operator need not support his monthly voucher with original or certified documents except in cases of equipment purchases whose individual costs exceed $50.00. In these cases the original or a certified copy of the purchase order or invoice should be attached to the Monthly Voucher. N. B.—Only the *original* of Form MF-104 is required to be documented. The four copies of Form MF-104 are not to be thus supported.

Form MF-104 submitted for reimbursement under fixed price contracts on Form MF-200 (A), however, are not required to be supported by documentation of any kind. The Operator will submit his claim under item (1) of Form MF-104 by deleting as stated above the word "Independent" and by showing the number of feet or other units immediately after the appropriate descriptive word, such as, drilling, bulldozing, crosscutting, drifting, etc., and giving the "Monthly Total" amount due. "Totals Previously Reported", and "Totals to Date" columns should also be filled in.

U. S. GOVERNMENT PRINTING OFFICE 205675

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151
Approval expires 6-30-53.

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 22 1952

OPERATOR'S UNIT COST AND PROGRESS REPORT

Month of July 17 to Aug 13 1952 Docket No. DMEA 1323X Contract No. Idm E 316

Operator's Name Ute Mining Company Minerals Copper

Address Durango, Colorado

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT Units	AUTHORIZED BY CONTRACT Unit Costs
Drifting								
Crosscutting								
Raising								
Shafts								
Winzes								
Drilling: Core	Foot	2669.70	501	2669.70	501	5.326	450	5.25
Churn								
Auger								
Stripping								
Trenching								
Test Pits	Equipment	560.00		560.00				
Roads and Trails	Core Boxes	63.00		63.00				
Buildings		81.00		81.00				
TOTAL DISTRIBUTED COSTS		3373.00	501	3373.00				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc.								
TOTAL COSTS		3373.00	501	3373.00				3000.

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

Date 9/9/52 Operator Ute Mining Company

Per Fred A. Brinkman Title President

REMARKS: Excess of 373.00 over the 3000. in the old account

NOTE.—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.

(Instructions on reverse)

(For Government use only)

INSTRUCTIONS

Preparation of Form MF–104A—Operator's Unit Cost and Progress Report.—Applicable places on Form 104A should be filled in by the Operator. The purpose of this form is twofold as follows: (1) to furnish the supervising engineers and other administrators with statistical information necessary to better determine the progress of the project; and (2) to furnish more permanent information on mining costs for future use. The more important phases of operation on which permanent information is desired have been outlined in the form. There are blank lines, however, for those unusual phases which may need to be reported for a particular project. It will be necessary for the Operator to distribute his costs among the applicable phases reported with the exception of three items the costs of which are not to be distributed by the Operator. These three items are: "Operating Equipment Purchased", "Initial Rehabilitation and Repairs", and "New Buildings, Improvements, etc." The reason for not distributing these items on a monthly basis is doubtless clear to the Operator, since such distribution might well overstate the cost for any one month or period short of the entire contract period.

Form MF–104A has been designed to tie in with Form MF–104 for both monthly and cumulative costs. The "Total Costs" on Form MF–104A for each month should equal the monthly "Total Costs" as reported on Form MF–104. This is also true of the "Total Costs To Date".

In preparing Form MF–104A, it will be necessary frequently to distribute certain costs over a number of items. For instance, supervisory and engineering costs may have to be distributed over several phases, such as, drifting, crosscutting, raising, etc., provided that these items were reported active for the month. Such distributions should be made on the basis of time spent on the various phases, on man days of labor charged to such phases, or on some other equitable basis. "Operating Equipment", "Initial Rehabilitation and Repairs", and "New Buildings Improvements, etc.", will be distributed to the several phases of the project by the Washington Office of DMEA at the close of the project if determined necessary. The last two columns headed "Authorized by Contract" will be filled in by the Operator if such information is found in the contract. This information is usually a part of Exhibit "A" of the contract. A space for remarks has been provided for the use of the Operator to call attention to any unusual circumstances causing excessive or disproportionate unit costs.

U. S. GOVERNMENT PRINTING OFFICE 205676

U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
REGION IV

Administrative Audit Difference Statement

Date: December 11, 1952
Payee's
Reference: Progress Report
July 17 thru August 14,
1952

Ute Mining Company
Durango, Colorado

Gentlemen:

Upon examination of the above Payee's Reference a difference was Found which made it necessary to suspend your account accordingly:

Amount Claimed $ 3370.00

Difference $ 370.00

Amount Approved $ 3000.00

The reason for the difference was due to:

Claim is for $370.00 over and above the amount authorized by the Contract.

Any reclaim for deductions made above must be supported by the ORIGINAL of this form.

Very sincerely yours,

N. E. Stokes
Audit Section

R-IV-E & F Form No. 4
4-15-52 D

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

224 New Customhouse
Denver 2, Colorado

December 16, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 22 1952

Memorandum

To: Secretary to the Operating Committee

From: Executive Officer, Field Team, Region IV

Subject: Form MF-104, DMA Docket 1323X, Contract Idm-E316, (Copper) Ute Mining Co., La Plata County, Colorado

Enclosed are two copies of the Operator's Monthly Progress Report MF-104 and 104A, Operator's Narrative Report, Inspecting Engineer's Narrative Report, and other supporting data for the months of July 17, 1952 through August 18, 1952, pertaining to DMA Docket 1323X, Contract Idm-E316, Ute Mining Co.

John F. Shaw
John F. Shaw for
W. H. King

Enclosure

project finished
no one

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

224 New Customhouse
Denver 2, Colorado

December 8, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 22 1952

Memorandum

To: T. A. Christensen

From: Executive Officer, DMEA Field Team, Region IV

Subject: DMA Docket 1323X, Contract Idm-8316 (Copper) Ute Mining Co., La Plata County, Colorado - Operator's Monthly Progress Report for the period from July 17, 1952 through August 18, 1952

Enclosed are the original and four copies of Form MF-104 and Form MF-104A, Narrative Report, and Engineer's Report for the above period.

Work has been accomplished as authorized in the contract and payment is recommended for 50 percent of the amount as reported on Form MF-104, contingent on your verification of the correctness of applicable rates and arithmetical accuracy of computations, except for the following deductions.

Excess above the amount authorized in the contract.

Amount Reported	$3,378.80
Contract Authorization	3,000.00
Deduction -	$ 378.80

This constitutes the final payment under the contract and is in accordance with the Report of Review dated December 5, 1952, by an Auditor of the Contract Administration and Audit Division.

W. H. King
W. H. King

Enclosures

JWT:oc
cc: Contract
Secretary to the Operating Committee (2)
WMTraver
Chron.
AHKoschmann (2)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20
Denver Federal Center
Denver 14, Colorado
October 20, 1958

Memorandum

To: Executive Officer, Field Team, Region IV

From: Chief, Colorado Branch, Mining Division, Region IV

Subject: DMA 1323X, Contract Ida-E316 (Copper), Ute Mining Company, La Plata County, Colorado - Progress report for July 17 to August 18, 1958, inclusive.

Please find enclosed five copies of the above progress report--forms MF-104 (revised) and MF-104A, with five copies each of the narrative, map, and certified invoices--and seven copies of Scott W. Hansen, Jr.'s memorandum covering inspection of the underground progress and amounts.

The project has been completed without an ore discovery resulting and, from all reports, Brinker is satisfied.

All work was performed under contract and no equipment or supplies purchased except core boxes, which are considered expendable. Accordingly, there will be nothing to liquidate. We loaned the contractor a core splitter and will arrange to pick up our split of the core when we are notified it is ready.

Brinker expended $378.80 over the amount allowed and has noted in his report that he expects to pay the additional amount. It is our understanding that this monthly progress report will be considered as the final for both the Bureau of Mines and the contractor. A geologist from the Survey has logged the core and, we assume, will provide you with a copy as his contribution to the final report.

The report is considered in order and payment of $1,500.00, or 50 percent of the total $3,000.00 allowed by the contract, is approved.

W. M. Traver, Jr.

W. M. Traver, Jr.

enclosures

WMT/dd
cc: 4, AHKoschmann, E316, Chron.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
DEC 23 1952

Building 20
Denver Federal Center
Denver 14, Colorado
September 29, 1952

Memorandum

To: Chief, Colorado Branch, Mining Division, Region IV

From: Scott W. Hazen, Jr.

Subject: DMA 1323X, Contract Idm-E316 (Copper), Ute Mining Company, La Plata County, Colorado - Progress report for July 17 to August 18, 1952, inclusive.

A field inspection was made of the Copper Hill property on August 16, 1952, by R. D. Barkenkotter and Scott W. Hazen, Jr. Mr. Brinker, president of the Ute Mining Company, was present during the inspection. The diamond drill holes were observed and the core examined at Durango.

No commercial grade copper ore was found by the drilling. The estimated footage was exceeded by 51 feet at the contractor's expense. The excess is considered justifiable to completely explore the low-grade ore body.

All charges made were according to the contract and approved subcontracts. The costs exceeded the total amount of the contract by $378.80. The winze was not sampled manually as one diamond drill hole was sufficiently close to the winze to adequately show that no commercial ore would be shown.

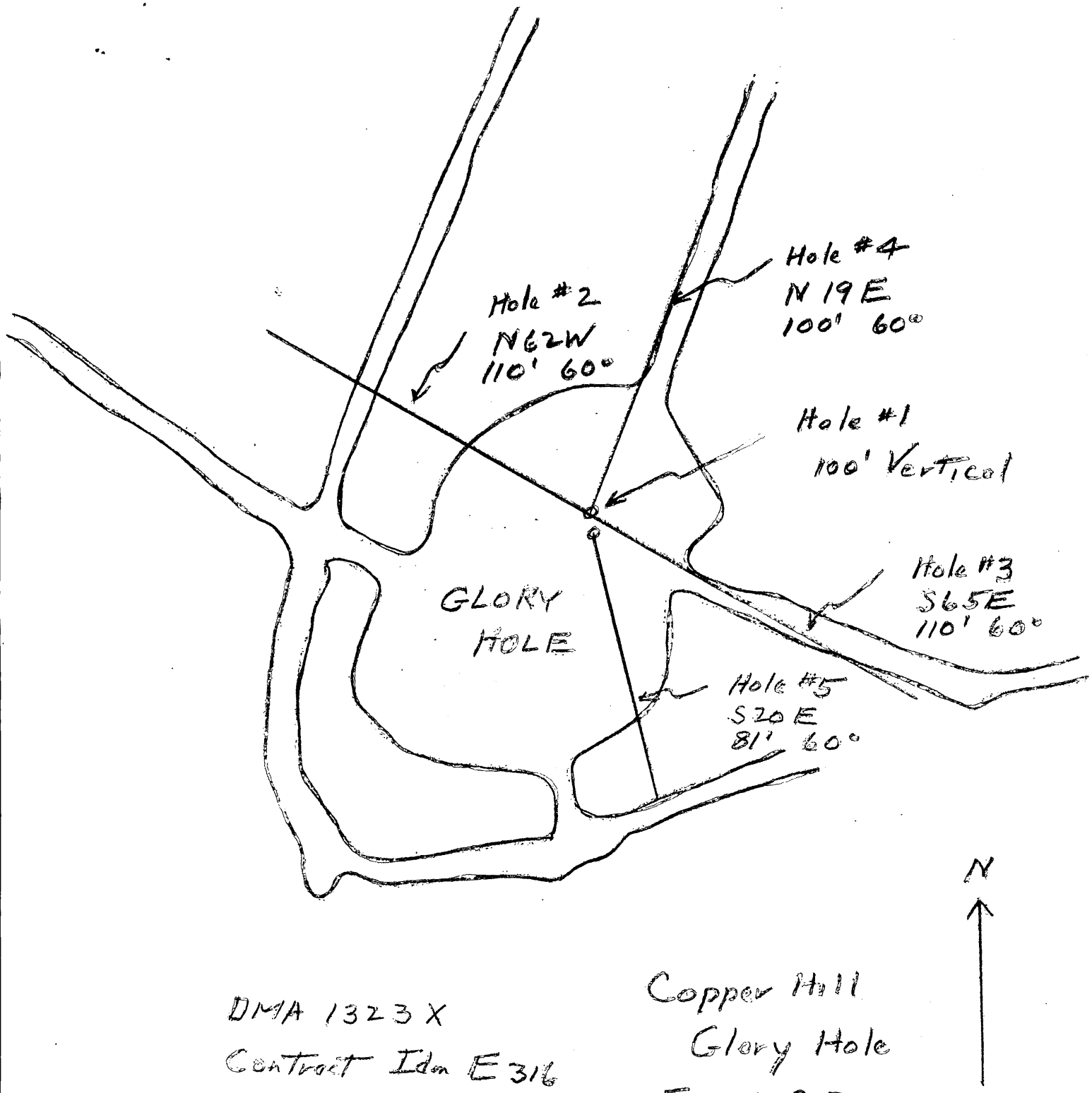
The drill core will be split and sampled and assays furnished for the DMEA records. The company will do the assays at no charge to the Government.

Payment is approved for $1,500.00, or 50 percent of the total amount of the contract.

Scott W. Hazen, Jr.
Mining Engineer

SWH/amh

cc 6
AEKoschmann
E316
DMEA Chron.



DMA 1323 X
Contract Idn E 316
9/10/52
UTE MINING COMPANY
DURANGO, COLORADO

Copper Hill
Glory Hole
From U S BM
Map #154
Scale 1" = 20'

[redacted] [redacted]

THE DURANGO LUMBER COMPANY

— BUILDING MATERIALS —

300 West 9th St. Phones 2 and 583

DURANGO, COLORADO

Customer's Order No. Date 7/22/52 195

M U.S. Mining Company

Address City

SOLD BY	CASH	C. O. D.	CHARGE	ON ACCT.	MDSE. RET'D	PAID OUT
			✓			

QUAN.	DESCRIPTION	PRICE	AMOUNT	
29	Lime Boxes	2 15	62	35
		Tax	1	25
			63	60

Materials and/or services received and used on project and approved for payment.

Signed Fred A. Brinker

ALL claims and returned goods MUST be accompanied by this bill.

No. ~~G031146~~ 2052 Received by

UARCO INC. - OAKLAND

Statement
In Account With

Animas Valley Block Company

Concrete and Pumice Blocks
Washed Sand and Gravel

BOX 1001 John F. Hanks PHONE 0107-J1
DURANGO, COLORADO

Durango, Colorado Aug. 28 1952

Ute Mining Co.
Durango Colo. Box 560

8 hrs. trac. time @ 8.00 per hr.		64 00
moving time		20 00
		84 00
Copper Hill Contract		

Materials and/or services received and used on project and approved for payment.

Signed Fred A. Rinker

STATEMENT

Silverton, Colorado, Sept, 1952

Ute Mining Co. - % Copper Hill Work
Durango Colo.

IN ACCOUNT WITH

DOMINICK FRANCH

Pipe - Steel - Mining Machinery

Statement of your account for the month ending _____ 195__

July		18, 19, 22, 23, 24, 25, 26 @ 12.50		87.	50
July		17, 29, 30, 31 @ 25.00		100	00
Aug		1, 2, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 18	25%	375	00
				562	50

Materials and/or services received and used on project and approved for payment.

Signed Fred A. Brunker

JOY MANUFACTURING COMPANY
PITTSBURGH 22, PENNSYLVANIA

CUSTOMER'S ORDER No.	DATE	REQ. No.	CONTRACT	CODE

SOLD TO: Ute Mining Company
Durango, Colorado

SHIPPED TO AND DESTINATION: Hesperus, Colorado

VIA

OUR ORDER NO.
AT RECEIVING POINT
DATE ENTERED
AT SHIPPING POINT
DATE ENTERED
DATE SHIPPED
INVOICE NO.
INVOICE DATE August 25, 1952
MARKS

REMIT TO 333 OLIVER BUILDING
PITTSBURGH, PENNSYLVANIA
SHIPPED FROM

QUANTITY ORDERED	QUANTITY SHIPPED	PART NO.	DESCRIPTION	PRICE	EXTENSION
			To 501.' Core Drilling at Hesperus, Colorado as per agreement.		
			Prospect # / From / To / Total Feet	Unit Cost	Total Cost
			U-1 0. 100. 100.		
			U-2 0. 110. 110.		
			U-3 0. 110. 110.		
			U-4 0. 100. 100.		
			U-5 0. 81. 81.		
			501.	$5.25	$2,630.25
			Reaming, Casing and Cementing		
			U-3 August 1 4 1/2 Hrs. Reaming and Casing		
			2 " Casing		
			6 " "		
			5 1/2 Hrs. or .69 shifts @$40.00 per shift		27.60
			Materials & Supplies Used Up Reaming & Casing		
			10- Gallons Gas @31¢ per gal.		3.10
			1- BX Core Bit - $155.00, used 5%		7.75
					$2,668.70

Materials and/or services received and used on project and approved for payment.

Signed Fred A. Bruhn

WORK COMPLETED

F. O. B. SHIPPING POINT UNLESS OTHERWISE SPECIFIED
NO RETURNS ALLOWED UNLESS AUTHORIZED BY THIS OFFICE

TERMS NET 30 DAYS
NO CASH DISCOUNT

"GOODS COVERED BY THIS INVOICE WERE PRODUCED IN COMPLIANCE WITH THE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT OF 1938, AS AMENDED, INCLUDING SECTION 12(A).

FORM P6302 5-51 24013 DITTOFORMS

UTE MINING COMPANY

Durango, Colorado

September 9, 1952

Defense Minerals Exploration Administration
Denver, Colorado

DMA 1323X Idm E 316

Work was started on July 17, 1952. Bulldozing work on road to make road passable to site for truck. Drilling equipment was hauled to site, drill skidded into place in the Glory Hole for drilling, drilling started.

Attached is sketch showing the outline of the Glory Hole and the location, strike, dip and length of the holes. This sketch of Glory Hole was taken from USBM Map H-154 which was attached to original application.

Five holes were drilled as shown on the sketch for a total of 501 feet. The holes covered the 360° except in the southwesterly direction which is the direction that the No. 2 tunnel comes into the Glory Hole area from below.

Work was completed on August 18, 1952.

The cores were inspected visually and are all stored in boxes in Durango. From visual inspection of the cores there was no commercial ore found.

We will obtain a core splitter from your laboratory or other source and will split the cores, saving half for any later visual work and will assay the other half. At that time we will report to you the results of these assays. The cores are available here in Durango for any inspection required.

We kept the costs down to actual contract amounts plus the core boxes so that we would get maximum footage for the money spent. We exceeded the contract amount by $378.80 but we wanted to drill this additional amount at our own expense to get this additional information.

The cost per foot was $6.744 and for the original estimate of drilling 450 feet figures $3,034.80 or within 34.80 of the contract amount.

This narrative will also serve as the final project report.

Fred A. Brinker

Fred A. Brinker

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

PROJECT SUMMARY REPORT

By: W. P. Klugescheid July 12, 1955

1. Docket No. DMEA-1323X (Copper)
Contract No. Idm-E316
Property: Copper Hill Mine
LaPlata County, Colorado

Operator: Ute Mining Company (A partnership) - Lottie M. Lovelass, Jean M. Brinker, Gail M. Miller, Downs McClosky, Fred M. Brinker, President
Durango, Colorado

Operator's Property Rights: Owner of eight lode claims, located near the center of the California mining district, about half a mile northwest of the town of La Plata.

2. Contract dated May 13, 1952. To complete - four months.

Work Authorized

Unwater and sample a 14 foot winze. Diamond drill with coring bit up to 450 feet of holes.

Cost:

Equipment rental	$ 600.00
Depreciation (Equipment)	75.00
Labor and Supervision	2,000.00
Supplies	325.00
Total Estimated cost	$3,000.00
Government's participation @ 50%	$1,500.00

Amendments

None

Work Completed

5 diamond drill holes, BX size to 10 feet and then Ax to bottom of holes. Total drilling was 501 feet at a cost of $3,378.00 which is more than was allowed.

5/22

Catherine;

Please get this file for us. I'm sure we'll be getting a request for information from Mr. Bury.

Kirk

Ordered, cc.
5/22/70

3. Audit - Report of Review dated December 4, 1952.

Total cost as billed by the Contractor	$3,378.00
Exceptions (excess over amount of contract)	378.00
Total accepted cost	$3,000.00
Government's participation @ 50%	$1,500.00

Contractor had voluntarily agreed to assume excess cost of the work done.

4. Certification of Discovery - None issued.

5. Comments

All the work was done in a satisfactory manner.

The object of the project was to explore for possible extensions of a mined out (glory hole) ore body from which 2,336 tons of ore assaying 4.75% copper, 1.96 oz. of silver with traces of gold and platinum had been extracted during the years 1911 through 1917.

In the five drill holes, which were all about 100 feet deep, several thin veinlets of chalcopyrite were cut, however, no ore, even approachingmineable grade, was found. The deposit has undergone little or no oxidation. The ore does not extend below the floor of the glory hole. The cores were not assayed except visually as they contained so little mineralization.

No further exploration of this deposit is warranted.

The La Plata Mountains have been produced by the erosion of a domal uplift of sedimentary rocks that are intruded by igneous stocks, sills, and dikes. The sedimentary rocks are metamorphosed in the central part of the district but are relatively unaltered elsewhere. Most of the metamorphism appears to result from the intrusion of stocks and dikes. Faults, some of large displacement, are present in the district, but they are not numerous.

The Copper Hill Mine is located near the northeast border of a large syenite stock of Cretaceous or Tertiary age that intrudes shales and sandstones of the Permian Cutler formation. The host rock for the glory hole ore body appears to be a metamorphic rock resulting from partial replacement of sedimentary rocks by syenite. The diamond drilling has shown that the bottom of the glory hole excavation reached the top of the syenite intrusive.

Ore minerals were deposited in a zone of intense fracturing in the upper part of the syenite stock and in the overlying metamorphosed sediments. Pyrite and chalcopyrite occur as disseminated grains and numerous thin seams in the host rock.

W. P. Klugescheid

W. P. Klugescheid

WPK/er 8/5/55
Copy to: Docket
Base Metals - Chron.

☒ Audited

RK ANALYSIS SHEET - DMEA PROJE

☒ Actual Cost

☐ Certified No.

Analysis as of 12/1/54
Incl. Voucher for Aug. 1952

☐ Agreed Unit Costs

Name Ute Mining Company

DMA Docket No. 1323 X

State Colorado

Commodity Copper

Idn-E No. 316

OPERATION	AUTHORIZED Units	AUTHORIZED Cost	COMPLETED Units	COMPLETED Cost	NET COST
Drifting & Crosscutting					
Raising					
Shafts					
Winzes					
Drilling Diamond-Core (Specify)	450	3000.00	501	3000.00	3000.00
Surface Excavation					
Underground Excavation					
Roads and Trails					
Operating Equipment Purchased					
Surface Rehabilitation & Repairs					
Underground Rehabilitation					
New Building, Improvements, etc.					
Other (Specify)					
Totals		$3000.00		$3,000.00	$3000.00

Prepared by F. M. Murphy

Checked
F.M.M.

ORIGINAL
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O. M. E.
RECEIVED
MAY 21 1970
INITIAL CODE
HK 120
220

Office of Minerals Exploration
Building 53 Room 200

May 19, 1970

Mr. Wesley R. Bury
Field Geologist
Cerro Mineral Exploration Company
Cerro Corporation
2525 South Main Street
Salt Lake City, Utah 84115

Dear Mr. Bury:

This letter is in reply to our telephone conversation several days ago and your letter to the U. S. Bureau of Mines, concerning your inquiry of available data on the Copper Hill Mine, La Plata County, Colorado.

Ute Mining Company, acting for a partnership consisting of Lottie M. Loveless, John M. Brinker, Carl M. Miller, Downs McClosky applied for financial assistance (DMA 1323X) to explore for copper at the Copper Hill Mine. A contract was awarded (Idm E-316) and some 501 feet of diamond drilling was completed.

Results of the exploration work obtained under contract Idm E-316 may be obtained from our Washington office by your showing proof of ownership of the property or by obtaining permission by letter from the operators or owners to transmit the data to you. All information is of course "company confidential" and can only be released to authorized individuals. If you can obtain such permission certain portions of the data can be obtained from our Washington office. Costs of duplicating any data will of course be borne by you.

Please address your inquiry with proof to receive such data to:

Sincerely yours,

J. William Hasler,
Field Officer, Region III
Office of Minerals Exploration

cc: Chief, OME
OME chron
Mr. Hasler
"B"

Refer to Bill Hosler, OME

032

CERRO CORPORATION

CERRO MINERAL EXPLORATION CO. DIVISION
INTERMOUNTAIN DISTRICT OFFICE
2525 SOUTH MAIN STREET
SALT LAKE CITY, UTAH 84115

DMA 13 23X

March 26, 1970

OFFICE OF CHIEF
MINERAL RESOURCES

MAR 27 1970

BUREAU OF MINES
DENVER, COLORADO

U. S. Bureau of Mines
Western Administrative Office
Building 20
Denver Federal Center
Denver, Colorado 80225

Gentlemen:

It has recently come to my attention that the U. S. Bureau of Mines conducted exploration and diamond drilling activities at the Copper Hill mine in La Plata County, Colorado. Would it be possible for you to send us copies of the results of that exploration and drilling. Any information you may have, or be able to guide us to, will be greatly appreciated.

Please bill us for reproduction or other applicable charges.

Sincerely yours,

Wesley R. Bury

Wesley R. Bury
Field Geologist

WRB/lk

file Cu 44 -
We have drill core

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
Denver Office of Mineral Resources

BUILDING 20
DENVER FEDERAL CENTER
DENVER, COLORADO 80225

OME Region III
RECEIVED
MAR 31 1970
Office of Chief
Denver, Colorado

OME Region III
RECEIVED
MAR 31 1970
Denver, Colorado

March 30, 1970

Mr. Wesley R. Bury
Field Geologist
Cerro Mineral Exploration Co.
Division - Intermountain District Office
Cerro Corporation
2525 South Main Street
Salt Lake City, Utah 84115

Dear Mr. Bury:

Reference is made to your letter of March 26 inquiring for results of exploration at the Copper Hill Mine, La Plata County, Colorado. This work was done under DMA Contract, about 1951.

Files resulting from that exploration are now in the custody of the Office of Minerals Exploration of the U. S. Geological Survey. I have referred your letter to Mr. William Hasler who will write you on the matter.

Sincerely yours,

/s/ O. M. Bishop

O. M. Bishop, Chief
Denver Office of Mineral Resources

Copy to:
JW Hasler, USGS,
Bldg. 53, DFC, Denver

3/11/53 gla

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

224 New Customhouse
Denver 2, Colorado

March 6, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 9 1953

Memorandum

To: Chairman, Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Contract Idm-E316, Docket DMA 1323X, Ute Mining Company

As requested in your letter dated March 1, 1953, we are writing the operator and requesting information regarding the assays referred to in the final report of Contract Idm-E316.

W. H. King

W. H. King

700 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 Building
Denver 2, Colorado

MAR 1 1953

Re: Docket No. DMA-1323X (Copper)
Contract No. Ian-1316
Ute Mining Company
Copper Hill Mine
La Plata County, Colorado

F.C. 3/2/53

Dear Mr. King:

Reference is made to the reports of Mr. [illegible] D. Marahman of the Geological Survey, and Mr. Scott W. Mazen, Jr., of the Bureau of Mines, transmitted to this office under date of January 28, 1953.

It is noted in these reports that the Operator will split the drill cores and assay each 5-ft. interval at its own expense and, furthermore, that the results of such assaying are to be furnished the Government. It is highly desirable that this be done and that this office be furnished at least two copies of the assay reports in order that the estimate of 0.2% copper may be checked. and also that our records may be more complete.

Sincerely yours,

George C. Selfridge (GCS)

Chairman, Operating Committee

Approved:

J. H. Hedges (GCS)
Member, Bureau of Mines

T. P. Thayer (GCS)
Member, Geological Survey

GWEllis/gla
2-26-53
cc to: Adm. Reading File
Operating Committee
Docket
Messrs. CHJohnson, Rm. 3621
ARKinkel, Jr., Rm. 4234 GSA
Ellis
DMEA Field Team, Region IV

2/24/53 gla

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

February 20, 1953

Memorandum

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 20 1953

To: E. W. Ellis, DMEA

From: C. H. Johnson, Bureau of Mines

Subject: DMA-1323X (Copper), Ute Mining Company, LaPlata County Colorado

In transmitting the final report on the subject project, the field team noted that the contractor intends to have analyses made of the diamond drill cores and furnish copies of the resulting data to the DMEA Field Team. This was not done during the project because it seemed evident from inspection that the holes, although in mineralized ground, had intersected no material of commercial value. I think you might wish to inform the field team that it is important that these analyses be made and that copies of the results be furnished to the Washington Office as an appendix to the final report. Otherwise, having only a visual estimate of 0.2 percent, there may be some doubt in the future as to the actual metal content of the samples.

C. H. Johnson

C. H. Johnson

Copy to - Mr. Kinkel, Room 4234, GSA
Minerals Division
C. H. Johnson
Files

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

224 New Customhouse
Denver 2, Colorado

January 28, 1953

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, DMEA, Region IV

Subject: Docket DMA 1323X (Copper), Contract Idm-E316, Ute Mining Company, acting for a partnership consisting of Lottie M. Loveless, John M. Brinker, Carl M. Miller, Downs McClosky and Ute Mining Company, La Plata County, Colorado

Enclosed are the following final reports pertaining to work performed under the subject contract:

1. Original and one copy of the operator's final narrative report.

2. Original and three copies of the final engineering report by the Bureau of Mines.

3. Original and three copies of the final geologic report by the Geological Survey.

The work performed under Contract Idm-E316 consisted of 501 feet of diamond core drilling at a total cost of $3,378.80. This was $378.80 in excess of the total amount of the contract, therefore the operator assumed responsibility for and paid the excess amount.

The Government contribution amounted to $1,500.00 as authorized by the contract.

No significant discovery was made as a result of the work under the contract.

W. H. King

W. H. King

A. H. Koschmann

A. H. Koschmann

cc 2/2/53

Enclosures

UTE MINING COMPANY

Durango, Colorado

January 22, 1953

Defense Minerals Exploration Administration
Denver, Colorado

DMA-1323X Idm-E-316

Work was started on July 17, 1952. Bulldozing work on road to make road passable to site for truck. Drilling equipment was hauled to site, drill skidded into place in the Glory Hole for drilling, drilling started.

Attached is sketch showing the outline of the Glory Hole and the location, strike, dip and length of the holes. This sketch of Glory Hole was taken from USBM Map H-154 which was attached to original application.

Five holes were drilled as shown on the sketch for a total of 501 feet. The holes covered the 360° except in the southwesterly direction which is the direction that the No. 2 tunnel comes into the Glory Hole area from below.

Work was completed on August 18, 1952.

The cores were inspected visually and are all stored in boxes in Durango. From visual inspection of the cores there was no commercial ore found. This fact was verified by the engineer from the Bureau of Mines and the geologist from Geological Survey. The coreswere logged by the geologist from the Geological Survey and it is understood that the log will be a part of his report.

We kept the costs down to actual contract amounts plus the core boxes so that we would get maximum footage for the money spent. We exceeded the contract amount by $378.80 but we wanted to drill this additional amount at our own expense to get this additional information.

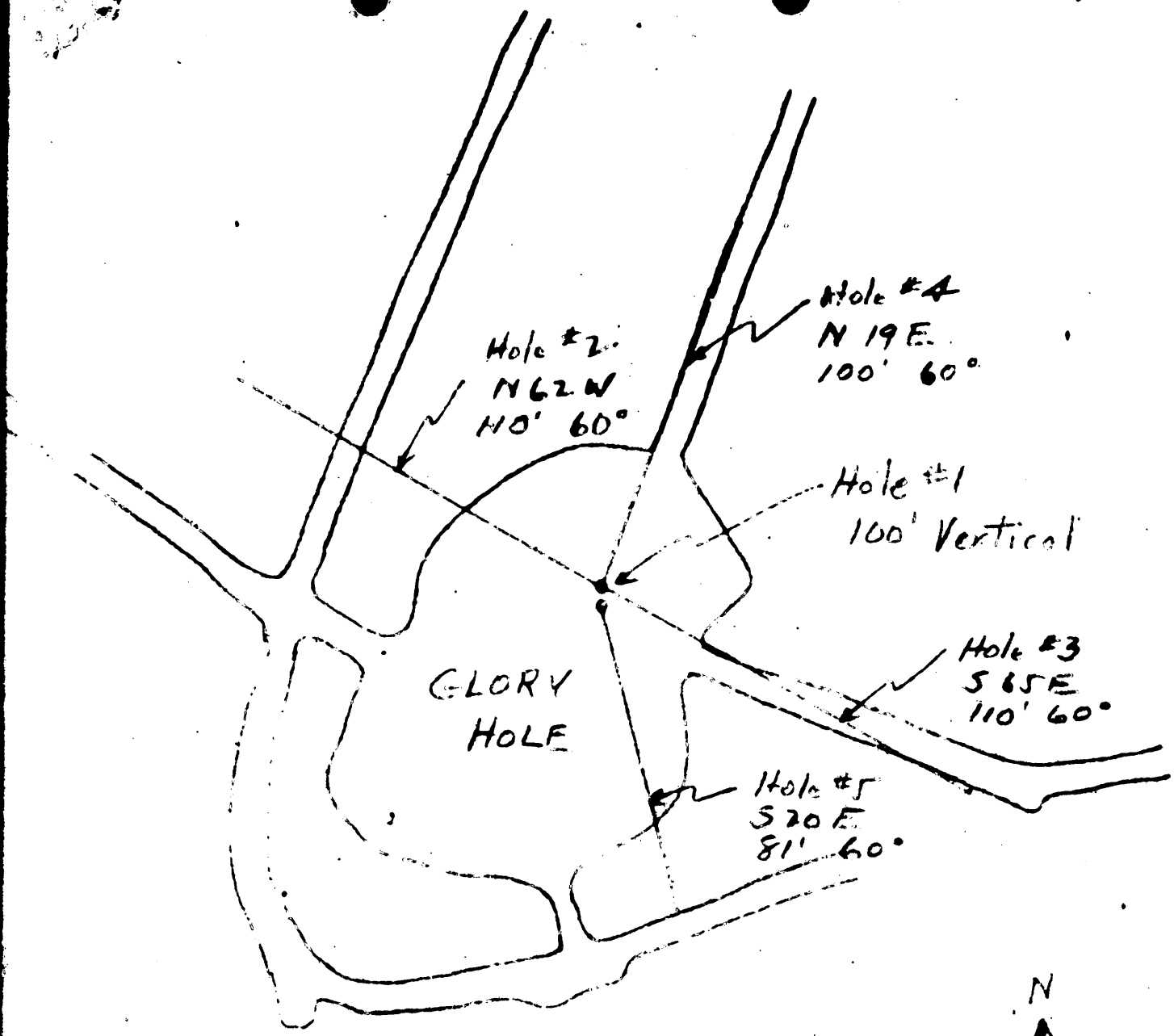
The cost per foot was $6.744 and for the original estimate of drilling 450 feet figures $3,034.80 or within 34.80 of the contract amount.

This narrative constitutes the final project report.

Fred A. Brinker

Fred A. Brinker

OPERATOR'S FINAL REPORT



DMA 1323 X
Contract Idn E 316
9/10/52

Copper Hill
Glory Hole
From USBM
Map H-1341
Scale 1" = 20'

Region IV

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Date Rec'd.
DEC 24 1952
BUREAU OF MINES
Denver, Colorado

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
FEB 1 1953

Building 20
Denver Federal Center
Denver 14, Colorado
December 24, 1952

Memorandum

To: Executive Officer, Field Team, Region IV

From: Chief, Mineral Resources Branch, Mining Division, Region IV

Subject: DMA 1323X, Contract Idm-E316 (Copper), Ute Mining Company, Copper Hill mine, La Plata County, Colorado

Please find enclosed the original and eight copies of Scott W. Hazen, Jr.'s "Summary, Conclusions, and Recommendations" and "Final Engineering Report" on the subject docket.

Work has been performed in a satisfactory manner and in accordance with the terms of the contract without a significant discovery resulting. It is recommended that the contract be terminated in the usual manner under such circumstances.

W. M. Traver, Jr.

W. M. Traver, Jr.

enclosures

WMT/amh

cc: 8
E316
DMEA Chron.

Reviewed by
DMEA OPERATING COMMITTEE
2-6-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

FINAL ENGINEERING REPORT

DMA 1323X, Contract Idm-E316

The Ute Mining Company

Copper Hill Mine

La Plata County, Colorado

Copper

Scott W. Hazen, Jr., Mining Engineer
Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE
2-6-53
(date)

December 24, 1952

DMA 1323X
Contract Idm-E316

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
FEB 5 1986

THE UTE MINING COMPANY
COPPER HILL MINE
LA PLATA COUNTY, COLORADO

Summary, Conclusions, and Recommendations

By Scott W. Hazen, Jr.
Mining Engineer
Bureau of Mines

DMA 1323X
Contract Idm-E316

THE UTE MINING COMPANY
COPPER HILL MINE
LA PLATA COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By Scott W. Hazen, Jr.

The Ute Mining Company, contractor, under DMA 1323X, contract Idm-E316, accomplished 501 feet of diamond core drilling at a cost of $3,378.80. This was $378.80 in excess of the total amount of the contract and the contractor assumed responsibility for and paid the excess amount.

The drilling was concluded after the completion of five holes drilled from the floor of the glory hole. The drilling disclosed that the glory hole had been driven to the top of the syenite stock and the commercial ore body mined was on top of the syenite and in the metamorphosed rocks above.

Examination of the drill core indicated that no commercial ore had been discovered by the exploration. Copper mineralization is disseminated in the syenite but the grade is extremely low, probably averaging less than 0.2 percent copper. The operator expended the full amount of the contract money. He has signified his intention of splitting the drill core and having assays made of each 5-foot interval at his own expense and that he will furnish copies for the contract and Bureau of Mines records. These assay records are not considered necessary at this time as visual examination of the core by representatives of both the United States Geological Survey and the Bureau of Mines has confirmed the operator's report that no commercial ore was found by the exploration project.

DMA 1323X
Contract Idm-E316

THE UTE MINING COMPANY
COPPER HILL MINE
LA PLATA COUNTY, COLORADO

Final Engineering Report

By Scott W. Hazen, Jr.
Mining Engineer
Bureau of Mines

DMA 1323X
Contract Idm-E316

THE UTE MINING COMPANY
COPPER HILL MINE
LA PLATA COUNTY, COLORADO

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Final Engineering Report	Page
Introduction	1
Work performed	2
Results	2
Ore reserves	3
Costs of the project	3
Conclusions and recommendations	4

ILLUSTRATIONS

Figure	Follows Page
1. Location map, The Ute Mining Company, Copper Hill mine, La Plata County, Colorado	1
2. Ute Mining Company, Copper Hill mine, La Plata County, Colorado	*

*See figure following geologic report.

DMA 1323X
Contract Idm-E316

THE UTE MINING COMPANY
COPPER HILL MINE
LA PLATA COUNTY, COLORADO

FINAL ENGINEERING REPORT

By

Scott W. Hazen, Jr.

INTRODUCTION

The Ute Mining Company, of Durango, Colo., applied to the Defense Minerals Administration for a $6,000.00 exploration loan to perform diamond drilling to explore for the possible downward extension of copper mineralization at the Copper Hill mine in La Plata County, Colo. (fig. 1).

The Copper Hill ore body, associated with a syenite stock, has been developed by two tunnels and a glory hole from the upper tunnel, which has accounted for all the mine production.

The glory hole produced 2,336 tons of copper ore averaging 1.9 ounces of silver and 4.75 percent copper per ton. The lower tunnel, driven 183 feet vertically below the bottom of the glory hole, failed to find commercial ore. This drift did not eliminate the possibility that the deposit might be a pipe within the syenite and that the pipe had a rake in some direction other than that penetrated by the drift.

The Defense Minerals Administration examining team recommended diamond drilling from the floor of the glory hole with the over-all cost limited to $3,000.00.

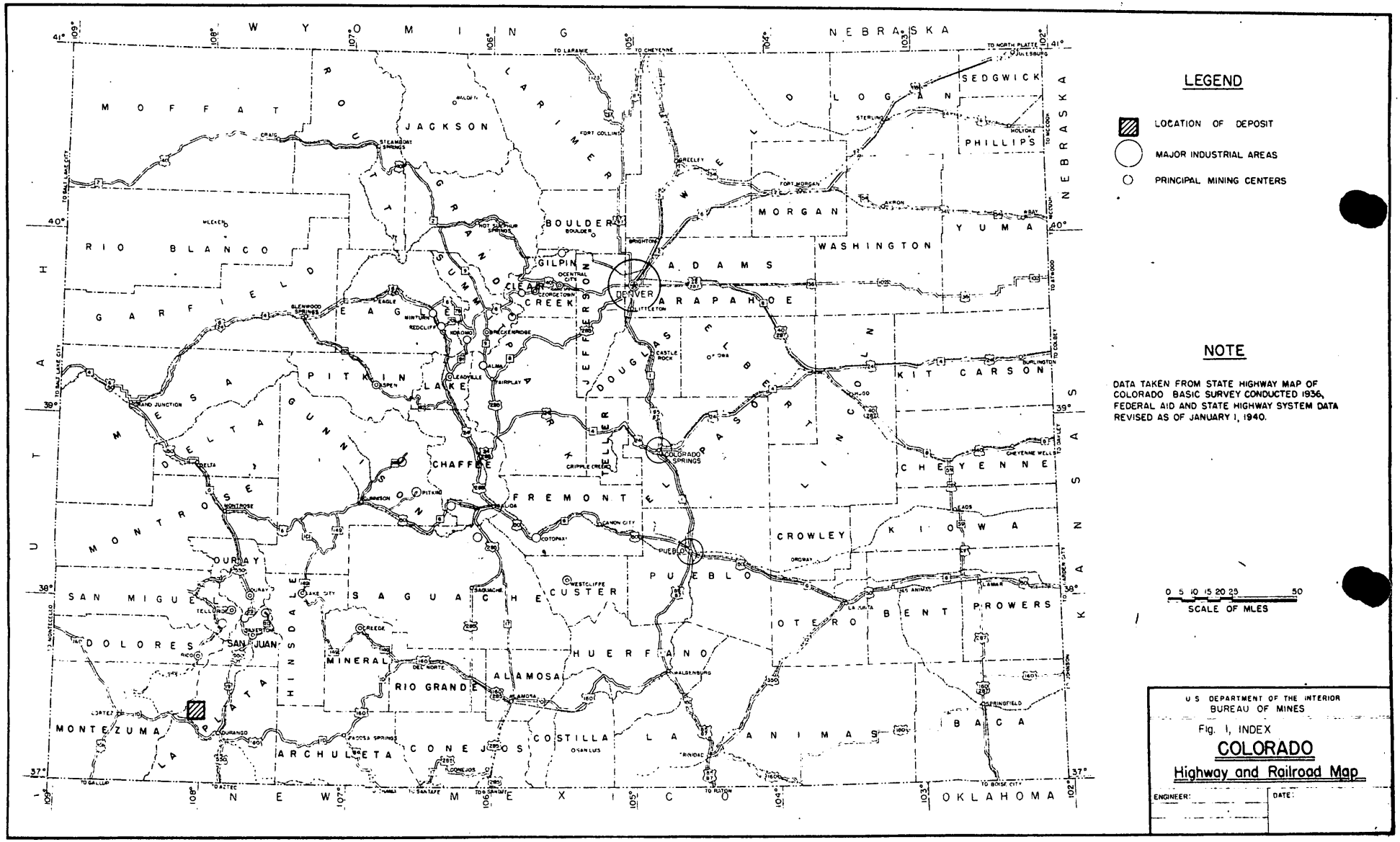

FIG. 1-LOCATION MAP, THE UTE MINING CO., COPPER HILL MINE, LA PLATA CO., COLO., D.M.A.-1323X

WORK PERFORMED

The operator signed a contract with Joy Manufacturing Company to perform the diamond drilling. A surface drill was set up in the open glory hole and drilling was begun on July 17, 1952, and completed on August 18, 1952. Five holes were drilled as shown on figure 2 which accompanies the geologic report.

Data covering holes are shown below:

Hole Number	Bearing	Dip	Depth Feet
1		Vertical	100
2	N. 62° W.	-60°	110
3	S. 65° E.	-60°	110
4	N. 19° E.	-60°	100
5	S. 20° E.	-60°	81
	Total feet drilled		501

These holes explored the area beneath the glory hole in all directions except that already penetrated by the lower drift. Over-all core recovery exceeded 90 percent. The core was boxed and the operator has signified his intention of splitting the core and assaying each 5-foot interval. Assay results will be made available at a later date. The full amount of the $3,000.00 was expended.

RESULTS

Drilling has proven that the commercial ore body was bottomed by the workings of the glory hole. The upper drift and glory hole had been driven to the top of the syenite stock and the commercial ore mined was on top of the syenite and in the metamorphosed rocks above.

Examination of the core discloses copper mineralization disseminated in the syenite but the grade is extremely low, probably averaging less than 0.2 percent copper.

ORE RESERVES

Visual examination of the core by representatives of the United States Geological Survey and Bureau of Mines has confirmed the operator's report that no commercial ore was found by the exploration project. Thus, the ore reserves were not extended beyond those already determined by previous work.

COSTS OF THE PROJECT

The project work required a small amount of bulldozing to clear the road to the mine. In order to service the drilling, a four-wheel drive truck with operator was rented on a contract basis. The drilling contract with Joy Manufacturing Company was for $5.25 per foot of drilling AX size core.

The Defense Minerals Administration contract called for 450 feet of diamond core drilling at $6.666 per foot for a total cost of $3,000.00. The work performed cost $3,378.00, or $6.744 per foot, for the 501 feet of drilling. Using this same footage cost, the allowed 450 feet of drilling cost $3,034.80.

Individual costs were:

Bulldozing contract	$ 84.00
Truck and driver contract	562.50
Diamond drilling contract	2,668.70
Core boxes	63.60
Total cost	$3,378.80

This exceeded the allowable Defense Minerals Administration contract funds by $378.80. This excess amount was paid for by the Ute Mining Company.

CONCLUSIONS AND RECOMMENDATIONS

The Copper Hill deposit was adequately explored by the project. Examination of the drill core indicated that no commercial ore had been discovered by the drilling. Copper mineralization is disseminated in the syenite but the grade is extremely low, probably averaging less than 0.2 percent copper.

No further exploration is recommended at this time. The project should be terminated as all the contract work has been performed without a significant discovery having been made.

amh

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

200 New Customhouse
Denver 2, Colorado

Mining Division
Date Recd.
JAN 8 - 1953
BUREAU OF MINES
Denver, Colorado

January 8, 1953

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMA Docket 1323X, Ute Mining Company, Copper Hill Mine, La Plata County, Colorado.

Attached are 8 copies of the final geological report by E. N. Harshman of the U. S. Geological Survey covering Contract Idm-E316 with the Ute Mining Company, (Copper Hill Mine), La Plata County, Colorado.

Exploration by diamond drilling failed to discover any continuation of the small ore body that was known prior to drilling.

A. H. Koschmann

A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (8)

UTE MINING COMPANY

COPPER HILL MINE

LA PLATA COUNTY, COLORADO

DMA DOCKET 1323X

Final Geologic Report

By E. N. Harshman
U. S. Geological Survey

UTE MINING COMPANY
LA PLATA COUNTY, COLORADO

INTRODUCTION

The Copper Hill mine of the Ute Mining Company, La Plata County, Colorado, was examined by W. B. Meek, U. S. Geological Survey, and W. M. Traver, Jr., U. S. Bureau of Mines, on September 13, 1951. In the report dated December 3, 1951, they recommended approval of a program to explore for the extension of the known, and almost mined out, copper ore body by diamond drilling from the floor of the glory hole (fig. 2).

On May 13, 1952, a contract, Idm-E316, between the Defense Minerals Administration and Lottie M. Loveless, Jean M. Brinker, Gale M. Miller, Downs McClosky, and the Ute Mining Company, was signed. This contract authorized an expenditure of $3000 (Government participation, $1500) to drill approximately 450 feet of diamond drill hole, to unwater and sample a short winze at the northeast corner of the glory hole, and to improve a short section of access road.

The exploration program was started on July 17, 1952, and completed August 18, 1952. A visual examination of core from 501 feet of drill hole indicates that no commercial ore was found.

DEVELOPMENT AND PRODUCTION

The mine has been developed by a small glory hole and several hundred feet of workings on 2 levels (fig. 2). Between 1911 and 1917, 2336 tons of ore were mined from the glory hole ore body. This ore contained

4.75% Cu, 1.96 oz. Ag, tr. Au, and an undetermined amount of the platinum group metals.

No ore was found in the lower, or No. 2, tunnel.

GEOLOGY

The Copper Hill mine is located near the center of the La Plata mining district, about half a mile northwest of La Plata, Colorado, and 14 miles northwest of Durango, Colorado. The geology of the district has been described by Cross, Spencer, and Purington (1899) and by Eckel (1936, 1938, and 1949). The following discussion is taken largely from their reports.

The La Plata Mountains have been produced by erosion of a domal uplift of sedimentary rocks that are intruded by igneous stocks, sills, and dikes. The sedimentary rocks are metamorphosed in the central part of the district but are relatively unaltered elsewhere. Most of the metamorphism appears to result from the intrusion of stocks and dikes. Faults, some of large displacement, are present in the district, but they are not numerous.

The Copper Hill mine is located near the northeast border of a large syenite stock of Cretaceous or Tertiary age that intrudes shales and sandstones of the Permian Cutler formation. The host rock for the glory hole ore body appears to be a metamorphic rock resulting from partial replacement of sedimentary rocks by syenite. Diamond drilling has shown that the bottom of the glory hole excavation reached the top of the syenite intrusive.

Ore minerals were deposited in a zone of intense fracturing in the upper part of the syenite stock and in the overlying metamorphosed

sediments. Pyrite and chalcopyrite occur as disseminated grains and numerous thin seams in the host rock.

The ore body, most of which was mined between 1911 and 1917, is tabular. It is about 70 feet long, 50 feet wide, and 30 to 50 feet thick. Although there is no visual means of recognizing the outer limits of the ore body, sharp assay boundaries are shown by a sudden decrease of about 1% in the copper content.

The deposit has undergone little or no oxidation. Thin films of malachite and azurite are the chief products of weathering.

Although of no great economic importance, the presence of platinum group minerals associated with the chalcopyrite is of interest.

EXPLORATION

Five diamond drill holes with a total length of 501 feet were drilled from the center of the floor of the glory hole (fig. 1). Logs of these holes are included with this report. Several thin veinlets of chalcopyrite were cut by the drill, especially in holes Nos. 3, 4, and 5; however, no ore, even approaching mineable grade, was found. After a visual examination it was concluded that assays of the core would not be made with funds provided by the contract. The applicant will, however, split the core, assay each 5 foot interval at his expense, and furnish the Government with the assay results.

CONCLUSIONS

The exploration program at the Copper Hill mine of the Ute Mining Company, prosecuted under Government contract Idm-E316, failed to discover

new ore and proved conclusively that the ore body does not extend below the bottom of the floor of the glory hole. Accordingly, the inferred ore (27,000 tons containing 2.04% Cu) should be deleted from the ore reserve estimate given in the Report of Examination, DMA Docket 1323X.

REFERENCES

Cross, Whitman; Spencer, A. C.; and Purington, C. W., Description of the La Plata quadrangle, Colorado: U. S. Geol. Survey Atlas, La Plata folio (No. 60), 1899.

Eckel, E. B., Resurvey of the geology and ore deposits of the La Plata mining district, Colorado: Colorado Sci. Soc. Proc., vol. 13, No. 9, pp. 508-546, 1936.

Eckel, E. B., Copper ores of the La Plata district, Colorado, and their platinum content: Colorado Sci. Soc. Proc., vol. 13, No. 12, pp. 647-664, 1938.

Eckel, E. B., Geology and ore deposits of the La Plata district, Colorado: U. S. Geol. Survey Prof. Paper 219, 1949.

COPPER HILL MINE
UTE MINING COMPANY

DDH NO. 1

Bearing - vertical
Dip - vertical
Total depth - 100 feet

LOG

0' to 6.1'	SYENITE, medium-grained from 0' to 3.0', coarse-grained porphyritic from 3.0' to 6.1'. Pyrite films on joints and in small disseminated grains.
6.1' to 10.0'	SYENITE, coarse-grained porphyritic.
10.0' to 100.0'	SYENITE, medium-grained to coarse-grained. Diorite inclusion 35.3' to 35.5'. Very porphyritic 36' to 40'. Diorite dike at right angles to hole 46.0' to 46.2'. Fine-grained 70' to 72'. Pyrite stringer ½" thick at 86'. Fine-grained 92' to 95'.

Note: Bx hole to depth of 10'.
Ax hole 10' to 100'.

COPPER HILL MINE
UTE MINING COMPANY

DDH NO. 2

Bearing - N. 62° W.
Dip - 60°
Total depth - 110 feet

LOG

0' to 33.6'	SYENITE, fine-grained. Chalcopyrite and pyrite stringer ½" thick at collar of hole. Porphyritic 5.6' to 9.0'. Pyrite in small grains through rock from 9' to 30'.
33.6' to 35.6'	SYENITE, porphyritic.
35.6' to 44.0'	SYENITE, fine-grained.
44.0' to 50.0'	SYENITE, porphyritic. Pyrite disseminated through rock.
50.0' to 59.0'	SYENITE, fine-grained. Somewhat porphyritic 53.6' to 59'.
59.0' to 89.1'	SYENITE, coarse-grained and porphyritic. Disseminated pyrite 59.0' to 63.6'. Pyrite on joints 63.6' to 72.0'. Disseminated pyrite 70.0' to 89.1'.
89.1' to 110.0'	SYENITE, fine-grained with occasional porphyritic zones. Pyrite on some joints and sparsely disseminated through core.

Note: Bx hole 0' to 9.0'.
Ax hole 9.0' to 110.0'.

COPPER HILL MINE
UTE MINING COMPANY

DDH NO. 3

Bearing - S. 65° E.
Dip - 60°
Total depth - 110 feet

LOG

0' to 6.5'	SYENITE, coarse-grained, porphyritic. Occasional ¼" chalcopyrite seams cut core at flat angles.
6.5' to 10.0'	SYENITE, medium-grained. Chalcopyrite films on joints.
10.0' to 60.3'	SYENITE, coarse-grained porphyritic. Occasional 1/8" to 1/4" pyrite and chalcopyrite seams cut core at flat angles. Old workings 14.0' to 20.0'.
60.3' to 80.1'	SYENITE, coarse-grained porphyritic. Pyrite disseminated through core. Several 1/8" chalcopyrite stringers between 70.0' and 70.8'.
80.1' to 100.5'	SYENITE, coarse-grained. Four 1/16" to 1/8" pyrite and chalcopyrite stringers in the core.
100.5' to 110.0'	SYENITE, medium-grained. Occasional knife edge seams of pyrite and chalcopyrite.

Note: Bx hole to 10.0'.
Ax hole to 110.0'.

COPPER HILL MINE
UTE MINING COMPANY

DDH NO. 4

Bearing - N. 19° E.
Dip - -60°
Total depth - 110 feet

LOG

0' to 9.6'	SYENITE, fine grained porphyritic, brecciated. Pyrite disseminated throughout core. Chalcopyrite in films along joints 3.6' to 9.6'.
9.6' to 30.0'	SYENITE, fine-grained with disseminated pyrite. Pyrite and chalcopyrite in films on joints 20.3' to 22.5'. Porphyritic 22.5' to 24.0'.
30.0' to 89.8'	SYENITE, fine-grained porphyritic. Pyrite disseminated throughout core. Chalcopyrite stringer 1/4" thick at 45.0'. Occasional knife edge seams chalcopyrite 50.0' to 70.3'. Several pyrite and chalcopyrite stringers 1/8" to 1/4" thick 70.3' to 75.0'.
89.8' to 100.0'	SYENITE, medium-grained, porphyritic. Occasional thin pyrite seams.

COPPER HILL MINE
UTE MINING COMPANY

DDH NO. 5

Bearing - S. 20° E.
Dip - -60°
Total depth - 81 feet

LOG

0 to 9.6'	SYENITE, fine-grained. Pyrite on joint planes.
9.6' to 21.0'	SYENITE, fine-grained porphyritic.
21.0' to 49.0'	SYENITE, coarse-grained. Very thin chalcopyrite seams 21.0' to 29.6'. At 37.0' two thin (1/8" to 1/4") seams chalcopyrite.
49.0' to 81.0'	SYENITE, fine-grained porphyritic. Gouge seam 55.0' to 55.5'. Silicified and vuggy 68.5' to 71.0'; vuggs contain pyrite crystals. Minor amounts of chalcopyrite along fractures.

Note: Bx hole to depth of 9.6'.
Ax hole to depth of 81.0'.

FILE COPY
SURNAME:
800

Chamber

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

DEC 17 1952

BW.

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

Re: Ute Mining Company
Contract Idm-E316
Docket DMA-1323X

Dear Mr. Brading:

Reference is made to the Report of Review covering the above-cited contract.

This Report of Review shows exceptions in the amount of $378.80 but does not indicate whether such exceptions were taken by the auditor or by the certifying officer. Would you please give us a statement on these exceptions.

Sincerely yours,

(Signed) J. L. Chambers

Jay L. Chambers, Chief
Contract Administration
and Audit Division

J.L. 12-17-52

JLChambers/wb
December 17, 1952

Copy to: Docket
Admr. Reading File
Mr. Chambers

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

June 26, 1952

Memorandum

To: Mr. E. Wm. Ellis

From: N. E. Nelson

Subject: DMA-1323X. Copper Hill Mine (Ute Mining Co.) La Plata County, Colorado.

The nature of this small orebody considered, the amount decided upon is justified.

N. E. Nelson

N. E. Nelson
Geologist

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

224 New Customhouse
Denver 2, Colorado

June 13, 1952

Memorandum

To: Acting Administrator, Defense Minerals Exploration Administration
Attention: 210

From: Field Team, Region IV

Subject: Final Report, DMA Docket 1323X (Copper), Copper Hill Mine, Ute Mining Company, La Plata County, Colorado

Enclosed are four (4) copies of the final report on DMA-1323X.

The contract has been signed and is in effect.

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

Enclosure

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
JUN 16 1952

ON-SITE EXAM. REPORT

Mining Division
Region IV

December 12, 1951

Memorandum

To: DMA Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMA Docket 1323X, Copper Hill Mine (Copper), Ute Mining Company, La Plata County, Colorado

The application of the subject docket is for an exploration loan of $3,000.00.

The applicant's original proposal consisted of six diamond drill holes to be fanned out from the end of No. 2 Tunnel to explore the possible downward extension of the ore body, at an estimated cost of $6,000.00. In the opinion of the examining team, such a manner of approach would not produce conclusive information on the ore body, because it could rake in a manner to be missed, or straddled by the holes.

An alternate program suggested by the examining team and agreed to by the applicant proposes to drill one hole vertical from the bottom of the glory hole adjacent to No. 2 Tunnel, and dependent on the results of which, other holes would be fanned out at various angles of inclination to further explore for the ore body or for the purpose of delineation, all of which not to exceed an estimated cost of $3,000.00.

We concur with the recommendations of the examining team for approval of an exploration loan in the amount of $3,000.00.

Paul T. Allsman

Paul T. Allsman

Reviewed by
DMA OPERATING COMMITTEE

6-20-52
Date

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

200 New Customhouse
Denver 2, Colorado

December 4, 1951

Memorandum

To: DMA Field Team, Region IV

From: A. H. Koschmann

Subject: DMA Docket 1323X, Copper Hill Mine, Ute Mining Company, La Plata County, Colorado

Attached are 8 copies of the geological report by Ward B. Meek covering subject application for a loan of $6,000 to explore a copper ore body on Copper Hill in La Plata County, Colorado.

The Copper Hill ore body lies in a contact zone of metamorphosed sedimentary rocks, syenite porphyry, and syenite. The ore body consists of chalcopyrite and pyrite in numerous ramifying small fractures and as disseminated grains in these rocks, and it is elliptical in plan view. Between 1911 and 1917 there were 2336 tons of copper ore shipped from a glory hole, and two tunnels were driven underneath it. No ore was found in the tunnels. The applicant proposes to determine whether the ore forms a pipe-like body and what its direction of plunge is. This can be accomplished at least expense by diamond drilling as proposed in the report by the engineers of the Bureau of Mines.

Meek recommends approval of the revised exploration program with which I concur.

A. H. Koschmann
A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Attachments (8)
(Figure 2 will be submitted by Bureau of Mines).

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20
Denver Federal Center
Denver 14, Colorado

December 3, 1951

Memorandum

To: Chief, Mining Division, Region IV

From: Chief, Colorado Branch, Mining Division

Subject: DMA-1323X, The Ute Mining Company, Copper Hill Mine, La Plata County, Colorado

Please find enclosed the original and seven copies of the "Summary, Conclusions, and Recommendations" by Ward B. Meek and me on the subject docket and the same number of copies of my "Engineering Report".

I am frankly skeptical about the possibilities of discovery of an ore extension at Copper Hill, believing that the deposit was bottomed in the floor of the glory hole. However, with copper as critical as it is at present, and in view of the fact that the applicant is willing to assume 50 percent of the cost of the project, I am willing to obligate the Government for its proportion of a $3,000.00 program.

We have had Copper Hill proposed to us as a Bureau development project by various applicants ever since the original sampling program in 1943. This project, if approved, should serve to relieve us of further commitments.

The brochure and review submitted by the Field Team, August 27, are also returned herewith.

Scott W. Hagen Jr.
Scott W. Hagen, Jr., for
W. M. Traver, Jr.

enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMA-1323X, The Ute Mining Company

Copper Hill Mine

La Plata County, Colorado

Copper

Ward B. Meek, Geologist
U. S. Geological Survey

W. M. Traver, Jr., Mining Engineer
Bureau of Mines

December 3, 1951

THE UTE MINING COMPANY
COPPER HILL MINE
LA PLATA COUNTY, COLORADO

Summary, Conclusions, and Recommendations

By Ward B. Meek
Geologist
U. S. Geological Survey

and

W. M. Traver, Jr.
Mining Engineer
Bureau of Mines

THE UTE MINING COMPANY
COPPER HILL MINE
LA PLATA COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By Ward B. Meek and W. M. Traver, Jr.

The Ute Mining Company has applied to the Defense Minerals Administration for a $6,000.00 exploration loan for the purpose of proving by diamond drilling a possible extension in depth of the ore body previously mined at Copper Hill, La Plata County, Colorado. A number of low-grade segregations of copper occur in the immediate area within a syenite stock between Boren and Bedrock Creeks. The one designated as Copper Hill appears the most promising. This deposit lies near the northeast border of the stock about 200 feet west of its contact with sediments. As presently outlined, the ore body is apparently a shallow lense which may prove to be the surface outcrop of a small pipe.

The ore body has been developed by two tunnels. A glory hole approximately 120 feet from the portal of the upper, or No. 1, tunnel, accounted for all the production of the property, totalling 2,336 tons of ore that yielded 12.26 ounces gold, 4,478 ounces silver, and 223,865 pounds copper, indicating an average grade of 1.9 ounces silver per ton and 4.75 percent copper. The lower tunnel driven from the south to a point 183 feet vertically below the center of the glory hole failed to encounter ore; consequently, the downward extension of the ore body, or pipe, must rake east-north-west or some one of the intermediate directions.

Chalcopyrite, the principal mineral, occurs in a zone of closely-spaced fractures as scattered grains in the syenite or in seams and occasional veinlets up to 2 inches across. Amenability of the ore to concentration by flotation has been adequately proved by Bureau of Mines tests.

It is estimated that by selective mining and close sorting about 45 percent of the material removed from the glory hole is represented by the 2,336 tons of ore shipped. The rejected rock, estimated as possibly 2,700 tons, remains on a dump at the No. 1 tunnel portal and assayed 0.4 ounce silver per ton and 1.67 percent copper. These estimates combined with data from previous sampling by the Bureau of Mines indicate that above the bottom of the glory hole the ore body mined, eliptical in shape, had horizontal dimensions of about 60 feet by 40 feet, and an average vertical extent near 25 feet.

The downward extension of the ore body is not established by present development and estimated inferred ore reserve on the order of 30,000 tons has little validity unless substantiated by additional exploration. The logical method is diamond drilling.

The applicant's proposal to explore the downward extension by means of six holes drilled horizontally from near the end of the No. 2 tunnel would require completion of six holes, after which the possibility would still exist of the extension passing between two holes unless they are more closely spaced than he has shown. Should the rake of the ore body flatten to less than 45 degrees, the extension could be missed entirely. An alternate program suggested by the

examining team and agreed to by the applicant would drill a first hole vertically from a site near the center of the floor of the glory hole, with subsequent holes fanned from the first successively to establish the trend of the extension, if one exists, and determine its limits.

There is some indication that the glory hole bottomed the ore. Evidence is inconclusive from the original Bureau project in that the floor of the glory hole was not sampled and a winze not shown on the maps accompanying the War Minerals Report, sunk to a known depth of 14½ feet in the northeast corner of the glory hole, was not unwatered and sampled. The project suggested herewith would complete this sampling and, in addition, incorporate 500 feet of diamond drilling designed to eliminate any question regarding the ore body's downward extension.

The program recommended for approval is limited to an expenditure of $3,000.00 on a 50 percent participating basis, the Defense Minerals Administration supplying $1,500.00 and the applicant an equivalent amount. Government inspectors should have the option of terminating project operations when, in their opinion, the ore body has been delineated or the possibilities of ore reserve discovery are insufficient to justify continuation.

COPPER HILL MINE

UTE MINING COMPANY

LA PLATA COUNTY, COLORADO

DMA DOCKET 1323X

Geology

By Ward B. Meek, Geologist
U. S. Geological Survey

COPPER HILL MINE, UTE MINING COMPANY
LA PLATA COUNTY, COLORADO

INTRODUCTION

The Ute Mining Company has applied for a loan of $6000 to explore its Copper Hill ore body in La Plata County, Colorado. This deposit has been described by Eckel (1949, pp. 64-65) and Ames (1944).

Two tunnels were driven (See Figure 2) and 2336 tons of ore were shipped from a glory hole between 1911 and 1917.

Rocks found in the vicinity of the ore body include the Permian Cutler Formation (shale, sandstone, and arkose) which has been invaded by dikes and sills of Cretaceous or Tertiary syenite porphyry. Both the sedimentary and the early igneous rocks were intruded by a stock of Cretaceous or Tertiary syenite. This stock has a gradational contact with the Cutler formation, and although Eckel mapped the ore body in the syenite stock, the mineralized zone contains about as much metamorphosed sediment as it does igneous rock.

Within the mineralized zone the rocks are greatly fractured; however, there are no outstanding joint trends, and no recognized relation between the larger fractures and the ore.

The ore consists of disseminated grains and countless small seams of chalcopyrite and pyrite in the intermingled quartzite, hornfels, syenite porphyry, and syenite. Occasional veinlets of ore minerals as much as 2 inches thick are found. In plan view the mineralized rock forms an elliptical body 70 feet by 55 feet, and it has sharp boundaries

which are defined entirely by a sudden decrease of about one percent in copper content. No visual means of recognizing these boundaries is apparent. Except for this elliptical plan view, the shape of the ore body is not known, and there is no positive information that it exists below Tunnel No. 1. Tunnel No. 2 which is 183 feet below Tunnel No. 1 disclosed no ore. This proves that a vertical or southerly plunging pipe of ore does not extend downward from the glory hole to Tunnel No. 2. However, the possibility of an ore pipe plunging in some other direction, or that it is too short to reach Tunnel No. 2, is not eliminated.

The intimate fracturing of the ore-bearing rock, the elliptical plan of the ore body, and the irregular pattern of the veinlets suggest the hypothesis that there is a small concealed cupola of syenite extending from the main syenite stock to some point beneath the ore body, and that the upward surge of the syenite magma caused fracturing and mineralization of a pipe-like or cone-shaped body of the older rocks above it. If this is the case, there may well be a sizeable body of copper ore extending from the glory hole downward to this cupola.

ORE RESERVES

In his War Minerals Report, Ames calculated that material containing as little as 1.45% copper could be worked successfully if at least 100 tons could be processed daily. Since some of the ore is of higher grade, it could be mixed with lower grade ore to maintain a mill head of 1.45% copper, thereby increasing the total tonnage. However, it is doubtful that an ore body of the size and shape of the Copper Hill could be selectively mined. Consequently, nothing containing less than 1.45% copper has been considered ore in calculating reserves.

To estimate inferred ore reserves, a gradual decrease in value has been assumed from an average assay of 2.62% copper and 0.87 ounce/ton of silver for ore present or already mined above Tunnel No. 1 floor, downward to only 0.08% copper and 0.14 ounces of silver in Tunnel No. 2. The horizontal dimensions have been assumed as constant. Thus an ore body 70 feet by 55 feet by 85 feet is calculated to extend from the floor of Tunnel No. 1 downward to the cut-off value of 1.45% copper. Ore reserves and marketed ore are tabulated below.

Source of Ore	Tonnage	% Cu	oz. Ag	oz. Au	oz. Pt metals
Marketed ore*	2336	4.75	1.96	tr	not given
Glory hole dump	2664	1.67	0.4	tr	0.0045
In place above Tunnel No. 1 floor	3300	1.87	0.49	tr	0.005
In place below Tunnel No. 1 floor	27000	2.04	0.70	--	-----
Total Reserves	32964				

Only the marketed ore can be classed as measured. The ore on the glory hole dump and that above Tunnel No. 1 floor is classed as indicated. This gives a total reserve of indicated and inferred ore of roughly 33,000 tons with an approximate grade of 2% copper and 0.7 ounces per ton of silver.

EXPLORATION PROPOSAL

The Ute Mining Company has requested $6000 to use in exploring the Copper Hill ore body by means of six diamond drill holes extending

horizontally for about 100 feet from the end of Tunnel No. 2. However, it has been agreed by the Bureau of Mines, the Company management, and the writer that drilling from the floor of the glory hole will give equally good results more quickly and will make it possible to stop the program if the first hole or two shows that there is little or no downward extension of the ore from the glory hole floor.

SUMMARY

The Copper Hill Mine ore body lies in a contact zone of metamorphosed sedimentary rocks, syenite porphyry, and syenite. Chalcopyrite and pyrite fill numerous small fractures and occur as disseminated grains in these rocks. The ore body is elliptical in plan view, and the applicant proposes to determine whether the ore forms a pipe-like body, and also its direction of plunge.

On the assumption that the ore body is a pipe which diminishes uniformly in value as it passes downward toward Tunnel No. 2, an estimate of 33,000 tons of ore is indicated and inferred. This ore averages about 2% copper and 0.7 ounce per ton of silver. It appears unlikely that ore of this grade can be mined here at a profit unless a considerably larger tonnage is developed. There is a reasonable possibility that this needed tonnage will be found in an ore pipe plunging easterly, westerly, or northerly.

RECOMMENDATION

The Copper Hill ore body merits some exploration to test its worth. The Bureau of Mines will present a proposal, jointly agreed upon, whereby

the extension at depth of this ore can be tested inexpensively by diamond drilling. It is recommended that the revised exploration program limited to $3000 (Government participation $1500) be approved.

REFERENCES

Ames, E. W., 1944, Unpublished War Minerals Report: U. S. Bureau of Mines.

Eckel, E. B., 1949, Geology and ore deposits of the La Plata District, Colorado: U. S. Geol. Survey Prof. Paper 219, pp. 64-65, 83, 105-106.

THE UTE MINING COMPANY
COPPER HILL MINE
LA PLATA COUNTY, COLORADO

Engineering Report

By W. M. Traver, Jr.
Mining Engineer
Bureau of Mines

THE UTE MINING COMPANY
COPPER HILL MINE
LA PLATA COUNTY, COLORADO

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THE UTE MINING COMPANY
COPPER HILL MINE
LA PLATA COUNTY, COLORADO

ENGINEERING REPORT

By

W. M. Traver, Jr.

INTRODUCTION

The Ute Mining Company, agent, through its president, Fred A. Brinker, of Durango, Colo., has applied to the Defense Minerals Administration for a $6,000.00 exploration loan to determine by core drilling possible downward extension of the ore body previously mined at the Copper Hill mine. The docket number is 1323X.

A project was conducted by the Bureau of Mines at Copper Hill during July and August 1943. Two tunnels were reopened under this investigation and the workings sampled. The results of the project are the subject of an unpublished War Minerals Report prepared and submitted in January 1944, which recommended six drill holes from the bottom of the glory hole to determine a possible extension of the ore deposit below the No. 1 level. No work has been performed underground at the property by the owners since the Bureau project and the applicant's loan request is based entirely on the War Minerals Report which was submitted with the application. No action was taken on the original recommendations for core drilling due to a decision that the deposit was too small and low grade to justify deeper exploration under conditions existent at the time, even though it should continue in depth at the same grade and dimensions as indicated at the surface.

Present requirements for nonferrous metals, especially copper, which is in extremely short supply, and activation of the Defense Minerals Administration exploration program point the Copper Hill deposit, even though it may be small, as a logical candidate for consideration as a possible source of copper for national defense.

An examining team representing the Region IV, Defense Minerals Administration, visited the property September 13, 1951, accompanied by Fred A. Brinker, president of the Ute Mining Company.

ACKNOWLEDGMENTS

Acknowledgment is made to Fred A. Brinker, for information furnished on previous operations of the Copper Hill mine and for his courtesy in accompanying the examiners to the property and explaining his proposed exploration.

Publications of the U. S. Geological Survey,[1/] and the Colorado Scientific Society,[2/] and the Bureau of Mines[3/] have been freely consulted in the preparation of this report.

Ward B. Meek, the Survey's representative on the examination, offered excellent suggestions regarding exploration, and his assistance is gratefully acknowledged.

1/Unpublished preliminary report: Geology and ore deposits of the La Plata district, Colo., Eckel, Edwin B., 1939.
Geology and ore deposits of the La Plata district, Colo., Geol. Survey Prof. Paper 219, Eckel, Edwin, B., 1949.

2/Resurvey of the geology and ore deposits of the La Plata Mining District, Colo., Colorado Sci. Soc. Proc., Vol. 13, No. 9, 1936.
Copper ores of the La Plata district, Colo., and their platinum content, Colorado Sci. Soc. Proc., Vol. 13, No. 12, 1938.

3/Copper Hill mine, La Plata County, Colo., unpublished War Minerals Report, January 1944, Ames, E. W.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The Copper Hill mine is in the La Plata, or California, Mining District of Montezuma and La Plata Counties with its eastern limits about 8 miles air line northwest of Durango (fig. 1). Durango, the county seat of La Plata County, a city of about 9,000 population, and one of the local supply points for the San Juan Basin, is on the Denver and Rio Grande Western and Rio Grande Southern narrow-gauge railroads. The city and surrounding area are served by U. S. Highways 160 and 550. A county road branches from U. S. Highway 160 at Hesperus, 11 miles west of Durango, and follows the La Plata River north to La Plata, an almost deserted settlement, from where a truck trail, 3/4 mile long, extends to Copper Hill. Highway 160 is being rerouted over a new section under construction starting at the western edge of Durango to avoid a steep hill with a number of sharp curves. This road, when completed, will reduce the distance to Hesperus appreciably and improve access to the mining area.

The deposit is on the west side of the La Plata River in the west half of T. 36 N., R. 11 W., wholly within La Plata County and lies between Boren and Bedrock Creeks.

Winters are severe at altitudes ranging from 9,200 to 10,400, but the county road from Hesperus north to La Plata is well maintained and kept open except for short periods between January and April.

Sufficient water is available in Boren and Bedrock Creeks for domestic and mining purposes, but, in the event a mill is contemplated, a site would have to be selected on the La Plata River, 2,000 feet from the mine workings.

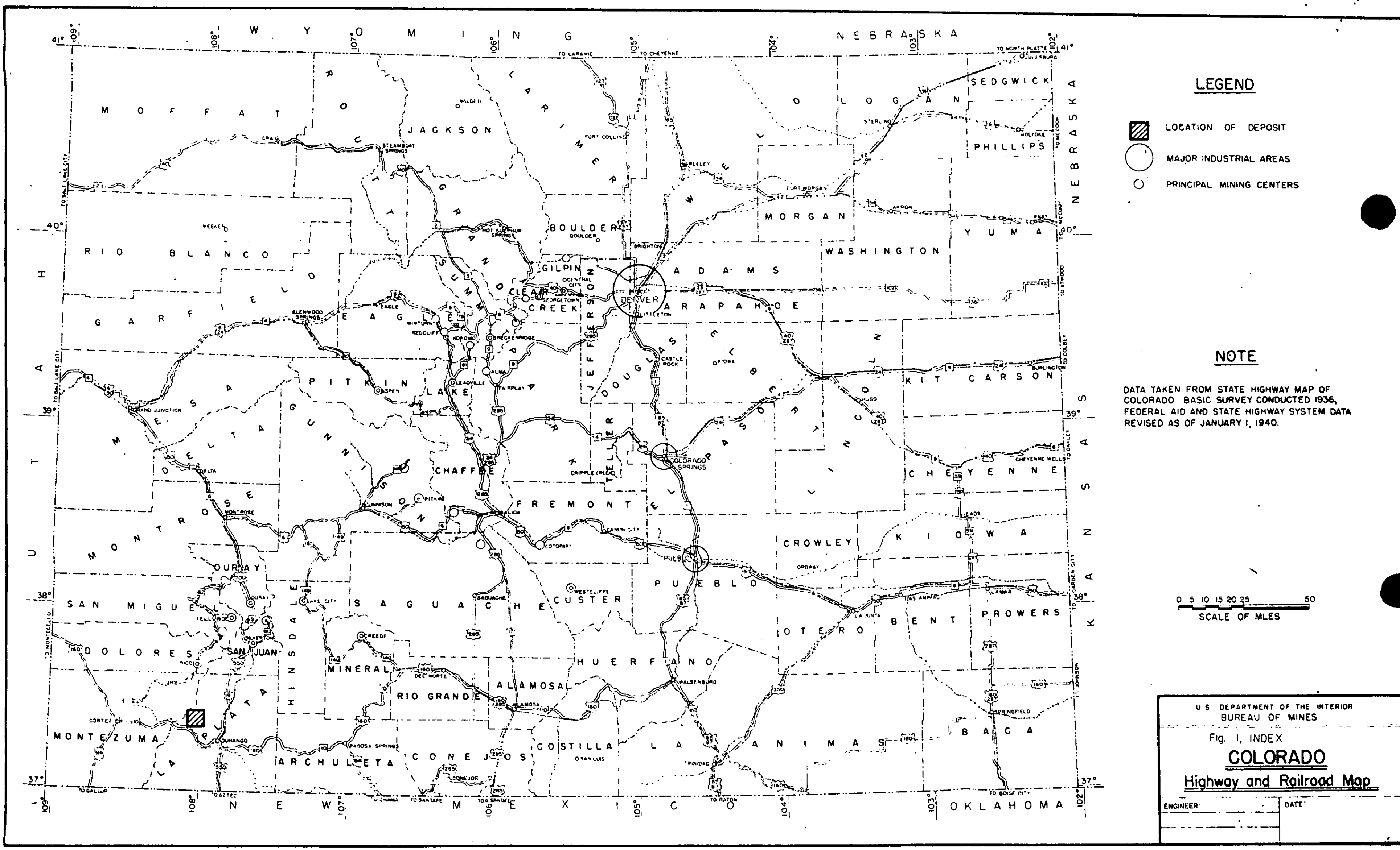


FIG. 1-LOCATION MAP, THE UTE MINING CO., COPPER HILL MINE, LA PLATA CO., COLO., D.M.A.-1323X

Abundant timber is available as the adjacent mountain slopes are well wooded. There are a number of sawmills within a short distance.

Electric power lines of the Western Colorado Power Company have been removed from the area and deisel power would probably be utilized for mining unless a large-scale operation is undertaken.

Experienced mine labor is scarce and would be recruited from either Silverton or Rico. Prevailing rates are $1.50 per hour for miners and timbermen and $1.25 per hour for muckers and surface labor with an increase in the near future anticipated.

The La Plata Mountains rise abruptly westward from the relatively level Colorado Plateau. Slopes in general are steep and at higher elevations extremely rugged. Bedrock over a large part of the immediate area is obscured by talus, and alluvium. However, in most localities surrounding Copper Hill, the cover is not deep enough to prevent the use of a bulldozer for surface exploration.

HISTORY AND PRODUCTION

Prospectors discovered gold in the La Plata Mountains in 1878 and a substantial production of both gold and silver resulted between that date and 1938.

Some years after 1878, copper deposits covering a large area on the west side of the La Plata River between Boren and Bedrock Creeks were discovered. Many claims were located, but actual copper production was not recorded prior to 1911. Between 1911 and 1917, the Copper Hill Mining Company shipped 2,336 dry tons of ore from Copper Hill to the American Smelting and Refining Company's Durango smelter. This ore

yielded 12.26 ounces gold, 4,478 ounces silver, and 223,865 pounds of copper, indicating a grade of 1.9 ounces silver per ton and 4.75 percent copper. So far as known, this represents the total production from the property.

Smelter settlements show that sorted ore in some shipments assayed above 2 ounces silver per ton, and up to 6.5 percent copper.

OWNERSHIP AND EXTENT

According to records of the Clerk and Recorder of La Plata County, the Ute Mining Company, agent, controls eight mining claims covering the ore deposit upon which the exploration loan is requested. Six claims, the Copper Hill, Willow Springs, Esmeralda, Ida May, Snow Bird, and Butterfly, were included in the ownership when the first Bureau investigation was made. Since, the Ida May claim was dropped, and new locations,--the Jean, Gail, and Ute--were made covering the Ida May and open ground considered essential to complete coverage. None of the claims is patented but assessment work is up to date. Apparently only the Copper Hill deposit is of interest to the Ute Mining Company.

DESCRIPTION OF THE DEPOSITS

The central part of the La Plata district, more particularly the ridge between Boren and Bedrock Creeks where the Copper Hill mine is located, is covered by 2 syenite stocks. The stocks, wherever sampled, will yield a copper assay, but the disseminated chalcopyrite in only a few localities is sufficiently concentrated to be considered as ore.

According to the U. S. Geological Survey, the syenite country rock is dark, greenish brown to gray massive metamorphic rock that resulted

from partial replacement of sedimentary rocks and porphyry by a syenite mineral aggregate. The stock is not siliceous and the ore could be continuous in the augite syenite. However, the ore is primary and there is little possibility of secondary enrichment with depth. The silver content is higher than ordinary copper deposits which could compensate for lower average copper content.

The ore deposits have undergone only slight oxidation, producing malachite, and azurite as their films with veinlets of limonite.

Determining the control of mineralization at Copper Hill in the most copper rich portion by correlation of fracture systems has been unsuccessful.

Figure 2 is a composite plan of the mine workings near the glory hole of the Copper Hill deposit reproduced from figure 4 of the unpublished Bureau of Mines War Minerals Report. Sampling data are omitted from the drawing for clarity. The dotted outline northwest of the glory hole represents an additional area indicated by the sampling to be minable considering 1.87 percent copper to be commercial.

The glory hole accounted for most, if not all, of the production from the deposit. Its average horizontal dimensions at the bottom which corresponds to the No. 1 level are roughly 60 feet by 40 feet with an average depth of 25 feet. The ore body as outlined by the Bureau engineer increases the horizontal dimensions to about 70 feet by 55 feet and leaves possibly 3,300 tons of 1.87 percent copper ore unmined.

The quantity and quality of ore now showing lends no encouragement to further mining. There remains, however, the possibility that the ore body mined at the glory hole dips in a direction causing it

to be missed by the No. 2 tunnel driven from the south 183 feet vertically below the bottom of the upper No. 1 tunnel workings. Exploration at or near the glory hole by diamond drilling could disclose additional ore should the extension rake in any other direction than south or flatten to less than 45°.

A winze on the northeast periphery of the glory hole not shown on the original plan map has been added to figure 2. It was filled with water at the time of the last examination. Plumbing by suspending a weighted tape in the water showed a depth of 14.5 feet. Without other information available, it appears that previous operators sunk this winze in the belief that the ore body raked in that direction.

In the absence of sampling of the winze or floor of the glory hole, little can be predicted concerning downward ore extension and there is a possibility it has been bottomed.

MINABLE ORE RESERVES

The only ore reserves presently available at Copper Hill are the approximately 3,300 tons of unmined ore on the northwest side of the glory hole averaging 0.49 ounce silver and 0.005 ounce platinum group metals per ton and 1.87 percent copper, and an estimated 2,700 tons of dump ore averaging 0.40 ounce silver and 0.0045 ounce platinum group metals per ton and 1.67 percent copper. On the basis of Bureau of Mines sampling, these 6,000 tons are classed as indicated ore and the marketed as measured ore.

The Geological Survey member of the examining team, W. B. Meek, has prepared the following tabulation of ore reserves:

TABLE 1.

Source	Tons	Ounces per ton Silver	Ounces per ton Platinum Group	Percent Copper
Dump	2,664	0.40	0.0045	1.67
Unmined ore	3,300	0.49	0.0050	1.87
Indicated ore	5,964	0.45	-	1.78
Marketed (measured) ore	2,336	1.96	-	4.75
Total (measured and indicated)	8,300	0.87	-	2.62

From the table it is apparent there are available, if the dump sample is accurate and the dump material recoverable, roughly 6,000 tons with an average grade of 0.45 ounce silver per ton and 1.78 percent copper.

Meek has revised the original Bureau estimate of inferred ore on the basis of data in the above table. He assumes:

(1) Measured and indicated reserves total 8,300 tons averaging 0.87 ounce silver per ton and 2.62 percent copper.

(2) Sampling in tunnel No. 2 gave an average of 0.14 ounce silver per ton and 0.082 percent copper.

(3) The grade decrease downward in 183 feet is 0.73 ounce silver per ton and 2.54 percent copper.

(4) The decrease per foot of depth accordingly is 0.004 ounce silver per ton and 0.0138 percent copper.

Applying a cut-off of 1.45 percent for copper, that grade would be reached at a depth of 85 feet below tunnel No. 1, where the ore would also contain 0.534 ounce silver per ton.

This results in a reserve block of inferred ore in the form of a prism approximately 70 feet by 55 feet in horizontal plan with a depth of 85 feet containing roughly 27,000 tons using a tonnage factor of 12.

$$\frac{70 \text{ feet} \times 55 \text{ feet} \times 85 \text{ feet}}{12} = 27{,}271 \text{ tons}$$

The grade averages:

$$\frac{0.87 + 0.53}{2} = 0.70 \text{ ounce silver per ton}$$

and

$$\frac{2.62 + 1.45}{2} = 2.04 \text{ percent copper per ton.}$$

This gives the following second tabulation:

TABLE 2.

Source	Tons	Ounces/ton Silver	Percent Copper
Indicated ore	5,964	0.45	1.78
Inferred ore	27,271	0.70	2.04
Total	33,235	0.66	1.99

If the estimate proves valid, there will be available in the deposit indicated and inferred reserves of about 33,000 tons averaging 0.66 ounce silver per ton and 1.99 percent copper. The platinumgroup metals will probably not be recovered and no credit is taken for them.

While the foregoing estimates are mathematically sound there is little basis at present geologically to support them. It seems more likely the ore body bottoms in the glory hole. However, this can be determined only by the exploration suggested.

PRESENT STATUS

Exploration and Development

Work accomplishments at Copper Hill have been described in detail in the text and illustrated on maps accompanying the War Minerals Report included with the loan application.

The description is not repeated in this report, but a plan map (fig. 2) is a reproduction of figure 4 of the original report with the details such as sample locations, geology, and assays omitted.

A winze 14.5 feet deep not shown on the map nor mentioned in the first report is shown on figure 2. It is located on the northeast periphery of the glory hole, is full of water, and was not sampled during the Bureau project.

The crosscut east near the end of the lower, or No. 2, tunnel has no raise, as shown on the map with the first report, and a raise shown on figure 2 is located on the east side of the tunnel 100 feet south of the crosscut. This raise was driven to a height estimated as 35 feet above the floor of the tunnel and it also was not sampled.

Mining and Milling Equipment and Other Facilities

There is no mining or milling equipment of any kind on the property. All mine rail, pipe, et cetera were removed from underground workings when work was discontinued. Wooden structures, such as the sorting plant, ore bins, and shop, have deteriorated to an unusable condition. A surface tram from the No. 1 tunnel portal to the sorting bin has been removed.

In 1926 the La Plata Mines Company erected a plant to supply power for Copper Hill and the Gold King mine, 2 miles north of La Plata on the east side of the river. At that time some prospecting was done at Copper Hill but a short time later the plant was torn down and the materials salvaged. So far as is known, only annual assessment work in the years when it was required has been done since. Recently it has consisted of bulldozer trenching near the deposit.

Milling was never undertaken at Copper Hill and only selected ore acceptable at the Durango smelter produced.

PROJECT PROPOSALS, WITH COSTS

Exploration and Development

The applicant has proposed exploration by diamond drilling six horizontal holes at an estimated cost of $6,000.00 from the end of the No. 2 tunnel as shown on a map included with the brochure.

Although the syenite host rock shows consistent copper mineralization throughout, it is too low-grade to be commercial except at locations such as Copper Hill where the segregations were sufficiently concentrated to make small scale mining operations profitable.

Tunnel No. 2 eliminates extension of the ore mined from the glory hole vertically or with a rake to the south. However, if the extension rakes any other direction or at an inclination of less than 45°, the ore body would be missed entirely in the applicant's drill holes.

The applicant agreed with the examining team that exploratory drilling from the floor of the glory hole would be more practical. Drilling will start with a vertical hole at a site shown on figure 2. This first hole will give a clue as to the possible downward rake of

the ore pipe and subsequent holes will be fanned to follow and outline the extension. A commercial assayer is available at Durango and cores will be split and one-half assayed and the other half reserved for inspection and logging by the Government agencies concerned. If it is found that the floor of the glory hole bottomed the ore, the project will be terminated immediately.

Use of water from the winze for drilling will empty it shortly and allow inspection and sampling. The floor of the glory hole should also be sampled before drilling operations start.

In view of the fact that the project is assigned a maximum of 500 feet of drilling, it is considered unlikely that drill contractors would submit bids low enough to be of interest. The applicant has an underground air-powered drill with accessories suitable for this project available at a monthly rental of $75.00 a month. A competent drill operator has been interviewed and will contract the drilling at $4.00 per foot furnishing labor only. Operating one shift per day, it is assumed the 500 feet will be completed in 25 days.

New Equipment and Facilities

No new equipment will be purchased and facilities, such as mine buildings, will not be needed.

Transportation

Operating personnel will furnish their own transportation to the project.

A truck trail, 3/4 mile long, passable for low-gear vehicles, extends from La Plata along the east slope of Bedrock Creek to the former loading bin at Copper Hill. It can be improved by a small amount of work with a bulldozer.

In the performance of 1950 assessment work some bulldozer trenching was completed on the south side of the glory hole and a primitive road constructed from the ore bin level to the portal of No. 1 tunnel. This road will require some improvement to make it suitable for transporting equipment and hauling water to the drill site.

A bulldozer with operator is available at Durango at a rental rate of $12.00 per hour. In all, it is estimated that $120.00 will be required for this work.

Manpower

After access to the drill site is completed, only a drill operator and helper under contract will be required. At $4.00 per foot, the 500 feet of drilling will total $2,000.00.

Sampling the floor of the glory hole and the winze will be supervised by the applicant and done with capable part time labor. Drilling may obviate the necessity for this sampling, but $50.00 is assigned for the job.

Water

Drilling water will be obtained first from the winze in the floor of the glory hole. When this supply is exhausted, water will be hauled from the La Plata River over the truck road and stored in the winze for use as required.

A pickup truck will be rented, equipped with a small tank, and operated by the drill helper for water haulage. Operation will be intermittent and, on a mileage basis, is estimated at a total of $200.00.

COST OF PROJECT

Overall costs, allowing one month for completion of the project, are summarized as follows:

Recapitulation of Costs

Equipment rental		
Diamond drill (1 month)	$ 75.00	
Bulldozer with operator, 10 hours at $12.00 per hour	120.00	
Compressor (1 month)	280.00	
Pipe, 100 feet of 2-inch (loaned by applicant)	---	
Total		$ 475.00
Services		
Diamond drilling, 500 feet at $4.00 per foot	$ 2,000.00	
Water haulage	200.00	
Sampling	50.00	
Supervision (part time)	150.00	
Total		2,400.00
Miscellaneous		
(including bits, assaying, core boxes, etc.)	$ 125.00	125.00
Total		$3,000.00

PRODUCTION PLAN

Metallurgical tests by the Salt Lake laboratory of the Bureau of Mines show Copper Hill ore to be readily amenable to concentration by flotation, with an indicated recovery of 91 percent in a 27.6 percent copper concentrate.

As tests were conducted on an ore sample averaging only slightly higher than the reserves estimated for the deposit, it is expected

that practically the same results can be anticipated with probably a slightly lower recovery.

Assuming a concentrate assaying 4.87 ounces silver per ton and 27.6 percent copper is made and sold to the American Smelting and Refining Company, at Garfield, Utah, the following returns will be realized under present schedules:

Net Smelter Returns per ton

Copper (.276 - .0075) x 2000 x $.21075	$ 113.17	
Silver (4.87 - .50) x $.70625	3.08	
Total		$116.25

Deductions

Treatment charge	$ 8.50	
Freight, Durango, Colo., to Garfield, Utah	18.70	
Total		27.20
Net smelter return per ton of concentrate		$ 89.05
Net smelter return per ton of ore (Ratio 16.5:1)		$ 5.40

Estimated production costs

Mining, development, transportation (ore to mill and concentrates to rail head.)	$ 2.50	
Milling	1.00	
Total costs		$ 3.50
Net profit		$ 1.90

If 200 tons of ore are milled a day 360 days a year, it will require 187,200 tons to supply the mill feed necessary and the 3,300 tons of indicated and inferred ore estimated at Copper Hill will be exhausted in 165 days.

A 200-ton mill and a corresponding surface plant to mine and process the ore is estimated to cost at present approximately $350,000.00 (underground development is included in mining costs). If operations show a profit of $1.90 it will require the development of 142,000 tons of reserves to amortize the investment.

The ore deposit, if it proves to be an irregular pipe with dimensions assumed in the chapter on ore reserves, will average about 320 tons per foot of depth and in order to provide the reserves necessary to retire the capital investment will have to extend to a depth of 440 feet. This appears a remote possibility.

The applicant is a graduate metallurgical engineer and considers it is possible to develop the mine, build a mill, and place the property in production for less than 50 percent of the engineer's estimate. Should the exploration result in the development of smaller reserves than required for the more elaborate proposal, production plans after the completion of the project can be altered to fit the amount of ore reserves developed. In any event, a complete cost analysis and thorough study of proposals will have to be made when the project is completed.

CONCLUSIONS

(1) Copper Hill has had a small production of selected ore that averaged 1.9 ounces silver per ton and 4.75 percent copper. Overall operations probably were not profitable.

(2) Downward extension of the deposit, apparently occurring in the form of a pipe, has not been adequately tested.

(3) Ore reserves developed by any method of exploration are unlikely to be large. However, the establishment of sufficient reserves to sustain even a limited operation will encourage investigation of the surrounding area for similar ore concentrations.

(4) The ore is readily amenable to beneficiation by selective flotation as demonstrated by Bureau of Mines testing.

(5) Exploration by diamond drilling is entirely feasible and the most economical and logical method.

(6) Present copper requirements are critical enough to justify exploration projects on a participating basis although only small reserves result.

RECOMMENDATIONS

Approval of a $3,000.00 (50 percent participation) loan to the Ute Mining Company to explore the Copper Hill deposit by diamond drilling is recommended.

700

FILE COPY
SURNAME:

Ellis

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

AIRMAIL

JUN 2 1952

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

Re: Docket No. DMA-1323X (Copper)
Contract No. Idm-B316
A partnership consisting of:
Lettie M. Loveless, Jean M. Brinker,
Gail M. Miller, Downs McClosky and
Ute Mining Company

Dear Mr. King:

Referring to Mr. East's memorandum of May 13, 1952, forwarding six copies of the above-captioned application for assignment of a contract number, we are returning the Operator's and Field Team copies of the signed contract herewith. Kindly transmit one copy to the Operator.

Sincerely yours,

(signed) FRANK E. JOHNSON

Chairman, Operating Committee

Enclosures 2
EWEllis/gla 5-28-52

APPROVED:

J. M. Hedges
For Bureau of Mines

D. M. Lemmon
For Geological Survey

cc to: Adm.Reading File
Operating Committee
Docket
Messrs. C.H.Johnson, Rm. 3621
Ned Nelson, Rm. 4216 GSA
Ellis

May 20, 1952

Mr. Hofflund: Rm 4627

Comment by Mr. Ellis

Exhibit A

For your information, evidently the rental value of the air compressor is $280.00 per month and is to be used only one month. The wording "Air Compressor 185 cu. ft. per month" may be somewhat misleading. The #185 cu. ft." should have been in parenthesis.

OK

EWE

Docket No. DMA-1323X
Contract No. Idm-E316

May 27, 1952 Contract Approved } Hofflund

RECEIVED

MAY 20 1952

GENERAL COUNSEL
DEFENSE MINERALS
ADMINISTRATION

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

224 New Customhouse
Denver 2, Colorado

May 13, 1952

REGISTERED MAIL

Memorandum

To: Secretary to the Operating Committee
Defense Minerals Exploration Administration

From: Executive Officer, Field Team, Region IV

Subject: Contract, Docket DMA 1323X, Copper Hill Mine, La Plata County Colorado

Enclosed are six copies of the contract between the Government and a partnership consisting of Lottie M. Loveless, Jean M. Brinker, Gail M. Miller, Downs McClosky and Ute Mining Company.

All copies of the contract have been signed by the Executive Officer, DMEA Field Team, Region IV, and by the applicant.

Kindly assign a contract number and return the required number of contracts to this office.

J. H. East, Jr.

Enclosures

May 27, 1952
Approved w/ Form
per letter to Administrator
J. J. Hoffman

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
Denver

MAY 16 1952

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

March 4, 1952

Memorandum

To: Mails and Files

From: Ernest Wm. Ellis, Chief
Rare and Misc. Metals Division

Subject: Docket No. DMA-171X, West Park Mining Company
Docket No. DMA-1323X, Ute Mining Company

Since these projects fall within the prerogative of the Executive Officer of Region IV to finalize contracts under $25,000 and contracts are in process of being executed by that office, the docket material in each instance is returned herewith. They have been removed from our list of pending applications.

D E M A

A. G. Keating
5369 4070

1420137 Salaries & Expenses
Defense Production Activities Interior 1952. "100(100)"
12-28-51

Mr. J. H. East, Jr. Exec. Officer, eg. IV, 224 New Customhouse Bldg.
Denver, Colorado
DMA 1323 and 1187, Ute Mining Company

[illegible] 12-21-51 UTE MINING COMPANY HAS TWO APPLICATIONS DMA 1323 and 1187 [illegible] DIFFERENT LOCATIONS, WE HAVE 1187 APPLICATION DATED 9-17-51 [illegible] ASSUMED, IS APPLICABLE STILL [illegible] ED.

D. E. [illegible], ACTING CHIEF
BASE METALS DIVISION

AGKeating/hmj
12-28-51
cc to: Mails and Files
Mr. Mittendorf
Mr. Moulds
Mr. Keating
Docket

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

224 New Customhouse
Denver 2, Colorado

December 12, 1951

Memorandum

To: Executive Secretary, Defense Minerals Administration

From: DMA Field Team, Region IV

Subject: DMA Docket 1323X, Copper Hill Mine (Copper), Ute Mining Company, La Plata County, Colorado

The above application has been approved for an exploration project estimated to cost $3,000.00.

The project consists of drilling one diamond drill hole vertical from the bottom of the glory hole adjacent to the No. 2 Tunnel, dependent on the results of which, other holes would be fanned out at various angles of inclination to further explore for the ore body.

Your copies of the final report will be sent with a copy of the contract, which is being prepared in this office.

Paul T. Allsman, Alternate

A. H. Koschmann

DEC 11 1951
DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
Denver, Colorado

Copy of this memo. to Rare & Minor Metals Div.
2/13/52 - BL

310

FILE COPY
SURNAME:

Gowen
Mayer
McGill

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

AUG 22 1951

Mr. Fred A. Brinker, President
Ute Mining Company
Durango, Colorado

Re: Docket DMA-1323X

Dear Mr. Brinker:

This is to inform you that your application for aid for the exploration of the Copper Hill Mine near Hesperus, Colorado, has been referred to the Field Team for further investigation. You will hear from Mr. J. H. East, Jr., Executive Officer, DMA Field Team, Region IV, Bureau of Mines, 224 New Customhouse Building, Denver 2, Colorado, or one of his staff prior to any visit to the property.

We would suggest that you get a bid or an estimate from a reliable diamond drill contractor and supply this information to the Field Team when requested. You should also state what charges will be made against the project for supervision.

Very truly yours,

SIGNED BJ 8/22

Tom Lyon, Director
Supply Division

JBGowen:ez
8/17/51

Copy to: Administrator's Reading File
Reports and Records Branch
Executive Officer, Field Team, Region IV
Coordinating Committee
J. B. Gowen
~~Johnson~~
D. MacLaren
Files-DMA Docket

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

Mr. J. H. East, Jr.
Bureau of Mines
224 New Customhouse Building
Denver 2, Colorado

Dear Sir:

We attach "Review of Application for Exploration Assistance" on:

Docket No. DMA-1323X

Commodity Copper

Applicant Mr. Fred A. Brinker, President
Ute Mining Company, Durango, Colorado

Please expedite the consideration of this application with particular reference to the points raised in the attached "Review."

Very truly yours,

Chairman
Coordinating Committee

For Bureau of Mines

For Geological Survey

8/20/51

Defense Minerals Administration

Review of Application for Exploration Assistance

Docket No. DMA-1323 X

Commodity Copper - Platinum

Total Amount $6,000.

Govt. Participation $3,000

1. Name and Address of Applicant Copper Hill Mine
Ute Mining Co. (Agent) Durango, Colorado

2. Location of Property 9 miles north of Hesperus, Colorado
Exact location recorded in Book 107 page 331 of
County records — La Plata county, Colorado

3. Mineral or metal Copper - Platinum 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 _____

b) Poor X

c) None _____

d) Don't know --- needs field examination ✓

e) Is there an alternative and favorable project? _____
(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? Not lessee

Does the lease have sufficient time to run to cover a future productive period? No lease

*Question numbers are those of MF-103

7. Are subordination agreements necessary? No

a) MF-201? No

b) MF-202 No

8. From the data presented, does the proposed project appear feasible from the point of view of:

a) Available manpower ~~No~~ Yes

b) Equipment and supplies ~~Not applicable~~ Yes
(question 14 plus general knowledge of availability)

c) Accessibility (question 12) ~~No~~ Yes

d) Water (question 13) ~~No~~ Yes

e) Power (question 13) ~~Possible~~ Not applicable

Is a field check needed on any of these points? No

9. Does the experience of the applicant appear to be adequate to assure that he can properly conduct the proposed project? (question 4) Yes

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? _____ 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? ~~No~~

d) Are the cost estimates detailed? No — Superintendence not included.

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data? Yes If so, attach a draft. add Superintendence

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? No

11. Exhibit B (question 23-d)

a) Is it applicable? No

b) If so, are sufficient data furnished? _____ If so, attach a draft.

c) Is a field check needed? No

12. Exhibit C (question 23-e, f and g)

a) Is it applicable? ~~Yes~~ No

b) Sufficient data? ~~Yes~~ If so, attach a draft. Add superintendence

c) Are rents and charges reasonable? ~~Yes but probably low~~

d) Is a field check needed? No

13. Exhibit D (question 23-a,b)

a) Are there sufficient data? Except for superintendence

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? ——

e) Is a field check needed? Yes n(b) ~~No~~

14. Exhibit D (question 23-c)

a) Is it applicable? No

b) Sufficient data?

c) Reasonable?

d) Field check needed?

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. See attachment

17. If field examination is needed, do you have any special instructions for the field team not indicated by your answers to the foregoing questions? If project is meritorious, check layout of diamond drilling and estimated costs.

See attachment
N.P.B.

Reviewed by: ~~H.A. Cornwall~~
~~H.A. Cornwall~~
C.J. Johnson
8/8/51 D.R. Macharen

Date ~~6/14/51~~

FILE COPY
SURNAME:

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

June 18, 1951

Mr. Fred A. Brinker
President
Ute Mining Company
Durango, Colorado

Subject: DMA-1323X
Re: Exploration Loan
Copper Hill Mine

My dear Mr. Brinker:

Receipt is acknowledged of your application and attachments of May 21, 1951 for an exploration loan under the Defense Production Act of 1950.

The application was assigned Docket Number DMA-1323X and was referred to Mr. J. B. Gowen, Chief, Copper Branch on May 29, 1951.

In any future correspondence relating to your application, kindly refer to DMA-1323X.

Sincerely yours,

LANDON F. STROBEL

Landon F. Strobel
Executive Secretary

LFSTROBEL:js
cc: Strobel-2
Files
Gowen
Lyon

DMA 1323

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

June 14, 1951

Memorandum

To: J. B. Gowen, Chief
Copper Branch, Supply Division

From: Executive Officer
Field Team, Region VIII

Attached is Docket DMA 1323X which was reviewed at College Park by Messrs. Burmeister and Cornwall, (U.S.B.M. and U.S.G.S.). Likewise attached in duplicate is their review of the application for exploration. It is recommended that the application be denied and that no assistance be extended by the Government for exploration work on this property. A detailed analysis is on the attached page.

McHenry Mosier

McHenry Mosier

Attachments

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 18 1951
LINDON F. STROBEL
Executive Secretary

BUREAU OF MINES
WASHINGTON, D. C.

1951 JUN 18 AM 11 20

DMA 1323X
Copper Hill Mine

In the review of this application, War Minerals Report 7568 was freely used. From this and DMA 1323X Application, the following conclusions were reached:

There is not an adequate labor supply. The water supply is very limited.

War Minerals Report 7568 gives a calculated net smelter return on concentrates smelted at A.S.&R. plant in Garfield, Utah. This applied to 1.87 percent copper ore as mined shows net smelter return of $2.30 per ton with copper at $0.113 per pound. This report also includes calculated mining, milling and development costs at $2.55 per ton, resulting in a net loss of $0.25 per ton of ore.

The ore apparently decreases in value with depth as War Mineral Report 7568 sampling of the pit shows a much lower average than the average of ore extracted above the present pit level.

The area showing even 2 percent copper ore approximates 50' in diameter and is very small for large scale mining.

It is possible, but not probable that a raking shoot of ore would not have been encounted by the lower tunnel.

If the ore increased materially in value, (although the opposite seems indicated), and considering present high costs, poor labor market, difficult transportation, small amount of water and the conditions of high elevation and rigorous winters, the copper content would not make this an economical operation.

The platinum content as shown by past mine production was 0.005 oz. per ton. At present prices and with 100 percent recovery this would add only $0.45 to the value per ton and would also add little to the platinum supply.

College Park, Md.
June 15, 1951

IMA-1323 X
Copper Hill Mine

In the examination of this application, War Minerals Report 7568 was freely used. From this and the IMA 1323 application, the following conclusions were reached.

There is not an adequate water supply.
The water supply is very limited.
War Minerals Report 7568 gives a calculated net smelter return on concentrates smelted at A.S.&R plant in Garfield, Utah. This applied to 1.87% Copper ore as mined shows net smelter return of $2.30 per ton with copper at $0.113 per pound.
This report also includes calculated mining, milling and development costs at $2.55 per ton, resulting in a net loss of $0.25 per ton of ore.
The ore apparently decreases in value with depth as WMR 7568 sampling of the pit show a much lower average than the average of ore extracted above the present pit level.
The area showing even 2% copper ore ~~is~~ approximates 50' in diameter and is very small for large scale mining.
It is possible, but not probable that a rotting shoot of ore would not have been

encountered by the lower tunnel.

If the ore increased materially in value, (although the opposite seems indicated), and considering present high costs, poor labor market, difficult transportation, small amount of water and the conditions of high elevation and rigorous winters, the copper content would not make this an economical operation.

The platinum content as shown by past mine production was 0.005 oz. per ton. At present prices and with 100% recovery this would add only $0.45 to the value per ton and would also add little to the platinum supply.

For the above reasons it is recommended that no exploration work be done on this property.

H. L. Bannerman

Dma-1323X
1327X

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

OFFICE OF
REGIONAL DIRECTOR

REGION IV

224 NEW CUSTOMHOUSE
DENVER 2, COLORADO

May 23, 1951

Memorandum

To: Landon Strobel, Executive Secretary, Defense Minerals Administration

From: Executive Officer, DMA Field Team, Region IV

Subject: DMA applications

We are enclosing the following applications which have been submitted to this office:

AleXitE Engineering
Division of Alexander Film Co.
Alexander Film Building
Colorado Springs, Colorado (3 copies of MF-100)
Sent to Sp. Speaker for serialization.

Ethel A. Wade
Greaterville Rt.
Sonoita, Arizona (2 copies of MF-100)
To Speaker

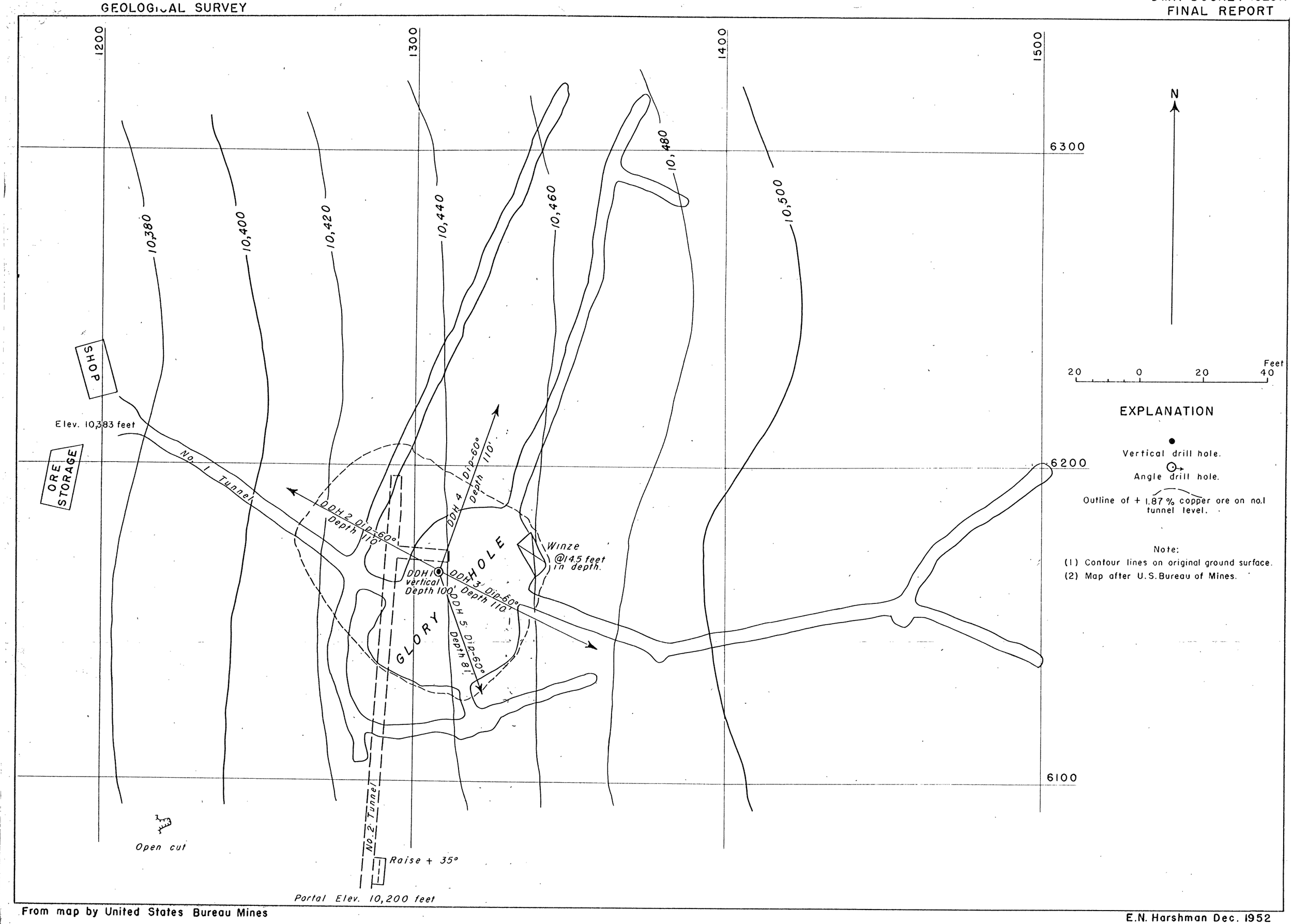
J. Arthur Zappia
Good Enough Tungsten Mining Corporation
650 So. 4th Avenue
Tucson, Arizona (3 copies of MF-100 questions)
To Speaker

Fred A. Brinker - Dma-1323X
Ute Mining Company Agent
Durango, Colorado (3 copies of MF-103)
To Sp. Gowen

J. H. East, Jr.

J. H. East, Jr.

Enclosures



From map by United States Bureau Mines

E.N. Harshman Dec. 1952

FIGURE 2.-COPPER HILL GLORY HOLE AND TUNNELS NOS. 1 AND 2 LA PLATA COUNTY, COLORADO DMA 1323X.

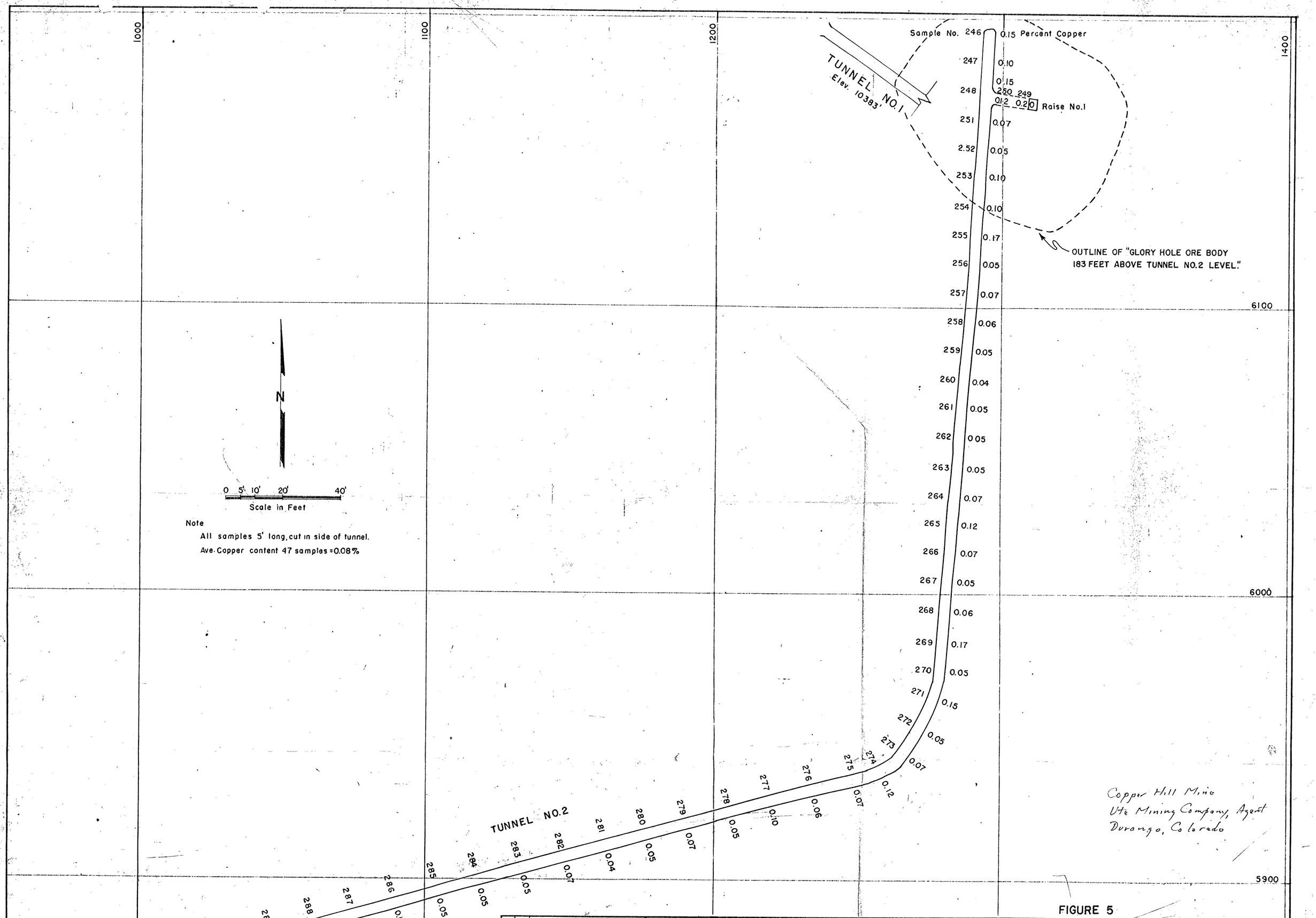


FIGURE 5

REFERENCE			DATE
1			
2		ENGINEER E. W. Ames.	
3		DRAWN BY	
4		TRACED BY J. Schumacher	10-5-43
5		APPROVED Wm. P. Hiedeott	1-11-44

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
COLORADO DISTRICT OFFICE
DENVER COLORADO

ASSAY PLAN MAP
TUNNEL NO.2
COPPER HILL
LA PLATA COUNTY, COLORADO

SCALE AS INDICATED
DRAWING NO.
11-H-156
SHEET OF SHEETS

1400-87-C

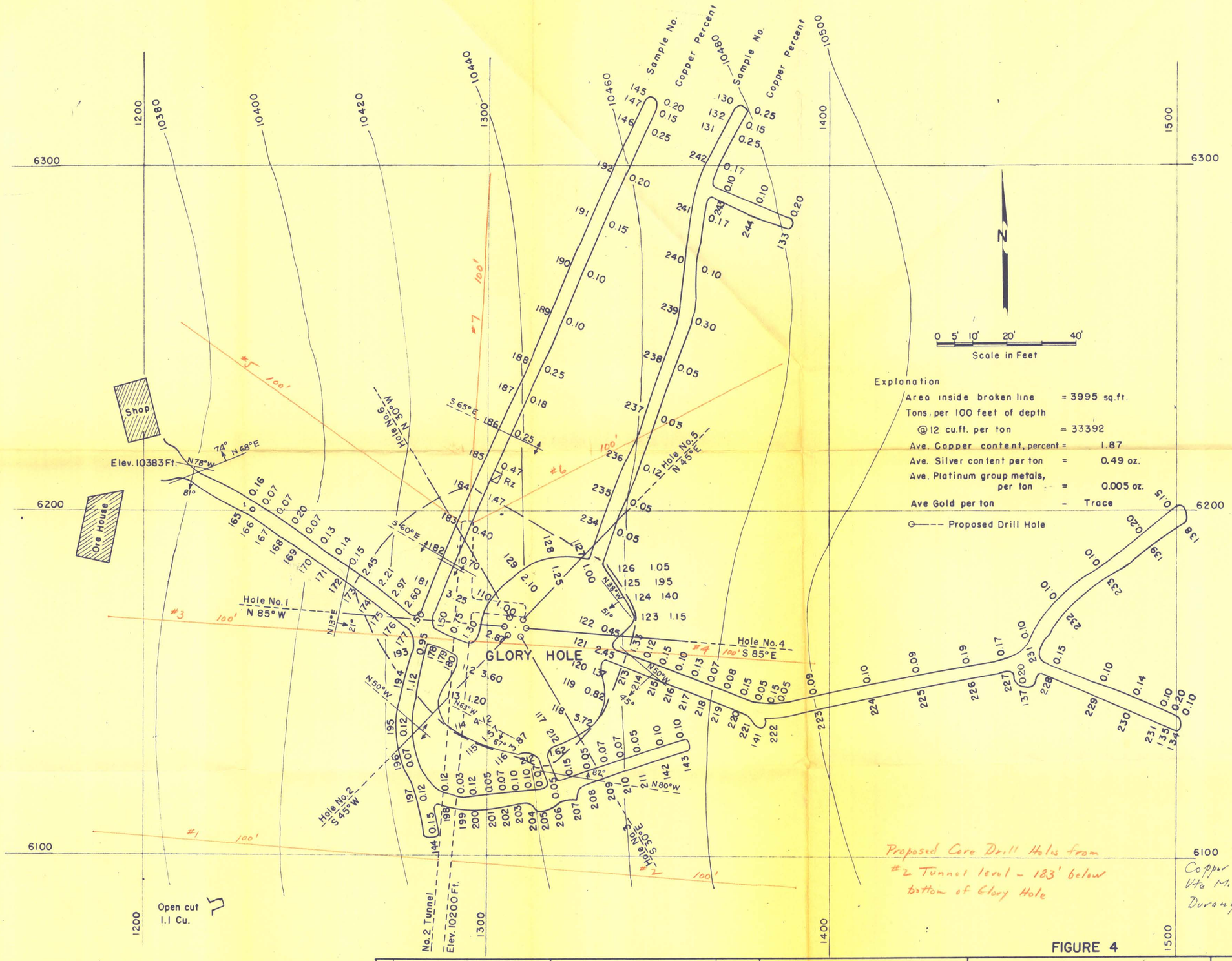


FIGURE 4

REFERENCE			DATE
	1		
	2	ENGINEER E. W. Ames.	
	3	DRAWN BY	
	4	TRACED BY J. Schumacher	10-9-43
	5	APPROVED Geo. B. Shelliott	1/11/44

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
COLORADO DISTRICT OFFICE.
DENVER COLORADO

ASSAY PLAN MAP
GLORY HOLE AND TUNNEL NO. 1 LEVEL
COPPER HILL
LA PLATA COUNTY COLORADO

SCALE AS INDICATED
DRAWING NO. H-154
SHEET OF SHEETS

1700-86-C

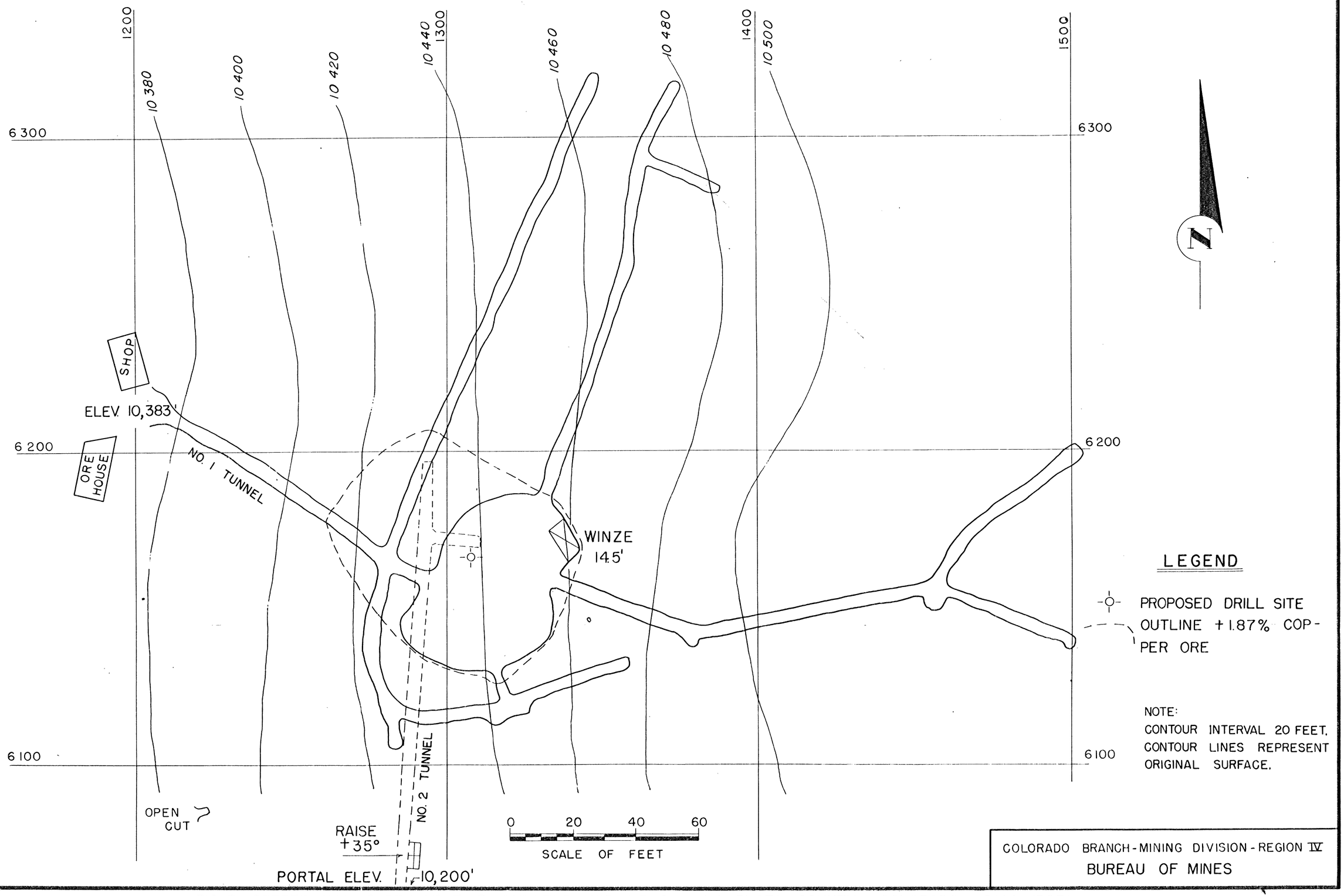


FIG. 2 - COPPER HILL GLORY HOLE & TUNNELS NOS. 1 & 2 LA PLATA COUNTY, COLORADO D.M.A. 1323X

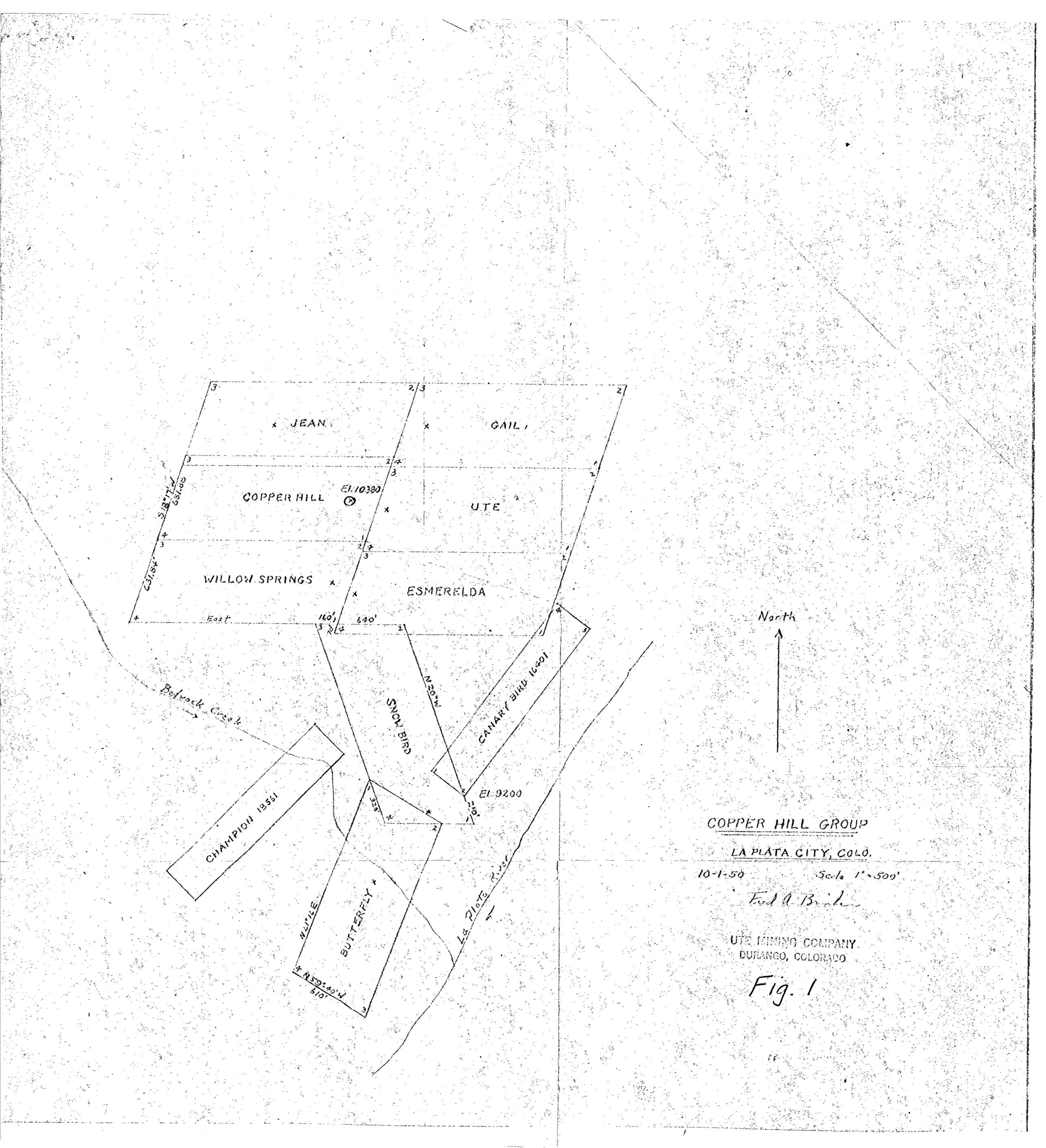

JEAN
GAIL
COPPER HILL
El. 10380
UTE
WILLOW SPRINGS
ESMERELDA
S 18°17'W
631.00
631.54'
East
160'
640'
Belmack Creek
SNOW BIRD
N 20°W
CANARY BIRD 16401
El. 9200
CHAMPION 18561
325'
110'
BUTTERFLY
N 41°E
N 59°40'W
610'
La Plata River
North
COPPER HILL GROUP
LA PLATA CITY, COLO.
10-1-50
Scale 1" = 500'
Fred A. Brill
UTE MINING COMPANY
DURANGO, COLORADO

Fig. 1