No. 1

AMENDMENT OF CONTRACT: No. IAm-2492

Contract Docket No. DMEA 2604, dated February 24, 1953, between the United States of America and S. E. Burleson and W. E. Burleson, a partnership is hereby amended as follows, effective as of the date of said contract:

> Referring to "Article 3. Exploration Project" of Exploration Project Contract Form MF-200(A), delete "60" and in lieu thereof insert "120."

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

Dated: June 19, 1953

By S. E. Burleson
S. E. Burleson, Partner

By W. E. Burleson
W. E. Burleson, Partner

UNITED STATES OF AMERICA

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

Rubin
H Thurl

MF-200 (A)
(February 1952)

DOCKET NO. DMEA 2604

COMMODITY Lead-Zinc

Idm-E492

DEPARTMENT OF THE INTERIOR
Defense Minerals
MAR 2 1953

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

EXPLORATION PROJECT CONTRACT[1]

(Short Form)

IT IS AGREED this 24th day of February, 1953, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and[2] S. E. Burleson and W. E. Burleson, a partnership
P. O. Box 209
Salida
Colorado

hereinafter called the "Operator," as follows:

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

ARTICLE 2. *Operator's property rights.*—With respect to that certain land situated in the State of Colorado, County of Saguache, described as follows:[3]
The following patented Lode Mining Claims;
Ouray - U. S. Survey 14183
Antoro - U. S. Survey 937

the Operator represents and undertakes:[4]

(a) ~~That the Operator is the owner in possession and entitled to possession, and the property is subject to the following liens, encumbrances, and claims: [illegible]~~

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

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

ARTICLE 3. *Exploration project.*—The Operator, within 60 days from the date of this contract shall commence work on a project of exploration for[5] Lead-Zinc

in or upon the described land; and shall bring the project to completion within a period of 12 months from the date of this contract. The work to be performed is more fully described in Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, are made a part of this contract. The Government will contribute to the cost of this work as hereafter provided. The work shall be performed by the Operator or by independent contractor or contractors efficiently, expertly, in a workmanlike manner, in accordance with good mining standards and State regulations for health and safety and for workmen's compensation and employers' liability insurance, with suitable and adequate equipment, materials, and labor, to bring the project to completion within the time fixed. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

ARTICLE 4. *Costs of the project.*—The agreed, estimated costs of performing the work, expressed in terms of units of work to be performed (per foot of drifting, per foot of drilling, per cubic yard of material to be moved, etc.) are set forth in Exhibit "A," attached hereto. The Government will pay 50 percent of these agreed, estimated costs, as they accrue, for units of work actually performed that conform with the description or specifications for the work set forth in this contract, in an aggregate total amount not in excess of $13,300, which is 50 percent of $26,600, the agreed, estimated total cost of the project in which the Government will participate: *Provided,* That until the Operator's final report and final accounting have been rendered to the Government and any final check or auditing required by the Government has been made, and a final settlement of the contract has been made, the Government may withhold from the last voucher or vouchers such sums as it sees fit not in excess of ten (10) percent of the maximum total which the Government might have been called upon to pay under the terms of the contract. The Government may, as it sees fit, make payments direct to the Operator's independent contractors, if any, for the account of the Operator, rather than to the Operator.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARTICLE 9. *Changes and added provisions* .....

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

S. E. Burleson
(Operator)

W. E. Burleson

By .....

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

I, , certify that I am the secretary of the corporation named as Operator herein; that , who signed this contract on behalf of the Operator, was then of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

..... [CORPORATE SEAL]

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

EXHIBIT "A"

Description of the Work

Extend the existing crosscut on the adit level 74 feet into the hanging wall of the Antoro vein as shown on the attached map Figure 2.

Excavate for a hoist station and waste pocket and repair approximately 400 feet of track on the tunnel level by installing new rails which are already on hand.

Sink an inclined winze 140 feet, including a sump, in the hanging wall of the Antoro vein approximately parallel to the dip of the vein.

Cut a station at the 125-foot winze level, drive a crosscut 80 feet to the Antoro vein, and explore the vein by 200 feet of drifting. The work is shown on Figure 2 which is made a part of this Exhibit "A."

Estimated Costs of the Project

Crosscutting 154 feet at $35.00 per foot	$5390.00
Repair 400 feet of track. Total including new track 1/	210.00
Excavation - Approximately 270 cu. yds. for waste pocket, hoistroom, sheave wheel, and from winze collar to pocket 1/	3216.00
Timbering waste pocket and hoistroom 1/	784.00
Sinking winze 140 feet at $70.00 per foot	9800.00
Excavation, timber and timbering of winze station at the 125 foot level 1/	200.00
Drifting 200 feet at $35.00 per foot	7000.00
Total Cost of Project	$26,600.00
Government participation - 50%	$13,300.00

1/ The entire work constitutes the unit of work.

MF-203

OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of Colorado, County of Saguache, described as follows:1/

Ouray Mining claim U.S. Survey No. 1410

Antero Mining claim U.S. Survey No. 937

which is the subject of a proposed exploration project contract, hereinafter called the "contract", between the United States of America, hereinafter called the "Government", and

2/ S. L. Parlogon and L. L. Parlogon, a partnership

hereinafter called the "Operator"; and

WHEREAS, under certain provisions of said contract which are set forth on the reverse side hereof, the Government is entitled to a percentage royalty on production and to certain other rights and equities which do or may conflict with or be adverse to the interest of the undersigned in said property;

NOW THEREFORE, the undersigned, in consideration of said contract and as an inducement to the Government to enter into same, undertakes and agrees as follows:

1. The Government's equity in and right to dismantle, sever, take possession of, and remove and dispose of facilities, buildings, fixtures, equipment, or other items as provided in the contract, or any amendment thereof, shall prevail over and be prior and superior to any conflicting or adverse rights of the undersigned, and the Government is authorized to enter upon the land for such purposes.

2. To secure the payment to the Government of the percentage royalty on production3/ provided for under the terms of said exploration project contract, or any amendment thereof which does not increase the maximum amount of the Government's claim here stated or alter the provisions for repayment, there is hereby granted to the Government a lien upon the land herein described and upon any production of minerals therefrom, until the royalty claim is fully paid in the amount of the Government's contribution, not in excess of 4/$ 13,300.00, or ten years have elapsed from the date of the contract.

3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights of the Government under the provisions of said contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

Dated this 26th day of November, 195 2.

THE WEBER-WEAVER MINING CORPORATION [Seal]

William H. Weaver President [Seal]

Olga D. Weaver Secretary [Seal]

1/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in book _____ page _____ official records of said county." If (b) is used, the book and page of recordation cannot be dispensed with. If the space provided is insufficient, use an Annex, and refer to the Annex in the space.

2/ Insert the name of the Operator as it will appear in the exploration project contract.

3/ Mining or production from the land is not required, and in the absence of production there is no obligation to repay the Government.

4/ Insert the maximum amount of the Government's contribution.

RELEVANT CONTRACT PROVISIONS

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

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

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

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

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

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

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

Title to and disposition of property. All facilities, buildings, fixtures, equipment, or other items costing more than $50.00 each, paid for or purchased with funds contributed jointly by the Operator and the Government, although title may be taken in the name of the Operator, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the completion of the work or the termination of the contract shall be disposed of promptly by the Operator for the joint account of the Government and the Operator, either by return to the vendor, by sale to others, or purchase by the Operator at a price at least as high as could otherwise be obtained, as may appear to be for the best interest of the Government, unless the Government, in writing, waives its interest in any such item. If necessary to accomplish such disposition, the Operator shall dismantle, sever from the land, and remove any such item, the cost thereof to be for the joint account of the parties in proportion to their respective interests. If the Operator, within 90 days after the receipt of written notice from the Government, fails, neglects, or refuses to dispose of such property, the Government may itself enter upon the land, take possession of, and remove and dispose of any such property as above provided.

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

224 New Customhouse
Denver 2, Colorado

September 28, 1953

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA-2604 (Lead-Zinc), Contract Idm-E492, S. E. Burleson and W. E. Burleson, Saguache County, Colorado

Enclosed are three copies of "Notice of Rescission of Exploration Project Contract, Under the Terms of the Contract, Before the Work is Begun" which was prepared in conformance with authority granted in a teletype from you dated August 31, 1953.

The original notice has been mailed to the operator, a copy has been given to the Fiscal Officer, Region IV, and a copy retained for our files.

W. H. King

W. H. King

Enclosures

10-1

RECEIVED
OCT 6 1953
GENERAL COUNSEL
DEFENSE MINERALS
ADMINISTRATION

DOCKET COPY

NOTICE OF RESCISSION OF EXPLORATION PROJECT CONTRACT, UNDER THE TERMS OF THE CONTRACT, BEFORE THE WORK IS BEGUN

Sherwood
Chamberlin
Oakley
10/4/53
Robin

Messrs. S. E. Burleson and W. E. Burleson
P. O. Box 209
Salida, Colorado

Operators under Exploration Project
Contract Idm-E492, Docket No. DMEA-2604,
dated February 24, 1953

The United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, under the terms of the above mentioned contract, hereby rescinds the contract on the following grounds:

> In the opinion of the Government, you have failed to prosecute operations pursuant to the terms of the contract in that you have failed to commence work under the terms of the contract or Amendment No. 1 dated June 19, 1953.

Dated this 25th day of September, 1953.

UNITED STATES OF AMERICA

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

500
FILE COPY
SURNAME:

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

N.S. in R.R.

SEP 25 1953

S. E. Burleson and W. E. Burleson, Saguache County, Colorado
Docket No. DME 2604 - Contract No. Idm-E492

Contract dated February 24, 1953, total amount $26,600.00.

Contract work program calls for track repair, 154 feet of crosscutting, cutting out hoistroom and pocket, with timbering, 140 feet of winze sinking, winze station, and 200 feet of drifting.

Work was to start within 60 days but, by various requests, has been postponed and so far not instituted.

Would recommend that should be required to start soon, or terminate.

W. R. Griswold

W. R. Griswold

The mine had previously produced from small lead-zinc ore lenses of good grade from upper levels, but lowest level was barren. However diamond drill hole cut four feet of good ore below lowest level. Project must be considered as meritorious, but, from past history, any ore bodies encountered would likely be of small extent.

WRGriswold/hmj
(9/16/53)
CC to: Docket
Adm. R. File
Mr. F. E. Johnson
Mr. Selfridge
Mr. Alt
Mr. Keating
Mr. Griswold
Chron.

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

Defense Minerals Exploration Administration
C. J. Rittendorf
5371 4624

X3923, Working Fund, Interior, DMEA
August 31, 1953

Mr. W. A. King, Executive Officer, DMEA Field Team, Region IV, 224 New Custom House Bldg., Denver, Colorado
Reurtt August 26, docket DMEA-2604, Burleson and Burleson.

Regarding policy statement, each case should be considered individually. Spirit of DDM directive restricts further commitment of funds for commodities removed from DMEA Order-1 by Amendment Number 2 dated May 15. Under Section 4 of our letter of agreement with DDM dated May 7 we have authority to amend existing contracts involving ineligible commodities but authority should be used only when in best interests of Government to do so. Typical examples are cases where targets not reached or work inconclusive or where otherwise desirable to amend to protect Government's investment already made. In subject case believe our interest best served and spirit of DDM directive preserved by terminating contract. Authority herewith granted to prepare such notice in accordance DMEA Circular 22, using reason (b), adding after the word xxxxxxxxxxx

OVER

R.C.G.
8-31-53

contract Quote in that you have failed to commence work under the terms of the contract, or amendment 1 thereto dated June 19, 1953 Unquote. Should operator make immediate representation demonstrating financial hardship for commitments already made then Counsel advises we could consider withdrawal of termination notice.

C. O. MITTENDORF, ADMINISTRATOR

COMittendorf/fw
8/31/53

cc: Admr Reading File
Mails & Files
Op. Committee
Base Metals Div.
Mr. Bishop - Rm. 3423
Mr. Kinkel - Rm. B-242-A, GSA
Contract and Audit Div.

SENT
AUG 31 1953
Clerical Service Section

FILE COPY
SURNAME:

Griswold

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

DMEA

WRGriswold/bjl
3669 4058

August 27, 1953

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

Beurtt August 26, 1953, Docket DMEA-2604, Burleson and Burleson. It will be all right to grant another 90-day extension for starting date, but Operator should be advised that no further extension will be granted. Regarding your inquiry as to policy in matters of this nature, every case will have to be judged individually. However, we suggest you attempt to eliminate dormant projects where it appears unlikely they will be reactivated. Otherwise we shall be increasingly burdened with an accumulation of deadwood.

Copy to: Docket
Admr. R. File
Op. Committee
Base Metals
Mr. Bishop (USBM)
Mr. Kinkel (USGS)
Audits
Chron.

Chairman, Operating Committee

1-1027
(April 1946)

UNITED STATES
DEPARTMENT OF THE INTERIOR

AGENCY DMEA - REG IV

Originator:

TELETYPE

Ext.: Room:

Appro.:
Date: 8/26/53
Time:
No.:
To: C. O MITTENDORF DMEA WASH

Subject:

REFERENCE DOCKET DMEA 2604, LEAD-ZINC, CONTRACT IDM-E492, S. E. AND W. E. BURLESON, AMENDMENT NO. 1 EXTENDED STARTING DATE TO JUNE 24, 1953 HOWEVER NO WORK HAS BEEN PERFORMED TO DATE. SHALL WE GRANT EXTENSION OF STARTING DATE IF OPERATOR REQUESTS IT. PLEASE TELETYPE STATEMENT OF POLICY REGARDING MATTERS OF THIS NATURE IN CONNECTION WITH MINERALS REMOVED FROM THE STRATEGIC LIST.

W. H. King

W. H. KING

Authorized:
CONFIRMATION

Sign original message and transmit to Room ..... in duplicate

U. S. GOVERNMENT PRINTING OFFICE 16—50915-1

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 26 1953

C. O. Mittendorf
8/26/53
12:16 P.M.

DN 235 BUREAU MINES 8-26-53 9-16 AM

C O MITTENDORF

REEERENCE DOCKET DMEA 2604, LEAD-ZINC, CONTRACT IDM-E492, S. E. BURLESON AND W. E. BYRLESIBXXX BURLESON, AMENDMENT NO.1 EXTENDED STARTING DATE TO JUNE 24,1953 HOWEVER NO WORK HA S BEEN PERFORMED TO DATE. SHALL WE GRANT EXTENSION OF STARTING DATE IF OPERATOR REQUESTS IT. PLEASE TELETYPE STATEMENT OF POLICY REGARDING MATTERS OF THIS NATURE IN CONNECTION WITH MINERALS REMOVED FROM THE STRATEGIC LITXXX LIST.

W H KING

Denver, Colo.

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

224 New Customhouse
Denver 2, Colorado

June 19, 1953

Memorandum:

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

From: Executive Officer, DMEA Field Team, Region IV

Subject: Amendment No. 1, Contract Idm-E492, Docket DMEA 2604, Burleson and Burleson, (Lead-Zinc) Saguache County, Colorado

Enclosed are the original and two copies of Amendment No. 1 to Contract Idm-E492.

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

Also enclosed are three copies of the letter from the operator requesting this amendment, and three copies of a telegram from the Chairman of the Operating Committee approving this request.

W. H. King

W. H. King

Enclosures

RECEIVED
JUN 30 1953
GENERAL COUNSEL
DEFENSE MINERALS
ADMINISTRATION

Case
6-22

1-1[illegible]7
(April 1946)

UNITED STATES
DEPARTMENT OF THE INTERIOR

AGENCY BUREAU OF MINES

Originator: Bureau of Mines Washington, D.C.

TELETYPE

Ext.: Room:

Appro.:
Date: May 18, 1953
Time: 12-13 PM
No.:
To: W. H. King,

Subject:

RESULT MAY 8, DOCKET NO. DMEA - 2604,, CONTRACT IDM-[illegible]92, S. E. AND W. E.

BURLESON. YOU MAY EXTEND STARTING DATE AS REQUESTED.

W S MARING ACTING CHAIRMAN
OPERATING COM.

Authorized:

Sign original message and transmit to Room in duplicate

U. S. GOVERNMENT PRINTING OFFICE 16—50915-1

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

C
O
P
Y

224 New Customhouse
Denver 2, Colorado

May 8, 1953.

Memorandum

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

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA 2604, Contract Idm-E492, S. E. Burleson and W. E. Burleson

Enclosed are two copies of a letter from W. E. Burleson requesting an extension of the starting date under Contract Idm-E492.

Please give us your recommendations.

W. H. King

Enclosures

JFS:ld

cc: Townsend
Traver
Koschmann
Sub
Chron.

May 13, 1953

United States Department of the Interior
W.E. King, Executive Officer D.M.E.A.
224 New Custom House,
Denver 2, Colorado

Re: D.M.E.A. (Lead-Zinc)
Contract Idm-M492
S.E. & W.E. Burleson

Dear Mr. King:

In regards to your letter of April 30 th, pertaining to commencement of work, I would appreciate an extension of forty-five (45) to sixty (60) days if possible. My main reason for requesting this additional time is to see what action our Government may take in behalf of the metal mines.

I hope this will meet with your approval.

Yours very truly.

S.E. & W.E. Burleson

By: W. E. Burleson

WEB:mam
Enc.

FILE COPY
SURNAME:

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

n.s. in P.v.R.

DMEA

W MGriswold/bjl
3669 4058

May 14, 1953

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

Reurlet May 8, Docket No. DMEA-2604, Contract Idm-2492, S. M. and W. E. Burleson. You may extend starting date as requested.

W. S. Martin
W. S. Martin
Acting Chairman, Operating Committee

Copy to: Docket
Admr. R. File
Op. Committee
Base Metals Div. (DMEA)
Mr. Bishop (BOM)
Mr. Kinkel (USGS)
Accounts
Chron.

SENT
MAY 18 1953
Clerical Service Section

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

224 New Customhouse
Denver 2, Colorado

May 8, 1953

BL

Memorandum

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

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA 2604, Contract Idm-E492, S. E. Burleson and W. E. Burleson

Enclosed are two copies of a letter from W. E. Burleson requesting an extension of the starting date under Contract Idm-E492.

Please give us your recommendations.

W. H. King
W. H. King

Enclosures

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

224 New Customhouse
Denver 2, Colorado

April 30, 1953

Dmea 2604

Mr. W. E. Burleson
P. O. Box 209
Salida, Colorado

Dear Mr. Burleson:

Reference is made to exploration project contract Idm-E492 between the Government and a partnership consisting of S. E. Burleson and W. E. Burleson. The effective date of the contract is February 24, 1953. Under the terms of this contract you were to have started work within sixty days of the effective date.

However, in your letter dated February 19, 1953, with which you enclosed the six signed copies of a contract, you stated that you would appreciate not commencing exploration work before May 1, 1953. If you have not yet started work under the terms of this contract, please advise this office when you plan to do so.

Yours very truly,

/s/ W. H. King

W. H. King
Executive Officer
DMEA Field Team

JFS:ld

cc: Mittendorf
Koschmann
Traver
Subject
Chron

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

224 New Customhouse
Denver 2, Colorado

Registered Mail
#74318

February 26, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 2 1953

Memorandum

To: C. O. Mittendorf

From: Executive Officer, Field Team, Region IV

Subject: DMEA Docket 2604, Contract Idm-E492, W. E. and S. E. Burleson

Enclosed are the original and two copies of Contract No. Idm-E492. Copies of this contract have been given to the operator, the fiscal office of Region IV and a copy has been retained for our files.

W. H. King
W. H. King

Enclosures

RECEIVED
MAR 27 1953
GENERAL COUNSEL
DEFENSE MINERALS
ADMINISTRATION

3/2/53

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

224 New Customhouse
Denver 2, Colorado

February 26, 1953

Memorandum

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 2 1953

To: Secretary to the Operating Committee

From: Executive Officer, Field Team, Region IV

Subject: DMEA Docket 2604, Contract Idm-E492, W. E. and S. E. Burleson

Enclosed are four copies of the final report covering Docket DMEA-2604. A contract has been prepared and is in force.

W. H. King
W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
3-6-53
(date)

Mining Division
Region IV

September 4, 1952

Memorandum

To: Field Team, Region IV

From: Acting Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 2604, (Lead-Zinc) S. E. & W. E. Burleson, Antero Mine, Saguache County, Colorado

Enclosed are eight copies of the engineering report on DMEA-2604 by M. N. Salsbury of the Bureau of Mines.

The examining engineer concludes that the applicants are experienced and able mine operators and that the project has outstanding possibilities. He recommends that the loan be granted.

We concur in this recommendation.

W. H. King

W. H. King

Reviewed by
DMEA OVERSIGHT COMMITTEE
3-6-53
(date)

Region IV

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Date Rec'd
AUG 21 1952
BUREAU OF MINES
Denver, Colorado

Building 20
Denver Federal Center
Denver 14, Colorado
August 20, 1952

Memorandum

To: Executive Officer, Field Team, Region IV

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

Subject: DMEA 2604 (Lead-zinc), S. E. and W. E. Burleson, Antero mine, Saguache County, Colorado

Please find enclosed the original and eight copies of the "Summary, Conclusions, and Recommendations", by M. H. Salsbury and E. N. Harshman, and of Salsbury's engineering report on the above docket.

The applicants' proposal was for an expenditure of $39,747.50 for exploration requiring a 74-foot extension of an existing crosscut, preparation of a hoist station with bins, and repairing 400 feet of track on the Antero tunnel level from which an inclined winze was to be sunk 140 feet, including a sump. At a depth of 125 feet a winze station was to be excavated and from it a crosscut driven 80 feet to the Antero vein and drifts run 200 feet on the vein.

The examiners revised the proposal by changing only the size of bin capacity on the tunnel level, resulting in a slight change in the cost estimates, making a total over-all project cost of $37,400.00.

Salsbury concludes the applicants are experienced and able mine operators and the project has outstanding possibilities for proving lead-zinc reserves similar to those now being mined profitably. He recommends approval of a loan for $37,400.00--Government participation, 50 percent or $18,700.00--and, in addition, suggests all mine production be subject to royalty. This presumably will be agreeable to the applicants and will make more secure the Government's recovery of its share of the loan.

I am in agreement with the conclusions and recommendations.

The brochure furnished with the Region IV Field Team's memorandum of instruction to make the examination is also enclosed.

W. M. Traver, Jr.

W. M. Traver, Jr.

enclosures
WMT:dd
cc 8
DMEA 2604, Chron.

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

200 New Customhouse
Denver 2, Colorado

September 2, 1952

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 2604, Antoro Mine, Saguache County, Colorado.

Attached are 8 copies of the geological report by E. N. Harshman covering DMEA Docket 2604, Antoro Mine, Saguache County, Colorado.

S. E. and W. E. Burleson, applicants, propose to explore 4 veins in the Antoro mine for lead-zinc ore by sinking a 5 by 10 foot inclined winze to an inclined depth of 140 feet, crosscut about 80 feet to reach the Antoro vein and drift about 200 feet on the vein.

The Antoro vein is in the Tertiary Rawley andesite, a series of flows 1000 to 2000 feet thick. The vein is 1 to 3 feet wide and carries galena, sphalerite, and chalcopyrite. The ore shoot now being mined apexes near the surface and extends downward to a point about 75 feet above the adit level. Ore shoots in the mine in general are lenticular bodies 1 to 3 feet thick and 10 to 50 feet long. The Antoro vein and the Poverty vein, another vein found in the mine, probably junction below the adit level in the area proposed for exploration. A diamond drill hole by the applicants proved the presence of 4 feet of lead-zinc ore in this area. Because of these favorable conditions, Harshman recommends that the loan be approved.

I concur in this recommendation.

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

Enclosures (8)

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

8/28/53

DMEA 2604, S. E. and W. E. Burleson

Antoro Mine

Saguache County, Colorado

Lead-zinc

M. H. Salsbury, Mining Engineer
Bureau of Mines

E. N. Harshman, Geologist
U. S. Geological Survey

August 8, 1952

Transmitted to
DMEA OFFICE OF MINERAL ADVISORS
3-6-53
(Date)

DMEA 2604

S. E. AND W. E. BURIESON
ANTORO MINE
SAGUACHE COUNTY, COLORADO

Summary, Conclusions, and Recommendations

By M. H. Salsbury
Mining Engineer
Bureau of Mines

and

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

DMEA 2604

S. E. AND W. E. BURLESON
ANTORO MINE
SAGUACHE COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By M. H. Salsbury and E. N. Harshman

An examination of the Antoro mine near Bonanza, Saguache County, Colo., was made July 16-17, 1952, by a Region IV examining team to check the application of S. E. and W. E. Burleson, P. O. Box 209, Salida, Colo., for exploration assistance under Defense Minerals Exploration Administration docket 2604, calling for the expenditure of $39,747.50, Government participation - 50 percent or $19,873.75.

The Antoro mine workings are in the Rawley andesite, the lower member of a thick series of volcanic flows and tufts which overlie pre-Cambrian granite, gneiss, and schist. In the vicinity of the mine, the flows strike N. 10° - 20° W. and dip about 20° west. They have been broken by many faults with small to moderate displacements, all of which appear to be premineral.

Almost without exception the faults at the area show some mineralization, and in the Antoro mine four fault fissures were sufficiently well mineralized to warrant exploration, development, and stoping. Ore bodies on the Antoro, Poverty, Northeast, and Zinc veins contain pyrite, galena, sphalerite, and some chalcopyrite, gold, and silver. Gangue minerals are quartz, barite, calcite, and rhodonite. Ore occurs in small to moderate sized lenses, deposition having been controlled by vein

structure and premineral cross faults. A vuggy structure and considerable clay gouge are characteristic of the veins at the Antoro mine. Rock alteration is intense and resulted in silicification and sericitization of both the hanging and footwalls.

The applicants have been operating the property since 1947 and have produced 12,000 tons of lead-zinc-silver ore with a gross value of $408,219.80, or $34.12 per ton. The average net return to the operators was $21.28 per ton. This production came from two of the three known ore-bearing veins of the mine, the Northeast and the Antoro. Of these, the Northeast vein produced probably 80 percent of the above tonnage. The production from the Antoro vein has been something over 1,700 tons but the exact amount is unknown because the operators ceased segregating the ore from other production in January 1951.

The other vein known to have been productive is the Poverty which lies west of the Antoro and probably intersects it to the south and also at depth. Prior to 1927, one stope on the Poverty vein was mined out above the tunnel level a distance of 50 feet, and there is still an 18-inch streak of galena and sphalerite in the floor of the tunnel level beneath the stope, assaying a trace gold and 6.7 ounces silver per ton, 24.3 percent lead, 1.0 percent zinc, and 0.2 percent copper.

While the Antoro vein ore bodies are smaller than the Northeast vein occurrences, they can still be mined profitably at present metal prices (lead, $0.16 per pound, and zinc, $0.15 per pound). They average about 20 percent combined lead and zinc with the lead content running a little more than half. The vein is as much as 2 feet wide and can be mined profitably where only 1 foot wide. The Antoro vein is barren at

the tunnel level and the first ore mined occurred 60 feet above the tunnel. Because of the erratic occurrence of the ore there are no reserves blocked out as exploration was not carried on in advance of stoping requirements.

During early 1952 the applicants did some diamond drilling at several locations in the mine, and one hole directed to cut the Antoro vein below the tunnel level where it had never been explored intersected at 91 feet heavy lead-zinc sulfide mineralization over an indicated width of 4 feet of vein which assayed around 12 percent lead and 6 percent zinc. Core recovery in the vein was poor but several pieces showing galena and sphalerite were shown to the examining team.

Basing an exploration project on this diamond drill hole as well as on the possibility that the Antoro and Poverty veins may intersect at a reasonable depth below the tunnel level, the applicants have planned a project including two crosscuts, a 140-foot winze in the hanging wall of the Antoro vein, and drifting on the Antoro vein on the 125-foot winze level. They expect to continue current ore production from the Northeast vein at the same time. In any operation below the Antoro tunnel level, a small water flow must be pumped, but, based on the applicant's experience in the winze on the Northeast vein, a maximum flow of no more than 50 gallons per minute should be expected.

The examining team considers the proposed exploration project to be a good prospect. There is an excellent possibility of finding ore bodies on the Antoro and Poverty veins similar in size and grade to those mined above the tunnel level. On this basis the minimum tonnage from the block between the 125-foot winze level and the tunnel level is

estimated at 2,500 to 3,000 tons. The grade or ore is estimated at 20 percent combined lead and zinc with the lead predominating. The net return on this ore is estimated at $20.00 per ton at present metal prices (lead, $0.16 per pound, and zinc, $0.15 per pound). Mining costs would be $15.00 per ton, leaving about $5.00 per ton operating gain. The shipment of the estimated minimum tonnage, 3,000 tons, would return to the applicants their half of the cost of exploration. The Government's royalty at an estimated $1.00 per ton on the minimum tonnage would amount to less than one fourth of the Government's expenditure.

The applicants are experienced operators and competent to carry out the program.

The examining team recommends approval of an exploration loan for $37,400.00, Government participation--$18,700.00, with provision that all mine production will be subject to royalty, making more secure the Government's chance for recovery of its part of the loan.

ANTORO MINE

SAGUACHE COUNTY, COLORADO

DMEA DOCKET 2604

Geologic Report

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

ANTORO MINE
SAGUACHE COUNTY, COLORADO

INTRODUCTION

S. E. and W. E. Burleson, P. O. Box 209, Salida, Colorado, have applied for assistance in exploring for lead-zinc ore below the present workings in the Antoro mine. They have under lease, from the Weams Weaver Mining Company, New York City, N. Y., 80 patented claims in secs. 7, 8, 17, and 18, T. 47 N., R. 8 E., Kerber mining district, Saguache County, Colorado.

The property was examined on July 16 and 17, 1952, in company with M. H. Salsbury of the U. S. Bureau of Mines. W. E. Burleson, one of the applicants, accompanied the examining team; his assistance is acknowledged.

The Antoro mine is developed by about 4600 feet of drifts and cross cuts on the adit or main tunnel level, 430 feet of drift from the bottom of the Copper winze (-125 level), and about 700 feet of drifts on various levels above the adit level (fig. 2).

Early in 1952 the operators contracted 4 diamond drill holes in the Antoro mine. Hole No. 1 was directed to cut the Antoro vein below its intersection with the flat dipping Poverty vein (fig. 2). At a depth of about 90 feet vertically below the adit level, Drill hole No. 1 cut ore as follows:

Inclined Depth	oz. An	oz. Ag	% Pb	% Zn	% Cu
91 to 96 feet	0.03	8.1	18.2	6.1	0.35
96 to 101 feet	0.02	5.6	15.5	5.8	0.20

Core recovery was poor and the above assays were made on sludge samples. The hole was drilled to an inclined depth of 172 feet; no other mineralized zone was encountered. The other 3 holes were drilled elsewhere in the mine and did not intersect ore.

The applicants propose to crosscut 75 feet farther into the hanging wall of the Antoro vein, excavate for 2 underground ore bins and a hoist-room, sink a five by ten foot inclined winze to an inclined depth of 140 feet (15 feet to be used as a sump), crosscut about 80 feet to reach the Antoro vein and drift about 200 feet on the vein (fig. 2). The applicants estimate the cost of the project to be $39,747.50.

GEOLOGY

W. S. Burbank (1932) has described the geology and ore deposits of the Bonanza mining district, and in this publication includes a description of the Antoro mine as well as other mines in the area. Free use has been made of the data contained in this publication.

The Bonanza mining district lies at the northeastern edge of the San Juan volcanic region of Colorado. The rocks of the area are principally lavas of Tertiary age, probably Oligocene, resting on pre-Cambrian metamorphic rocks and Paleozoic sedimentary rocks. Exposures of metamorphic and sedimentary rocks are not common. The pre-Cambrian rocks consist of gneisses, schists, granites, and pegmatite dikes. Shales, sandstones, conglomerates, limestones, and quartzites are exposed several miles southeast of the mineralized area. These rocks rest unconformably upon the pre-Cambrian complex.

The pre-Tertiary geologic history of the area is not well known, but includes long erosional and depositional periods, folding, and thrust faulting. Ore deposits are closely related to the Tertiary volcanic activity which includes the extrusion of large volumes of lava flows and tuffs, and intrusion of dikes. According to Burbank (1932) the volcanic activity resulted in the formation of a high plateau, which subsequently collapsed. Two periods of mineralization, along faults caused by the collapse, have been recognized. The early period consisted of silicification of the wall rock and the late period included deposition of sulfide and gangue minerals and sericitization of the wall rock.

Burbank concludes that the wall rocks have had no differential influence on the chemical processes affecting ore deposition. However, some mechanical influence was noted. Those rocks in which fractures remained open, such as the andesites, were the most favorable for ore deposition.

The Antoro mine workings are in the Rawley andesite, a 1000 to 2000 foot thick series of flows at the base of the Tertiary volcanics. The flows strike northwest and dip 15° to 20° SW. The andesite is broken by many pre-mineral faults of small to moderate displacement, most of which are mineralized. Four major veins, the Antoro, Poverty, Northeast, and Zinc veins, occupy the more prominent fault fissures. Lead-zinc ore has been mined on all but the Zinc vein.

The Antoro vein is exposed in the north end of the mine workings where it strikes N. 25° to 30° W. and dips 60° to 80° E. (fig. 2). The vein is 1 to 3 feet wide and contains galena, sphalerite, chalcopyrite, pyrite, quartz barite and calcite. On the adit level the Antoro fissure contains altered gangue, siliceous material, and sparse sulfides. The ore shoot

now being mined apexes near the surface and extends downward to a point about 75 feet above the adit level. The sulfide ore occurs in small lenticular bodies from 1 to 3 feet thick and 10 to 50 feet in length and height. This ore averages about 20% combined lead and zinc. The lead content is slightly greater than the zinc content.

Ore deposition in the Antoro vein was, to a major degree, controlled by the physical character of the openings. Portions of the fissure that contained considerable gouge, or areas where changes of dip or strike produced a "tight" condition, contain little or no ore. Also, pre-mineral cross faults may terminate or offset the ore.

The Poverty vein lies to the south of the Antoro vein and occupies a low-angle fault dipping northeastward (fig. 2). On the adit level, the 2 veins intersect to the east of the main crosscut, but the intersection has not been explored. Old workings on the 2 veins are not accessible, but it is reported that both veins, where exposed near the intersection, are only weakly mineralized.

The Poverty vein strikes N. 60°-65° W. and dips 29° to 35° N. The vein is characterized by thick gouge and breccia zones and small, lenticular, high grade sulfide ore bodies. The strongest mineralization on the Poverty vein is to the northwest of the main adit level and one small body of high grade galena ore was taken from the stope shown on fig. 2. A sample of the ore in the vein immediately below this stope assayed as follows:

Sample No.	Width	% Pb	% Zn	% Cu	oz. Ag
S-12	18"	24.3	1.0	0.2	6.7

The Zinc vein, which is by far the weakest and most narrow of the 4 principal veins in the mine, lies to the east of the adit level, strikes almost due north and dips 70° E. (fig. 2). It contains some gouge and

breccia and is poorly mineralized by pyrite, sphalerite, and galena. The Zinc vein is developed by about 160 feet of drifting on the adit level and by some raising. The results of this development work were not encouraging and additional work on the Zinc vein is not contemplated.

The Northeast vein is developed by the 125 foot Copper winze and by about 350 feet of drifting on the minus 125 foot level (fig. 2). The vein which occupies a strong fault zone in the Rawley andesite, strikes N. 20° E. and dips 80°-85° E. In contrast to the other veins in the mine, the ore on the Northeast vein occurs in a continuous shoot that has been mined, both horizontally and vertically, for a distance of over 180 feet. The vein width ranges from 1 to 8 feet and averages about 4 feet. Ore minerals are galena, sphalerite, chalcopyrite, and pyrite in a gangue of dense, white quartz.

There is little or no alteration of the wall rock and open stopes stand well with only occasional stull support. The ore now being mined contains about 20% combined zinc and lead, zinc accounting for slightly over half the metal content. The Northeast vein is by far the best yet developed in the Antoro mine and most of the ore produced in the last few years has come from it.

PRODUCTION AND ORE RESERVES

Since 1947, when the present operators began mining, production has been as follows:

Dry tons	oz. Au	oz. Ag	% Pb	% Zn	% Cu	Gross Value
12,000	0.02	5.75	9.79	11.82	1.25	$408,220

Development work has not been carried on in advance of mining operations and ore reserves thus cannot be estimated with any degree of certainty.

Considerable ore probably remains to the north of the present workings on the Northeast vein, above the workings on the Antoro vein, and below the adit level on the Poverty and Antoro veins.

CONCLUSIONS AND RECOMMENDATIONS

The exploration program proposed by S. E. and W. E. Burleson, in DMEA Docket 2604, appears justified for the following reasons:

1. Considerable direct shipping, lead-zinc ore has been and is being mined on the Antoro vein above the adit level.

2. Some high grade lead ore has been mined from the Poverty vein above the adit level, and ore is exposed now along the floor of the drift on this vein.

3. A projection of the dips of the Antoro and Poverty veins indicates an intersection or junction of the two veins in the area proposed for exploration in the program under consideration. A diamond drill hole proved the presence of 4 feet of lead-zinc ore in this area.

4. Burbank (1932) concludes that although little ore is exposed on the adit level, there is no reason to believe that the bottom of the horizon favorable to ore deposition has been reached by the present workings. The examining team agrees with this conclusion.

It is recommended that the exploration program, with the slight changes suggested in the engineering report, be approved and that a loan of $37,400 (Government participation 50%) be granted. It is further recommended, for the reasons given in the engineering report, that the contract be written to include royalties on ore produced from the Northeast vein as well as from the Antoro and Poverty veins.

REFERENCE

Burbank, W. S., Geology and ore deposits of the Bonanza Mining District, Colorado: U. S. Geological Survey Professional Paper 169, 1932.

DMEA 2604

S. E. AND W. E. BURLESON
ANTORO MINE
SAGUACHE COUNTY, COLORADO

Engineering Report

By M. H. Salsbury
Mining Engineer
Bureau of Mines

DMEA 2604

S. E. AND W. E. BURLESON
ANTORO MINE
SAGUACHE COUNTY, COLORADO

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Ownership and extent	3
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Mineable ore reserves	7
Present status	7
Project proposals, with costs	10
Cost estimate	11
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Production plan	20
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ILLUSTRATIONS

Figure	Follows page
1. Location map, S. E. and W. E. Burleson, Antoro mine, Saguache County, Colorado	1
2. Proposed exploration, Antoro mine, Saguache County, Colorado	*

* See figure following Geologic Report.

DMEA 2604

S. E. AND W. E. BURLESON
ANTORO MINE
SAGUACHE COUNTY, COLORADO

ENGINEERING REPORT

By

M. H. Salsbury

INTRODUCTION

An examination of the Antoro mine near Bonanza, Saguache County, Colo., was made by E. N. Harshman, of the U. S. Geological Survey, and M. H. Salsbury, of the Bureau of Mines, for the purpose of checking the information in an application of S. E. and W. E. Burleson, P. O. Box 209, Salida, Colo., for exploration assistance under Defense Minerals Exploration Administration docket 2604 calling for the expenditure of $39,747.50, Government participation - 50 percent or $19,873.75.

ACKNOWLEDGMENTS

Information on the property was obtained from W. E. Burleson, one of the applicants, and from the mine foreman. Geological data was obtained from U. S. Geological Survey Professional Paper 169, "Geology and Ore Deposits of the Bonanza Mining District, Colo.", by W. S. Burbank.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The Antoro mine, originally developed by a shaft, is now served by an adit tunnel, portal elevation 11,273 feet, on the precipitous west slope of Kerber Creek. The Rawley mine adjoins on the South. The mine is 3 miles from the town of Bonanza and 45 miles from Salida, the nearest railhead (fig. 1). Twenty-seven miles of this distance is paved highway from Salida to Villagrove in the San Luis Valley and the balance, good dirt road.

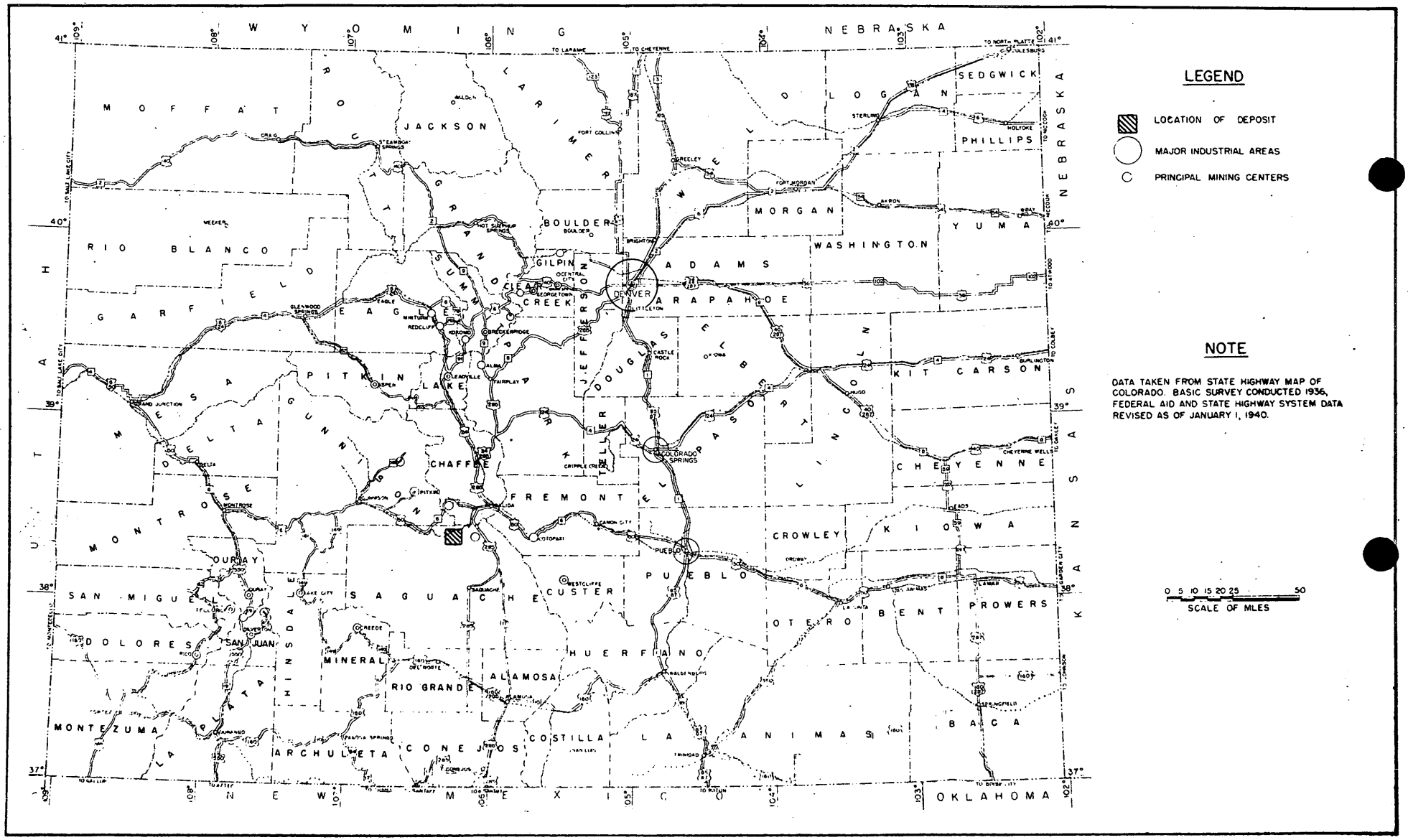

Figure 1. S. E. and W. E. Burleson, Antoro Mine, Saguache County, Colorado. DMEA 2604.

The region is one of short summers and long severe winters with heavy snowfall. Operation throughout the year is possible. During the past winter, one of unusually heavy snowfall, only 3 workings days were lost even though part of the crew traveled from Salida daily. Saguache County road crews do an excellent job of maintenance.

The mine is served by power lines of the Public Service Company of Colorado. Water for drilling purposes is obtained from pumping operations in the mine. Timber is obtained locally or in Salida, and other mining supplies come from Salida or Denver.

Lead-zinc ores from the Bonanza district are marketed at Leadville, Colo., a distance of 105 miles. Smelting ores go to the Arkansas Valley smelter of the American Smelting and Refining Company; sulfide milling ores of the type produced are accepted by the custom plant of the Resurrection Mining Company. The current contract hauling rate from the Antoro mine to Leadville is $5.75 per ton.

HISTORY AND PRODUCTION

The Antoro mine was worked as early as 1882 but the first reported production was in 1891 and consisted of lead-silver ore from shallow workings. The reported production from 1881 to 1900 was 1,000 tons of lead-silver-zinc ore. The property was operated intermittently from 1908 to 1927 with a production of about 1,400 tons of lead-zinc ore. The last operator of this period was the American Smelting and Refining Company which did considerable exploration on the Antoro vein. After 1927 or 1928, the mine was idle until 1947 when the present operations started.

Since 1947, the mine has produced approximately 12,000 tons of lead-zinc ore with an average assay of 0.02 ounce gold and 5.75 ounces silver per ton, 9.79 percent lead, 11.82 percent zinc, and about 1.25 percent copper. The copper is not paid for at the mill. These figures include production through May 1952 and are verified by settlement sheets. The gross value of the total production for the period 1947-1952 is $408,219.85. The total metal content was 2,349,600 pounds of lead and 2,836,800 pounds of zinc.

The gross value of this ore per ton was $34.12 and the net value to the shipper, after treatment, freight, royalty and production tax deductions were made, was $21.28 per ton.

All of this production came from the Northeast and Antoro veins, the largest part coming from the Northeast vein. In the period 1947-50, 1,700 tons were mined from the Antoro vein. Since January 1951, ores from the two veins have not been segregated and the applicant has no records to indicate what proportion came from either vein.

OWNERSHIP AND EXTENT

The Antoro property, comprising 80 patented claims in secs. 7, 8, 17 and 18, T. 47 N., R. 8 E., Kerber Mining District, Saguache County, Colo., is owned by the Weems Weaver Mining Corporation - Joseph H. Murray, Ernest and Cranmer Building, Denver, Colo., local representative.

The entire property is under lease by assignment from George R. Cassidy, Leadville, Colo., to whom the lease was issued originally, to S. E. Burleson and W. E. Burleson, a partnership. The lease is dated May 20, 1946, to run for 5 years, expiring May 20, 1951. By amendment, the life of the lease was extended to November 1, 1953, with an additional

provision applying all royalties, less production taxes, to an option to purchase at a price of $75,000.00. By letter dated April 16, 1952, the Burlesons have applied for a 5-year extension on the lease and option.

The royalty rates run from 10 percent of the value of ore not exceeding $30.00 per ton net value to 25 percent of the value of ore over $75.00 per ton. Both the amount and rate of royalty are computed on the net value of ore after freight (hauling), treatment, and a production tax of 2 percent have been deducted. Under this schedule, the operators have never paid a royalty of more than 15 percent and most of the ore has been shipped under a 10 percent royalty.

The property covers considerably more ground than is being worked. The Antoro claim - survey number 937, the Poverty - survey number 938, and the Orphan Belle - survey number 14183 amply cover the proposed exploration project.

The applicants have requested subordination agreements from the owners and do not anticipate any difficulty although it is likely to take some time.

DESCRIPTION OF THE DEPOSITS

The ore deposits of the Bonanza district are lenticular bodies in veins occupying premineral faults in the Tertiary lava flows of the San Juan volcanic series which have a thickness of several thousand feet. The veins of the Antoro mine - the Northeast, Zinc, Poverty, and Antoro - are, where being worked, in the Rawley andesite flow at the northeast edge of the San Juan volcanics. The Northeast, Zinc, and Antoro veins strike north to northwest and dip 70 to 80 degress to the east. The Poverty vein is very flat where exposed at the tunnel level, dipping 40 to 60 degrees to the northeast and striking north 30 to 45 degrees west.

The ore bodies are in small to medium size lenses which are discontinuous. The mineralization is apparently controlled by structural conditions within the veins and by premineral cross faults. Ore shoots sometimes end against cross faults and may or may not continue on the offset fissure on the opposite side of the fault. Stringers of ore often extend into both walls of the stopes a few feet along tension fractures. The cross faults merely affect and limit ore deposition and do not displace ore bodies already formed.

The ore minerals are sphalerite, galena, silver-bearing tennantite, chalcopyrite, and other copper minerals in a gangue of quartz, barite, manganiferous calcite, and rhodonite. Tellurides of gold and silver have been reported. The gangue often contains much premineral gouge which is probably a factor in governing ore deposition.

The ore at the level of present Antoro mining operations consists of unaltered lead and zinc sulfides. There is evidently a slight amount of corrosion as evidenced by a small percentage of nonsulfides shown in the mill settlement sheets. The ore width varies from a few inches to over 7 feet. In general, it cannot be profitably worked unless it is at least 1 foot wide although narrower widths from exploration or development work are often saved by blasting separately.

To date, ore bodies have been found in the Northeast, Poverty and Antoro veins and the mine workings are shown on figure 2 with the geologic report. The Northeast vein ore shoot is the largest and widest worked by the present operators. It is from 1 to 7 feet wide and assays about 20 percent combined lead and zinc with the zinc content usually being a little over half of the total. The ore shoot on the Poverty vein was mined prior

to 1927. It was stoped out above the tunnel level about 40 feet high and 50 feet long. The stope is 4 feet or more wide, probably on account of the flat dip of the vein rather than the width of the ore. The ore is still continuing downward below the tunnel level. An 18-inch cut taken across heavy sulfide vein matter below the stope assayed a trace gold and 6.7 ounces silver per ton, 24.3 percent lead, 1.0 percent zinc, and 0.2 percent copper.

The Antoro vein is the most extensively developed. It is barren at tunnel level but there are a number of small ore bodies in the upper levels. This ore would not have been profitable in the earlier periods of operation, and former operators did not explore it extensively. The current operators have done considerable exploration on several of the levels above the tunnel and made substantial shipments of lead-zinc ore from this work. The ore width seldom exceeds 2 feet. The combined lead-zinc content is also about 20 percent with the lead usually assaying higher than the zinc.

The walls of the veins vary greatly in character; in the Northeast vein they are generally hard and stand well. Only an occasional stull is required for support. In the Poverty and Antoro veins the walls are not good and must be supported by back filling.

On the Northeast vein the ore can be mined by shrinkage stoping or by open stopes with stull support. On the Antoro vein the ore is mined in filled stopes with cribbed ore passes and manways. The fill is composed of low-grade ore which is shot down after the ore streak is mined out. This material would be low-grade mill dirt but will probably never be recovered because of the condition of the walls. Even if the walls were firm, there is so much clay in the fill that it would have to practically be remined.

MINEABLE ORE RESERVES

Because of the erratic nature of the ore bodies, and because development is rarely carried on very far ahead of stoping operations, no ore reserves can be blocked out. There is ore left at the north end of the Northeast vein stope below the tunnel level and there is ore left on the Antoro vein above the 225 level. Mineable ore on the Antoro vein probably extends to within 125 to 150 feet of surface at the bottom of the zone of oxidation.

PRESENT STATUS

The Antoro was originally developed by a shaft sunk on the Antoro vein from a collar elevation of about 11,800 feet. Later, the present adit tunnel was driven and connected to the shaft by a raise. Thereafter, all operations were carried on through the tunnel. Lateral work totaling 700 feet was done at five levels above the tunnel on the Antoro vein, but very little ore was mined except in the early days from near surface.

On the tunnel level the Poverty vein and Antoro vein have been explored by drifting, and one stope has been mined on the Poverty vein. Several crosscuts driven to explore the area west of the Antoro vein were unproductive.

Near the tunnel portal the Northeast vein was explored by raising, crosscutting, and winzing. Previous to the current operation no ore was found. The present operators found ore in the wall of the original workings above the tunnel level and, later, working through the old winze which they call the "Copper Winze", they found the continuation of the ore body 125 feet below the tunnel level. This ore body has furnished the larger part

of the mine production to date. The applicants state that the ore shoot is still present in the bottom of the winze level but no effort has been made to explore it as yet.

The "Copper Winze" workings are the only workings in the Antoro mine below the tunnel level. A drift from the fourth level of the neighboring Rawley mine extends just underneath this winze but was never extended farther north.

In the winter of 1952 the applicants undertook a diamond drilling program under which they drilled four holes at various points. The only one of interest was a hole drilled downward from a crosscut in the hanging wall of the Antoro vein at tunnel level which cut a vein some 90 feet below the tunnel level. Excellent values were obtained from the sludge from 93 to 101 feet. The hole started to cave and was cased to 87 feet where the bit was deflected and a new hole drilled through the ore zone. Good values were again obtained from 91 to 101 feet. The sludge from 101 to 106 feet also assayed well but was disregarded in estimating the ore width because a fairly good core recovery made in this interval did not check the sludge. The material in the ore zone generally did not core well and the only recovery was a few fragments of rock containing heavy galena and sphalerite which were shown to the examining team. The hole was continued to a depth of 172 feet without encountering further mineralization.

Disregarding the sludge assay from the section from 101 to 106 feet in the deflected hole, the 10-foot length of hole from 91 to 101 feet and the angle of the hole and of the vein indicate an ore width of about 4 feet.

Assay Results From Sludge Samples

Hole	Footage From	Footage To	Footage Feet	Analyses: Ounces per ton Au	Ounces per ton Ag	Percent Pb	Percent Zn	Percent Cu
First	93	101	8	0.02	4.1	8.9	6.3	-
Second	91	96	5	.03	8.1	18.2	6.1	0.35
Second	96	101	5	.02	5.6	15.5	5.8	.20
Second*	101	106	5	.02	5.0	16.2	16.1	1.3

* Disregard

None of the other holes, which were in different parts of the mine, encountered mineralization of interest.

The veins carry a small amount of water which necessitates pumping in any operation below tunnel level. In the "Copper Winze" there is a flow of about 35 gallons per minute which is handled by a small electric pump. The flow is somewhat more in the spring and decreases in the fall and winter. A similar flow can be expected in any winze operation on the Antoro vein.

The mine is fully equipped for a production of 20 to 30 tons per day although current production is not over 10 tons daily.

Surface buildings consist of a change room, compressor room, blacksmith shop, storeroom, and two 75-ton ore bins, one of which is arranged for ore sorting.

A forge and drill sharpener are available for fabricating steel. A ventilating fan is in place but not in use at present. Compressed air for drilling or pumping is furnished by an electrically driven 420 c.f.m. Gardner-Denver compressor which would be adequate for the proposed project.

Tramming on the tunnel level is handled by a compressed air locomotive and eight cars. The "Copper Winze" is equipped with an electric hoist and ore bucket. Tramming on the winze level is done with the bucket on a dolly.

Present production is a little over 200 tons per month with a crew of eight including a foreman and one man employed on surface.

PROJECT PROPOSALS, WITH COSTS

The applicants propose to:

(1) Extend an existing crosscut on the tunnel level 74 feet farther into the hanging wall of the Antoro vein.

(2) Excavate for a hoist station and bins and repair some 400 feet of track on the tunnel level for which they already have the rail on hand.

(3) Sink an inclined winze 140 feet deep, including a sump, in the hanging wall of the Antoro vein approximately parallel to the dip of the vein.

(4) Cut a station at the 125-foot winze level, drive a crosscut 80 feet to the Antoro vein, and explore the vein by 200 feet of drifting.

This program (fig. 2 with the geologic report) is based on the excellent showing in the diamond drill hole and the fact that the Antoro and Poverty veins should intersect at a reasonable distance below the tunnel level. The winze is being located in country rock which is solid and will require a minimum of timbering. In addition, by sinking parallel to the vein, the winze can be sunk another lift at a later date without approaching too close to the vein.

Equipment for the project as listed in the cost estimate can be obtained secondhand except for the electric pump. The operators have located most of it at a very reasonable figure.

Transformer capacity at the mine is ample and no new power facilities are needed other than the underground power cable which the applicants have located secondhand.

All other equipment is on hand and will be furnished by the applicants on a depreciation basis.

The mine employs eight men at present. Three of these the applicants propose to use on the exploration project. Presumably, this would reduce production although the applicants state they intend to maintain production at the present rate, if possible.

The present mine foreman would supervise the exploration project on a part time basis.

COST ESTIMATE

Contract Proposals

Applicants' Estimate		Bureau of Mines Estimate	
Initial Rehabilitation and Repairs (Surface)			
None			
New Buildings, Improvements			
None			
Rehabilitation (Underground)*			
Replace 400 feet rail in tunnel (labor only)	$ 192.00	Replace 400 feet of rail in main haulageway between portal and site of winze Estimated labor only	$ 210.00

*Underground labor rate on both estimates: $1.50 per hour, time and one half over 40 hours, 6-day operation.

Contract Work

(To be performed under subcontract which is to include labor, explosives, compensation insurance, and social security)

Tunnel level crosscut 5 feet by 7 feet, 74 feet long - 74 feet at $18.00 per foot	$ 1,332.00	Crosscut 74 feet for car and trammer space to handle rock from winze Estimated contract cost per foot--$18.00	$ 1,332.00
	Cubic feet		Cubic feet
Excavation for bins 8 feet by 16 feet by 20 feet	2,048	Excavation for loading bins above winze 8 feet by 10 feet by 20 feet	1,600
Excavation for hoistroom 8 feet by 10 feet by 40 feet	3,200	Excavation for hoistroom 8-1/2 feet by 8 feet by 20 feet; 10 feet by 8 feet by 20 feet	2,960
Excavation for sheave 4 feet by 5 feet by 15 feet	360	Excavation for sheave 4 feet by 5 feet by 12 feet	240
Excavation from winze collar to bins 7-1/2 feet by 8 feet by 20 feet	1,200	Excavation from winze collar to bins 8 feet by 10 feet by 20 feet	1,600
Excavation at 125-foot level in winze 10 feet by 12 feet by 7 feet	840	Excavation of winze station at 125-foot level 10 feet by 12 feet by 7 feet	840
Excavation total	7,648	Excavation total	7,240
7,648 cubic feet = 283 cubic yards at $12.00 per cubic yard	3,399.60	7,240 cubic feet = 268 cubic yards at $12.00 per cubic yard	3,216.00
Sinking winze 5 feet by 10 feet by 140 feet deep, at $35.00 per foot	4,900.00	Sinking 5-foot by 10-foot winze, 140 feet Estimated contract cost per foot--$40.00	5,600.00
Crosscut to vein on 125-foot level 80 feet at $30.00 per foot	2,400.00	Crosscut to vein on 125-foot winze level, approximately 80 feet Estimated contract cost per foot--$20.00	1,600.00
Exploration drift on the Antoro vein 200 feet at $35.00 per foot	7,000.00	Exploration drift on the Antoro vein, 200 feet Estimated contract cost per foot--$25.00	5,000.00
Total estimated cost of contract work	$19,031.60	Total estimated cost of contract work	$16,748.00

Hourly Rate Labor Supplementing Contract Work*

Laying 74 feet rail in crosscut 3 men, 3 shifts	$ 108.00	Install 74 feet of track, fan line, and air line in crosscut Estimated labor cost	$ 120.00
Install hoist and electric power cable 3 men, 5 shifts at $12.00 per shift	180.00	Install hoist and electric power cable Estimated labor cost	200.00
Install sheave 3 men, 2 shifts, at $12.00 per shift	72.00	Install sheave Estimated labor cost	80.00
Install electric pump, power cable, and pump column in winze 3 men, 5 shifts, at $12.00 per shift	180.00	Install electric pump, power cable, and pump column in winze Estimated labor cost	200.00
Install rail, ladders, and skip in winze 3 men, 13 shifts, at $12.00 per shift	468.00	Install rail, ladders, and skip in winze Estimated labor cost	525.00
Place rail, pipe line, and vent pipe on 125-foot winze level 3 men, 10 shifts, at $12.00 per shift	360.00	Install rail, pipe line, and vent pipe on 125-foot winze level Estimated labor cost	390.00
Timbering bins and hoist-room 3 men, 12 shifts, at $12.00 per shift	432.00	Timbering bins and hoist-room Estimated labor cost	390.00
		Timbering 125-foot level crosscut Estimated labor cost	200.00
		Timbering 125-foot level drift Estimated labor cost	1,000.00
Total hourly labor supplementing contract work	$ 1,800.00	Total hourly labor supplementing contract work	$ 3,105.00

*Underground labor rate on both estimated: $1.50 per hour, time and one half over 40 hours, 6-day operation.

Labor, Supervision, and Technical Services

Labor
(surface and tunnel level)

Air locomotive operator Charge 3/4 of time to project - 3/4 of 228 shifts at $12.00	$ 2,223.00	One air locomotive operator 1/2 time for 10 months, at $12.00 per day plus overtime	$ 1,710.00
Surface labor, 1 man Charge 1/2 time to project - 1/2 of 228 shifts at $10.00	1,235.00	One surface laborer 1/2 time for 10 months, at $10.00 per day plus overtime	1,425.00
Hoistman (after winze is sunk) 110 shifts at $12.00	1,428.00	One hoistman (after winze is sunk) 1/2 time for 4 months, at $12.00 per day plus overtime	1,368.00
	$ 4,886.00		$ 4,503.00

Supervision

Foreman $400.00 per month, 2/3 to project for 9.12 months	$ 2,431.94	Foreman 1/2 time for 10 months, at $400.00 per month	$ 2,000.00

Technical Services

Engineering, part time, at $150.00 per month (salary rate not given)	$ 1,368.00	Engineering Part time for 10 months at actual cost of $100.00 per month	$ 1,000.00
Total labor, supervision, and technical services	$ 8,685.94	Total labor, supervision, and technical services	$ 7,503.00

Operating Materials and Supplies

Timber	$ 644.50	Timber	$ 644.50
Explosives	--	Explosives	--
Pipe	483.70	Pipe	700.00
Track	739.70	Track	738.70
Ventilating pipe	275.00	Ventilating pipe	275.00
Gasoline, oil, tires, etc. for bus	456.00		
Miscellaneous (nails, bolts, etc.)	178.00	Miscellaneous	180.00
Drill bits and rods	150.00	Drill bits and steel	150.00
Power (1/2 of $240.00 per month estimated charge)	1,094.44	Power (1/2 of $240.00 per month estimated charge)	1,200.00
Total operating materials and supplies	$ 4,021.34	Total operating materials and supplies	$ 3,888.20

Operating Equipment

Purchase

1-car skip, used	$ 100.00	1-car skip, used	$ 100.00
1,300 feet 3-conductor, 440-volt cable, used	975.00	1,300 feet 3-conductor, 440-volt cable, used	975.00
Hendrie and Bolthoff electric hoist and cable, used	650.00	Hendrie and Bolthoff electric hoist and cable, used	650.00
24- to 30-inch sheave	75.00	24- to 30-inch sheave	75.00
Hoist motor, 20 horsepower, used	250.00	Hoist motor, 20 horsepower, used	250.00
Switches, controller, etc.	350.00	Switches, controller, etc.	350.00
Allis Chalmers size 2 pump with motor	450.00	Allis Chalmers size 2 pump with motor	450.00
Drill hoses, new, 2 sets	110.00	Drill hoses, new, 2 sets	110.00
2 Hoist buckets, used	150.00	2 Hoist buckets, used	150.00
	$ 3,110.00		$ 3,110.00

Operating Equipment (continued)

Depreciation

420 c.f.m. compressor	$ 364.80	420 c.f.m. compressor, pro rata (1/2) 10 months at $30.00	$ 300.00
Mucking machine, 3 months at $40.00	120.00	Mucking machine, 3 months at $40.00	120.00
Air slusher, complete, 4 months at $20.00	80.00	Air slusher, complete, 4 months at $20.00	80.00
Air trammer at $30.00 per month	205.20	Air trammer, 1/2 of 10 months at $30.00 per month	150.00
8 Mine cars at $3.00 each per month	164.16	8 Mine cars at $3.00 each per month	165.00
1 Drill, 9.12 months at $20.00	182.40	Drill, 10 months at $20.00	200.00
Chicago-Pneumatic sump pump, 3-1/2 months at $10.00	35.00	Chicago-Pneumatic sump pump, 4 months at $10.00	40.00
Water tank for drilling, 10 months at $1.00	10.00	Water tank for drilling, 10 months at $1.00	10.00
Shop equipment, 1/2 of $40.00 per month	182.40	Shop equipment, 1/2 of $40.00 per month for 10 months	200.00
Electric mine lamps, 9.12 months	34.20	Electric mine lamps, 10 months	37.50
Rental on bus, 1/2 of $39.00 per month for 9.12 months	177.84		
	$ 1,556.00		$ 1,302.50
Total operating equipment	$ 4,666.00	Total operating equipment	$ 4,412.50

Miscellaneous

Repairs to equipment, 9 months at $2.00 per day	$ 456.00	Repairs to equipment, 10 months at $2.00 per day	$ 500.00
Office expense 9.12 months at $20.00 per month	182.40	Office expense 10 months at $20.00 per month	200.00
Workmen's compensation insurance on payroll of $10,677.94 at $2.47 per $100.00	263.75	Workmen's compensation insurance on payroll of $10,818.00 at $2.47 per $100.00	267.20
Employer's social security tax, at 1.5 percent	160.17	Employer's social security tax, at 1.5 percent	162.27
Employer's Colorado unemployment tax, at 2.7 percent	288.30	Employer's Colorado unemployment tax, at 2.7 percent	292.09
		Assaying	100.00
Total miscellaneous	$ 1,350.62	Total miscellaneous	$ 1,521.56

COST RECAPITULATION

	Applicants' estimate		Bureau of Mines estimate	
Rehabilitation (underground)		$ 192.00		$ 210.00
Contract work		19,031.60		16,748.00
Hourly rate labor supplementing contract work		1,800.00		3,105.00
Labor and supervision				
Labor	$4,886.00		$4,503.00	
Supervision	2,431.94		2,000.00	
Technical services	1,368.00	8,685.94	1,000.00	7,503.00
Operating materials and supplies		4,021.34		3,888.20
Operating equipment				
Purchase	$3,110.00		$3,110.00	
Depreciation	1,556.00	4,666.00	1,302.50	4,412.50
Miscellaneous		1,350.62		1,521.56
Totals		$39,747.50		$37,388.26
			Rounded to	$37,400.00

TIME SCHEDULE

	Applicants' estimate		Bureau of Mines estimate	
	shifts	days	shifts	days
Replace rail on tunnel level	16	8	16	8
Crosscut on tunnel level 75 feet	75	25	75	25
Laying rail, pipe, etc. in tunnel crosscut	9	3	9	3
Excavating bins, hoistroom, etc.	153	51	90	30
Installing cable hoist, sheave, etc.	30	10	21	7
Timbering bins and hoistroom	36	12	30	10
Sinking winze 2 feet per shift	210	70	210	70
Installing pump column, skip rails, and skip	54	18	45	15
Excavation, 125-foot winze station			15	5
Crosscutting on 125-foot winze level 80 feet	96	32	54	27
Exploration drift on 125-foot level 200 feet	150	50	100	50
Installation of rail, pipe line, fan line on 125-foot level	30	10		
Totals	859	289	665	250
			10 months	

Some of the items included in the applicant's estimate are questionable so far as being justified by the requirements of the project. The relaying of 400 feet of track on the tunnel level is not absolutely necessary. However, inasmuch as the rail will be furnished without cost to the project, the improvement of the track may eliminate trouble later when the traffic load is increased. It is, therefore, recommended at a maximum cost of $192.00.

The excavation of two bins at the winze collar is not necessary for the exploration project, and the Bureau recommends limiting this work to the excavation of one bin or hopper large enough to hold one winze round. The operator can add another bin later if he desires.

The planned use of a skip in the winze, after sinking is completed, is not absolutely essential but can be justified in that it will probably facilitate the exploration work on the winze level with a possible saving in time and money. At any rate the cost of the skip which the applicants have located is only $100.00 and is recommended.

An air pump which is to be used for sinking would still be usable during operations on the winze level. The applicants plan to borrow another pump for emergency service. However, because the repairs to the air pumps are likely to be frequent and expensive and because of the possibility of encountering more water in drifting on the Antoro vein than is anticipated, the purchase of an electric pump is recommended.

Inclusion of a pro rata share of the cost of running a daily bus service from Salida to the mine in the exploration cost is not standard practice although it seems to be accepted in Bonanza as a necessary service to keep men. However, it is a service which will be continued by the applicants whether or not the exploration project is approved, and is not recommended or included as a project cost. If it should be decided by the Regional Field Team to allow this as a project cost, it should be written into the contract as stated in DMEA Circular 19, Supplement I, Paragraph A.

The cost estimate compares the applicants' estimate with that of the Bureau engineer. The pro rata distribution of the cost of some items, particularily labor and supervision which is shared with regular mine operations, is questioned by the Bureau. A distribution which seems more equitable is suggested in the Bureau estimate.

Contract driving rates quoted by the applicants do not show a differential between sinking operations and level operations through the winze. A more logical rate is suggested in the Bureau estimate. If a crosscut on the tunnel level costs $18.00 per foot, contract labor price, crosscuts and drifts on the 125-foot winze level should cost but little more, particularily as the applicants propose to furnish the hoist operator. The applicants' rate of $35.00 per foot, contract labor price, for sinking the winze, including a hoist operator, appears low, and a price of $40.00 is suggested. These prices include power, compensation insurance and social security costs, which seems to have been the accepted procedure in this district in the past.

The time shedule proposed by the applicants agrees very well with that of the Bureau.

PRODUCTION PLAN

If the proposed exploration is successful, the operation could, as equipped, produce 25 to 30 tons per day with a crew of twelve to fifteen men. However, the operators are more likely to continue on a smaller scale, producing up to 15 tons daily. The system of cribbed manways and ore passes and back-filled stopes, as now practiced on the Antoro vein above the tunnel level, would probably be used.

The underground operations are being currently carried on by sub-lessees who furnish all underground labor and explosives and receive 50 percent of the net mill returns after freight, treatment, royalty and production tax are deducted. The applicants plan to mine any ore found during the proposed exploration under the same arrangement. Thus, the underground labor and explosive cost becomes 50 percent of the net returns on ore, about $10.00 per ton on current ore which has an average

gross value of about $33.00 or $20.00 per ton net value (lead at $0.16 per pound and zinc at $0.15 per pound). The operators' overhead costs, including foreman, surface labor, supplies, and repairs, are about $5.00 per ton, making a total mining cost of $15.00 per ton. This leaves an operating gain of $5.00 per ton which should cover other costs, including Government royalty of $1.00 per ton, and leave a reasonable profit. Any ore found during the exploration is likely to be of a grade similar to that presently being mined.

The applicants propose to furnish their share of the exploration costs from rental on equipment they will furnish, profit from current production, and capital.

CONCLUSIONS

The proposed exploration project has an excellent chance of opening up a good grade of lead-zinc ore similar to that now being mined. Quoting W. S. Burbank on page 130 of U. S. Geological Survey Professional Paper 169:

> "Although the fissure is tight on the main adit, the mineralogical character of the ore just above the level does not indicate the bottom of mineralization has been reached. Should the vein widen below the adit level within the next few hundred feeet, there might be additional bodies of zinc-lead or silver-copper ore."

The results of the diamond drill hole indicate that the vein has widened and a zinc-lead ore body may have been cut. The strikes and dips of the Antoro and Poverty veins indicate that the diamond drill hole has cut the possible intersection of the two veins. There are two other possibilities: the Poverty vein may have steepened below the adit level and there is no intersection, or the Poverty vein may join the Antoro vein and continue downward with it.

There is a possible intersection of the two veins along the strikes going southeast on the tunnel level. A map in U. S. Geological Survey Professional Paper 169 shows a crosscut near this point. The map furnished by the applicants shows only the start of this crosscut and it is now inaccessible. The intersection here is of no great interest, however, because the Antoro vein is barren on the tunnel level.

On the basis of present knowledge, no good estimate of the tonnage of ore which might be found between the tunnel level and the proposed 125-foot winze level is possible. A similar block on the Antoro vein above the tunnel level has probably produced between 2,500 and 3,000 tons of ore. This compares with 17,000 tons of ore, gross value $33.00 per ton, the estimated grade which must be mined to return the Government its share of the exploration cost. This tonnage is not likely to be produced from the winze operation. If the applicants would agree to pay a royalty on all production from the mine after a contract is signed, the Government would have a much better chance to recover its expenditure.

The Antoro mine is well managed. The operators have a long record of reliability and successful mine operation. They have paid back in full three Reconstruction Finance Corporation loans obtained during World War II.

The proposed exploration project is well planned and the applicants are competent to carry it through.

On an estimated production of 375 tons of ore per month, which is possible after exploration is completed, there would be a production of 70,000 pounds of lead and 60,000 pounds of zinc per month.

RECOMMENDATIONS

It is recommended that an exploration contract rounded to $37,400.00, Government participation 50 percent or $18,700.00, be approved with the provision that production from the entire mine will be subject to a Government royalty. The Bureau engineer believes this would be advisable because the prospective production from the block to be explored will probably furnish less than one fourth of the tonnage necessary to return the Government its expenditure in royalties.

The total approved above is about $2,350.00 less than the applicants' estimate. The difference is in the distribution of some costs which are charged jointly to the exploration project and to regular mine operations. The cost of running a bus from Salida to the mine is also omitted in the Bureau estimate.

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Defense Minerals Exploration Administration
Robert E. Adams

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14X3923.970, Working Fund, Interior, DMEA
February 25, 1953
2:30 p.m.

W.H. King, Executive Officer, Region IV, 224 New Customhouse Bldg., Denver 2, Colo.

Assignment of Contract Number

REPORTED 2-24-53, DOCKET NO. DMEA 2604, C. M. BURLESON AND W. C. BURLESON,

COMMODITY LEAD-ZINC. CONTRACT NUMBER IDE-E-492 ASSIGNED THIS CONTRACT.

U.S. in R.R.

C. O. Mittendorf

ADMINISTRATOR

READAMB/meb
cc to: Adm.Reading File
Mails & Files Br.
Audits Division
Miss Curtin

SENT
FEB 26 1953
Clerical Service Section

C. O. Mittendorf
2-24-53
3:50

BUR MINES DN 235 2-24-53 1-50 PM

C O MITTENDORF

PLEASE ASSIGN A NUMBER TO CONTRACT COVERING DOCKET NO. DMEA 2604, S. E. BURLESON ADXXXX AND W. E. BURLESON, A PARTNERSHIP, P. O. BOX 209, SALIDA, COLORADO. COMMODITY LEAD-ZINC, PROPERTY LOCATED IN SAGUACHE COUNTY, COLORADO. CONTRACT DATED FEBRUARY 24,1953. TOTAL AMOUNT OF CONTRACT $26,600.00, GOVERNMENT,S PARTICIPATION $13,300.00.

W H KING

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 25 1953

5090

Denver, Colo.

IDM-E-492

FEB 25 8 21 AM '55
BUREAU OF MI
MAIL ROOM
WASHINGTON, D

1-1027
(April 1946)

UNITED STATES
DEPARTMENT OF THE INTERIOR

AGENCY Bureau of Mines

Originator:

TELETYPE

Ext.: Room:

Appro.:
Date: 2-24-53
Time:
No.:
To: C. O. MITTENDORF DMEA WASHINGTON

DEPARTMENT OF THE INTERIOR
Bureau of Mines Administration
RECEIVED
MAR 2 1953

Subject:

PLEASE ASSIGN A NUMBER TO CONTRACT COVERING DOCKET NO. DMEA 2604, S. E. BURLESON AND W. E. BURLESON, A PARTNERSHIP, P. O. BOX 209, SALIDA, COLORADO. COMMODITY LEAD-ZINC, PROPERTY LOCATED IN SACUACHE COUNTY, COLORADO. CONTRACT DATED FEBRUARY 24, 1953. TOTAL AMOUNT OF CONTRACT $26,600.00, GOVERNMENT'S PARTICIPATION $13,300.00

W. H. King
W. H. KING

JFS:ld
Authorized:

Sign original message and transmit to Room ..... in duplicate

U. S. GOVERNMENT PRINTING OFFICE 16—50915-1

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 8 1952

224 New Customhouse
Denver 2, Colorado

September 4, 1952

Memorandum

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

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 2604, (Lead-Zinc) S. E. and W. E. Burleson, Antoro Mine, Saguache County, Colorado

The application for Government assistance in exploration work estimated to cost $37,400, has been approved by us and a contract is being prepared.

Government participation will be 50 percent, or $18,700.

Four copies of the Final Report will be forwarded when the contract is signed.

The original and one copy of Form 3b is attached.

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

Encl.

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 8 1952

224 New Customhouse
Denver 2, Colorado

September 4, 1952

Memorandum

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

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 2604, (Lead-Zinc) S. E. and W. E. Burleson, Antero Mine, Saguache County, Colorado

The application for Government assistance in exploration work estimated to cost $37,400, has been approved by us and a contract is being prepared.

Government participation will be 50 percent, or $18,700.

Four copies of the Final Report will be forwarded when the contract is signed.

The original and one copy of Form 3b is attached.

W. H. King
W. H. King

A. N. Koechmann
A. N. Koechmann

Encl.

DMEA Form 3b
(Revised)

DEFENSE MINERALS EXPLORATION ADMINISTRATION

CONTROLLED DOCUMENT
Revised Abstract

DMEA Docket No. 2604

Name of Applicant S. E. & W. E. Burleson

Change:	From		To	
	III 1	☐	III 1	☒ 9-4-52
	III 2	☐	III 2	☐
	III 3	☐	III 3	☐
	III 4	☒	III 4	☐
	III 5	☐	III 5	☐

Add:		
	II 7	$ 39,747.50
	II 8	$ 37,400.00
	II 8a	% 50

Remarks:

Initials of person preparing sheet H.M.C.

Date sheet prepared 9-4-52

17367

DMEA Form 3b
(Revised)

DEFENSE MINERALS EXPLORATION ADMINISTRATION

CONTROLLED DOCUMENT
Revised Abstract

DMEA Docket No. 2604

Name of Applicant S. E. & W. E. Burleson

Change:	From		To	
	III 1	☐	III 1	☒ 9-4-52
	III 2	☐	III 2	☐
	III 3	☐	III 3	☐
	III 4	☒	III 4	☐
	III 5	☐	III 5	☐

Add:

II 7 $ 39,747.50

II 8 $ 37,400.00

II 8a % 50

Remarks:

Initials of person preparing sheet H.M.C.

Date sheet prepared 9-4-52

17367

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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

Not to be filled in by applicant

Docket No. DMEA-3604
Metal or Mineral
Date Received 7-2-52
Estimated Cost
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: S. E. BURLESON & W. E. BURLESON
P. O. Box 209 Salida, Colorado
Partnership
Partners reside at Salida, Colorado

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

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

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

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

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

(*b*) State any mine name by which the property is known. THE ANTORO MINE

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise LESSEE

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property. A COPY OF THE LEASE IS ATTACHED

(*e*) If you own the land, describe any liens or encumbrances on it
D.N.A. NO LIENS ON PARTNERS' EQUIPMENT

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. NONE

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

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

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

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

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

DEPARTMENT OF THE INTERIOR
RECEIVED
JUL 7 - 1952

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Lead, Zinc, Copper, and Associated metals

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

(*c*) The work will start within 5 days and be completed within 9 to 10 months from the date of an exploration project contract.

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

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

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

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

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

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

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project. NONE

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project. NONE

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

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

NOTE.—No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs. NONE

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

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

[X] Money [X] Use of equipment owned by you [X] Other -- See attached sheets --

Explain in detail on acompanying paper.

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief.

Dated June 25, 1952

S. E. BURLESON & W. E. BURLESON
(Applicant)

By W. E. Burleson

P. O. BOX 209

SALIDA, COLORADO

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

U. S. GOVERNMENT PRINTING OFFICE 16—66551-1

S. E. & W. E. BURLESON
P. O. Box 209
SALIDA, COLORADO

3. APPLICANT'S PROPERTY RIGHTS:

(a) Exploration work would be done on the following Mining Claims: Antoro Sur. # 937, Poverty Sur. # 938, and Orphan Belle Sur. # 14,183. Eighty patented claims in groups. See lease for names. Mine tunnel traverse the following claims: Independence Sur. # 14,183, June Sur. # 1364, North Pole Sur. # 14,183, Poverty Sur. # 938, Antoro Sur. # 937. All of the property is in T. 47 N, Sections 7, 8, 17, & 18, R. 8E, The Kerber Mining District, near Bonanza, Saguache County, Colorado.

(b) See Form MF-103

(c) See Form MF-103

(d) See Form MF-103 - (Lease attached)

(e) See Form MF-103

(f) See Form MF-103

4. PHYSICAL DESCRIPTION:

(a) The Antoro Mine is owned by the Weems-Weaver Mining Corporation (Colorado Corporation) New York City, New York. Joseph H. Murray, Attorney-at-Law, Ernest & Crammer Building, Denver, Colorado, is the Company's Colorado attorney.

The first reported production was in 1891 although it was worked in 1882. Early production was mainly silver ore exploited near the surface from the Antoro vein. It is reported that from 1881 to 1900 one thousand tons of silver, lead, and zinc ore were produced. Between 1908 and 1927 about fourteen hundred tons of lead-zinc ore was exploited. About 1927 or 1928 the property was forced to suspend operations. There was no further production until the Burlesons leased the property in the spring of 1947.

The portal is at an altitude of 11,267 feet. About 170 feet within the portal a 125 foot winze was sunk. From the bottom of the winze, we advanced a drift north about 430 feet to develope ore which is now being exploited. About 340 feet within the portal we developed ore above the tunnel level. This is the North East vein.

See map for better explanation.

The Zinc vein is about 839 feet within the portal and reached by a cross cut 160 feet to the east. About 1,254 feet from the portal the Poverty vein was intersected.

The Antoro vein was intersected about 1404 feet within the portal and after advancing 100 feet on this vein a 550 foot raise was driven on the veing to surface. There are approximately 4600 feet of cross cuts and drifts on the adit or main tunnel level.

There are five drifts off of the 550 foot raise to surface. They are the 114 foot level; the 200 foot level; the 235 foot level; the 240 foot level and the 100 foot level. Part of the 200 foot level and all of the 235 foot level was done by us. The total footage of these drifts is about 700 feet.

4. (Continued)

The work to the north of the Raise between the tunnel level and the 114 foot level was done by us. Considerable stoping has been and is being done by us from the tunnel level to above the 225 foot level.

On the surface, we have shop buildings, ore bins, and necessary equipment for the mine operation.

All parts of the mine are accessible for examination.

(b) PRODUCTION:

Year	Dry Tons	Au	Ag	Pb	Zn	Cu	Gross Value
1947	6.48	.01	5.42	6.87	18.11	.65	130186
1948	1,610.06	.02	6.00	12.17	11.13	.60	76,036.22
1949	4,012.26	.02	6.26	8.24	11.01	1.03	117,952.79
1950	2,226.13	.03	6.86	11.80	12.60	1.51	68,512.79
1951	2,695.61	.03	5.12	9.85	12.77	1.40	98,874.73
*1952	1,413.56	.03	5.02	8.25	11.85	1.45	46,712.46

*This includes production for month of May, 1952.

We are exploiting 8 to 10 tons of ore daily, six days each week.

Possible ore reserves to last 12 months.

Production can be checked with the Statistics Branch, U. S. Bureau of Mines.

(c) GEOLOGY:

The ore occurs in several fault fissures. No post mineral faults are in evidence. These fissures strike from N.25°W. to N.65°W. and dip from 28° to 85°E. The principal fissures are the Antoro, Proverty, Zinc, and Northeast Veins.

See page 128, U. S. G. S. Professional Paper 169, Bonanza Mining District, Colorado, by W. S. Burbank.

The Antoro vein has produced a considerable tonnage of ore from above the haulage tunnel adjacent to the Surface Raise. The Poverty vein has also produced a fair tonnage. Since the veins are separated and dipping towards the north east at different degrees, they will junction below the tunnel level. It would seem that at this junction and also below there should be possible ore deposits of a good metal content. This section is where exploration would be concentrated.

See maps that are attached.

(d) ACCESSIBILITY:

There are 19 miles of good dirt road from Villagrove to the Antoro Mine. The Saguache County Commissioners favor all types of mining activities. During the winter months, the road is cleared of snow when necessary.

4. (Continued)

There is 86 miles of oil-paved road from Villagrove to Leadville, Coloradp; this is a Colorado State Highway. All ore is hauled by contract carrier to the custom mill of the Resurrection Mining Company, Leadville, Colorado.

Employees are transported daily by employer-owned bus from Salida, Villagrove, and Bonanza, Colorado. The operator bears this expense.

(e) AVAILABILITY OF MANPOWER, etc.:

Ample manpower is available. To date, there are 8 employees including the foreman working each day at the mine. Some of these employees would be transferred to the exploration work.

Round timber is purchased at Bonanza. Framed timber is bought from saw mills at Salida. Minor supplies are obtained at Salida; some are obtained from Denver, Colorado.

The mine is adequately equipped for most any type of operation. Necessary equipment for this exploration project can be obtained from either used or new supply.

The mine depends upon its underground water; it is ample throughout the year.

It is necessary to use small water pumps when working below the Adit level. We are pumping about 25 to 35 gallons of water per minute from the bottom of the Copper Winze. (See map). A similar condition would exist at the bottom of the proposed exploration winze.

The Public Service Company of Colorado furnishes electric power to the mine.

5. EXPLORATION PROJECT:

(a) See Form MF-103

(b) PROPOSED WORK:

From January 15, 1952, to March 27, 1952, Wallace A. Rogers contracted 4 Diamond Drill holes at the Antoro Mine. These were drilled at different locations. As shown on the map, one was drilled from an easterly cross cut N.55°W at a minus 73° dip to intersect the Antoro and Poverty veins below their respective intersection. This hole intersected the vein at 93 feet and was continued in the vein to 101 feet. A sludge sample was taken of this drilling and the sample showed .02Au; 4.1 Ag; 8.9 Pb; and 6.3Zn. From 93 feet to 101 feet, the hole started caving. It was decided to ream and case this hole and this was done to 87 feet. At this depth, the hole was deflected and was entirely in the county rock at 90 feet. At 91 feet mineralization was in evidence and a sludge sample was taken to 96 feet. Another sludge sample was taken from 96 to 101 feet. These samples showed:

91 to 96 feet -	.03 Au	8.1 Ag	18.2 Pb	6.1 Zn	.35 Cu
96 to 101 feet -	.02	5.6	15.5	5.8	.20

5. (continued)

Core recovery in the vein was small. This core was not assayed. At 101 feet, the hole was reduced from AX to EX. Drill casing was placed to 101 feet. The hole was completed at a depth of 172 feet. No further mineralization was in evidence.

For the past five months whenever time permitted, this easterly Cross cut (Where D.D.H. # 1 was drilled), was enlarged and advanced to the north east. This work was done in the expectation of sinking an inclined winze to explore the intersection of the Antoro and Poverty veins. This work had to recently cease owing to the decrease in the base-metal- market price.

The reasons for locating the winze as shown on the attached map are:

1 The bins and winze would be to the east of the hanging wall of the Antoro vein where the country rock is firm and would require only a minimum of timber.

11 It would be driven at a less angle than the dip of the Antoro vein. This would decrease the amount of water that might be present while advancing the winze. Also in selecting an incline in preference of a vertical winze would eliminate crossing these veins at a greater depth and creating unforseen difficulties.

It is proposed to do the following exploration work:

Before work commenced, about 400 feet of 12 pound rail should be replaced with 16 pound rail about mid-way betwen the portal and the location of the proposed work. The balance of the haulage tunnel rail except for this section has been replaced by us.

From the breast of this easterly cross cut, 74 feet of 5 x 7 foot cross cutting should be done. Fifty feet of this work would be to accommodate the air trammer and mine cars, in order to expedite the handling of waste material.

Near the present breast of this easterly cross cut, a section of country rock 16 feet long by 8 feet wide and 30 feet high would be excavated to the north west of the cross cut to accommodate broken rock. This space would be divided into two sections making two bins. The floor or bottom of the bins would be country rock. This bottom would be on a 45 degree angle from the chutes to the opposite side of the bin section. At the upper limits of the partition, a swinging door would be installed so that either bin could be used.

On the level of the top of the bins, a hoistroom 8 feet wide by 10 feet high and 40 feet long would be excavated to accommodate the hoist and adequate space for dumping facilities.

Above the back of the hoistroom, a section 4 feet high by 6 feet wide by 15 feet long would be cut out to accommodate the sheave and hoist cable.

A five foot wide by ten foot long winze would be sunk on a minus 75 degrees as shown on the map. This winze would first be sunk with buckets operating on skids and then changing over to rail to handle a skip.

5. (Continued)

It appears that the country is firm enough that only stull timber would be necessary. This winze would be sunk 140 feet of which 15 feet of this work would be used as a sump for the water pump.

On the minus 125 foot level, a 5 x 7 foot cross cut would be advanced south west approximately 80 feet. This cross cut should intersect the vein at that distance.

At vein intersection there should be 300 feet of exploration drift work accomplished. This work should either be done in one or both directions on the vein. Some timbering will be necessary when advancing the drifts on the vein.

To expedite this exploration work a hoist will have to be obtained and installed. A three-conductor electric cable will have to be obtained and installed from the copper winze to the hoist room. A skip will have to be installed. An electric operated pump will have to be installed on the minus 125 foot level.

(c) See Form MF-103

(d) OPERATING EXPERIENCE:

In 1932 to 1936 S. E. & W. E. Burleson operated under lease, The Mary Murphy Mine near St. Elmo, Colorado, (Chaffee County), where about 3,000 tons of lead, zinc, copper, and associated metal ores were produced.

In the fall of 1936, the Burlesons leased the Rawley Mine near Bonanza, Saguache County, Colorado, where operations were continued until April 1939. From the Rawley, 14,475 tons of lead-copper-silver ore were shipped.

From 1939 to 1942, we operated the Raymond mine near Ohio City, Gunnison County, Colorado. Approximately $40,000.00 of concentrates were shipped, but owing to World War 11, this property had to close and was never rehabilitated. It was mainly a gold producer.

In the early spring of 1943 operations commenced at the Garfield mine. The total production to date is 10,687 tons valued at $335,610.99.

In the spring of 1947, the Antero Mine was rehabilitated.

S. E. Burleson has had a long career in mining. He worked for the American Smelting and Refining Company and later leased properties from them in the Republic of Mexico. During the last two years, he was forced to take only a minor interest owing to sicknes and ill health.

W. E. Burleson was employed as a mining engineer by the U. S. Bureau of Mines from July 1942 to June 1944. At that time he was released to the Magna Copper Company, Superior, Arizona, as a Safety Engineer. In the spring of 1945, he resigned to take over direct management of the Garfield mine, Salida, Colorado. He has attended the Colorado School of Mines. All properties are, and will be, managed by him. The Burlesons are the only individuals in this county to pay back in full three R. F. C. Loans during the World War 11 period.

6. **ESTIMATE OF WORK:**

(a) **Independent Contracts.**

There are two groups of contractors that placed approximate bids on this exploration project. One of the contractors is now working at the Antero Mine. The estimates on the different phases of work seem to be reasonable considering the present cost of labor and supplies.

The Contract price for the different phases of work is as follows:

A.	Tunnel level cross cut (5'x7'). 74 feet @ $18.00 per foot	$1,332.00
B.	Excavating for bins (8'x16'x20'). 2048 cu. feet @ $12.00 per cu.yd.	
C.	Excavating from Winze Cellar to top of bins (7½'x8'x20') 1200 cu. feet @$12.00 per cu. yd.	
D.	Excavating Hoistroom (8' x 10' x 20') 3200 cu.ft.@$12.00 per cu. yd.	
E.	Excavating for Sheave(4' x 6' x 15') 360 " " " " " " "	
F.	Excavating Winze Station(10' x 12' x7')840 " " " " " " "	
	TOTAL of B, C, D, E, & F.	$3,[illegible].60
G.	Sinking Winze (5' x 10') 140 ft. deep @ $35.00 per ft.	4,900.00
H.	Cross Cut to vein (5' x 7') 80 ft. @ $30.00 " "	2,400.00
I.	Exploration Drift (5' x 7') 200 ft. @ $35.00 " "	7,000.00
	TOTAL (A to I Incl.)	$19,031.60

This contract price would only include labor, explosives, Compensation and Social Security tax.

Transportation, compressed air, tramming facilities, tools and machines would be furnished by the operator.

The winze would be sunk by using hoist buckets. Upon completion the operator would install rails and skip.

In regards to item 'H', this work would be done by using an air operated slusher. Upon completion, operator would install mine rails and ties.

(b) **LABOR & SUPERVISION:**

Wage Scale:

Surface man	$10.00	per shift
Miners	12.00	" "
Timbermen	12.00	" "
Hoistmen	12.00	" "
Trammer operator	12.00	" "
Muckers	11.00	" "
Supervision	400.00	" month
Engineering	150.00	" " (Part time basis.)

S. E. & W. E. BURLESON
P. O. Box 209
SALIDA, COLORADO

6. (Continued)

Phases of labor & costs:

Replace 400 feet of 12 pound rail with 16 pound rail on tunnel level. Have rail only cost is for labor.	
3 men for 8 shifts @$12.00 each per shift	$192.00
Laying track in tunnel level cross cut.	
3 men for 3 shifts @ $12.00 each per shift	108.00
Timbering bins & hoistroom	
3 men for 12 shifts @ $12.00 each per shift	432.00
Installation of electric cable, hoist & bucket.	
3 men for 5 shifts @ $12.00 each per shift	180.00
Installation of sheave	
3 men for 2 shifts @ $12.00 each per shift	72.00
Installing rail skip ladder landings, etc., in winze	
3 men for 13 shifts @ $12.00 each per shift	468.00
Installing electric pump & cable, and pump water pipe	
3 men for 5 shifts @ $12.00 each per shift	180.00
Placing rail, pipe line, vent pipe & timbering in minus 125 foot level and exploration drift.	
3 men for 10 shifts @ $12.00 each per shift.	360.00
TOTAL COST OF LABOR	$1,992.00

Time table of phases of work:

Replace rail at tunnel level	16	shifts	8	days
Tunnel level cross cut 3 feet per shift	75	"	25	"
Laying rail, pipe line, etc. in tunnel level cross cut	9	"	3	"
Excavating bins & heistrooms 150 cu.ft. per shift	153	"	51	"
Installing electric cable, hoist, motor, & sheave	30	"	10	"
Timbering bins & hoist room	36	"	12	"
Sinking winze 2 feet per shift	210	"	70	"
Installing rail, electric cable, pipe lines & pump in winze	54	"	18	"
Cross cutting on 125 foot level 2½ ft. per shift	96	"	32	"
Exploration drift on 125 foot level 4 " " "	150	"	50	"
Rail, pipeline, etc., installation on 125 foot level	30	"	10	"
TOTAL	859	shifts	289	days

All phases of exploration work would take a total of 289 days for completion. However, this time element could be lessened to 228 days or 9.12 months owing to other phases of work being accomplished while project was advancing. This project is estimated on a 1 shift basis per 24 hours.

6. (Continued)

Miscellaneous labor:

Air Trammer operator (3/4 time to project)	171 shifts plus overtime	$2,323.00
Surface man (1/2 time to project)	114 " " "	1,335.00
Hoistman	110 " " "	1,428.00
	TOTAL	$4,086.00

Hoistman would be employed by operator upon completion of the winze.

Management:

Supervision	400.00 per month (2/3 time to project)	$2,431.94
Engineering	(Part time) 150.00 per month	1,368.00
	TOTAL	$3,799.94

Present mine foremen would oversee all work.
W. E. Burleson would take care of part time engineering.

(c) **OPERATING MATERIALS & SUPPLIES:**

Rails for winze	160 ft 20 # track or 2140 # @ 160.00 per ton	171.20
Rail plates & spikes		35.00
Pump pipe line	202 ft 3" pipe @ .85 per foot	171.70
Bins & Hoistroom timber	350 ft @ .13 linear foot	45.50
" " " lumber	1500 ft of 2" & 3" @ 85.00 per M. delivered	127.50
" " " nails & spikes	200 pounds @ 15.00 per 100 lbs.	30.00
Winze timber	1000 ft. @ .13 linear foot	130.00
" lumber	500 ft @ 85.00 per 1000 ft delivered	42.50
" ladders (Made up)	176 feet @ .50 per foot	88.00
" ties	500 feet @ .13 per foot	65.00
" nails & spikes	400 lbs @ 15.00 per 100 lb.	60.00
" timber for skids	600 ft @ 65.00 per 1000 ft.	39.00
" air pipe line	125 ft 2 inch @ .60 per ft.	75.00
" vent pipe	133 ft 8 inch @ .50 " "	67.50
125 foot level timber	2000 " @ .13 per foot	260.00
" " " ties	500 " @ .10 " "	50.00
" " " rail	280 ft of track 16 lb. 1½ tons @ 160.00 /ton	240.00
" " " plates & spikes		35.00
" " " air line	280 ft 2 inch @ .60 per ft.	168.00
" " " vent pipe	280 " 8 " @ .50 " "	140.00
Tunnel level cross cut rail	90 " of track 16 # rail ½ ton @ 160.00 /ton	80.00
" " " " " switch	" "	25.00
" " " " " plates & spikes		25.00
" " " " air line	115 ft 2 inch @ .60 per foot	69.00
" " " " vent pipe	135 " 8 " @ .50 " "	67.50
" " " " ties	135 " @ .10 " "	13.50
	TOTAL COST OF SUPPLIES	$2,330.90

6. (Continued)

Power:

The electric power cost approximately $240.00 per month.
One half of the power bill should be charged to the project.
Estimated power $120.00 per mo. for 9.12 months 1,094.44

(d) OPERATING EQUIPMENT:

Equipment that will have to be purchased:

Card type # 2 Skip (Used but good condition)	100.00
1300 feet, 3 conductor approved mine cable (used - good condition) .75 per ft.	975.00
Hendrie & Boltheff electric operated hoist & cable (used-good condition)	650.00
24 to 30 inch sheave	75.00
Electric motor for hoist (Complete) 20 hp, 3 ph, 60 cycle, 440 volt (used)	380.00
Electric switches & installation	350.00
Allis-Chalmers size 2 10 hp, water pump complete (new)	450.00
TOTAL COST EQUIPMENT	$2,980.00

Equipment furnished & rented by operator:

	Value	Rent / Mo.	Cost / time used
Gardner-Denver 420 cu ft compressor & motor	3600.00	60.00	384.00
" " Mucking machine	2400.00	40.00	120.00
" " Air slimber complete	1200.00	30.00	80.00
Air Tramner	1800.00	30.00	205.20
Mine cars 18 to 20 cu ft capacity(8 cars)	150.00/ea.	3.00 / car	164.16
*Drill machines:	350.00	30.00	182.40
Hoist Buckets Have 2 at mine (cost to mine)	75.00 ea.	-	150.00
.6 P. Sump Pump	250.00	10.00	35.00
Water tanks for air drill	25.00	1.00	10.00
**Shop equipment		20.00	182.40
Drill Hose 2 sets of water & air hose(new)	110.00	-	110.00
***Drill Steel & bits	150.00	-	150.00
TOTAL RENTAL			$1,753.96

*There are at the mine Gardner-Denver S-55, Ingersoll Rand J-50 and Thor 38 Jack Hammers. Also Gardner-Denver D-79 drifters and R-94 and R-91 Stopers. Only one drill would be used during the project. Regardless of which drill was used, the rental price would remain constant.

**The shop is well equipped for most mine work. Most minor repairs can be made at the mine.

***There are several sets of all types of drill steel at the mine. Bits are of the Portland Throwaway and Liddicoat types.

We have a rental contract on Edison Electric Miners' Lamps. The rent per month on each lamp is $1.25.
Estimated cost 3 lamps @ 1.25 per lamp 34.20

S. E. & W. E. BURLESON
P.O. Box 209
SALIDA, COLORADO

6. (Continued)

Transportation is furnished to and from the mine. It consists of a 1952 G. M.C. Surburban. The total cost was 2836.55. It was purchased March 4, 1952.

Rental on Surburban	39.00 per month	½ cost to project	177.84

(e) See form MF-103

(f) See form MF-103

(g) **MISCELLANEOUS:**

Cost of repairs to project:

Mine equipment & minor supplies	2.00 per day		456.00
Transportation	Present cost oil, gas, tires & Insurance	100.00 per month	456.00
Office expense		20.00 " "	182.40
Workmen's Compensation	$10,677.94 @ 2.47 per $100.00		263.75
Employer's Social Security Tax			160.17
Employer's Colorado Unemployment tax			288.30
TOTAL			$1806.62

Summary of Expenditures:

Contract work	19,031.60
Exploration labor	1,992.00
Miscellaneous part-time labor	4,886.00
Management & Engineering	3,799.94
Material & Supplies	2,330.90
Electric power	1,094.44
Equipment purchased	2,860.00
Equipment rented by operator	1,753.96
Rent on Electric Cap lamps	34.20
Transportation (Rent on Bus)	177.84
Miscellaneous cost	$1,806.62
TOTAL EXPLORATION COST	$39,747.50

7. **SHARE OF COST:**

(a) See form MF-103

(b) Operators' share of cost:

The operator's share of the exploration cost would be furnished from rental on equipment, other assets owned by the partners and mainly on profits realized from the present daily tonnage of ore being exploited.

The operators' share of exploration cost is $19,873.75.

Respectfully submitted,
S. E. & W. E. BURLESON

BY W. E. Burleson

THIS AGREEMENT OF LEASE, made and entered into as of the 20th day of May a. d. 1946, by and between WEEMS-WEAVER MINING CORPORATION, a Colorado corporation, LILLIAN H. WEAVER, SPENCER F. WEAVER, JR., and CLIFTON S. WEAVER as Successor Trustees of Trust created by S. FULLERTON Weaver for Spencer F. Weaver, Jr., under Agreement dated April 14, 1923, and LILLIAN H. WEAVER, SPENCER F. WEAVER, JR., and CLIFTON S. WEAVER as Successor Trustees of Trust created by S. Fullerton Weaver for Clifton S. Weaver under Agreement dated April 14, 1923, of the First Part, hereinafter called the "LESSORS," and GEORGE R. CASSIDY, of the Second Part, hereinafter called the "LESSEE",

W*I T N E S S E T H T H A T :

The Lessors, for and in consideration of the covenants and agreements hereinafter expressed, and the rents and royalties hereinafter stipulated to be paid by the Lessee~~s~~, have leased, demised and let, and by these presents do lease, demise and let unto the Lessee the following described real estate and mining property, situate in the Kerber Creek Mining District, in the County of Saguache and State of Colorado, to-wit:

ANTORO	Sur. No.	937
POVERTY	Sur. No.	938
JUNE	Sur. No.	1364
ARTIC	Sur. No.	14183
INDEPENDENCE	Sur. No.	14183
IGNACIO	Sur. No.	14183
ORPHAN BELLE	Sur. No.	14183
OURAY	Sur. No.	14183
NORTH POLE	Sur. No.	14183
PEARY	Sur. No.	14183
WASHAKEE	Sur. No.	14183
SHAVANO	Sur. No.	14183
RED CLOUD	Sur. No.	14183
WASHINGTON	Sur. No.	19532
LINCOLN	Sur. No.	19532
MICHIGAN	Sur. No.	7837

WEEMS	Sur. No.	20125
WEAVER	Sur. No.	20125
ASHLEY	Sur. No.	20125
SANDERS	Sur. No.	20125
PARAGON	Sur. No.	733
LILLIAN	Sur. No.	20443

ALSO all ore and tailing dumps on the peoperty belonging to the Lessors.

DICTATOR	Sur. No.	2011
FLAGSTAFF	Sur. No.	2012
LUCKY BILL	Sur. No.	2013
WIDE WEST	Sur. No.	2014
LAKE LINDEN	Sur. No.	2015
BLACK DIAMOND	Sur. No.	2016
EQUALIZER	Sur. No.	14347
ENNESS F	Sur. No.	14347
SUCCESS	Sur. No.	14347
GREAT MOGUL	Sur. No.	14347
LONE STAR	Sur. No.	19144
CRESCENT	Sur. No.	19144
CRESCENT NO. 2	Sur. No.	19144
CRETONE	Sur. No.	19144
CREVET	Sur. No.	19144
COBALT	Sur. No.	19144
BURLINGTON	Sur. No.	19552
JAPAN	Sur. No.	19552
CROSS	Sur. No.	19552
BLUE BELL NO. 2	Sur. No.	20445
IROQUOIS	Sur. No.	7152
CROWN POINT	Sur. No.	1786
AJAX	Sur. No.	1332
MINNESOTA	Sur. No.	19535
ITASCA	Sur. No.	1350
PUEBLO	Sur. No.	17850
PUEBLO NO. 2	Sur. No.	17850
DIVIDE	Sur. No.	19611
CONTINENTAL	Sur. No.	19611
TIMBERLINE	Sur. No.	19611
DANDY	Sur. No.	19611
CRACKER JACK	Sur. No.	19611
GREAT DEPTH	Sur. No.	19611
GREAT DEPTH NO. 2	Sur. No.	19611
BIG MANITOU	Sur. No.	1321-A
LITTLE MANITOU	Sur. No.	1351-A
LITTLE MANITOU MILL SITE	" No.	1351-B
AMERICAN EAGLE	Sur. No.	1388
EMMA	Sur. No.	1319
GREEN BAY	Sur. No.	1349
COLUMBUS	Sur. No.	1348
GRAND VIEW	Sur. No.	1320
KATIE	Sur. No.	6036
SUNSHINE	Sur. No.	20471
FOREST	Sur. No.	20364
GRANT	Sur. No.	20364

MEAD	Sur. No. 20364
PEMBERTON	Sur. No. 20364
JACKSON	Sur. No. 20364
SHERMAN	Sur. No. 20364
LEE	Sur. No. 20364
DENVER	Sur. No. 20364
SALIDA	Sur. No. 20364
SHERIDAN	Sur. NO. 20364
DAISY	Sur. No. 20366
COLUMBINE	Sur. No. 20366
LARKSPUR	Sur. No. 20366
BLUE BELL	Sur. No. 20366

TO HAVE AND TO HOLD the above described premises for THE purpose of mining thereon under the terms of this Lease for the term of FIVE (5) YEARS from the date above written, expiring at noon on the 20th day of May A. D., 1951, unless sooner forfeited through the violation of any covenant or promise hereinafter set forth. The Lessors agree to extend the term of this Lease for an additional period of FIVE (5) YEARS, PROVIDED that on or before six (6) months of the termination of this Agreement, the Lessee expresses his desire, in writing, to the Lessors for such extension, and PROVIDED that the Lessee has fulfilled and complied with all of the covenants and agreements hereinafter set forth.

AND IN CONSIDERATION OF THE DEMISE AFORESAID, the Lessee hereby covenants and agrees with the Lessors, as follows, to-wit:

(1) To enter into and upon said mining premises not later than August 1, 1946, and to continuously work same in mine fashion, in a manner necessary to good and economical mining with due regard to the development and preservation of said property as a workable mine in the future, performing not less than fifty (50) shifts of work per month, meaning each and every calender month of actual mine development and construction work, said fifty (50) shifts per month to begin with the month of

July A. D. , 1947; and thereafter there shall be performed not less than fifty (50) shifts of mine development and construction work each and every month until July 1, 1948. After July 1, 1948, Lessee shall perform twelve hundred (1200) shifts per year during the life of this Lease. Sampling ore deposits, stopes and fills; timbering and retimbering are recognized as mine development and construction work under the requirements of this paragraph.

(2) To pay all mineral production taxes upon minerals mined from said premises when the same are by law due and payable, during the life of this Lease.

(3) To well and sufficiently timber said mine at all points where proper in accordance with good mining and to repair old timbers wherever the same may be necessary by reason of the work done by the Lessee.

(4) To allow the Lessors and their agents, at all reasonable times, to enter upon and into all parts of the said mining property for the purpose of inspection, sampling, surveying, etc., and the Lessee will render unto the Lessors all the assistance in his power in so doing.

(5) To keep, at all times, the drifts, shafts, tunnels and other workings constructed and used by Lessee, thoroughly drained and cleaned of loose rock and rubbish, unless prevented by extraordinary casualty, and to fully comply with all the rules and regulations of the Commissioner of Mines and the laws of the State of Colorado, as regards the operation of the metalliferous mines now in force, or which may hereafter be enacted.

(6) To occupy and hold all veins, spurs, feederd,

cross-lodes, parallel lodes or mineral deposits of any kind, which may be discovered by the said Lessee or any person or persons working under him in any manner, by working within or upon said premises, as the property of the Lessors and as part of the premises demised, and to not allow any person or persons not in privity with the Parties hereto to take hold or hold possession of the said premises or any part thereof, under any pretense whatsoever. The Lessee does not agree to protect the legal title to any of the property described herein, in any litigation.

(7) All buildings and other improvements erected and constructed on the property of the Lessors shall, upon the termination of this Lease for any causewhatsoever, be and become and remain the property of the Lessors, and in the event that any such permanent improvements are not constructed upon Lessors' property, but nevertheless used in connection therewith, then and in that event, upon the termination of this Lease for any cause whatsoever, the Lessors shall have the first right to purchase any such buildings and improvements, at a price not greater than the same is offered and /or sold to others, PROVIDED Lessors shall be under no obligation to purchase, except at their option.

(8) To promptly pay for all labor and supplies and to render unto the Lessors every ninety (90) days, a statement showing the monthly payroll and the amounts due for labor, suppliesn etc., if any at that time, progress and nature of work done, ore discovered or developed, contemplated improvements, etc.,This is to be in the nature of a financial and progress report.

(9) All labor and work herein required to be done

by the Lessee, and all material to be furnished by him, shall be considerated and shall be part and parcel of the rental payable and to be paid by him as such Lessee, in addition to all royalties hereinafter provided to be paid. No lien of any kind shall be created or suffered to attach, or be in any manner created by the said Lessee upon or against the said premises or any part thereof.

The Lessee shall keep and maintain posted, at all times, in conspicuous places near each and every entrance to the mine and on the principal buildings, a notice, in clear and legible characters, in substance as follows:

"N O T I C E

NOTICE IS HEREBY GIVENto all parties performing labor or furnishing skill, materials, machinery or other fixtures or suppliesof any kind, in, to or for the use of the Lessee, on any part or portion of this leased mining property, being a part on which this notice is posted, that the undersigned, the owners of the property, will not be responsible for any labor performed, or any skill materials, machinery, fixtures or supplies of any kind, furnished to or for the benefit of the Lessee, nor shall any interest of the owners be subject to any lien for the same, and all persons are hereby notified that these premises and the contiguous claims have been and are now leased to: GEORGE R. CASSIDY and his permitted assigns, to whom all persons must look for their compensation and pay.

Dated May 20, 1946.

WEEMS-WEAVER MINING CORPORATION,
Lillian H. Weaver, Spencer F. Weaver, Jr., and Clifton S. Weaver as Successor Trustees of Trust created by S. Fullerton Weaver for Spencer F. Weaver, Jr., and Lillian H. Weaver, Spencer F. Weaver, Jr., and Clifton S. Weaver as Successor Trustees of Trust created by S. Fullerton Weaver for Clifton S. Weaver."

And the Lessee is hereby appointed agent for the Lessors, for the sole and only purpose of posting and keeping

posted, such notices in said premises, and any failure at any time so to keep and maintain posted such notices, or any of them, as herein required, shall constitute an immediate forfeiture of this Lease and the same shall thenceforth at once be null and voidand said Lessee shall become a trespasser upon the said property, and he may be proceeded against for unlawful detainer, or shall and will be considered without further rights therein.

(10) The Lessee shall not be considered the agent of the said Lessors in any manner connected with the use and operation of the said leased premises, except where such agency is expressly declared in this Agreement, and then only to the extent provided.

(11) To assume all responsibility for and to save the Lessors harmless for any accidents to the Lessee or any of his employees, agents, associates or visitors upon the property of the Lessors, or being conveyed to or from the leased premises by the Lessee, his agents, servants, or employees, or any person other than the Lessors, their visitors, agents or persons acting for them. And, if necessary for the protection of the Lessors, forthwith post and at all times keep posted at the main workings upon the premises hereby leased, a conspicuous notice, stating, in substance , that the premises are leased to the Lessee and the Lessors will not, under any circumstances, be liable for damage on account of accident, and the Lessors shall not, under any circumstances, be liable to the Lessee, his agents, employees, licensees, associates, visitors or any person or persons acting under the Lessee on account of any accident, and, for further protection, the Lessee agrees to

comply, in all respects, with the Workmen's Compensation Laws of the State of Colorado, now in force or which may hereafter be enacted for the protection of the employees working on said premises.

(12) Said Lessee further agrees that he will not use, or permit to be used, any part of these leased premises for any purpose in violation of the laws of the State of Colorado, or of the laws of the United States of America, and that he will not do, or permit to be done by any person, or persons, under his direction and control, any act or thing that will endanger the buildings or cabins upon the Lessors' property, nor such as would invalidate any insurance that may be had or placed thereon. The Lessee agrees to this as one of the conditions precedent to the use of said premises.

(13) The Lessee shall keep all ores broken and mined in said demised premises separate and distinct from all ore by it broken or mined in any other property, and shall keep the same under distinctive markings and in separate storage equipments, and shall ship the same in lots separate and distinct from all other ores, and he shall at all times permit the Lessors and their authorized agents to examine and check up the methods in use in so handling such ore at all places where the same may be.

(14) The said Lessee shall keep accurate and correct accounts of all ores produced and /or shipped from the leased premises and shall furnish the Lessors or their authorized agent full complete monthly statements showing the tonnage produced, tonnage milled, tons of crude ore shipped, or tons of concentrates shipped, the grade and character of same, and said

report shall also show the numberof shifts worked during said month. The said Lessee will make the necessary arrangements for the ore or concentrateepurchasing agent to send direct to the said Lessors or their agents, copies of all settlement sheets showing the tonnage shipped, the grade and content of the ore or concentrates together with a draft in payment of all royalties due said Lessors on each shipment.

(15) The Lessors hereby consent to one assignment of the within Lease by the said Lessee, provided the said Lessee notifies the Lessors, or their attorney, Joseph H. Murray, Denver, Colorado, of Lessee's intention to assign this Lease and the name of the person to whom this Lease is to be assigned. It is strictly understood and agreed that no further assignments of this Lease will be made nor will the Lessee mortgage or encumber this Lease or any interest therein, nor sublease nor sublet the whole or any part of the premises hereby demised without the prior written consent of the Lessors.

(16) The Lessee shall pay to the Lessors at 420 Park Avenue, New York, New york upon all ore, concentrates and other products mined, shipped and sold from the premises, the following percentages of scale~~s~~ royalties, to-wit:

On all crude ore of the value of $30.00 per ton and under 10%

On all crude ore over the value of $30.00 per ton and not exceeding $50.00 per ton.....15%

On all crude ore over the value of $50.00 per ton and not exceeding $75.00 per ton 20%

On all crude ore exceeding the value of $75.00 per ton 25%

All of the above royalties are to be paid on the net value per ton less the actual cost of truck or wagon haulage

from the mine to the retired shipping point.

(17) In case of ore milled or otherwise treated and not shipped crude to the smelter, the royalty rate shall be based on the recovered average value per ton of such ore milled, as determined by the smelter returns or other ore purchasing agent, less the railroad freight and smelter treatment charges, and the value of the crude ore milled shall be arrived at as follows:

> Concentrates or any other product shipped during any month yielding smelter returns less railroad freight and smelter treatment charges, c. g., of $8,000.00 from milling 400 tons of ore, the net value for the purpose of determining the rate of royalty would be $20.00 per ton of crude ore, and therefore the rate of royalty would be 10% or $800.00 royalty.

(18) All of the above royalties are to be paid on the net value per ton less the actual cost of railroad freight, truck or wagon haulage from the mine, if any, and the smelter or other ore-purchasing agency treatment charges and after two per cent (2%) DEDUCTION is made to apply on payment for any production tax assessed against the property's output. Shipments to the smelter or ore-reduction works shall be made in the most satisfactory and economical manner. The two per cent (2%) deduction for tax payment purposes before royalty is figured is for the puppose of a reserve for the payment of production taxes required to be paid by the laws of the State of Colorado, and said reduction is to be paid to WEEMS-WEAVER MINING CORPORATION, Lillian H. Weaver, Spencer F. Weaver, Jr., and Clifton S. Weaver, Trustees as aforesaid, at the Fifth Avenue Bank of New York, 530 Fifth Avenue, New York, New Kork, and is to be held by it as a trust fund in its hands for the payment when due of such production taxes as are now or hereafter providedto be paid

by the laws of the State of Colorado and Saguache County. Said fund to be created shall be used by the Lessors for the purpose of paying such production taxes and any surplus remaining in said fund for the payment of said taxes shall be ratably and equitably apportioned and repaid annually according to the interest of the respective Parties thereto, measured by the percentage said Parties have heretofore contributed to said fund, if at that time the Lessee is in no way indebted to the Lessors, under the terms of this Lease. IT IS UNDERSTOOD that if the two per cent (2%) so withheld shall not be sufficient to pay such production tax, then the Lessee shall pay any deficit in such required amount.

(19) Said Lessee agrees that he will furnish to the Lessors paid receipts from the State Compensation Insurance Fund showing that his Workmen's Compensation Insurance Policy is paid to date and in operation and effect.

(20) The Lessee agrees to protect the Lessors and to hold them harmless as to any litigation or damage including attorney's fees and cost of any controversy or suit relative to the disposal of any class of tailings or waste water resulting from his operation in either the mine or from the mill upon the said premises. The Lessee agrees to keep all dams and tailing ponds in good repair at all times during the operation of this Lease.

(21) Any machinery or equipment of a temporary nature installed by the Lessee upon the leased premises, may be removed at any time before the termination of this Lease. Any other machinery or equipment installed by the Lessee upon the leased premises, can, within ninety (90) days after the

termination, cancellation or forfeiture of the Lease, be removed from the premises by the Lessee, PROVIDED, HOWEVER, that the Lessee is not indebted to the Lessors under the terms of this Lease. No permanent improvement, track, air pipe or buildings, may be removed at any time by the Lessee, and the right of removal of any of said property is conditioned upon the fact that the Lessee is not then indebted to the Lessors under the terms of this Lease.

(22) IT IS FURTHER MUTUALLY AGREED that the said Lessee shall deliver to the Lessors, the premises and property with the appurtenances and all improvements, in good order and condition, with all drifts, shafts, tunnels, ore chutes and other passages used by him under this Lease, thoroughly cleaned of loose rock and rubbish and property drained and the mine ready for immediate occupancy and for immediate continued work (accidents not arising from negligence alone excusing) without demand or further notice at any termination of this Lease. Upon any violation of any covenant herein reserved, the terms of this Lease shall, at the option of the Lessors, expire and the same and the said premises, with the appurtenances, shall become forfeited to the Lessors, and their agents may thereupon enter into and upon the said premises and dispossess all persons occupying the same, with or without force, and with or without process of law, or, at the option of the Lessors, the said Lessee and all persons found in occupany, may be proceeded against as guilty of unlawful detainer; PROVIDED, HOWEVER, that if this Lease is forfeited upon the election of the Lessors, by reason of failure of the Lessee to perform the covenants and conditions thereof, said Lessors shall give to the Lessee thirty (30) days' notice by registered mail (return receipt requested), addressed to the

Lessee at such address as may be furnished by him from time to time, notifying the said Lessee of such failure to perform and upon the failure of the Lessee, within sixty (60) days, to remedy such failure, then the rights under this Lease shall thereupon cease and terminate and the Lessors' rights to retake possession, under this paragraph, shall immediately vest and may immediately be exercised.

(23) Whenever the Lessee is prevented from operating the leased premises, or whenever, under the terms of this Lease, any act or thing is to be performed or done by the Lessee and he is prevented from so doing by an act of God, strikes, a public, enemy, litigation and unusual casualty entirely beyond his control, he shall be excused from such performances or actions, as long as such conditions aforesaid shall so prevent such action or performance, and should a stoppage of work be occasioned by any such unusual condition beyond the control of the Lessee, then in that event, it shall not constitute a cause for cancellation or forfeiture of this Lease.

(24) Operations under this Lease may be terminated by the Lessee at any time during its life, without any obligation or penalty of any kind, except damage caused previous to such termination, by violation of its terms.

(25) Each and every clause and covenant of this Agreement shall extend to and be binding upon the heirs, executors, administrators, successors, successors in trust and permitted assigns of the Parties hereto.

(26) In the event any law shall be enacted in Colorado making mining property subject to lien for the payment of any liability incurred by a Lessee thereof, then and thereupon,

the Lessee herein shall at once make arrangements satisfactory to the Lessors, to protect and indemnify said Lessors against any such lien, and in the event of his failure to furnish such protection and indemnity, this Lease may be cancelled by said Lessors, upon notice as for forfeiture, at any time after such law goes into effect.

IN WITNESS WHEREOF, the said corporation has caused these presents to be signed by its proper officers and attested under its corporate seal, and Lillian H. Weaver, Spencer F. Weaver, Jr., and Clifton S. Weaver, Trustees as aforesaid, have hereunto set their hands and seals as LESSORS, and George R. Cassidy has hereunto set his hand and seal as Lessee, all in duplicate, as of the day and year first above written.

WEEMS-WEAVER MINING CORPORATION

By Lillian H. Weaver
Lillian H. Weaver
President

ATTEST:

Spencer F. Weaver, Jr.
Spencer F. Weaver, Jr.
Treasurer

Lillian H. Weaver (SEAL)
Lillian H. Weaver

Spencer F. Weaver, Jr. (SEAL)
Spencer F. Weaver, Jr.

Clifton S. Weaver (SEAL)
Clifton S. weaver
Successor Trustees as aforesaid
of Trust for Spencer F. Weaver, Jr.

Lillian H. Weaver (SEAL)
Lillian H. Weaver

Spencer F. Weaver, Jr. (SEAL)
Spencer F. Weaver, Jr.

Clifton S. Weaver (SEAL)
Clifton S. Weaver
Successor Trustees as aforesaid
of Trust for Clifton S. Weaver
Parties of the First Part
Lessors

George R. Cassidy (SEAL)
George R, Cassidy

Party of the Second Part
Lessee

ASSIGNMENT OF MINING LEASE

WHEREAS, on the 20th day of May, 1946, a certain Mining Lease was made and entered into by and between WEEMS-WEAVER MINING CORPORATION, a Colorado corporation, and LILLIAN H. WEAVER and SPENCER F. WEAVER, as trustees for SPENCER F. WEAVER, JR. and CLIFTON S. WEAVER as parties of the first part and lessors, and GEORGE R. CASSIDY as party of the second part and lessee, covering the following described land in the County of Saguache and State of Colorado, to-wit:

ANTORO	Sur. No.	937
POVERTY	Sur. No.	938
JUNE	Sur. No.	1364
ARTIC	Sur. No.	14183
INDEPENDENCE	Sur. No.	14183
IGNACIO	Sur. No.	14183
ORPHAN BELLE	Sur. No.	14183
OURAY	Sur. No.	14183
NORTH POLE	Sur. No.	14183
PEARY	Sur. No.	14183
WASHAKEE	Sur. No.	14183
SHAVANO	Sur. No.	14183
RED CLOUD	Sur. No.	14183
WASHINGTON	Sur. No.	19532
LINCOLN	Sur. No.	19532
MICHIGAN	Sur. No.	7837
WEEMS	Sur. No.	20125
WEAVER	Sur. No.	20125
ASHLEY	Sur. No.	20125
SANDERS	Sur. No.	20125
PARAGON	Sur. No.	733
LILLIAN	Sur. No.	20443

Also all ore and tailing dumps on the property belonging to the Lessors.

DICTATOR	Sur. No.	2011
FLAGSTAFF	Sur. No.	2012
LUCKY BILL	Sur. No.	2013
WIDE WEST	Sur. No.	2014
LAKE LINDEN	Sur. No.	2015
BLACK DIAMOND	Sur. No.	2016
EQUALIZER	Sur. No.	14347
ENNESS F	Sur. No.	14347
SUCCESS	Sur. No.	14347
GREAT MOGUL	Sur. No.	14347
LONE STAR	Sur. No.	19144
CRESCENT	Sur. No.	19144
CRESCENT NO. 2	Sur. No.	19144

CRETONE	Sur. No.	19144
CREVET	Sur. No.	19144
COBALT	Sur. No.	19144
BURLINGTON	Sur. No.	19552
JAPAN	Sur. No.	19552
CROSS	Sur. No.	19552
BLUE BELL NO. 2	Sur. No.	20445
IROQUOIS	Sur. No.	7152
CROWN POINT	Sur. No.	1786
AJAX	Sur. No.	1332
MINNESOTA	Sur. No.	19535
ITASCA	Sur. No.	1350
PUEBLO	Sur. No.	17850
PUEBLO NO. 2	Sur. No.	17850
DIVIDE	Sur. No.	19611
CONTINENTAL	Sur. No.	19611
TIMBERLINE	Sur. No.	19611
DANDY	Sur. No.	19611
CRACKER JACK	Sur. No.	19611
GREAT DEPTH	Sur. No.	19611
GREAT DEPTH NO. 2	Sur. No.	19611
BIG MANITOU	Sur. No.	1321-A
LITTLE MANITOU	Sur. No.	1351-A
LITTLE MANITOU MILL SITE	Sur. No.	1351-B
AMERICAN EAGLE	Sur. No.	1388
EMMA	Sur. No.	1319
GREEN BAY	Sur. No.	1349
COLUMBUS	Sur. No.	1348
GRAND VIEW	Sur. No.	1320
KATIE	Sur. No.	6036
SUNSHINE	Sur. No.	20471
FOREST	Sur. No.	20364
GRANT	Sur. No.	20364
MEAD	Sur. No.	20364
PEMBERTON	Sur. No.	20364
JACKSON	Sur. No.	20364
SHERMAN	Sur. NO.	20364
LEE	Sur. No.	20364
DENVER	Sur. No.	20364
SALIDA	Sur. No.	20364
SHERIDAN	Sur. No.	20364
DAISY	Sur. No.	20366
COLUMBINE	Sur. No.	20366
LARKSPUR	Sur. No.	20366
BLUE BELL	Sur. No.	20366

Said Lease being acknowledged by the party of the second part and Lessee on the 4th day of June, 1947.

AND WHEREAS, the said Lease and all rights thereunder and incident thereto are now owned by the said GEORGE R. CASSIDY as party of the second part and Lessee thereunder.

NOW, THEREFORE, for and in consideration of One Dollar ($1.00) and other good and valuable consideration, the receipt of which is hereby confessed and acknowledged, the undersigned GEORGE R. CASSIDY, the aforesaid Lessee, does hereby bargain, sell, transfer, assign and convey unto S. E. BURLESON and W. E. BURLESON of Salida, Colorado, their heirs and assigns, all the right , title, and interest of the said Lessee in and to the said Lease and rights thereunder, together with all personal property, used or obtained in connection therewith.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this 4th day of June, 1947.

George R. Cassidy (SEAL)

STATE OF COLORADO)
)SS.
County of Lake)

The foregoing instrument was acknowledged before me this 4th day of June,1947 by George R. Cassidy.

My commission expires:
Oct. 11,1947

George S. Casey
Notary Public

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, That we, Weems-Weaver Mining Corporation, a Colorado corporation, Lillian H. Weaver, Spencer F. Weaver, Jr., and Clifton S. Weaver, as successor trustees of trust created by S. Fullerton Weaver for Spencer F. Weaver, Jr., under agreement dated April 14, 1923 and Lillian H. Weaver, Spencer F. Weaver, Jr., and Clifton S. Weaver, as successor trustees of trust created by S. Fullerton Weaver for Clifton S. Weaver under agreement dated April 14, 1923, do hereby constitute and appoint Joseph H. Murray, whose business address is 525 Ernest and Cranmer Building, Denver, Colorado, our true and lawful attorney for us and in our name,

1. To alter, change and amend that certain Lease dated May 20, 1946, between the grantors hereof and in said Lease referred to as the Lessors, and George R. Cassidy, referred to in said Lease as the Lessee, which said Lease has been assigned to W. E. Burleson and S. E. Burleson, in any manner whatever which in the opinion of said attorney may be necessary or desirable for the efficient and profitable operation of the mining properties described in said Lease and situate in the Kerver Creek Mining District in the County of Saguache and State of Colorado.

2. To specifically authorize the shift employment to be on an accumulated basis whereby the said assignees of said Lease may be given credit for any number of shifts over the number of shifts performed as a protection to said assignees of said Lease during any period of hardship and to authorize the subleasing by said assignees of said Lease of any other property

owned by the Lessors that is not being worked by said assignees and to authorize the construction of roads on said mining property by and at the expense of said Lessees into the timber land to remove the timber therefrom for mining purposes on said leased property only and to install, if necessary, a sawmill unit to cut said timber solely for said mining uses.

3. Giving and granting to our said attorney, in addition to the general power herein given and granted, the specific power and authority to receive and accept payment of all royalties from the mining operations of said property under said Lease and to withhold therefrom a sum amounting to two per cent of said royalties for production tax.

4. Without, in any wise, limiting the foregoing, generally to do, execute and perform any other act, deed, matter or thing whatsoever, that ought to be done, executed and performed or that in the opinion of our said attorney ought to be done, executed or performed in and about the premises, of every nature and kind whatsoever as fully and effectually as we could do it personally present.

5. And we the said Weems-Weaver Mining Corporation, a Colorado corporation, Lillian H. Weaver, Spencer F. Weaver, Jr., and Clifton S. Weaver, as successor trustees of trust created by S. Fullerton Weaver for Spencer F. Weaver, Jr., and Lillian H. Weaver, Spencer F. Weaver, Jr., and Clifton S. Weaver, as successor trustees of trust created by S. Fullerton Weaver, for Clifton S. Weaver do hereby ratify and confirm all whatsoever our said attorney shall do, or cause to be done in, or about the premises, by virtue of this Power of Attorney.

IN WITNESS WHEREOF the said corporation has caused these presents to be signed by its proper officers and attested under its corporate seal, and Lillian H. Weaver, Spencer F. Weaver, Jr., and Clifton S. Weaver, trustees as aforesaid have hereunto set their hands and seals in the City of New York, State of New York on the 25th day of September, 1947.

WEEMS*WEAVER MINING CORPORATION

By Lillian H. Weaver
Lillian H. Weaver
President

ATTEST:

Helen F. Repplier

Secretary

Lillian H. Weaver (SEAL)
Lillian H. Weaver

Spencer F. Weaver, Jr., (SEAL)
Spencer F. Weaver, Jr.,

Clifton S. Weaver (SEAL)
Clifton S. Weaver
Successor Trustees as aforesaid
of Trust for Spencer F. Weaver, Jr.

Lillian H. Weaver (SEAL)
Lillian H, Weaver

Spencer F. Weaver, Jr. (SEAL)
Spencer F. Weaver, Jr.

Clifton S. Weaver (SEAL)
Clifton S. Weaver
Successor Trustees as aforaaid
of Trust for CliftonS. Weaver
Parties of the First Part.

STATE OF NEW YORK)
)SS.
COUNTY OF NEW YORK)

I, Edna P. Vincent a Notary Public in and for the County of New York , State of New York, do hereby certify that Lillian H, Weaver and Helen F. Repplier who are personally known to me to be the same persons whose names are subscribed to the foregoing Power of Attorney as having executed the same respectively as President and Secretary of Weems-Weaver Mining Corporation, a Colorado corporation, and who are known to me to be such officers, respectively, appeared before me this day in person, and severally acknowledged: That the seal affixed to the foregoing instrument is the corporate seal of said corporation; that the same was affixed by the authority of said corporation; that said instrument was by like authority subscribed with its corporate name; that the said Lillian H. Weaver is the President of said corporation, and the said Helen F. Repplier is the Secretary thereof; that by authority of said corporation they respectively subscribed their names thereto as President and Secretary, and that they signed, sealed and delivered the said instrument of Writing as their free and voluntary act and deed, and as the free and voluntary act and deed of said corporation for the uses and purposes therein set forth.

WITNESS my hand and official seal this 25th day of September, 1947.

My commission expires March 30, 1948.

Edna P. Vincent
Notary public

STATE OF NEW YORK)
)SS.
COUNTY OF NEW YORK)

The foregoing instrument was acknowledged before me this 11th day of September, A. D. 1947, by Lillian H. Weaver as successor trustee of trust created by S. Fullerton Weaver for Spencer F. Weaver, Jr.

WITNESS my hand and official seal.

My commission expires March 30th, 1947.

Edna P. Vincent
Notary Public

TERRITORY OF HAWAII)
CITY &)SS.
COUNTY OF HONOLULA)

The foregoing instrument was acknowledged before me this 20th day of October, A. D. 1947, by Spencer F. Weaver, Jr., as successor trustee of trust created by S. Fullerton Weaver for Spencer F. Weaver, Jr.

WITNESS my hand and official seal.

My commission expires June 30,1949.

Frieda H. Robert
Notary Public, First Judicial
Circuit, Territoryof Hawaii

TERRITORY OF HAWAII)
CITY &)SS.
COUNTY OF HONOLULA)

The foregoing instrument was acknowledged before me this 20th day of October, A. D. 1947, by Clifton S. ~~Fullerton~~ Weaver, as successor trustee of trustcreated by S. Fullerton Weaver for Spencer F. Weaver, Jr.

WITNESS my hand and official seal.

My commission expires June 30th, 1949.

Frieda H. Robert
Notary Public
Notary Public,First Judicial
Circuit,Territory of Hawaii.

STATE OF NEW YORK)
)SS.
COUNTY OF NEW YORK)

The foregoing instrument was acknowledged before me this 11th, day of September, A. D. 1947, by Lillian H. Weaver as successor trustee of trust created by S. Fullerton Weaver for Clifton S. Weaver.

WITNESS my hand and official seal.

My commission expires March 30th, 1947.

Edna P. Vincent
Notary Public

TERRITORY OF HAWAII)
City &) SS.
County Of Honolula)

The foregoing instrument was acknowledged before me this 20th day of October, A. D. 1947, by Spencer F. Weaver, Jr., as successor trustee of trust created by S. Fullerton Weaver for Clifton S. Weaver.

WITNESS my hand and official seal.

My commission expires June 30th, 1949.

Frieda H. Robert
Notary Public
First Judicial Circuit,
Territory of Hawaii

TERRITORY OF HAWAII)
CITY &)SS.
COUNTY OF HONOLULA)

The foregoing instrument was acknowledged before me this 20th day of October, A. D. 1947, by Clifton S. Weaver, as successor trustee of trust created by S. Fullerton Weaver for Clifton S. Weaver.

WITNESS my hand and official seal.

My commission expires June 30th, 1949.

Frieda H. Robert
Notary Public
First Judicial Circuit,
Territory of Hawaii.

AMENDMENT OF LEASE

MADE MAY 20th, 1946

This amendment to a Lease made May 20, 1946, by and between Weems-Weaver Mining Corporation, a Colorado corporation, Lillian H, Weaver, Spencer F. Weaver, Jr., and Clifton S. Weaver, as successor trusteesof trust created by S. Fullerton Weaver for Spencer F. Weaver,Jr., under agreement dated April 14, 1923, and Lillian H. Weaver, Spencer F. Weaver,Jr., and Clifton S. Weaver, as successor trustees of trust created by S. Fullerton Weaver for Clifton S. Weaver, under Agreement dated April 14th, 1923,by Joseph H. Murray as attorney in fact, for the above named corporation and the above nand parties, and W. E. Burleson and S. E. Burleson, assignees of that certain lease given to George R. Cassidy by the lessors above named on May 20, 1946; for and in consideration of the covenants herein set forth, the mutual promises of the parties hereto and other valuable consideration, IS TO WITNESS:

The above named Lessors under the Lease dated May 20,1946, to George R. Cassidy by their attorney in fact, Joseph H. Murray, herein amend said Lease as follows:

-1-

The assignees of lessees, namely, W. E. Burleson and S. E. Burleson, are hereby authorized to accumulate the shifts whereby the said assignees of said lease may be given credit for any number of shifts over the number of shifts performed as a protection to said assignees during any period of hardship;and the said assignees of said lease are further authorized to sub-lease any other property owned by the Lessors that is not being worked by said assignees, W. E. Burleson and S. E. Burleson; and they are further authorized to construct roads on said mining property at their own expense, into the timber land and remove timber therefrom for mining purposes only, on said leased property; and to install, if necessary a sawmill unit to cut said timber only,for said mining purposes.

The said Lessors by their attorney in fact, Joseph H. Murray, further agree that the assignees of said lease, W. E. Burleson and S. E. Burleson, shall have and are hereby given the option to purchase on or before May 20,1951, the property described in said Lease for the purchase price of Seventy-five Thousand ($75,000.00) Dollars, in cash, and all royalties which have been paid or which may be paid hereafter may be credited against the purchase price thereof; and said attorney in fact for his principal agrees that said royalties will be ~~credite~~ credited against said purchase price of Seventy-five Thousand ($75,000.00) Dollars during the period of this option and during the period of the Lease, dated May 20th, 1946.

-3-

It is mutually agreed between the parties to this amendment that W. E. Burleson and S. E. Burleson shall have the right and are hereby authorized to sub-lease any of the mining claims described in said Lease of May 20,1946., on such terms as said W. E. Burleson and S. E. Burleson shall deem best.

-4-

It is further mutually agreed by and between the parties to this amendment, that W. E. Burleson and S. E. Burleson are hereby authorized to organize a corporation to do business in the State of Colorado under the Colorado laws; and that said corporation may be permitted to operate in place and instead of W. E. Burleson and S. E. Burleson, who are assignees of said Lease dated May 20, 1946.

IN WITNESS WHEREOF The parties hereto have signed their names in duplicate at Denver, Colorado, this 30th day of of August, A.D. 1948, AND AT Salida, Colorado, on the 31st day of August, 1948.

WEEMS-WEAVER MINING CORPORATION

By Joseph H. Murray
Joseph H. Murray, Its Attorney in Fact.

Lillian H. Weaver (SEAL)
Lillian H. Weaver.

Spencer F. Weaver, Jr. (SEAL)
Spencer F. Weaver, Jr.

Clifton S. Weaver (SEAL)
Clifton S. Weaver
Successor Trustees as aforesaid of
Trust for Spencer F. Weaver, Jr.

Lillian H. Weaver (SEAL)
Lillian H. Weaver

Spencer F. Weaver, Jr. (SEAL)
Spencer F. Weaver, Jr.

Clifton S. Weaver (SEAL)
Clifton S. Weaver
Successor Trustees as aforesaid
of Trust for Clifton S. Weaver
Parties of the First Part.

BY Joseph H. Murray
Joseph H. Murray
Attorney in Fact.

W. E. Burleson

S. E. Burleson
Assignees of Lessees.

AMENDMENT OF LEASE

WHEREAS, on May 20,1946 a certain Lease of mining property, said property being more particularly described in said Lease, situate in the Kerber Creek Mining District, Saguache County, Colorado, was made and entered into by and between WEEMS-WEAVER MINING CORPORATION, a Colorado corporation, LILLIAN H.WEAVER, SPENCER F. WEAVER,JR., and CLIFTON S. WEAVER as Successor Trustees of Trusts created by S. Fullerton Weaver for Spencer F. Weaver,Jr., and Clifton S. Weaver under agreement dated April 14,1923, as Lessors, and hereafter known and referred to as the Lessors, and GEORGE R. CASSIDY, as Lessee, and on June 4,1947, the said George R. Cassidy assigned all his right, title and interest in said Lease to S. E. Burleson and W. E. Burleson, hereafter known and referred to as the Lessees; and

WHEREAS, it is the desire and by this Amendment of Lease, the intention of the said Lessors and the said Lessees to extend the life of said Lease to November 1, 1953 under the same terms and conditions of said Lease,

NOW, THEREFORE, in consideration of the premises and other valuable considerations, it is agreed by and between Joseph H. Murray, attorney in fact for the said Lessors, and S. E. Burleson and W. E. Burleson, the said Lessees, as follows, to-wit:

1. That the said Lease hereinabove described, be and the same hereby is extended to November 1, 1953 under the same terms and conditions contained in said Lease and the amendments thereto, and the said Lessees shall have and enjoy all of the rights under said Lease as the original Lease, only to and until November 1, 1953.

2. The said Lessees shall have and hereby are given the right and option to purchase on or before November 1, 1953, all of the mining property described in said Lease for the purchase price of Seventy-five Thousand ($75,000.00) Dollars.

3. All royalties, less the amount of production taxes, heretofore and hereafter paid to the said Lessors by the said Lesseess, shall be credited on the said purchase price of Seventy-five Thousand ($75,000.00) Dollars, it being the intention and the agreement of the parties hereto that the amount of the production taxes shall not be credited upon said purchase price.

4. It is agreed that the "production taxes" hereinabove mentioned, means and is intended by the parties to be the sums of money withheld from the Lessors and kept in the custody of Joseph H. Murray, and to be paid by him to the proper tax authority.

5. The said Lessees agree that on the termination date of this Lease, to-wit: November 1, 1953, the said Lessees will quit and peaceably surrender to said Lessors all of the property described in said Lease, unless said Lease be further extended.

IN TESTIMONY WHEREOF, Joseph H. Murray, as attorney in fact for said Lessors, and S. E. Burleson and V. E. Burleson, the said Lessees, have hereunto subscribed their names at the City and County of Denver, Colorado , on November 1,1948.

WEEMS-WEAVER MINING CORPORATION

BY Joseph H. Murray
Joseph H. Murray, Attorney in Fact.

LILLIAN H. WEAVER, SPENCER F. WEAVER, JR., and CLIFTON S. WEAVER, as Successor Trustees of Trust created by S. Fullerton Weaver for Spencer F. Weaver, Jr., under Agreement dated April 14, 1923.

LILLIAN H. WEAVER, SPENCER F. WEAVER, JR., and Clifton S. Weaver, as Successor Trustees of Trust created by S. Fullerton Weaver for Clifton S. Weaver under Agreement dated April 14, 1923.

BY Joseph H. Murray
Joseph H. Murray, Attorney in Fact
Lessors

S. E. Burleson
S. E. Burleson

W. E. Burleson
W. E. Burleson

Lessees.

April 16, 1952

Mr. Joseph H. Murray
Attorney-at-law
Ernest & Cranmer Building
Denver, 2, Colorado.

Dear Mr. Murray:

Since our present lease on the Antoro Mine expires on November 1, 1953, unless extended, we are therefor asking for this extention of time. We would appreciate it if the owners would agree to the following:

1. Grant us an additional five (5) yearoption on our present lease from expiration date on.

2. Grant us the privelege on continuing to pay royalty on the said purchase price and not to lose the benefits already acumulated thereon.

We would appreciate whatever you can do for us in this matter. We have in the past and will continue to operate the mine to the best of our ability.

Yours very truly,

S. E. & W. T. Burleson

By _____

COPY

June 16,1952

W. E. Burleson,
Salida, Colorado.

Dear Mr. Burleson:

We are today in receipt of a letter from the lessors in reply to our letter concerning an extension of the lease. The lessors advised me that they have no objection to an extension of the lease but they object to continuing the option to purchase. As there is no particular hurry in replying to this letter from the lessors, we think it will be well for you to come in and see us the next time you are in Denver in order that we may discuss this matter.

It is our recollection that you are working the June, Antoro, Michigan and Independence lodes. The lessors advised us that the last tax receipt omitted the Poverty, Orphan Belle, Ouray, North Pole, June, Antoro, Michigan and Independednce lodes. We are wondering if all of the lodes mentioned in this paragraph are covered by the production tax. Will you kindly let us know at your convenience.

Yours very truly,

Joseph H. Murray
Joseph H. Murray.

DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

OFFICIAL BUSINESS

Acting Administrator
Defense Minerals Exploration Administration
Interior Building
Washington 25, D. C.

ATTENTION: CODE 210

DIVISION COPY COPY

NOTICE OF RESCISSION OF EXPLORATION PROJECT CONTRACT, UNDER THE TERMS OF THE CONTRACT, BEFORE THE WORK IS BEGUN

Messrs. S. E. Burleson and W. E. Burleson
P. O. Box 209
Salida, Colorado

Operators under Exploration Project
Contract Idm-2492, Docket No. DMEA-3604,
dated February 24, 1953

The United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, under the terms of the above mentioned contract, hereby rescinds the contract on the following grounds:

> In the opinion of the Government, you have failed to prosecute operations pursuant to the terms of the contract in that you have failed to commence work under the terms of the contract or Amendment No. 1 dated June 19, 1953.

Dated this 25th day of September, 1953.

UNITED STATES OF AMERICA

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

APPROVED: WRy Gwinnett Betty

COMMENTS:

No. 1

AMENDMENT OF CONTRACT: No. [illegible]

Contract Docket No. [illegible], dated February 24, 1953, between the United States of America and S. E. Burleson and W. E. Burleson, a partnership is hereby amended as follows, effective as of the date of said contract:

> Referring to "Article 3. Exploration Project" of Exploration Project Contract Form MF-200(A), delete "60" and in lieu thereof insert "120."

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

Dated: June 19, 1953

By S. E. Burleson
S. E. Burleson, Partner

By W. E. Burleson
W. E. Burleson, Partner

UNITED STATES OF AMERICA

By W. H. King
W. H. King
Executive Officer
[illegible] Field Team, Region IV

MF-200 (A)
(February 1952)

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 2 1953

APPROVED Signed

COMMENTS

DOCKET NO. DMEA 2604

COMMODITY Lead-Zinc

Idm-E492

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

EXPLORATION PROJECT CONTRACT[1]
(Short Form)

IT IS AGREED this 24th day of February, 1953, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and[2] S. E. Burleson and W. E. Burleson, a partnership
P. O. Box 209
Salida
Colorado

hereinafter called the "Operator," as follows:

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

ARTICLE 2. *Operator's property rights.*—With respect to that certain land situated in the State of Colorado, County of Saguache, described as follows:[3] The following patented Lode Mining Claims;
Ouray - U. S. Survey 14183
Antoro - U. S. Survey 937

the Operator represents and undertakes:[4]

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

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

ARTICLE 3. *Exploration project.*—The Operator, within 60 days from the date of this contract shall commence work on a project of exploration for[5] Lead-Zinc

in or upon the described land; and shall bring the project to completion within a period of 12 months from the date of this contract. The work to be performed is more fully described in Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, are made a part of this contract. The Government will contribute to the cost of this work as hereafter provided. The work shall be performed by the Operator or by independent contractor or contractors efficiently, expertly, in a workmanlike manner, in accordance with good mining standards and State regulations for health and safety and for workmen's compensation and employers' liability insurance, with suitable and adequate equipment, materials, and labor, to bring the project to completion within the time fixed. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

ARTICLE 4. *Costs of the project.*—The agreed, estimated costs of performing the work, expressed in terms of units of work to be performed (per foot of drifting, per foot of drilling, per cubic yard of material to be moved, etc.) are set forth in Exhibit "A," attached hereto. The Government will pay 50 percent of these agreed, estimated costs, as they accrue, for units of work actually performed that conform with the description or specifications for the work set forth in this contract, in an aggregate total amount not in excess of $13,300, which is 50 percent of $26,600, the agreed, estimated total cost of the project in which the Government will participate: *Provided,* That until the Operator's final report and final accounting have been rendered to the Government and any final check or auditing required by the Government has been made, and a final settlement of the contract has been made, the Government may withhold from the last voucher or vouchers such sums as it sees fit not in excess of ten (10) percent of the maximum total which the Government might have been called upon to pay under the terms of the contract. The Government may, as it sees fit, make payments direct to the Operator's independent contractors, if any, for the account of the Operator, rather than to the Operator.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARTICLE 9. *Changes and added provisions* .....

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

L. E. Burleson
W. E. Burleson
(Operator)

By .....

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

I, , certify that I am the secretary of the corporation named as Operator herein; that , who signed this contract on behalf of the Operator, was then of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

..... [CORPORATE SEAL]

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

EXHIBIT "A"

Description of the Work

Extend the existing crosscut on the adit level 74 feet into the hanging wall of the Antoro vein as shown on the attached map Figure 2.

Excavate for a hoist station and waste pocket and repair approximately 400 feet of track on the tunnel level by installing new rails which are already on hand.

Sink an inclined winze 140 feet, including a sump, in the hanging wall of the Antoro vein approximately parallel to the dip of the vein.

Cut a station at the 125-foot winze level, drive a crosscut 80 feet to the Antoro vein, and explore the vein by 200 feet of drifting. The work is shown on Figure 2 which is made a part of this Exhibit "A."

Estimated Costs of the Project

Crosscutting 154 feet at $35.00 per foot	$5390.00
Repair 400 feet of track. Total including new track 1/	210.00
Excavation - Approximately 270 cu. yds. for waste pocket, hoistroom, sheave wheel, and from winze collar to pocket 1/	3216.00
Timbering waste pocket and hoistroom 1/	784.00
Sinking winze 140 feet at $70.00 per foot	9800.00
Excavation, timber and timbering of winze station at the 125 foot level 1/	200.00
Drifting 200 feet at $35.00 per foot	7000.00
Total Cost of Project	$26,600.00
Government participation - 50%	$13,300.00

1/ The entire work constitutes the unit of work.

MF-203

OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of Colorado, County of Saguache, described as follows:1/

Ouray Mining claim U.S. Survey No. 14183

Antoro Mining claim U.S. Survey No. 937

which is the subject of a proposed exploration project contract, hereinafter called the "contract", between the United States of America, hereinafter called the "Government", and

2/ S. E. Burleson and W. E. Burleson, a partnership

hereinafter called the "Operator"; and

WHEREAS, under certain provisions of said contract which are set forth on the reverse side hereof, the Government is entitled to a percentage royalty on production and to certain other rights and equities which do or may conflict with or be adverse to the interest of the undersigned in said property;

NOW THEREFORE, the undersigned, in consideration of said contract and as an inducement to the Government to enter into same, undertakes and agrees as follows:

1. The Government's equity in and right to dismantle, sever, take possession of, and remove and dispose of facilities, buildings, fixtures, equipment, or other items as provided in the contract, or any amendment thereof, shall prevail over and be prior and superior to any conflicting or adverse rights of the undersigned, and the Government is authorized to enter upon the land for such purposes.

2. To secure the payment to the Government of the percentage royalty on production3/ provided for under the terms of said exploration project contract, or any amendment thereof which does not increase the maximum amount of the Government's claim here stated or alter the provisions for repayment, there is hereby granted to the Government a lien upon the land herein described and upon any production of minerals therefrom, until the royalty claim is fully paid in the amount of the Government's contribution, not in excess of 4/$ 13,300.00, or ten years have elapsed from the date of the contract.

3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights of the Government under the provisions of said contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

Dated this 26th day of November, 1952.

THE WERMSA WEAVER MINING CORPORATION [Seal]

William F. Weaver [Seal]
President

Clifton D. Weaver [Seal]
Secretary

1/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in book _____ page _____ official records of said county." If (b) is used, the book and page of recordation cannot be dispensed with. If the space provided is insufficient, use an Annex, and refer to the Annex in the space.

2/ Insert the name of the Operator as it will appear in the exploration project contract.

3/ Mining or production from the land is not required, and in the absence of production there is no obligation to repay the Government.

4/ Insert the maximum amount of the Government's contribution.

RELEVANT CONTRACT PROVISIONS

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

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

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

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

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

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

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

Title to and disposition of property. All facilities, buildings, fixtures, equipment, or other items costing more than $50.00 each, paid for or purchased with funds contributed jointly by the Operator and the Government, although title may be taken in the name of the Operator, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the completion of the work or the termination of the contract shall be disposed of promptly by the Operator for the joint account of the Government and the Operator, either by return to the vendor, by sale to others, or purchase by the Operator at a price at least as high as could otherwise be obtained, as may appear to be for the best interest of the Government, unless the Government, in writing, waives its interest in any such item. If necessary to accomplish such disposition, the Operator shall dismantle, sever from the land, and remove any such item, the cost thereof to be for the joint account of the parties in proportion to their respective interests. If the Operator, within 90 days after the receipt of written notice from the Government, fails, neglects, or refuses to dispose of such property, the Government may itself enter upon the land, take possession of, and remove and dispose of any such property as above provided.

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

Denver 2, Colorado

February 26, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 2 1953

Memorandum

To: Secretary to the Operating Committee

From: Executive Officer, Field Team, Region IV

Subject: DMEA Docket 2604, Contract Idm-[illegible]92, W. E. and S. E. Burleson

Enclosed are four copies of the final report covering Docket DMEA-2604. A contract has been prepared and is in force.

W. H. King
W. H. King

Enclosures

Mining Division
Region IV

September 4, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 2 1953

Memorandum

To: Field Team, Region IV

From: Acting Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 2604, (Lead-Zinc) S. E. & W. E. Burleson, Antoro Mine, Saguache County, Colorado

Enclosed are eight copies of the engineering report on DMEA-2604 by M. H. Salsbury of the Bureau of Mines.

The examining engineer concludes that the applicants are experienced and able mine operators and that the project has outstanding possibilities. He recommends that the loan be granted.

We concur in this recommendation.

W. H. King

W. H. King

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20
Denver Federal Center
Denver 14, Colorado
August 20, 1952

Mining Division
Date Rec'd.
AUG 20 1952
BUREAU OF MINES
Denver, Colorado

Memorandum

To: Executive Officer, Field Team, Region IV

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

Subject: DMEA 2604 (Lead-zinc), S. E. and W. E. Burleson, Antero mine, Saguache County, Colorado

Please find enclosed the original and eight copies of the "Summary, Conclusions, and Recommendations", by M. H. Salsbury and E. N. Harshman, and of Salsbury's engineering report on the above docket.

The applicants' proposal was for an expenditure of $39,747.50 for exploration requiring a 74-foot extension of an existing crosscut, preparation of a hoist station with bins, and repairing 400 feet of track on the Antero tunnel level from which an inclined winze was to be sunk 140 feet, including a sump. At a depth of 125 feet a winze station was to be excavated and from it a crosscut driven 80 feet to the Antero vein and drifts run 200 feet on the vein.

The examiners revised the proposal by changing only the size of bin capacity on the tunnel level, resulting in a slight change in the cost estimates, making a total over-all project cost of $37,400.00.

Salsbury concludes the applicants are experienced and able mine operators and the project has outstanding possibilities for proving lead-zinc reserves similar to those now being mined profitably. He recommends approval of a loan for $37,400.00--Government participation, 50 percent or $18,700.00--and, in addition, suggests all mine production be subject to royalty. This presumably will be agreeable to the applicants and will make more secure the Government's recovery of its share of the loan.

I am in agreement with the conclusions and recommendations.

The brochure furnished with the Region IV Field Team's memorandum of instruction to make the examination is also enclosed.

W. M. Traver, Jr.

W. M. Traver, Jr.

enclosures
WMT:dd
cc 8
DMEA 2604, Chron.

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

200 New Customhouse
Denver 2, Colorado

September 2, 1952

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 2604, Antoro Mine, Saguache County, Colorado.

Attached are 8 copies of the geological report by E. N. Harshman covering DMEA Docket 2604, Antoro Mine, Saguache County, Colorado.

S. E. and W. E. Burleson, applicants, propose to explore 4 veins in the Antoro mine for lead-zinc ore by sinking a 5 by 10 foot inclined winze to an inclined depth of 140 feet, crosscut about 80 feet to reach the Antoro vein and drift about 200 feet on the vein.

The Antoro vein is in the Tertiary Rawley andesite, a series of flows 1000 to 2000 feet thick. The vein is 1 to 3 feet wide and carries galena, sphalerite, and chalcopyrite. The ore shoot now being mined apexes near the surface and extends downward to a point about 75 feet above the adit level. Ore shoots in the mine in general are lenticular bodies 1 to 3 feet thick and 10 to 50 feet long. The Antoro vein and the Poverty vein, another vein found in the mine, probably junction below the adit level in the area proposed for exploration. A diamond drill hole by the applicants proved the presence of 4 feet of lead-zinc ore in this area. Because of these favorable conditions, Harshman recommends that the loan be approved.

I concur in this recommendation.

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

Enclosures (8)

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 260L. S. E. and W. E. Burleson

Antero Mine

Saguache County, Colorado

Lead-zinc

M. H. Salsbury, Mining Engineer
Bureau of Mines

E. N. Harshman, Geologist
U. S. Geological Survey

August 8, 1952

DMEA 2604

S. E. AND W. E. BURLESON
ANTORO MINE
SAGUACHE COUNTY, COLORADO

Summary, Conclusions, and Recommendations

By M. H. Salsbury
Mining Engineer
Bureau of Mines

and

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

DMEA 2604

S. E. AND W. E. BURLESON
ANTORO MINE
SAGUACHE COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By M. H. Salsbury and E. N. Harshman

An examination of the Antoro mine near Bonanza, Saguache County, Colo., was made July 16-17, 1952, by a Region IV examining team to check the application of S. E. and W. E. Burleson, P. O. Box 209, Salida, Colo., for exploration assistance under Defense Minerals Exploration Administration docket 2604, calling for the expenditure of $39,747.50, Government participation - 50 percent or $19,873.75.

The Antoro mine workings are in the Rawley andesite, the lower member of a thick series of volcanic flows and tufts which overlie pre-Cambrian granite, gneiss, and schist. In the vicinity of the mine, the flows strike N. 10° - 20° W. and dip about 20° west. They have been broken by many faults with small to moderate displacements, all of which appear to be premineral.

Almost without exception the faults at the area show some mineralization, and in the Antoro mine four fault fissures were sufficiently well mineralized to warrant exploration, development, and stoping. Ore bodies on the Antoro, Poverty, Northeast, and Zinc veins contain pyrite, galena, sphalerite, and some chalcopyrite, gold, and silver. Gangue minerals are quartz, barite, calcite, and rhodonite. Ore occurs in small to moderate sized lenses, deposition having been controlled by vein

structure and preminaral cross faults. A vuggy structure and considerable clay gouge are characteristic of the veins at the Antoro mine. Rock alteration is intense and resulted in silicification and sericitization of both the hanging and footwalls.

The applicants have been operating the property since 1947 and have produced 12,000 tons of lead-zinc-silver ore with a gross value of $408,219.80, or $34.12 per ton. The average net return to the operators was $21.28 per ton. This production came from two of the three known ore-bearing veins of the mine, the Northeast and the Antoro. Of these, the Northeast vein produced probably 80 percent of the above tonnage. The production from the Antoro vein has been something over 1,700 tons but the exact amount is unknown because the operators ceased segregating the ore from other production in January 1951.

The other vein known to have been productive is the Poverty which lies west of the Antoro and probably intersects it to the south and also at depth. Prior to 1927, one stope on the Poverty vein was mined out above the tunnel level a distance of 50 feet, and there is still an 18-inch streak of galena and sphalerite in the floor of the tunnel level beneath the stope, assaying a trace gold and 6.7 ounces silver per ton, 24.3 percent lead, 1.0 percent zinc, and 0.2 percent copper.

While the Antoro vein ore bodies are smaller than the Northeast vein occurrences, they can still be mined profitably at present metal prices (lead, $0.16 per pound, and zinc, $0.15 per pound). They average about 20 percent combined lead and zinc with the lead content running a little more than half. The vein is as much as 2 feet wide and can be mined profitably where only 1 foot wide. The Antoro vein is barren at

the tunnel level and the first ore mined occurred 60 feet above the tunnel. Because of the erratic occurrence of the ore there are no reserves blocked out as exploration was not carried on in advance of stoping requirements.

During early 1952 the applicants did some diamond drilling at several locations in the mine, and one hole directed to cut the Antoro vein below the tunnel level where it had never been explored intersected at 91 feet of heavy lead-zinc sulfide mineralization over an indicated width of 4 feet of vein which assayed around 12 percent lead and 6 percent zinc. Core recovery in the vein was poor but several pieces showing galena and sphalerite were shown to the examining team.

Basing an exploration project on this diamond drill hole as well as on the possibility that the Antoro and Poverty veins may intersect at a reasonable depth below the tunnel level, the applicants have planned a project including two crosscuts, a 140-foot winze in the hanging wall of the Antoro vein, and drifting on the Antoro vein on the 125-foot winze level. They expect to continue current ore production from the Northeast vein at the same time. In any operation below the Antoro tunnel level, a small water flow must be pumped, but, based on the applicant's experience in the winze on the Northeast vein, a maximum flow of no more than 50 gallons per minute should be expected.

The examining team considers the proposed exploration project to be a good prospect. There is an excellent possibility of finding ore bodies on the Antoro and Poverty veins similar in size and grade to those mined above the tunnel level. On this basis the minimum tonnage from the block between the 125-foot winze level and the tunnel level is

estimated at 2,500 to 3,000 tons. The grade or ore is estimated at 20 percent combined lead and zinc with the lead predominating. The net return on this ore is estimated at $20.00 per ton at present metal prices (lead, $0.16 per pound, and zinc, $0.15 per pound). Mining costs would be $15.00 per ton, leaving about $5.00 per ton operating gain. The shipment of the estimated minimum tonnage, 3,000 tons, would return to the applicants their half of the cost of exploration. The Government's royalty at an estimated $1.00 per ton on the minimum tonnage would amount to less than one fourth of the Government's expenditure.

The applicants are experienced operators and competent to carry out the program.

The examining team recommends approval of an exploration loan for $37,400.00, Government participation—$18,700.00, with provision that all mine production will be subject to royalty, making more secure the Government's chance for recovery of its part of the loan.

ANTORO MINE

SAGUACHE COUNTY, COLORADO

OMEA DOCKET 2604

Geologic Report

By E. N. Harshman
U S Geological Survey

ANTORO MINE
SAGUACHE COUNTY, COLORADO

INTRODUCTION

S. E. and W. E. Burleson, P. O. Box 209, Salida, Colorado, have applied for assistance in exploring for lead-zinc ore below the present workings in the Antoro mine. They have under lease, from the Moams Beaver Mining Company, New York City, N. Y., 60 patented claims in secs. 7, 8, 17, and 18, T. 47 N., R. 8 E., Kerber mining district, Saguache County, Colorado.

The property was examined on July 16 and 17, 1952, in company with M. H. Salsbury of the U. S. Bureau of Mines. W. E. Burleson, one of the applicants, accompanied the examining team; his assistance is acknowledged.

The Antoro mine is developed by about 4600 feet of drifts and cross cuts on the adit or main tunnel level, 430 feet of drift from the bottom of the Copper winze (-125 level), and about 700 feet of drifts on various levels above the adit level (fig. 2).

Early in 1952 the operators contracted 4 diamond drill holes in the Antoro mine. Hole No. 1 was directed to cut the Antoro vein below its intersection with the flat dipping Poverty vein (fig. 2). At a depth of about 60 feet vertically below the adit level, Drill hole No. 1 cut ore as follows:

Inclined Depth	oz. Au	oz. Ag	% Pb	% Zn	% Cu
91 to 95 feet	0.05	8.1	18.2	6.1	0.35
96 to 101 feet	0.02	5.6	15.9	5.8	0.20

Core recovery was poor and the above assays were made on sludge samples. The hole was drilled to an inclined depth of 172 feet; no other mineralized zone was encountered. The other 3 holes were drilled elsewhere in the mine and did not intersect ore.

The applicants propose to crosscut 75 feet farther into the hanging wall of the Antoro vein, excavate for 2 underground ore bins and a hoist-room, sink a five by ten foot inclined winze to an inclined depth of 140 feet (15 feet to be used as a sump), crosscut about 80 feet to reach the Antoro vein and drift about 200 feet on the vein (fig. 2). The applicants estimate the cost of the project to be $39,747.50.

GEOLOGY

W. S. Burbank (1932) has described the geology and ore deposits of the Bonanza mining district, and in this publication includes a description of the Antoro mine as well as other mines in the area. Free use has been made of the data contained in this publication.

The Bonanza mining district lies at the northeastern edge of the San Juan volcanic region of Colorado. The rocks of the area are principally lavas of Tertiary age, probably Oligocene, resting on pre-Cambrian metamorphic rocks and Paleozoic sedimentary rocks. Exposures of metamorphic and sedimentary rocks are not common. The pre-Cambrian rocks consist of gneisses, schists, granites, and pegmatite dikes. Shales, sandstones, conglomerates, limestones, and quartzites are exposed several miles southeast of the mineralized area. These rocks rest unconformably upon the pre-Cambrian complex.

The pre-Tertiary geologic history of the area is not well known, but includes long erosional and depositional periods, folding, and thrust faulting. Ore deposits are closely related to the Tertiary volcanic activity which includes the extrusion of large volumes of lava flows and tuffs, and intrusion of dikes. According to Burbank (1952) the volcanic activity resulted in the formation of a high plateau, which subsequently collapsed. Two periods of mineralization, along faults caused by the collapse, have been recognized. The early period consisted of silicification of the wall rock and the late period included deposition of sulfide and gangue minerals and sericitization of the wall rock.

Burbank concludes that the wall rocks have had no differential influence on the chemical processes affecting ore deposition. However, some mechanical influence was noted. Those rocks in which fractures remained open, such as the andesites, were the most favorable for ore deposition.

The Antero mine workings are in the Rawley andesite, a 1000 to 2000 foot thick series of flows at the base of the Tertiary volcanics. The flows strike northwest and dip 15° to 20° SW. The andesite is broken by many pre-mineral faults of small to moderate displacement, most of which are mineralized. Four major veins, the Antero, Poverty, Northeast, and Zinc veins, occupy the more prominent fault fissures. Lead-zinc ore has been mined on all but the Zinc vein.

The Antero vein is exposed in the north end of the mine workings where it strikes N 25° to 30° W and dips 60° to 80° E (fig 2). The vein is 1 to 3 feet wide and contains galena, sphalerite, chalcopyrite, pyrite, quartz barite and calcite. On the adit level the Antero fissure contains altered gangue, siliceous material, and sparse sulfides. The ore shoot

was being mined across near the surface and extends downward to a point about 75 feet above the adit level. The sulfide ore occurs in small lenticular bodies from 1 to 3 feet thick and 10 to 50 feet in length and height. This ore averages about 22% combined lead and zinc. The lead content is slightly greater than the zinc content.

Ore deposition in the Antero vein was, to a major degree, controlled by the physical character of the openings. Portions of the fissure that contained considerable gouge, or areas where changes of dip or strike produced a "tight" condition, contain little or no ore. Also, pre-mineral cross faults may terminate or offset the ore.

The Poverty vein lies to the south of the Antero vein and occupies a low-angle fault dipping northeastward (fig. 2). On the adit level, the 2 veins intersect to the east of the main crosscut, but the intersection has not been explored. Old workings on the 2 veins are not accessible, but it is reported that both veins, where exposed near the intersection, are only weakly mineralized.

The Poverty vein strikes N. 60°-65° W. and dips 25° to 35° N. The vein is characterized by thick gouge and breccia zones and small, lenticular, high grade sulfide ore bodies. The strongest mineralization on the Poverty vein is to the northeast of the main adit level and one small body of high grade galena ore was taken from the stope shown on fig. 2. A sample of the ore in the vein immediately below this stope assayed as follows:

Sample No.	Width	% Pb	% Zn	% Cu	oz. Ag
S-12	10"	24.3	1.0	0.2	6.7

The Zinc vein, which is by far the weakest and most narrow of the 4 principal veins in the mine, lies to the east of the adit level, strikes almost due north and dips 70° E. (fig. 2). It contains some gouge and

brecciated and is poorly mineralized by pyrite, sphalerite, and galena. The Zinc vein is developed by about 30 feet of drifting on the adit level and by some raising. The results of this development work were not encouraging and additional work on the Zinc vein is not contemplated.

The Northeast vein is developed by the 125 foot Copper winze and by about 350 feet of drifting on the minus 125 feet level (fig. 2). The vein which occupies a strong fault zone in the Napley andesite, strikes N. 20° E. and dips 80°-85° E. In contrast to the other veins in the mine, the ore on the Northeast vein occurs in a continuous sheet that has been mined, both horizontally and vertically, for a distance of over 100 feet. The vein width ranges from 1 to 8 feet and averages about 4 feet. Ore minerals are galena, sphalerite, chalcopyrite, and pyrite in a gangue of dense, white quartz.

There is little or no alteration of the wall rock and open stopes stand well with only occasional stull support. The ore now being mined contains about 20% combined zinc and lead, zinc accounting for slightly over half the metal content. The Northeast vein is by far the best yet developed in the Antero mine and most of the ore produced in the last few years has come from it.

PRODUCTION AND ORE RESERVES

Since 1947, when the present operators began mining, production has been as follows:

Dry tons	oz Au	oz Ag	% Pb	% Zn	% Cu	Gross Value
12,000	0.02	5.75	0.70	11.82	1.25	$400,220

Development work has not been carried on in advance of mining operations and ore reserves thus cannot be estimated with any degree of certainty.

Considerable ore probably remains to the north of the present workings on the Northeast vein, above the workings on the Antoro vein, and below the adit level on the Poverty and Antoro veins.

CONCLUSIONS AND RECOMMENDATIONS

The exploration program proposed by S. E. and W. E Burleson, in DMEA Docket 2604, appears justified for the following reasons:

1. Considerable direct shipping, lead-zinc ore has been and is being mined on the Antoro vein above the adit level.

2 Some high grade lead ore has been mined from the Poverty vein above the adit level, and ore is exposed now along the floor of the drift on this vein

3 A projection of the dips of the Antoro and Poverty veins indicates an intersection or junction of the two veins in the area proposed for exploration in the program under consideration. A diamond drill hole proved the presence of 4 feet of lead-zinc ore in this area.

4. Burbank (1932) concludes that although little ore is exposed on the adit level, there is no reason to believe that the bottom of the horizon favorable to ore deposition has been reached by the present workings. The examining team agrees with this conclusion.

It is recommended that the exploration program, with the slight changes suggested in the engineering report, be approved and that a loan of $37,400 (Government participation 50%) be granted. It is further recommended, for the reasons given in the engineering report, that the contract be written to include royalties on ore produced from the Northeast vein as well as from the Antoro and Poverty veins.

REFERENCES

Burbank, W S , Geology and ore deposits of the Bonanza Mining District, Colorado: U S Geological Survey Professional Paper 169, 1932

DMEA 2604

S. E. AND W. E. BURLESON
ANTORO MINE
SAGUACHE COUNTY, COLORADO

Engineering Report

By M. H. Salabury
Mining Engineer
Bureau of Mines

DMEA 2604

S. E. AND W. E. BURLESON
ANTORO MINE
SAGUACHE COUNTY, COLORADO

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ILLUSTRATIONS

Figure	Follows Page
1. Location map, S. E. and W. E. Burleson, Antoro mine, Saguache County, Colorado	1
2. Proposed exploration, Antoro mine, Saguache County, Colorado	*

* See figure following Geologic Report.

DMEA 2604

S. E. AND W. E. BURLESON
ANTORO MINE
SAGUACHE COUNTY, COLORADO

ENGINEERING REPORT

By

M. H. Salsbury

INTRODUCTION

An examination of the Antoro mine near Bonanza, Saguache County, Colo., was made by E. N. Harshman, of the U. S. Geological Survey, and M. H. Salsbury, of the Bureau of Mines, for the purpose of checking the information in an application of S. E. and W. E. Burleson, P. O. Box 209, Salida, Colo., for exploration assistance under Defense Minerals Exploration Administration docket 2604 calling for the expenditure of $39,747.50, Government participation - 50 percent or $19,873.75.

ACKNOWLEDGMENTS

Information on the property was obtained from W. E. Burleson, one of the applicants, and from the mine foreman. Geological data was obtained from U. S. Geological Survey Professional Paper 169, "Geology and Ore Deposits of the Bonanza Mining District, Colo.", by W. S. Burbank.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The Antoro mine, originally developed by a shaft, is now served by an adit tunnel, portal elevation 11,273 feet, on the precipitous west slope of Kerber Creek. The Rawley mine adjoins on the South. The mine is 3 miles from the town of Bonanza and 45 miles from Salida, the nearest railhead (fig. 1). Twenty-seven miles of this distance is paved highway from Salida to Villagrove in the San Luis Valley and the balance, good dirt road.

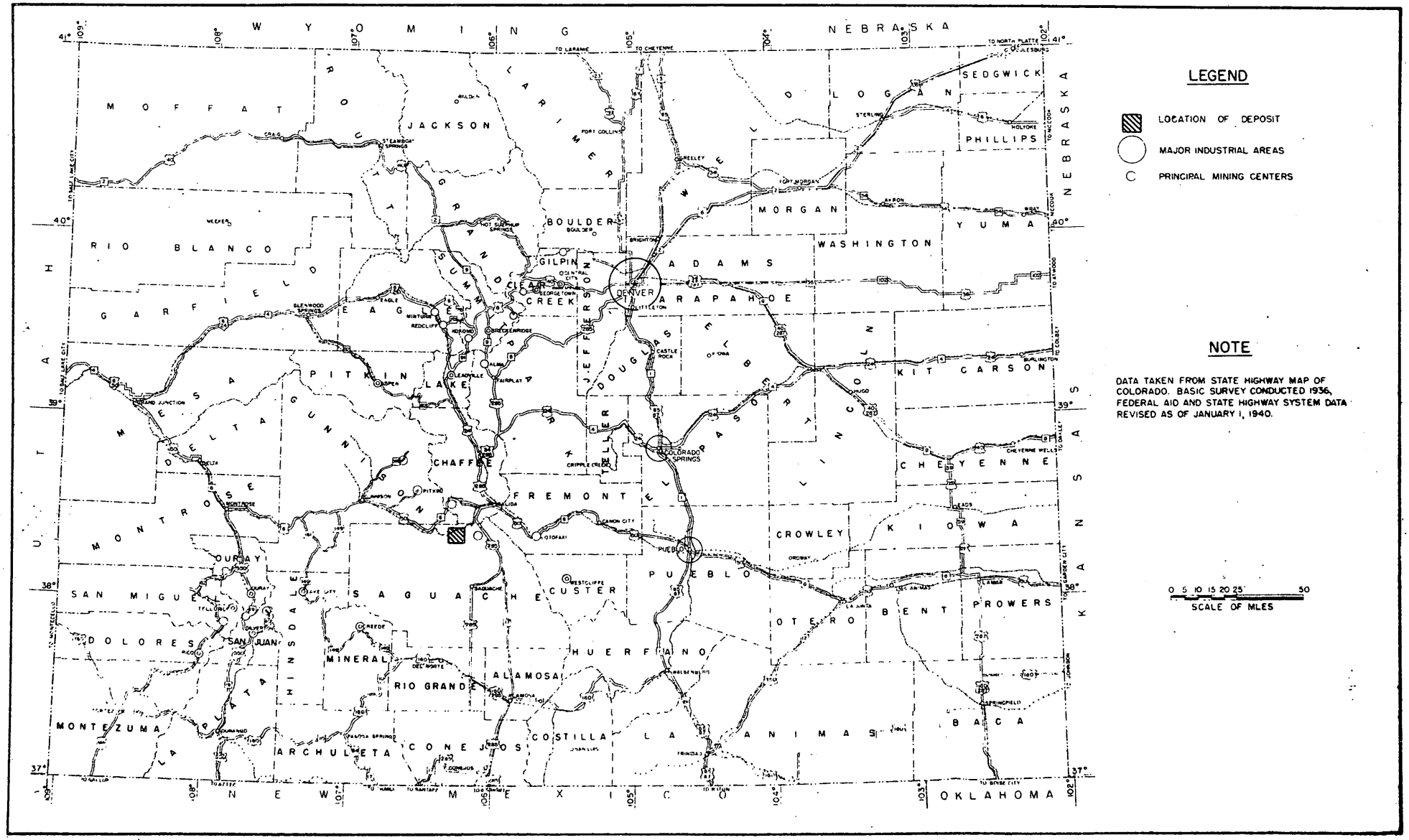

Figure 1. S. E. and W. E. Burleson, Antoro Mine, Saguache County, Colorado. DMEA 2604.

The region is one of short summers and long severe winters with heavy snowfall. Operation throughout the year is possible. During the past winter, one of unusually heavy snowfall, only 3 workings days were lost even though part of the crew traveled from Salida daily. Saguache County road crews do an excellent job of maintenance.

The mine is served by power lines of the Public Service Company of Colorado. Water for drilling purposes is obtained from pumping operations in the mine. Timber is obtained locally or in Salida, and other mining supplies come from Salida or Denver.

Lead-zinc ores from the Bonanza district are marketed at Leadville, Colo., a distance of 105 miles. Smelting ores go to the Arkansas Valley smelter of the American Smelting and Refining Company; sulfide milling ores of the type produced are accepted by the custom plant of the Resurrection Mining Company. The current contract hauling rate from the Antero mine to Leadville is $5.75 per ton.

HISTORY AND PRODUCTION

The Antero mine was worked as early as 1882 but the first reported production was in 1891 and consisted of lead-silver ore from shallow workings. The reported production from 1881 to 1900 was 1,000 tons of lead-silver-zinc ore. The property was operated intermittently from 1908 to 1927 with a production of about 1,400 tons of lead-zinc ore. The last operator of this period was the American Smelting and Refining Company which did considerable exploration on the Antero vein. After 1927 or 1928, the mine was idle until 1947 when the present operations started.

Since 1947, the mine has produced approximately 12,000 tons of lead-zinc ore with an average assay of 0.02 ounce gold and 5.75 ounces silver per ton, 9.79 percent lead, 11.82 percent zinc, and about 1.25 percent copper. The copper is not paid for at the mill. These figures include production through May 1952 and are verified by settlement sheets. The gross value of the total production for the period 1947-1952 is $408,219.85. The total metal content was 2,349,600 pounds of lead and 2,836,800 pounds of zinc.

The gross value of this ore per ton was $34.12 and the net value to the shipper, after treatment, freight, royalty and production tax deductions were made, was $21.28 per ton.

All of this production came from the Northeast and Antoro veins, the largest part coming from the Northeast vein. In the period 1947-50, 1,700 tons were mined from the Antoro vein. Since January 1951, ores from the two veins have not been segregated and the applicant has no records to indicate what proportion came from either vein.

OWNERSHIP AND EXTENT

The Antoro property, comprising 80 patented claims in secs. 7, 8, 17 and 18, T. 47 N., R. 8 E., Kerber Mining District, Saguache County, Colo., is owned by the Weems Weaver Mining Corporation - Joseph H. Murrey, Ernest and Cranmer Building, Denver, Colo., local representative.

The entire property is under lease by assignment from George R. Cassidy, Leadville, Colo., to whom the lease was issued originally, to S. E. Burleson and W. E. Burleson, a partnership. The lease is dated May 20, 1946, to run for 5 years, expiring May 20, 1951. By amendment, the life of the lease was extended to November 1, 1953, with an additional

provision applying all royalties, less production taxes, to an option to purchase at a price of $75,000.00. By letter dated April 16, 1952, the Burlesons have applied for a 5-year extension on the lease and option.

The royalty rates run from 10 percent of the value of ore not exceeding $30.00 per ton net value to 25 percent of the value of ore over $75.00 per ton. Both the amount and rate of royalty are computed on the net value of ore after freight (hauling), treatment, and a production tax of 2 percent have been deducted. Under this schedule, the operators have never paid a royalty of more than 15 percent and most of the ore has been shipped under a 10 percent royalty.

The property covers considerably more ground than is being worked. The Antoro claim - survey number 937, the Poverty - survey number 938, and the Orphan Belle - survey number 14183 amply cover the proposed exploration project.

The applicants have requested subordination agreements from the owners and do not anticipate any difficulty although it is likely to take some time.

DESCRIPTION OF THE DEPOSITS

The ore deposits of the Bonanza district are lenticular bodies in veins occupying premineral faults in the Tertiary lava flows of the San Juan volcanic series which have a thickness of several thousand feet. The veins of the Antoro mine - the Northeast, Zinc, Poverty, and Antoro - are, where being worked, in the Rawley andesite flow at the northeast edge of the San Juan volcanics. The Northeast, Zinc, and Antoro veins strike north to northwest and dip 70 to 80 degrees to the east. The Poverty vein is very flat where exposed at the tunnel level, dipping 40 to 60 degrees to the northeast and striking north 30 to 45 degrees west.

The ore bodies are in small to medium size lenses which are discontinuous. The mineralization is apparently controlled by structural conditions within the veins and by premineral cross faults. Ore shoots sometimes end against cross faults and may or may not continue on the offset fissure on the opposite side of the fault. Stringers of ore often extend into both walls of the stopes a few feet along tension fractures. The cross faults merely affect and limit ore deposition and do not displace ore bodies already formed.

The ore minerals are sphalerite, galena, silver-bearing tennantite, chalcopyrite, and other copper minerals in a gangue of quartz, barite, manganiferous calcite, and rhodonite. Tellurides of gold and silver have been reported. The gangue often contains much premineral gouge which is probably a factor in governing ore deposition.

The ore at the level of present Antore mining operations consists of unaltered lead and zinc sulfides. There is evidently a slight amount of corrosion as evidenced by a small percentage of nonsulfides shown in the mill settlement sheets. The ore width varies from a few inches to over 7 feet. In general, it cannot be profitably worked unless it is at least 1 foot wide although narrower widths from exploration or development work are often saved by blasting separately.

To date, ore bodies have been found in the Northeast, Poverty and Antore veins and the mine workings are shown on figure 2 with the geologic report. The Northeast vein ore shoot is the largest and widest worked by the present operators. It is from 1 to 7 feet wide and assays about 20 percent combined lead and zinc with the zinc content usually being a little over half of the total. The ore shoot on the Poverty vein was mined prior

to 1927. It was stoped out above the tunnel level about 40 feet high and 50 feet long. The stope is 4 feet or more wide, probably on account of the flat dip of the vein rather than the width of the ore. The ore is still continuing downward below the tunnel level. An 18-inch cut taken across heavy sulfide vein matter below the stope assayed a trace gold and 6.7 ounces silver per ton, 24.3 percent lead, 1.0 percent zinc, and 0.2 percent copper.

The Antoro vein is the most extensively developed. It is barren at tunnel level but there are a number of small ore bodies in the upper levels. This ore would not have been profitable in the earlier periods of operation, and former operators did not explore it extensively. The current operators have done considerable exploration on several of the levels above the tunnel and made substantial shipments of lead-zinc ore from this work. The ore width seldom exceeds 2 feet. The combined lead-zinc content is also about 20 percent with the lead usually assaying higher than the zinc.

The walls of the veins vary greatly in character; in the Northeast vein they are generally hard and stand well. Only an occasional stull is required for support. In the Poverty and Antoro veins the walls are not good and must be supported by back filling.

On the Northeast vein the ore can be mined by shrinkage stoping or by open stopes with stull support. On the Antoro vein the ore is mined in filled stopes with cribbed ore passes and manways. The fill is composed of low-grade ore which is shot down after the ore streak is mined out. This material would be low-grade mill dirt but will probably never be recovered because of the condition of the walls. Even if the walls were firm, there is so much clay in the fill that it would have to practically be remined.

MINEABLE ORE RESERVES

Because of the erratic nature of the ore bodies, and because development is rarely carried on very far ahead of stoping operations, no ore reserves can be blocked out. There is ore left at the north end of the Northeast vein stope below the tunnel level and there is ore left on the Antoro vein above the 225 level. Mineable ore on the Antoro vein probably extends to within 125 to 150 feet of surface at the bottom of the zone of oxidation.

PRESENT STATUS

The Antoro was originally developed by a shaft sunk on the Antoro vein from a collar elevation of about 11,800 feet. Later, the present adit tunnel was driven and connected to the shaft by a raise. Thereafter, all operations were carried on through the tunnel. Lateral work totaling 700 feet was done at five levels above the tunnel on the Antoro vein, but very little ore was mined except in the early days from near surface.

On the tunnel level the Poverty vein and Antoro vein have been explored by drifting, and one stope has been mined on the Poverty vein. Several crosscuts driven to explore the area west of the Antoro vein were unproductive.

Near the tunnel portal the Northeast vein was explored by raising, crosscutting, and winzing. Previous to the current operation no ore was found. The present operators found ore in the wall of the original workings above the tunnel level and, later, working through the old winze which they call the "Copper Winze", they found the continuation of the ore body 125 feet below the tunnel level. This ore body has furnished the larger part

of the mine production to date. The applicants state that the ore shoot is still present in the bottom of the winze level but no effort has been made to explore it as yet.

The "Copper Winze" workings are the only workings in the Antero mine below the tunnel level. A drift from the fourth level of the neighbering Rawley mine extends just underneath this winze but was never extended farther north.

In the winter of 1952 the applicants undertook a diamond drilling program under which they drilled four holes at various points. The only one of interest was a hole drilled downward from a crosscut in the hanging wall of the Antero vein at tunnel level which cut a vein some 90 feet below the tunnel level. Excellent values were obtained from the sludge from 93 to 101 feet. The hole started to curve and was cased to 87 feet where the bit was deflected and a new hole drilled through the ore zone. Good values were again obtained from 91 to 101 feet. The sludge from 101 to 106 feet also assayed well but was disregarded in estimating the ore width because a fairly good core recovery made in this interval did not check the sludge. The material in the ore zone generally did not core well and the only recovery was a few fragments of rock containing heavy galena and sphalerite which were shown to the examining team. The hole was continued to a depth of 172 feet without encountering further mineralization.

Disregarding the sludge assay from the section from 101 to 106 feet in the deflected hole, the 10-foot length of hole from 91 to 101 feet and the angle of the hole and of the vein indicate an ore width of about 4 feet.

Assay Results From Sludge Samples

Hole	Footage From	Footage To	Footage Feet	Analyses: Ounces per ton Au	Ounces per ton Ag	Percent Pb	Percent Zn	Percent Cu
First	93	101	8	0.02	4.1	8.9	6.3	-
Second	91	96	5	.03	8.1	18.2	6.1	0.35
Second	96	101	5	.02	5.6	15.5	5.8	.20
Second*	101	106	5	.02	5.0	16.2	16.1	1.3

* Disregard

None of the other holes, which were in different parts of the mine, encountered mineralization of interest.

The veins carry a small amount of water which necessitates pumping in any operation below tunnel level. In the "Copper Winze" there is a flow of about 35 gallons per minute which is handled by a small electric pump. The flow is somewhat more in the spring and decreases in the fall and winter. A similar flow can be expected in any winze operation on the Antore vein.

The mine is fully equipped for a production of 20 to 30 tons per day although current production is not over 10 tons daily.

Surface buildings consist of a change room, compressor room, blacksmith shop, storeroom, and two 75-ton ore bins, one of which is arranged for ore sorting.

A forge and drill sharpener are available for fabricating steel. A ventilating fan is in place but not in use at present. Compressed air for drilling or pumping is furnished by an electrically driven 420 c.f.m. Gardner-Denver compressor which would be adequate for the proposed project.

Tramming on the tunnel level is handled by a compressed air locomotive and eight cars. The "Copper Winze" is equipped with an electric hoist and ore bucket. Tramming on the winze level is done with the bucket on a dolly.

Present production is a little over 200 tons per month with a crew of eight including a foreman and one man employed on surface.

PROJECT PROPOSALS, WITH COSTS

The applicants propose to:

(1) Extend an existing crosscut on the tunnel level 74 feet farther into the hanging wall of the Antero vein.

(2) Excavate for a hoist station and bins and repair some 400 feet of track on the tunnel level for which they already have the rail on hand.

(3) Sink an inclined winze 140 feet deep, including a sump, in the hanging wall of the Antero vein approximately parallel to the dip of the vein.

(4) Cut a station at the 125-foot winze level, drive a crosscut 80 feet to the Antero vein, and explore the vein by 200 feet of drifting.

This program (fig. 2 with the geologic report) is based on the excellent showing in the diamond drill hole and the fact that the Antero and Poverty veins should intersect at a reasonable distance below the tunnel level. The winze is being located in country rock which is solid and will require a minimum of timbering. In addition, by sinking parallel to the vein, the winze can be sunk another lift at a later date without approaching too close to the vein.

Equipment for the project as listed in the cost estimate can be obtained secondhand except for the electric pump. The operators have located most of it at a very reasonable figure.

Transformer capacity at the mine is ample and no new power facilities are needed other than the underground power cable which the applicants have located secondhand.

All other equipment is on hand and will be furnished by the applicants on a depreciation basis.

The mine employs eight men at present. Three of these the applicants propose to use on the exploration project. Presumably, this would reduce production although the applicants state they intend to maintain production at the present rate, if possible.

The present mine foreman would supervise the exploration project on a part time basis.

COST ESTIMATE

Contract Proposals

Applicants' Estimate		Bureau of Mines Estimate	
Initial Rehabilitation and Repairs (Surface)			
None			
New Buildings, Improvements			
None			
Rehabilitation (Underground)*			
Replace 400 feet rail in tunnel (labor only)	$ 192.00	Replace 400 feet of rail in main haulageway between portal and site of winze Estimated labor only	$ 210.00

*Underground labor rate on both estimates: $1.50 per hour, time and one half over 40 hours, 6-day operation.

Contract Work

(To be performed under subcontract which is to include labor, explosives, compensation insurance, and social security)

Tunnel level crosscut 5 feet by 7 feet, 74 feet long - 74 feet at $18.00 per foot	$ 1,332.00	Crosscut 74 feet for car and trammer space to handle rock from winze Estimated contract cost per foot—$18.00	$ 1,332.00
	Cubic feet		Cubic feet
Excavation for bins 8 feet by 16 feet by 20 feet	2,048	Excavation for loading bins above winze 8 feet by 10 feet by 20 feet	1,600
Excavation for hoistroom 8 feet by 10 feet by 40 feet	3,200	Excavation for hoistroom 8-1/2 feet by 8 feet by 20 feet; 10 feet by 8 feet by 20 feet	2,960
Excavation for sheave 4 feet by 5 feet by 15 feet	360	Excavation for sheave 4 feet by 5 feet by 12 feet	240
Excavation from winze collar to bins 7-1/2 feet by 8 feet by 20 feet	1,200	Excavation from winze collar to bins 8 feet by 10 feet by 20 feet	1,600
Excavation at 125-foot level in winze 10 feet by 12 feet by 7 feet	840	Excavation of winze station at 125-foot level 10 feet by 12 feet by 7 feet	840
Excavation total	7,648	Excavation total	7,240
7,648 cubic feet = 283 cubic yards at $12.00 per cubic yard	3,399.60	7,240 cubic feet = 268 cubic yards at $12.00 per cubic yard	3,216.00
Sinking winze 5 feet by 10 feet by 140 feet deep, at $35.00 per foot	4,900.00	Sinking 5-foot by 10-foot winze, 140 feet Estimated contract cost per foot—$40.00	5,600.00
Crosscut to vein on 125-foot level 80 feet at $30.00 per foot	2,400.00	Crosscut to vein on 125-foot winze level, approximately 80 feet Estimated contract cost per foot—$20.00	1,600.00
Exploration drift on the Antoro vein 200 feet at $35.00 per foot	7,000.00	Exploration drift on the Antoro vein, 200 feet Estimated contract cost per foot—$25.00	5,000.00
Total estimated cost of contract work	$19,031.60	Total estimated cost of contract work	$16,748.00

Hourly Rate Labor Supplementing Contract Work*

Laying 74 feet rail in crosscut 3 men, 3 shifts	$ 108.00	Install 74 feet of track, fan line, and air line in crosscut Estimated labor cost	$ 120.00
Install hoist and electric power cable 3 men, 5 shifts at $12.00 per shift	180.00	Install hoist and electric power cable Estimated labor cost	200.00
Install sheave 3 men, 2 shifts, at $12.00 per shift	72.00	Install sheave Estimated labor cost	80.00
Install electric pump, power cable, and pump column in winze 3 men, 5 shifts, at $12.00 per shift	180.00	Install electric pump, power cable, and pump column in winze Estimated labor cost	200.00
Install rail, ladders, and skip in winze 3 men, 13 shifts, at $12.00 per shift	468.00	Install rail, ladders, and skip in winze Estimated labor cost	525.00
Place rail, pipe line, and vent pipe on 125-foot winze level 3 men, 10 shifts, at $12.00 per shift	360.00	Install rail, pipe line, and vent pipe on 125-foot winze level Estimated labor cost	390.00
Timbering bins and hoist-room 3 men, 12 shifts, at $12.00 per shift	432.00	Timbering bins and hoist-room Estimated labor cost	390.00
		Timbering 125-foot level crosscut Estimated labor cost	200.00
		Timbering 125-foot level drift Estimated labor cost	1,000.00
Total hourly labor supplementing contract work	$ 1,800.00	Total hourly labor supplementing contract work	$ 3,105.00

*Underground labor rate on both estimated: $1.50 per hour, time and one half over 40 hours, 6-day operation.

Labor, Supervision, and Technical Services

Labor
(surface and tunnel level)

Air locomotive operator Charge 3/4 of time to project - 3/4 of 228 shifts at $12.00	$ 2,223.00	One air locomotive operator 1/2 time for 10 months, at $12.00 per day plus overtime	$ 1,710.00
Surface labor, 1 man Charge 1/2 time to project - 1/2 of 228 shifts at $10.00	1,235.00	One surface laborer 1/2 time for 10 months, at $10.00 per day plus overtime	1,425.00
Hoistman (after winze is sunk) 110 shifts at $12.00	1,428.00	One hoistman (after winze is sunk) 1/2 time for 4 months, at $12.00 per day plus overtime	1,368.00
	$ 4,886.00		$ 4,503.00

Supervision

Foreman $400.00 per month, 2/3 to project for 9.12 months	$ 2,431.94	Foreman 1/2 time for 10 months, at $400.00 per month	$ 2,000.00

Technical Services

Engineering, part time, at $150.00 per month (salary rate not given)	$ 1,368.00	Engineering Part time for 10 months at actual cost of $100.00 per month	$ 1,000.00
Total labor, supervision, and technical services	$ 8,685.94	Total labor, supervision, and technical services	$ 7,503.00

Operating Materials and Supplies

Timber	$ 644.50	Timber	$ 644.50
Explosives	—	Explosives	—
Pipe	483.70	Pipe	700.00
Track	739.70	Track	738.70
Ventilating pipe	275.00	Ventilating pipe	275.00
Gasoline, oil, tires, etc. for bus	456.00		
Miscellaneous (nails, belts, etc.)	178.00	Miscellaneous	180.00
Drill bits and rods	150.00	Drill bits and steel	150.00
Power (1/2 of $240.00 per month estimated charge)	1,094.44	Power (1/2 of $240.00 per month estimated charge)	1,200.00
Total operating materials and supplies	$ 4,021.34	Total operating materials and supplies	$ 3,888.20

Operating Equipment

Purchase

1-car skip, used	$ 100.00	1-car skip, used	$ 100.00
1,300 feet 3-conductor, 440-volt cable, used	975.00	1,300 feet 3-conductor, 440-volt cable, used	975.00
Hendrie and Bolthoff electric hoist and cable, used	650.00	Hendrie and Bolthoff electric hoist and cable, used	650.00
24- to 30-inch sheave	75.00	24- to 30-inch sheave	75.00
Hoist motor, 20 horsepower, used	250.00	Hoist motor, 20 horsepower, used	250.00
Switches, controller, etc.	350.00	Switches, controller, etc.	350.00
Allis Chalmers size 2 pump with motor	450.00	Allis Chalmers size 2 pump with motor	450.00
Drill hoses, new, 2 sets	110.00	Drill hoses, new, 2 sets	110.00
2 Hoist buckets, used	150.00	2 Hoist buckets, used	150.00
	$ 3,110.00		$ 3,110.00

Operating Equipment (continued)

Depreciation

420 c.f.m. compressor	$ 364.80	420 c.f.m. compressor, pro rata (1/2) 10 months at $30.00	$ 300.00
Mucking machine, 3 months at $40.00	120.00	Mucking machine, 3 months at $40.00	120.00
Air slusher, complete, 4 months at $20.00	80.00	Air slusher, complete, 4 months at $20.00	80.00
Air trammer at $30.00 per month	205.20	Air trammer, 1/2 of 10 months at $30.00 per month	150.00
8 Mine cars at $3.00 each per month	164.16	8 Mine cars at $3.00 each per month	165.00
1 Drill, 9.12 months at $20.00	182.40	Drill, 10 months at $20.00	200.00
Chicago-Pneumatic sump pump, 3-1/2 months at $10.00	35.00	Chicago-Pneumatic sump pump, 4 months at $10.00	40.00
Water tank for drilling, 10 months at $1.00	10.00	Water tank for drilling, 10 months at $1.00	10.00
Shop equipment, 1/2 of $40.00 per month	182.40	Shop equipment, 1/2 of $40.00 per month for 10 months	200.00
Electric mine lamps, 9.12 months	34.20	Electric mine lamps, 10 months	37.50
Rental on bus, 1/2 of $39.00 per month for 9.12 months	177.84		
	$ 1,556.00		$ 1,302.50
Total operating equipment	$ 4,666.00	Total operating equipment	$ 4,412.50

Miscellaneous

Repairs to equipment, 9 months at $2.00 per day	$ 456.00	Repairs to equipment, 10 months at $2.00 per day	$ 500.00
Office expense 9.12 months at $20.00 per month	182.40	Office expense 10 months at $20.00 per month	200.00
Workman's compensation insurance on payroll of $10,677.94 at $2.47 per $100.00	263.75	Workman's compensation insurance on payroll of $10,818.00 at $2.47 per $100.00	267.20
Employer's social security tax, at 1.5 percent	160.17	Employer's social security tax, at 1.5 percent	162.27
Employer's Colorado unemployment tax, at 2.7 percent	288.30	Employer's Colorado unemployment tax, at 2.7 percent	292.09
		Assaying	100.00
Total miscellaneous	$ 1,350.62	Total miscellaneous	$ 1,521.56

COST RECAPITULATION

	Applicants' estimate		Bureau of Mines estimate	
Rehabilitation (underground)		$ 192.00		$ 210.00
Contract work		19,031.60		16,748.00
Hourly rate labor supplementing contract work		1,800.00		3,105.00
Labor and supervision				
Labor	$4,886.00		$4,503.00	
Supervision	2,431.94		2,000.00	
Technical services	1,368.00	8,685.94	1,000.00	7,503.00
Operating materials and supplies		4,021.34		3,888.20
Operating equipment				
Purchase	$3,110.00		$3,110.00	
Depreciation	1,556.00	4,666.00	1,302.50	4,412.50
Miscellaneous		1,350.62		1,521.56
Totals		$39,747.50		$37,388.26
			Rounded to	$37,400.00

TIME SCHEDULE

	Applicants' estimate		Bureau of Mines estimate	
	shifts	days	shifts	days
Replace rail on tunnel level	16	8	16	8
Crosscut on tunnel level 75 feet	75	25	75	25
Laying rail, pipe, etc. in tunnel crosscut	9	3	9	3
Excavating bins, hoistroom, etc.	153	51	90	30
Installing cable hoist, sheave, etc.	30	10	21	7
Timbering bins and hoistroom	36	12	30	10
Sinking winze 2 feet per shift	210	70	210	70
Installing pump column, skip rails, and skip	54	18	45	15
Excavation, 125-foot winze station			15	5
Crosscutting on 125-foot winze level 80 feet	96	32	54	27
Exploration drift on 125-foot level 200 feet	150	50	100	50
Installation of rail, pipe line, fan line on 125-foot level	30	10		
Totals	859	289	665	250
			10 months	

Some of the items included in the applicant's estimate are questionable so far as being justified by the requirements of the project. The relaying of 400 feet of track on the tunnel level is not absolutely necessary. However, inasmuch as the rail will be furnished without cost to the project, the improvement of the track may eliminate trouble later when the traffic load is increased. It is, therefore, recommended at a maximum cost of $192.00.

The excavation of two bins at the winze collar is not necessary for the exploration project, and the Bureau recommends limiting this work to the excavation of one bin or hopper large enough to hold one winze round. The operator can add another bin later if he desires.

The planned use of a skip in the winze, after sinking is completed, is not absolutely essential but can be justified in that it will probably facilitate the exploration work on the winze level with a possible saving in time and money. At any rate the cost of the skip which the applicants have located is only $100.00 and is recommended.

An air pump which is to be used for sinking would still be usable during operations on the winze level. The applicants plan to borrow another pump for emergency service. However, because the repairs to the air pumps are likely to be frequent and expensive and because of the possibility of encountering more water in drifting on the Intero vein than is anticipated, the purchase of an electric pump is recommended.

Inclusion of a pro rata share of the cost of running a daily bus service from Salida to the mine in the exploration cost is not standard practice although it seems to be accepted in Bonanza as a necessary service to keep men. However, it is a service which will be continued by the applicants whether or not the exploration project is approved, and is not recommended or included as a project cost. If it should be decided by the Regional Field Team to allow this as a project cost, it should be written into the contract as stated in DMEA Circular 19, Supplement I, Paragraph A.

The cost estimate compares the applicants' estimate with that of the Bureau engineer. The pro rata distribution of the cost of some items, particularily labor and supervision which is shared with regular mine operations, is questioned by the Bureau. A distribution which seems more equitable is suggested in the Bureau estimate.

Contract driving rates quoted by the applicants do not show a differential between sinking operations and level operations through the winze. A more logical rate is suggested in the Bureau estimate. If a crosscut on the tunnel level costs $18.00 per foot, contract labor price, crosscuts and drifts on the 125-foot winze level should cost but little more, particularily as the applicants propose to furnish the hoist operator. The applicants' rate of $35.00 per foot, contract labor price, for sinking the winze, including a hoist operator, appears low, and a price of $40.00 is suggested. These prices include power, compensation insurance and social security costs, which seems to have been the accepted procedure in this district in the past.

The time shedule proposed by the applicants agrees very well with that of the Bureau.

PRODUCTION PLAN

If the proposed exploration is successful, the operation could, as equipped, produce 25 to 30 tons per day with a crew of twelve to fifteen men. However, the operators are more likely to continue on a smaller scale, producing up to 15 tons daily. The system of cribbed manways and ore passes and back-filled stopes, as now practiced on the Antero vein above the tunnel level, would probably be used.

The underground operations are being currently carried on by sub-lessees who furnish all underground labor and explosives and receive 50 percent of the net mill returns after freight, treatment, royalty and production tax are deducted. The applicants plan to mine any ore found during the proposed exploration under the same arrangement. Thus, the underground labor and explosive cost becomes 50 percent of the net returns on ore, about $10.00 per ton on current ore which has an average

gross value of about $33.00 or $20.00 per ton net value (lead at $0.16 per pound and zinc at $0.15 per pound). The operators' overhead costs, including foreman, surface labor, supplies, and repairs, are about $5.00 per ton, making a total mining cost of $15.00 per ton. This leaves an operating gain of $5.00 per ton which should cover other costs, including Government royalty of $1.00 per ton, and leave a reasonable profit. Any ore found during the exploration is likely to be of a grade similar to that presently being mined.

The applicants propose to furnish their share of the exploration costs from rental on equipment they will furnish, profit from current production, and capital.

CONCLUSIONS

The proposed exploration project has an excellent chance of opening up a good grade of lead-zinc ore similar to that now being mined. Quoting W. S. Burbank on page 130 of U. S. Geological Survey Professional Paper 169:

> "Although the fissure is tight on the main adit, the mineralogical character of the ore just above the level does not indicate the bottom of mineralization has been reached. Should the vein widen below the adit level within the next few hundred feet, there might be additional bodies of zinc-lead or silver-copper ore."

The results of the diamond drill hole indicate that the vein has widened and a zinc-lead ore body may have been cut. The strikes and dips of the Antoro and Poverty veins indicate that the diamond drill hole has cut the possible intersection of the two veins. There are two other possibilities: the Poverty vein may have steepened below the adit level and there is no intersection, or the Poverty vein may join the Antoro vein and continue downward with it.

There is a possible intersection of the two veins along the strikes going southeast on the tunnel level. A map in U. S. Geological Survey Professional Paper 169 shows a crosscut near this point. The map furnished by the applicants shows only the start of this crosscut and it is now inaccessible. The intersection here is of no great interest, however, because the Antero vein is barren on the tunnel level.

On the basis of present knowledge, no good estimate of the tonnage of ore which might be found between the tunnel level and the proposed 125-foot winze level is possible. A similar block on the Antero vein above the tunnel level has probably produced between 2,500 and 3,000 tons of ore. This compares with 17,000 tons of ore, gross value $33.00 per ton, the estimated grade which must be mined to return the Government its share of the exploration cost. This tonnage is not likely to be produced from the winze operation. If the applicants would agree to pay a royalty on all production from the mine after a contract is signed, the Government would have a much better chance to recover its expenditure.

The Antero mine is well managed. The operators have a long record of reliability and successful mine operation. They have paid back in full three Reconstruction Finance Corporation loans obtained during World War II.

The proposed exploration project is well planned and the applicants are competent to carry it through.

On an estimated production of 375 tons of ore per month, which is possible after exploration is completed, there would be a production of 70,000 pounds of lead and 60,000 pounds of zinc per month.

RECOMMENDATIONS

It is recommended that an exploration contract rounded to $37,400.00, Government participation 50 percent or $18,700.00, be approved with the provision that production from the entire mine will be subject to a Government royalty. The Bureau engineer believes this would be advisable because the prospective production from the block to be explored will probably furnish less than one fourth of the tonnage necessary to return the Government its expenditure in royalties.

The total approved above is about $2,350.00 less than the applicants' estimate. The difference is in the distribution of some costs which are charged jointly to the exploration project and to regular mine operations. The cost of running a bus from Salida to the mine is also omitted in the Bureau estimate.

bam

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

224 New Customhouse
Denver 2, Colorado

September 28, 1953

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA-2604 (Lead-Zinc), Contract Idm-E492, S. E. Burleson and W. E. Burleson, Saguache County, Colorado

Enclosed are three copies of "Notice of Rescission of Exploration Project Contract, Under the Terms of the Contract, Before the Work is Begun" which was prepared in conformance with authority granted in a teletype from you dated August 31, 1953.

The original notice has been mailed to the operator, a copy has been given to the Fiscal Officer, Region IV, and a copy retained for our files.

W. H. King
W. H. King

Enclosures

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

SEP 25 1953

S. E. Burleson and W. E. Burleson, Saguache County, Colorado
Docket No. DMEA 2604 - Contract No. Idm-E492

Contract dated February 24, 1953, total amount $26,600.00.

Contract work program calls for track repair, 154 feet of crosscutting, cutting out hoistroom and pocket, with timbering, 140 feet of winze sinking, winze station, and 200 feet of drifting.

Work was to start within 60 days but, by various requests, has been postponed and so far not instituted.

Would recommend that should be required to start soon, or terminate.

W. R. Griswold

The mine had previously produced from small lead-zinc ore lenses of good grade from upper levels, but lowest level was barren. However diamond drill hole cut four feet of good ore below lowest level. Project must be considered as meritorious but, from past history, any ore bodies encountered would likely be of small extent.

C
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DN 235 BUREAU MINES 8/26/53 9:16AM

C O MITTENDORF

REFERENCE DOCKET DMEA 2604, LEAD-ZINC, CONTRACT IDM-E-492, S. E. BURLESON AND W. E. BURLESON, AMENDMENT NO. 1 EXTENDED STARTING DATE TO JUNE 24, 1953 HOWEVER NO WORK HAS BEEN PERFORMED TO DATE. SHALL WE GRANT EXTENSION OF STARTING DATE IF OPERATOR REQUESTS IT. PLEASE TELETYPE STATEMENT OF POLICY REGARDING MATTERS OF THIS NATURE IN CONNECTION WITH MINERALS REMOVED FROM THE STRATEGIC LIST.

/s/ W. H. KING

Keating
Approved

Betty

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

224 New Customhouse
Denver 2, Colorado

June 19, 1953

Memorandum:

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

From: Executive Officer, DMEA Field Team, Region IV

Subject: Amendment No. 1, Contract Idm-E492, Docket DMEA 2604, Burleson and Burleson, (Lead-Zinc) Saguache County, Colorado

Enclosed are the original and two copies of Amendment No. 1 to Contract Idm-E492.

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

Also enclosed are three copies of the letter from the operator requesting this amendment, and three copies of a telegram from the Chairman of the Operating Committee approving this request.

W. H. King

W. H. King

Enclosures

JFS:ld

cc: Traver
Koechmann
sub
chron

1-1027
(April 1946)

UNITED STATES
DEPARTMENT OF THE INTERIOR

AGENCY BUREAU OF MINES

Originator: Bureau of Mines Washington, D.C.

TELETYPE

Ext.: Room:

Appro.:
Date: May 18, 1953
Time: 18-13 PM
No.:
To: W. E. King,

Subject:

REFERENCE MAY 8, DOCKET NO. DMSA - 2604,, CONTRACT IDM-2498, S. E. AND W. E. BUELBROCK. YOU MAY EXTEND STARTING DATE AS REQUESTED.

W S MARKUS ACTING CHAIRMAN
OPERATIONS CON.

Authorized:

Sign original message and transmit to Room ..... in duplicate

U. S. GOVERNMENT PRINTING OFFICE 16—50915-1

DMEA

W RGriswold/bjl
3669 4058

May 14, 1953

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

Heurlet May 8, Docket No. DMEA-2604, Contract Idm-8492, S. E. and W. E. Burleson. You may extend starting date as requested.

W. S. Martin
W. S. Martin
Acting Chairman, Operating Committee

Copy to: Docket
Admr. R. File
Op. Committee
Base Metals Div. (DMEA)
Mr. Bishop (BOM)
Mr. Kinkel (USGS)
Accounts
Chron.

SENT
MAY 18 1953
Clerical Service Section

May 13, 1953

United States Department of the Interior
W.H. King, Executive Officer O.M.E.A.
204 New Custom House,
Denver 2, Colorado

Re: E.M.E.A. (Lend-Lease)
Contract Idm-2193
S.W. & W.E. Burleson

Dear Mr. King:

In regards to your letter of April 30 th, pertaining to commencement of work, I would appreciate an extension of forty-five (45) to sixty (60) days if possible. My main reason for requesting this additional time is to see what action our Government may take in behalf of the metal mines.

I hope this will meet with your approval.

Yours very truly.

S.W. & W.E. Burleson

By: W. E. Burleson

WEBimsm
Enc.

Granold
Kelly

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

224 New Customhouse
Denver 2, Colorado

May 8, 1953

Memorandum

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

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA 2604, Contract Idm-E492, S. E. Burleson and W. E. Burleson

Enclosed are two copies of a letter from W. E. Burleson requesting an extension of the starting date under Contract Idm-E492.

Please give us your recommendations.

W. H. King
W. H. King

Enclosures

JWS:ld

cc: Townsend
Traver
Koschmann
sub
chron

COPY

MINING AND LEASING
P. O. Box 209
Salida, Colorado

May 7, 1953

United States Department of the Interior
W. H. King, Executive Officer, D.M.E.A.
224 New Custom House
Denver 2, Colorado

Re: Docket No. D.M.E.A. 2604

Dear Mr. King:

In regards to your letter of April 30th., pertaining to commencement of work, I would appreciate an extension of forty-five (45) to sixty (60) days if possible. My main reason for requesting this additional time is to see what action our Government may take in behalf of the metal mines.

I hope this will meet with your approval.

Yours very truly,

S.E. & W. E. Burleson

by /s/ W. E. Burleson

WEB:ic

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

C
O
P
Y

224 New Customhouse
Denver 2, Colorado

May 8, 1953.

Memorandum

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

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA 2604, Contract Idm-E492, S. E. Burleson and W. E. Burleson

Enclosed are two copies of a letter from W. E. Burleson requesting an extension of the starting date under Contract Idm-E492.

Please give us your recommendations.

W. H. King

Enclosures

JFS:ld

cc: Townsend
Traver
Koschmann
Sub
Chron.

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

Greenwald
Betty

224 New Customhouse
Denver 2, Colorado

April 30, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration
DENVER
MAY 4 1953

Mr. W. E. Burleson
P. O. Box 209
Salida, Colorado

Dear Mr. Burleson:

Reference is made to exploration project contract Idm-E492 between the Government and a partnership consisting of S. E. Burleson and W. E. Burleson. The effective date of the contract is February 24, 1953. Under the terms of this contract you were to have started work within sixty days of the effective date.

However, in your letter dated February 19, 1953, with which you enclosed the six signed copies of a contract, you stated that you would appreciate not commencing exploration work before May 1, 1953. If you have not yet started work under the terms of this contract, please advise this office when you plan to do so.

Yours very truly,

/s/ W. H. King

W. H. King
Executive Officer
DMEA Field Team

JFS:ld

cc: Mittendorf ✓
Koschmann
Traver
Subject
Chron

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

224 New Customhouse
Denver 2, Colorado

Registered Mail

74318

February 26, 1953

Memorandum

DEPARTMENT OF THE INTERIOR
Defence Minerals Administration
RECEIVED
MAR 2 1953

To: C. O. Mittendorf

From: Executive Officer, Field Team, Region IV

Subject: DMEA Docket 2604, Contract Idm-[redacted], W. E. and S. E. Burleson

Enclosed are the original and two copies of Contract No. Idm-[redacted]. Copies of this contract have been given to the operator, the fiscal office of Region IV and a copy has been retained for our files.

W. H. King
W. H. King

Enclosures

GOVERNMENT COPY

NOTICE OF RESCISSION OF EXPLORATION PROJECT CONTRACT, UNDER THE TERMS OF THE CONTRACT, BEFORE THE WORK IS BEGUN

Messrs. S. E. Burleson and W. E. Burleson
P. O. Box 209
Salida, Colorado

Operators under Exploration Project
Contract Idm-E492, Docket No. DMEA-2604,
dated February 24, 1953

The United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, under the terms of the above mentioned contract, hereby rescinds the contract on the following grounds:

> In the opinion of the Government, you have failed to prosecute operations pursuant to the terms of the contract in that you have failed to commence work under the terms of the contract or Amendment No. 1 dated June 19, 1953.

Dated this 25th day of September, 1953.

UNITED STATES OF AMERICA

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

[illegible] Defense Mobilization Administration

[illegible] 1954

[illegible], Working [illegible],
August 11, 1953

E-492

Mr. [illegible], Executive [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], [illegible], Tobacco
[illegible], August 6, [illegible], [illegible], [illegible], [illegible].

[illegible] policy statement, [illegible] considered individually. Spirit of [illegible] directive indicate further consideration [illegible] funds for [illegible] removed from [illegible] order-1 [illegible] letter of disagreement with [illegible] date [illegible]. Two days [illegible] existing contracts involving ineligible commodities [illegible] shall be used only when in best interests of Government [illegible]. Typical examples [illegible] incomplete or where otherwise [illegible] investment already made. [illegible] believe our interest [illegible] directive [illegible] by terminating contracts [illegible] authority [illegible] prepare such notice [illegible]

[illegible]

contract [illegible] contract, [illegible] make [illegible] already [illegible] notice.

Confidential/W
8/31/53

cc: [illegible]
Mills [illegible]
JD. Committee
[illegible]
Mr. Bishop - [illegible]
Mr. Sinkel - [illegible]
Contract [illegible]

SENT
AUG 31 1953
Clerical Service Section

No. 1

AMENDMENT OF CONTRACT: No. Idm-E492

Contract Docket No. DMEA 2604, dated February 24, 1953, between the United States of America and S. E. Burleson and W. E. Burleson, a partnership is hereby amended as follows, effective as of the date of said contract:

> Referring to "Article 3. Exploration Project" of Exploration Project Contract Form MF-200(A), delete "60" and in lieu thereof insert "120."

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

Dated: June 19, 1953

By S. E. Burleson
S. E. Burleson, Partner

By W. E. Burleson
W. E. Burleson, Partner

UNITED STATES OF AMERICA

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

1-1027
(April 1946)

UNITED STATES
DEPARTMENT OF THE INTERIOR

AGENCY BUREAU OF MINES

Originator: Bureau of Mines Washington, D.C.

TELETYPE

Ext.: Room:

Appro.:
Date: May 18, 1953
Time: 12-13 PM
No.:
To: W. H. King,

Subject:

REFERENCE MAY 8, DOCKET NO. DMRA - 2604,, CONTRACT IDM-2492, S. E. AND W. E. HUELSKOM. YOU MAY EXTEND STARTING DATE AS REQUESTED.

W S MARING ACTING CHAIRMAN
OPERATING COM.

Authorized:

Sign original message and transmit to Room ..... in duplicate

U. S. GOVERNMENT PRINTING OFFICE 16—50915-1

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

C
O
P
Y

224 New Customhouse
Denver 2, Colorado

May 8, 1953.

Memorandum

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

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA 2604, Contract Idm-E492, S. E. Burleson and W. E. Burleson

Enclosed are two copies of a letter from W. E. Burleson requesting an extension of the starting date under Contract Idm-E492.

Please give us your recommendations.

W. H. King

Enclosures

JFS:ld

cc: Townsend
Traver
Koschmann
Sub
Chron.

May 13, 1953

United States Department of the Interior
W.H. King, Executive Officer D.M.E.A.
224 New Custom House,
Denver 2, Colorado

Re: D.M.E.A. (Lead-Zinc)
Contract Idm-2492
S.E. & W.E. Burleson

Dear Mr. King:

In regards to your letter of April 30 th, pertaining to commencement of work, I would appreciate an extension of forty-five (45) to sixty (60) days if possible. My main reason for requesting this additional time is to see what action our Government may take in behalf of the metal mines.

I hope this will meet with your approval.

Yours very truly.

S.E. & W.E. Burleson

By: W. E. Burleson

WEB:mem
Enc.

Docket No. DMEA 2604

Commodity Lead-Zinc

DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

STRATEGIC AND CRITICAL MINERALS EXPLORATION PROGRAM

CANCELLED:

TO: Chief, Finance Section, Budget and Finance Branch, Bureau of Mines

Please enter on the records of the Defense Minerals Exploration Administration, under the Strategic and Critical Minerals Exploration Program, the following contract, or amendment to contract.

Contract No. Idm-E 492

Date of Contract ~~or amendment~~ Ø February 24, 1953

Name and Address of Operator:

S. E. Burleson and W. E. Burleson
P. O. Box 209
Salida, Colorado

Amount of Government participation $ 13,300.00

Percent of Government participation 50 %

Region: IV State: Colorado

NOTE: Please release $13,300; contract cancelled;

Jay L. Chambers
(Name)

J. L. Chambers,
Chief, Contract Administration and Audit Division
(Title)

Date Delivered to Bureau of Mines, Washington. 10/1/53

13908

Docket No. Idm 2004

Commodity Lead-Zinc

DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

STRATEGIC AND CRITICAL MINERALS EXPLORATION PROGRAM

TO: Chief, Finance Section, Budget and Finance Branch, Bureau of Mines

Please enter on the records of the Defense Minerals Exploration Administration, under the Strategic and Critical Minerals Exploration Program, the following contract, or amendment to contract.

Contract No. Idm-E 492

Date of Contract or ~~Amendment~~: February 24, 1953

Name and Address of Operator:

S. E. Burleson and U. E. Burleson, (partnership)
P. O. Box 209
Salida, Colorado

Amount of Government participation $ 13,300.00

Percent of Government participation 50 %

Region: IV State: Colorado

(Name)

J.L. Chambers,
Chief, Contract Administration and Audit Division
(Title)

Date Delivered to Bureau of Mines, Washington. Feb. 25, 1953 13808

MF-200 (A)
(February 1952)

DOCKET NO. DMEA 2604

COMMODITY Lead-Zinc

Idm-E492

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 2 1953

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

EXPLORATION PROJECT CONTRACT[1]
(Short Form)

IT IS AGREED this 24th day of February, 1953, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and[2] S. E. Burleson and W. E. Burleson, a partnership
P. O. Box 209
Salida
Colorado

hereinafter called the "Operator," as follows:

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

ARTICLE 2. *Operator's property rights.*—With respect to that certain land situated in the State of Colorado, County of Saguache, described as follows:[3]
The following patented Lode Mining Claims;
Ouray - U. S. Survey 14183
Antoro - U. S. Survey 937

the Operator represents and undertakes:[4]

~~(a) That the Operator is the owner in possession and entitled to possession, and that the property is subject only to the following exceptions or encumbrances, in each of which the exploration agreement of the lessee is attached~~

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

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

ARTICLE 3. *Exploration project.*—The Operator, within 60 days from the date of this contract shall commence work on a project of exploration for[5] Lead-Zinc

in or upon the described land; and shall bring the project to completion within a period of 12 months from the date of this contract. The work to be performed is more fully described in Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, are made a part of this contract. The Government will contribute to the cost of this work as hereafter provided. The work shall be performed by the Operator or by independent contractor or contractors efficiently, expertly, in a workmanlike manner, in accordance with good mining standards and State regulations for health and safety and for workmen's compensation and employers' liability insurance, with suitable and adequate equipment, materials, and labor, to bring the project to completion within the time fixed. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

ARTICLE 4. *Costs of the project.*—The agreed, estimated costs of performing the work, expressed in terms of units of work to be performed (per foot of drifting, per foot of drilling, per cubic yard of material to be moved, etc.) are set forth in Exhibit "A," attached hereto. The Government will pay 50 percent of these agreed, estimated costs, as they accrue, for units of work actually performed that conform with the description or specifications for the work set forth in this contract, in an aggregate total amount not in excess of $13,300, which is 50 percent of $26,600, the agreed, estimated total cost of the project in which the Government will participate: *Provided,* That until the Operator's final report and final accounting have been rendered to the Government and any final check or auditing required by the Government has been made, and a final settlement of the contract has been made, the Government may withhold from the last voucher or vouchers such sums as it sees fit not in excess of ten (10) percent of the maximum total which the Government might have been called upon to pay under the terms of the contract. The Government may, as it sees fit, make payments direct to the Operator's independent contractors, if any, for the account of the Operator, rather than to the Operator.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARTICLE 9. *Changes and added provisions* _____

_____

_____

_____

_____

Executed in sextuplicate the day and year first above written.

S. E. Burleson
(Operator)
W. E. Burleson
By _____

THE UNITED STATES OF AMERICA
JWO
2 LSB

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

I, _____, certify that I am the _____ secretary of the corporation named as Operator herein; that _____, who signed this contract on behalf of the Operator, was then _____ of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

_____ [CORPORATE SEAL]

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

EXHIBIT "A"

Description of the Work

Extend the existing crosscut on the adit level 74 feet into the hanging wall of the Antoro vein as shown on the attached map Figure 2.

Excavate for a hoist station and waste pocket and repair approximately 400 feet of track on the tunnel level by installing new rails which are already on hand.

Sink an inclined winze 140 feet, including a sump, in the hanging wall of the Antoro vein approximately parallel to the dip of the vein.

Cut a station at the 125-foot winze level, drive a crosscut 80 feet to the Antoro vein, and explore the vein by 200 feet of drifting. The work is shown on Figure 2 which is made a part of this Exhibit "A."

Estimated Costs of the Project

Crosscutting 154 feet at $35.00 per foot	$5390.00
Repair 400 feet of track. Total including new track 1/	210.00
Excavation - Approximately 270 cu. yds. for waste pocket, hoistroom, sheave wheel, and from winze collar to pocket 1/	3216.00
Timbering waste pocket and hoistroom 1/	784.00
Sinking winze 140 feet at $70.00 per foot	9800.00
Excavation, timber and timbering of winze station at the 125 foot level 1/	200.00
Drifting 200 feet at $35.00 per foot	7000.00
Total Cost of Project	$26,600.00
Government participation - 50%	$13,300.00

1/ The entire work constitutes the unit of work.

MF-203

OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of Colorado, County of Saguache, described as follows:1/

Ouray Mining claim U.S. Survey No. 14183

Antoro Mining claim U.S. Survey No. 937

which is the subject of a proposed exploration project contract, hereinafter called the "contract", between the United States of America, hereinafter called the "Government", and

2/ S. E. Burleson and W. E. Burleson, a partnership

hereinafter called the "Operator"; and

WHEREAS, under certain provisions of said contract which are set forth on the reverse side hereof, the Government is entitled to a percentage royalty on production and to certain other rights and equities which do or may conflict with or be adverse to the interest of the undersigned in said property;

NOW THEREFORE, the undersigned, in consideration of said contract and as an inducement to the Government to enter into same, undertakes and agrees as follows:

1. The Government's equity in and right to dismantle, sever, take possession of, and remove and dispose of facilities, buildings, fixtures, equipment, or other items as provided in the contract, or any amendment thereof, shall prevail over and be prior and superior to any conflicting or adverse rights of the undersigned, and the Government is authorized to enter upon the land for such purposes.

2. To secure the payment to the Government of the percentage royalty on production3/ provided for under the terms of said exploration project contract, or any amendment thereof which does not increase the maximum amount of the Government's claim here stated or alter the provisions for repayment, there is hereby granted to the Government a lien upon the land herein described and upon any production of minerals therefrom, until the royalty claim is fully paid in the amount of the Government's contribution, not in excess of 4/$ 13,300.00, or ten years have elapsed from the date of the contract.

3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights of the Government under the provisions of said contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

Dated this 26th day of November, 1952.

THE WEEMS-WEAVER MINING CORPORATION [Seal]

Lillian H. Weaver [Seal]
President

Clifton D. Weaver [Seal]
Secretary

1/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in book _____ page _____ official records of said county." If (b) is used, the book and page of recordation cannot be dispensed with. If the space provided is insufficient, use an Annex, and refer to the Annex in the space.

2/ Insert the name of the Operator as it will appear in the exploration project contract.

3/ Mining or production from the land is not required, and in the absence of production there is no obligation to repay the Government.

4/ Insert the maximum amount of the Government's contribution.

RELEVANT CONTRACT PROVISIONS

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

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

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

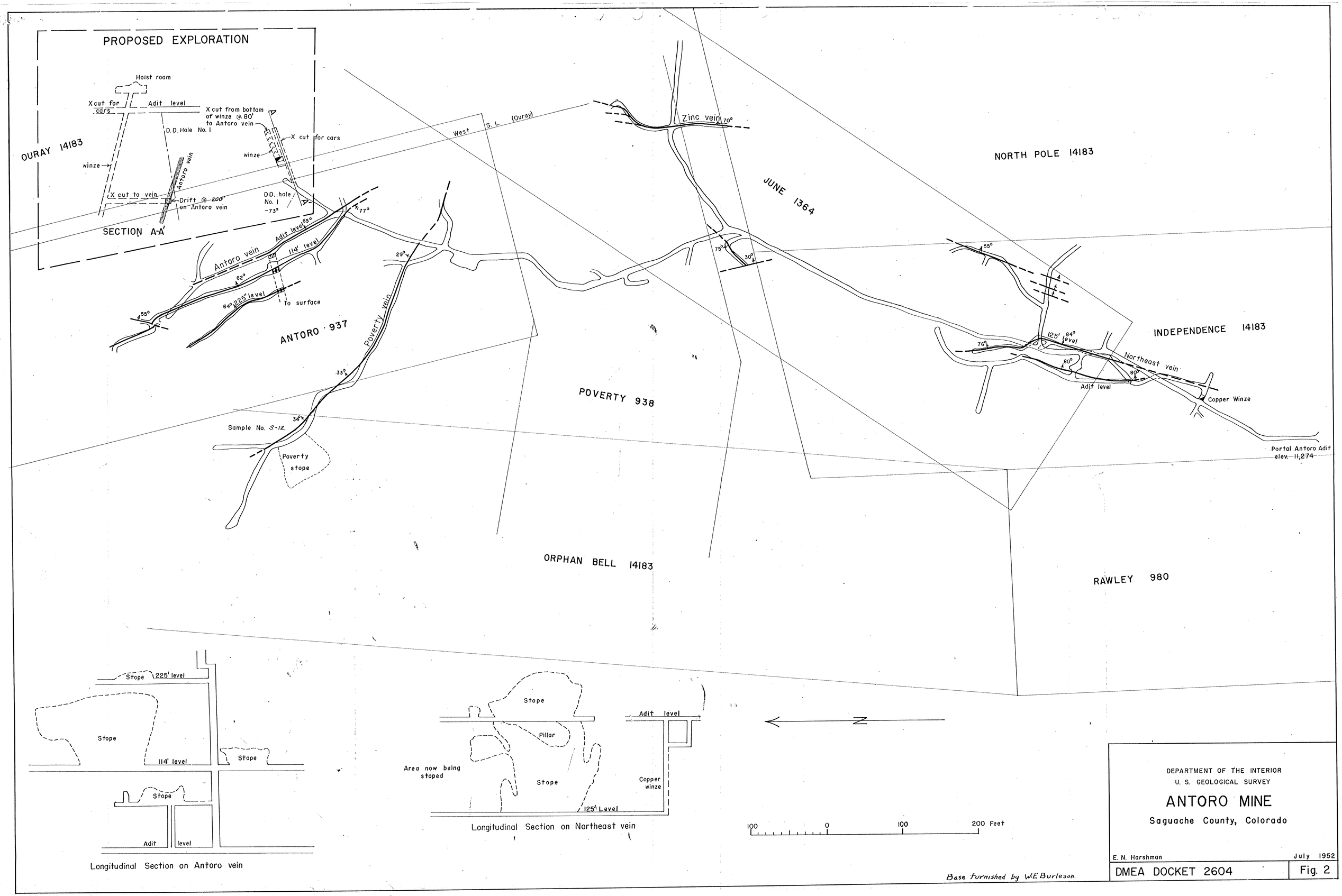
(For instance: the percentage royalty on a net amount of five dollars ($5.00) per ton, would be one and one-half (1½) per cent; on a net amount of ten dollars ($10.00) per ton, three and one-half (3½) per cent.)

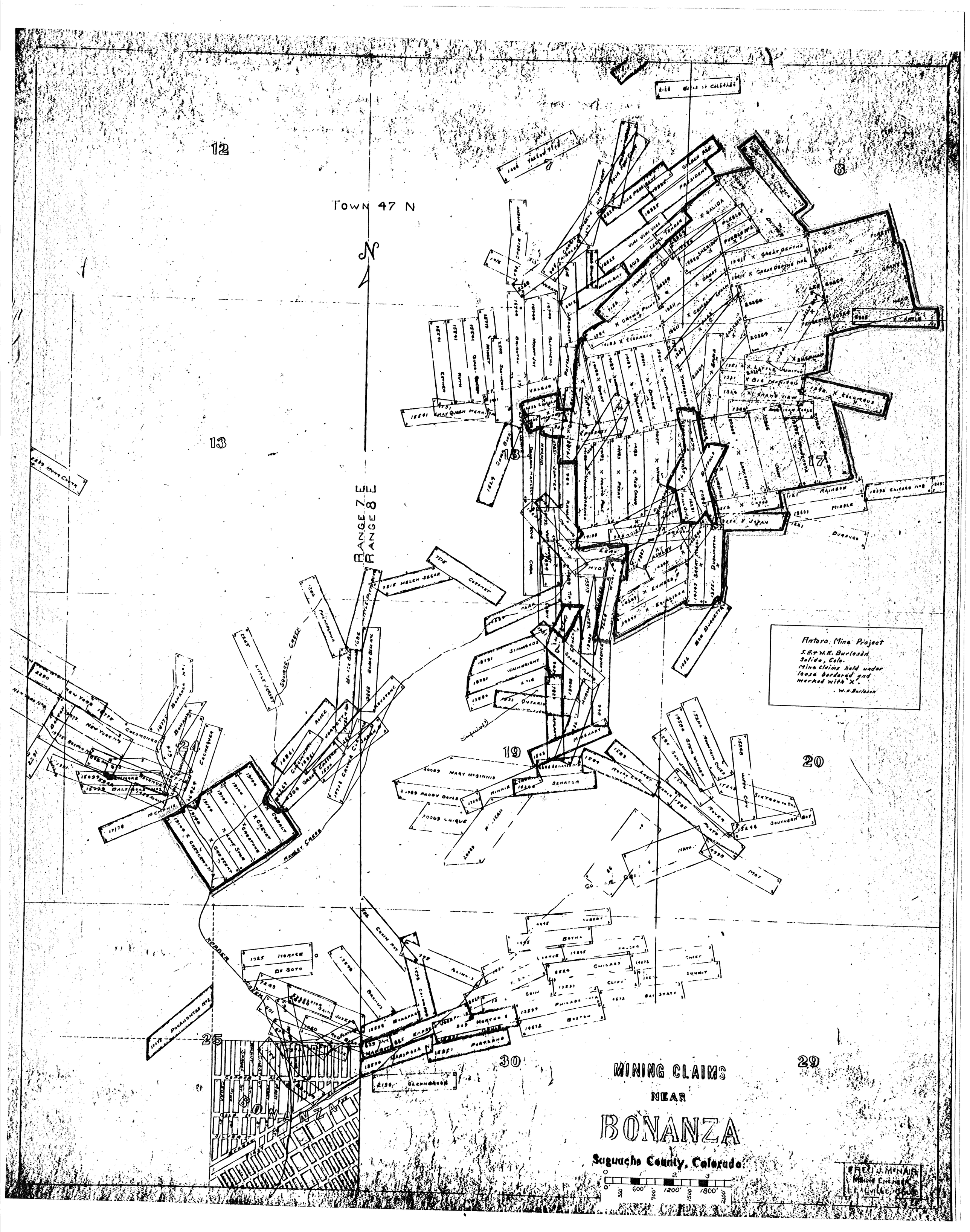
(b) As here used, "net smelter returns", "net concentrator returns", and "other net amounts realized from the sale or other disposition", mean gross revenue from sales; or if not sold, the market value, the market value of the material after it is mined in the form in which and the place where it is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

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

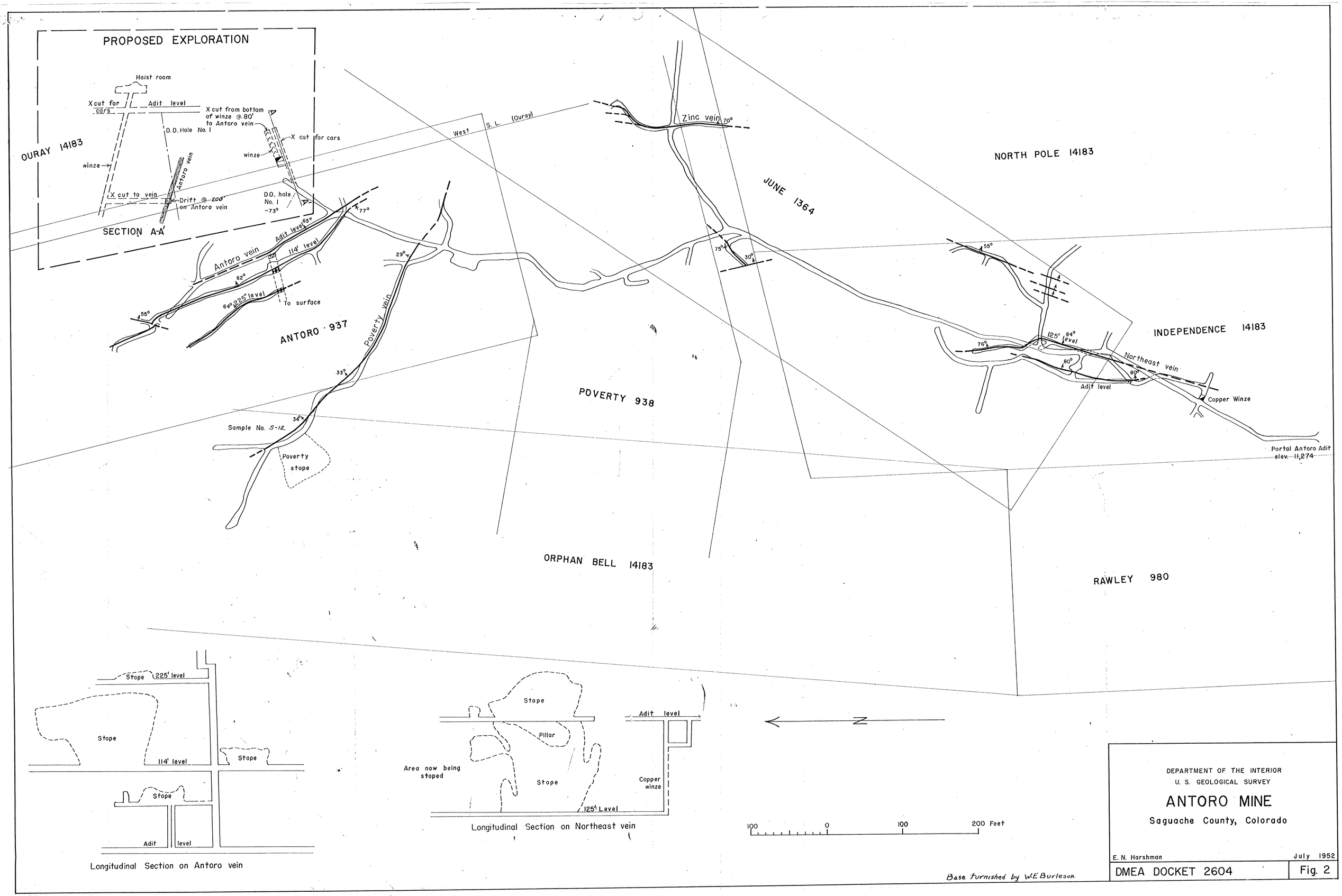
(d) This article is not to be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any mining or production operations.

Title to and disposition of property. All facilities, buildings, fixtures, equipment, or other items costing more than $50.00 each, paid for or purchased with funds contributed jointly by the Operator and the Government, although title may be taken in the name of the Operator, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the completion of the work or the termination of the contract shall be disposed of promptly by the Operator for the joint account of the Government and the Operator, either by return to the vendor, by sale to others, or purchase by the Operator at a price at least as high as could otherwise be obtained, as may appear to be for the best interest of the Government, unless the Government, in writing, waives its interest in any such item. If necessary to accomplish such disposition, the Operator shall dismantle, sever from the land, and remove any such item, the cost thereof to be for the joint account of the parties in proportion to their respective interests. If the Operator, within 90 days after the receipt of written notice from the Government, fails, neglects, or refuses to dispose of such property, the Government may itself enter upon the land, take possession of, and remove and dispose of any such property as above provided.


PROPOSED EXPLORATION
Hoist room
X cut for cars
Adit level
X cut from bottom of winze @ 80' to Antoro vein
D.D. Hole No. 1
X cut for cars
winze
winze
Antoro vein
X cut to vein
Drift @ 200' on Antoro vein
D.D. hole No. 1 -73°
SECTION A-A'
OURAY 14183
West S. L. (Ouray)
Zinc vein 70°
NORTH POLE 14183
JUNE 1364
77°
65°
Adit level
114' level
Antoro vein
62°
64°
225' level
To surface
56°
ANTORO · 937
Poverty vein
29°
33°
34°
Sample No. S-12.
Poverty stope
POVERTY 938
75°
30°
55°
INDEPENDENCE 14183
125' level
84°
76°
80°
80°
Northeast vein
Adit level
Copper Winze
Portal Antoro Adit elev. 11,274
ORPHAN BELL 14183
RAWLEY 980
Stope
225' level
Stope
114' level
Stope
Stope
Adit level
Longitudinal Section on Antoro vein
Stope
Adit level
Pillar
Area now being stoped
Stope
Copper winze
125' Level
Longitudinal Section on Northeast vein
N
100 0 100 200 Feet
Base furnished by W.E. Burleson.
DEPARTMENT OF THE INTERIOR
U. S. GEOLOGICAL SURVEY
ANTORO MINE
Saguache County, Colorado
E. N. Harshman
July 1952
DMEA DOCKET 2604
Fig. 2


Town 47 N
Range 7 E
Range 8 E
12
13
18
17
19
20
24
25
30
29
Antoro Mine Project
S.E. & W.E. Burleson
Salida, Colo.
Mine claims held under lease bordered and marked with "X".
W.E. Burleson
MINING CLAIMS
NEAR
BONANZA
Saguache County, Colorado
Fred J. McNair
Mining Engineer
Leadville, Colo.

ANTORO
TUNNEL
BONANZA, COLORADO
SCALE 1" = 60 FT.
DECEMBER, 1948
ANTORO MINE
Proposed Exploration Project
Scale 1" = 60'
June 20, 1952 W.E. Burleson
Plan of Antoro and Poverty Veins on Tunnel level. Strike of intersection in regard to tunnel level
Scale 1" = 120'
Vertical Section looking S.W. Intersection of Poverty and Antoro Veins below Tunnel level.
1" = 120'
Trend of Antoro Vein N26°E Dip 75°-80°
Trend of Poverty Vein N67°W Dip 28°-33°
Vertical Section looking S.W. Proposed Work Scale 1" = 60'
Vertical Section looking N.W. Proposed Work Scale 1" = 60'
OURAY 14183
ANTORO 937
POVERTY 938
NORTH POLE 14183
INDEPENDENCE 14,183
JUNE 1364
ORPHAN BELLE 14,183
RAWLEY 980
LONGITUDINAL SECTION 1" = 60'
MAIN LEVEL
114 LEVEL
RAISE
POWDER DRIFT
PORTAL
COPPER WINZE
Copper Winze 225 ft Level
Vertical Section Looking West Stopes above and below Main Level Scale 1" = 60'
Stoped Area July 1948 - Mar. 1949
Pillar
Zn. Drift
Main Level
APPROXIMATE JUNE TUNNEL
APEX OF VEIN
10,000 N
10,200 N
10,400 N
10,600 N
10,800 N
11,000 N
11,600 N
10,000 E.
10,200 E
10,400 E.
9,800 E.
Z


PROPOSED EXPLORATION
Hoist room
X cut for cars
Adit level
X cut from bottom of winze @ 80' to Antoro vein
D.D. Hole No. 1
X cut for cars
winze
winze
Antoro vein
X cut to vein
Drift @ 200' on Antoro vein
D.D. hole No. 1 -73°
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Zinc vein 70°
NORTH POLE 14183
JUNE 1364
77°
65°
Adit level
114' level
Antoro vein
62°
64°
225' level
To surface
56°
ANTORO · 937
Poverty vein
29°
33°
34°
Sample No. S-12.
Poverty stope
POVERTY 938
75°
30°
55°
INDEPENDENCE 14183
125' level
84°
76°
80°
80°
Northeast vein
Adit level
Copper Winze
Portal Antoro Adit elev. 11,274
ORPHAN BELL 14183
RAWLEY 980
Stope
225' level
Stope
114' level
Stope
Stope
Adit level
Longitudinal Section on Antoro vein
Stope
Adit level
Pillar
Area now being stoped
Stope
Copper winze
125' Level
Longitudinal Section on Northeast vein
N
100 0 100 200 Feet
Base furnished by W.E. Burleson.
DEPARTMENT OF THE INTERIOR
U. S. GEOLOGICAL SURVEY
ANTORO MINE
Saguache County, Colorado
E. N. Harshman
July 1952
DMEA DOCKET 2604
Fig. 2

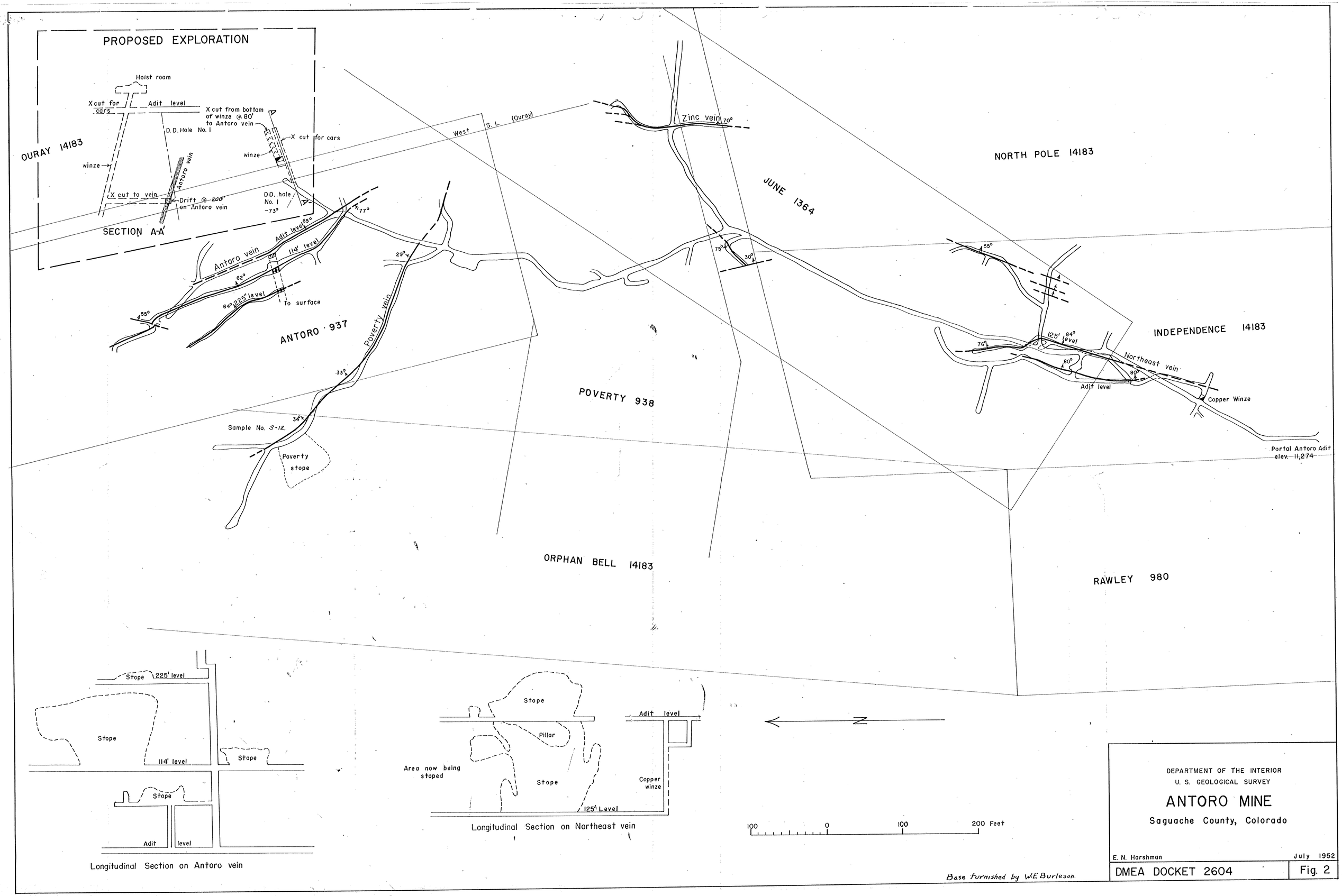
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Fig. 2