DOCKET COPY

NOTICE OF TERMINATION OF EXPLORATION PROJECT CONTRACT, UNDER THE TERMS OF THE CONTRACT, BEFORE THE COMPLETION OF THE WORK

Martin Chamberlin

To: Messrs. A. R. Floreen, George B. Dryden, and L. N. Duryea
208 South LaSalle Street
Chicago 90, Illinois

Operator under Exploration Project Contract Idm-2528,
Docket No. DMEA-~~2558~~, dated May 21, 1953.
2858

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 terminates the contract, at the completion of work under Stage I of the contract as authorized and approved by the Government, on the following grounds:

> In the opinion of the Government, operations up to the time of this notice have not indicated the probability of making any worthwhile discovery and in the opinion of the Government further operations are not justified.

Upon receipt of this notice, as provided in said contract, you are required to dispose of any remaining materials, supplies, facilities, buildings, fixtures, equipment, or other items, in which the Government has an interest, for the joint account of yourself and the Government; and to render to the Government a full and final accounting of your operations under the contract and of your expenditures of money on account thereof.

Any work prosecuted or costs incurred by you after the completion of work under Stage I, as cited above, shall be for your sole account, except for (a) such necessary and reasonable costs and expenses as may be incurred in preserving and disposing of any facilities, buildings, fixtures, equipment, or other items, to the cost of which the Government has contributed and in which the Government has an equity, and (b) the costs of any reports, accounts, and winding-up and settlement actions provided for in the contract.

Dated this 1st day of October, 1953.

UNITED STATES OF AMERICA

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

MF-200 (A)
(February 1952)

DOCKET NO. DMEA 2250

COMMODITY Tungsten

Idm-E528

DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration
7/22/53

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

EXPLORATION PROJECT CONTRACT[1]
(Short Form)

IT IS AGREED this 21st day of May, 1953, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and[2] a partnership consisting of
A.F. Flaren, 3000 Sheridan Road, Chicago, Illinois
George B. Dryden, 206 South LaSalle Street, Chicago, Illinois
L.F. Dwyer, 130 North Campbell Avenue, Chicago, Illinois

hereinafter called the "Operator," as follows:

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

ARTICLE 2. *Operator's property rights.*—With respect to that certain land situated in the State of Arizona County of Yuma, described as follows:[3] Unpatented lode mining claims located in Section 24, T. 6 N., R. 1 W. and recorded in the office of the County Recorder in Yuma, Yuma County, Arizona, as follows:
See Annex #1

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, subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder 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 (sixty) days from the date of this contract shall commence work on a project of exploration for[5]

in or upon the described land; and shall bring the project to completion within a period of 14 (fourteen) 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 75 (seventy-five) 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 $14,715.00, which is 75 percent of $19,620.00, the agreed, estimated total cost of the project in which the Government will participate: *Provided,* That until the Operator's final report and final accounting have been rendered to the Government and any final check or auditing required by the Government has been made, and a final settlement of the contract has been made, the Government may withhold from the last voucher or vouchers such sums as it sees fit not in excess of ten (10) percent of the maximum total which the Government might have been called upon to pay under the terms of the contract. The Government may, as it sees fit, make payments direct to the Operator's independent contractors, if any, for the account of the Operator, rather than to the Operator.

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

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

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

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

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

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

(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.

L. N. Dunyea
O. D. Flowers
Geo. B. Kaufman
.....
(Operator)

By .....

THE UNITED STATES OF AMERICA

W. H. King
By 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

Annex #1

Name of Claim	Date of Location	Date of Recording	Book	Page
3 Musketeers	11/30/51	12/2/51	44	437
That part of 3 Musketeers No. 3 in conflict with 3 Musketeers	11/12/51	11/14/51	45	41

See Figure 2

EXHIBIT "A"

Description of the Work

The entire exploration work will be conducted through the No. 1 shaft located on the Three Musketeers Claim, and will be divided into two stages, Stage 1 and Stage 2. The area and tentative location of the work is shown in Figure 2 and Figure 4 which are attached and made a part of Exhibit "A".

Stage 1 consists of drifting on the vein northeasterly from the shaft on the 65 foot level a distance of 85 feet and drifting southwesterly from the shaft on the 65-foot level a distance of 65 feet. Upon the completion of a part or all of the drifting on the 65-foot level, a total of 50 feet of raising may be authorized at a point or points acceptable to the DMEA representative. This work will complete Stage 1, and Stage 2 may be started only with the written consent of the DMEA representative.

Stage 2 consists of sinking the No. 1 shaft 75 feet, drifting northeasterly on the 140-foot level 85 feet, and drifting southwesterly on the 140 foot level 65 feet. Upon the completion of part or all of the drifting on the 140-foot level, a total of 70 feet of raising may be done at a point or points acceptable to the DMEA representative.

Estimated Costs of the Work

Stage 1.

Drift northeasterly on 65-foot level 85 feet @ $34.50 per foot	$ 2,932.50
Drift southwesterly on 65-foot level 65 feet @ $34.50 per foot	2,242.50
Raising above 65-foot level 50 feet @ $23.50 per foot	1,175.00
Total Cost Stage 1	$6,350.00
Government Participation Stage 1 at 75%	$4,762.50

Stage 2.

Sink No. 1 shaft 75 feet @ $86.00 per foot	$6,450.00
Drift northeasterly on the 140-foot level 85 feet @ $34.50 per foot	2,932.50
Drift southwesterly on the 140-foot level 65 feet @ $34.50 per foot	2,242.50
Raising above the 140-foot level 70 feet @ $23.50 per foot	1,645.00
Total Cost Stage 2	$13,270.00
Government Participation Stage 2 at 75%	$ 9,952.50
Total Cost Stage 1 plus Stage 2	$19,620.00
Government Participation Stage 1 plus Stage 2 at 75%	$14,715.00

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 Arizona, County of Yuma, described as follows:1/

J.P.B.
L.H.W.
J.P.B.
J.H.W.
L.C.H.

J Numeteers No. 4, recorded in Book 44, Page 437, and that part of J Numeteers No. 3 in conflict with J Numeteers No. 4 recorded in Book 45, Page 43 in the official records of Yuma County.

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 a partnership consisting of L. C. Hartman, 3000 Sheridan Road, Chicago, Illinois

2/ George P. Bryson, 201 South LaSalle Street, Chicago, Illinois

J. H. Duryea, 1X North Campbell Avenue, Chicago, Illinois

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/$ 26,725.00, 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 15 day of April, 1953.

L. C. Hartmacher [Seal]

John P. Bruseo [Seal]

John H. Wood [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.

FILE COPY
SURNAME:

140

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

Rewritten by

Hopkins
Martin
Rubin
Hofflund
Hedges
Chandler
Kyhm

FEB - 5 1954

Mr. A. R. Floreen
3000 Sheridan Road
Chicago, Illinois

Re: Exploration Project Contract
No. I&m-E528
Docket No. DMEA-2858 (Tungsten)
Three Musketeers Mine
Yuma County, Arizona

Dear Mr. Floreen:

A final audit of contract expenditures, and the final reports of the Operator and of the Field Team, have been received and accepted by this Administration. The agreed, estimated total cost of the project was $19,620.00. The total accepted cost of the work performed was $5,762.50, 75 percent of which, or $4,321.87, represented the Government's share. The exploration work performed was satisfactory.

As the results of the exploration were unfavorable, it is not our intention to make a Certification of Discovery or Development, which would create a lien against the subject property. We are, therefore, closing our books and records with respect to this project. However, your attention is called to Article 5(d) of the contract which requires the Operator to "keep and preserve said records for at least 3 years after the completion of the project or the termination of the contract."

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

Sincerely yours,

O. O. Mitchandani

Administrator

JHopkins/HCRubin/emd
1/29/54
Copy to: Docket
Adm. R. File
Op. Comm.
R. W. Gehhan USBM
T. P. Thayer USGS
Field Team, Reg. IV (2)
W. S. Martin
H. C. Rubin
J. L. Hofflund
chron. pending

R.S.H. 2-5-54

Hopkins
Martin

Permitee
JK/ml
1/27/54

Mr. A. R. Floreen
3000 Sheridan Road
Chicago, Illinois

Re: Docket No. DMEA 2858, Tungsten
Three Musketeers Mine
Yuma County, Arizona
Contract No. Idm-E528

Dear Mr. Floreen:

This is with reference to the subject exploration contract between your partnership and the Government.

The final audit of the contract expenditures and the final reports of the Operator and of the Field Team have been received and accepted by this Administration. Of the total amount of $19,620.00 approved under the contract, the sum of $5,762.50 was expended, 75 percent of which, or $4,321.87, represented the Government's share. There were no unused materials, supplies or equipment to be disposed of for the joint account of the Operator and the Government. The exploration work was completed in a satisfactory manner.

Because the results of the exploration were unfavorable, it is not our intention to make a Certification of Discovery or Development which would create a lien against the subject property. We are, therefore, closing our books and records with respect to this project. Your attention is called, however, to Article 5(d) of the contract which requires the Operator to "keep and preserve said records for at least 3 years after the completion of the project or the termination of the contract."

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

Sincerely yours,

Administrator

JHopkins/ls
1/27/54

cc: Docket
Code 400
FT, Reg. 4
Adm. Read. File
Oper. Comm.
Code 800
R. W. Geehan, USBM
T. P. Thayer, USGS

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

January 27, 1954

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division, DMEA

Subject: General summary of contract and results obtained
Docket No. DMEA 2858 - Tungsten
A. R. Floreen, George B. Dryden, &
L. N. Duryea - Partners
Three Musketeers Mine
Yuma County, Arizona
Contract No. Idm-E528

1. Operator's Property Rights:
   Lessee - Lease dated February 5, 1952.
   Owner's Consent to Lien - dated April 15, 1953.

2. Contract - dated May 21, 1953.
   Work Authorized and Estimated Costs:

Stage I		
Drift 85 ft. northeastery on 65-ft. level @ $34.50/ft.	$2,932.50	
Drift 65 ft. southwesterly on 65-ft. level @ $34.50/ft.	2,242.50	
Raise 50 ft. above 65-ft. level @ $23.50/ft.	1,175.00	
Total		$6,350.00
Stage II		
Sink No. 1 Shaft 75 ft. @ $86/ft.	$6,450.00	
Drift 85 ft. northeasterly on 140-ft. level @ $34.50/ft.	2,932.00	
Drift 65 ft. southwesterly on 140-ft. level @ $34.50/ft.	2,242.00	
Raise 70 ft. above 140-ft. level @ $23.50/ft.	1,645.00	
Total		$13,270.00
Total Cost of Stage I plus Stage II		$19,620.00
Government participation @ 75%		$14,715.00

3. Amendments
None

Work Completed:

Operation	Accepted Costs	Units Completed	Unit Cost
Drifting	$5,175.00	150 feet	$34.50
Raising	587.50	25 "	23.50

Approved Total Costs $5,762.50
Government Participation @ 75% 4,321.87

The work under Stage I of the project was completed August 31, 1953, and was in conformance with the contract. The Operator has complied with all contract requirements.

4. Audit
Report of Review by the Contract Administration and Audits Division dated December 3, 1953.

5. No Certification of Discovery was issued.

6. Comments:

The project was established to explore for tungsten through a 65-foot inclined shaft at the Three Musketeers Mine, Yuma County, Arizona. The work was divided into two stages. The objective of Stage I of the program was the exploration of a vein by drifting for 150 feet on the 65-foot level of the mine and raising 50 feet where warranted by mineralization. If the results of Stage I were favorable, the shaft was to be deepened an additional 75 feet and the vein explored with 150 feet of drifts and 70 feet of raises on the 140-foot level under Stage II.

Under Stage I of the program, one drift was driven 85 feet northeasterly from the shaft on the 65-foot level and another drift was driven 65 feet southwesterly from the shaft. No significant discovery of tungsten resulted from this work. However, an interesting showing of scheelite was exposed in the northeast drift 85 feet from the shaft. A raise was driven at this point but the vein was found feathering out against a basic dike at 15 feet above the level.

Because the work in Stage I was unsuccessful, the Field Team recommended that the contract be cancelled rather than to proceed with Stage II or any modification of Stage II.

W. S. Martin, Chief
Iron and Ferro-Alloys Division

Stephens
Keating
Crawford

January 27, 1954

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division, DMEA

Subject: General summary of contract and results obtained
Docket No. DMEA 2858 - Tungsten
A. R. Floreen, George B. Dryden, &
L. N. Duryea - Partners
Three Musketeers Mine
Yuma County, Arizona
Contract No. Idm-E528

1. Operator's Property Rights:
   Lessee - Lease dated February 5, 1952.
   Owner's Consent to Lien - dated April 15, 1953.

2. Contract - dated May 21, 1953.
   Work Authorized and Estimated Costs:

Stage I		
Drift 85 ft. northeastery on 65-ft. level @ $34.50/ft.	$2,932.50	
Drift 65 ft. southwesterly on 65-ft. level @ $34.50/ft.	2,242.50	
Raise 50 ft. above 65-ft. level @ $23.50/ft.	1,175.00	
Total		$6,350.00
Stage II		
Sink No. 1 Shaft 75 ft. @ $86/ft.	$6,450.00	
Drift 85 ft. northeasterly on 140-ft. level @ $34.50/ft.	2,932.00	
Drift 65 ft. southwesterly on 140-ft. level @ $34.50/ft.	2,242.00	
Raise 70 ft. above 140-ft. level @ $23.50/ft.	1,645.00	
Total		$13,270.00
Total Cost of Stage I plus Stage II		$19,620.00
Government participation @ 75%		$14,715.00

R.C.K.
2-5-54

3. Amendments
None

Work Completed:

Operation	Accepted Costs	Units Completed	Unit Cost
Drifting	$5,175.00	150 feet	$34.50
Raising	587.50	25 "	23.50

Approved Total Costs $5,762.50
Government Participation @ 75% 4,321.87

The work under Stage I of the project was completed August 31, 1953, and was in conformance with the contract. The Operator has complied with all contract requirements.

4. Audit
Report of Review by the Contract Administration and Audits Division dated December 3, 1953.

5. No Certification of Discovery was issued.

6. Comments:

The project was established to explore for tungsten through a 65-foot inclined shaft at the Three Musketeers Mine, Yuma County, Arizona. The work was divided into two stages. The objective of Stage I of the program was the exploration of a vein by drifting for 150 feet on the 65-foot level of the mine and raising 50 feet where warranted by mineralization. If the results of Stage I were favorable, the shaft was to be deepened an additional 75 feet and the vein explored with 150 feet of drifts and 70 feet of raises on the 140-foot level under Stage II.

Under Stage I of the program, one drift was driven 85 feet northeasterly from the shaft on the 65-foot level and another drift was driven 65 feet southwesterly from the shaft. No significant discovery of tungsten resulted from this work. However, an interesting showing of scheelite was exposed in the northeast drift 85 feet from the shaft. A raise was driven at this point but the vein was found feathering out against a basic dike at 15 feet above the level.

Because the work in Stage I was unsuccessful, the Field Team recommended that the contract be cancelled rather than to proceed with Stage II or any modification of Stage II.

JHopkins/ls
1/28/54

cc: DOCKET
ADM. READ. FILE
CODE 400
OPER. COMMITTEE

W. S. Martin, Chief
Iron and Ferro-Alloys Division

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

Department of the Interior
Defense Minerals Administration
RECEIVED
JAN 18 1954

224 New Customhouse
Denver 2, Colorado

January 12, 1954

Memorandum

To: Secretary to the Operating Committee, DMEA

From: DMEA Field Team, Region IV

Subject: Docket DMEA ~~2558~~ 2858 (Tungsten), Contract Idm-E528, a partnership consisting of A.R. Floreen, George B. Dryden and L.M. Duryea, Three Musketeers Tungsten Prospect, Yuma County, Arizona

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

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

2. Original and three copies of the final geologic report by the U.S. Geological Survey.

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

Final payment to the operator was processed by this office January 7, 1954, in conformance with the final report of review by the Contract Administration and Audit Division dated December 3, 1953, which was released to this office December 15, 1953.

The contract was terminated by the Government under the provisions of the contract at the completion of work authorized under Stage I. The work completed consisted of 150 feet of drifting and 25 feet of raising at a total accepted cost of $5,762.50, in which the Government participated to the extent of 75% or an amount of $4,321.87.

The exploration work did not result in a discovery of tungsten ore, therefore no certification of discovery or development is recommended.

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
1-22-54
(date)

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 18 1954

December 31, 1953

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: Progress Report, Three Musketeers Tungsten Prospect, Yuma County, Arizona, A. R. Floreen and partners

Enclosed are 9 copies of a progress report by John N. Faick of the U. S. Geological Survey covering the above docket.

Mr. Faick points out that Government participation in the search for small, low-grade ore bodies, like those at the Three Musketeers Prospect, cannot be justified under existing conditions. It is recommended, therefore, that the contract be cancelled, rather than to proceed with Stage II or any modification of Stage II. This report describes the exploration work to date, and, as no further work is recommended, essentially constitutes the final report covering this project. No significant ore was discovered and hence no certification of discovery is justified.

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

Enclosures (9)

Reviewed by
DMEA OPERATING COMMITTEE
1-22-54
(date)

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P. O. Box 4126, University Station
Tucson 5, Arizona

October 6, 1953

Memorandum

To: A. H. Koschmann, Denver, Colorado

From: John N. Faick, Geologist, Tucson, Arizona

Subject: Progress Report, Three Musketeers Tungsten Prospect, Yuma County, Arizona, A. R. Floreen and Partners.

INTRODUCTION

The Three Musketeers prospect was examined September 2, 1953, by John N. Faick, U. S. Geological Survey, and by W. R. Hardwick, Engineer, U. S. Bureau of Mines. The purpose of this examination was to review the progress that had been made with exploration aid from DMEA, and to determine if the project should be terminated or allowed to continue into Stage II, or whether exploration could be continued with a modified program.

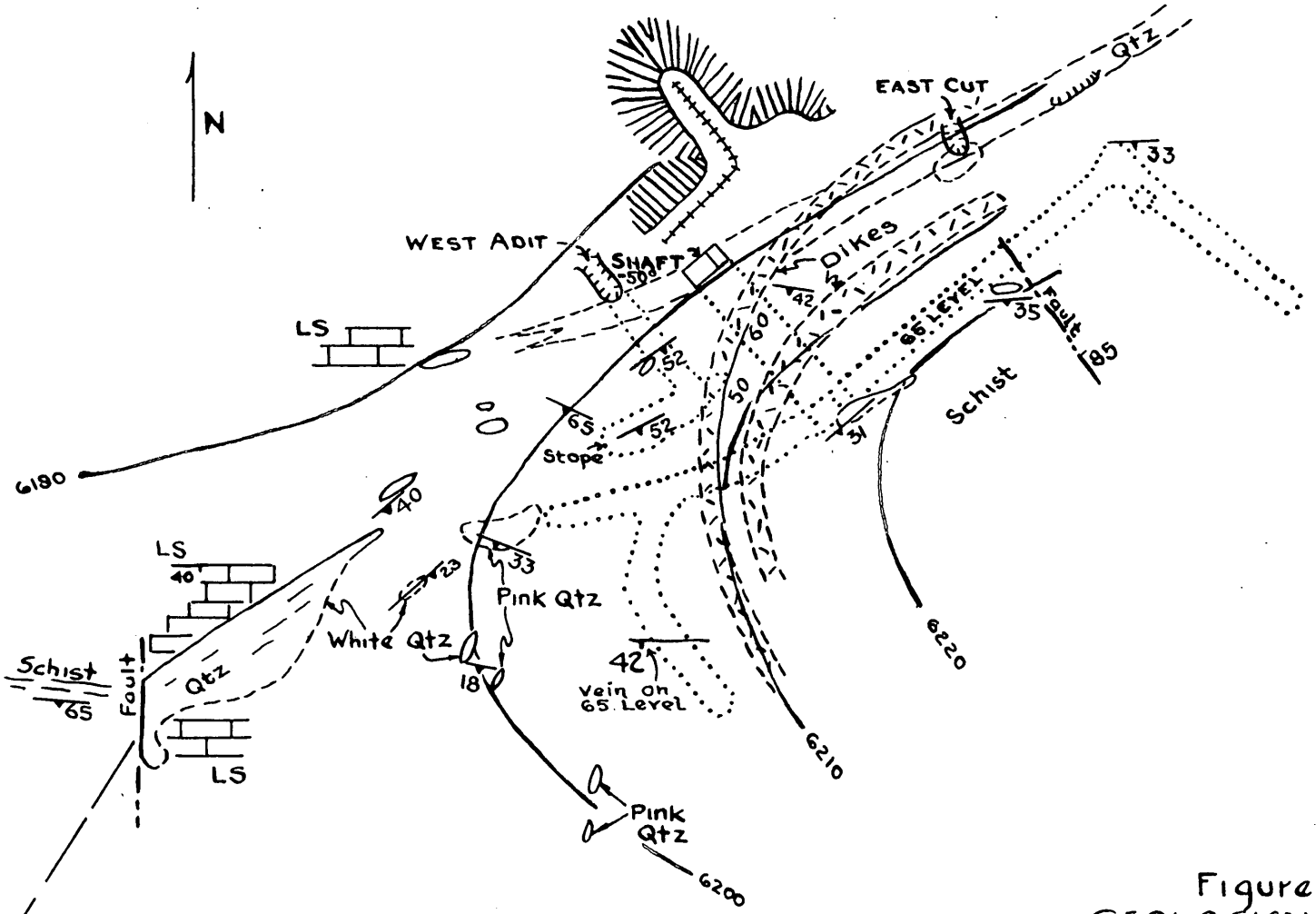
GEOLOGY

A small area in the vicinity of the Three Musketeers prospect is underlain with biotite schist, with which is associated a few eroded remnants (roof pendants) of limestone. The foliation of the schist strikes westerly and dips southeasterly; however, measurements with a Brunton compass indicate a wide range in the attitude, thus probably indicating considerable deformation of the schist. The strike of the foliation ranges from N. 65° W. to S. 50° W. and averages about S. 80° W. The dip ranges from about 30 to 65 degrees to the south and averages about 42 degrees.

Reviewed by
DMEA OPERATING COMMITTEE
1-22-54
(date)

A group of irregular quartz lenses, stringers and veins is localized within the schist along a zone about 60 feet wide, and this zone strikes about S. 60 W. in the area being explored. Most of the quartz bodies are elongated parallel to the foliation of the schist; however, many transgress the foliation at angles of several degrees. The quartz masses, some of which contain scheelite, are relatively small and irregular or lenticular in shape. Most of the quartz outcrops occupy areas of only a few square feet. One of the largest masses is on the west side of the zone being explored, (See Fig. 1) and is about 65 feet long and about 15 feet wide. A quartz vein, ranging from 3 to 8 feet wide extends from about 50 feet west of the exploration shaft to about 125 feet east of it, a distance of about 175 feet. Most of the quartz bodies occur as isolated masses but a few of them are interconnected by narrow veins.

This preliminary examination revealed that the Three Musketeers area is one of relatively complex structures. The schist has been cut by low-angle faults, which are probably pre-ore, and by several steep faults which are both pre-ore and post-ore in age. Some of the post-ore faults are occupied by basic dikes.



Quartz crops out along a zone extending several hundred feet in a S32°W direction.

Figure 1
GEOLOGICAL SKETCH MAP
THREE MUSKETEERS MINE
Yuma County, Arizona
Scale: 1" = 40' Sept. 1953

DMEA 2858

Two basic dikes (See Fig. 1) having a curved outcrop, and striking northerly or northeasterly, and dipping southeasterly about 50 to 60 degrees cut across the schist and some of the quartz bodies. These dikes are also exposed underground at the east end of the 65-foot level. These dikes are younger than the ore and are unmineralized, and relatively unaltered.

The ore at the Three Musketeers consists of scheelite, which is usually disseminated in quartz, but which also occurs as narrow veinlets, about 1/8 to 1/2 inch wide in the quartz. Narrow quartz-scheelite veinlets also occur in the schist. Only part of the quartz, possibly one half of it contains scheelite; the remainder being barren. Incomplete data suggest that there are at least 3 stages of quartz mineralization: an older barren stage, an intermediate stage which contains the scheelite, and a barren post-scheelite stage.

Most of the ore found has been relatively low-grade, about 0.25 to 0.40 percent and to date only a relatively small tonnage of ore has been found. About 30 feet southwest of the shaft, about 100 tons of ore was mined from a small stope, and about 65 feet northeast of the shaft a few tons were mined from a shallow surface cut, and small underground stope. Production, which amounts to about $7000 worth of concentrate, was sufficient to justify exploration of the deposit.

EXPLORATION

The Three Musketeers prospect has been explored by a 65-foot inclined shaft, 150 feet of drifts, 105 feet of crosscuts and a 26-foot raise. Only the drifts and raise were driven with DMEA participation; the shaft was sunk by the applicant before application for DMEA assistance was made. The crosscuts were driven at the expense of the operator.

From a practical point of view this work has been reasonably well done at a moderate cost. Results of it would have been more conclusive if the operator had provided competent geological guidance as the work progressed. The shaft would have been more effective it it had been sunk on the good ore exposed in the stope of the west adit, rather than sunk on a vein which was known to be barren at the surface. The east drift on the 65 level might have obtained more favorable results if it had been driven on the hanging wall side of the dike, rather than on the footwall side of the dike. Surface exposures indicate that the quartz-scheelite vein occupies the hanging wall side of the dike, and this relationship was proved by the crosscut at the northeast end of the 65 level drift.

The drift extending southwest of the shaft penetrated barren schist; however, a crosscut driven southeast of the drift penetrated a 16-inch thick quartz vein which contained about 0.4 percent WO_3.

The 2 crosscuts driven southeasterly from the 65-foot level have been the most effective parts of the underground exploration done to date. Both of these were recommended to the operator by W. R. Hardwick, Engineer, U. S. Bureau of Mines, and both were driven at the expense of the operator, who apparently is willing to follow any suggestion that might lead to the discovery of ore. In this writer's opinion the main reason that this exploration project has not been more successful is because of the failure of the applicant to provide capable, on the job, geological guidance, which is so urgently needed in conducting exploration for ore bodies of this type. DMEA is neither authorized nor adequately staffed to provide the supervision needed to successfully explore the Three Musketeers deposits.

This writer does not believe that the Three Musketeers prospect has been adequately explored; however, the work done thus far has had such unfavorable results that there is no justification for proceeding with Stage II of the original exploration proposals. The occurrence and distribution of ore should be proved by the 65-foot level workings before proceeding to greater depths. If additional exploration is done it should be as an extension of Stage I, but should not be undertaken unless geological guidance is provided. If desirable to continue this project to a more successful conclusion I would suggest about 225 feet of driving as follows:

1. On the west side of the shaft station drive a crosscut southeasterly about 50 feet to attempt to locate the downward extension

of the ore body mined in the west adit stope. This crosscut should cross one of the basic dikes, and the quartz-scheelite vein may be present on the hanging wall side of it.

2. At about half way between the shaft and the northeast crosscut, another crosscut, about 50 feet long, should be driven southeastward across the dike to explore the hanging wall side of the dike. This would explore the extension of the quartz-scheelite vein found in the east crosscut.

3. From the present southwest face of the 65-foot level, the drift should be extended about 75 feet in a direction of about S. 57° W. This would explore beneath a large quartz mass which crops out at the surface.

4. The drift mentioned in No. 3 should be supplemented by a crosscut driven southeasterly from the proposed drift, at a point about 75 feet southwest of the present face.

It is possible that long hammer drill holes or diamond drill holes could be substituted for crosscutting; however, this is probably not advisable because the operator does not have a competent supervisor to plan the drilling or to collect, study and interpret the samples and other results. Unless the work is properly directed, the results of drilling would be inconclusive and it is doubtful if drilling could be justified for this reason.

This writer believes that the Three Musketeers deposit has not been adequately explored, and that additional work could be justified by geological reasons. Additional work should not be done, however, unless the work is placed under the direction of a geologist or engineer capable of collecting and interpreting the data obtained. Without competent guidance future work will probably be no more conclusive than that done in the past, and would probably only lead to an invitation to do other additional work.

CONCLUSIONS

A study of the Three Musketeers prospect resulted in the following conclusions:

1. Scheelite is widely distributed over an area of one or two square miles in the vicinity of the Three Musketeers claims.

2. The scheelite is disseminated in quartz, or occurs with quartz in narrow veinlets in schist.

3. The ore occurs in small, low-grade (0.2-0.4 percent WO_3) ore bodies, of which only one or two are known to be capable of producing a few tens of tons of ore of commercial value.

4. The search for ore bodies is difficult and uncertain because of relatively complex geological structures of the area.

5. Results of the exploration done in the past are inconclusive, partly because of the failure of the operator to provide competent geological and engineering guidance. It is doubtful if additional work by the same operator would yield more conclusive results.

6. The deposits have not been adequately explored, and additional work appears to be justified, providing it is done with suitable geological guidance.

RECOMMENDATIONS

Government participation in the search for small, low-grade ore bodies, like those at the Three Musketeers prospect, cannot be justified under existing conditions; therefore, it is recommended that the contract be canceled, rather than to proceed with Stage II or any modification of Stage II.

John N. Faick

John N. Faick
Geologist

Mining Division
Date Rec'd
JAN 8 1954
BUREAU OF MINES
Denver, Colo.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

SOUTHWEST EXPERIMENT STATION
Box 4097
UNIVERSITY STATION
TUCSON, ARIZONA

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 18 1954

January 5, 1954

Memorandum

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

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

Subject : Final Engineering Report, Contract Idm-E528, Docket DMEA-2858, Floreen, Dryden and Duryea Mining Partnership, Three Musketeers Tungsten Prospect, Yuma County, Ariz.

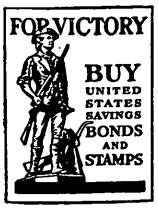
Enclosed are original and 8 copies of a final engineering report by R. W. Ageton of the Bureau of Mines for work done under Contract Idm-E528. This report has my approval.

Walter R. Storms

Walter R. Storms

CC W. H. King (8)
DMEA-2858
DF

WRStorms:frj



Reviewed by
DMEA OPERATING COMMITTEE
1-22-54
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA-2858, Contract Idm-E528

Floreen, Dryden, and Duryea Mining Partnership

Three Musketeers Tungsten Claims

Ellsworth Mining District

Yuma County, Arizona

FINAL ENGINEERING REPORT

Robert W. Ageton, Mining Engineer
U. S. Bureau of Mines

January 1954

Reviewed by
DMEA OPERATING COMMITTEE
1-22-54

DMEA-2858, CONTRACT Idm-E528,
FLOREEN, DRYDEN, AND DURYEA MINING PARTNERSHIP
THREE MUSKETEERS TUNGSTEN CLAIMS
ELLSWORTH MINING DISTRICT
YUMA COUNTY, ARIZONA

CONTENTS

Final engineering report	Page
Summary, conclusions, and recommendations	1
Introduction	2
Description of work completed	2
Description of geology	3
Ore reserves	6
Expenditures	7
Efficiency of operations	7
Equipment and supplies	7

ILLUSTRATIONS

Figure		Following page
1	Location map	2
2	Claim map of Three Musketeers mine	2
3	Geologic sketch map	4
4	Plan of 65-foot level	4
5	Sections, Three Musketeers Tungsten Prospect	5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The Floreen, Dryden, and Duryea Mining Partnership applied for Government assistance to explore for tungsten mineralization on the Three Musketeers claims situated in the Ellsworth Mining District, Yuma County, Ariz., approximately 5 miles east of McVay, Ariz. The United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, entered into Exploration Project Contract No. Idm-E528, Docket DMEA-2858 (Tungsten), dated May 21, 1953, with the Floreen, Dryden and Duryea Mining Partnership.

Exploration was contracted to be performed through the No. 1 shaft to determine the depth extension of near-surface exposures of tungsten mineralization. Drifting northerly and southerly off the 65-foot level of the inclined shaft started June 8, 1953. A total of 150 feet of drifting and 25 feet of raising was completed. In addition to the units of work authorized by the contract, the operator crosscut 82 feet at its own expense. Work under stage I of the contract was completed on August 31, 1953, and the contract was terminated before completion by mutual agreement.

Sufficient exploration has been performed at the No. 1 shaft location to conclude that a significant discovery of scheelite ore cannot be made in this mineralized zone. There is still the possibility that very small, high-grade pockets might be found by additional raising. However, further Government assistance is not justified, and it is recommended that no certification be issued for this project.

INTRODUCTION

The Three Musketeers prospect is situated in the Ellsworth Mining District, Yuma County, Ariz., approximately 5 miles east of McVay, Ariz. (figure 1). The Three Musketeers group includes 6 unpatented lode mining claims under lease and option agreements to the A. R. Floreen, George B. Dryden, and L. N. Duryea Mining Partnership. For purposes of the exploration loan, the Three Musketeers claim and part of the Three Musketeers No. 3 claim in conflict with the Three Musketeers claim were made subject to a Government lien (figure 2). A. R. Floreen, 208 South La Salle Street, Chicago, Ill,, was the agent authorized to conduct matters pertaining to exploration under the Government contract.

The applicants' request for exploration assistance was docketed as DMEA-2858 (Tungsten), and the work was performed under Contract Idm-E528. M. J. Elsing, consulting mining engineer, Bureau of Mines, and R. W. Ageton, mining engineer, Bureau of Mines, recommended the project for exploration. W. R. Hardwick, mining engineer, Bureau of Mines, inspected and reported on the progress of the exploration.

DESCRIPTION OF WORK COMPLETED

Exploration was contracted to be performed through the No. 1 shaft, situated on the Three Musketeers claim, and was divided into 2 stages. Work under Stage I started on June 8, 1953, the operator driving a drift in a northeasterly direction off the 65-foot level of the inclined shaft. This drift was advanced 85 feet. Starting at the end of this north drift the operator, at its own expense, drove a southeasterly-

208 SOUTH LA SALLE STREET
CHICAGO

Mining Division
Date Rec'd
JAN 6 1954
BUREAU OF MINES
Denver, Colorado
DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
JAN 18 1954

January 6, 1954

Mr. W. H. King
Executive Officer, DMEA
Field Team, Region 4
224 New Customhouse
Denver 2, Colorado

Re: Docket No. DMEA 2858
Contract Idm-E528

Dear Mr. King:

Your letter dated December 17, 1953 reached Chicago on December 31st and was delivered to me on January 4th, as you will note from the envelope enclosed.

Because of the Holiday Season, the report required was delayed. There is enclosed an original report by Mr. J. H. Sampson of Wickenburg, Arizona, and four photostatic copies thereof; also, five photostatic copies of a sketch made by Mr. Sampson. Mr. Sampson is well qualified as a mining engineer to make the report.

You will note that Mr. Sampson's report covers all the Three Musketeers' claims, where as the contract has to do with work on one claim only. I believe, however, your engineers will find in the report the information needed as to the estimates of ore developed under the contract. Mr. Sampson states in his letter that your engineers will appreciate that any ore estimated at this time is just a guess, both as to the tonnage and the grade. He also states that he believes there is a little more tonnage in sight that he has given.

There is also enclosed five copies signed by me as Operator. I trust the enclosures satisfy the needed requirements and that it will be possible for you to send a remittance and close your files on this contract at an early date.

Sincerely,

A. R. Floreen

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
DEPOSITS
JAN 18 1954

REPORT OF A. R. FLOREEN - OPERATOR OF THREE MUSKETEERS

EXPLORATION CONTRACT

Docket No. DMEA - 2858
Contract Idm - E528

Under the contract and amended instructions, there was completed 130 feet of drifting and 25 feet of raising at a total cost to the Operator of $5,762.50, the amount authorized in the estimate of cost of work to be done. The work of drifting and sinking was performed by an outside contractor who was paid $5,762.50 for his services. There were no expenditures for tools, equipment, housing, etc.

In addition to the drifting and raising authorized, the Operator, at his expense, completed additional drifting, additional raising and considerable cross-cutting.

A R Floreen
Operator

January 6, 1954

J. H. Sampson
Consulting Mining Engineer

THREE MUSKETEERS TUNGSTEN

YUMA CO. ARIZONA

LOCATION AND EXTENT

The holdings consist of six unpatented mining claims, of approximately 20 acres each,located in sec. 24 R 15 W-T 6 N. Gila and Salt River meridian, Yuma Co. Arizona.

The property is situated 4.5 miles north-east of State highway 72, and approximately halfway between the towns of Hope and Bouse. The Santa Fe rail parallels the highway, with a loading ramp at the turn-off from the highway to the mine.

OWNERSHIP

The six claims were located in the names of three pardners, John Woods, John Bruscoe, and L.C.Huthmacker. The three men worked the property for one month, during which time they removed and sold some $6000.00 worth of commercial grade tungsten concentrates. Due to limited finances they decided to lease the property.

PRESENT OPERATIONS

The present operations are being financed by a Chicago group. They hold a lease from one of the owners and an operating agreement with the other two. The underground work is being done by contract. Approximately 1000 feet work has been completed to-date.

ORE OCCURRENCES

The scheelite occurs in a quartz vein on the contact between crystallized limestone and a large sill-like intrusive. The contact dips between 30 and 40 degrees to the south and strikes N 65 E. The scheelite minereralization has been traced for some 1500 along the surface.

J. H. SAMPSON

Both the limestome and the gabbroic intrusive have been dynamically and hydrothermally metamorphosed along and adjacent to the contact. The intrusive has been altered to a chlorite schist, and the limestone recrystallized and locally silicified. This zone varies in width from a few feet to over 200 near the southern end of the mineralized part of the contact.

The massive quartz lenticular veins were deposited in this altered zone in a roughly parallel pattern. Two well defined quartz bodies have been partially developed and explored in the underground work, with surface evidence of other lenses in the hanging wall.

The quartz veins tend to pinch within short distances both horizontally and vertically, requiring frequent cross-cutting of the schistose zone to maintain continuity of ore development. The ore zone has been cut by a number of cross-cutting late diabase dikes, and by one dike paralleling the footwall of one of the veins.

Scheelite is found both in the quartz and in the enclosing schist. While the quartz is highly sheared, due to late faulting the scheelite shows little evidence of any crushing or distortion and would appear to be the last phase of the mineralization. The ore is exceptionally free of any penalizing impurities and the highly sheared nature of the quartz makes for comparatively easy ore dressing.

While individually the quartz veins are comparatively small, their repetition along the contact for moderate distances seems amply assured in this wide strong shear.

DEVELOPMENT

Two prominent out-crops,approximately 500 feet apart were chosen, from which to start the underground development.

The most northerly workings shown on the sketch marked 50 ft level are close to the discovery tunnel. A 65 ft. deep shaft was sunk on a footwall vein and drifts carried both north and south. A narrow strand of quartz with a little scheelite was developed in the north drift.

J. H. SAMPSON

Cross-cuts were driven south from both the north and south footwall drifts, intercepting the main hanging wall vein. A raise was run in ore from the face of the north footwall drift to the old Monohan open-cut. The vein averaged a little over three feet in width and will probably average close to 0.70 % WO3, as estimated by comparative lamp assay. The lateral continuation of this ore was cut in the cross-cut south from the south drift.

The southerly piece of development shown on sketch marked 28 foot level, consists of two surface cuts at elevations 1481 and 1462, and a 120 foot deep inclined shaft, from which the 28 and 60 foot levels were run.

Drifts were driven on the 28 foot level on both the hanging wall and footwall structures. A 30 foot northwest striking mafic dike cut the ore close to the shaft. No efford was made to continue the work to the north where excellent surface ore was uncovered. The footwall vein averaged close to 18 inches and the hanging wall vein 30 inches. Fifty tons of ore were broken from the hanging wall vein at various points and shipped to a small plant near Quartzite Arizona. The ore averaged 0.65 WO3 on concentrates plus tails assay.

The 60 foot level was driven the entire distance in the mafic dike. Drifts from this cross-cut should intercept the ore in short distances.

ORE RESERVES

No ore reserve can be estimated with any degree of accuracy at this stage ofthe development. The erractic distribution ofthe scheelite in the ore zone precludes any reliable channel sampling. The grade ofthe ore can only be obtained by breaking large 500 lb., or more samples to be run thru a small gravity test plant or by taking test runs of 50 or more tons to a commercial plant as was done from the 28 foot level.

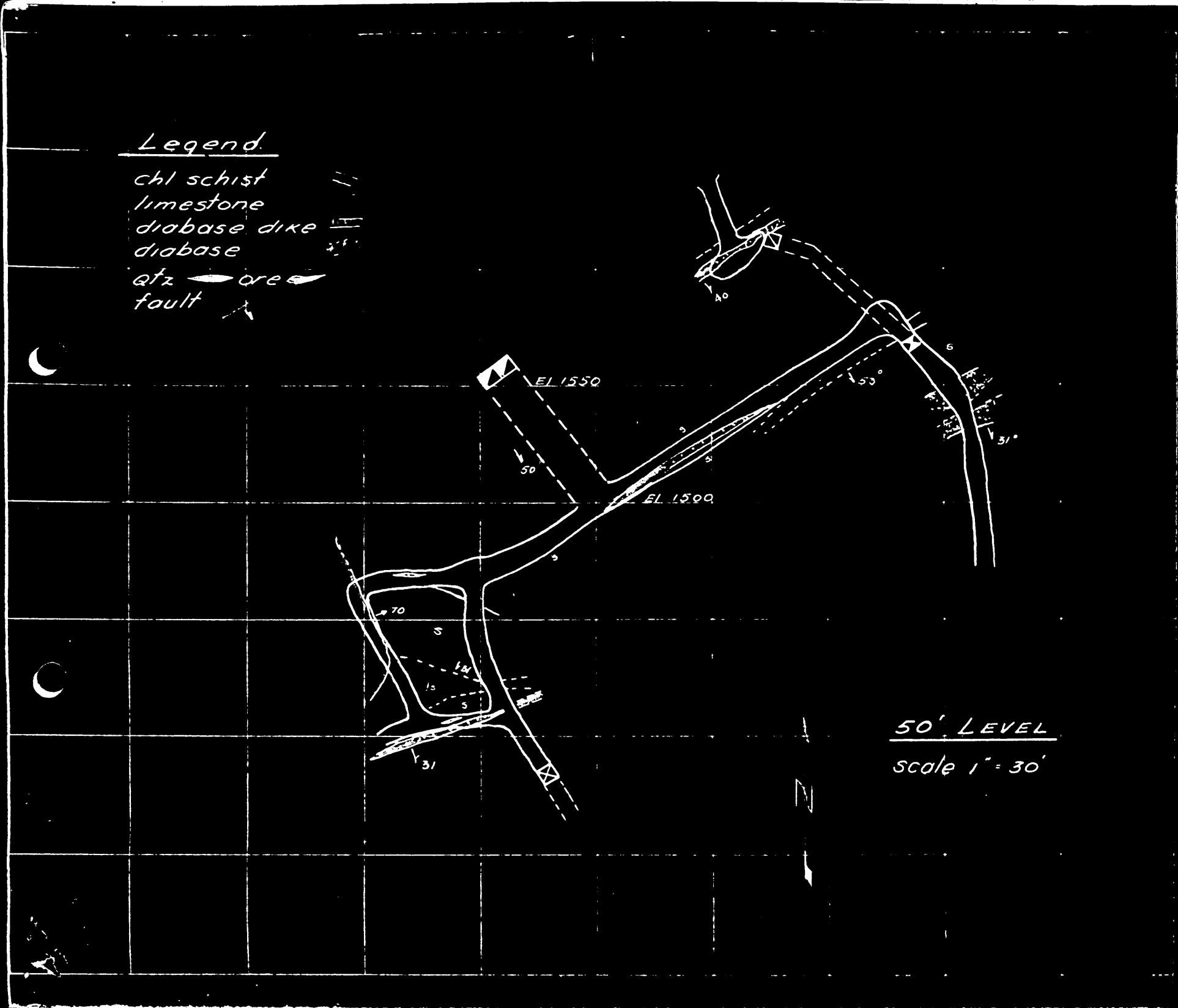
Ore developed on the 50 foot level is that on either side ofthe raise from the face ofthe north footwall drift to the Monohan open-cut. This can be assumed to be a block 65 ft. high 3 ft.thick, and to extend 20 ft. in the plane of the vein. This gives a possible 325 tons of a lamp estimated grade of 0.70 % WO3 or a total of 228 units.

J. H. SAMPSON

The hangingwall block on the 28 foot level is 90 ft. long 3 ft. thick and 65 ft. from the level to the ore in the open -cuts giving some 1450 tons of a 0.65% WO3 grade or 940 units.

J.H.Sampson
Mining Engineer

Wickenburg, Arizona.
December 30, 1953.


Legend
chl schist
limestone
diabase dike
diabase
qtz
ore
fault
EL 1550
EL 1500
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S
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50' LEVEL
scale 1" = 30'

FILE COPY
SURNAME:

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

October 14, 1953

Memorandum

To: Chief, Contract Administration and Audit Division

From: Chief Counsel

Subject: Use of termination forms provided for in DMEA Circular 22 in connection with short-form contracts (Floreen, et al, Docket No. DMEA-2858 Contract Idm-E528)

Reference is made to your memorandum to me of October 12 on the above subject.

In your memorandum you say:

"This Termination Agreement specifies costs of reports, accounts, and winding-up and settlement of actions, as wall as necessary reasonable costs and expenses for taking care of equipment, etc., may be billed to the Government."

Although the termination forms attached to Circular 22 are not suitable without modification for use in connection with the short-form contract, yet I believe you are mistaken in thinking that such use of the form has the effect indicated in your memorandum. Specifically, I think that your statement is erroneous as follows:

1. The form used was not the agreement form but the notice-of-termination form.

2. There is nothing in this form which would indicate that the winding-up costs referred to therein "may be billed to the Government."

The form as used by Mr. King states:

"Any work prosecuted or costs incurred by you after the completion of Stage I, as cited above, shall be for your sole account except for (a) such necessary and reasonable costs and expenses as may be

incurred in preserving and disposing of any facilities, buildings, fixtures, equipment, or other items, to the cost of which the Government has contributed and in which the Government has an equity."

Under a short-form contract, there are no items "to the cost of which the Government has contributed and in which the Government has an equity," and therefore this exception is without any effect.

The second exception in the form as used by Mr. King is:

"(b) the costs of any reports, accounts, and winding-up and settlement actions provided for in the contract."

The short-form contract provides for no such costs, and therefore this exception is without any effect.

The foregoing is not to say that your point is not well taken and that these termination forms should not be used in connection with short-form contracts except with suitable modifications, to avoid the ambiguities created by the use of the inapplicable exceptions contained in the form. Circular 22 was published at about the same time that the short form was devised, and makes no special reference to short-form contracts. The desirability of striking out the inapplicable exceptions when the termination forms are used in connection with short-form contracts, is apparent. However, as indicated above, I do not think that it would be possible to attach any liability to the Government by the use of these forms in connection with short-form contracts even without the modifications indicated.

J. L. Hofflund

J. L. Hofflund
Chief Counsel

J. L. Hofflund:ep

Copy to: Mails & Files
Administrator
Admr. Reading File
Region IV (Mr. King) (2)
Mr. Hofflund
Chron.

FILE COPY
SURNAME:

mde

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

October 12, 1953

Memorandum

To: Mr. J. L. Hoffland
Chief Counsel

From: Jay L. Chambers, Chief (Signed) J. L. Chambers
Contract Administration and Audit Division

Subject: Docket No. DMEA-2858, Contract Idm-8528
A. R. Floreen, George B. Dryden and L. N. Duryea
Yuma County, Arizona (Tungsten)

Attached is a memorandum from Mr. W. H. King and copies of Termination Agreement on the above-cited project.

This is another case where Mr. King used the regular termination form for terminating a short form contract. This Termination Agreement specifies costs of reports, accounts, and winding-up and settlement of actions, as well as necessary reasonable costs and expenses for taking care of equipment, etc., may be billed to the Government. No provision is made in the contract for this type of expenditure.

Attachment

JLChambers/wb
October 12, 1953

Copy to: Docket
Admr. Reading File
Mr. Martin
Mr. Chambers

R.C.G.
10-13-53

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

224 New Customhouse
Denver 2, Colorado

October 2, 1953

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA-~~2558~~ 2858 (Tungsten), Contract Idm-E528, a partnership consisting of A. R. Floreen, George B. Dryden, and L. N. Duryea, Three Musketeers Tungsten Prospect, Yuma County, Arizona

Enclosed are three copies of "Notice of Termination of Exploration Project Contract, Under the Terms of the Contract, Before the Completion of the Work" which has been executed by this office in conformance with authority contained in a teletype from the Chairman of the Operating Committee dated September 30, 1953.

Also enclosed are the original and three copies of a memorandum report from William R. Hardwick, Tucson, Arizona, dated September 18, 1953, and transmittal thereof from the Chief, Mining Methods Branch, Mining Division, Region IV, of the same date, which are relevant to the termination of the contract.

The original notice has been sent to the operators, 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

cc
10-5

Mining Division
Date Rec'd
SEP 24 1953
BUREAU OF MINES
Denver, Colorado

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

SOUTHWEST EXPERIMENT STATION
Box 4097
UNIVERSITY STATION

MINING DIVISION
REGION IV

TUCSON, ARIZONA

September 18, 1953

Memorandum

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

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

Subject : Interim Report, Contract Idm-E528, Docket DMEA-2858, A. R. Floreen & Partners, Three Musketeers Tungsten Prospect, Ellsworth Mining District, Yuma County, Ariz.

Enclosed are original and 6 copies of an interim report on the above property by W. R. Hardwick of the Bureau of Mines. He and John Faick of the Geological Survey visited the prospect on September 1 and 2 after the raise, which we authorized the operator to drive, was completed.

Hardwick recommends that no further work be done and that the contract be terminated. Stage I has been completed. Stage II would be to sink the shaft 75 feet, then drift on the 140-foot level. However, Hardwick believes that additional exploration work is not justified.

From the small amount of scheelite uncovered by this work under Stage I, it seems to me that work under Stage II is not justified, so I recommend that you so notify the operator.

Walter R. Storms

Walter R. Storms

CC W. H. King (6)
DMEA-2858
DF

FOR VICTORY
BUY
UNITED STATES SAVINGS BONDS AND STAMPS

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

SOUTHWEST EXPERIMENT STATION
Box 4097
UNIVERSITY STATION

MINING DIVISION
REGION IV

TUCSON, ARIZONA

September 18, 1953

Memorandum

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

From : William R. Hardwick, Tucson, Ariz.

Subject : Interim Report, Docket DMEA-2858 (Tungsten), Contract Idm-E528, A. R. Floreen & Partners, Three Musketeers Tungsten Prospect, Yuma County, Ariz.

John N. Faick, geologist, U. S. Geological Survey, and the undersigned engineer visited the Three Musketeers tungsten prospect on September 1 and 2, 1953. An unsuccessful attempt was made to contact Ike Kusisto, Floreen's contractor, by phone in Wickenburg. There was no one on the property.

The operator had worked in three places during the month of August, as follows:

First, the Operator had extended the crosscut which bears southeast from the northern end of the northeast drift. At a distance of 26 feet from the drift a second basic dike was encountered. The crosscut did not penetrate this dike. One sample was taken at the face of this crosscut on August 6. Two additional samples were taken along the sides. These samples are shown on Figure 1.

Second, the operator had driven a raise 25 feet above the back of the crosscut at the approximate position suggested by the undersigned on August 6. This raise was started in the back of the crosscut near the point where the sample taken on August 6 gave a value of 0.25 percent WO_3. The tungsten-bearing quartz did not continue upward along the dike but tailed out at a height of about 15 feet and the top of the raise showed barren quartz with no visible tungsten under a mineral light. An approximate section through this raise is shown in Figure 2, Sec. B B'.

Third, the Operator had extended the crosscut which bears south from the southwest drift. This crosscut was turned to bear in a direction normal to the strike of the foliation in order to crosscut possible mineralized lenses of quartz. In this crosscut, one quartz

FOR VICTORY BUY UNITED STATES SAVINGS BONDS AND STAMPS

cc W. H. King (Orig. & 6)
DMEA-2858
DF

lens showed scheelite under the mineral light. The location of this lens is shown on Figure 1 and a normal section is shown in Figure 2, Sec. A A'. A chip sample, taken across this lens at three places, gave 0.26 percent WO_3.

Only the work in the raise was authorized under the terms of the DMEA contract. The other work was performed at the expense of the operator.

In addition to the samples taken on the 65 level, a chip sample was cut across the back of the quartz lens in the small adit southwest of the shaft from which high-grade ore is reported to have been taken. This sample was for a width of 5 feet, which included the narrow streak of high-grade on the footwall. This sample contained 0.49 percent WO_3.

A total of 267 feet of drift and raise has been driven on the 65 level in favorable formations. Much of this work was in quartz, but only about 15 feet contained an abundant showing of scheelite under a mineral lamp. The average of the samples taken in this area was 0.25 percent WO_3. No high-grade ore has been discovered.

Based on the above observations, the following conclusions are drawn:

1. The exact size of the ore body discovered is not known but will probably not total more than a few tens of tons.

2. The tungsten content of the ore discovered will be approximately 0.25 percent WO_3.

3. The discovery of a small body of high-grade ore is possible but not probable, and the cost of searching for such ore is not justified.

4. There is no apparent continuity to the tungsten bearing quartz that can be followed.

Based on the above conclusions it is recommended that the contract be terminated.

William R. Hardwick

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

MINING DIVISION
REGION IV

September 18, 1953

Memorandum

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

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

Subject : Interim Report, Contract Idm-E528, Docket DMEA-2858, A. R. Floreen & Partners, Three Musketeers Tungsten Prospect, Ellsworth Mining District, Yuma County, Ariz.

Enclosed are original and 6 copies of an interim report on the above property by W. R. Hardwick of the Bureau of Mines. He and John Faick of the Geological Survey visited the prospect on September 1 and 2 after the raise, which we authorized the operator to drive, was completed.

Hardwick recommends that no further work be done and that the contract be terminated. Stage I has been completed. Stage II would be to sink the shaft 75 feet, then drift on the 140-foot level. However, Hardwick believes that additional exploration work is not justified.

From the small amount of scheelite uncovered by this work under Stage I, it seems to me that work under Stage II is not justified, so I recommend that you so notify the operator.

Walter R. Storms

Walter R. Storms

CC W. H. King (6)
DMEA-2858
DF

WRStorms:frj

MINING DIVISION
REGION IV

September 18, 1953

Memorandum

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

From : William R. Hardwick, Tucson, Ariz.

Subject : Interim Report, Docket DMEA-2858 (Tungsten), Contract Idm-E528, A. R. Floreen & Partners, Three Musketeers Tungsten Prospect, Yuma County, Ariz.

John N. Faick, geologist, U. S. Geological Survey, and the undersigned engineer visited the Three Musketeers tungsten prospect on September 1 and 2, 1953. An unsuccessful attempt was made to contact Ike Kusisto, Floreen's contractor, by phone in Wickenburg. There was no one on the property.

The operator had worked in three places during the month of August, as follows:

First, the Operator had extended the crosscut which bears southeast from the northern end of the northeast drift. At a distance of 26 feet from the drift a second basic dike was encountered. The crosscut did not penetrate this dike. One sample was taken at the face of this crosscut on August 6. Two additional samples were taken along the sides. These samples are shown on Figure 1.

Second, the operator had driven a raise 25 feet above the back of the crosscut at the approximate position suggested by the undersigned on August 6. This raise was started in the back of the crosscut near the point where the sample taken on August 6 gave a value of 0.25 percent WO_3. The tungsten-bearing quartz did not continue upward along the dike but tailed out at a height of about 15 feet and the top of the raise showed barren quartz with no visible tungsten under a mineral light. An approximate section through this raise is shown in Figure 2, Sec. B B'.

Third, the Operator had extended the crosscut which bears south from the southwest drift. This crosscut was turned to bear in a direction normal to the strike of the foliation in order to crosscut possible mineralized lenses of quartz. In this crosscut, one quartz

CC W. H. King (Orig. & 6)
DMEA-2858
DF

WRHardwick:frj

lens showed scheelite under the mineral light. The location of this lens is shown on Figure 1 and a normal section is shown in Figure 2, Sec. A A'. A chip sample, taken across this lens at three places, gave 0.26 percent WO_3.

Only the work in the raise was authorized under the terms of the DMEA contract. The other work was performed at the expense of the operator.

In addition to the samples taken on the 65 level, a chip sample was cut across the back of the quartz lens in the small adit southwest of the shaft from which high-grade ore is reported to have been taken. This sample was for a width of 5 feet, which included the narrow streak of high-grade on the footwall. This sample contained 0.49 percent WO_3.

A total of 267 feet of drift and raise has been driven on the 65 level in favorable formations. Much of this work was in quartz, but only about 15 feet contained an abundant showing of scheelite under a mineral lamp. The average of the samples taken in this area was 0.25 percent WO_3. No high-grade ore has been discovered.

Based on the above observations, the following conclusions are drawn:

1. The exact size of the ore body discovered is not known but will probably not total more than a few tens of tons.

2. The tungsten content of the ore discovered will be approximately 0.25 percent WO_3.

3. The discovery of a small body of high-grade ore is possible but not probable, and the cost of searching for such ore is not justified.

4. There is no apparent continuity to the tungsten bearing quartz that can be followed.

Based on the above conclusions it is recommended that the contract be terminated.

William R. Hardwick

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

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

September 30, 1953

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division, DMEA

Subject: Request for authority to terminate contract under reason "C"
Docket No. DMEA 2858 - Tungsten
Floreen, Dryden, and Duryea, partners
Three Musketeers mine
Yuma County, Arizona
Contract No. Idm-E528

The subject contract was prepared and executed by Region IV. The exploration program was set up in two stages with stage 2 to be started only with the written consent of the DMEA representative. An outline of the exploration project and estimated costs follow:

Stage 1

Drift northeasterly on 65-foot level 85 feet @ $34.50 per foot	$2,932.50
Drift southwesterly on 65-foot level 65 feet @ $34.50 per foot	2,242.50
Raising above 65-foot level 50 feet @ $23.50 per foot	1,175.00
	$6,350.00

Stage 2

Sink No. 1 shaft 75 feet @ $86.00 per foot	$6,450.00
Drift northeasterly on 140-foot level 85 feet @ $34.50 per foot	2,932.50
Drift southwesterly on 140-foot level 65 feet @ $34.50 per foot	2,242.50
Raising above 140-foot level 70 feet @ $23.50 per foot	1,645.00
	$13,270.00
TOTAL	$19,620.00
GOVERNMENT SHARE	14,715.00

In the project area, a series of quartz lenses containing scheelite occurs in limestone intercalated between quartz mica schist. Individual lenses are not more than 40 feet in length, 5 feet in width, and usually feather out at each end.

Shaft No. 1 had been sunk to an inclined depth of 65 feet between two adits 85 feet apart on two such lenses. The Operator proposed to drift from the bottom of the shaft to explore under the high grade pockets. Production from the two lenses totaled $7,400.00 worth of scheelite. Shaft No. 1 started in a lens which feathered out at a depth of 25 feet. There is no evidence to warrant the belief that the average depth of a lens will be more than its length.

Work under Stage I of the contract, on the 65-foot level, has now been completed. The drift to the southwest showed no appreciable scheelite. The northeast drift shows stronger scheelite mineralization but is estimated by the Field Team to contain less than 0.1 percent tungsten. The results from the 25-foot raise are not known except from Field Team's teletype of September 25 which requests authority to terminate the contract on the ground that results are negative and Stage II is not warranted.

This Division concurs with the termination of the subject contract.

W S Martin

W. S. Martin, Chief
Iron and Ferro-Alloys Division

FILE COPY
SURNAME:

Rutledge
Heartline

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

September 30, 1953

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division, DMEA

Subject: Request for authority to terminate contract under reason "C"
Docket No. DMEA 2858 - Tungsten
Floreen, Dryden, and Duryea, partners
Three Musketeers mine
Yuma County, Arizona
Contract No. Idm-D528

The subject contract was prepared and executed by Region IV. The exploration program was set up in two stages with stage 2 to be started only with the written consent of the DMEA representative. An outline of the exploration project and estimated costs follow:

Stage 1

Drift northeasterly on 65-foot level 85 feet @ $34.50 per foot	$2,932.50
Drift southwesterly on 65-foot level 65 feet @ $34.50 per foot	2,242.50
Raising above 65-foot level 50 feet @ $23.50 per foot	1,175.00
	$6,350.00

Stage 2

Sink No. 1 shaft 75 feet @ $86.00 per foot	$6,450.00
Drift northeasterly on 140-foot level 85 feet @ $34.50 per foot	2,932.50
Drift southwesterly on 140-foot level 65 feet @ $34.50 per foot	2,242.50
Raising above 140-foot level 70 feet @ $23.50 per foot	1,645.00
	$13,270.00

TOTAL	$19,620.00
GOVERNMENT SHARE	14,715.00

R.C.G. 9-30-53

In the project area, a series of quartz lenses containing scheelite occur in limestone intercalated between quartz mica schist. Individual lenses are not more than 40 feet in length, 5 feet in width, and usually feather out at each end.

Shaft No. 1 had been sunk to an inclined depth of 65 feet between two adits 85 feet apart on two such lenses. The Operator proposed to drift from the bottom of the shaft to explore under the high grade pockets. Production from the two lenses totaled $7,400.00 worth of scheelite. Shaft No. 1 started in a lens which feathered out at a depth of 25 feet. There is no evidence to warrant the belief that the average depth of a lens will be more than its length.

Work under Stage I of the contract, on the 65-foot level, has now been completed. The drift to the southwest showed no appreciable scheelite. The northeast drift shows stronger scheelite mineralization but is estimated by the Field Team to contain less than 0.1 percent tungsten. The results from the 25-foot raise are not known except from Field Team's teletype of September 25 which requests authority to terminate the contract on the ground that results are negative and Stage II is not warranted.

This Division concurs with the termination of the subject contract.

SIGNED

W. S. Martin, Chief
Iron and Ferro-Alloys Division

FARutledge/ls
9/30/53

cc: Docket
Adm. Read. File
Oper. Committee
Code 400

FILE COPY
SURNAME:

Rutledge
Martin
Fowler
Hedges
Selfridge
R. J. Nelson

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

DEFENSE MINERALS PROCUREMENT ADMINISTRATION
FARutledge/ls
5285 3538

14X3923.970
September 30, 1953

. H. King, DMEA Executive Officer, Region IV, Denver, Colorado

Reurtt September 25. You are hereby authorized to terminate contract No. Idn-3528, Docket No. DMEA 2358, Floreen, Dryden & Duryea, inasmuch as you have found that further exploration is not warranted.

George C. Selfridge

G. C. Selfridge
Chairman, Operating Committee

CC: DOCKET
ADM. READ. FILE
FIELD TEAM, REG. IV CONFIRMATION
AUDITS DIVISION, BUR. OF MINES
CODE 400
OPER. COMMITTEE
R.W. GEEHAN, USBM
MARY MILLER, USGS

FARutledge/ls
9/30/53

R.C.S. 9-30-53

Defense Minerals Administration
RECEIVED
OCT 1 1953

345 DN WAF /I-BOM/

WASHINGTON 9-30-53 405P

W H KING

DMEA EXECUTIVE OFFICER DN

REURTT SEPTEMBER 25. YOU ARE HEREBY AUTHORIZED TO TERMINATE CONTRACT NO. IDM-E528, DOCKET NO. DMEA 2858, FLOREEN, DRYDEN AND DURYEA, INASMUCH AS YOU HAVE FOUND THAT FURTHER EXPLORATION IS NOT WARRANTED.

G C SELFRIDGE CHAIRMAN, OPERATING COMMITTEE

25 IDM-E528 2858

EF 407P

OCT 1 10 02 AM '53
BUREAU OF MINES
MAIL ROOM
WASHINGTON D. C.

Mr. C. O. Mittendorf
Sept. 25, 1953
12:15 P.M.
J.B.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 25 1953

DN 235 BUREAU MINES 9-25-53 8-37 AM

C O MITTENDORF

REFERENCE DOCKET 2858, CONTRACT IDM-E528, FLOREEN, DRYDEN AND DURYEA. STAGE I HAS BEEN COMPLETED. APPRAISAL OF RESULTS INDICATES TAHTXXX THAT FURTHER WORK IS NOT WARRANTED. PLEASE TELETYPE AUTHORITY TO TERMINATE CONTRACT UNDER REASON "C".

W H KING

Denver, Colo.

SEP 25 1 31 PM '53
BUREAU OF MINES
MAIL ROOM
WASHINGTON, D.C.

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

224 New Customhouse
Denver 2, Colorado

August 17, 1953

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA-2858 (Tungsten), Contract Idm-E528, a partnership consisting of A. R. Floreen, George B. Dryden and L. N. Duryea, Yuma County, Arizona

Enclosed is the following material relative to work under the subject contract:

1. The original and three copies of an interim report by William R. Hardwick, Mining Engineer, Tucson, Arizona, dated August 7, 1953, and transmittal thereof from the Chief, Mining Methods Branch, Mining Division, Region IV, dated August 10, 1953.

2. Four copies of a letter dated August 12, 1953 from Walter R. Storms, Chief, Mining Methods Branch, Mining Division, Region IV, to Mr. A. R. Floreen, authorizing a 25 foot raise as the final work under Stage 1 of the contract (map attached).

As indicated in the interim report and Storms' letter to Floreen, work will be appraised after completion of the raise and a decision made relative to the performance of work under Stage 2.

W. H. King
W. H. King

Enclosures

Mining Division
Line Field
1953
Bureau of Mines
Denver Colorado

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
MINING DIVISION
REGION IV

SOUTHWEST EXPERIMENT STATION
BOX 4097
UNIVERSITY STATION

TUCSON, ARIZONA

August 10, 1953

Memorandum

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

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

Subject : Interim Report, Contract Idm-E528, Docket DMEA-2858, Three Musketeers Tungsten Mine, Ellsworth Mining District, Yuma County, Ariz.

Enclosed are original and six copies of a report by W. R. Hardwick of the Bureau of Mines about work under Contract No. Idm-E528. Under Stage I, very little scheelite was found by the 65-foot level drifting. Hardwick recommends that one 25-foot raise be driven as shown on the attached map. If no scheelite mineralization of interest is found in this raise, then he recommends that the contract be terminated and no work be done under Stage II. I concur with these recommendations.

If ore is found in the raise, then we again will evaluate the project and possibly recommend some work under Stage II, although this now seems unlikely as there seems little chance of finding ore below the 65-foot level when only minor amounts of mineralization were found on it.

Walter R. Storms

Walter R. Storms

CC W. H. King (6)
DMEA-2858
DF

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

SOUTHWEST EXPERIMENT STATION
BOX 4097
UNIVERSITY STATION

MINING DIVISION
REGION IV

TUCSON, ARIZONA

August 7, 1953

Memorandum

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

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

Subject : Interim Report, Docket DMEA-2858, Contract Idm-E528, A. R. Floreen's Three Musketeers Tungsten Prospect, Yuma County, Ariz.

The Three Musketeers Tungsten prospect was visited on August 6, 1953 for the purpose of examining the results of the drifting authorized by Stage I of the contract. Mr. John Brusco, owner, accompanied the undersigned to the property and assisted in measuring the drifts. The work was discussed with Ike Kusisto, Floreen's contractor, before the property was visited.

The drift along the southwestern strike of the mineralized zone on the 65-foot level showed very little scheelite with a mineralight. It is recommended that no further work be done in this direction under the contract.

The drift along the northeastern strike of the mineralized zone shows much stronger scheelite than the one to the southwest. A crosscut (driven at operator's expense) at a distance of 82 feet northeast of the shaft, which bears southeast, shows fair scheelite mineralization in the face. This point is at approximately the same relative location as that where the high-grade ore was found on the surface. A raise at this point might discover some high-grade ore, and it is recommended that a raise of not to exceed 25 feet be allowed. The proposed location is shown on the attached sketch.

The drifting under Stage I of the contract has discovered no high-grade ore. While some scheelite is shown by mineralight in the northeast drift, the tungsten content is probably very low.

CC W. H. King (Orig. & 6)
DMEA-2858
DF

In the face of the crosscut where the proposed raise is shown, John Brusco estimated the tungsten content at 0.25 percent. A sample was taken but returns are not yet available. It is the undersigned engineer's opinion that the assay will show less than 0.10 tungsten. Unless the proposed raise encounters some high-grade scheelite ore it is recommended that the contract be cancelled.

William R. Hardwick

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

Mining Division
Date Rec'd.
AUG 14 1953
BUREAU OF MINES
Denver, Colorado

RECEIVED

MINING DIVISION
REGION IV

Air mail

August 12, 1953

Re: Docket DMEA-2858,
Contract Idm-E528,
Three Musketeers Tungsten
Mine, Yuma County, Ariz.

Mr. A. R. Floreen
208 South La Salle St.
Chicago 90, Illinois

My dear Mr. Floreen:

Our engineer, Mr. W. R. Hardwick, recently examined your work at the Three Musketeers tungsten mine in the Ellsworth Mining District of Yuma County, Ariz., done under contract No. Idm-E528. He first talked to Mr. Ike Kusisto in Wickenburg but as Mr. Kusisto was unable to accompany Mr. Hardwick to the mine, Mr. John Brusco went with him.

After an inspection of the work done on the 65-foot level under the DMEA contract, Mr. Hardwick recommended that a 25-foot raise be driven from near the end of the northeast drift, as shown on the attached map. This raise should be driven behind, or southeast of the basic dike.

After this raise has been completed, we again will examine the work and then will inform you regarding Stage II of the contract. At the present time conditions are not toofavorable for work under Stage II.

Sincerely yours,

Walter R. Storms

Walter R. Storms, Chief
Mining Methods Branch
Mining Division, Region IV

CC Mr. Ike Kusisto
Mines Contracting Co.
279 South Tegnar St.
Wickenburg, Ariz.

CC W. H. King (6)
DMEA-2858
DF

WRStorms:frj

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

Defense Minerals Administration
AUG 17 1953

224 New Customhouse
Denver 2, Colorado

August 13, 1953

Memorandum

To: C. O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA-2858 (Tungsten), Contract Idm-E528, A. R. Floreen, George B. Dryden and L. N. Duryea, Yuma County, Arizona

Enclosed are the original and two copies of two documents by which George B. Dryden and L. N. Duryea appoint A. R. Floreen to act as their agent in conducting matters pertaining to the subject contract.

W. H. King

W. H. King

Enclosures

I, the undersigned, a member of the mining partnership consisting of A. R. Floreen, George B. Dryden and L. N. Duryea, do hereby appoint A. R. Floreen to act as the agent of said partnership in all matters connected with the United States Department of the Interior, Defense Materials Exploration Administration, DMEA Docket 2858 (Tungsten), Contract Idm-E528, and, in behalf of said partnership, to submit to the Government all necessary reports and information required under said contract; and said agent is authorized to receive, individually, and to receipt for, any monies that are now or may hereafter become due to said partnership by reason of said Contract Idm-E528.

George B. Dryden

George B. Dryden

July 31, 1953

I, the undersigned, a member of the mining partnership consisting of A. R. Floreen, George B. Dryden and L. N. Duryea, do hereby appoint A. R. Floreen to act as the agent of said partnership in all matters connected with the United States Department of the Interior, Defense Materials Exploration Administration, DMEA Docket 2858 (Tungsten), Contract Idm-E528, and, in behalf of said partnership, to submit to the Government all necessary reports and information required under said contract; and said agent is authorized to receive, individually, and to receipt for, any monies that are now or may hereafter become due to said partnership by reason of said Contract Idm-E528.

L. N. Duryea

L. N. Duryea

July 31, 1953

FILE COPY
SURNAME:

400

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

Rutledge
Martin
Selfridge
Middleton

JUL 6 1953

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

Re: Docket No. DMEA 2858 - Tungsten
Floreen, Dryden, & Duryea, partners
Three Musketeers mine
Yuma County, Arizona
Contract No. Idm-E528

Dear Mr. King:

Reference is made to the subject contract and our letter of June 9, 1953.

We now note from the Field Team report that the interval between levels is short, and consequently we believe that close control by the Field Team will be required to make sure that the raise work is not carried beyond a reasonable delineation and sampling of the ore.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee

APPROVED:

J. H. Hedges
Member, Bureau of Mines

A. R. Kinkel, Jr.
Member, Geological Survey

FARutledge:foc
7-2-53

cc: Docket
Code 400
FT. Reg. 4
Operating Comm.
Adm. Reading File
R. W. Geehan, USBM
D. M. Lemmon, USGS

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

224 New Customhouse
Denver 2, Colorado

June 30, 1953

Memorandum

To: Chairman of the Operating Committee
Defense Minerals Exploration Administration

From: Executive Officer, DMEA Field Team, Region IV

Subject: Contract Idm-E528, Docket DMEA 2858, Floreen, Dryden and Duryea, Three Musketeers Mine, Ellsworth Mining District, Yuma County, Arizona (Tungsten)

Enclosed are two copies of a memorandum by Morris J. Elsing, Bureau of Mines Engineer, justifying the cost under contract Idm-E528.

This information was requested in your memorandum dated June 9, 1953.

W. H. King
W. H. King

Enclosures

MINING DIVISION
REGION IV

June 22, 1953

Memorandum

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

Chief : Mining Methods Branch, Mining Div., Region IV

Subject : Contract Idm-5528, Docket DMEA 2858, Floreen, Dryden and Duryea, Three Musketeers Tungsten Mine, Ellsworth Mining District, Yuma County, Ariz.

In answer to your memorandum of June 16, asking us to justify the costs under Contract Idm-5528, we are enclosing a memorandum by Morris J. Elsing, consulting mining engineer of the Bureau of Mines, who originally made the examination of the Three Musketeers.

Walter R. Storms

Walter R. Storms

CC W. H. King (6)
DMEA-2858, Contract
DF

WRStorms:frj

MINING DIVISION
REGION IV

June 22, 1953

Memorandum

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

From : M. J. Klasing, Consulting Mining Engineer, Bureau of Mines, Tucson, Ariz.

Subject : Contract Idm-2328, Docket No. DMEA-2858, Flaroom, Bryden & Duryea, Three Musketeers Tungsten Mine, Yuma County, Ariz.

This is in reply to a request made on June 16, 1953 by the Executive Officer of Region IV to justify prices recommended in the above captioned contract.

In a letter dated June 9, 1953 to the Executive Officer of Field Team Region IV, the chairman of the Operating Committee noted that "the agreed unit prices are appreciably higher than those quoted to the Operator by a competent and experienced contractor. In addition we believe that raising as planned between levels having such a small interval might be considered to constitute development unless the raises were obviously intended to explore for mineralization not exposed in the drifts".

The Three Musketeers project was recommended on the basis of an expenditure of $22,915 as shown below:

Stage 1

Drift NE on 65-foot level, 85 ft. @ $30	$2,550
Drift SW on 65-foot level, 65 ft. @ $30	1,950
Raise in NE drift, 65 feet @ $20	1,300
Raise in SW drift, 50 feet @ $20	1,000
Contractor's price	$6,800
Plus company expense 15%	1,020
Total cost, Stage No. 1	$7,820

CC W. M. King (Orig. & 6)
DMEA-2858, contract
DF

MJKlasing:frj

Stage 2

Sink shaft No. 1 75 ft. @ $75	5,625
Drift NE on 140-foot level, 85 ft. @ $30	2,550
Drift SW on 140-foot level, 65 ft. @ $30	1,950
Raise in NE drift, 75 ft. @ $20	1,500
Raise in SW drift, 75 ft. @ $20	1,500
Contractor's price	$13,125
Plus company expense, 15%	1,970
Total cost Stage 2	$15,095
Stage 1 and 2	$22,915

The contract was approved by the Region IV Field Team on the following basis:

Stage 1

Drift northeasterly on 65-foot level 85 feet @ $34.50	$2,932.50
Drift southwesterly on 65-foot level 65 feet @ $34.50	2,242.50
Raising above 65-foot level, 50 feet @ $23.50 per foot	1,175.00
Total cost stage 1	$6,350.00
Government participation Stage 1 at 75%	4,762.50

Stage 2

Sink No. 1 shaft 75 feet @ $86.00 per foot	6,450.00
Drift northeasterly on the 140-foot level 85 feet @ $34.50	2,932.50
Drift southwesterly on the 140-foot level 65 feet @ $34.50	2,242.50
Raising above the 140-foot level, 70 feet @ $23.50 per foot	1,645.00
Total cost stage 2	$13,270.00
Government participation Stage 2 at 75%	9,952.50
Government participation - Stage 1 plus Stage 2 at 75%	$14,715.00
Total cost, stages 1 and 2	$19,620.00

The unit costs used in the recommendation were as follows:

	Contractors price per ft.	Company expenses per ft.	Total Cost per ft.
Drifting	$30.00	$4.30	$34.30
Raising	20.00	3.00	23.00
Sinking	73.00	11.25	84.25

A flat 15 percent was added to the contractor's prices to cover company expense directly chargeable to the work. The report states "the 15 percent is allowed to cover supervision, surveying, assaying and miscellaneous expenses".

It is certain that this project can not be supervised efficiently from Chicago. It is essential that the applicant employ a full time supervisor capable of taking full charge of the operation. He should be a miner capable of supervising the contract and he should be able to make reports and do whatever bookkeeping is necessary. Another item of importance is sampling and assaying.

It is true that the independent contractor is "competent and experienced". He has submitted a low price for the work and therefore supervision of his work is all the more necessary because the bid on the work is low. There should be no need to justify a cost plus 10 percent for supervision as this is common practice. It was intended that the additional 5 percent would cover costs of assaying, bookkeeping and incidental expenses. In setting a figure of 15 percent, the cost of properly supervising this project and doing the other things necessary was estimated as nearly as possible and then reduced to a flat 15 percent with the expectation that the applicants would pay the additional costs.

As far as raising is concerned it is disappointing to see that one raise that was recommended, was eliminated from the contract and that doubt has been expressed that even one raise should have been allowed. This exploration has two very small targets as expressly stated in the examiner's report. In other words, two very small pockets of scheelite ore produced $7,412.82 net receipts to the owners. To explore for the downward extension of these small ore bodies requires raising as well as drifting. It is not anticipated that these high-grade pockets will extend to the 65-foot level and therefore raising

is believed essential to find them. If the raising is not done either under the contract or at the expense of the applicant, the project can be written off now as a failure. If the raising is done it is believed that there is a possibility of finding a small amount of bonanza ore and that there is a good chance that the cost of exploration can be repaid.

The writer believes that under certain conditions, drifting and raising are development and under other conditions they are exploration. It is believed in the case of the Three Musketeers, that the raising proposed is exploration, and furthermore that raising will have to be done by some one if the cost of the project is to be returned.

M. J. Elsing

M. J. Elsing, Consulting Mining Engineer
Mining Methods Branch
Mining Division, Region IV

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

224 New Customhouse
Denver 2, Colorado

June 9, 1953.

Memorandum

To: Secretary to the Operating Committee

From: Field Team, Region IV

Subject: Final Report - Docket No. DMEA 2858 (Tungsten), Three Musketeers, Yuma County, Arizona.

Enclosed are the original and three copies of the final report on Docket No. DMEA 2858.

A contract has been prepared and is in force.

John F. Shaw
For W. H. King

A. H. Koschmann

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
6-19-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

March 27, 1953.

Memorandum

To: DMEA Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 2858 (Tungsten), Three Musketeers, Yuma County, Arizona.

Enclosed are nine copies of the final engineering report on the subject docket.

A modified exploration project is recommended by the examining engineer to confine the work to sinking, drifting and raising on the Three Musketeers No. 6 Claim.

We concur in the recommendations of the examining engineer except we have cut his raise footage from a total of 265 feet to a total of 125 feet to preclude any possibility of blocking ore on exploration funds.

The estimated cost we recommend is $19,620.00, Government participation - $14,715.00.

W. H. King
W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
6-19-53
(date)

MINING DIVISION
REGION IV

March 19, 1953

Memorandum

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

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

Subject : Final Report, Docket DMEA-2858, Three Musketeers Tungsten Mine, Ellsworth Mining District, Yuma County, Ariz.

Enclosed are original and 8 copies of a report on the above property by M. J. Elsing and R. W. Agnew of the Bureau of Mines. A separate report on geology will not be submitted by the Geological Survey as it did not participate in this examination.

The DMEA examiners could not agree with the applicant's proposals for exploring this tungsten deposit, so have set up a modified project for $22,915. However, as the applicant was unable to visit the property with the DMEA examiners, his consent to this revised program has not been obtained. Owners of the property did not know that they would have to subordinate their interests to the Government, so owner's subordination agreements may not be obtainable.

The examiners recommend a revised program of shaft sinking, drifting and raising that would cost a total of $22,915 and would take about 9 months to complete. I concur with their recommendations.

Brochure is enclosed.

Walter R. Storms

Walter R. Storms

CC: W. H. King (8)
DMEA-2858
A. F. Shride
DF

WRStorms:als

Reviewed by
DMEA OPERATING COMMITTEE
6-19-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA-2858, Three Musketeers Tungsten Mine

Ellsworth Mining District, Yuma County, Ariz.

M. J. Elsing, Consulting Mining Engineer
U. S. Bureau of Mines

R. W. Ageton, Mining Engineer
U. S. Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE
6-19-53
(date)

March 1953

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By M. J. Elsing[1] and R. W. Ageton[2]

On January 13, 1953, the Executive Officer of the Defense Minerals Exploration Administration, Region IV, requested that an examination and report be made on the feasibility of Government participation in an exploration project on the Three Musketeers group, located in the Ellsworth Mining District, Yuma County, Ariz. A. R. Floreen of Chicago, lessee of the group, was the applicant. The proposed work was planned to explore surface workings at a depth shallow. These workings had produced some $7,400 worth of Scheelite. The total cost of the work proposed by Floreen was estimated to be $24,500. The application had been given Docket Number DMEA-2858 (Tungsten).

On February 24 to 26, 1953 M. J. Elsing and R. W. Ageton visited the property in the company of John Brusco, one of the owners. The surface showings and underground workings were examined and all dumps and outcrops were re-examined at night with ultra-violet ray lamps. Samples were taken representing several hundred tons of ore presently being stoped and placed in surface stockpiles.

A series of quartz lenses occur in limestone in a narrow curving band some 2,000 feet long. Individual lenses are not more than 40 feet in length, 5 feet in width, and usually feather out at each end. They may occur en echelon or in some cases they may be parallel. In most instances they occur along the bedding of the limestone, which has a

---

1/ Consulting Mining Engineer, U. S. Bureau of Mines
2/ Mining Engineer, U. S. Bureau of Mines

dip of from 20 to 50 degrees, but in a few cases lenses are almost flat. Cross faulting is of small displacement. Scheelite occurs in the quartz and on its contact with the limestone, but all quartz does not contain scheelite.

It is obvious from the surface exposures of quartz that the ore bodies which might be found would be small lense-like masses which probably would have all of the characteristics of shape that are shown by the outcrops. The work done at the No. 2 shaft shows this to be the case. Judging from the surface showings the amount of exploration necessary to block out ore would be great. A second deduction made is that the cost of mining ore bodies that conform to the size, shape, and attitudes of the surface showings would be high. Exploration now being done at No. 2 shaft confirms both of these deductions.

At No. 2 shaft the footwall vein is exposed in 3 raises in the roof of the drift. The average width is only 21 inches. Since the vein is nearly flat the expense of mining it will be great. The hanging wall vein is wider but the lense is only 30 feet long. It dips at an angle which is less than the angle of repose of broken ore, making it a costly mining operation.

Shaft No. 1 was sunk by Floreen. It is located between 2 adits, 85 feet apart. High-grade ore was produced by the owners from both of these adits. The shaft started in quartz containing scheelite, but at a depth of 25 feet the quartz feathered out and the shaft continued in limestone to a depth of 65 feet. The applicant's maps show that the shaft dips at 60° to 65°, but actually the shaft has a dip of 50°.

The Three Musketeers group is owned by Brusco, Wood, and Huthmacher of Salome and Wenden, Ariz. They located these claims in late 1951 and early 1952, and produced high-grade ore which they milled at Wenden, Ariz. Concentrates were shipped to Elmer Fernstrom at Tucson. The receipts from the sale of concentrates total $7,400. This ore came from 2 short adits, 85 feet apart, representing about 45 feet of drifting on the vein in the Shaft No. 1 area.

Floreen took an option on the property in May 1952 and has done about 400 feet of exploration work. Instead of drifting under the 2 high-grade pockets which produced $7,400 in the Shaft No. 1 area, he abandoned the area in favor of work in the Shaft No. 2 area. Shaft No. 2 was sunk to a depth of 46 feet on a 45° incline, and 300 feet of drifting and cross-cutting was done on 2 flat, narrow, parallel veins averaging 2 to 3 feet in width.

The shaft ore dump containing some 200 tons of ore, and the ore in two small underground stopes were sampled. The average of 4 samples was 0.2 percent WO_3. The veins being narrow and flat, the cost of mining and exploration will be exceedingly high. The surface evidence of ore is indicative of small, narrow, flat veins. This is exactly what was found underground. Further work at Shaft No. 2 is not believed to be warranted and it is recommended that exploration in this area as applied for by Floreen be denied.

At Shaft No. 1 the vein has a width of 5 feet at the two points from which the high-grade ore was mined. The dip of the vein is 50°, therefore mining will be comparatively economical. There is some very high-grade

scheelite in the north adit and a sample of an ore pile in the south adit shows 0.42 percent WO_3. The project is set up for quick and economical exploration. It is proposed that from the bottom of Shaft No. 1, drifts be driven north and south to get under the high-grade pockets which produced $7,400 worth of scheelite.

The proposed work has been divided into 2 stages. Stage No. 1 includes drifting north 85 feet and raising 65 feet to get into the north adit high-grade ore, and drifting south 65 feet and raising 50 feet to get into the south adit ore. Stage No. 2 includes sinking the shaft 75 feet, then drifting north and south on the new level and raising to the first level at a cost of $15,095. It is almost certain that Stage No. 1 will produce some good ore and it might open up enough ore to warrant Stage No. 2.

Since it is believed that additional ore containing appreciable amounts of scheelite will be found by exploration in depth under the adits in the Shaft No. 1 area, it is recommended that a modified exploration project with a maximum cost of $22,915 be approved. It also is recommended that this project be set up in two stages, with Stage No. 1 costing $7,820 and Stage No. 2 costing $15,095. If Stage No. 1 does not prove sufficient ore to insure the repayment of that part of the loan, it is recommended that Stage No. 2 of this project be cancelled.

The applicant proposes to do all exploration by contracting on a footage basis. The contractor will supply all equipment and facilities. It is suggested that the applicant be allowed 15 percent over and above the contract price in order to cover his supervisionary and overhead

expenses, making the total cost of drifting $34.50 per foot, raising $23.00 per foot, and shaft sinking, $86.25 per foot. This allowance is in lieu of his request for a lump sum for these items.

The present recommendation eliminates the applicant's request for exploration at Shaft No. 2, and slightly modifies and increases the work to be done at Shaft No. 1. The revised project was not discussed with the allicant as applicant was in the East and could not get to the property for the examination. Brusco, his representative, stated that it was his opinion that the discovery of ore in the Shaft No. 1 area was much better than in the Shaft No. 2 area.

DMEA-2858, THREE MUSKETEERS TUNGSTEN MINE
ELLSWORTH MINING DISTRICT, YUMA COUNTY, ARIZ.

Engineering Report

By M. J. Elsing
Consulting Mining Engineer
U. S. Bureau of Mines

R. W. Ageton
Mining Engineer
U. S. Bureau of Mines

March 1953

DMEA-2858, THREE MUSKETEERS TUNGSTEN MINE
ELLSWORTH MINING DISTRICT, YUMA COUNTY, ARIZ.

CONTENTS

Engineering report	Page
Introduction	1
Acknowledgments	1
Location, topography and physical features	2
History and production	2
Ownership and extent	4
Description of deposits	5
Minable ore reserves	6
Present status	8
Project proposals	9
Production plan	13
Summary: Costs of project	16
Proposed financing	17
Conclusions	17
Recommendations	21

ILLUSTRATIONS

Figure		Following page
1	Location map	2
2	Claim map	3
3	Applicants proposed exploration, Shaft 2	4
4	Modified plan of exploration, Shaft 1	8

INTRODUCTION

On January 13, 1953, the Executive Officer of the Defense Minerals Exploration Administration, Region IV, requested that an examination and report be made on the feasibility of Government participation in an exploration project on the Three Musketeers group, located in the Ellsworth Mining district, Yuma County, Ariz. A. R. Floreen, lessee of the group, was the applicant. The proposed work was planned to explore at depth shallow surface workings which had produced some $7,400 worth of scheelite. The total cost of the proposed work was estimated to be $24,500. The application had been given Docket Number DMEA-2858 (Tungsten).

On February 24 to 26, 1953, M. J. Elsing and R. W. Ageton visited the property in the company of John Brusco, one of the owners. The surface showings and underground workings were examined, and all dumps and outcrops were re-examined at night with ultra-violet ray lamps. Samples were taken representing several hundred tons of ore presently being stoped and placed in surface stock piles.

ACKNOWLEDGMENTS

Acknowledgments are due John Brusco, one of the three owners of the property. Brusco accompanied the DMEA examiners to the mine and gave them all information regarding the results of the operation of the property before it was leased to Floreen. He was not familiar with the application and could not discuss possible changes and modifications of the program. Information supplied by Brusco was of value in drawing conclusions as to the merits of the project.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

The property is located in secs. 24 and 25, T. 6 N., R. 15 W., in the Ellsworth mining district, Yuma County, Ariz. (see figure 1).

The property is reached from Salome by following U. S. Highway 60-70 for 7 miles to Hope, where a turn to the northwest is made and State Highway 72, which parallels the Santa Fe Railroad, is followed for 9 miles to McVay. The paved highway is left just before reaching a railroad water tank at McVay. A dirt road runs from the highway and passes under a low railroad bridge. From this bridge the Yuma Copper mine road is followed in a northeasterly direction for 1.5 miles, where a turn is made to the north. This branch road is followed for 3.5 miles to the Three Musketeers mine.

The mine workings are situated in rolling hills at the southwesterly end of the Harcuvar Range. The area is dry and arid with an approximate altitude of 2,000 feet. The winters are mild and the summers are hot.

HISTORY AND PRODUCTION

The claims, comprising the Three Musketeers group, were located in the latter part of 1951 and the early part of 1952 by Brusco, Wood, and Huthmacher. Immediately upon the location of these claims the owners started mining scheelite ore from shallow surface workings. They concentrated this ore in a small mill which they erected at Wenden. The mill consisted of a small crusher, a ball mill, and a concentrating table. Four shipments of scheelite concentrates were made to Fernstrom, a purchaser of tungsten concentrates in Tucson. These shipments were as follows:

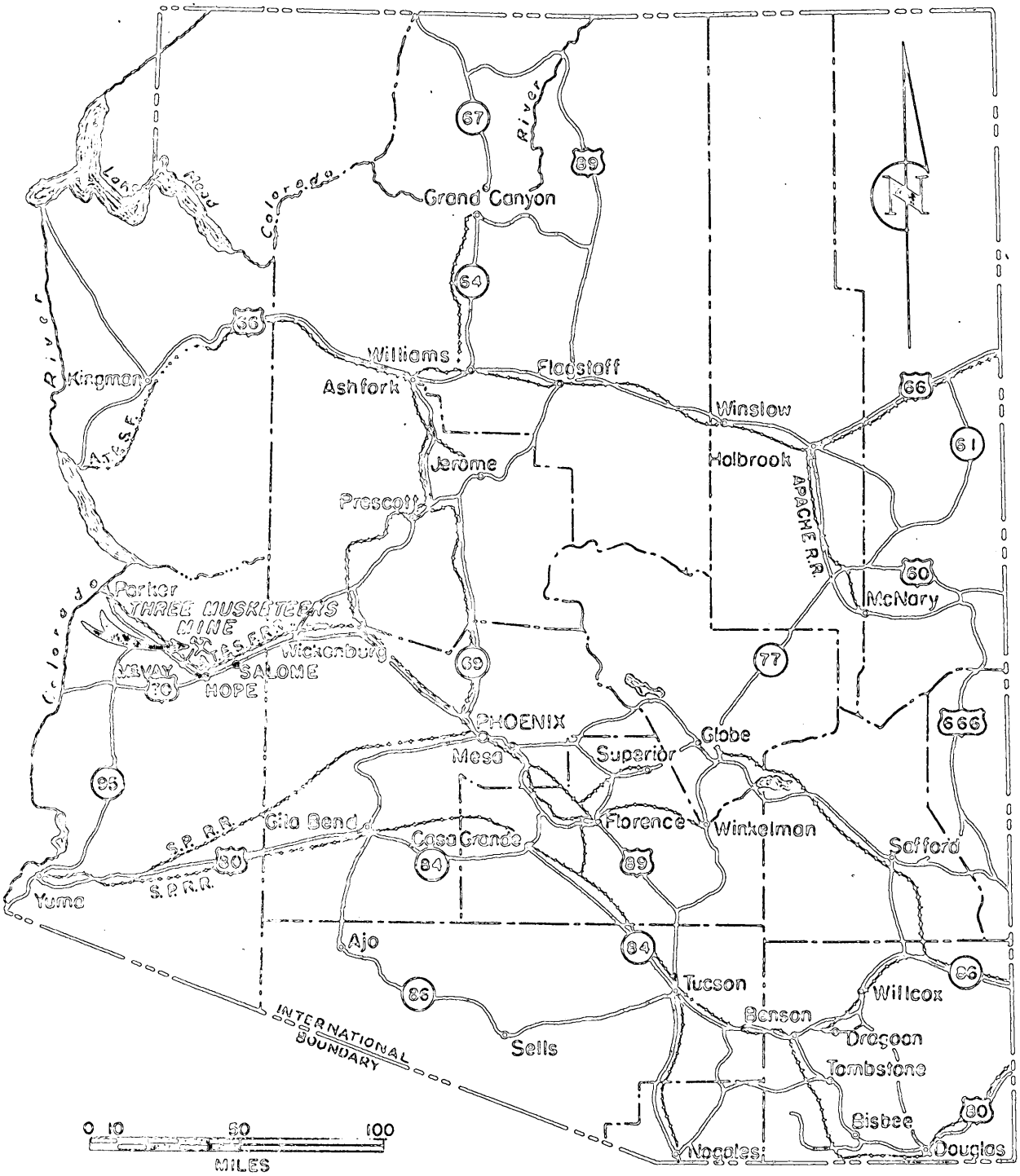


FIGURE 1. - LOCATION MAP, THREE MUSKETEERS MINE

ELLSWORTH MINING DISTRICT

YUMA COUNTY, ARIZONA

MARCH 9, 1953 DMEA 2858

Shipment No. 1. December 4, 1951, one ton of high-grade sorted ore was concentrated and 570 pounds of dry concentrates were obtained assaying 73.6 percent WO_3. A total of 20.976 units was paid for at $57.50 per unit. One assay was charged for at $4.00. The net receipts of this shipment were $1,191.77. The above ore came from a short cross-cut adit and strike drift a few feet north of Shaft No. 1.

Shipment No. 2. Concentrates from 10 tons of ore from the above mentioned workings gave returns of approximately $1,900. The settlement sheet was not available.

Shipment No. 3. Concentrates from 10 tons of ore from workings immediately south of Shaft No. 1 averaged 61.4 percent WO_3. A total of 46.756 units of WO_3 was produced and paid for at $57.50 per unit. The concentrates averaged 0.04 percent lead and 0.27 percent sulphur. This shipment gave net returns of $2,688.74. The settlement sheet was not available.

Shipment No. 4. April 2, 1952, the South cut at Shaft No. 1 produced 90 tons of ore from which 870.5 pounds of dry concentrates were produced averaging 65.2 percent WO_3. A total of 28.378 units was paid for at $57.50 per unit, giving net returns of $1,632.31.

The total returns received by the owners amounted to $7,412.82.

In February 1952, the owners gave L. A. Aplington a lease on the Three Musketeers Claim No. 3. On May 26, 1952, Aplington assigned his lease to A. R. Floreen and associates of Chicago. Floreen also acquired leases and working agreements on the Three Musketeers Claim No. 0 and claims Nos. 1 to 5 inclusive (see figure 2).

After acquiring leases on the entire group Floreen sank Shaft No. 1 on Claim No. 0 to an inclined depth of 65 feet and Shaft No. 2 on Claim No. 3 to an inclined depth of 45 feet. On the 45-foot level of Shaft No. 2, Floreen did 300 feet of drifting and crosscutting and has started 2 small stopes (see figure 3).

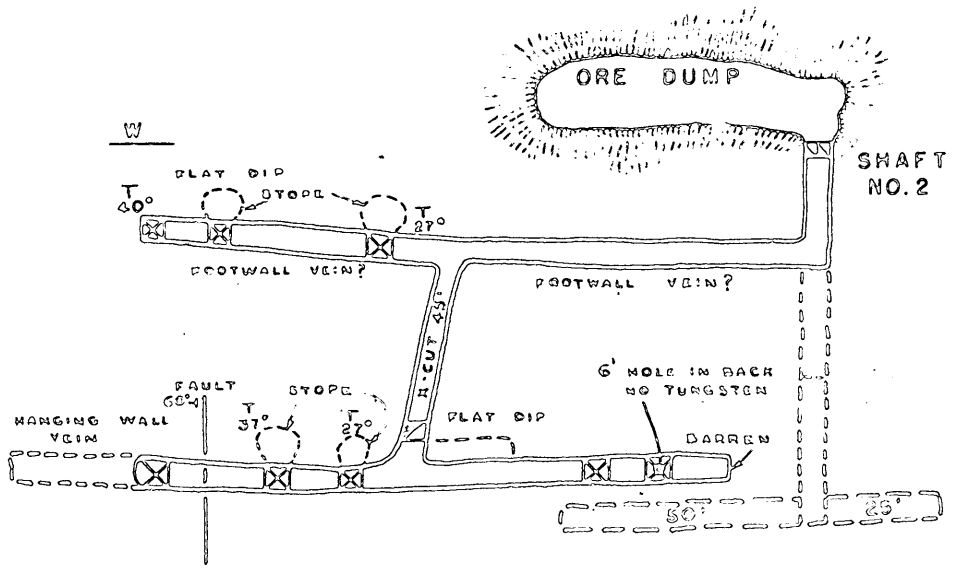
In addition to the production made by the owners, Floreen milled at Quartzite some 50 tons of ore encountered in doing the exploration work at Shaft No. 2. No data are available regarding the results of the treatment of this ore.

OWNERSHIP AND EXTENT

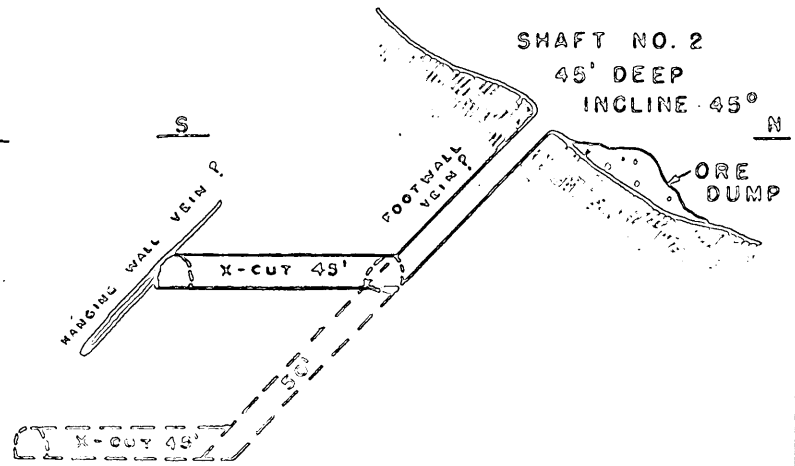
The Three Musketeers Group includes 6 unpatented lode mining claims, the location notices of which are recorded in the Office of the County Recorder in Yuma, Yuma County, Ariz. as follows:

Name of Claim	Date of Location	Date of Recording	Book	Page
Musketeers No. 0	11/31/51	12/2/51	44	437
Musketeers No. 1	11/2/51	11/5/51	44	470
Musketeers No. 2	11/2/51	11/5/51	44	471
Musketeers No. 3	11/12/51	11/14/51	45	41
Musketeers No. 4	2/12/52	2/18/52	50	106
Musketeers No. 5	2/12/52	2/18/52	50	107

These claims are owned by John P. Brusco and John H. Wood of Salome, Ariz., and L. C. Huthmacher of Wenden, Ariz. On February 5, 1952, the three owners gave a 3-year lease on the Three Musketeers Claim No. 3 to L. A. Aplington of Quartzite, Yuma County. On May 26, 1952, Aplington assigned this lease to A. R. Floreen of Chicago for $5,000. On May 26, 1952, Huthmacher gave a 5-year lease and option on his one-third interest in the entire group to Floreen. On May 26, 1952, Brusco and Wood made a 5-year agreement with Floreen for the operation of the Three Musketeers Claim No. 3 and Three Musketeers Claim Nos. 4 and 5.



PLAN



CROSS SECTION

APPLICANT'S PROPOSED WORK
SCALE 1" = 40'

FIGURE 3. - PLAN AND CROSS SECTION, SHAFT NO. 2 - THREE MUSKETEERS MINE

ELLSWORTH MINING DISTRICT YUMA COUNTY, ARIZONA

MARCH 9, 1953 DATA COMPILED FROM MAP FURNISHED BY APPLICANT DMEA 2858

DESCRIPTION OF DEPOSITS

Scheelite ore at the Three Musketeers mine occurs in limestone intercalated between quartz mica schist. The ore is in and associated with a dense white quartz which occurs in lenses more or less parallel to the bedding of the limestone. In general, the quartz lenses are less than 30 to 40 feet in length and vary from a few inches to a maximum of 5 feet in thickness. In places they are en echelon and are often connected by quartz running across the strike of the bedding. At Shaft No. 1 the footwall of the vein is a dark igneous dike locally called a diorite. The dip of the limestone beds varies from 50 degrees to less than 20 degrees. The strike of the bedding also varies greatly. It is quite apparent that the region has been subject to intense warping and twisting.

The quartz does not occur as a continuous vein as indicated on the applicant's map, but in narrow individual quartz lenses which can be traced on the surface, either as outcrops or in talus, for a distance of some 2,000 feet. Where these lenses outcrop they usually can be seen to feather out at each end, but occasionally they are cut off by faults. Where the lenses are covered, the quartz in the talus indicates that the lenses are short. All underground work corroborates the conclusion as to the length of the lenses. The down dip dimension of the lenses is not as definitely indicated as their length. Shaft No. 1 started in a lense which feathered out at a depth of 25 feet. There is no evidence to warrant the belief that the average depth of a lense will be more than its length.

The conclusion drawn from surface and underground evidence is that the maximum dimensions of a quartz lense are 40 feet by 40 feet, with a thickness of 5 feet. A lense of this size contains approximately 640 tons of quartz. Not all of the quartz contains sufficient scheelite to be ore. There is not sufficient data to base a conclusion as to the ratio of quartz ore to barren quartz, but it seems apparent that less than half of the quartz is ore. It is quite apparent that the amount of exploration necessary to maintain a production of even 25 tons of ore per day will be great.

MINABLE ORE RESERVES

The following samples were taken in order to determine the possible grade and tonnage of ore which the mine could produce.

Description of the Samples

No. 1. Grab sample of 25 cars of broken ore on floor of drift, No. 2 Shaft, No. 2 vein, second stope west of crosscut. Brusco's estimate of grade, 0.5 to 0.6 percent WO_3. DMEA assay, 0.01 percent WO_3.

No. 2. Grab sample of 10 cars of broken ore on floor of drift, No. 2 Shaft, No. 2 vein, third stope west of crosscut. Brusco's estimate, 0.5 to 0.6 percent WO_3. DMEA assay, 0.40 percent WO_3.

No. 3. Mill grade ore in dump of No. 1 shaft. Grab sample taken from the southerly part of the dump and 10 feet north of the shaft where the ore becomes low-grade. Sample taken from fines which represent at least 50 percent of dump. Brusco says the portion sampled should run 0.1 percent WO_3 and came from the first 25 feet of shaft sinking before waste was encountered. DMEA assay, 0.08 percent WO_3.

No. 4. Grab sample of ore dump west of No. 2 shaft. Dump contains at least 150 tons and Brusco estimates grade to be 0.5 percent WO_3. Dump examined with ultra-violet lamps and fines only were sampled. Sample taken by R. W. Ageton. DMEA assay, 0.29 percent WO_3.

No. 5. Duplicate sample of No. 4 taken by M. J. Elsing. Assay, 0.12 percent WO_3.

No. 6. Grab of pile of fine broken ore in face of adit south of No. 1 shaft. Ultra-violet ray lamps show fair grade ore with some powellite. DMEA assay, 0.42 percent WO_3.

No. 7. Grab of dump containing some 200 tons of Three Musketeers tailing at Wendon, Ariz. DMEA assay, 0.35 percent WO_3.

The ore dump at Shaft No. 2 is typical of the grade of ore that can be produced. Two samples were taken of the fine ore in this dump. One was a check against the other. One sample assayed 0.29 percent WO_3 and the repeat sample assayed 0.12 percent. The average is 0.2 percent. The ore came from drifts, raises and stopes on the hanging wall vein which averages about 3 feet in width, and from the footwall vein which averages 21 inches in width. Both of these veins are flat and because they are narrow and flat the mining problem is a very serious one. It is estimated, that to be profitable, ore at the No. 2 Shaft would have to run 1.0 percent WO_3. There is no possibility of raising the grade by selective mining and sorting to anywhere near a grade sufficiently high to expect profitable operations.

Conditions of the No. 1 shaft are much more favorable as indicated by the work in the adits north and south of the shaft. The vein is 5

feet wide and the dip is 50°. One sample in the south adit assayed 0.42 percent WO_3. The north adit has a small amount of very high-grade scheelite, and it is evident that these two workings produced some very high-grade ore. In the face of the drift in the north adit there is a stringer one inch wide of almost massive scheelite. This drift is reported to have produced 570 pounds of concentrates assaying 73.6 percent WO_3 from 1 ton of sorted ore. There are a few tons of ore in sight but it is exceedingly difficult to estimate the amount. It looks as if the owners were very careful not to completely mine all their ore as they had in mind selling the property on the strength of the showings at the No. 1 shaft.

The tailing dump at the Three Musketeers mill at Wenden contains some 200 tons. A sample from this dump assayed 0.35 percent WO_3.

PRESENT STATUS

Exploration and Development

Exploration and development have been confined to the Shaft No. 1 area and the Shaft No. 2 area (see figures 3 and 4). Shaft No. 1 is an inclined shaft, 6 by 8 feet in cross section, sunk at an angle of 50 degrees to a depth of 65 feet. There is no lateral development. At a point 55 feet north of the shaft there is a crosscut tunnel 15 feet in length which cuts the vein. At this point a strike drift has been run some 15 feet to the south. In the face of this drift there is a small amount of very high-grade scheelite. Some 15 feet south of Shaft No. 1 there is a second crosscut tunnel which intersects the vein. At this point a drift 25 feet long has been run to the south in good ore.

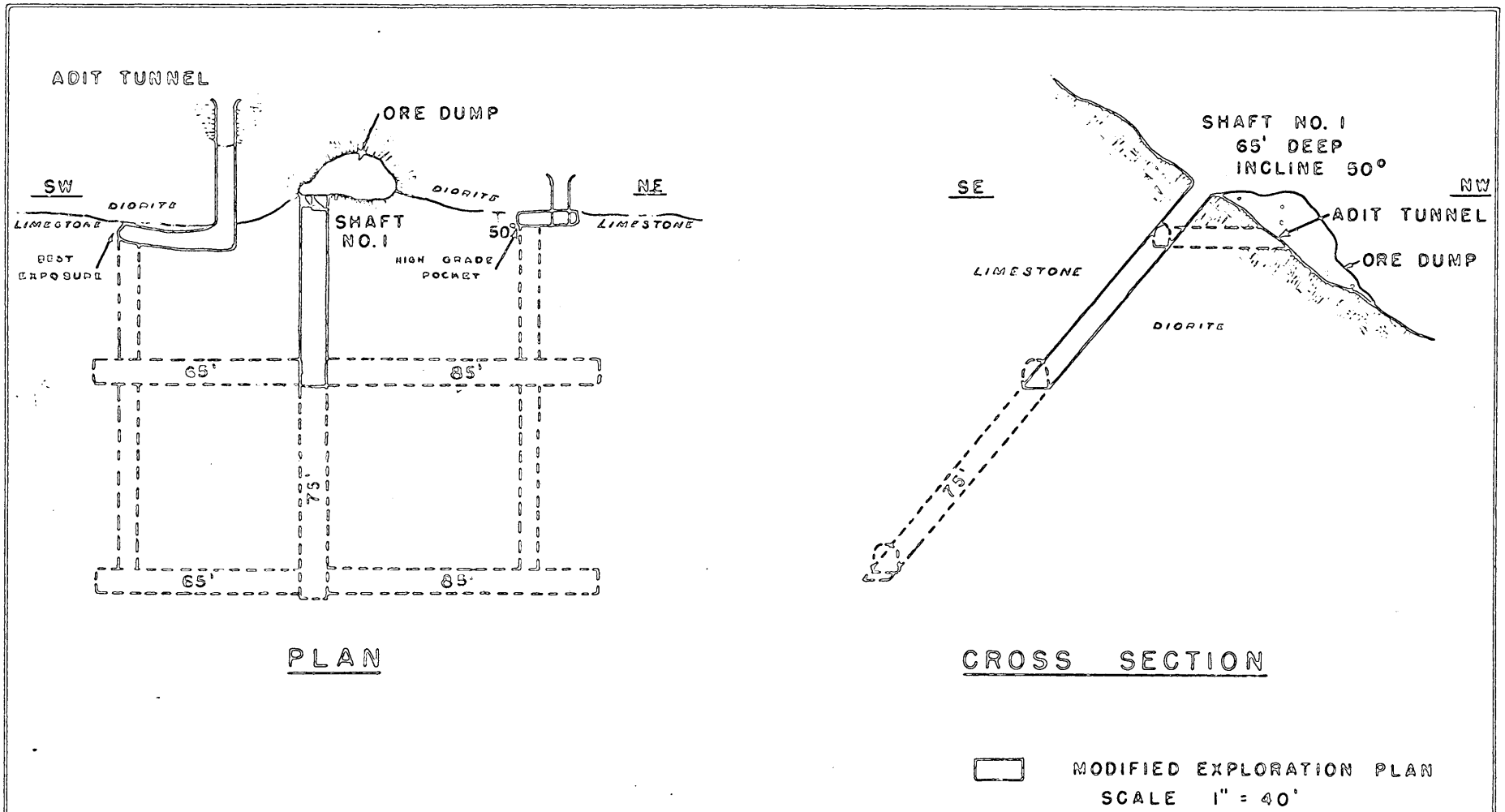


FIGURE 4.- PLAN AND CROSS SECTION, SHAFT NO. 1 - THREE MUSKETEERS MINE

ELLSWORTH MINING DISTRICT YUMA COUNTY, ARIZONA

MARCH 9, 1953 DATA COMPILED FROM MAP FURNISHED BY APPLICANT DMEA 2858

No. 2 shaft has been sunk to a depth of 46 feet at an angle of 45 degrees. At the bottom of the shaft a drift along the footwall vein has been driven for a distance of 135 feet. At 75 feet from the shaft a crosscut has been driven to the south which intersects the hanging wall vein. Only a small part of the drifting in Shaft No. 2 was in ore. The main drift starts in quartz which fades out a few feet to the west. In the western end of the footwall drift the vein was found in short raises immediately above the drift. This ore in 3 raises averages 21 inches in thickness and occurs as a flat dipping replacement of the limestone. The ore shoot along the hanging wall vein is about 30 feet long and has an average width of 3 feet. The rest of the drift shows no ore or quartz.

Mining and Milling Equipment

The applicant owns no mining or milling equipment. The applicant sank the No. 1 shaft and the No. 2 shaft, and has done all the development work in the No. 2 shaft. The work was done under contract by Mines Contracting Co., Ike Kusisto, manager. The contracting company provided all equipment, labor and supplies. At present, the contractor is using 2 men stoping some ore on the hanging wall vein of the No. 2 shaft.

PROJECT PROPOSALS

The applicant proposed to do exploration work at the No. 1 shaft on the Three Musketeers Claim No. 1 and at the No. 2 shaft on the Three Musketeers Claim No. 3. These shafts are approximately 650 feet apart.

At Shaft No. 1, he proposed to drive a drift from the present bottom of the shaft, which is 65 feet deep on the incline, in a southwesterly direction along the vein for a distance of 40 feet and to raise about 40 feet to come up under the high-grade pocket near the surface. He then proposed to drive a drift from the bottom of the shaft in a northeasterly direction for 60 feet and to raise 60 feet to come up under the ore showing in the north adit. If the results of this work proved satisfactory, he proposed to sink the shaft an additional 50 feet and from the bottom of the shaft, drift in a southwesterly direction 40 feet and in a northeasterly direction 60 feet. He also proposed to drive a 75-foot tunnel to be located on the southeast side of the claim to cut the vein along its strike.

At Shaft No. 2, the applicant proposed to extend the present drift on the hanging wall vein in a westerly direction a distance of 40 feet and in an easterly direction 60 feet following the vein. If the results of this work were satisfactory, then it was proposed to sink Shaft No. 2 50 feet deep and from the bottom of the shaft crosscut towards the hanging wall vein a distance of 40 feet to intersect the vein, then drift 50 feet westerly and 25 feet easterly on the vein.

The work would start within 30 days and be completed within 12 months from the date of an exploration project contract.

It was proposed that the exploration work would be under contract with Mines Contracting Co., 279 S. Tegnar St., Wickenburg, Ariz., Ike Kusisto, manager.

A summary of the work to be done by Mines Contracting and the price per foot agreed upon is as follows:

Three Musketeers Claim, Shaft No. 1

100 feet, drifting on 65-foot level @ $30	$ 3,000
100 feet, raising on 65-foot level @ $20	2,000
50 feet, shaft sinking @ $75	3,750
100 feet, drifting on 115-foot level @ $30	3,000
Total	$11,750
75 feet tunnelling @ $30	2,250
Total	$14,000

Three Musketeers Claim No. 3, Shaft No. 2

100 feet, drifting on 46-foot level @ $30	$ 3,000
40 feet, crosscutting on 46-foot level @ $30	1,200
50 feet, shaft sinking @ $60	3,000
75 feet, drifting on 96-foot level @ $30	2,250
Total	$ 9,450

Recapitulation

Shaft No. 1	$14,000
Shaft No. 2	9,450
Supervision, engineering, assaying	1,500
Total cost of project	$24,950

It was planned that the proposed exploration would be done by Mines Contracting Co. on a footage basis with the contractor supplying all equipment, the depreciation of which would be covered by the contract price per foot. Until such time as a substantial tonnage of ore had been developed ore would be milled in a custom mill, probably at Quartzsite. The owners of the property treated their ore at their mill, located at Wenden. This mill is not in operating condition as it has been largely dismantled.

The applicant arranged with Mines Contracting Co. to do the proposed exploration work at the following rates:

	Per foot
Drifting	$ 30
Shaft sinking	75
Raising	20
Tunnelling	30

Kusisto, the manager of the contracting company, provided the following breakdown of the cost of drifting.

	Per foot
Compressor, hoist, rock drills, steel repairs, blower and engine, mine cars, tools, air hose, rail, pipe, truck and miscellaneous	$ 11.00
Labor	12.00
Powder, caps and fuse	4.00
Gas	2.00
Insurance	1.00
Total, including profit	$ 30.00

The price of $30 per foot for drifting, where hoisting is involved, is reasonable inasmuch as the contractor provides all equipment, facilities, and supplies. Should a contract be given Kusisto, it is important that the specifications as to the dimensions of the drift be indicated. The price is sufficiently high to permit driving a standard 5- by 7-foot drift and he should be made to provide such a size drift. The shaft should be 5 by 7 feet. The contract with Kusisto should require that he provide adequate timber for all workings. On this basis the cost per foot of doing the proposed work can be approved.

Manpower

Ample manpower will be available for the completion of the exploration program, and if successful, for the comparatively small daily production that is anticipated.

Power

The small amount of power will be produced at the property with gasoline or Diesel engines.

Water

Water is a problem. At the present shallow depths of the mine workings, no underground water has been developed. If ore is encountered in sufficient quantities to warrant a small mill, 25 to 50 tons per day, it is anticipated that the mill will be located at some established community where water is available. McVay on the Santa Fe Railroad, 6 miles southwest of the mine, is one possibility.

PRODUCTION PLAN

Time Schedule

The applicant has estimated that the proposed program can be completed in one year.

Rate of Production

The applicant has not indicated a possible rate of production because of the present lack of ore reserves. It hardly seems warranted to assume a production of more than 25 to 50 tons per day. Brusco estimated the grade of 2 stockpiles of mill ore at 0.5 percent WO_3.

If the mine could be worked on the basis which follows:

(a) Production - 25 tons ore per day;

(b) Grade - 0.5 percent WO_3;

(c) Recovery in a gravity mill - 60 percent;

(d) Mill to operate 25 days per month;

the production would be 3,750 pounds of WO_3 per month or 187.5 units of WO_3 per month.

Mining Methods and Costs

It is probable, that if ore of a minable grade is found at the Three Musketeers, it will be mined by overhand methods in open stopes. As already stated the ore probably will have a maximum thickness of 5 feet and feather out to unminable widths. The dip of the ore varies from almost flat to 50 degrees. A serious problem of mechanical handling of ore in stopes arises if the dip of the ore body is less than 34 degrees, which is the angle of repose of broken ore. At the No. 2 shaft the footwall vein averages 21 inches in thickness and dips at an angle less than the angle of repose of broken ore. The hanging wall vein averages 3 feet in width and also dips at a flat angle. Both of these factors make the cost of mining high. It is estimated that the cost of mining the ore presently exposed in the No. 2 shaft will be a minimum of $25.00 per ton, and that exploration will add approximately $10.00 per ton additional.

It is believed that if the proposed exploration work is done at the No. 1 shaft and ore of equal width to that exposed in the adit level is found, the mining cost will be approximately $12.50 per ton, and that exploration will add an additional $5.00 per ton. Neither of these cost estimates include shaft sinking and the amortization of plant and equipment.

Milling Methods and Costs

Most scheelite ore from small mine operations is treated in gravity mills, including jigs and tables. The Three Musketeers ore lends itself very well to treatment by gravity except that the recovery is low. The

concentrates obtained by the owners, when treating this ore in their Wenden mill, assayed from 61.4 to 73.6 percent WO_3. A sample taken by the examiners of the Wenden tailing dump showed 0.35 percent WO_3. Recovery of a gravity mill averages about 60 percent, but can be lower.

It is assumed that the first production from the Three Musketeers mine would be sent to the scheelite custom mill at Quartzsite. The trucking distance would be 38 miles over paved roads and 5 miles over a dirt road. With adequate loading facilities it is probable that the trucking could be done for $3.25 per ton of ore. The schedule of payments is not available for the Quartzsite mill, so the Pine Creek, Calif. schedule is used. For ore containing from 0.4 to 0.599 percent WO_3, payment is at rate of $36.00 per unit, f.o.b. the mill. This is equivalent to $1.80 per pound of WO_3 contained, so 0.5 percent ore has a value of $18.00 per ton at the mill. It is possible the rate might be a little less favorable at Quartzsite, but it is believed that 0.5 percent WO_3 ore should bring at least $16.00 per ton.

If ore were concentrated at a mill erected near the railroad and water supply, the cost of milling 25 to 50 tons of ore per day would be approximately $5.00 per ton, and the recovery would be some 60 percent of the contained scheelite. The ratio of concentration would be 200 to 1, if a 60 percent concentrate was obtained. The truck haul from the mill to Elmer Fernstrom, ore and scheelite purchaser at Tucson, would be 254 miles, and the cost would be approximately 6 cents per ton-mile, or $15.24 per ton of concentrate. This is equivalent to $0.08 per ton of ore.

Royalty

The question of royalty is quite involved as there are different contracts between Floreen and each owner, as well as different contracts on different claims. In order to simplify a complicated arrangement it has been assumed that royalty will average 10 percent of the gross returns as this is the rate for production from the Three Musketeers No. 6 claim. This is the claim most likely to be worked.

SUMMARY: COST OF PROJECT

Capital Requirements

There are no capital requirements to get the exploration program into operation. The applicant proposes to contract all exploration work on a footage basis with the contractor providing all equipment and facilities. It is understood that if the exploration program is successful, the applicant will eventually erect a small mill.

Operating Costs

It is believed there is little chance that the grade of ore will be sufficiently high in the No. 2 shaft area to permit operating profitably because the veins are flat and narrow, a combination of conditions which results in high costs.

At the No. 1 shaft the vein is 5 feet wide and dips at 50°. The following costs are estimated for those conditions:

	Per ton ore
Mining	$12.50
Exploration	5.00
Trucking to mill	1.00
Milling	5.00
Trucking concentrates	0.08
	$23.58
Royalty estimated	2.42
	$26.00

Fernstrom at Tucson pays $57.50 per unit of WO_3. This is at the rate of $2.875 per pound of WO_3. In order to break even, recovery would have to be 9 pounds of WO_3 per ton. If the mill recovery were 60 percent, the grade of the crude ore would have to be 15 pounds per ton or 0.75 percent WO_3.

PROPOSED FINANCING

Floreen has requested Government assistance in the exploration of the Three Musketeers mine on the basis that he and his associates will provide 25 percent of the necessary funds and the Government will provide 75 percent.

CONCLUSIONS

Size, shape, attitude, and frequency of quartz-scheelite outcrops along a zone some 2,000 feet in length should be the basis for judging the size, shape, attitude, and the frequency of ore bodies that could be developed by exploration along the zone. In other words, the surface evidence warrants the following major conclusions:

(1) The maximum length of ore lenses will be approximately 40 feet. The maximum thickness will be approximately 5 feet.

(2) The interval between ore shoots will be approximately 10 to 30 feet with an average of 20 feet.

(3) The dip of ore shoots will be from 15 to 50 degrees, which is more or less parallel to the bedding of the limestone.

(4) Some irregularity as to shape and occurrence of ore lenses can be expected. Ore shoots in places will be en echelon. In a few instances there may be parallel lenses. In other cases en echelon lenses will be connected by quartz stringers cutting across the beds.

Much consideration has been given to the outcrops because it is believed that they indicate the approximate type and character of the scheelite-bearing quartz that can be developed by underground exploration.

The results obtained by the underground work substantiate the hypothesis that the outcrops represent the size, number, and shape of ore bodies that can be expected.

It is more difficult to predict the grade of the probable ore. Six samples were taken of ore dumps and piles of broken ore as it was being mined. Approximately 200 tons of mill ore is stockpiled at Shaft No. 2. Two grab samples from this pile were taken, one a check against the other. One sample averaged 0.29 percent WO_3 and the other, 0.12 percent, or an average of 0.2 percent WO_3. Ore presently being stoped was sampled underground. One sample showed 0.01 percent WO_3 and the second 0.40 percent. The conclusions drawn relative to the Shaft No. 2 area are:

(1) The grade of ore will probably average in the neighborhood of 0.2 percent WO_3;

(2) The average width of veins will be from 2 to 3 feet and they will be comparatively flat;

(3) An estimate has been made of the cost of mining and gravity milling, and it is believed that to operate profitably will require ore containing 1.0 percent WO_3.

It is believed that no further work should be done at Shaft No. 2, so the proposed exploration at Shaft No. 2 is not recommended.

The ore dump at Shaft No. 1 was sampled and showed 0.08 percent WO_3. This is not surprising as the dump came from the low-grade part of the vein between the 2 high-grade ore shoots opened by the adits on either side of the shaft. The highest grade sample came from a pile of fine broken ore in the adit south of No. 1 shaft. This ore and the ore in the adit just north of Shaft No. 1 are the two really interesting parts of the property because

(1) The owners produced some high-grade ore with a production from the two adits of $7,400 from drifting only.

(2) Ultra-violet ray lamps indicate substantial amounts of high-grade scheelite. In the north adit almost solid pieces of scheelite, one inch square, can be obtained;

(3) The vein has a width of approximately 5 feet and dips at 50°, making mining simple and economical.

(4) It is believed that ore running approximately 0.75 percent WO_3 can be profitably produced by gravity milling.

It is believed that a modified program of exploration in Shaft No. 1 is feasible (see figure 4). Such a program should include driving the applicant's proposed drift from the bottom of the shaft to the northeast for 85 feet instead of 60 feet, and the drift to the southwest should be driven 65 feet instead of 40 feet. Two raises should be driven from this level to connect with the adits in which the high-grade ore was found. The exact position of these raises should be determined after the drifting has been completed. This work could be considered as Stage No. 1 of this program. If it were successful in opening up profitable ore, Stage No. 2

could be started. This part of the work should include sinking No. 2 shaft 75 feet instead of 50 feet, and doing the same drifting and raising as recommended for the first level.

A tabulation of the proposed work with the estimated costs is herewith shown:

Exploration Program for Shaft No. 1

Three Musketeers Claim No. 0

Stage 1

Drift NE on 65-foot level, 85 ft. @ $30	$ 2,550
Drift SW on 65-foot level, 65 feet @ $30	1,950
Raise in NE drift, 65 feet @ $20	1,300
Raise in SW drift, 50 ft. @ $20	1,000
Contractor's price	$ 6,800
Plus company expense, 15%	1,020
Total cost, Stage No. 1	$7,820

Stage 2

Sink shaft No. 1, 75 ft. @ $75	$ 5,625
Drift NE on 140-foot level, 85 ft. @ $30	2,550
Drift SW on 140-foot level, 65 ft. @ $30	1,950
Raise in NE drift, 75 ft. @ $20	1,500
Raise in SW drift, 75 ft. @ $20	1,500
Contractor's price	$13,125
Plus company expense, 15%	1,970
Total cost, Stage No. 2	$15,095
Stage 1 and 2	$22,915

The proposed exploration is to be done on Claim No. 0 and the entire claim should be made subject to a lien for the repayment of a loan. Brusco was advised that the granting of a loan to Floreen would necessitate that he and his two partners sign a subordination agreement. He was unaware of this agreement, but after a thorough discussion of the matter, he finally

came to the conclusion that he would be willing to sign the agreement. However, he did not know what attitude his partners would take regarding the matter.

The modified program was not discussed with the applicant because he was unable to meet the examiners at the mine. Brusco was his representative. The merits of the Shaft No. 1 area and the Shaft No. 2 area were discussed with Brusco whose opinion was that the Shaft No. 1 area was much more promising than the Shaft No. 2 area.

It is believed that the short form exploration contract should be used and that the project cost per foot should be set at 15 percent above the price paid the contractor. The 15 percent is allowed to cover company supervision, surveying, assaying, and miscellaneous expenses. On this basis the cost per foot chargeable to the project would be as follows:

	Per Foot
Drifting	$34.50
Raising	23.00
Shaft sinking	86.25

Stage No. 1 of the project should be completed in 3 months and Stage No. 2 should be completed within 9 months from the date of the starting of the project.

RECOMMENDATIONS

It is believed that the exploration as proposed in the revised program for Shaft No. 1 most likely will result in the development of scheelite ore which can be profitably mined. Therefore, it is recommended that an exploration project providing for a maximum expenditure of $22,915 be approved.

The expenditure of this sum is recommended in two stages. Stage No. 1 is to cost $7,820, and Stage No. 2 $15,095. If sufficient ore is not developed by Stage No. 1 to repay the loan, it is recommended that Stage No. 2 not be started.

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

224 New Customhouse
Denver 2, Colorado

May 22, 1953

REGISTERED

Memorandum

To: C.O. Mittendorf, Administrator, DMEA

From: Executive Officer, DMEA Field Team, Region IV

Subject: Contract Idm-E528, Docket DMEA 2858, Floreen, Dryden and Duryea (Tungsten)

Enclosed are the original and two copies of Contract Idm-E528. Copies of this contract have been given to the operator, the Fiscal Officer, Region IV, and a copy has been retained for our files.

W. H. King

W. H. King

Enclosures

5/26

MF-500

Don't Detach

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

REFERENCE SLIP

DATE 7/21/53

REFERRED TO:

1. ~~Legal Division - Rm. 4627~~
2. ~~H. Berry - Rm. 4624~~
3. Mrs. Birmingham
4. Rm. 4539

FOR:

	Action		Recommendation
X	Approval		Record of
	Comment		
	Conference		Referring to
	Consideration		
	Filing		Reply for signature of
	Instructions		
	Investigation		Rewriting
	Initial		Signature
	Mailing		Suggestions
	Previous correspondence		Your information

RECEIVED
JUL 21 1953
COUNSEL
DEFENSE MINERALS
ADMINISTRATION

REMARKS: Attached contract has been approved by Audit Division. For Division recommendation please refer to letter to Field dated July 6th.

Check (X) before the items needing attention.

George C. Selfridge
Initials of sender.

GPO 16—63815-1

ES

Adams

Defense Minerals Exploration Administration
Robert E. Adams
2017

14X3923.970, Working Fund, Interior, DMEA
May 22, 1953
11:00 a.m.

BB

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

Assignment of Contract Number

REURTEL 5-21-53, DOCKET DMEA-2858, A. R. FLOREEN, G. B. DRYDEN, AND L. N. DURYEA, A PARTNERSHIP, COMMODITY TUNGSTEN, PROPERTY IN YUMA COUNTY, ARIZONA. CONTRACT NUMBER IDM-E528 ASSIGNED THIS CONTRACT.

n.s. in R.J.R.

C. O. Mittendorf (for)

ADMINISTRATOR

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

SENT
MAY 22 1953
Clerical Service Section

IDME 5 24

Mr. C. O. Mittendorf
5-21-53
4:15 PM.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 22 1953

BUR MINES DN 235 5-22-53 1-12 PM

C O MITTENDORF

PLEASE ASSIGN A NUMBER TO CONTRACT COVERING DOCKET DMEA-2850, A PARTNERSHIP CONSISTING OF A. R. FLOREEN, 3000 SHERIDAN ROAD, CHICAGO, ILL. GEORGE E. DRYDEN, 208 SOUTH LA SALLE STREET, CHICAGO, ILL., AND L. N. DURYEA, 130 NORTH CAMPBELL AVENUE, CHICAGO, ILL. COMMODITY TUNGSTEN, PROPERTY IN YUMA COUNTY, ARIZONA. CONTRACT DATED MAY 21,1953. TOTAL AMOUNT OF CONTRACT $19,620.00, GOVERNMENT,S PARTICIPATION $14,715.00.

7590

J H KING

Denver, Colo.

MAY 22 8 16 AM '53
BUREAU OF MINES
MAIL ROOM
WASHINGTON, D. C.

1-1027
(April 1946)

UNITED STATES
DEPARTMENT OF THE INTERIOR

AGENCY Bureau of Mines

TELETYPE

Originator:
Ext.: Room:

Appro.:
Date: May 21, 1953
Time:
No.:
To: C. O. Mittendorf DMEA Washington

Subject:

Please assign a number to contract covering d cket DMEA 2858, a partnership consisting of A. R. Floreen, 3000 Sheridan Road, Chicago, Ill., George B. Dryden, 208 South LaSalle Street, Chicago, Ill., and L. N. Duryea, 130 North Campbell Ave., Chicago, Ill. Commodity tungsten, property in Yuma County, Arizona. Contract dated May 21, 1953. Total amount of contract $19,620.00, Government's participation $14,715.00.

W. H. King

W. H. King

Authorized:

Confirmation Copy.

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

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

FILE COPY
SURNAME:

400

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

Rutledge
Hopkins
Martin
Selfridge
K Jones

JUN 9 1953

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

Re: Docket No. DMEA 2858 - Tungsten
Floreen, Dryden & Duryea, partners
Three Musketeers mine
Yuma County, Arizona
Contract No. Idm-E528

Dear Mr. King:

Reference is made to the subject docket, the above - referenced contract, and your letter of March 27, 1953.

In reviewing this contract it was noted that the agreed unit prices are appreciably higher than those quoted to the Operator by a competent and experienced contractor. In addition we believe that raising as planned between levels having such a small interval might be considered to constitute development unless the raises were obviously intended to explore for mineralization not exposed in the drifts. However we are unable to draw definite conclusions until the Field Team report is received.

It will be appreciated, therefore, if you will furnish us with copies of the Field Team report on this project as soon as practicable.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

Approved:

J. H. Hedges

Member, Bureau of Mines

A. R. Kinkel, Jr.

Member, Geological Survey

FARutledge:foc
6-5-53
cc: Docket
Code 400
FT. Reg. IV
Adm. Reading File
Operating Comm.
R. W. Geehan, USBM
D. M. Lemmon, USGS

MDd
6-9-53

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

224 New Customhouse
Denver 2, Colorado

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
APR 2 1953

March 27, 1953.

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 2858 (Tungsten), Three Musketeers, Yuma County, Arizona.

The application for Government assistance in exploration work estimated to cost $19,620.00, has been approved by us and a contract is being prepared.

Government participation will be 75 percent, or $14,715.00.

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

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

W. H. King
W. H. King

for A. H. Koschmann
A. H. Koschmann

Enclosures

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

224 New Customhouse
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W. H. King
W. H. King

for Carlton Sweet
A. H. Koschmann

Enclosures

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 22 1953

224 New Customhouse
Denver 2, Colorado

January 19, 1953

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Executive Officer, Field Team, Region IV

Subject: Docketing for Exploration Assistance

Enclosed herewith in duplicate is DMA Form 3a and Form MF-103 in duplicate and supporting data pertaining to the following applications for Government assistance in exploration work:

A. R. Floreen
208 So. La Salle St.
Chicago 90, Illinois

dmea 2858

W. H. King
W. H. King

Enclosures

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 2858
Metal or Mineral
Date Received 1-22-53
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: A. R. FLOREEN, 3000 Sheridan Road, Chicago, Illinois

* *

* *

Other Partners: George B. Dryden, 208 S.LaSalle St.Chicago; L.N.Duryea, 130 N.Campbell Ave.Chgo.

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

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

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

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

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

(*b*) State any mine name by which the property is known. See attached

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

(*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. Copies of leases attached.

(*e*) If you own the land, describe any liens or encumbrances on it See attached

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

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

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

(*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

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

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

16—66551-1

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore See attached

(*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

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

(*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 attached

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: See attached

(*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

(*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

(*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

(*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

(*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. See attached

(*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. See attached

(*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

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

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

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

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

☐ Money ☐ Use of equipment owned by you ☐ Other

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated January 9, 1953.

O.O. Closson
(Applicant)

By .....

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

AGENDA TO APPLICATION FOR AID IN AN EXPLORATION PROJECT

SUBMITTED BY: A. R. Floreen
3000 Sheridan Road
Chicago, Illinois

3. (a) Six unpatented mining claims as follows:

Three Musketeers
Three Musketeers No. 1
Three Musketeers No. 2
Three Musketeers No. 3
Three Musketeers No. 4
Three Musketeers No. 5

located in sections 24 and 25 in Township 6 North, Range 15 West, Ellsworth Mining District, Yuma County, Arizona.
Three Musketeers Nos. 1, 2, 4 and 5 are not to be included in this project.

(b) Three Musketeers Tungsten Mine.

(c) Lessee.

(d) Copies of leases attached.

(e) None

(f)

Three Musketeers Mining Claim	Book 44	Page 457
Three Musketeers Mining Claim No. 1	Book 44	Page 470
Three Musketeers Mining Claim No. 2	Book 44	Page 471
Three Musketeers Mining Claim No. 3	Book 45	Page 41
Three Musketeers Mining Claim No. 4	Book 50	Page 106
Three Musketeers Mining Claim No. 5	Book 50	Page 107

4. (a) Three Musketeers Claim: Mine workings consist of a 65 foot inclined timbered shaft (Shaft No. 1) 5'x8' sunk in June and July 1952; an adit tunnel 35' long with a 20' drift along the vein; an open cut with a small drift about 60' easterly from the shaft.

Three Musketeers Claim No. 3: Inclined shaft (Shaft No. 2) 45' deep at 45 degree sunk in August and September 1952; 132' drift running westerly from the shaft; a 45' cross cut running southerly at a point about 75' westerly from the shaft and intersecting the hanging wall vein (?); and a 37' drift running westerly along the hanging wall vein (?)with a good showing of scheelite mineralization along the full length of the drift.

Present exploration operations are being continued along the drift of the Hanging wall vein (?) on Three Musketeers Claim No. 3. Interest in such operations as described in the leases. All mine workings are open and easily accessible for examination purposes.

AGENDA TO APPLICATION FOR AID IN AN EXPLORATION PROJECT

SUBMITTED BY: A. R. Floreen
3000 Sheridan Road
Chicago, Illinois

4. (b) About 100 tons of high-grade scheelite ore was mined from the adit-tunnel on the Three Musketeers claim, near Shaft No. 1, and milled at Wenden, Arizona producing about $7,200.00 in high-grade concentrated with no penalty for impurities. A small lot of ore, about 50 tons, obtained in exploration work in the drift of the hanging-wall vein (?) is now being milled at Quartzite, Arizona. It is difficult to estimate the ore reserves with the present amount of development work.

(c) A scheelite tungsten-bearing quartz vein or veins traced on the surface for several hundred feet, with a northeast-southwest trend and dipping southeasterly apparently following the bedding plane of the overlying southeasterly dipping limestone beds, with an underlying quartzose rock in a zone showing evidence of considerable shattering, displacement and alteration.
The finding of evidence of scheelite mineralization over a wide area with pockets of high-grade ore warrant the wish to explore this deposit.

(d) The mine may be reached from McVay over a good gravel road a distance of 5.6 miles. McVay is a railroad shipping station on the Santa Fe RR running to Parker Dam, Arizona. McVay is on the Arizona paved State Highway 72. Material and supplies are available at Salome 21 miles distant and at Wickenburg about 75 miles away.

(e) Manpower for a small mine operation is readily available. Supplies and equipment may be obtained at Salome, Wickenburg or Phoenix, Arizona. Water and power are available at McVay.

5. (a) Scheelite (tungsten)

(b) Sketches of present mine workings and location of proposed exploration work are attached.
On the Three Musketeers claim, Shaft No. 1, it is proposed to drive a drift from the present bottom of the 65-foot shaft in a southwesterly direction along the vein a distance of 40 feet and to raise about 40 feet to come up under the high-grade pocket near the surface; then to drive a drift from the bottom of the shaft in a northesterly direction 60 feet and to raise 60 feet to come up under the ore showing on the surface. If the results of this work prove satisfactory, then it is proposed to sink the shaft another 50 feet and from the bottom of the shaft then drift in a southwesterly direction 40 feet and in a northeasterly direction 60 feet. It is also proposed to drive a 75-foot tunnel to be located in southeast side of the claim to cut the vein, along the dip, that outcrops with a strong scheelite mineralization where the Yuma Copper Mine road crosses the outcrop in the pass over the ridge.
On the Three Musketeers No. 3 claim, Shaft No. 2, it is proposed to extend the present drift on the hanging-wall vein (?) in a westerly direction a distance of 40 feet and in an easterly direction 60 feet following the vein. If the results of this work are satisfactory, then it is proposed to sink Shaft No. 2 50 feet deeper and from the bottom of the shaft crosscut towards the hanging-wall vein a distance of about 40 feet to intersect the vein, then drift 50 feet westerly and 25 feet easterly on the vein.

AGENDA TO APPLICATION FOR AID IN AN EXPLORATION PROJECT

SUBMITTED BY: A. R. Floreen
5000 Sheridan Road
Chicago, Illinois

5. (c) The work will start within thirty days and be completed within 12 months from the date of an exploration project contract.

(d) It is proposed that the exploration work will be under contract with Mines Contracting, 270 S. Tegner Street, Wickenburg, Arizona - Ike Kusisto, manager. Mines Contracting have done extensive mine contracting work in the area surrounding Wickenburg and are recognized as a competent and experienced organization. They have been contractors on the property since June and it has been felt their work has been efficient and satisfactory.

6. (a) Mines Contracting, Wickenburg, Arizona, have agreed to furnish the work as described below at the cost shown.

Three Musketeers Claim
No. 1 Shaft

50'	Shaft sinking	at	$75.00 per foot	$ 3,750.00
200'	Drifting	at	$30.00 per foot	6,000.00
100'	Raises	at	$20.00 per foot	2,000.00
				$11,750.00
75'	Exploration Tunnel		$30.00 per foot	2,250.00
	Total Three Musketeers			$14,000.00

Three Musketeers Claim
No. 2 Shaft

50'	Shaft sinking	at	$60.00 per foot	$3,000.00
175'	Drifting	at	$30.00 per foot	5,250.00
40'	Crosscutting	at	$30.00 per foot	1,200.00
				$9,450.00

Recap:

Three Musketeers Claim	$14,000.00
Three Musketeers Claim No. 3	9,450.00
Supervision, Engineering, Assaying	1,500.00
Total cost of project	$24,950.00

(b) Estimate not to exceed $1,500.00.

(c) Operating material and supplies. To be furnished by contractor and included in his costs.

(d) Operating equipment. None to be purchased or rented. All equipment to be furnished by contractor.

(e) None

(f) None

AGENDA TO APPLICATION FOR AID IN AN EXPLORATION PROJECT

SUBMITTED BY: A. R. Floreen
3000 Sheridan Road
Chicago, Illinois

6. (g) To be included with (b). (b) and (g) not to exceed $1,500.00.

   (h) No allowance considered for contingencies in above costs.

7. (a) Yes.

   (b) Money.

AGREEMENT FOR OPERATION OF MINING CLAIMS

THIS AGREEMENT, Made and entered into this 26th day of May, 1952, by and between JOHN PERCY BRUSCO and JOHN H. WOOD, of Salome, Yuma County, Arizona, Parties of the First Part, and A. R. FLOREEN, whose residence is 3000 Sheridan Road, Chicago, Illinois, Party of the Second Part,

WITNESSETH:

That for and in consideration of the sum of Five Dollars ($5.00) Lawful Money of the United States, paid unto the Parties of the First Part by the Party of the Second Part, the receipt whereof is hereby acknowledged and confessed, and in consideration of the mutual covenants herein contained to be faithfully kept and performed by the Parties of the First Part and the Party of the Second Part, the Parties of the First Part do give and grant unto the Party of the Second Part for a period of Five (5) Years from the date hereof, the exclusive right to develop and operate the following described mining claims, situate in Section 24-25, Township 6 North, Range 15 West, G. & S.R.B. & M., in Yuma County, State of Arizona, to-wit:

THREE MUSKETEERS Mining Claim
THREE MUSKETEERS # 4 Mining Claim
THREE MUSKETEERS # 5 Mining Claim

the description of said mining claims being more fully set forth in the Notices of Location thereof on file and of record in the office of the County Recorder of Yuma County, Arizona, subject, however, to all of the rights and interest of the third co-owner of said above named mining claims.

PARAGRAPH 1

EXCLUSIVE RIGHT TO DEVELOP AND OPERATE

The Party of the Second Part or his assigns or successors in interest shall have, during the term of this agreement, the sole and exclusive right to develop and operate said mining claims and to sell and market the ore mined therefrom, and if the ore developed therein and the results obtained in the treatment of said ore in the judgment and discretion of the Party of the Second Part or his assigns or successors in interest warrant and justify the erection thereof, the Party of the Second Part agrees to erect a suitable mill for the milling, treatment and reduction of the ore mined and extracted from said mining claims.

PARAGRAPH 2

REPAYMENT OF DEVELOPMENT WORK, MINING AND CONSTRUCTION OF MILL

That the Party of the Second Part shall be repaid and reimbursed out of the first profits (after all taxes levied, including all corporate income taxes), from the sale of the ore mined and extracted from said mining claims, for all expenditures and money expended, up to the sum of $100,000.00, in the mining and development of said mining claims and for all expenditures and money expended in the building and construction of any roads incident to, or necessary for the operation of said mining claims and for all expenditures and money expended in and for the construction and operation of any mill or mills for the treatment and milling of the ores extracted and mined from said mining claims.

PARAGRAPH 3

CONTROL OF OPERATIONS

That the Party of the Second Part shall at all times have the irrevocable control of all mining and milling operations conducted or carried on upon or within said mining claims, and the exclusive right to determine how and in what manner said mining claims shall be operated and the irrevocable right to determine how and in what manner and by what process the ore extracted from said mining claims shall be milled or otherwise treated.

PARAGRAPH 4

DIVISION OF PROFITS

That after the payment of all taxes levied upon said operations, personal or real, including all income taxes, and the payment of all Insurance Premiums and cost incurred in said operation, including cost of mining and cost of milling the ore mined from said mining claims, shall have been paid, but excluding, and not including, head office charges and expense, the net profits of the operation shall be split and divided as follows:

Sixty-six and two-thirds Per Cent (66-2/3%) of the net profits of said operations to be paid and distributed to A. R. FLOREEN, Party of the Second Part, or his assigns and successors in interest.

Sixteen and two-thirds Per Cent (16-2/3%) of the net profits of said operations to be paid and distributed to JOHN PERCY BRUSCO, one of the Parties of the First Part herein.

Sixteen and two-thirds Per Cent (16-2/3%) of the net profits of said operations to be distributed to JOHN H. WOOD, one of the parties of the First Part herein.

Provided that there shall be no division of said profits between the Parties of the First Part and the Party of the Second Part or his assigns or successors in interest until the Party of the Second Part, his assigns or successors in interest, shall have been fully repaid and compensated for all expenditures made by him or them for money expended on said mining claims and in the construction and erection of the mill erected for the treatment of ore produced from said mining claims and for expenditures made for construction of roads necessary and incident to said operations, provided that the Party of the Second Part, his assigns or successors in interest, shall not be repaid for any sums of money in excess of $100,000.00 which shall have been expended by the Party of the Second Part, his assigns or successors in interest, in the development of said mining claims.

PARAGRAPH 5

RIGHT TO ASSIGN

It is understood and agreed that a new company, partnership or corporation may be formed or organized by the Party of the Second Part to conduct and carry on said mining and milling operations and when, and if, said new company, partnership or corporation shall have been so formed and organized for the purpose of conducting and carrying on said operations, then and in that event the Party of the Second Part shall have the right and privilege, at his option, to assign, convey and set over unto said company, partnership or corporation, this contract and agreement together with all and singular the rights and privileges incident and appertaining thereto.

PARAGRAPH 6

SALE OF INTEREST

That if the Parties of the First Part, or either of them, or the Party of the Second Part, decide to sell their or his interest in said mining claims, mining operations or milling operations and shall have found and shall have an actual bona fide offer to purchase from a bona fide purchaser, then the Party intending or contemplating such sale shall immediately give unto the other party or parties to this agreement a 30 day written Notice of said intended or contemplated sale, and said Party or Parties to whom said 30 day written Notice shall have been given shall have and shall be given the first and preference right for a period of 30 days to purchase said property and interest upon the same terms and conditions as contained in the bona fide offer to purchase said property and interest by said Third Party.

PARAGRAPH 7

RIGHT TO MILL CUSTOM ORE

That upon the completion of any mill erected by the Party of the Second Part, the Party of the Second Part shall have the right at his discretion to mill and treat custom ore, but not to the exclusion of any ore produced, extracted or mined from the mining claims named herein.

PARAGRAPH 8

DEFINITION OF NET PROFITS

It is understood that the net profits, as the term is used in this contract and agreement, shall be computed by deducting from the

gross income all operating expenses and all such other disbursements, of any nature whatsoever, as may be made in the carrying out of the provisions of this contract and agreement and said mining and milling operations, and it is particularly understood and agreed that in the computation of the net profits there shall be included the following:

(a) Mining, milling and marketing and mine general expense.

(b) Actual cost of transportation of ore to the mill.

(c) All taxes on the output of mines which may apply to Parties of the First Part and all taxes levied upon said mining claims, personal or real, and including all income corporate taxes, and all sales taxes levied upon ore or concentrates sold.

PARAGRAPH 9

Parties of the First Part undertake to take prompt action to defend any litigation which may be instituted against Parties of the First Part, affecting directly or indirectly the mining claims which are the subject-matter of this agreement, or of any rights relating thereto or which would in any way affect the free operation and development thereof by the Party of the Second Part and the extraction of the pay ore therefrom as contemplated herein, and without prejudice to the rights of the Party of the Second Part to insist upon strict compliance herewith, to employ counsel to defend any such litigation for and on behalf of Parties of the First Part, and to do anything else which, in its judgment, may be necessary to defend Parties of the First Part, and all expenses incurred thereby or in connection with such litigation, including payment of any judgments, interest and costs which may be awarded against Parties of the First Part, which Party of the Second Part, in its absolute

discretion may pay, shall be charged to Parties of the First Part, and repaid by them, or it may be deducted by Party of the Second Part from the profits accruing to Parties of the First Part.

PARAGRAPH 10

ARBITRATION

Should any difference arise between the parties to this agreement and contract as to the amount of the net profits available for division in accordance with the terms hereof, such difference shall be referred to a board of arbitration to be composed of an arbitrator to be appointed by Parties of the First Part, one by Party of the Second Part, and a third to be selected by the two aforementioned arbitrators, and it is expressly agreed that no action shall be instituted in any court by either of the parties hereto arising out of such difference, unless the same shall have been submitted to said board of arbitration, and that such action shall be based only upon the award so obtained. All expense incurred in connection with any and all arbitration shall be paid prorata by the Parties of the First Part and the Party of the Second Part.

PARAGRAPH 11

MONTHLY REPORTS

As soon as practicable after the close of each month as long as this contract and agreement remains in effect, Party of the Second Part shall furnish Parties of the First Part with a statement of his receipts and expenditures under this contract and agreement for the preceding month, which statement shall be taken as accepted by the Parties of the First Part unless exception is taken thereto or to any item thereof within Thirty (30) days in writing, in which case the dispute shall be settled by agreement or by arbitration as

provided herein. From the time the said properties are put on a profit producing basis, Party of the Second Part shall be entitled to retain all of the net profits, as heretofore defined, resulting from the operation thereof until such time as the total amount of the net profits so retained shall equal the total amount of expenditures from his own funds hereunder up to the time said properties were put on a profit producing basis, as evidenced by said statements of accounts. It is specifically understood and agreed that no expenses or losses may be charged against any net profits of operation as herein defined except such expenditures and losses as are incurred up to the time such profits are realized; and under no circumstances shall Party of the Second Part have any recourse against any assets of Parties of the First Part because of expenditures incurred by Party of the Second Part that are not covered by profits so realized except as hereinabove provided.

PARAGRAPH 12

ACQUISITION OF LEASE ON THREE MUSKETEERS # 3 MINING CLAIM

The Party of the Second Part covenants and agrees to pay a sum not to exceed $10,000.00 for the acquisition of a lease on that certain mining claim named the THREE MUSKETEERS # 3 Mining Claim, if such purchase can be made, from any person proven to be the rightful owner of said lease on said mining claim or being lawfully and legally qualified to sell and convey said mining claim or to make and execute a bona fide lease of said Mining Claim free and clear of any and all liens and encumbrances whatsoever, and when so acquired, said lease shall be subject to the within agreement as fully and to all intents and purposes as if made a part of this agreement at the date ad time hereof, said moning claim being situate in Section 24 or 25,

Township 6 North, Range 15 West, G & S.R.B & M., in Yuma County, Arizona, and that the Party of the Second part shall be repaid and reimbursed for all money expended in acquiring said lease upon said THREE MUSKETEERS # 3 Mining Claim from the first profits derived from said mining operations and the first profits on ore or concentrates sold which have been mined and extracted from said mining claims. The net profits from operation of said claim shall be split and divided as provided in Paragraph 4 herein.

PARAGRAPH 13

LABOR TO BE PERFORMED

That during the term of this agreement, the Party of the Second Part shall, and agrees to render and perform upon said mining claims 100 man shifts per month, provided that each 5 feet of diamond drilling performed upon said mining claims by the Party of the Second Part shall be deemed to be equivalent to 2 man shifts of labor performed upon said mining claims, or to pay $250.00 rental per month to each of the Parties of the First Part in lieu of said man shifts, and it is further provided that the man shifts of labor performed upon said mining claims by the Party of the Second Part shall be cumulative and any man shifts of labor performed upon said mining claims by the Party of the Second Part in excess of 100 man shifts during any one month shall be credited to, upon and against the man shifts of labor to be performed upon said mining claims by the Party of the Second Part for the next succeeding month, subject, however, to the condition that the Party of the Second Part shall not be obliged to render and perform said man shifts of labor on said mining claims when prevented from doing so by Acts of God, storm, floods, or by strikes or civil disorder. It is further agreed that the

effective date for commencement of work by Party of the Second Part shall be 90 days following signing of this agreement.

PARAGRAPH 14

RIGHT OF INSPECTION

That during the term of this agreement, the Parties of the First Part or their agents shall have the right to inspect said mining claims and premises and all mills or reduction plants in which the ore from said mining claims is being treated and processed.

PARAGRAPH 15

INSURANCE OF MEN

That the Party of the Second Part covenants and agrees to save harmless the Parties of the First Part from any and all costs, charges and expenses incurred by the Party of the Second Part in conducting and carrying on said mining and milling operations and shall, and agrees to keep all men employed in or about said mining claims or milling operations fully insured against all injury or damages which any miners or workmen may or might suffer or sustain while so employed by the Party of the Second Part, and to comply with the law relating to Workmen's Compensation Insurance, in said mining and milling operations.

PARAGRAPH 16

ALL OPERATIONS IN COMPLIANCE WITH LAWS OF ARIZONA

That all mining and milling operations carried on by the Party of the Second Part in the mining of said mining claims or in the operation of mills for treatment of the ore taken from said mining claims shall be in full compliance with mining laws, rules and regulations of the State of Arizona and in accordance with rules and regulations made and prescribed by the State Mine Inspector of the State of Arizona.

PARAGRAPH 17

TRANSFER OF INTEREST IN MILL, MACHINERY, EQUIPMENT AND MILL SITE

That when the Party of the Second Part, his assigns or successors in interest, shall have been fully repaid and compensated from the first profits of said mining and milling operations for all expenditures made for the development of said mining claims and the purchase and construction of the mill erected for the milling of ore from said mining claims and for money paid and advanced for the acquisition of the lease on the THREE MUSKETEERS # 3 Mining Claim and for the expenditures made in the acquisition of a Mill Site on which said mill is constructed and for money expended in road construction incident to said mining and milling operations, which shall not exceed $100,000.00 as hereinbefore mentioned, that then the Party of the Second Part, his assigns or successors in interest, shall assign, transfer and convey unto the Parties of the First Part a Thirty-three and one-third (33-1/3) interest in said mill so constructed for the milling of ore from said mining claims, a Thirty-three and one-third (33-1/3) interest in the mill site on which said mill is erected and a Thirty-three and one-third (33-1/3) interest in all mining and milling machinery and equipment acquired and owned by the Party of the Second Part, his assigns or successors in interest, for use in said mining and milling operations.

PARAGRAPH 18

RIGHT TO RENEW

The said Party of the Second Part or his assigns and successors in interest shall have the right to renew this agreement for an additional period of five years provided the said Party of the Second Part, his assigns or successors in interest, have fully

complied with all the terms and conditions of said agreement and shall have given said Parties of the First Part notice of his election to renew the same 30 days or more prior to the expiration of this agreement.

PARAGRAPH 19

The Party of the Second Part, his successors or assigns, shall perform the required annual assessment work for the claims held under this agreement and furnish such information to Parties of the First Part as to enable the Parties of the First Part to file with the County Recorder of Yuma County, State of Arizona, on or before the first day of May, 1953, and on or before the first day of May thereafter, an Affidavit of annual assessment work done and performed upon the said premises, the Parties of the First Part shall furnish Party of the Second Part with a copy of Affidavits so filed.

PARAGRAPH 20

Time is the essence of this contract. Should the said Party of the Second Part fail to pay and keep and perform all the terms and conditions of this contract, the said Parties of the First Part may, at their election, rescind this contract and take possession of said premises.

PARAGRAPH 21

In every case where, under any of the provisions of this agreement, or in the opinion of either the Parties of the First Part or the Party of the Second Part, or otherwise, it shall or may become necessary or desirable to make, give or serve any declaration, demand or notice of any kind or character or for any purpose whatsoever, it shall be sufficient:

Either (1) to deliver or cause to be delivered a copy of any such declaration, demand or notice to the Parties of the First Part or the Party of the Second Part, for the time being (as the case may be.)

Or (2) to send or cause to be sent a copy of any such declaration, demand or notice by registered mail, postage prepaid, properly addressed to the Parties of the First Part or the Party of the Second Part for the time being (as the case may be) at such address as the one party may have theretofore furnished to be other party in writing for the declared and express purpose of receiving notices; or if no such address shall have been theretofore furnished to such party for such purpose, then properly addressed to the party at said party's last known address.

All notices to or demands upon the Parties of the First Part or Party of the Second Part are hereby required to be in writing; and in any case the declaration, demand or notice, or copy thereof, may be signed and made, given or served, in person or by agent, attorney or servant.

And in each and every case, such service in any of the modes above provided, of any declaration, demand or notice, shall be sufficient and held effectual for all purposes and no other or further declaration, demand or notice or method or manner of giving, serving or delivering the same, shall be required.

And all notices and demands by either the Parties of the First Part or the Party of the Second Part may be given to the Parties of the First Part at Salome, Arizona, or to Party of the Second Part at 3000 Sheridan Road, Chicago, Illinois.

PARAGRAPH 22

RIGHT OF PARTY OF SECOND PART TO REMOVE EQUIPMENT

That is the said Party of the Second Part, his assigns or successors in interest, shall for any reason or cause whatsoever decide or determine to abandon or terminate said mining or milling operations, that said Party of the Second Part or his assigns or successors in interest shall then have the right to remove, within two weeks, from said mining claims and premises all machinery and equipment, including mine rails, mine cars, and pipe placed or installed within or upon said mining claims and premises by Party of the Second Part, his assigns or successors in interest, upon giving unto the Parties of the First Part notice in writing two weeks in advance of his intention to abandon said agreement.

PARAGRAPH 23

THREE MUSKETEERS No. 1, 2 and 3 MINING CLAIMS BECOME PART OF THIS AGREEMENT IN EVENT OF DEFAULT OF PRESENT LESSEES

That in the event of the Lessees who how hold a lease on the THREE MUSKETEERS No. 1, 2 and 3 Mining Claims becoming in default on said lease and said Lessor electing to declare a forfeiture of said lease and re-assuming possession of said mining claims and premises, that then and in that event, the said Lessor of said mining claims shall not lease said mining claims to other persons but said mining claims shall be incorporated in this agreement under the terms and conditions herein set forth and shall be subject to all the terms, conditions and provisions of this agreement as fully and to all intents and purposes as if incorporated in and made a part of this agreement at the date and time hereof.

PARAGRAPH 24

BINDING UPON HEIRS AND SUCCESSORS

That this agreement shall be binding upon the heirs and assigns, executors and administrators and personal representatives of the Parties of the First Part and upon the assigns and successors in interest of the Party of the Second Part.

IN WITNESS WHEREOF, the Parties of the First Part and the Party of the Second Part have hereunto set their hands and seals this 26th day of May, 1952.

(Signed) John Percy Brusco (SEAL)

(Signed) John H. Wood (SEAL)

Parties of the First Part

(Signed) A. R. Floreen (SEAL)

Party of the Second Part

STATE OF ARIZONA)
) ss
COUNTY OF MARICOPA)

On this the 26th day of May, 1952, before me, Frank Stanlis, Notary Public in and for the County of Maricopa, State of Arizona, personally appeared John Percy Brusco and John H. Wood, known to me to be the persons whose names are subscribed to the within instrument and acknowledged that they executed the same for the purpose therein contained.

In Witness Whereof I hereunto set my hand and official seal.

(Signed) Frank Stanlis
Notary Public

My Commission Expires:
Oct. 16, 1953

STATE OF ARIZONA)
) ss
COUNTY OF MARICOPA)

On this the 26th day of May, 1952, before me, Frank Stanlis, Notary Public in and for the County of Maricopa, State of Arizona, personally appeared A. R. Floreen, known to me to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same for the purpose therein contained.

In Witness Whereof, I hereunto set my hand and seal of office.

(Signed) Frank Stanlis
Notary Public

My Commission Expires:
Oct. 16, 1953

LEASE AND OPTION

THIS AGREEMENT OF LEASE AND OPTION, made this 26th day of May, 1952, by and between L. C. HUTHMACHER, of Wenden, Arizona, hereinafter referred to as the Lessor, and A. R. FLOREEN, whose residence is 3000 Sheridan Road, Chicago, Illinois, hereinafter referred to as Lessee, WITNESSETH:

That the Lessor, for and in consideration of the rents, royalties, covenants and agreements hereinafter expressed to be paid, kept and performed by the Lessee, has leased, let and demised, and by these presents does lease, let and demise unto the Lessee the following described mining claims, the same being unpatented, situated in the Ellsworth Mining District of Yuma County, Arizona, to-wit:

Claim	Date of location	Date of Recording	Book	Page
Three Musketeers	10/31/51	11/2/51	44	437
Three Musketeers No. 1	11/2/51	11/5/51	44	470
Three Musketeers No. 2	11/2/51	11/5/51	44	471
Three Musketeers No. 3	11/12/51	11/14/51	45	41
Three Musketeers No. 4	2/12/52	2/18/52	50	106
Three Musketeers No. 5	2/12/52	2/18/52	50	107

No registered survey has been made of the properties, but according to measurements of the Lessor, the above described claims are situated in Sections 24 and 25, Township 6 North, Range 15 West, Gila and Salt River Base and Meridian, and described by approximate measurements in the Notice of Location on file and of record in the office of the Yuma County Recorder, at the Book and Page above set forth.

THIS LEASE AND OPTION, in all its provisions hereinbefore and hereinafter set forth, IS SUBJECT TO:

1. The paramount title of the United States of America.

2. The rights and interests of the co-owners of the mining claims, which is a full two-thirds interest.

3. The rights of the Lessees on the mining claims described as Three Musketeers Nos. 1, 2 and 3, which said leases expire in 1955, and of which lessee herein acknowledges notice and full knowledge.

4. The Lessor reserves all Royalties and minimum Royalties from leases already executed on Three Musketeers Nos. 1, 2 and 3, to expiration of such leases.

TO HAVE AND TO HOLD the above described premises for the purpose of mining and milling, from the 26th day of May, 1952, until the 26th day of May, 1957.

The said Lessee, in consideration of the premises, covenants and agrees with the Lessor as follows:

1. To pay as rent for the mining properties above described a royalty of Three and one-third Per Cent (3-1/3%) of the gross proceeds from all Tungsten ore, and Tungsten concentrates sold, the products of said mining claims and Three and one-third Per Cent (3-1/3%) of the net smelter returns of all other ore or concentrates sold produced from said mining claims during the term of this lease: all settlements shall be made within Ten (10) days from receipt of the settlement and payment of the ore and concentrates sold; each of said settlements shall be accompanied by a settlement sheet from the buyer.

2. To work and mine the demised property according to the best mining practices of the District, steadily and continuously, during the period of this lease, and to render and perform upon said mining claims at least One Hundred (100) productive man shifts per month, exclusive of watchman, clerical and supervisory, but including and not excluding the mine foreman or mine superintendent, subject, however, to the provision that if the Lessee fails during any month during the term of this lease to perform this covenant, the Lessee shall pay to the Lessor the sum of Two Hundred and Fifty Dollars ($250.00) in lieu thereof; provided, however, that each five feet of diamond drilling performed upon the premises by the Lessee shall be deemed to

be equivalent to two (2) productive man shifts of such labor, and it is further provided that the man shifts of labor performed by the Lessee shall be cumulative for only one month, and any such labor performed by the Lessee in excess of the said 100 shifts during any one month may be credited to, upon, and against the said shifts of labor to be performed for the next month succeeding; it is further provided that the Lessee shall not be obligated to render and perform such said labor when prevented from doing so by acts of God, storm, floods, or by strikes or civil disorder.

That said shifts of labor to be performed upon said mining claims by the Lessee shall start and begin within ninety (90) days from the date and time of signing this agreement.

3. To allow the Lessor, or his agents, at any reasonable time to enter upon or descend into all parts of the demised premises, for the purpose of inspection, surveys, assessment work, taking samples therefrom, or any other lawful purpose; to keep its labor and production records open at all reasonable times for his inspection, examination, and audit, and at all reasonable times to render the Lessor proper assistance in making such inspections, surveys, examinations, or audits.

4. To save the Lessor harmless from any and all costs, charges and expenses incurred in conducting and carrying on the mining and milling operations of the Lessee; to post, and keep posted upon said premises, notices as provided by law for the non-liability of the owners of the property for material and labor used or employed upon the premises; to pay all bills for such labor and materials promptly; to pay all taxes assessed against said demised premises for the ores mined, shipped, or other improvements thereon; to apply, or allow to

be applied, all work done upon the premises to be applied as assessment work done for the protection of the title to said mining claim; to assume all responsibility in case of accident, injury or disability to any and all employees of the Lessee, or members of the public, in and about the property, to follow the laws of the State of Arizona in regard to employees' safety and compensation, and otherwise operate said mining and milling activity in full compliance with the laws, rules and regulations of the State of Arizona, and in accordance with the rules and regulations made and prescribed by the State Mine Inspector.

LESSOR COVENANTS AND AGREES WITH THE LESSEE AS FOLLOWS:

1. That during the terms of this lease, the Lessee shall have the sole and exclusive right to conduct and carry on all mining operations within, upon, or about said mining claims, and to extract, mine, remove and sell all ore or ores therefrom; that said Lessee shall at all times have the sole and exclusive, complete and irrevocable right, power and discretion to decide how, and in what manner, the said mining claims shall be mined and operated, what ore within said mining claims shall be extracted, mined or removed from said mining claims, and how, or in what manner, the ore mined and extracted therefrom shall be milled, treated or processed, and where, and to whom the same shall be sold, conveyed and marketed; provided, however, that all products therefrom shall be sold at the most advantageous market price then existing in the district, and said other operations shall be in accordance with the best established practices.

IT IS MUTUALLY AGREED BY AND BETWEEN THE PARTIES AS FOLLOWS:

1. That the Lessor will take prompt action to defend any litigation which may be instituted against the Lessor affecting, directly

or indirectly, the demised mining claims, or any rights relating thereto, which would in any way affect the free operation and development thereof by the Lessee, and the extraction of the pay ore therein as contemplated herein; and, without prejudice to the right of the Lessee, to insist upon the strict compliance of the Lessor to so defend; the Lessee shall have the right, should the Lessor in any respect fail in his compliance thereof, to employ counsel to defend any such litigation for and on behalf of the Lessor, and to do anything else which may be reasonable and necessary to defend the rights of the Lessor which so affects the Lessee, and, subject to the limitations hereinafter set forth, all expenses incurred thereby in connection with such litigation, including the payment of any judgments against Lessor which affect the rights of the Lessee, to pay the same; such payments shall be paid by the Lessor to the Lessee upon demand, or may be deducted by the Lessee from any sums due the Lessor by virtue of this lease and option. PROVIDED, HOWEVER, that such payments or deductions shall be limited to the one-third proportionate interest of the Lessor, except when such action arises by virtue of or because of his sole fault, and provided that when such litigation arises by virtue of some act or omission of the Lessee, the Lessee shall pay the entire cost thereof, including defending any action brought against the Lessor by reason of such act or omission.

2. That the Lessee is to pay to the Lessor upon the execution of this lease the sum of FIVE THOUSAND DOLLARS ($5,000.00) as advanced payment on and against the royalties herein provided for to be paid by the Lessee to the Lessor, receipt of which is hereby acknowledged by the Lessor.

3. It is understood that a new company, partnership, or corporation may be organized by the Lessee to conduct and carry on the said mining and milling operations in and about the demised premises; the Lessee shall have the full right, within its discretion, to sell, convey, and assign this lease and option to any corporation, individual or partnership, with all the rights incident and appertaining thereto.

4. That the Lessee shall have the right, at its option, to renew this lease and option at the expiration thereof, for an additional term of five (5) years, upon the same terms and conditions provided for herein, by giving Lessor written notice of the exercise of such option to renew not less than sixty days from the expiration of the first term of this lease.

IT IS EXPRESSLY AGREED between the parties hereto that if the Lessee fails to pay any of the sums due to the Lessor under the terms of this lease and option within ten days after the said sums are due and payable, then this lease and option shall be considered terminated.

5. That if said Lessee, its assigns or successors in interest, shall for any reason or cause whatsoever decide or determine to abandon or terminate said mining or milling operations, that said Lessee or its assigns or successors in interest shall then have the right to remove, within two weeks, from said mining claims and premises all machinery and equipment, including mine rails, mine cars, and pipe placed or installed within or upon said mining claims and premises by the Lessee or its assigns or successors in interest upon giving unto the Lessor notice in writing two weeks in advance of its intention to abandon said lease.

6. That in the event of the lease on the Three Musketeers #1 Mining Claim, Three Musketeers #2 Mining Claim and Three Musketeers #3 Mining Claim, heretofore leased by the Lessor herein to other persons, should become in default and be terminated, that the Lessor herein covenants and agrees to grant unto the Lessee herein, or its assigns or successors in interest, a lease upon said mining claims under the same terms and conditions as in this lease and agreement herein provided except that no advance royalty shall be paid.

O P T I O N

FOR AND IN CONSIDERATION of the covenants and agreements herein contained to be kept and performed by the Lessee, the Lessor does by these presents give and grant unto the Lessee the sole and exclusive right, at any time after the 26th day of May, 1952, and during the first three months of the term of this lease, to purchase the mining claims known as THREE MUSKETEERS, and THREE MUSKETEERS NO. 1, NO. 2 and No. 3, for the sum of SIXTY THOUSAND DOLLARS ($60,000.00), and at any time during the term of this lease, or the renewal thereof, for the sum of ONE HUNDRED THOUSAND ($100,000.00) DOLLARS. In the event said option is exercised, the Lessor will also convey to Lessee the mining claims known as Three Musketeers No. 4 and No. 5, which have no apparent value except as a part of the contiguous premises.

Lessee must exercise this option in the following manner: Deliver the total sum of the purchase price, in cash, to the Phoenix Title & Trust Company of Yuma, Arizona, or in the event there is no such Company operating in Yuma at that time, to any Yuma Bank, with instructions to deliver the same to the Lessor upon his depositing with it a good and sufficient deed conveying to the Lessee all of the

right, title and interest of the Lessor in and to the demised premises, subject only to the exceptions heretofore mentioned. That in the event the Lessor fails to deliver such deed to the Escrow holder within ten days of written notice of such deposit, then this option shall be specifically enforceable.

The parties to this lease and option agree that the covenants and agreements herein contained shall be binding upon, apply and inure to their respective heirs, executors, and administrators, successors and assigns.

WITNESS OUR HANDS the day and year first above written.

(Signed) L. C. Huthmacher
Lessor.

(Signed) A. R. Floreen
Lessee.

STATE OF ARIZONA)
) ss
COUNTY OF MARICOPA)

On this 26th day of May, 1952, before me, Frank Stanlis, Notary Public in and for the County of Maricopa, State of Arizona, personally appeared L. C. HUTHMACHER, known to me to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same for the purpose therein contained.

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

(Signed) Frank Stanlis
Notary Public

My Commission Expires:
October 16, 1953

STATE OF ARIZONA)
) ss
COUNTY OF MARICOPA)

On this the 26th day of May, 1952, before me, Frank Stanlis, Notary Public in and for the County of Maricopa, State of Arizona, personally appeared A. R. FLOREEN, known to me to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same for the purpose therein contained.

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

(Signed) Frank Stanlis
Notary Public

My Commission Expires:
October 16, 1953

A 6 F

ASSIGNMENT OF LEASE

KNOW ALL MEN BY THESE PRESENTS:

That I, L. A. APLINGTON, of Yuma County, Arizona, in consideration of Five Thousand ($5,000.00) Dollars to me paid by A. R. FLOREEN, receipt whereof if hereby acknowledged, do hereby assign unto said A. R. Floreen a certain lease bearing the date of the 5th day of February, 1952, made by John H. Wood, John P. Brusco and L. C. Huthmacher, Lessors to myself, L. A. Aplington, of certain mining premises commonly known as Three Musketeers #3 situated in the Ellsworth Mining District, Yuma County, Arizona, and recorded in Book 45 at Page 41 in the office of the County Recorder, Yuma County, Arizona. Said lease is for a term beginning the 5th day of February, 1952 and terminating on the 5th day of February, 1955, to have and to hold the same unto A. R. Floreen and his executors, administrators and assigns from the 26th day of May, 1952, for and during all the residue and remainder of said term of Three (3) years mentioned in said lease, subject, nevertheless, to the rents, covenants and conditions therein mentioned; and I do hereby covenant with A. R. Floreen, his executors, administrators and assigns that the covenants and agreements in said lease contained on the part of the lessee to be observed and performed have been up to the date hereof duly observed and performed, and I do further warrant that the assigned premises are now free and clear of all charges and encumbrances, rents, liens, taxes and assessments whatsoever made and suffered by said lessee.

I do hereby further covenant with A. R. Floreen, his executors and assigns, that I will keep him indemnified against all actions, suits, expenses and claims on account of non-payment of rent or the

breach of any of the said covenants contained in said lease or any other expenses whatsoever pertaining to the lease as aforesaid.

IN WITNESS WHEREOF I have hereunto set my hand this 26th day of May, 1952.

(Sign d) L. A. Aplington

Before me the undersigned Notary Public, personally appeared L. A. Aplington and acknowledged that he executed the foregoing Assignment of Lease for the purpose therein contained.

(Signed) Frank Stanlis
Notary Public

My Commission expires:

October 16, 1953

THIS INDENTURE, made this 5 day of February, 1952, between John P. Brusco, L. C. Huthmacher, John H. Wood, hereafter called LESSORS, and L. A. Aplington, hereafter called Lessee.

WITNESSETH: That the said Lessors, in consideration of the covenants of said Lessee, hereinafter set forth, does by these presents lease to said Lessee the following described property, to-wit:

THE THREE MUSKETEERS, number three (3) mining claim, of the Three Musketeers Group to have and to hold the same to the said Lessee from the 5th day of February, 1952 to the 5th day of February, 1955.

THE SAID CLAIM is hereby leased upon the following terms and conditions:

THE LESSEE agrees to pay ten per cent (10%) royalty of the monies received on all ores, concentrates or other minerals shipped.

ONE HUNDRED DOLLARS ($100.00) per month to be paid as minimum royalty.

ALL ROYALTIES to be divided three ways and each one-third to be sent to the Lessors whose mailing addresses are:

L. C. Huthmacher	Box 92	Wenden, Arizona
J. P. Brusco	Box 326	Salome, Arizona
John H. Wood	Gen. Del.	Salome, Arizona

THE LESSEE agrees not to work any portion of the THREE MUSKETEERS # claim which is covered by the THREE MUSKETEERS claim by prior location, overlapping said portion being in the northeast corner of THREE MUSKETEERS #3.

THE LESSEE agrees to pay the minimum royalty on or before the fifth day of each and every month, and also to pay any additional royalty within ten (10) days after returns from shipment of minerals.

To protect the Lessors and save them harmless from any and all liability for any damage to any occupant or invitee of said premises, or any other person, during said term, or from any carelessness, negligence or improper conduct on the part of the Lessee or his agents, or, or in, or about said premises, and the Lessors shall not be liable for any damage, loss or injury to the personal property or effects of the Lessee or any other person suffered on, or about said premises by reason of any future, present, latent or other defects in the form, character, or any part or portion thereof, and the said royalty shall not be diminished or withheld by reason or on account of any such loss or damage.

THE LESSEE agrees that the Lessors will not be responsible for any debts, wages or other liabilities.

THE SAID LESSEE further covenants with the said Lessors that at the expiration of time mentioned in this lease, or if default be made in the observance or performance of any of the covenants or conditions

of the AGREEMENT, it shall be lawful for the LESSORS to re-enter and resume possession of said premises and the same to have again, repossess and enjoy and to dispossess and remove all persons and their goods and chattels therefrom.

THE COVENANTS herein, shall extend to and be binding upon the heirs, executors and administrators of the parties of this Lease.

(Signed) John H. Wood
Lessor

(Signed) John F. Brusco
Lessor

(Signed) L. C. Huthmacher
Lessor

(Signed) L. A. Aplington
Lessee

STATE OF ARIZONA) ss
COUNTY OF YUMA)

THIS INSTRUMENT was acknowledged before me this 17th day of March, 1952, by John H. Wood, John F. Brusco, L. C. Huthmacher, and L. A. Aplington.

(Signed) Edna V. Eckel
Notary Public

My Commission expires Nov. 19, 1954

ASSIGNMENT

For Five Thousand ($5,000.00) Dollars and other valuable consideration, receipt whereof is hereby acknowledged, I, L. A. Aplington, do hereby sell, assign, transfer and set over to A. R. FLORZEN, all of my right, title and interest in, to and under the annexed lease, together with all rights of action accrued to me thereunder or hereafter to accrue and all rights thereunder of whatever kind and nature.

(Signed) L. A. Aplington

Before me the undersigned Notary Public personally appeared L. A. Aplington and acknowledged that he executed the annexed assignment for the purpose therein contained.

_____
Notary Public

My Commission Expires:

October 16, 1953

bearing crosscut a distance of 26 feet. To more completely explore this mineralized zone the Government authorized a 25-foot raise above the back of the crosscut. Further, as provided for under Stage I, a southwesterly bearing drift was driven a distance of 65 feet off the 65-foot level of the inclined shaft. In this drift at a point approximately 40 feet from the shaft, the operator drove a crosscut southward a distance of 56 feet at its own expense. Work under Stage I of the contract was completed on August 31, 1953.

To recapitulate, a total of 150 feet of drifting and 25 feet of raising was completed under the terms of the contract. In addition to the units of work authorized by the contract, the operator crosscut 82 feet at its own expense.

DESCRIPTION OF GEOLOGY

Scheelite ore at the Three Musketeers prospect occurs in quartz lenses which are intercalated in limestone and in schist. Most of the quartz outcrops encompass areas of a few square feet. One of the largest masses of quartz is on the west side of the zone explored and is about 65 feet long by 15 feet wide. A quartz vein, ranging from 3 to 8 feet in width. extends from approximately 50 feet west of the No. 1 shaft to about 125 feet east of the shaft, or for a total distance of 175 feet. In general, the quartz lenses are less than 30 to 40 feet in length and vary from a few inches to a maximum of 5 feet in thickness. In places, the lenses are en echelon and are often connected by narrow veins cutting across the strike of the limestone bedding or the foliation of the schist. Where these lenses outcrop they feather out at each end, but occasionally they are cut off by faults.

The Three Musketeers area is one of relatively complex structures. Low-angle faults, which are probably pre-ore, and several steep faults, which are both pre-ore and post-ore, cut the schist. Some of the post-ore faults are occupied by basic dikes. Two basic dikes have a curved outcrop, strike northwesterly, dip southeasterly 50° to 60°, and cut across the schist and some of the quartz bodies (figure 3). These 2 unmineralized and relatively unaltered dikes are exposed underground by a crosscut at the north end of the 65-foot level (figure 4).

Prior to the Government exploration project, a 65-foot inclined prospect shaft was sunk on the Three Musketeers claim between 2 near-surface, high-grade ore pockets, approximately 85 feet apart. This No. 1 shaft was started in scheelite-bearing quartz that feathered out in the back of the shaft at a depth of 25 feet. Sinking of the shaft was continued and at the 65-foot level approximately 2 feet of quartz was exposed in the back.

Under Stage I of the contract a northeasterly-bearing drift was started at the 65-foot level of inclined Shaft No. 1. The drift was driven 85 feet along a well-fractured zone containing very small amounts of scheelite. However, exploration drifting paralleled the footwall of the western diabase dike whereas the 2 near-surface, high-grade stopes were located along the hanging wall side of this dike. Starting at the end of the north drift the operator crosscut southeasterly through the western diabase dike, exposing a 17-foot wide quartz zone

that terminated against the eastern diabase dike (figure 4). Three samples were taken in the crosscut by the progress examiner, W. R. Hardwick,[1] and are as follows:

Sample	Sample width	Percent WO_3
#3	5.0 ft.	0.25
#4	5.0 ft.	0.08
#5	17.0 ft	0.38

Based upon this information, a 25-foot raise was authorized to be driven above the back of the crosscut to test mineralization up-dip along the hanging wall of the dike. This work disclosed that the tungsten bearing quartz pinched out 15 feet above the back of the crosscut. Quartz was exposed at the top of the 25-foot raise, but visual inspection with a mineral light indicated that the quartz was barren.

The exploration program included the driving of a southwesterly bearing drift which was started at the 65-foot level of the inclined shaft. This drift was driven along a fracture zone in schist, paralleling the schistosity. Minor amounts of quartz and negligible scheelite mineralization were exposed by this work. In the drift at approximately 40 feet from the shaft, the operator crosscut southeasterly to explore for possible mineralized quartz lenses. This crosscut exposed a quartz lense ranging in thickness from 8 inches to 14 inches that assayed 0.26 percent WO_3 (figure 5).

1/ Mining Engineer, U. S. Bureau of Mines

ORE RESERVES

Examination of quartz outcrops near the No. 1 shaft indicated that the ore bodies which might be found by exploration would be small, lense-shaped masses dipping approximately 50°. Subsequent drifting and crosscutting proved this to be the case. However, the area was selected for exploration because $7,412.82 was produced from 2 small, high-grade, near-surface ore pockets. A tabulation of that production is as follows:

Date	Ore, tons	Concentrate Pounds	Concentrate Percent	Concentrate Units	Net Receipts
12/4/51	1.0	570.0	73.6	20.976	$1,191.77
*	10.0	*	*	*	1,900.00
*	10.0	1,523.0	61.4	46.756	2,688.74
4/2/52	90.0	870.5	65.2	23.378	1,632.31
				Total	$7,412.82

* Data not available

Defense Minerals Exploration Administration field examiners estimated that mineralized quartz lenses discovered by the exploration program would have to assay 0.75 percent tungsten in order to permit a successful mining operation. Sampling of the deposit does not reveal minable width quartz lenses averaging 0.75 percent tungsten. DMEA field examiners' samples and the progress examiner's sampling results are as follows:

Sample No.	Location	Sample Width, Ft.	Percent WO_3
1	Dump, No. 1 Shaft *	Grab	0.08
2	Face, south adit	Grab	0.42
3	Face, crosscut, north drift	5.0	0.25
4	Wall, crosscut, North Drift	5.0	0.08
5	Wall, crosscut, North drift	12.0	0.38
6	Crosscut, South drift	1.1	0.26

*Mineralized quartz from the first 25 feet of the No. 1 shaft

Sufficient exploration has been performed at the No. 1 shaft location to warrant the conclusion that a significant discovery of scheelite ore cannot be made in this mineralized zone. There is still the possibility that very small, high-grade pockets might be found by additional raising. The geologic potential of the deposit is a few tens of tons of scheelite bearing quartz assaying 0.2 percent to 0.4 percent WO_3.

EXPENDITURES

Total approved	$19,620.00
Total cost of project	5,762.50
Government's share of cost	4,321.87
Government's share unexpended	10,393.13
Value of production during operations	0.00
Government's royalty	0.00

EFFICIENCY OF OPERATIONS

Ike Kusisto, a mining contractor, is a competent miner and the work performed by his crew was satisfactory. However, the field examiners in their cost estimate provided for the hiring of a mining engineer or a geologist to supervise the work and to prepare mine maps. Therefore, the final report submitted by the operator should be prepared by an engineer or a geologist.

EQUIPMENT AND SUPPLIES

The contract was on a unit cost basis, consequently there was no Government participation in the cost of equipment or supplies.

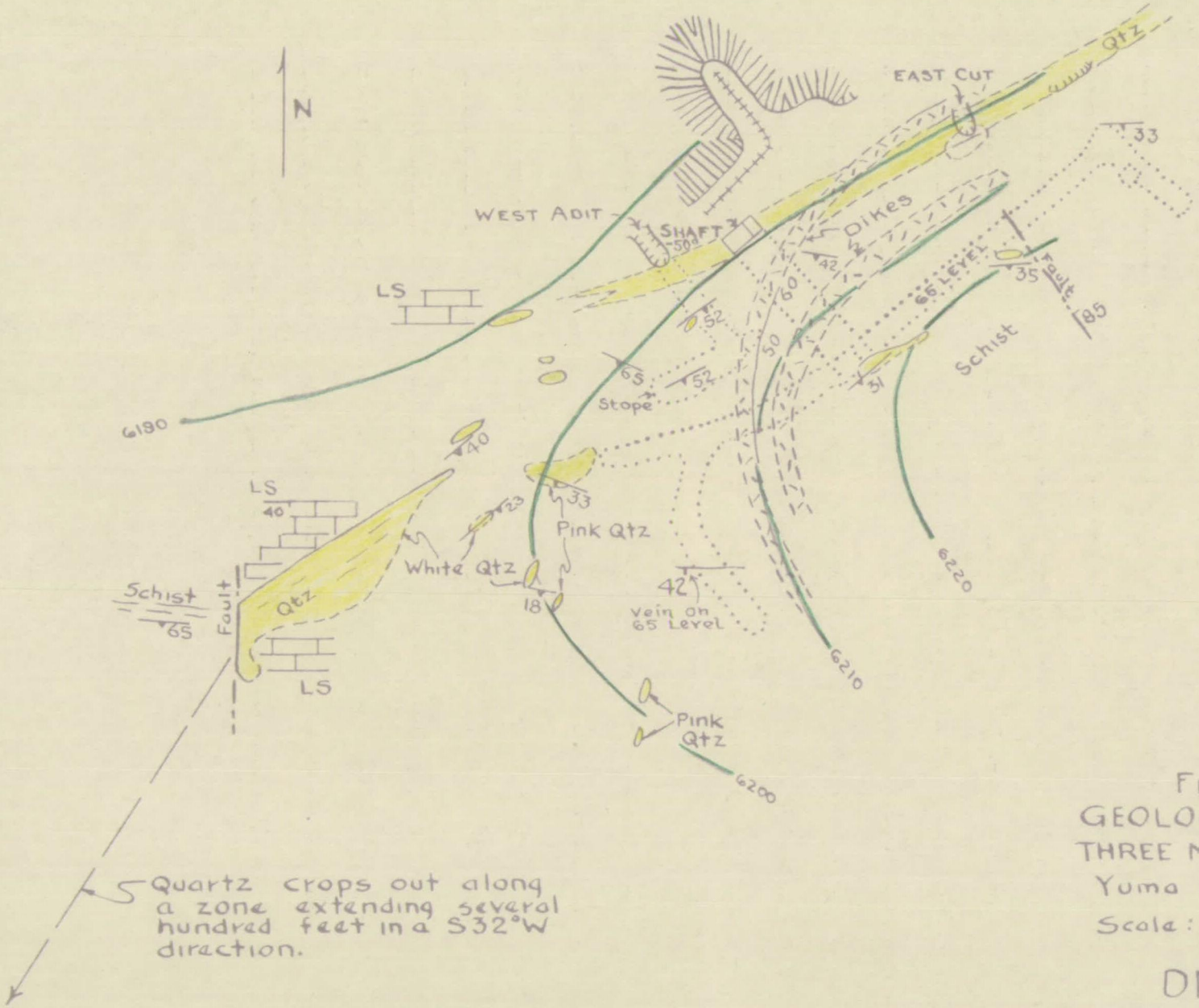


Figure 3
GEOLOGICAL SKETCH MAP
THREE MUSKETEERS MINE
Yuma County, Arizona
Scale: 1" = 40' Sept. 1953

DMEA 2858

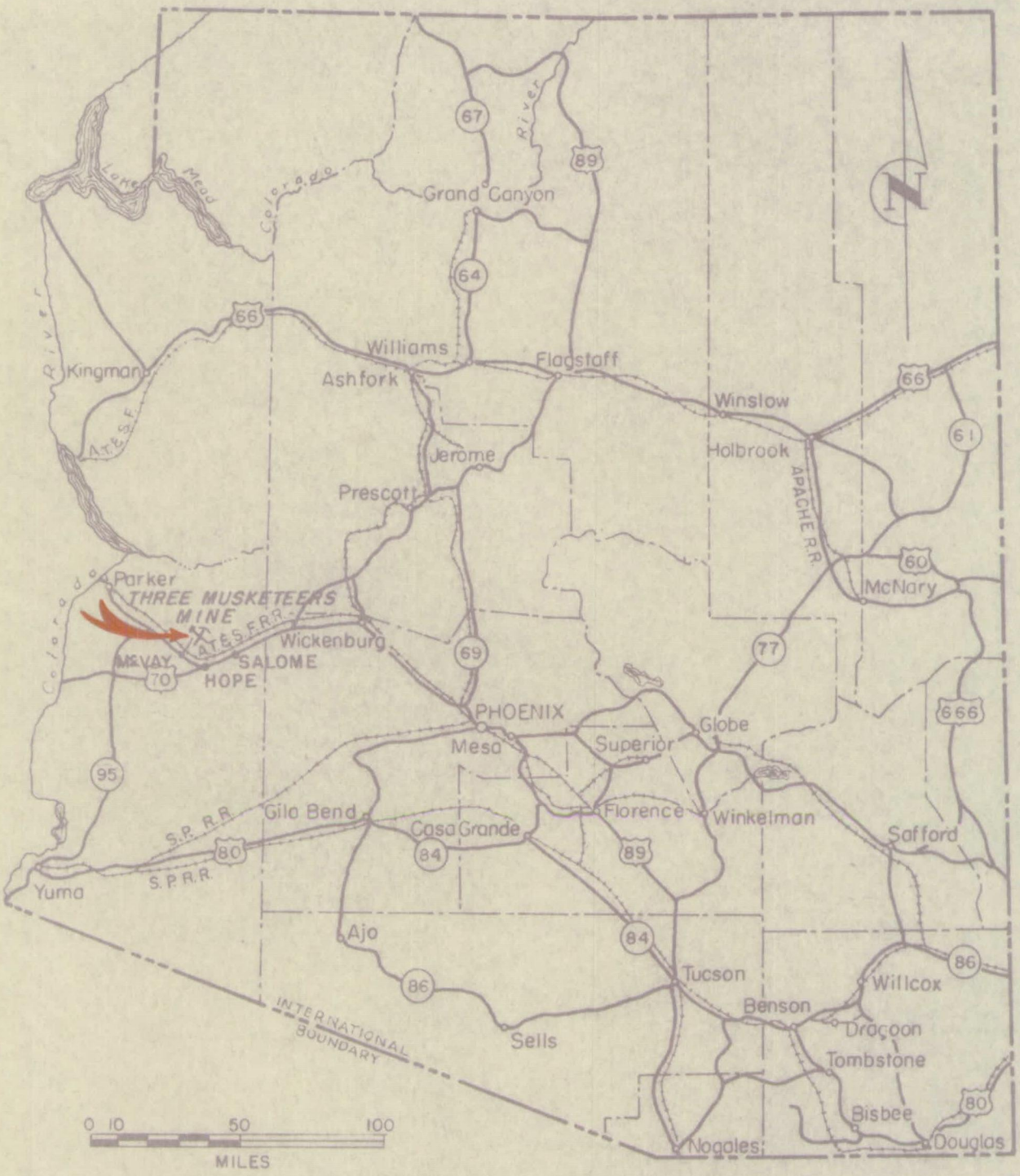


FIGURE 1. - LOCATION MAP, THREE MUSKETEERS MINE

ELLSWORTH MINING DISTRICT

YUMA COUNTY, ARIZONA

MARCH 9, 1953 DMEA 2858

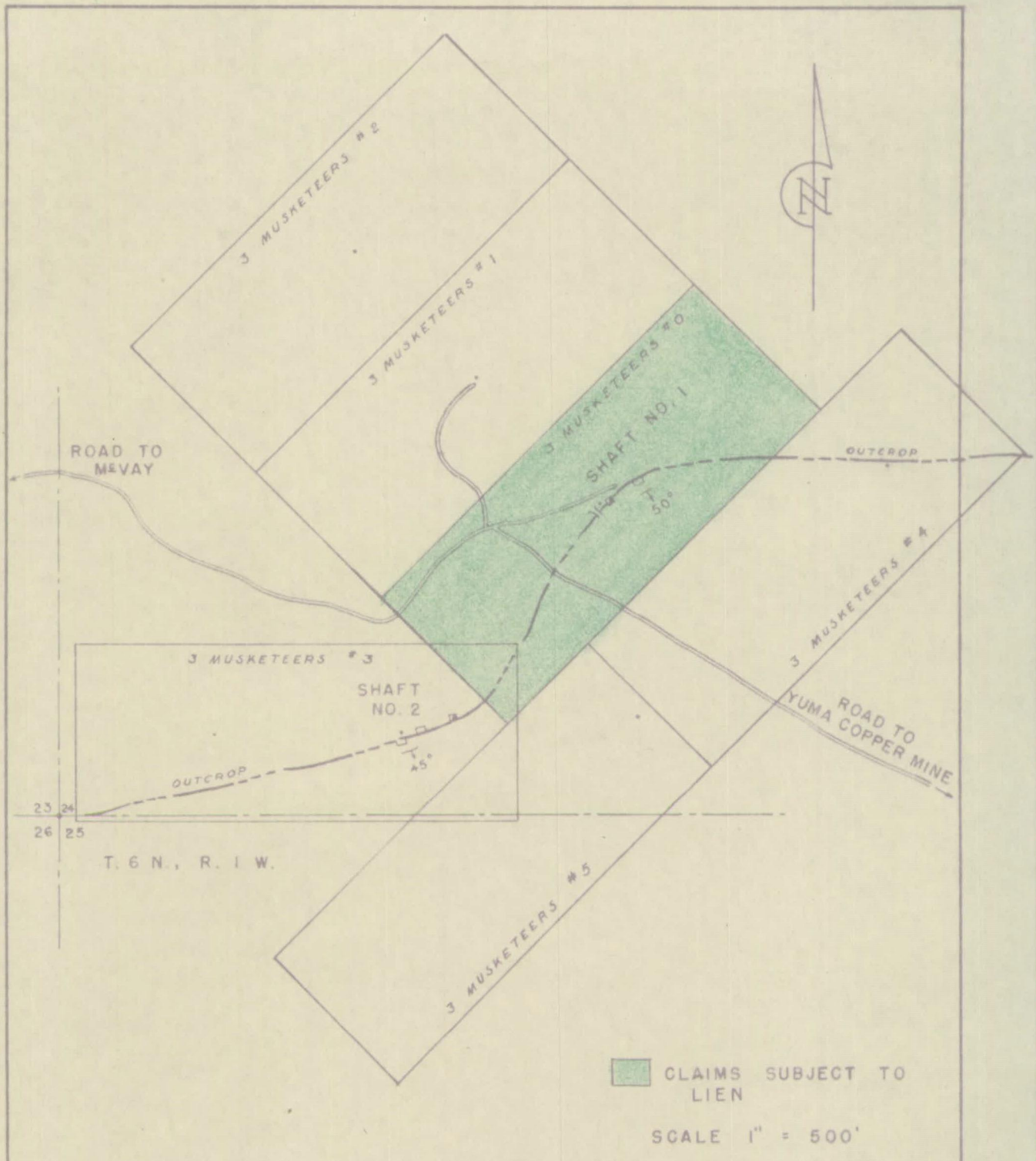


FIGURE 2. - CLAIM MAP, THREE MUSKETEERS MINE

ELLSWORTH MINING DISTRICT

YUMA COUNTY, ARIZONA

MARCH 9, 1953 DMEA 2858

DATA COMPILED FROM MAP FURNISHED BY APPLICANT

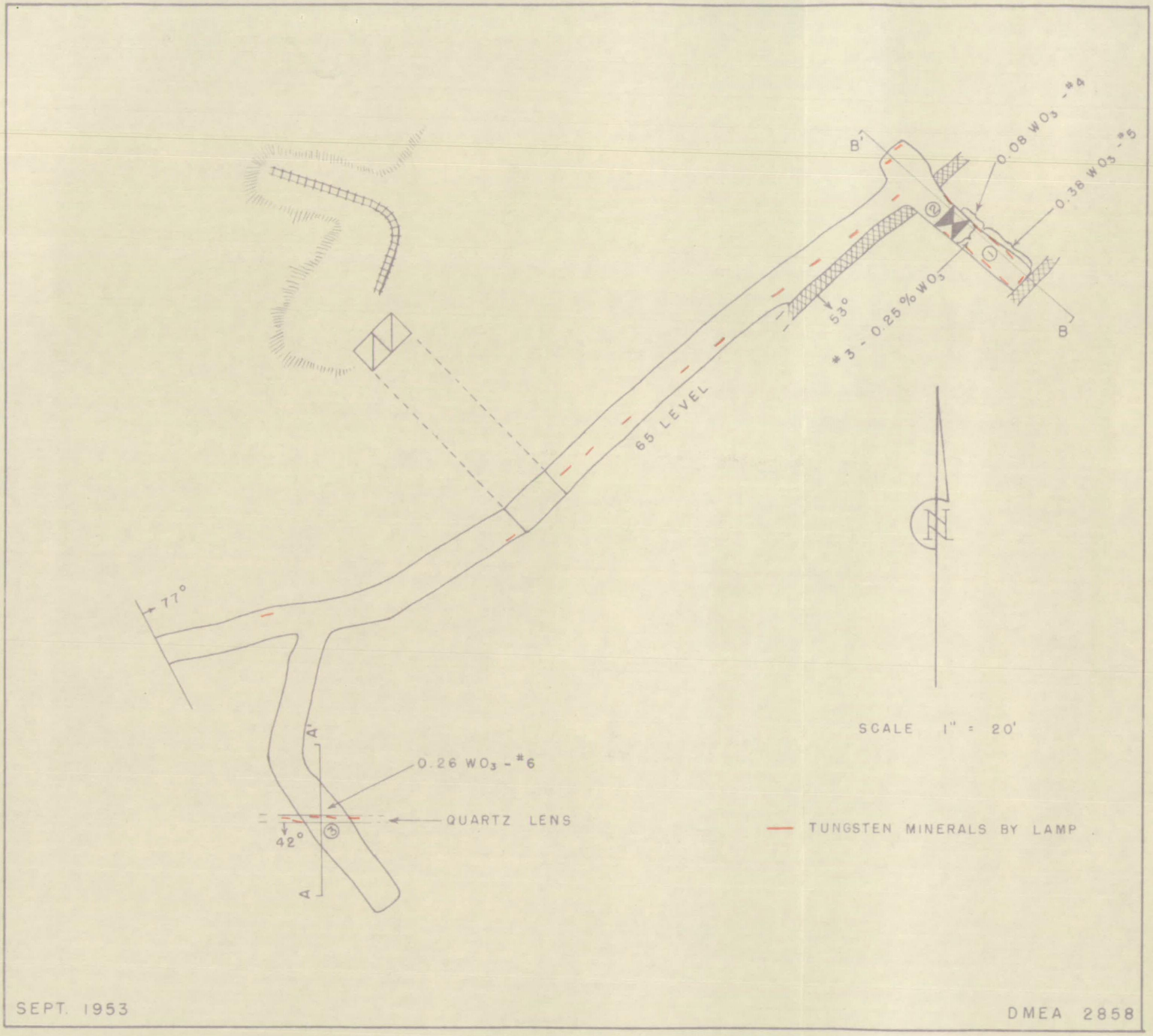


FIGURE 4. - PLAN OF 65 LEVEL - THREE MUSKETEERS TUNGSTEN PROSPECT
YUMA COUNTY, ARIZONA

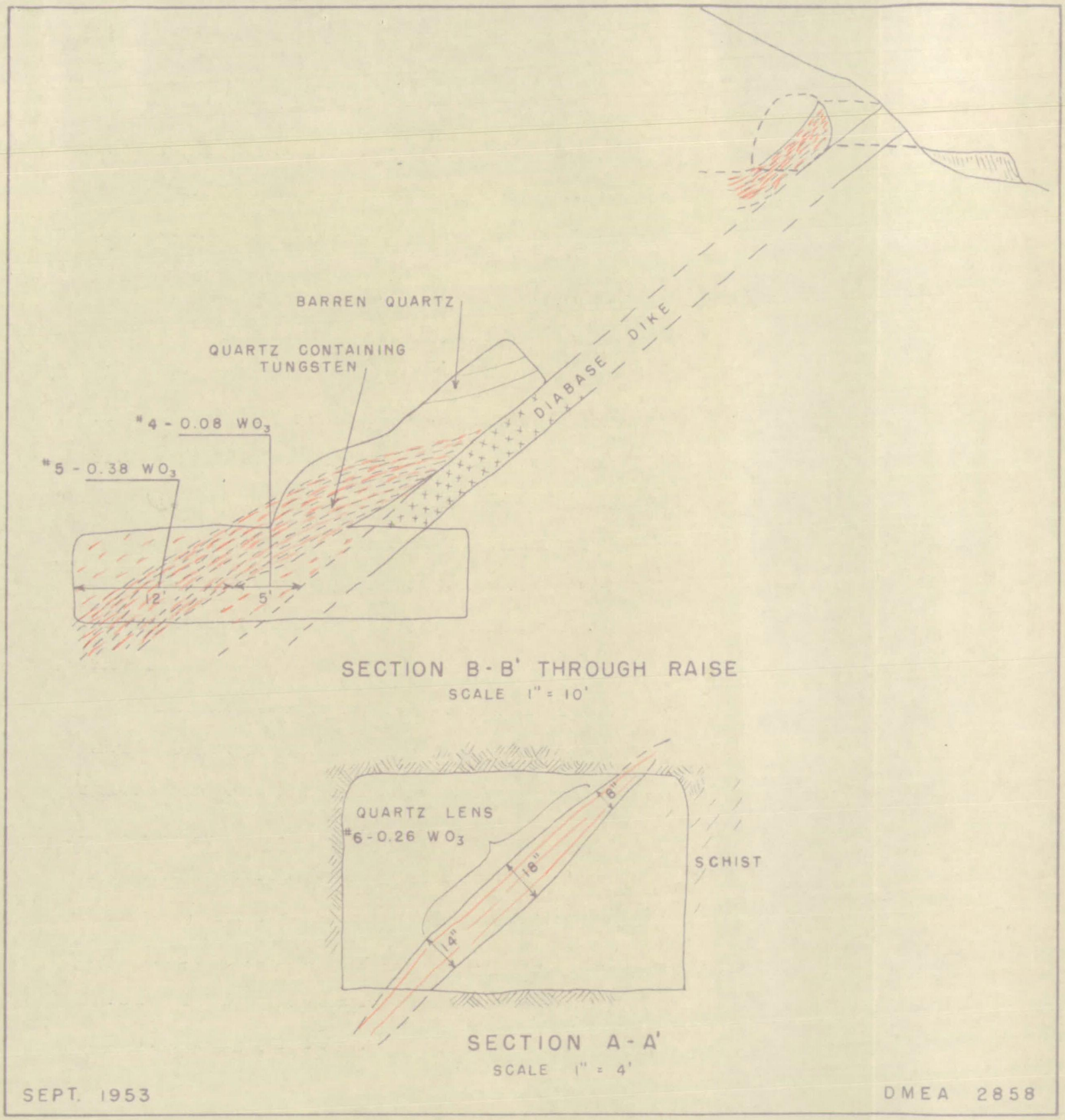


FIGURE 5. - SECTIONS - THREE MUSKETEERS TUNGSTEN PROSPECT

YUMA COUNTY, ARIZONA

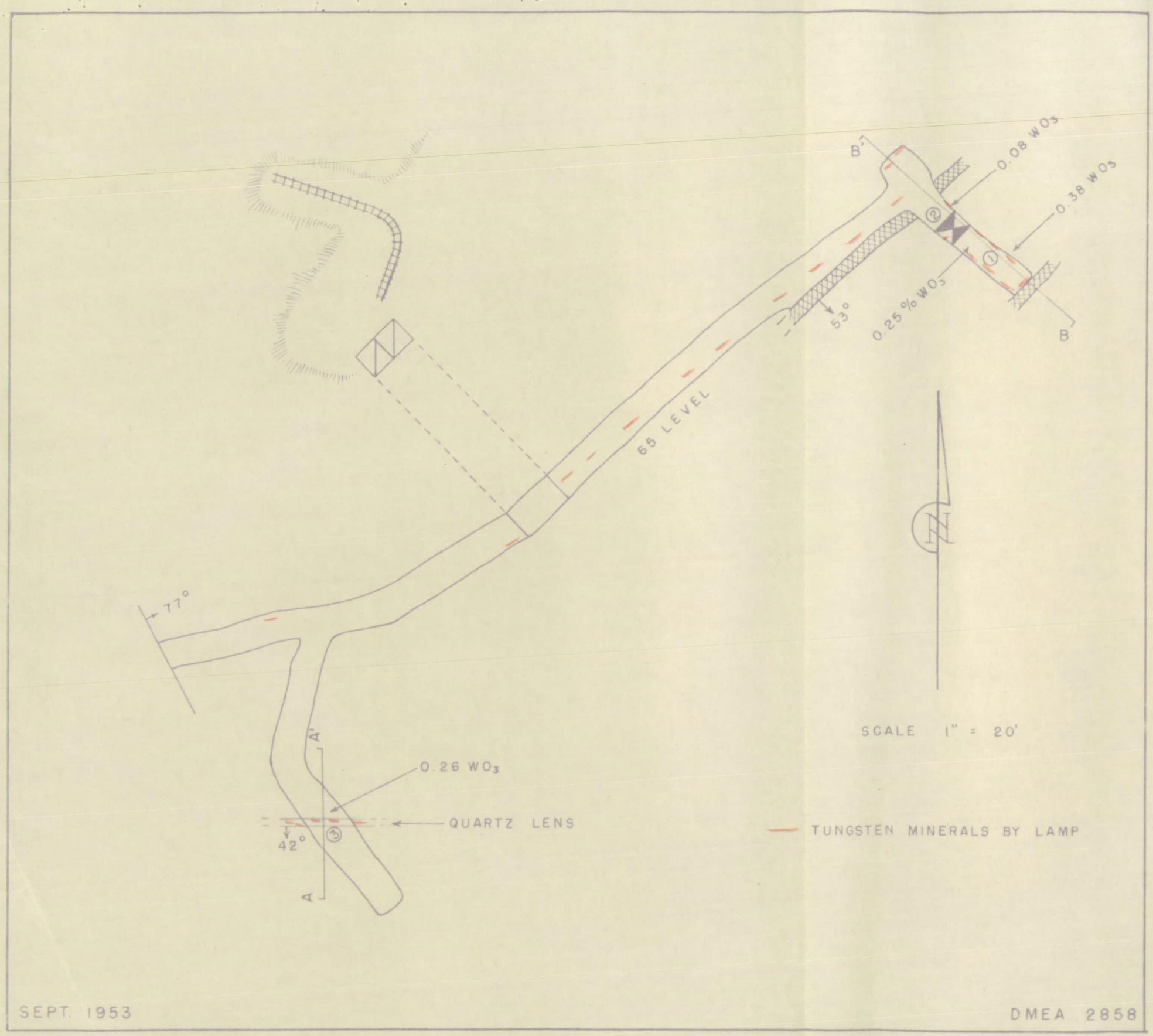
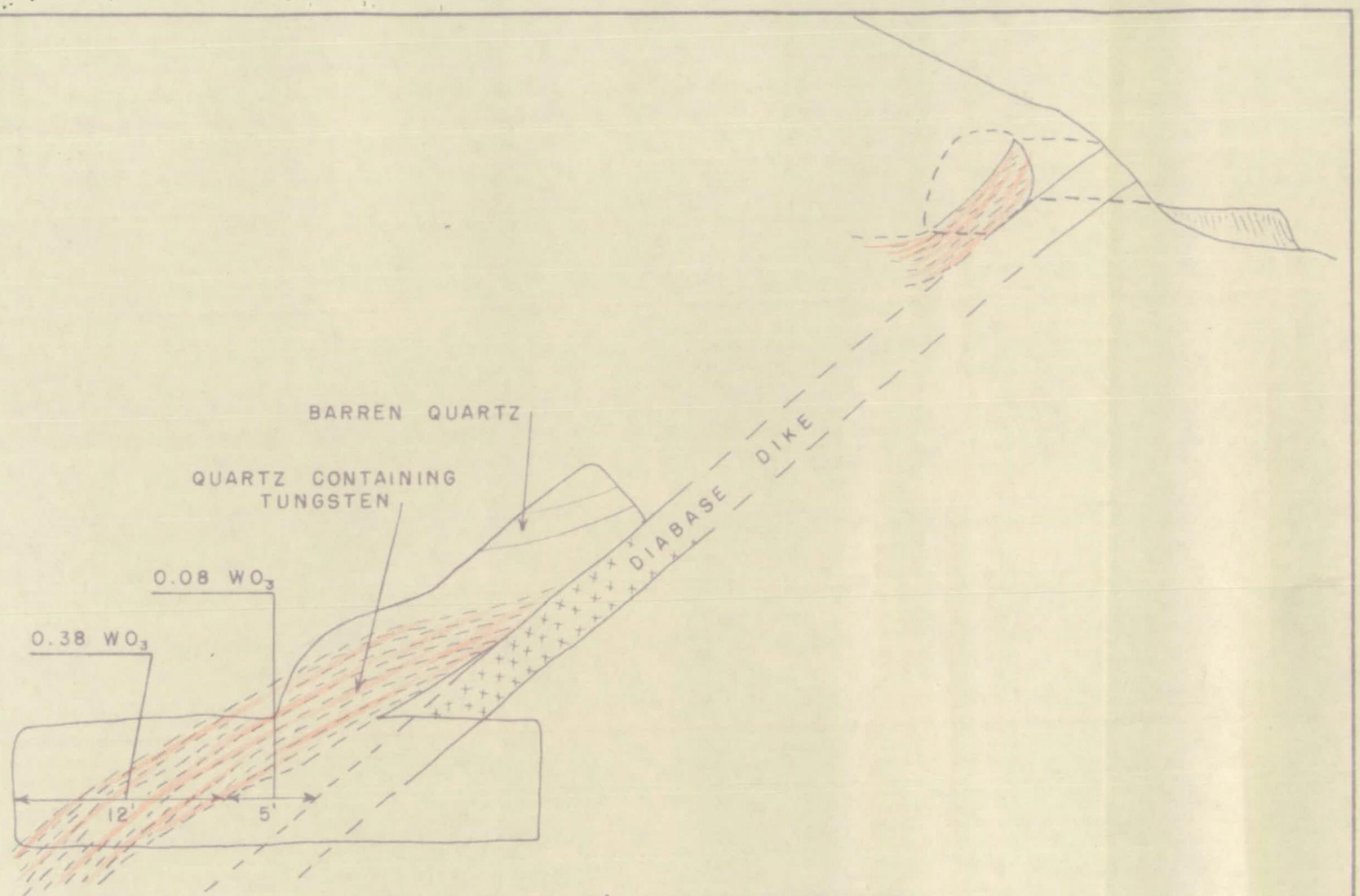
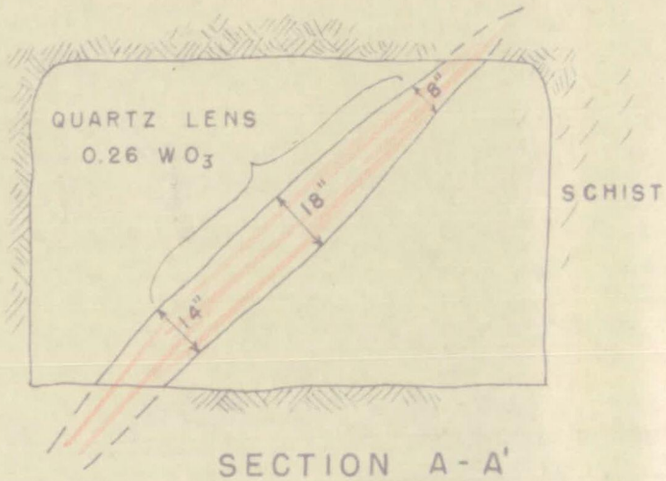


FIGURE 1. - PLAN OF 65 LEVEL - THREE MUSKETEERS TUNGSTEN PROSPECT
YUMA COUNTY, ARIZONA



SECTION B-B' THROUGH RAISE

SCALE 1" = 10'



SECTION A-A'

SCALE 1" = 4'

SEPT. 1953

DMEA 2858

FIGURE 2. - SECTIONS - THREE MUSKETEERS TUNGSTEN PROSPECT

YUMA COUNTY, ARIZONA

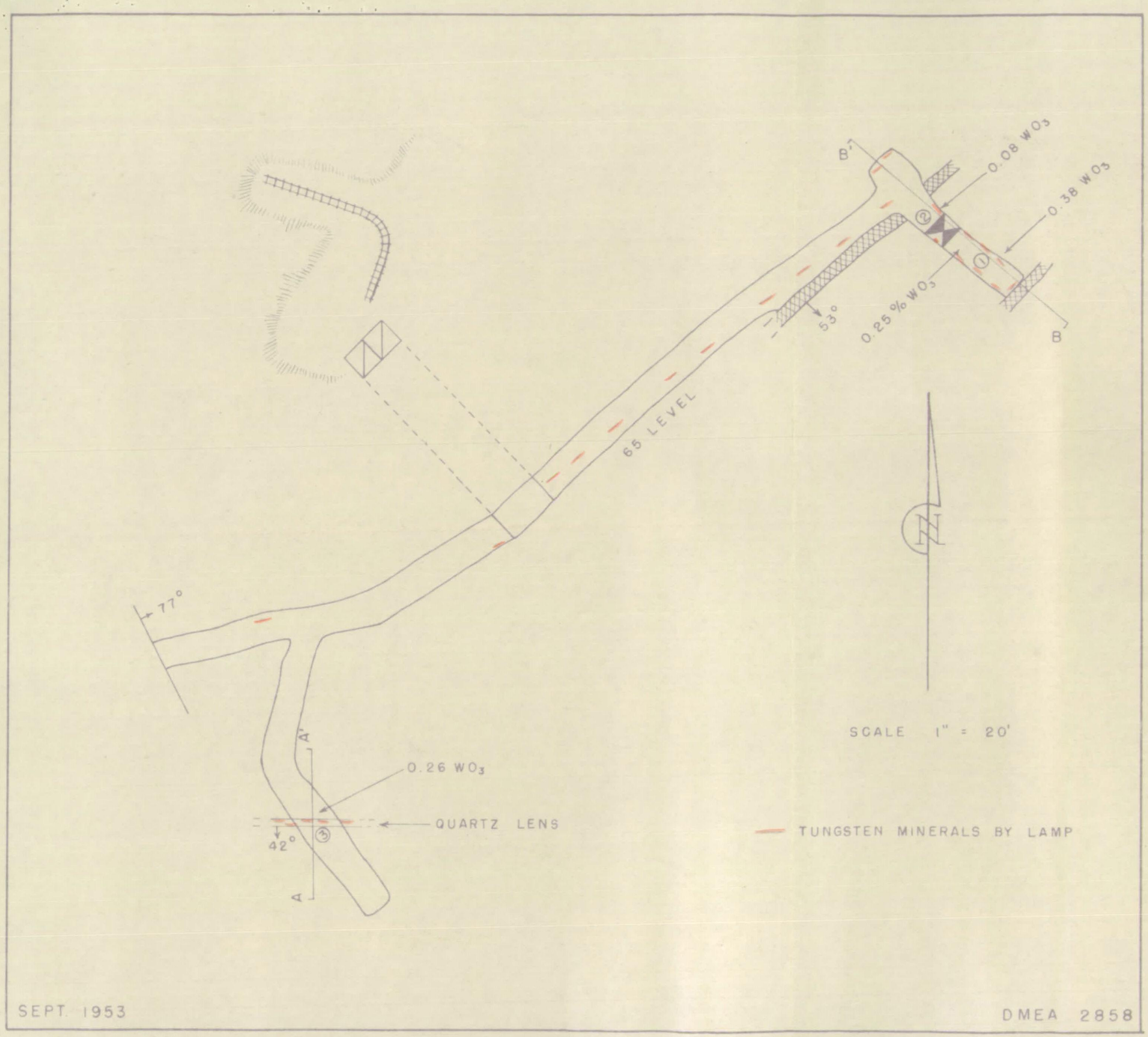


FIGURE 1. - PLAN OF 65 LEVEL - THREE MUSKETEERS TUNGSTEN PROSPECT
YUMA COUNTY, ARIZONA

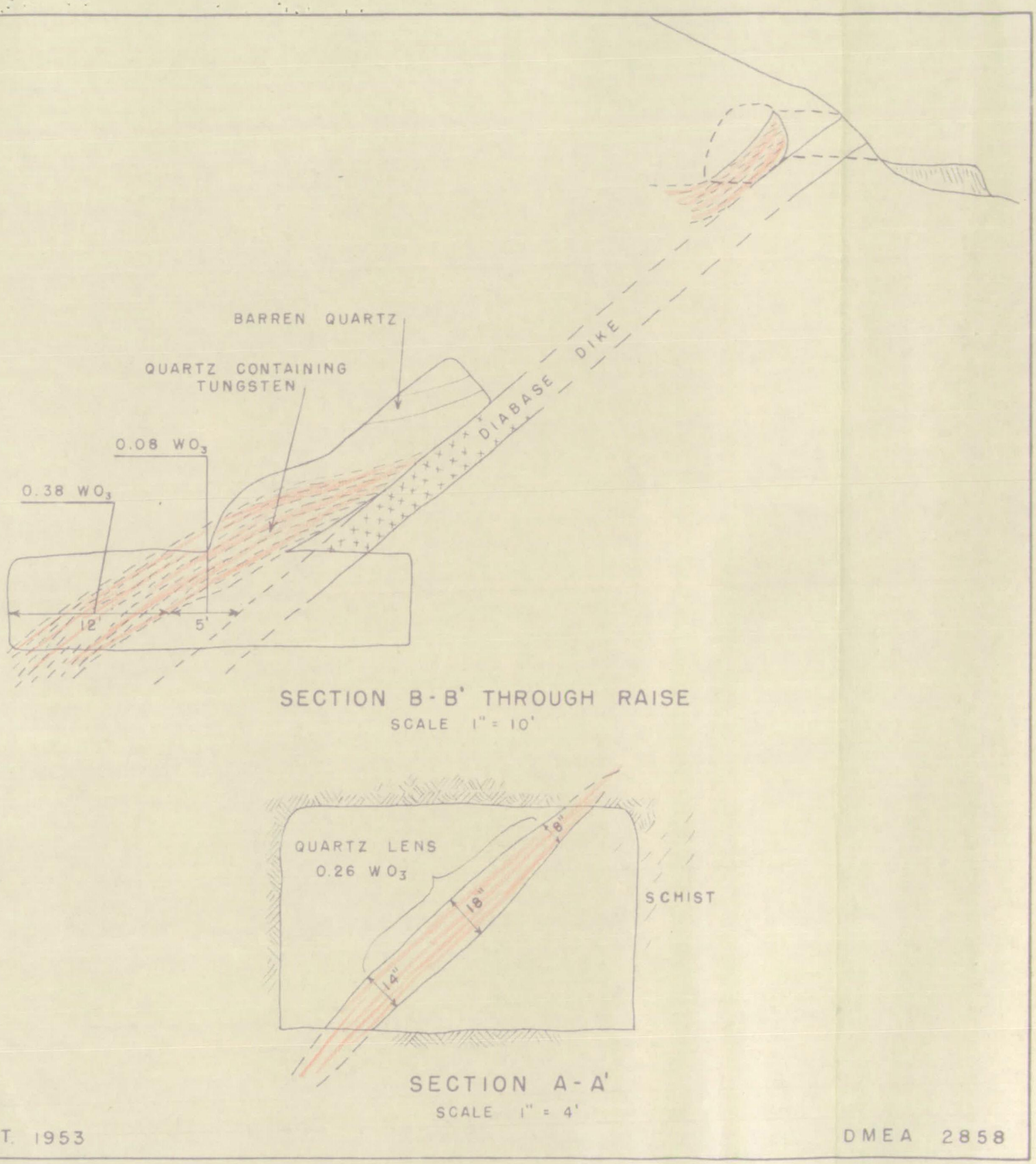
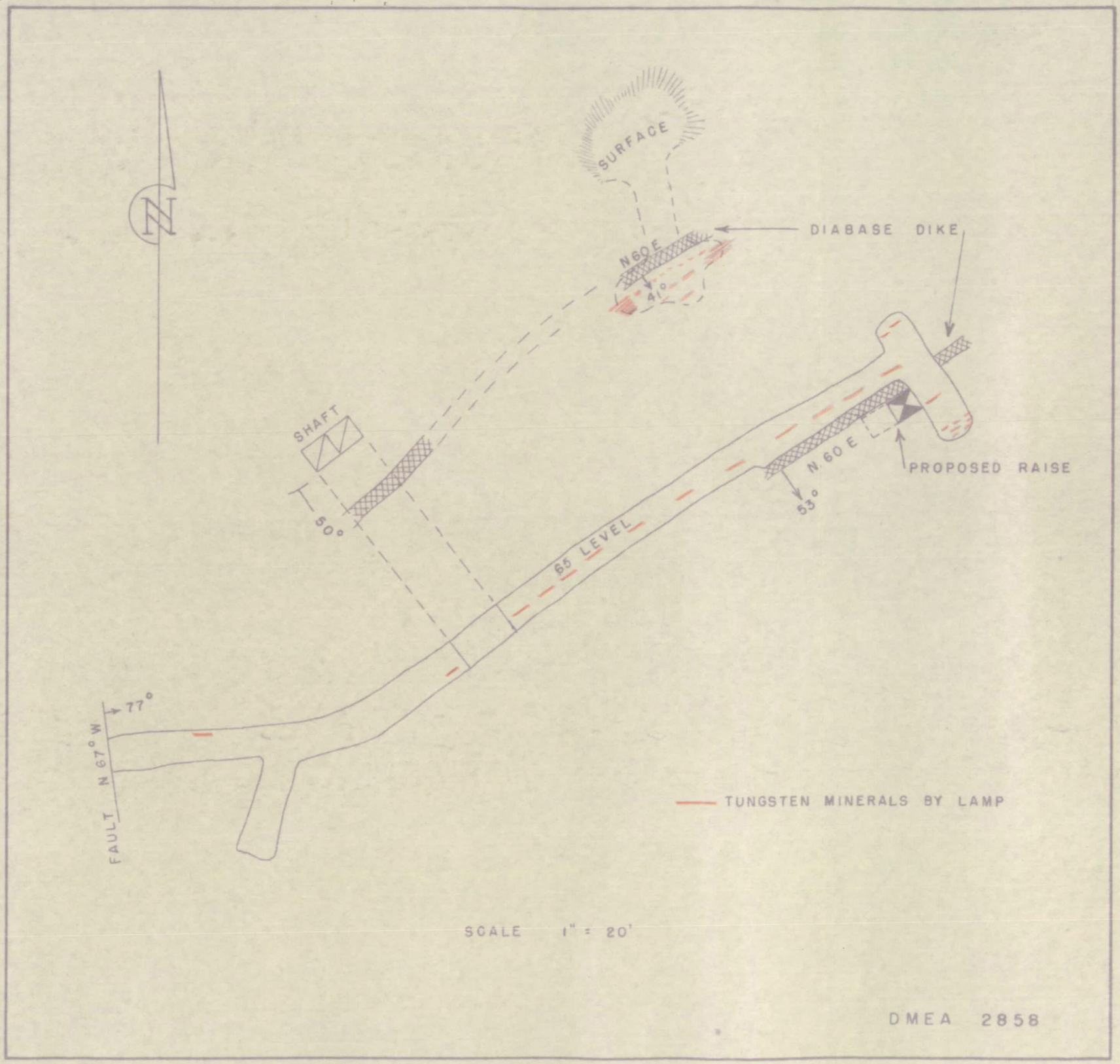
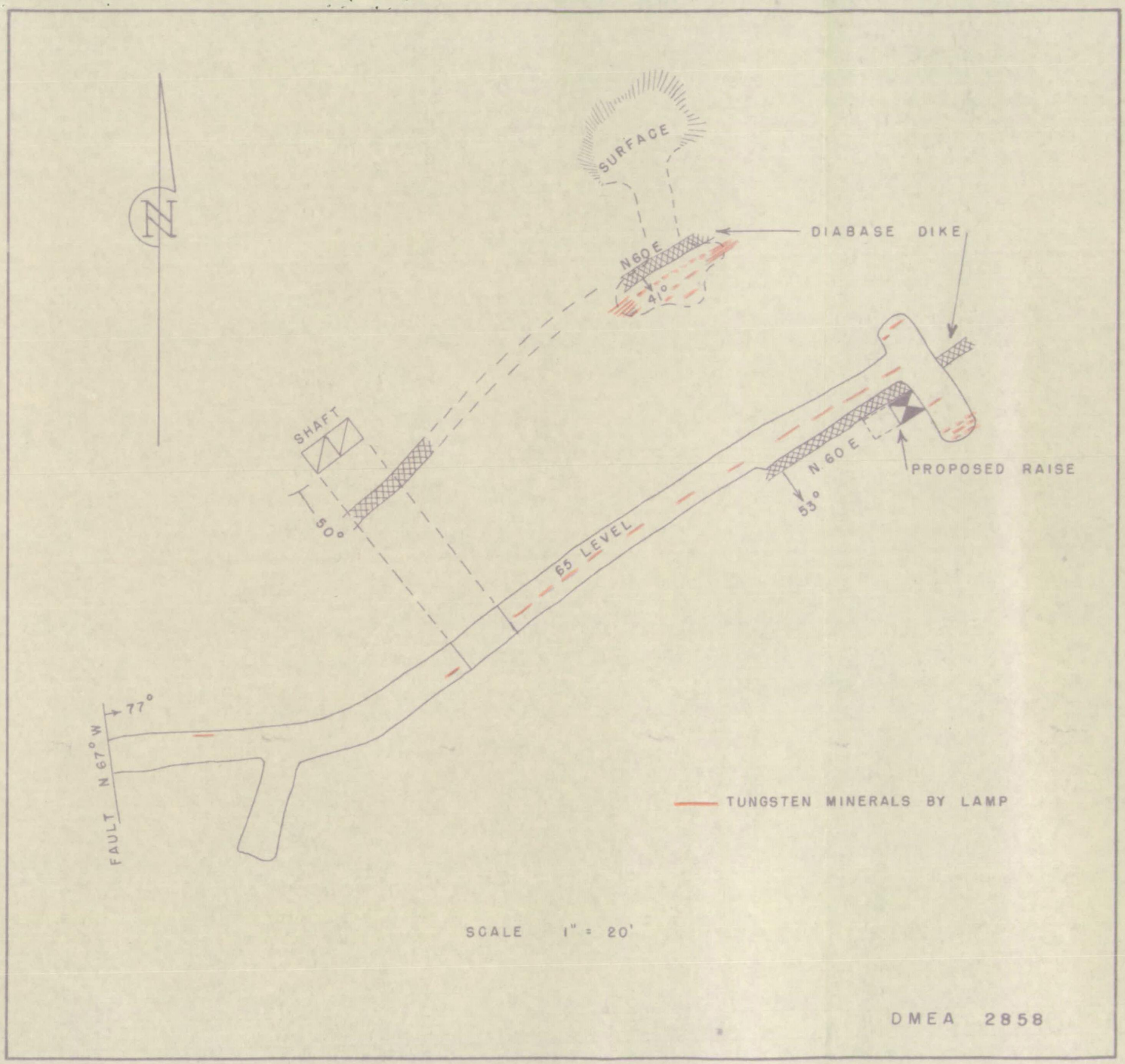


FIGURE 2. - SECTIONS - THREE MUSKETEERS TUNGSTEN PROSPECT
YUMA COUNTY, ARIZONA



THREE MUSKETEERS TUNGSTEN PROSPECT
YUMA COUNTY, ARIZONA



THREE MUSKETEERS TUNGSTEN PROSPECT
YUMA COUNTY, ARIZONA

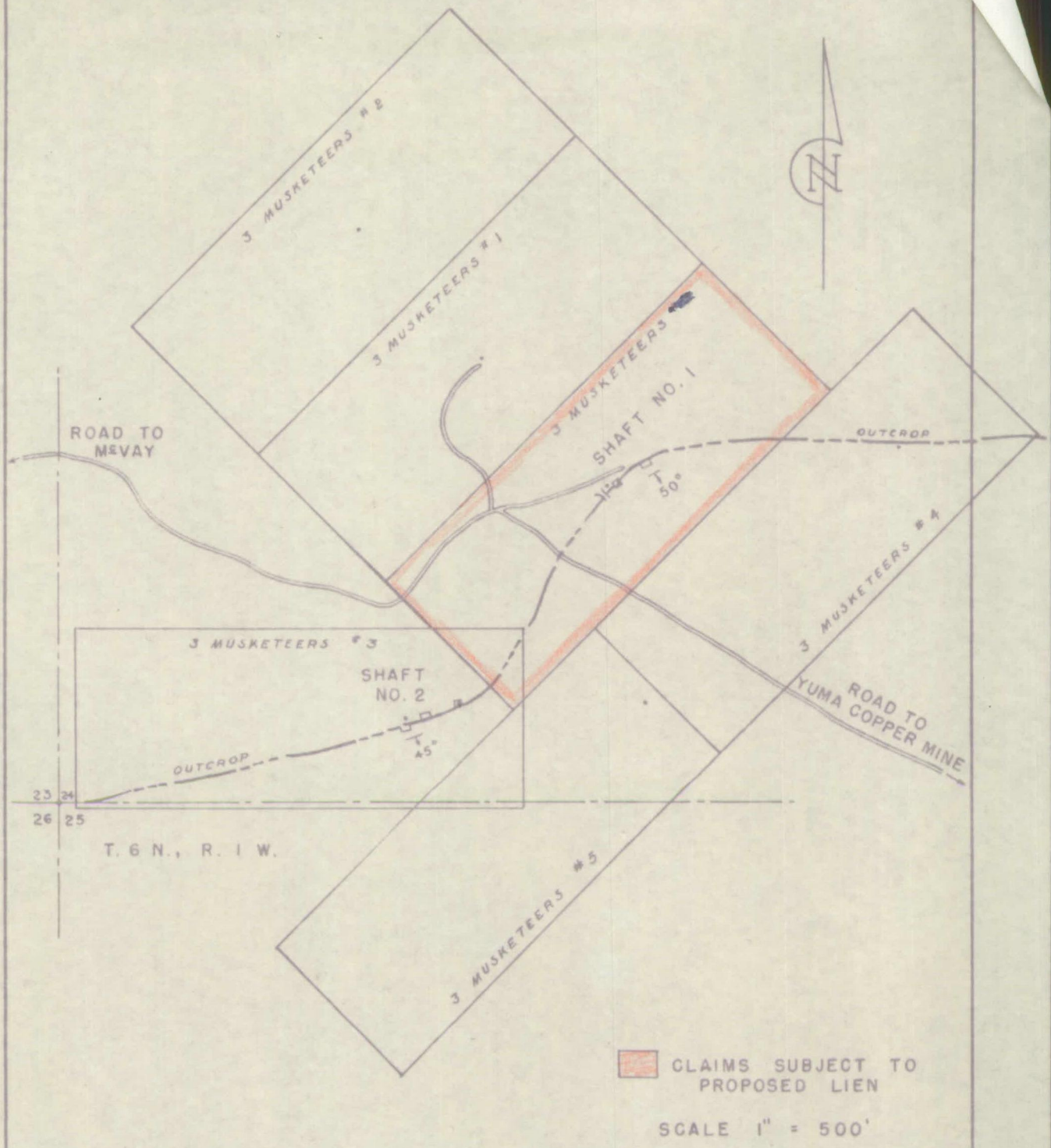


FIGURE 2. - CLAIM MAP, THREE MUSKETEERS MINE

ELLSWORTH MINING DISTRICT

YUMA COUNTY, ARIZONA

MARCH 9, 1953 DMEA 2858

DATA COMPILED FROM MAP FURNISHED BY APPLICANT

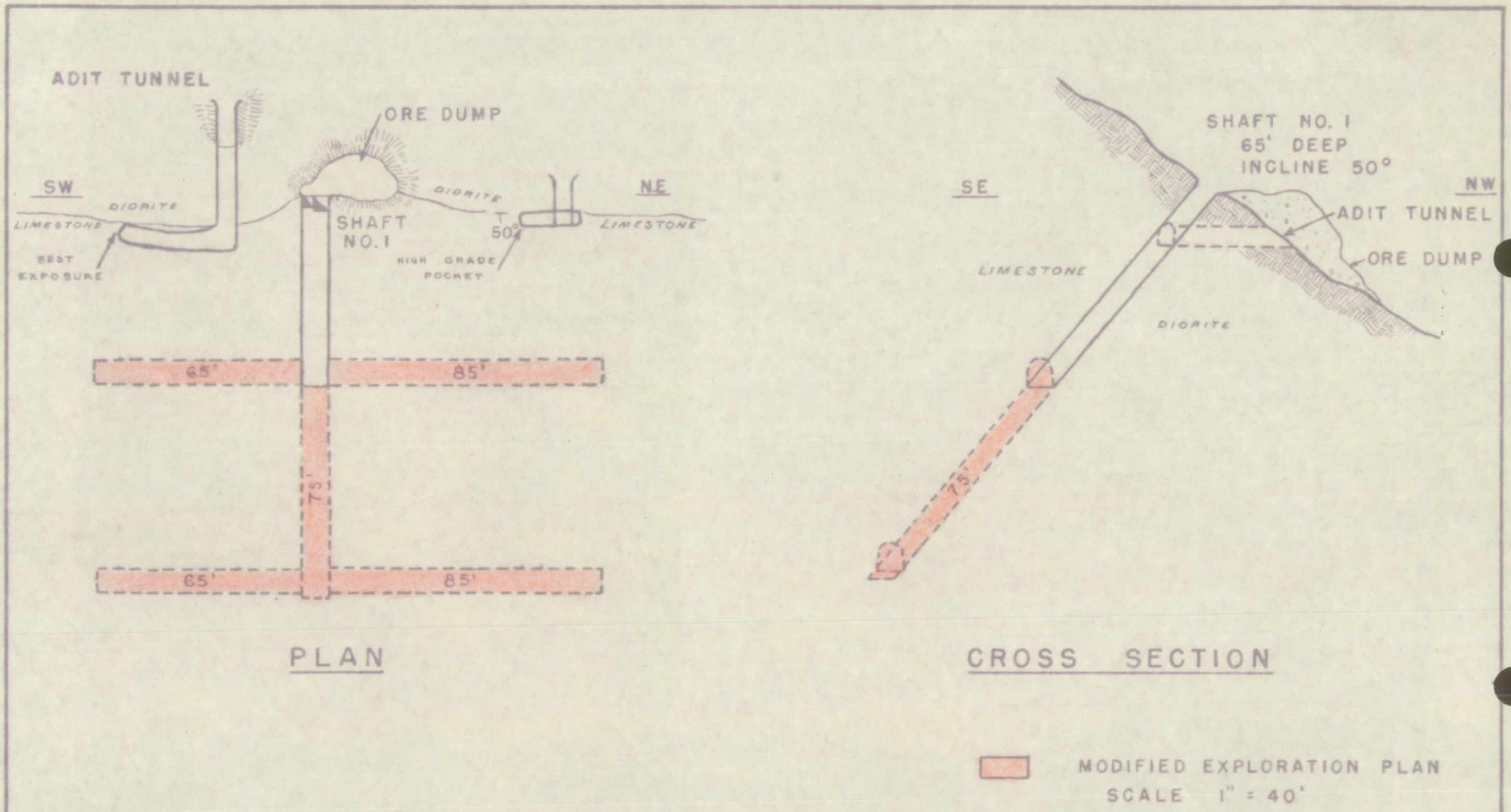
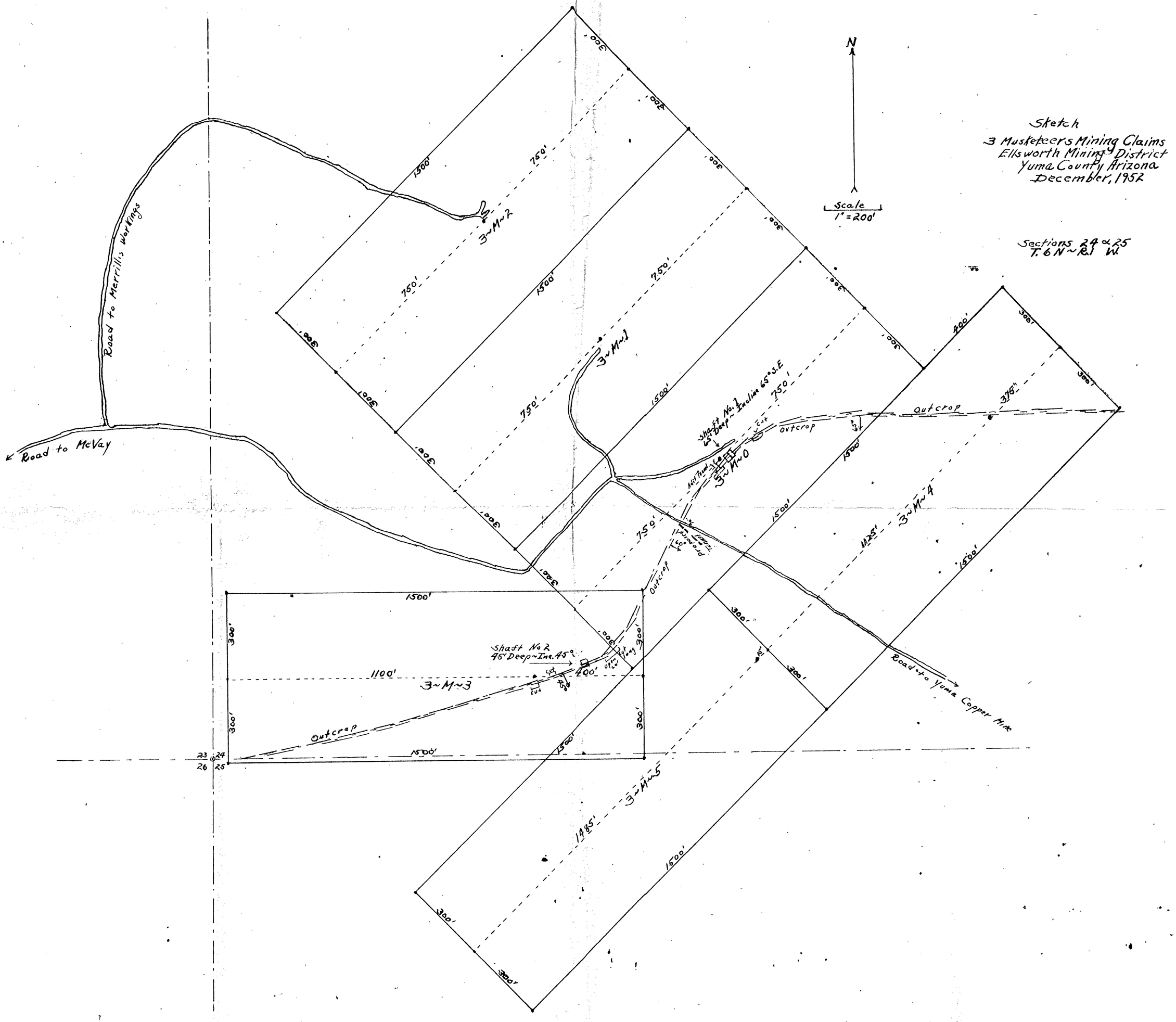


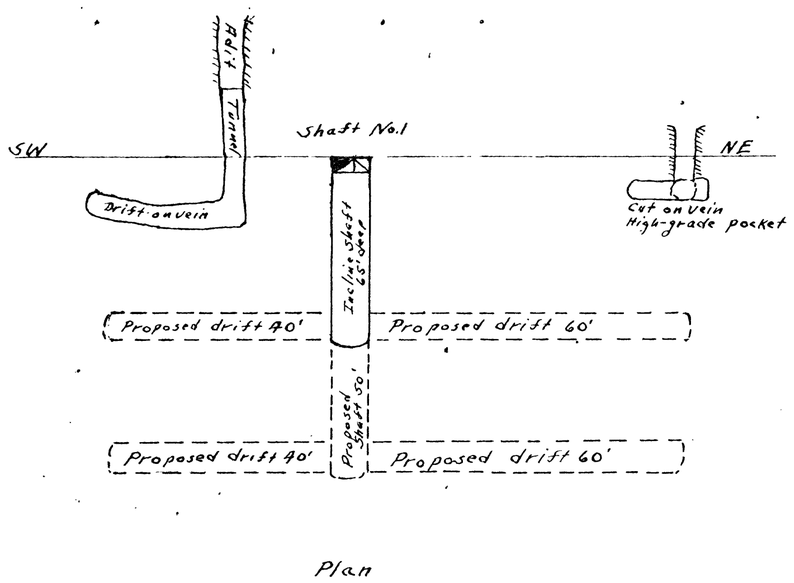
FIGURE 4.- PLAN AND CROSS SECTION, SHAFT NO. 1 – THREE MUSKETEERS MINE

ELLSWORTH MINING DISTRICT YUMA COUNTY, ARIZONA

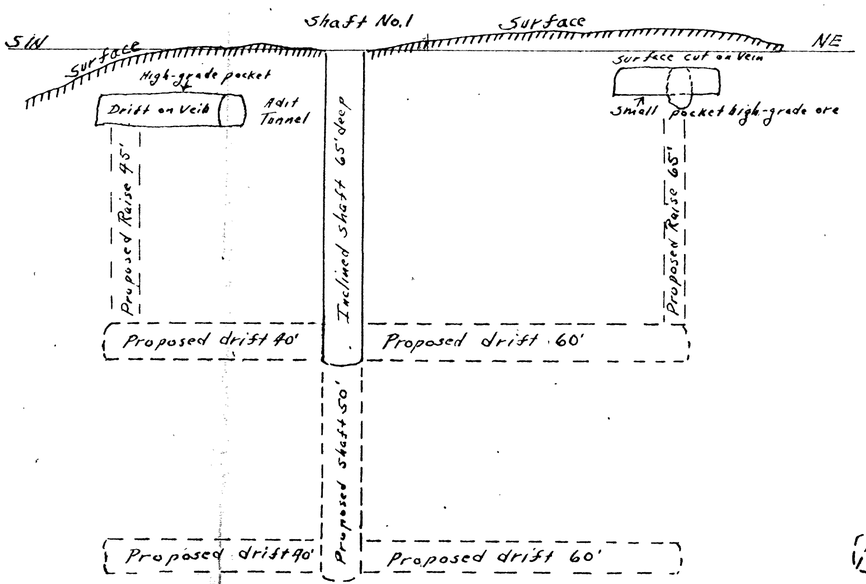
MARCH 9, 1953 DATA COMPILED FROM MAP FURNISHED BY APPLICANT DMEA 2858


Sketch
3 Musketeers Mining Claims
Ellsworth Mining District
Yuma County Arizona
December, 1952
N
Scale
1" = 200'
Sections 24 & 25
T. 6 N ~ R. 1 W.
Road to Merrill's workings
Road to McVay
Road to Yuma Copper Mine
3~M~1
3~M~2
3~M~3
3~M~4
3~M~5
3~M~6
Shaft No. 1
65' Deep ~ Incline 65° S.E.
Shaft No 2
45' Deep ~ Inc. 45°
Outcrop
Proposed Tunnel
1500'
1100'
1135'
1485'
750'
400'
375'
300'
23 & 24
26 25

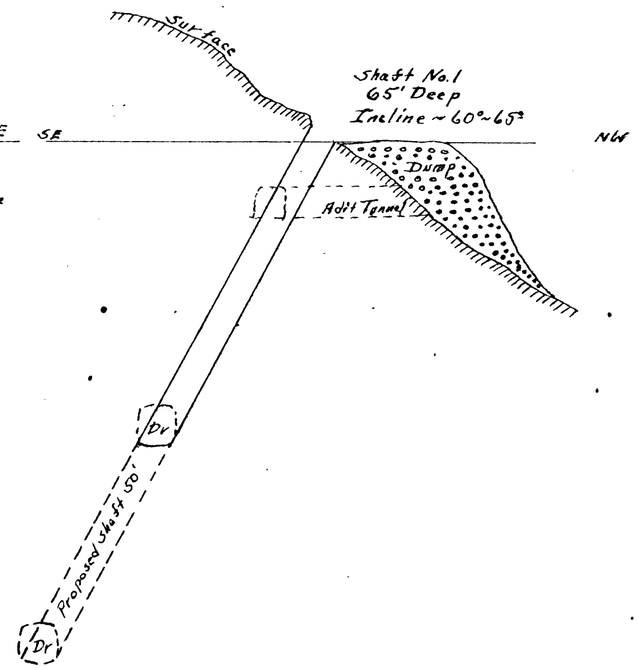
dmca 2858



Plan

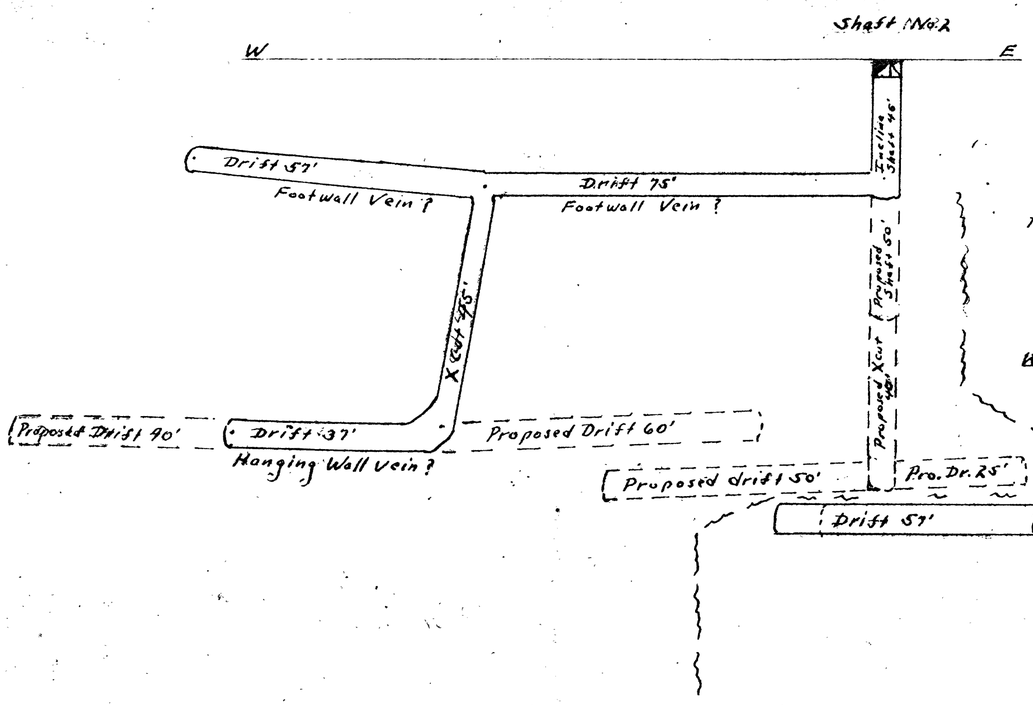


Ver. Longit. Sec.

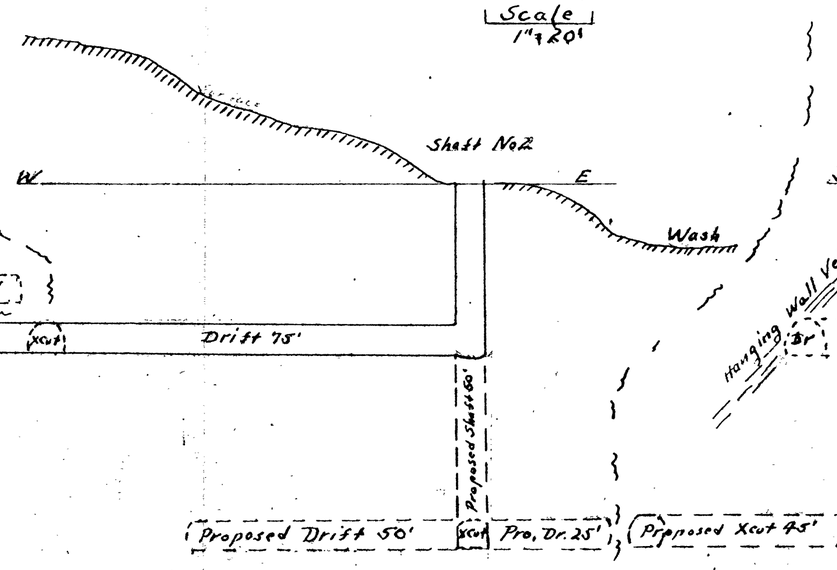


Ver. Cross Sec.

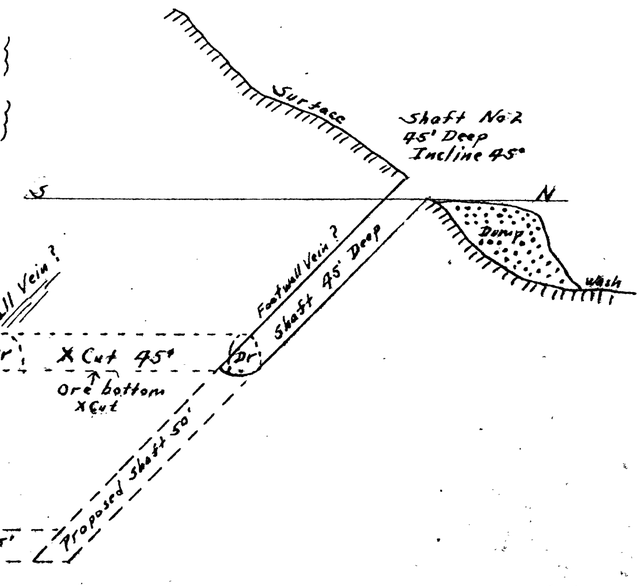
Sketch
Mine Workings
Present and Proposed
Shaft No.1 ~ 3 ~ M~O Claim
Shaft No.2 ~ 3 ~ M~3
Ellsworth Mng. Dist. Yuma Co. Ariz.
December, 1952
Scale
1" = 20'



Plan



Ver. Longit Sec.



Ver Cross Sec.

Amca 2858