DMEA Form 9

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE E-1032 DMEA NO. 4216

Application (Denied
(Withdrawn
(After disposition, delete items not applicable)

Contract (Terminated - not Certified
(Cancelled
(Terminated - Certified
(Royalty Agreement

This is the official contract file containing all official records of the project. The records contained in the files are checked and are arranged in this order:

Left Side

Interim Royalty Audits
✓ Reports of Royalty Review
✓ Certification of Discovery
Certificate of Audit (Final)
Interim Audit(s)
✓ Report of Review
Termination Notice or Agreement
Recision Notice
Assignment of Contract
✓ Contract Amendments (latest on top)
✓ Contract with all exhibits and annexes
Owner's Consent to Lien
Subordination Agreement
Leases and assignments of leases
✓ Application and attachments
(3) Envelope for maps

Right Side

✓ Project summary
✓ Work completed analysis
All other material is filed in chronological order with correspondence including the following reports as checked:

✓ Final Field Team Report (Tab)
✓ Operator's Final Report
(2R) ✓ Interim Reports
(2R) ✓ Operator's monthly reports and all attachments (latest on top)
✓ On-site Exam Report(s) (Tab)
(4) Settlement Sheets

When the volume of records is expected to warrant additional folders, or when convenience of reference warrants separate folders for certain records, they should be set up in this order:

Left Side

~~Folder No. 2:~~ (In chron. order)
Interim Summary Reports by W. O. Engineers

Right Side

#1
Operator's Semi-Annual Report for Certified Project, Field Team Interim Reports, Operator's Monthly Report with transmittal, narrative, maps, and Field Team review.

Folder No. 3: Maps (Use pocket folder or envelope. Fold maps with title block out and show reference to related document or correspondence.)

Folder No. 4: Settlement Sheets

Folder No. 5: Drill Logs

AGREEMENT

Agreement made and entered into this 20th day of August, 1968, by and between RANCHERS EXPLORATION AND DEVELOPMENT CORPORATION (hereinafter called "Ranchers") and HOWMET CORPORATION (hereinafter called "Howmet").

Howmet is the owner of certain properties and interests in properties described in Exhibit A attached hereto and made a part hereof by reference (hereinafter collectively referred to as the "Properties"); and

Howmet has granted an option dated October 13, 1967, as amended February 6, 1968 and April 1, 1968, to Roger Pierce to purchase the Properties; and

Roger Pierce has assigned such option, by Agreement dated October 23, 1967, to Ranchers; and

Ranchers desires to purchase the Properties.

NOW, THEREFORE, for and in consideration of the mutual covenants hereinafter set forth, Ranchers and Howmet agree as follows:

1. Howmet agrees to convey the Properties to Ranchers by quit-claim deed with covenant against grantor's acts upon compliance by Ranchers with all of its obligations under paragraph 2(a) hereof.

2. (a) Ranchers agrees to pay Howmet Two Hundred Thousand ($200,000) Dollars and to issue and deliver to Howmet Six Thousand (6,000) previously unissued shares of Ranchers' stock, which stock Ranchers understands and Howmet acknowledges is being acquired by Howmet for investment

Received with letter 10/2/69 from Edward J. Hale, Asst.Secy.
See letter to parties prepared 12/11/69

only. If the average price of Ranchers' stock for the calendar month in which Ranchers notifies Howmet pursuant to paragraph 2(b) that the conditions set forth in clauses (i) and (ii) thereof have been met (hereinafter referred to as the "average price") is less than Forty ($40) Dollars per share or more than Sixty ($ 60) Dollars per share, the number of shares to be delivered hereunder shall be changed from Six Thousand (6,000) to a quantity to be determined as follows: For each full point by which the average price exceeds Sixty ($60) Dollars, the number of shares to be delivered hereunder shall be reduced by 120 shares. For each full point by which the average price is below Forty ($40) Dollars, the number of shares to be delivered hereunder shall be increased by 120 shares. Variations of less than a full point will be ignored for the above calculation. In no event shall the number of shares to be delivered hereunder be more than Seventy-Eight Hundred (7800) or less than Three Thousand (3000). Example: if the average price is Thirty-Five ($35) Dollars, the total number of shares to be delivered hereunder shall be Sixty-Six-Hundred (6600) - (6000 + 5 times 120); if the average price is Sixty -Five ($65) Dollars, the total number of shares to be delivered hereunder shall be Fifty-Four Hundred (5400) - (6000 - 5 times 120). The average price shall be computed by averaging the average of the daily bid and ask quotes for each day other than a Saturday, Sunday, or legal holiday on which no quotations are made, as quoted by the National Association of Securities

Dealers, Incorporated; provided that for any other day on which no quotation is made for the Ranchers' stock, the average of the daily bid and ask quotes shall be deemed to be equal to the lowest average obtained during the calendar month under consideration.

2. (b) Ranchers shall not be obliged to perform under paragraph 2(a) above until and unless it shall first be satisfied and shall have given Howmet notice to such effect, that (i) in its opinion there are ore reserves in the Properties sufficient to justify reopening the Hamme mine located on the Properties, and (ii) Howmet is able to convey such title to the Properties as is described in paragraph 1 above; provided that Howmet shall have no obligation to furnish Ranchers with proof of any of the conditions set forth in clause (i). Howmet shall, before September 15, 1968, at its own expense, prepare and deliver to Ranchers a current abstract of title and title opinion satisfactory to Ranchers' attorneys showing that title to the Properties and interests in Properties described in Exhibit A is now vested in Howmet. If Ranchers fails to notify Howmet prior to October 31, 1968, that it is satisfied with the conditions set forth in clauses (i) and (ii), all of the obligations of the parties hereunder shall terminate, except as provided in Article 9 hereof.

3. Howmet agrees that upon notification by Ranchers pursuant to paragraph 2 (b) hereof that the conditions set forth in clauses (i) and (ii) thereof have been met, it will promptly execute and deliver to Ranchers at its request such documents and to take such steps as may reasonably be required to vest in Ranchers such title to the Properties as described

in paragraph 1 above.

4. (a) Except as otherwise provided in this agreement, any claim, cause of action, litigation, controversy or liability relating in any way to the Properties (other than such as may arise from any act, whether negligent or otherwise, of Ranchers or its agents) based upon events occurring prior to the conveyance of the Properties hereunder by Howmet to Ranchers, together with reasonable attorney's fees and court costs, shall be the responsibility of Howmet, and Howmet agrees to assume, and shall hold Ranchers harmless from any such claim, cause of action, litigation, controversy or liability; provided that Howmet's liability to Ranchers pursuant to this provision shall not exceed the amount it shall have received as consideration for the Properties, including the then market value of the Ranchers stock received by Howmet hereunder, whether or not such stock is still held by Howmet, net of the costs, including costs of registration if required, of selling such stock or rendering it marketable. Any claim, cause of action, litigation, controversy or liability relating in any way to the Properties and based upon events occurring after the conveyance of the Properties hereunder by Howmet to Ranchers or such as may arise from any act, whether negligent or otherwise, of Ranchers or its agents, together with reasonable attorney's fees and court costs, shall be the responsibility of Ranchers and Ranchers agrees to assume, and to hold Howmet harmless from any such claim, cause of action, litigation, controversy or liability. Promptly after receipt of notice of any claim, cause of action, litigation, controversy or

liability for which one of the parties hereunder may be entitled to be indemnified, such party will, if a claim in respect thereof is to be made against the other party under this provision, notify such other party of the receipt of such notice and such other party will be entitled, to the extent that it may wish, to elect upon written notice to assume the defense of any such claim, cause of action, litigation, controversy or liability, with counsel satisfactory to it, and thereafter such other party will not be liable to the party claiming the right to be indemnified under this provision for any legal or other expenses subsequently incurred in connection with the defense thereof.

(b) Ranchers agrees to assume all duties, obligations and liabilities of Howmet pursuant to all licenses, leases, and other contracts relating to the Properties, as of the date on which the Properties are conveyed hereunder, which are assigned hereunder, and thereafter to perform in the place and stead of Howmet pursuant to such licenses, leases, and contracts.

(c) All real estate and other property taxes, water and other municipal charges, and all prepaid or unpaid assessments on the Properties, and all royalties, rentals and other payments under the licenses, leases and contracts assumed by Ranchers hereunder, shall be apportioned between Howmet and Ranchers as of the date the Properties are conveyed hereunder. All other sales, transfer, documentary and similar taxes, including stock transfer taxes, which may be payable in connection with this Agreement and the transfer and deliveries to be made hereunder

shall be borne by the party upon whom they are assessed.

5. Upon conveyance of the Properties as provided herein, Howmet agrees to use its best efforts to effect the assignment to Ranchers of all its rights under licenses, leases or other contracts relating to the Properties to which it is a party as of the date of such conveyance. Howmet and Ranchers agree to use their best efforts to obtain the consents of all third parties to the assignments by Howmet to Ranchers of such licenses, leases, or other contracts, which consents, when and to the extent obtained, shall release Howmet from all liability from actions performed or to be performed after the date on which the Properties are conveyed hereunder. In the event that any such consent is not obtained and any such third party shall assert a right or claim against Howmet, Ranchers and Howmet agree that such license, lease or other contract will be performed by Ranchers as a sub-contractor for Howmet on such terms, that the cost, expense, profit and loss of such performance shall be borne by and belong to the parties hereto as though such license, lease or other contract had been assigned by Howmet to Ranchers on the date of such conveyance.

6. Ranchers hereby represents and warrants:

(i) Ranchers is a corporation duly organized, validly existing under the laws of the State of New Mexico;

(ii) Ranchers has an authorized capitalization of 2,000,000 shares of capital stock of the par value of $.50.

(iii) All of the outstanding shares of Ranchers' stock are and all of the shares of Ranchers' stock to be issued and delivered to Howmet pursuant to paragraph 2(a) hereof will be validly authorized and issued and fully paid and non-assessable.

(iv) The representations and warranties made in these subparagraphs (i), (ii), (iii) shall be true on the date on which Howmet shall convey the Properties pursuant to Paragraph 1 hereof.

(v) On June 30, 1968, 627,199 shares of Ranchers' stock were outstanding and 8,338 shares were under option.

7. If Ranchers declares a stock split or stock dividend on or before conveyance of the Properties as provided herein, the number of shares of Ranchers' stock given to Howmet pursuant to paragraph 2(a) above shall be increased in the same ratio as the stock split or stock dividend.

8. Ranchers shall give Howmet written notice at least thirty (30) days before it files a red herring prospectus in preparation for a registration of Ranchers stock or other equity security. Such information shall be deemed secret and confidential and may not be divulged or utilized by Howmet or its agents. Within ten (10) days of receiving such notice Howmet shall give Ranchers written notice whether or not it desires to include its 6,000 shares in such registration. If Howmet desires to include the shares of Ranchers

stock delivered to Howmet pursuant to paragraph 2(a) above, in such registration, Howmet shall pay its prorata share of all out-of-pocket expenses and costs related to such registration to be determined by multiplying a fraction whose numerator shall be the offering price to the public of the shares of Ranchers' stock delivered to Howmet pursuant to paragraph 2(a) above and whose denominator shall be the offering price to the public of the total number of shares of stock or other equity security including the shares of Ranchers' stock delivered to Howmet pursuant to paragraph 2(a) above, times the total of all out-of-pocket expenses and costs related to such registration. In addition, Howmet shall bear the underwriter's discount for the shares of Ranchers stock delivered to Howmet pursuant to paragraph 2(a) above. Notice to Howmet by Ranchers of its intention to file a red herring prospectus as provided above, shall serve only as a declaration of Ranchers' intention to effect a registration and shall in no way bind Ranchers to actually effect such a registration should Ranchers at any time decide otherwise, nor shall Ranchers be liable in any way to Howmet for effecting or not effecting such a registration. Howmet may not compel Ranchers to register Ranchers stock or other equity security by means of a "shelf registration." Ranchers shall be required to allow Howmet to participate in such a registration as described above only in its first two registrations effected after the Properties have been conveyed as provided herein, should there be any.

In the event of any such registration, Ranchers will indemnify and hold Howmet harmless against any losses, damages or liabilities, joint or several, including the costs of the settlement of any action or actions (which settlements, however, shall only be made with the prior consent of both

parties thereto), which Howmet may incur insofar as such losses, damages, or liabilities (or actions in respect thereof) arise out of or are based upon any untrue statement or alleged untrue statement of any material fact contained in any registration statement or prospectus (or in any amendment or supplement thereto), or any preliminary prospectus, or arise out of or are based upon the omission or alleged omission to state therein a material fact required to be stated therein and necessary to make the statements therein not misleading, except insofar as any such losses, claims, damages or liabilities are caused by any untrue statement or omission based upon information furnished in writing to Ranchers by Howmet for use in such registration statement or prospectus (or any amendment or supplement thereto), or any such preliminary prospectus, against which Howmet shall indemnify and hold Ranchers harmless. Each of the parties will promptly notify the other after receipt of notice of any claim, cause of action, litigation, controversy or liability arising out of or relating to any such registration, and Ranchers undertakes to assume the defense of any such claim, cause of action, litigation, controversy or liability, with counsel selected by it and satisfactory to Howmet; provided that in the case of the failure of Ranchers to assume such defense, Howmet may elect to do so and shall in such case be indemnified and held harmless against the costs, including legal expenses, of such defense.

9. Howmet shall prior to the conveyance of the Properties, permit Ranchers and its agents to continue its present operations and any other operations that Ranchers deems desirable in inspecting and evaluating the Properties, and Ranchers shall be liable and hold Howmet harmless from any damages or liability relating to the Properties resulting from actions

(whether negligent or otherwise) of Ranchers or its agents, whether or not the Properties are subsequently transferred to Ranchers hereunder.

It is also agreed that Ranchers shall be responsible for any loss, personal injury, death and/or other damage that may be done to or suffered by workmen or other persons in connection with such operations and shall indemnify and save Howmet harmless against claim for any such loss, injury, death and/or damage and against any claim for compensation to any such workmen whatsoever. This shall apply to all cases of such loss, injury, death and/or other damages including cases of loss, injury, death and/or damages for which either or both of the parties hereto may or shall be liable.

10. Each of the parties hereto represents and warrants to the other that all negotiations relative to this Agreement and the transactions provided herein or contemplated hereby have been carried on by the parties hereto directly with each other without the intervention of any person in such a manner as to give rise to any valid claim against either of the parties hereto for a brokerage commission or other like payment for which the party would be liable.

11. This Agreement may not be assigned except with the written consent of the other party hereto.

12. All notices shall be in writing and shall be deemed to have been duly given if delivered personally or mailed by registered mail, postage prepaid to the following respective addresses until a different address is specified in writing by one party to the other:

To: Ranchers Exploration and Development Corporation
1776 Montano Road NW
Albuquerque, New Mexico 87107
Attention: Maxie L. Anderson, President

To: Howmet Corporation
277 Park Avenue
New York, New York 10017
Attention: Robert Hockfield, Secretary

13. This Agreement contains the entire agreement of the parties and it may not be changed orally, but only by an agreement in writing signed by the party against whom enforcement of any such change is sought.

14. This Agreement shall be governed by the laws of the State of New York.

IN WITNESS WHEREOF, the parties have duly executed this Agreement the day and year first above written.

RANCHERS EXPLORATION AND
DEVELOPMENT CORPORATION

President

Attest:

HOWMET CORPORATION

Vice President

Attest:

Secretary

STATE OF NEW YORK)
) ss.
COUNTY OF NEW YORK)

On the 22 day of AUGUST, 1968, before me personally came J. F. WILMOTT, to me known, who, being by me duly sworn, did depose and say that he resides in STAMFORD CONN., that he is the VICE-PRESIDENT of HOWMET CORPORATION, the Corporation described in and which executed the above instrument; that he knows the seal of said Corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that he signed his name thereto by like order.

Helene Quinn
Notary Public

HELENE QUINN
NOTARY PUBLIC, State of New York
No. 03-3185160
Qualified in Bronx County
Cert. filed in New York County
Commission Expires March 30, 1969

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

On the 26 day of August, 1968, before me personally came Maxie L. Anderson, to me known, who, being by me duly sworn, did depose and say that he resides in Albuquerque New Mexico, that he is the President of RANCHERS EXPLORATION AND DEVELOPMENT CORPORATION, the corporation described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that he signed his name thereto by like order.

Chris A. Coronado
Notary Public

My commission expires
Aug 22, 1971

EXHIBIT A

All lands, mineral rights, leasehold interests, and all buildings, improvements, installations, equipment and other property located in Townsville Township, Vance County, North Carolina and which are now owned by Howmet Corporation and which were used in the operations of its Tungsten mine.

Howmet is to furnish a more detailed description of the properties to be conveyed subsequent to the execution of this agreement.

OFFICE OF MINERALS EXPLORATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

ROYALTY AUDIT CERTIFICATE

I have examined the production, sales, and royalty accounts and records pertaining to the sale of minerals during the period May 8, 1959, through May 13, 1963, by

Tungsten Mining Corporation
Division of Howe Sound Company
Star Route 36130
Henderson, North Carolina
and
500 Fifth Avenue
New York 36, New York

produced from Hanna Mine located in Vance County, North Carolina, on which royalty is payable to the U. S. Government under terms of Contract Idm-E1032, Docket DMEA-4216 (tungsten), dated November 2, 1956, as amended.

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

The audit established the total value of minerals sold subject to Government royalty for this period to be $122,396.36. Royalty payable to the Government at the rate specified in the contract is $6,119.81.

A prior Report of Royalty Review for the period November 2, 1956, through May 7, 1959, found the sales subject to Government royalty to be $30,360.06 which added to the sales for this subsequent period make a total of $152,756.42. The royalty account as of May 7, 1959, was:

Total Royalty Payable	$1,518.00
Total Royalty Paid	1,515.48
Balance of Royalty Due	$ 2.52

As of May 13, 1963, the royalty account of this project was found to be:

Total Royalty Payable	$7,637.81
Total Royalty Paid	7,401.31
Balance of Royalty Due	$ 236.50

C. E. Fisher

C. E. Fisher, OME Auditor

May 17, 1963

OFFICE OF MINERALS EXPLORATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

ROYALTY AUDIT REPORT

I. INTRODUCTION

On May 13, 1963, an audit was made of the production, sales, and royalty accounts and records of

Tungsten Mining Corporation
Division of Howe Sound Company
Star Route 36130
Henderson, North Carolina
and
500 Fifth Avenue
New York 36, New York

pertaining to the sale of minerals during the period May 8, 1959, through May 13, 1963, produced from Hamme Mine located in Vance County, North Carolina, on which royalty is payable to the U. S. Government under terms of Contract Idm-E1032, Docket DMEA-4216 (tungsten), dated November 2, 1956, as amended.

At the time this exploration contract was entered into 69½ percent of the capital stock of Tungsten Mining Corporation was owned by Haile Mines, Inc., and 30½ percent of the capital stock was owned by General Electric Company. On July 1, 1958, Haile Mines, Inc., and Howe Sound Company, a Maine corporation, merged and re-incorporated in Delaware under the name of Howe Sound Company. Since that date the Tungsten Mining Corporation has been a division of Howe Sound Company, 500 Fifth Avenue, New York City. In February 1963 the General Electric interest in Tungsten Mining was acquired by Howe Sound.

This audit was performed in the Operator's mine office near Townsville, North Carolina. Mr. W. L. Kendrick, vice president and general manager, made the records pertaining to the period covered by the audit freely available to this auditor. His cooperation and assistance greatly expedited the audit work.

II. GENERAL INFORMATION

Article 6 of the contract provides, if the Government certifies that a discovery or development has resulted from the exploration work under the contract, the Operator, as principal if the producer or as surety if not the producer, shall pay to the Government a royalty on all minerals mined or produced from the land described in

the contract during a period of 15 years from the date of the contract or until the amount contributed by the Government to the exploration costs has been repaid without interest, whichever occurs first. Article 10 of the contract further provides for the payment of royalty to the Government on all minerals, regardless of where mined or produced, which are transported or passed through any workings to the cost of which the Government contributed.

The land subject to this exploration contract is set forth in Annex I and consists of certain land owned in fee by the Operator and other lands in which the Operator either possesses the mineral rights by ownership or by virtue of 99-year leases. In lieu of Owner's Consent to Lien, Haile Mines, Inc., executed a Guaranty of Royalty dated November 10, 1956, guaranteeing the payment to the Coverument of any royalty that may fall due under the provisions of this contract.

A certification of discovery or development was issued on December 19, 1958.

According to a Report of Review in lieu of final cost audit dated August 4, 1958, the accepted exploration costs amounted to $244,342.60 with the Government's contribution, on a 75 percent basis being $183,256.95.

During the exploration period tungsten ore was mined from the subordinated land. Processing through the mill resulted in a hubernite concentrate which was sold to General Electric. Mill rejects were further processed in the chemical plant producing a synthetic scheelite concentrate which was sold to Wah Chang Corporation. Production from the subordinated land ceased in May 1958 and the exploration work was completed in June 1958. The total value of such production sold amounted to $30,360.06 on which royalty of $1,518.00 was payable to the Government as more fully set forth in a Report of Royalty Review dated May 15, 1959, covering the period November 2, 1956, through May 7, 1959.

Between June 1958 and November 1961 no ores were mined from the contract area, but from December 1961 until February 14, 1963, the date all mining operations were discontinued, ores were produced from the contract area and commingled with other production during milling. At no time since the date of the exploration contract, however, have any minerals, other than the ores produced from the contract area, been transported or passed through any workings to the cost of which the Government contributed.

Effective April 1, 1960, a three-year contract was entered into with General Electric by which that company agreed to purchase the huberite concentrate production of the mine at prevailing market prices. It was further agreed that should the market price fall below $19.00 per short ton unit, General Electric would pay $19.00 per STU or the Operator's production cost plus $1.00 per STU, whichever were lower.

In 1960 a separate unit was installed in the mill for recovery of lead-copper-silver concentrates. These concentrates were sold to American Smelting and Refining Company. Furthermore, the Operator qualified as a producer eligible for stabilization payments under Public Law 87-347 and has received such payments from the General Services Administration on its sales of lead between January 1962 and February 1963.

III. SCOPE OF AUDIT AND FINDINGS

A considerable amount of preaudit work was accomplished in the OME Washington, D. C., office prior to the site audit. During this preaudit work a tabulation was made of the monthly statements furnished by the Operator in support of royalty payments. All computations in the statements were recomputed and the royalty receipts were verified with deposits made by the Department's Fiscal Section. This tabulation is filed with my audit work papers.

During the site audit it was ascertained that production from the contract area was commingled with other mine production during the milling process. The production and its value subject to Government royalty were determined in the following manner:

(1) Tonnage mined in the contract area was based on car counts and assays of grab samples. The tonnage was converted to dry tons based on such sampling and average WO_3 contents were computed.

(2) Mill head assays of all ore processed during a month were determined, any differences were allocated to the production from the various areas, and corrected assays based on actual WO_3 values in the ore from each area were determined and applied to the tonnage from the contract area to produce the number of STU of WO_3 resulting from such production.

(3) The average mill recovery percentage for the month was applied to the STU determined as outlined in (2).

(4) The monthly average hubernite concentrate percentage applicable to the total recovery was applied to the STU determined as outlined in (3).

(5) The total hubernite concentrate thus determined as applicable to the contract area during the month was multiplied by the average price at which sales were made during that month and royalty was paid on the value thus determined.

(6) WO_3 middling rejects produced during milling operations were further processed in the chemical plant resulting in a synthetic scheelite product. To the quantities applicable to ore produced from the contract area the average recovery percentage was applied to determine the quantity of scheelite subject to Government royalty. When sales were made the Government royalty was computed and paid on the basis of sales price of the scheelite.

(7) No assay data were maintained with respect to lead-copper-silver contents in the ore produced in the various sections of the mine. Under the Operator's accounting procedure the value of such concentrates was determined and recorded in the month in which the ore was milled. The first royalty payment to the Government related to the period December 1961 through October 1962 and was based on ratio of total tonnage from the contract area to total tonnage from the mine during that period applied to the total value of such concentrate production during the period. Subsequently, the royalty computation was made on a monthly basis.

(8) Stabilization payments from the General Services Administration were included in proceeds from lead concentrates during the month they were received and were apportioned on the current tonnage basis between the amount subject to Government royalty and that not subject to royalty.

During the audit numerous test-checks were made of the various mine and mill production, assay, recovery, and pricing data used in the computation of royalty payments to the Government. The records were found to have been carefully maintained and no improprieties requiring adjustment were noted.

My investigation has determined that all production of hubernite concentrates have been accounted for and that all royalty due to the Government on the value of such concentrates obtained from ore recovered from the contract area has been paid.

Royalty also has been paid on all production of scheelite concentrates applicable to the contract area, except for 282.48 STU produced during December 1962 and January and February 1963. These concentrates are part of a shipment made to Firth Sterling Company, Pittsburgh, Pa., in March 1963 under terms of sale allowing 60 days for inspection, analysis and settlement. The anticipated price, but not yet a firm price, is $16.00 STU. For the purpose of this audit the royalty due to the Government is estimated to be $225.98 (282.48 x $16.00 = $4,519.68 x 5 percent).

Royalty due to the Government has been paid on all lead concentrates applicable to production from the contract area. Royalty also has been paid on the stabilization payments for the year 1962; however, royalty is due to the Government on a portion of the stabilization payments for January and February 1963, as follows:

Month	SDT Total	SDT DMEA	% DMEA	Stabilization Total	Stabilization DMEA	Royalty Due
January 1963	28798	2453	8.52	$1,958.86	$166.89	$ 8.34
February	13174	571	4.33	1,007.04	43.60	2.18
				Total royalty due		$10.52

IV. CONCLUSION

A summary analysis of the production, sales, and royalty payable and paid during the period covered by this audit follows:

		Quantity	Averages	Value
Total ore mined		390,544 SDT		
Mined in contract area		8,450 SDT	2.164%	
Assay - WO_3		7,027.84 STU	0.832%	
Mill recovery:		6,216.76 STU	88.46%	
Hubernite	5,511.89 STU		88.66%	
Middlings	704.87 STU		11.34%	
Hubernite sales		5,511.89 STU	$19.45	$107,220.60

		Quantity	Averages	Value
Processing of middlings (704.87 STU):				
Scheelite		660.28 STU	93.67%	
Completed sales	377.80 STU		$18.00	$ 6,800.40
Incomplete sales	282.48 STU		$16.00	4,519.68
Totals - WO_3		6,172.17 STU	$19.21	$118,540.68
Lead concentrates:				
	Proceeds	% DMKA		
Smelter value	$141,278.18	2.29		$ 3,238.75
Stabilization	18,518.26	3.33		616.93
Totals	$159,796.44			$ 3,855.68
Total proceeds from contract area production				$122,396.36
Per ton of ore production (8,450 SDT):				
Tungsten		$14.03		
Lead cons.		.46		
Total		$14.49		
Total Royalty Payable @ 5%				$ 6,119.81
Total Royalty Paid				5,883.31
Balance of Royalty Due (See Section III)				$ 236.50

The value of production from the contract area during the exploration period was stated by the Report of Royalty Review dated May 15, 1959, to be $30,360.06 for 1,281.10 STU of hubernite and scheelite concentrates obtained from milling 2,577 tons of ore mined in the contract area. Royalty in the amount of $1,518.00 on these prior sales of production has been received by the Government.

The status of the royalty account pertaining to this project at May 13, 1963, was found to be as follows:

Total Royalty Payable	$7,637.81
Total Royalty Paid	7,401.31
Balance of Royalty Due	$ 236.50

The audit results were discussed with Mr. Kendrick at the conclusion of my examination. He indicated that his estimate approximately agreed with the findings and that the balance of royalty due to the Government will be paid as soon as final settlement has been made with respect to the scheelite sales to Firth Sterling Company.

C. E. Fisher

C. E. Fisher, OMK Auditor

May 17, 1963

OFFICE OF MINERALS EXPLORATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF ROYALTY REVIEW

I have reviewed the files of the Division of Iron and Ferro-Alloys, Office of Minerals Exploration, Washington, D. C., pertaining to Contract No. Idm-E1032, Docket No. DMEA-4216 (Tungsten), dated November 2, 1956, with

Tungsten Mining Corporation
Box 931
Henderson, North Carolina

for the purpose of determining the amount of royalty due the U. S. Government on sales of WO_3 from property referred to as Hamme Mine located in Vance County, North Carolina, during the period November 2, 1956, through May 7, 1959.

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

The review established the total sales of WO_3 for this period to be $30,360.06. Royalty due the U. S. Government at the contract rate of 5 percent is $1,518.00. The royalty paid and balance due are as follows:

Total Royalty Due	$1,518.00
Total Royalty Paid	1,515.48
Balance of Royalty Due (Exhibit "A")	$ 2.52

C. E. Fisher, OME Auditor

May 15, 1959

TUNGSTEN MINING CORPORATION

Contract No. Idm-E1032 Docket No. DMEA-4216

STATUS OF PROJECT, DESCRIPTION
OF REVIEW AND REASONS THEREFOR

A certification of discovery or development was issued on December 19, 1958, and, in accordance with Articles 6 and 10 of the contract, royalty is payable by the Operator or his successor on the net value of production from the land described in Article 2 or transported or passed through any workings to the cost of which the Government has contributed. Said royalty shall be payable during a period of 15 years from the date of the contract or until the total amount contributed by the Government, without interest, is fully repaid or said 15 years have elapsed, whichever occurs first. A Report of Review in lieu of final cost audit dated August 4, 1958, indicated accepted costs under the exploration contract amounting to $244,342.60 with the Government's contribution, on a 75 percent basis, being $183,256.95.

My review consisted of a tabulation and recomputation of copies of settlement data furnished by the Executive Officer, DME Field Team, Region V, pertaining to royalty receipts and reconciliation of such receipts with copies of deposit slips furnished by the regional finance office. The last receipt of royalty included in this report was an amount of $41.09 pertaining to royalty on the value of WO_3 from ore recovered during January and May, 1958, while drifting was being performed in connection with the exploration work under the contract. That amount was deposited in Hamilton National Bank, Knoxville, Tennessee, on July 3, 1958, by Deposit No. 14-23-070-2.

The review was made in lieu of an on-site royalty audit of the accounts and records for the following reasons:

(1) All of the production on which royalty has been received was incidental to the exploration work;
(2) There has been no production of ore from the land subject to the contract or transported or passed through any workings to which the Government has contributed since completion of the exploration;
(3) The method used by the Operator in computing the value of that portion of its entire production subject to Government royalty is considered to be fair and equitable; and
(4) The administrative cost to the Government of an on-site royalty audit at this time would be excessive in relation to the amount of possible additional royalty which might be disclosed.

Exhibit "A"

TUNGSTEN MINING CORPORATION

Contract No. Idm-R1032 Docket No. DMEA-4216

Underpayment of Royalty

Month	S.T.U.	Av. Price	Value	Royalty	
Sept., 1957	119.51	$22.00	$ 2,629.22		
Oct.	406.88	21.47	8,735.71		
Nov.	208.40	22.17	4,620.23		
Dec.	179.05	21.34	3,820.93		
Totals - Period	913.84		$19,806.09	$990.30	
TMC Settlement	913.84	21.67	$19,802.91	990.15	$ .15
Jan., 1958	39.33	21.2485	$ 835.70		
May	1.64	20.43	33.51		
Totals-Period	40.97		$ 869.21	$ 43.46	
TMC Settlement	40.97	20.0605	$ 821.88	41.09	2.37
Total underpayment					$2.52

MME Form 22
April 59

DEPARTMENT OF THE INTERIOR
Office of Minerals Exploration

CHECK SHEET OF EXAMINING ENGINEER

Operator's Name Tungsten Mining Corporation

Address P.O. Box 931

Henderson, North Carolina

Exploration Contract No. Idm-E1032 (tungsten) Docket No. 4216

		Check One: Yes	Check One: No.
1.	(a) Does the Operator stockpile ore subject to royalty repayment?	✓	
	(b) If so, is segregation and identification procedure adequate?	✓	
2.	(a) Does Operator commingle production subject to DMEA or OME royalties with exempt production?	✓	
	(b) If so, do you consider the allocation of the commingled production equitable?	✓	
3.	(a) Does the Operator stockpile mine or mill rejects (low grade ore, tailing, middlings, etc.) that may have potential value within the royalty payment period?	✓	
	(b) If so, are adequate records maintained on such material to protect the Government's interest?	✓	
4.	Do you consider the assay controls in effect are adequate?	✓	
5.	Do you consider that the manner of disposing of production gives the Government its fair royalty returns?	✓	
6.	Do your periodic examinations of operations indicate the Operator is properly reporting his production of ores subject to DMEA or OME royalties?	✓	
7.	Does the Operator buy from or sell to other Operators?		✓
8.	Comment on any item 2 (b) to 6 if answer is No.		

The checks relate to operations when the mine is in production. The mine has been closed for more than a year.

5/7/59
Date

W. D. Lynch
Mining Engineer

53362

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
12-11	Holt	400
12-11	Martin	400
12-15	Hamlin	800
	Lorey	140
	Dougherty	140
12/19	Sellwage	130
12/19	Brown	130
"	Nelson	130
		~~100~~
		225

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

To: Tungsten Mining Corporation
Box 931
Henderson, North Carolina

Pursuant to the provisions of Exploration Project Contract No. Ida-E1032, executed November 2, 1956, (Docket No. DMEA 4216), as amended, hereinafter called the "Contract", between Tungsten Mining Corporation and the United States of America, hereinafter called the "Government"; to establish and fix the Government's percentage royalty on production and its lien therefor and on the land described in the contract, the Government considers and therefore certifies that a discovery or development from which production may be made has resulted from the exploration.

The nature of said discovery or development is described broadly or indicated as follows:

Drifting, crosscutting, and diamond drilling on the 900 level of the Hamm mine have indicated an appreciable tonnage of tungsten ore, occurring as lenses containing huebnerite with some scheelite in quartz veins along northeasterly trending shear zones in Precambrian and/or Paleozoic granites and schists.

THE UNITED STATES OF AMERICA

Dated: DEC 19, 1958

By Frank E. Johnson
Acting Director, Office of
Minerals Exploration

SPHOLT:foc 12-11-58
cc to: Code 400 110
800
Director's Read. File
Oper. Comm.
FT. REG. V
Messrs. F. D. Lamb, USBM
T. H. Kiilsgaard, USGS
R. W. Holliday, USBM

cc to: Finance Officer
C. A. Fredell, GSA
Haile Mines, Inc.

8623

DMEA FORM 5 REFERENCE SLIP

REV. 12-56 DEFENSE MINERALS EXPLORATION ADMINISTRATION

TO:	INITIALS	DATE
1. C. O. Mittendorf	CM	8/4

DEFENSE MINERALS EXPLORATION ADMINISTRATION
CONTRACT ADMINISTRATION AND AUDIT DIVISION

REPORT OF REVIEW

I have reviewed the Monthly Report of:

Tungsten Mining Corporation
P. O. Box 931
Henderson, North Carolina

pertaining to Exploration Project Contract No. Idm-E1032, DMEA No. 4216, including Amendments Nos. 1, 2, 3, and 4 for November 1956 to June 1958, inclusive, covering a tungsten project at the Hamme Mine, Vance County, North Carolina.

My review included an examination of the Monthly Reports (Forms MF-104) and supporting documents, comparison of the claimed costs with the contract and pertinent schedules, verification of work performed by reference to Field Team reports and correspondence, and a determination of the reasonableness and propriety of the costs.

This review was made in lieu of a final audit of the Operator's accounts and records for the reason that

all of the costs were under a contract provision for payment by the Government at fixed unit costs for work performed.

The findings of this review are stated in the following summary:

Total cost billed by Operator		$244,342.60
Exceptions:		
Prior to this review	$ -0-	
Herewith	-0-	-0-
Accepted cost claimed by Operator		$244,342.60

The contract calls for a 75 percent contribution of the allowable costs by the Government. Therefore, if the project is otherwise accepted as having met the terms of the contract, payments as follows are valid and proper:

Payable on audited claim	$183,256.95
Paid to date	182,761.96
Balance due Operator	$ 494.99

August 4, 1958

E. D. Talbert, Auditor

Government's copy

Original Files Copy
DMEA
RECEIVED JAN 20 1959
DATE | INITIALS | CODE

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA-4216

AMENDMENT NO. 4

It is agreed this 8th day of January, 1958, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and Tungsten Mining Corporation that Exploration Project Contract No. Idm-E1032 (Docket No. DMEA-4216), dated November 2, 1956, as amended, hereinafter called the "Contract," is further amended, effective November 13, 1957, as follows:

In Exhibit "A," Description of the Work:

1. On page 3, under the heading, "General Specifications for Projects A, B, C, and D, paragraph 2 is revised to read:

"2. Drift faces shall be sampled at not to exceed 10-foot intervals in mineralized zones, and not more than 250 samples shall be assayed for tungsten trioxide (WO_3). With Government approval, not in excess of 50 samples may be assayed for molybdenum (Mo)."

2. Paragraph 4 is revised to read:

"4. Diamond drill cores in mineralized zones shall be split. One portion of each split shall be assayed for WO_3, and when approved by the Government it shall also be assayed for molybdenum (Mo) and the other portion of each split, with all other cores, shall be stored by the Operator until logged and released by the Government."

3. Not to exceed $150.00 of funds provided in this Contract for drifting and crosscutting under Projects A, B, C, and D may, at the option of the Operator and when approved by the Government, be used for assaying samples from drifts, crosscuts or diamond drill holes for molybdenum (Mo), at a fixed unit cost of $3.00 per determination.

Long
Hunger
Holt
Martin
Talbut
Selfridge.

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may be required to contribute, or the fixed unit cost of any item of work.

Executed in quintuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

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

TUNGSTEN MINING CORPORATION

By J. R. Sweet
J. R. Sweet

Title Vice President & General Manager
Vice President & General Manager

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA-4216

Justification for Amendment No. 4

The Field Team, noting that molybdenite had been discovered in a quartz-molybdenite vein in the north drift of Project D, requested that an amendment be prepared to allow the Operator to assay some of the 250 samples authorized by the Contract for molybdenum (Mo), as well as tungsten trioxide (WO_3).

This amendment authorizes such assaying, when approved by the Government.

Government's copy

Long
Shulzer
Holt
Martin
Chandler
Selfridge
Johnson

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA-4216

AMENDMENT NO. 3

It is agreed this 14th day of October, 1957, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and Tungsten Mining Corporation that Exploration Project Contract No. Idm-E1032 (Docket No. DMEA-4216), dated November 2, 1956, as amended, hereinafter called the "Contract," is further amended, effective September 19, 1957, as follows:

In Exhibit "A," as amended by Amendment No. 1, any part of the 1,415 feet of timbered drift, set forth under the Estimated Cost of the Project as the second item, remaining unused may, where timbering is not necessary, and with the approval of the Government, be driven untimbered, at the Fixed Unit Cost of $35.00 per foot, provided that the total of all timbered and untimbered drift shall not exceed 6,700 feet, and the total maximum cost of all drifting and timbering shall not exceed $239,310.00.

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may be required to contribute, or the fixed unit cost of any item of work.

Executed in quintuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By C. Mittendorf
Administrator, Defense Minerals
Exploration Administration

TUNGSTEN MINING CORPORATION

By J. R. Sweet
J. R. Sweet
Title Vice-President & General Mgr.

Government's copy

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA-4216

Justification for Amendment No. 3

The Operator has requested and the Field Team recommends approval of the request that Amendment No. 1 to the subject contract be clarified as to the Operator's authorization to drive any part of the 1,415 feet of timbered drift allowed in the contract, without timber where timber is not needed, at the rate for untimbered drift.

This amendment authorizes such changes with the approval of the Government.

Government's copy

Burton
Hoffland
Chapman
Martin
Chamberlin
Johnson

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA-4216

AMENDMENT NO. 2

It is agreed this 17th day of July, 1957, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and Tungsten Mining Corporation that Exploration Project Contract No. Idm-E1032 (Docket No. DMEA-4216), dated November 2, 1956, as amended, hereinafter called the "Contract," is further amended effective June 12, 1957, as follows:

In Exhibit "A", notwithstanding the drilling maximums established, any drilling requirements unperformed as of the effective date of this Amendment No. 2 may, with the prior approval of the Government, be performed as originally estimated or transferred with related costs to any of the other projects: Provided, That the total of 4,000 feet estimated for all four projects shall not be exceeded.

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may be required to contribute, or the fixed unit cost of any item of work.

Executed in quintuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By O. Mitchell Jones
Administrator, Defense Minerals
Exploration Administration

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DMEA
RECEIVED JUL 31 1957

DATE	INITIALS	CODE

TUNGSTEN MINING CORPORATION

By J. R. Sweet
J. R. Sweet

Title Vice-Pres. & Gen. Mgr.

Contract Structure

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA-4216

Justification for Amendment No. 2

The Operator has requested and the Field Team recommends approval of the request for an amendment permitting shifting authorization for unused diamond drilling from one subdivision, or "Project," where not needed, to another "Project" where it can be used to better advantage.

This amendment authorizes such changes with prior approval of the Field Team.

Not used - See amended copy

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D M E A
RECEIVED JUL 31 1957

DATE	INITIALS	CODE

To be filed with Orig. accepted when it is returned by Gov. from Ft.

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO, DMEA 4216

Justification for Amendment No. 2

The Operator has requested and the Field Team recommends approval of the request for an amendment permitting shifting authorization for unused diamond drilling from one subdivision, or "Project", to another "Project." The purpose is to allow transfer of such drilling from subdivisions with relatively simple structure requiring proportionally less drilling to subdivisions with more complex structure, requiring more drilling for the control of the direction and extent of the horizontal workings and thus allow use of the drilling to the best advantage.

This amendment authorizes such changes with prior approval of the Field Team.

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DMEA
RECEIVED FEB 27 1957

DATE	INITIALS	CODE
2-27	C	220
2-27	B	215
		225

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA-4216

AMENDMENT NO. 1

It is agreed this 30th day of January, 1957, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and Tungsten Mining Corporation that Exploration Project Contract No. Idm-E1032 (Docket No. DMEA-4216), dated November 2, 1956, hereinafter called the "Contract," is amended effective November 2, 1956, as follows:

1. In Article 1(b) of the Contract, the estimated total cost of the project is changed from $250,340.00 to $246,660.00 and the Government's contribution at 75 percent is changed from $187,755.00 to $184,995.00.

2. In Exhibit "A," on page 3, under the heading General Specifications for Projects A, B, C, and D, paragraph 1 is deleted and the following paragraph is substituted:

"1. Drifts and crosscuts shall be driven a minimum of 7 feet wide by 7½ feet high above top of rail. Where timber is necessary, it shall consist of 8 inch by 8 inch oak posts and caps with 2 inch or 3 inch top and side lagging as required. The inside width between posts shall be not less than 5 feet 8 inches and the bottom of the cap shall be not less than 7½ feet above top of rail. No sills are required."

3. In Exhibit "A," on page 3, the Estimated Costs of the Project are revised to read as follows:

"Estimated Costs of the Project

Fixed Unit Costs

Drifts and crosscuts, not timbered, 7 feet by 7 feet 6 inches in the clear, 5,285 feet @ $35.00/ft.	$184,975.00
Drifts and crosscuts, timbered, 5 feet 8 inches by 7 feet 6 inches in the clear of timber, 1,415 feet @ $32.40/ft. (rounded to)	45,845.00
Timbering of drifts and crosscuts, 1,415 feet @ $6.00/ft.	8,490.00

239310

Indritz
Dwyer
Holt
Yeaman
Chambers
Selfridge
Johnson

Diamond drilling, 4,000 feet @ $1.65/ft.	$ 6,600.00	
Assaying 250 samples for WO_3 @ $3.00 each sample	750.00	
Total Estimated Cost of the Project		$246,660.00
Government Participation @ 75 percent		$184,995.00"

* * * * * * *

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may be required to contribute, or the fixed unit cost of any item of work.

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By O. Mitchell Dorf
Administrator, Defense Minerals
Exploration Administration

TUNGSTEN MINING CORPORATION

By J. R. Sweet
Title Vice Pres. & Gen. Mgr.

FROM SOLICITOR

JAN 25 1957

FOR SIGNATURE

OFFICIAL FILE COPY
DMEA
RECEIVED FEB 27 1957

DATE	INITIALS	CODE

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA-4216

AMENDMENT NO. 1

JUSTIFICATION

The Operator has requested, and the Field Team examiner approves, a change in the contract to permit the installation of timber sets 5 feet 8 inches wide and 7½ feet high in the clear of timber, where timber is necessary, instead of 7 feet wide by 7½ feet high in the clear, as now specified in the contract. The Operator states that the narrower sets conform with North Carolina State Mining Laws. The smaller clearance will be as effective for purposes of exploration as the previously required size.

Under the present contract, for drifts and crosscuts that require timbering the Operator must drive a minimum cross section of 8 feet 8 inches wide by 8 feet 4 inches high above top of rail, whereas he is allowed by this amendment to drive such timbered working approximately 20 inches narrower, but at a reduced unit price. The saving to the Government by this amendment will be $2.60 per foot of drift or crosscut, where timbering is necessary.

Docket Copy

MF-200A
(Rev. April 1956)

RECEIVED NOV 26 1956 D.M.E.A.

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
EXPLORATION PROJECT CONTRACT
(Short Form)

DMEA No.	*Commodity*	*Contract No. Idm–E*	*County*	*State*
4216	Tungsten	1032	Vance	North Carolina

NOV 2 1956

It is agreed ....., between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and Tungsten Mining Corporation, a Delaware Corporation

whose mailing address is Box 81, Henderson, North Carolina

hereinafter called the "Operator," as follows:

ARTICLE 1. *Authority and project.*—(a) This contract is entered into under the authority of the Defense Production Act of 1950, as amended. It consists of this form (MF–200A), the attached Annex I (land description), Exhibit A (work and costs), and the maps and documents listed therein. The project work is a search for indicated or undeveloped deposits of the commodity designated above. The Operator shall begin the work on or before JAN 15 1957, and, subject to the provisions of Article 7 and Exhibit A, shall complete the work within 24 months from the date of the contract.

(b) The description of the work and the fixed cost for each unit of work to be performed (per foot of drilling, per foot of drifting, per hour of operations, etc.) are hereby agreed upon as specified in Exhibit A. The estimated total cost of the project work is $250,340.00. The Government will contribute 75 percent of the fixed unit cost of the work performed, not exceeding $187,755.00, in accordance with the provisions of Articles 4 and 5.

(c) The Operator shall not transfer or assign this contract or any right or obligation thereunder without the written consent of the Government.

ARTICLE 2. *Operator's property rights.*—(a) The Operator represents and undertakes that Annex I correctly describes the land which is the subject of this contract and the nature of the Operator's rights of property and possession therein (whether as owner, lessee, or otherwise), and that such right, title, or interest is subject only to the following claims, liens, or encumbrances: See Annex I

(b) The Subordination Agreement of the holder of any claim, lien, or encumbrance listed above and (if the Operator does not hold the legal title) the Consent to Lien of any holder of the legal title of the land (lessor, seller, optionor, etc.) are attached, as follows: See Annex I

(c) The Operator shall preserve and maintain his right, title, and interest in the land and his right to the possession thereof for the purposes of this contract, and shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of this contract. The Operator shall neither transfer, convey, nor surrender the land nor any right, title, or interest therein, nor permit nor suffer any claim, lien, or encumbrance thereon, without expressly referring to and providing

in the instrument of conveyance, lien, or encumbrance for the preservation of the Government's right to a percentage royalty on production and lien for the payment thereof. Two copies of such instrument shall be furnished to the Government. If the Government's rights to royalty as provided in Article 6 have been terminated, the provisions of this paragraph (c) shall become inapplicable.

ARTICLE 3. *Performance of the work.*—(a) Operator's responsibility.—The work shall be performed diligently, efficiently, expertly, in a workmanlike manner, and in accordance with good mining standards and State regulations governing health, safety, and liability insurance covering employment. The Operator shall provide suitable and adequate equipment, facilities, materials, supplies, and labor to complete the work, as specified in Article 1 (a).

(b) *Government may inspect.*—The Operator shall consult with and inform the Government on all phases of the work as it progresses. The Government may enter at all reasonable times to inspect the work under the contract, and also after certification of discovery or development, to inspect production operations and underground workings. The Operator shall provide the Government with all reasonable means of access for such inspections.

ARTICLE 4. *Contribution by the Government.*—The Government will make its contribution on the basis of the monthly vouchers referred to in Article 5 (b); but all payments by the Government are provisional only, subject to audit, and until the account between the Operator and the Government is finally audited and settled and the Operator's final report has been rendered, the Government may withhold such sums as it sees fit but not in excess of 10 percent of the estimated total cost of the work. To the extent that excesses over fixed unit costs or any excess over the estimated total cost may be necessary for the performance of the work, the Operator shall incur and pay such excesses for his own account without contribution by the Government. The Government will not contribute to the cost of any work performed prior to the date of this contract. The Government may make payments for the account of the Operator directly to independent contractors and suppliers rather than to the Operator.

ARTICLE 5. *Reports, accounts, audits.*—(a) Operator's records.—The Operator shall keep suitable records and accounts of the units of work performed and of any production in which the Government may have an interest; and shall preserve those with respect to work performed for at least three years after final payment by the Government, and those with respect to production for at least three years after any obligation to pay royalties to the Government has terminated. The Government may inspect and audit said records and accounts at any time, either by itself or by a certified public accountant. The Comptroller General of the United States or his representative, until the expiration of said three-year periods, shall have access to and the right to examine all pertinent books, documents, papers, and records of the Operator.

(b) *Progress reports and vouchers.*—The Operator shall provide the Government with five copies of monthly progress reports in three sections as follows: (1) Operator's Monthly Report and Voucher showing a detailed statement of units of work performed during the reporting period; (2) Operator's Unit Cost and Progress Report showing the various types of work performed during the reporting period and the fixed unit costs incurred for each type of work; and (3) a Narrative Report of the work performed during the reporting period including adequate engineering-geological maps or sketches, drill hole logs and locations, and assay reports on samples taken concurrently with advance in mineralized ground. (Forms for reporting under (1) and (2) above will be provided by the Government.)

(c) *Final report.*—Upon completion of the work or termination of the Government's obligation to contribute to costs, the Operator shall furnish the Government with five copies of a final report (in addition to the final progress report and voucher). This final report shall include a geological and engineering evaluation of the results of the work performed under the contract with an estimate of the ore reserves resulting from such work, complete assay data, adequate geological and engineering maps or sketches, and a summary of the work performed and the unit costs thereof.

(d) *Report of sales.*—The Operator shall provide the Government with suitable accounting and documentary evidence covering all production to which the Government's percentage royalty relates, such as copies of smelter or concentrator settlement sheets, and certified accounts of production and sale or other disposition of production.

(e) *Compliance with requirements.*—If in the opinion of the Government any of the Operator's reports, records, or accounts are insufficient or incomplete, or if the Operator fails to make them, the Government may procure the making or completion of such with suitable attachments as an expense of the work to which the Operator shall contribute. The Government may withhold approval and payment of any vouchers relating to insufficient or incomplete reports, records, or accounts.

ARTICLE 6. *Repayment by Operator.*—(a) *Certification.*—If the Government considers that a discovery or development from which production may be made has resulted from the work, the Government, at any time not later than six months after the Operator has rendered a sufficient final report (see Article 5), may so certify in writing to the Operator. Such certification shall describe broadly or indicate the nature of the discovery or development.

(b) *Royalty on production.*—The Operator, as principal if the Operator is the producer or as surety if the Operator is not the producer (for example, if the Operator either transfers or fails to retain his interest in the land), shall pay to the Government a royalty on all minerals mined or produced from the land, as follows: (1) regardless of any certification of discovery or development, from the date of the contract until the lapse of the time within which the Government may make such certification or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first; or (2) if the Government makes a certification of discovery or development, for a period of ~~six~~* years from the date of the contract or until the total net amount contributed by the Government without interest is fully repaid, whichever occurs first. **See Article 10.**

(c) *Basis for computation.*—The Government's royalty shall be a percentage of the gross proceeds (including any bonuses, premiums, allowances, or other benefits) from the production sold, in the form sold (ore, concentrates, metal, or equivalent), at the point of delivery (the f. o. b. point); *except,* that charges of *the buyer* arising in the regular course of business, and shown as deductions on the buyer's settlement sheets, on account of the cost of treatment processes performed by *the buyer,* sampling and assaying to determine the value of the production sold, and freight paid by *the buyer* to a carrier (not the Operator), shall be allowed as deductions in arriving at the "gross proceeds" as that term is used herein. Any costs of treatment processes, sampling, assaying, or transportation performed or paid by the Operator or by anyone other than the buyer are not deductible in arriving at the "gross proceeds" as that term is here used. The term "treatment processes," as here used, means those processes (such as milling, concentrating, smelting, refining, or equivalent, but excluding fabricating or manufacturing) applied to the crude ore or other production after it is extracted from the ground to put it into a commercially marketable form.

(d) *Unsold production.*—If any production (ore, concentrates, metal, or equivalent) after the lapse of six months from the date the ore was extracted from the ground remains neither sold nor used by the Operator in integrated manufacturing or fabricating operations (for instance, if it is stockpiled), the Government, at its option, as long as it so remains, may require the computation and payment of its royalty on the value of such production in the form (ore, concentrates, metal, or equivalent) it is in when the Government elects to require computation and payment. If any production is used by the Operator in integrated manufacturing or fabricating operations before the Government makes its election, the Government's royalty on such production shall be computed on the value thereof in the form in which and at the time it is so used. "Value" as here used means what is or would be gross income from mining operations for percentage depletion purposes in Federal income tax determination, or the market value, whichever is greater.

(e) *Percentages of royalty.*—The percentages of the Government's royalty shall be as follows:

One and one-half (1½) percent of amounts ("gross proceeds" or "value") not in excess of eight dollars ($8.00) per ton of production in the form in which sold, held, or used, plus one-half (½) percent for each additional full fifty cents ($0.50) by which such amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) percent of such amounts.

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

(f) *Time for computation and payment.*—The Government's royalty shall be computed and paid currently upon each lot sold, held, or used in integrated operations, as the case may be, as above provided in this Article.

* **Fifteen (15) years**

(g) *Lien for payment.*—To secure the payment of its percentage royalty, there is hereby granted to the Government a lien upon the land or the Operator's interest in the land and upon any production of minerals therefrom until the royalty claim is extinguished by lapse of time or is fully paid.

(h) *Notice to purchasers.*—The Operator shall give notice of the Government's claim for royalty to any purchaser of the production, and shall authorize and direct such purchaser to pay the royalty directly to the Government and to furnish the Government with copies of the settlement sheets. If the records of any production and sales or other disposition of production, whether the production is by the Operator or by others, are not made available to the Government, the amount of the royalty may be estimated by the Administrator, Defense Minerals Exploration Administration, or his successor, and his estimate thereof shall be final and binding upon the Operator.

(i) *No obligation to produce.*—Nothing in this contract is to be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any production operations.

(j) *Government not obligated to buy.*—Nothing in this contract shall be construed as imposing any obligation on the Government to purchase any minerals mined or produced from the land.

ARTICLE 7. *Termination of the Government's obligations.*—(a) If in the opinion of the Government operations at any time have failed to achieve anticipated results that indicate the probability of making a worthwhile discovery and in the opinion of the Government further operations are not justified, the Government may give the Operator written notice thereof, and thereupon the Government shall be free of all obligation to pay on account of units of work not then performed, and the Operator shall be free of all further obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting.

(b) If in the opinion of the Government the Operator is in any manner in default under the terms of the contract, the Government may give the Operator written notice of such default with a specification of reasonable time within which the default must be cured; and if the Operator fails to cure such default as required, thereupon the Government shall be relieved of all obligation to pay on account of units of work not performed when the notice was given, and the Operator shall be free of all obligation to prosecute the work other than such as may be necessary and incidental to winding up, reporting, and accounting. The Government may also avail itself of any other remedy the law may provide for breach of contract, including the right to rescind the contract and to demand repayment of all moneys contributed by the Government under the contract.

(c) The giving of any notice by the Government under the provisions of this Article 7 shall not affect the Government's rights as provided for in the contract with respect to a percentage royalty, and liens to secure the payment thereof, and such rights shall be fully preserved.

ARTICLE 8. *Notices to be given by the Government* may be delivered to the Operator or may be sent by registered mail addressed to the Operator at the mailing address stated in this contract. If mailed, notices are deemed to have been delivered five days after the date of mailing.

ARTICLE 9. *Officials not to benefit.*—No member of or delegate to Congress or resident commissioner shall be admitted to any share or part of this contract or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

ARTICLE 10. *Changes and added provisions.*—

In Article 6(b), the words "ten years" are changed to "fifteen years", and the following sentence is added: "Royalty shall be payable as provided in this contract on all minerals mined or produced from the land included in this contract, and also on all minerals, regardless of where they are mined or produced, which are transported or passed through any workings to the cost of which the Government has contributed."

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By C. Mitchell Dorr
Administrator, Defense Minerals
Exploration Administration

TUNGSTEN MINING CORPORATION
(Operator)

By J. R. Sweet
Vice President & General Mangger

I, George V. Boyd, certify that I am the Assistant secretary of the corporation named as Operator herein; that J. R. Sweet, who signed this contract on behalf of the Operator, was then Vice President & General Manager 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.

George V. Boyd

[CORPORATE SEAL]

U. S. GOVERNMENT PRINTING OFFICE: 1956—O-383069

Indritz 8/1/56
Sawyer
"Appd. Sol. Off."
Holt
H Johnson
Martin 10/25/56
Talbut
Chambers
Selfridge
H Johnson

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA-4216

ANNEX I

The land referred to in Article 2 of the contract is known as the Hamme Mine and is located in the northern portion of Vance County, North Carolina, immediately south of the North Carolina-Virginia border, and consists of the following land and interests in land:

1. Land owned in fee by Tungsten Mining Corporation, known as the Walker Land and the Peck Land, located in Townsville Township, Vance County, North Carolina, conveyed by Haile Mines, Inc., to Tungsten Mining Corporation by deed dated June 7, 1945, and recorded in Book 238, Page 602, Vance Registry.

2. Mineral rights leased by Tungsten Mining Corporation for a period of 99 years, from Carl U. Samford and others, in land known as the Nat Morton Land, by Agreement dated March 11, 1946, recorded in Book 246, Page 590, Vance Registry.

3. Mineral rights owned by Tungsten Mining Corporation in thirteen-fourteenths (13/14) of land known as the Abraham Sneed Estate, which mineral rights were conveyed to Tungsten Mining Corporation by deed of T. P. Gholson, Commissioner, dated January 2, 1946, the property being described in a deed recorded in Book 58, Page 104, and the deed recorded in Book 246, Page 262, Vance Registry.

4. Mineral rights leased by Tungsten Mining Corporation, for a period of 99 years, in one-fourteenth (1/14) of the Abraham Sneed Estate, from Jasper B. Hicks by Agreement dated January 16, 1946, and recorded in Book 246, Page 264, Vance Registry.

All ground within the following boundaries of the Projects which are defined as follows, and marked on the accompanying maps, Figures 1, 4, 5, and 6, shall be subject to payment of royalty to the Government under the Contract:

Project A: All ground in the land described above which is within vertical boundaries as follows: Beginning at the point with coordinates N 23,030, E 21,700; thence southeasterly through the point with coordinates N 22,175,

E 23,000 to the 275 foot contour on the west side of Little Island Creek; thence southerly along said 275 foot contour to the northerly boundary of the Peck Land; thence easterly along said boundary to Little Island Creek; thence southerly along said Little Island Creek to the northerly boundary of the Abraham Sneed Estate; thence westerly along said boundary to its intersection with coordinate line E 20,580; thence north along said E 20,580 coordinate line to the point with coordinates N 20,020, E 20,580; thence northerly to the point with coordinates N 22,000, E 21,000; thence northeasterly to the point with coordinates N 23,030, E 21,700, which is the point of beginning.

Project B: All ground in the land described above which is below the 500 level of the mine and is within vertical boundaries as follows: Beginning at the point with coordinates N 20,060, E 19,610; thence southerly to the point with coordinates N 19,820, E 19,580; thence west to the point with coordinates N 19,820, E 17,929; thence northeasterly to the point with coordinates N 20,060, E 18,150; thence east to the point with coordinates N 20,060, E 19,610, which is the point of beginning.

Projects B - C - D: All ground within the land described above which is within boundaries described as follows: Beginning at the point with coordinates N 19,820, E 19,580; thence southerly along the line defining a vertical plane to the point with coordinates N 18,790, E 19,405; thence southwesterly along a line defining a plane inclined 78°45' southeasterly to the point with coordinates N 18,000, E 19,050; thence southwesterly along a line defining a plane inclined 78°45' southeasterly to the point with coordinates N 16,245, E 18,085; thence west along a line defining a vertical plane to the southwesterly boundary of the Nat Morton land; thence northwesterly along said boundary defining a vertical plane to the intersection with a line projected southwesterly through the points with coordinates N 18,790, E 16,982 and N 19,820, E 17,929; thence northeasterly along said line, defining a vertical plane, to the point with coordinates N 19,820, E 17,929; thence east along a line defining a vertical plane to the point with coordinates N 19,820, E 19,580, which is the point of beginning.

The attached Guaranty executed by Haile Mines, Inc., to protect the Government's interests under the Contract is in lieu of Consents to Lien by the owners of the leased land.

Docket copy

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA-4216

EXHIBIT "A"

Description of the Work

The maps attached to and made part of the contract are as follows:

Fig. 1. Tungsten Mining Corp., Vance County, N. C., Property Map.
Fig. 4. Project A. Tungsten Mining Corporation, Henderson, N. C.
Fig. 5. Project B. Tungsten Mining Corp., Henderson, N. C.
Fig. 6. Projects C & D. Tungsten Mining Corporation, Henderson, N. C.

The proposed work consists of drifting, crosscutting, and diamond drilling, in four areas designated as Projects A, B, C, and D, all on the 900-foot level of the Hamme mine, as follows:

Project A.

1. Starting from the north face of the 900-foot level on No. 2 vein, approximately at the point with coordinates 20,020N and 20,580E, crosscut in the direction N. 80° E. through a diabase dike, then drift along the No. 2 vein structure to a second diabase dike, crosscut through that dike, then again drift along the No. 2 vein structure until a total of not to exceed 2,200 feet of drifting and crosscutting has been completed.

2. One or more short crosscuts may be driven, with the prior approval of the Government, to explore the width and mineralization of the vein structure, provided that the driving of such crosscuts shall not increase the approved total footage of drifting and crosscutting for this Project A.

3. Drill not to exceed 2,000 feet of exploratory diamond drill holes to locate the vein structure beyond the diabase dikes and to explore the width and mineralization of the shear zone.

Project B.

1. Starting from the main shaft, crosscut on the 900-foot level, approximately at the point with coordinates 20,060N and 19,610E, and then drift in a direction approximately S. 42° W. along the No. 3 vein structure for a total distance of not to exceed 1,300 feet, including such short crosscuts as may be needed to turn on to the vein structure at the start and to explore the width and mineralization of the vein structure. Such crosscutting shall be held to a minimum and be subject to the prior approval of the Government.

2. Drill not to exceed 500 feet of diamond drill holes to explore the full width and mineralization of the shear zone.

Project C.

1. Starting on the 900-foot level at the drift face approximately at the point with coordinates 17,020N and 18,290E, drift northeasterly along the No. 28 vein structure for a distance not to exceed 1,200 feet.

2. One or more short crosscuts may be driven, with the prior approval of the Government, to explore the width and mineralization of the vein structure, provided that the driving of such crosscuts shall not increase the approved total footage of drifting and crosscutting under this Project C.

3. Drill not to exceed 500 feet of diamond drill holes to explore the full width and mineralization of the shear zone.

Project D.

1. Starting on the 900-foot level approximately at the point with coordinates 16,995N and 18,265E, drive a crosscut in a direction approximately N. 65° W. until the Morton No. 3 vein is intersected, or until 1,400 feet of crosscut has been driven, whichever occurs first.

2. After intersecting the No. 3 vein, or completing 1,400 feet of crosscutting, whichever occurs first, additional footage of crosscutting and drifting may be used for drifting along the Morton No. 3 vein, or along other veins encountered in driving

the crosscut, with prior approval by the Government of the location and extent of such drifting. The maximum footage of crosscutting and drifting under this Project D shall not exceed 2,000 feet.

3. Drill not to exceed 1,000 feet of diamond drill holes to explore mineralized zones, as necessary to guide crosscutting and drifting.

7 x 7½'

General Specifications for Projects A, B, C, and D.

1. Drifts and crosscuts shall be not less than 7 feet wide by 7½ feet high above top of rail, in the clear of timber, and shall be timbered as necessary. Timber sets shall consist of 8" by 8" oak posts and caps, with 2" or 3" top and side lagging as required. No sills are required.

2. Drift faces shall be sampled at not to exceed 10-foot intervals in mineralized zones, and not more than 250 samples shall be assayed for tungsten trioxide (WO_3).

3. Work under Projects A, B, C, and D may be carried on concurrently at the discretion of the Operator.

4. Diamond drill cores in mineralized zones shall be split. One portion of each split shall be assayed for WO_3, and the other portion of each split, with all other cores, shall be stored by the Operator until logged and released by the Government.

5. Size of diamond drill holes shall be at the option of the Operator. Diamond drill holes shall be reamed and cased, or cemented and re-drilled, as necessary. Footage will be paid only for completed holes. No payments will be made for footage in holes lost or abandoned before completion.

Estimated Costs of the Project

Fixed Unit Costs

Drifting and crosscutting, 6,700 feet @ $35.00/ft.	$234,500.00
Timbering, drift and crosscut, 1,415 feet @ $6.00/ft.	8,490.00
Diamond drilling, 4,000 feet @ $1.65/ft.	6,600.00
Assaying 250 samples for WO_3 @ $3.00/sample	750.00
Total Estimated Cost of the Project	$250,340.00
Government Participation at 75%	$187,755.00

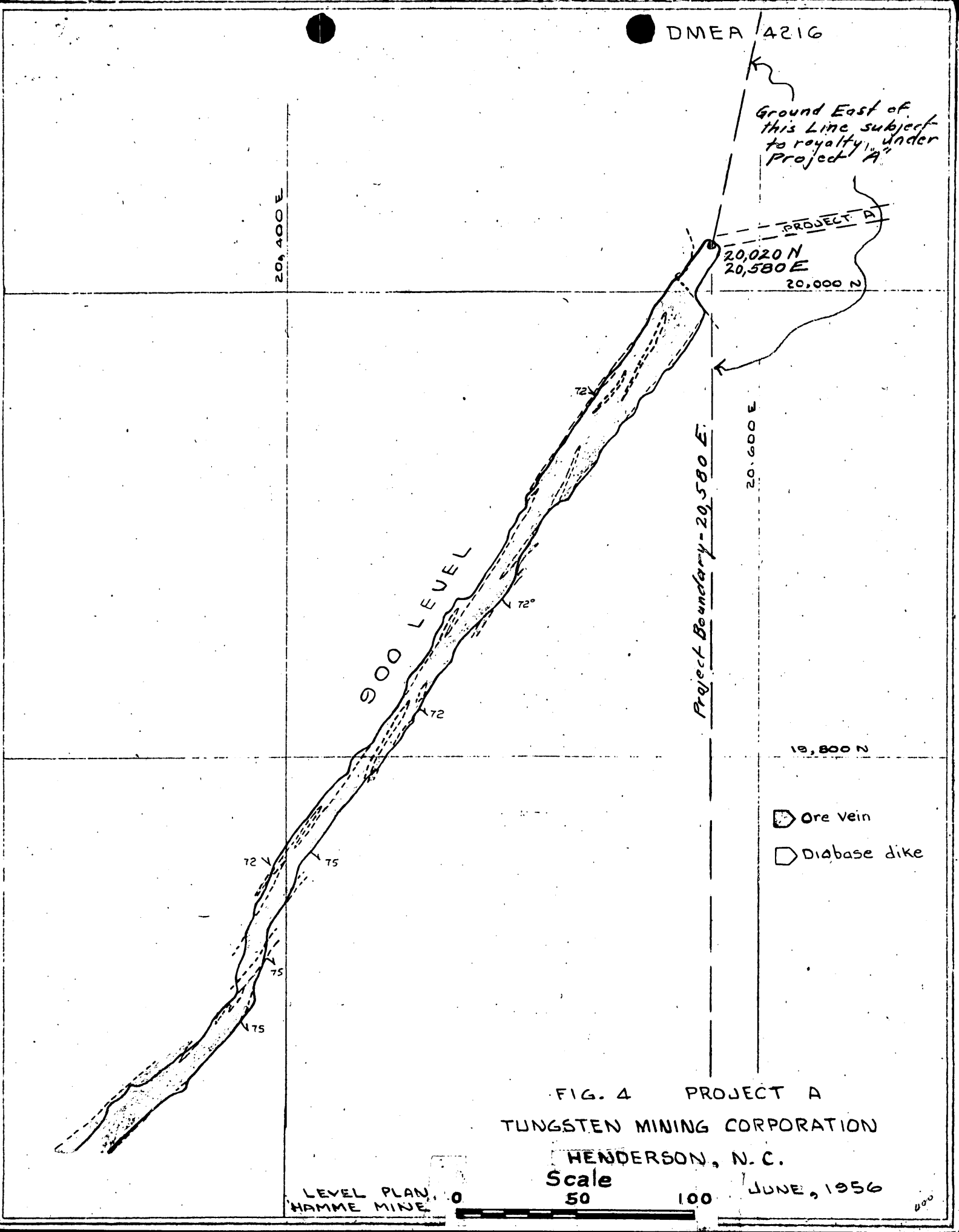

FIG. 4 PROJECT A

TUNGSTEN MINING CORPORATION

HENDERSON, N. C.

JUNE, 1956

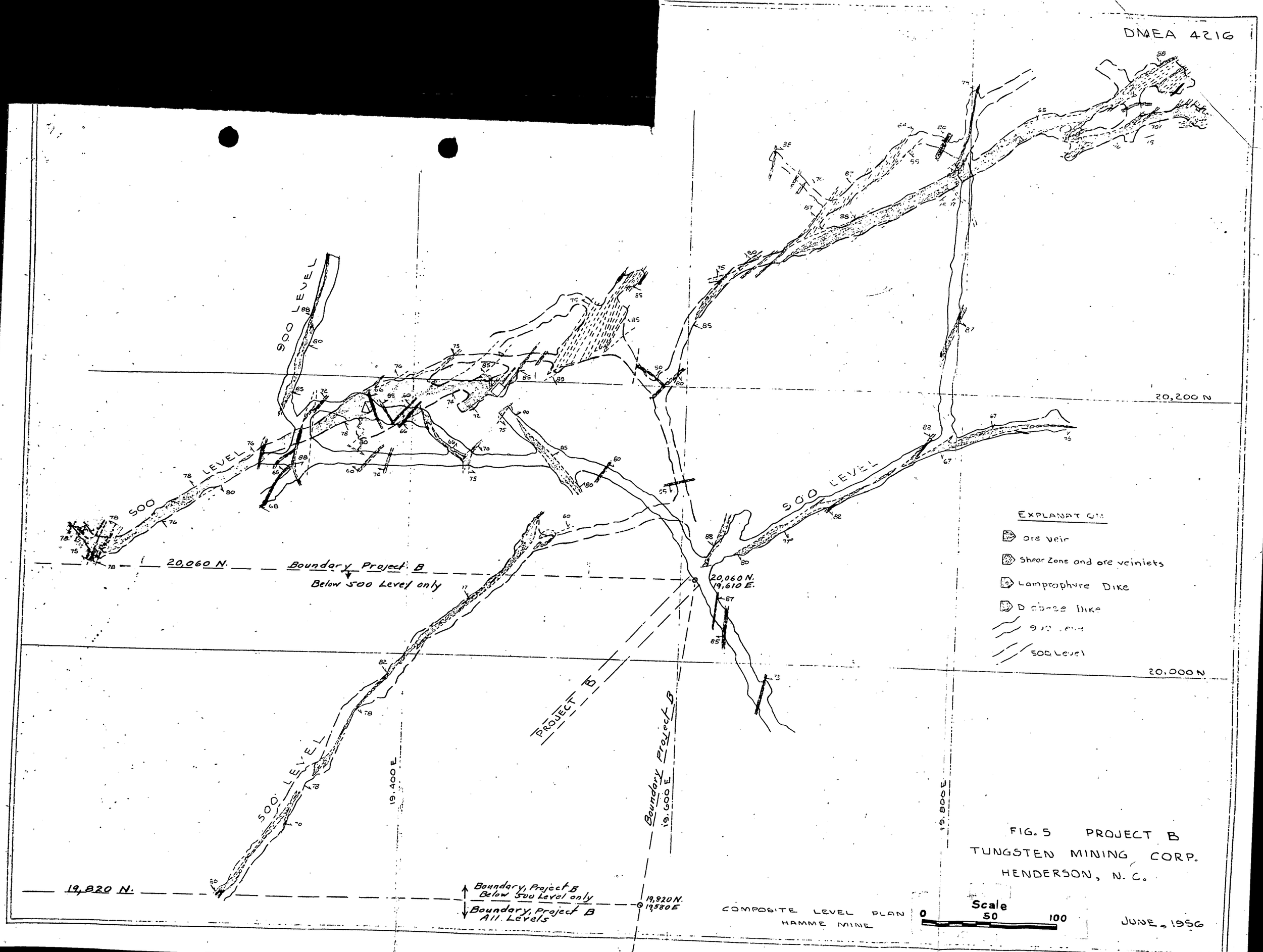

FIG. 5 PROJECT B
TUNGSTEN MINING CORP.
HENDERSON, N. C.

COMPOSITE LEVEL PLAN
HAMME MINE

JUNE, 1956

DMEA 14216

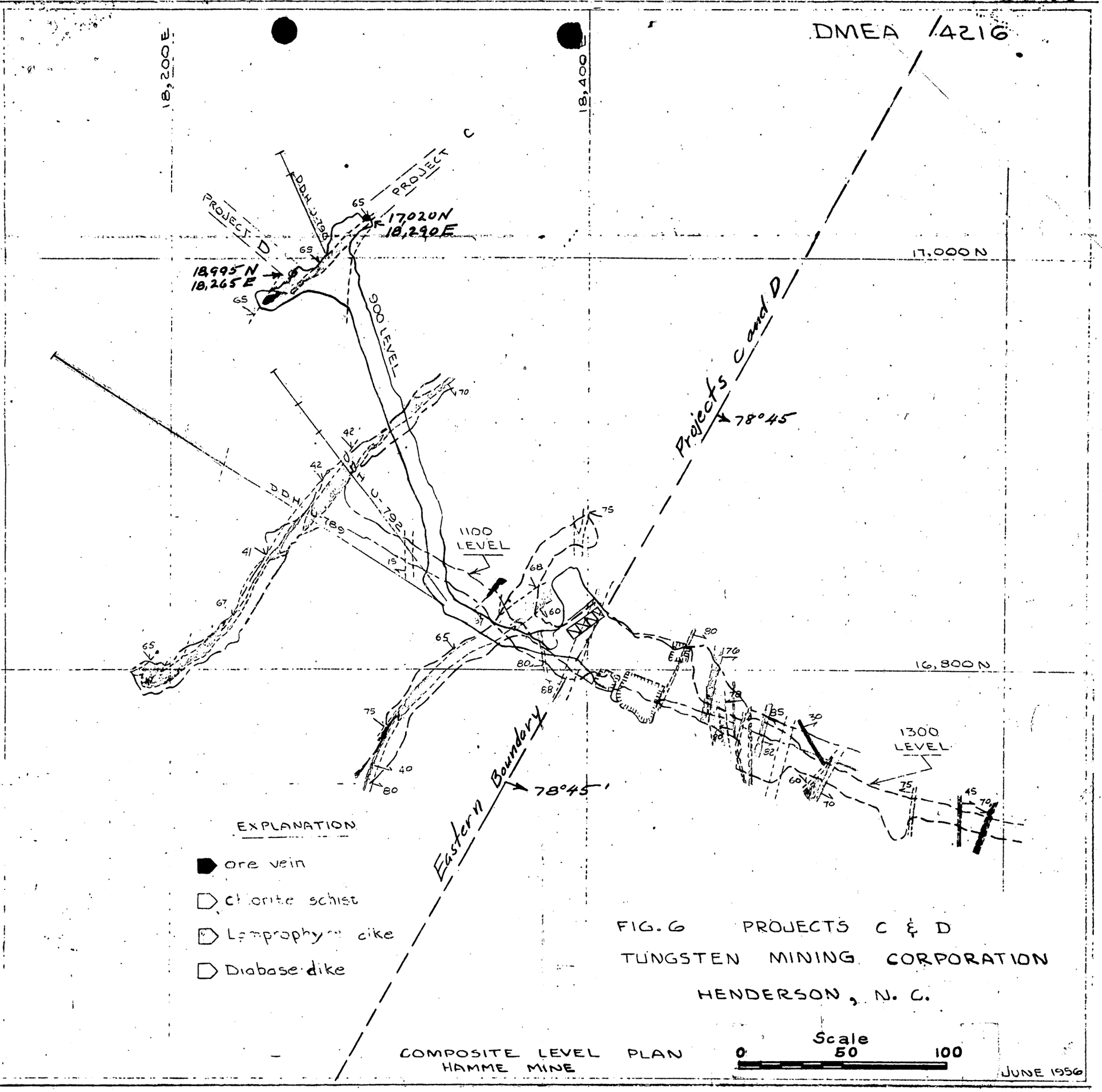

FIG. 6 PROJECTS C & D
TUNGSTEN MINING CORPORATION
HENDERSON, N. C.

COMPOSITE LEVEL PLAN
HAMME MINE

JUNE 1956

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA-4216

GUARANTY OF ROYALTY

WHEREAS, negotiations are now pending between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and Tungsten Mining Corporation, a Delaware corporation, hereinafter called the "Operator," for an Exploration Project Contract relating to certain land in Vance County, State of North Carolina, which land is more fully described in Annex I of the proposed contract, as executed or as hereafter amended.

NOW, THEREFORE, in consideration of the waiver by the Government of the requirement of an Owner's Consent to Lien referred to in said contract, and in lieu thereof, the undersigned hereby guarantees the payment to the United States of America of any royalties that may fall due under the provisions of said contract or any amendment or assignment thereof, notice of any such amendment or assignment being hereby waived. If the records of any sales or other disposition of the production upon which any such royalties may accrue, whether the production is by the Operator or by others, are not made available to the Government for the computation of said royalties, the undersigned agrees that the amounts thereof may be determined according to the best estimates that can reasonably be made; and in the event of dispute as to such estimates, the determination thereof by the Administrator of Defense Minerals Exploration Administration or his successor, or by his representative authorized for that purpose, shall be final and binding upon the undersigned.

Dated November 10th, 1956.

MAILE MINES, INC.
500 Fifth Avenue
New York, N. Y.
Guarantor

By W. Hemingway Long

Title President

I, George V. Boyd, certify that I am the Assistant secretary of the corporation

named as Guarantor herein; that W. Lunsford Long, who signed this Guaranty, was then President of said corporation; that said Guaranty 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.

George V. Boyd [Corporate Seal]

TUNGSTEN MINING CORP.
BOX 81
HENDERSON, N. C.
TELEPHONE NO. 4139

March 13, 1956

RECEIVED
MAR 15 1956

Mr. W. Lunsford Long, President
Tungsten Mining Corporation
500 Fifth Avenue
New York 36, N. Y.

Dear Mr. Long:

Enclosed herewith are applications for aid in four (4) exploration projects, pursuant to DMEA Order 1, under the Defense production Act of 1950, as amended.

The four projects are designated Project A, Project B, Project C, and Project D.

Completed DMEA-Forms, MF-103, with accompanying papers and a property map are enclosed herewith and a map of plan of operations is submitted under separate cover, all in quadruplicate.

Also, enclosed is a report addressed to you by Carlton D. Hulin, Consulting Mining Geologist, dated November 28, 1955. Dr. Hulin's report gives a detailed description of each of the four projects and includes information as requested by Form MF-103.

It is recommended that each of the four exploration projects be considered under individual contracts rather than all four Projects under one contract.

Also, it is recommended that the contracts covering the proposed four contracts be on a unit-cost basis. This is because the exploration work will be conducted thru the same shafts and on a level from which general mine operations will concurrently be conducted.

Very truly yours,

TUNGSTEN MINING CORPORATION

J. R. Sweet

J. R. Sweet
Vice-President & General Mgr.

JRS:fnj
Encls.

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED
MAR 15 1956

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 4216
Metal or Mineral Tungsten
Date Received 3-15-56
Estimated Cost $ 345,984.23
Participation (Government %)

PROJECT - A

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: Tungsten Mining Corporation
Box 81, Henderson
North Carolina
Corporation - Incorporated in the State of Delaware

(*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. See Page - 8

(*d*) If a partnership, add to the above statement the names and addresses of all partners. not applicable

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 Land owned in fee by Tungsten Mining Corporation, known as The Walker Land and the Peck Land, located in Townsville Township, Vance County, N. C., conveyed by Haile Mines, Inc. to Tungsten Mining Corporation by deed dated June 7, 1945 and recorded in Book - 238, Page 602, Vance Registry.

(*b*) State any mine name by which the property is known. Hamme Mine

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

(*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. not applicable

(*e*) If you own the land, describe any liens or encumbrances on it None

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. not applicable

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.

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

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

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

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power. - all in adequate supply.

16-66551-1

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Huebnerite ($MnWO_4$) and associated Scheelite ($CaWO_4$)

(*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.

(*c*) The work will start within 30 days and be completed within 24 months from the date of an exploration project contract.

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

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:

(*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.).

(*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.

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

(*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.

(*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.

(*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.

(*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.

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

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

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

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

[X] Money [X] Use of equipment owned by you [ ] 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 March 14, 1956

TUNGSTEN MINING CORPORATION
(Applicant)

By W. Lunsford Long

W. Lunsford Long, President

500 Fifth Ave., New York 36, N. Y.

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

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED
MAR 15 1956

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. .....
Metal or Mineral .....
Date Received .....
Estimated Cost .....
Participation (Government %) .....

PROJECT - B

INSTRUCTIONS

Supplemental Papers - See Page 24a.

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: Tungsten Mining Corporation
Box 81, Henderson,
North Carolina
Corporation - Incorporated in the State of Delaware

(*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. not applicable

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 .....

(*b*) State any mine name by which the property is known. Hamme Mine

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

(*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. not applicable

(*e*) If you own the land, describe any liens or encumbrances on it None

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. Not applicable

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

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

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

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power. all in adequate supply.

16—66551-1

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Huebnerite ($MnWO_4$) and associated Scheelite ($CaWO_4$)

(*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.

(*c*) The work will start within 30 days and be completed within 24 months from the date of an exploration project contract.

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

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:

(*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.).

(*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.

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

(*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.

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(*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.

(*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.

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

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

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

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

[X] Money [X] Use of equipment owned by you [ ] 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 March 14, 1956

TUNGSTEN MINING CORPORATION
(Applicant)

By W. Lunsford Long

W. Lunsford Long, President

500 Fifth Ave., New York 36, N. Y.

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

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED
MAR 15 1956

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. .....
Metal or Mineral .....
Date Received .....
Estimated Cost .....
Participation (Government %) .....

PROJECT - C

INSTRUCTIONS Supplemental Papers - See Page 27a.

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: Tungsten Mining Corporation
Box 81, Henderson,
North Carolina
Corporation - Incorporated in the State of Delaware

(*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. not applicable

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 .....

(*b*) State any mine name by which the property is known. Hamme Mine

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

(*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. not applicable

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(*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.

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(*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.

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Explain in detail on acompanying paper.

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Dated March 14, 1956

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(Applicant)

By W. Lunsford Long

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Metal or Mineral .....
Date Received .....
Estimated Cost .....
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PROJECT - D

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(*b*) State any mine name by which the property is known. Hamme Mine

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

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16—66551-1

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Dated March 14, 1956

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(Applicant)

By W. Lunsford Long

W. Lunsford Long, President

500 Fifth Ave., New York 36, N. Y.

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

Original

CARLTON D. HULIN
MINING GEOLOGY
26TH FLOOR, SHELL BUILDING
SAN FRANCISCO 4, CALIFORNIA

RECEIVED
MAR 15 1956

Mr. W. Lunsford Long, President,
Tungsten Mining Corporation,
500 Fifth Avenue,
New York 36, New York

I wish to recommend for your consideration and for consideration by the Defense Minerals Exploration Administration certain underground exploration work to be done at the Hamme Mine, located in Vance County, North Carolina. This work, long range in character, involves the exploration of known mineralized vein structures in virgin areas which are well outside the limits of the developed portion of the Hamme Mine. The work is divided into four projects, each involving the exploration of mineralized structures in areas which are separate and distinct. All work is to be done on the 900 level of the Hamme Mine.

Since the discovery of the deposit in 1942 the Hamme Mine has become the most important tungsten producer in the United States. Current production is at a rate of approximately 160,000 short ton units of WO_3 per year, with total recorded production through October 31, 1955, amounting to 784,492. S.T.U. of WO_3. Approximately 89% of the production is in the form of hubnerite, the remaining 11% being scheelite.

The mine is developed by two main shafts each slightly more than 1625 feet in depth. Shaft stations and main levels occur at 200 foot intervals down to the 1500 level, the deepest level for which provision is now made. Active mining and development are in progress down to the 1100 level with development of the 1300 level being well advanced. Current development is at a rate approximating 2200 feet per month, with total underground mine development from July 1, 1945, through October 31, 1955, amounting to 99,877 feet or about 18.9 miles. No accurate figures are available for development footage during the initial period of mine operation from 1942 to July 1, 1945.

Mineralization at the Hamme Mine is in the form of irregular lenses of ore of varying size which occur erratically distributed along main shear zones. Between lenses the shear zones may be completely tight and show little or no evidence of mineralization, and outcrops of the shear zones which are tight and barren may be

underlain by productive ore bodies. The largest ore body so far developed, the Walker 1-1A, was on the surface relatively short, discontinuous and narrow, whereas on the 500 level this ore body is 830 feet in length and averages 17½ feet in thickness. On the 700 level this ore body is 850 feet in length with a maximum local thickness of 40 feet while on the 900 level, although the ore body is as yet incompletely opened up, ore appears to extend more or less continuously for 1180 feet with a width locally as much as 40 feet.

The Hamme mineralization is of a type that should continue downward to considerable depth without appreciable change in character. Ore now exposed on the 1100 and 1300 levels and cut by drilling on the 1500 level (Sneed) shows the same strength and character as ore occurrences in the upper mine levels.

The strongest and most productive shear zone is the No. 2 Vein zone, known in its central portion as Walker 1-1A and in its southern portion in the Sneed as 20 Vein with a footwall strand of the shear zone being known as 22 Vein. This shear zone has been continuously developed on the 700 level through an overall distance of 5835 feet, of which 2980 feet or 51% has been ore.

Curving away to the southwest from the No. 2 Vein zone is the No. 3 vein zone and its branch No. 6 Vein. The No. 3 Vein is known to be productive from the surface to the 900 level, and on the 500 level 550 feet or 45% of the developed length on No. 3 Vein on that level is ore. Except for limited work on the 500 level (about 360 feet), the No. 3 vein structure is completely unexplored to the south of the main crosscuts from the Central Shaft.

Two main groups of rocks occur in the vicinity of the Hamme Mine. The first is a plutonic complex consisting of a number of types of granitic rock which are intrusive into gneiss and other gneissoid rocks and with local schistose facies developed along the several shear zones. The second group lying to the west of the plutonic complex consists of a monotonous series of chlorite schists. Intrusive into both groups and definitely post-mineral in age are diabase dikes which may attain a thickness of 200 feet or more.

Most of the known ore bodies occur in the granite-gneiss complex and up until about two years ago only a single ore body was known and worked in the schist area. This the No. 7 Vein ore body occurring in the schist to the west of No. 6 Vein has a length of only 60 to 90 feet but shows a remarkable

vertical persistence, extending continuously from the surface to the 1100 level. Within the last two years, however, the 22 Vein ore body in the south portion of the Sneed has been opened on the 700 level through a length of 575 feet entirely in schist. The south face is still in ore and the last 200 feet of the ore body averages about 19 feet in thickness. Subsequently the same vein has been developed for 390 feet on the 500 level and for 625 feet on the 900 level, the south faces being in ore and the vein entirely in the schist on both levels. It is thus now amply demonstrated that large and persistent ore bodies may occur in the chlorite schist.

The exploration recommendations herein presented consist of four projects which it is hoped can be carried out by means of exploration loans granted by the Defense Minerals Exploration Administration. These four projects which are planned to explore recognized targets that lie well beyond the limits of the developed mine area will be discussed individually.

D.M.E.A. PROJECT A.

Project A is planned to explore the northward extension of the No. 2 Vein shear zone between the developed mine limits and Walker 10, the work to be done on the 900 level and to consist of 2200 feet of drifting and crosscutting together with 2000 feet of diamond drilling.

Two large diabase dikes, each about 120 feet in thickness, are known to cut the north extension of the No. 2 Vein zone. The north limit of mine development of 2 Vein has in general been the first of these dikes, the sole exception being on the 700 level where limited work has been done beyond the first dike. This work disclosed a few small lenses of ore carrying good values but with lack of continuity and regarded as economically unmineable. The vein zone here is strong and some 30 feet in width.

Underground ore occurs south of and closely adjacent to the first dike on all levels from the 200 down to the 900 and may occur adjacent to the first dike on the 1100 level, the drift on that level having departed from the main vein structure as it approached the dike.

On the surface north of the first diabase dike and opposite drill hole 164 quartz-tungsten mineralization is shown in the outcrop. Further to the north in Walker 5 quartz outcrops 1½ to 6 feet in thickness locally carry excellent hubnerite values. Still further to the north in Walker 10 quartz outcrops 1 to 2½ feet thick again show excellent local tungsten mineralization.

The outcrop of the 2 Vein shear zone between the first diabase dike and Walker 10 has been undercut by 21 diamond drill holes at depths ranging from 50 feet to 200 feet. With the exception of several holes where the vein zone was cut out by diabase, practically all drill holes show a strong vein zone with important quartz and tungsten mineralization but with no actual ore being penetrated in the drilling. All drill hole logs are available for examination at the mine office or copies will be submitted upon request.

The D.M.E.A. Project A will start at the present north face of the 900 level drift on No. 2 Vein (9-2-2 Dr), the face being about 22 feet inside the wall of the first diabase dike and approximately at coordinate 20,021 N., 20,581 E.

Starting from the north face of the 900 level drift as indicated, the initial stage of Project A will involve crosscutting the dike on a bearing of N. 80° E. The dike should be penetrated within 100 to 120 feet, the crosscut being continued an additional 40 or 50 feet on the same bearing, however, until the 2 Vein structure is reached and the full vein structure is intersected. Drifting to the northeast on the vein structure (approximate bearing N. 35° E.) will follow for 900 to 1000 feet where the second diabase dike should be encountered. This second dike will be crosscut on a bearing of N. 70° E., the far wall of the dike being reached at about 120 feet, the crosscut being continued until 2 Vein is reached and intersected which may be 40 or 50 feet beyond the dike. Thereafter drifting on the 2 Vein zone will continue to the northeast for an additional 925 feet or until a total of 2200 feet of drifting and crosscutting shall have been accomplished.

The diamond drill footage (2000 feet) is provided to assist in locating the 2 Vein zone after crosscutting the dikes should the projected locations prove inaccurate, and also to progressively test the full thickness of the 2 Vein zone which is expected to vary from 30 feet to as much as 100 feet or more. (Reference is made to numerous ore discoveries which have been made in the developed portion of the mine as a result of short drill holes put out in the walls of development drifts.)

Considering the structural strength and persistence of the No. 2 Vein shear zone, the evidence of strong tungsten mineralization shown both in the outcrop and in the surface diamond drilling, and considering the productivity of the No. 2 Vein zone within the developed mine limits, the possibilities offered by Project A for the discovery of economic ore bodies are regarded as exceptional.

D.M.E.A. PROJECT B.

Project B is planned to explore the southward extension of the No. 3 Vein shear zone, the work to be done on the 900 level and to consist of drifting on the vein structure with such crosscutting as may be necessary, the drifting and crosscutting to total 1300 feet together with 500 feet of diamond drilling.

The No. 3 Vein zone while not as strong as the No. 2 Vein shear zone has nevertheless been remarkably productive. One of the first ore bodies discovered in the Hamme Mine, the 4 Shaft ore body, is in the north-central portion of the No. 3 Vein zone, this ore body having been mined continuously from the surface down to the 500 level. On the 300 level the 4 Shaft ore body had a length of 270 feet, a length of 455 feet on the 400 level, and a length of 410 feet on the 500 level. On the 300 level the 4 Shaft ore body was locally mined through a width of 45 feet. Development work is now in progress on the 600 level and some ore has been developed on the 700 and 900 levels.

To the south of the main shaft crosscuts the 3 Vein structure is completely unexplored except for a limited amount of drifting on the 500 level. Here narrow ore totaling nearly 200 feet in length has been recently developed, the south face being still in ore. The south extension of the No. 3 Vein structure is not exposed and cannot be traced in the outcrop, nor has the outcrop of the zone been drilled from the surface.

Project B as planned will start from the main shaft crosscut on the 900 level approximately at coordinate 20,060 N., 19,610 E., where the shear zone is well exposed. The 3 Vein structure has been cut by drill holes at distances of 70 feet (hole U831) and 205 feet (U830) from the start of the project, the penetrations showing strong structure and mineralization but no ore.

The turnout from the main crosscut will necessarily require a long radius curve, but once in the 3 Vein zone the drifting will follow that zone on a mean bearing of approximately S. 42° W. and should be in the granite-gneiss complex throughout. The distance of 1300 feet recommended for Project B should be sufficient to take the drift to the projected location of the chlorite schist contact. Some crosscutting may be required and diamond drilling amounting to 500 feet is provided to progressively test the full width of the shear zone particularly in the vicinity of the schist contact.

The chance that Project B will lead to ore discovery, particularly as the schist contact is approached, is regarded as very good.

D.M.E.A. PROJECT C.

Project C is planned to explore the northward extension of No. 28 Vein, the work to be done on the 900 level of the Sneed and to consist of 1200 feet of drifting on the vein structure together with 500 feet of diamond drilling.

The No. 28 Vein is of relatively recent discovery, having been found when high grade ore was encountered from 1320 to 1350 feet when sinking the Sneed shaft. Subsequently 28 Vein has been penetrated by a drill hole on the 1500 level, and has been crosscut on the 1300 level, on the 1100 level and on the 900 level.

On the 1300 level the vein is 7 to 8 feet wide and of much better than average grade. Wall rocks are part of the granite-gneiss complex. On the 1100 level the vein has been followed for 210 feet in granite-gneiss, the vein consisting of erratic short lenses which are locally of ore grade. On the 900 level drifting follows 28 vein for 65 feet entirely in chlorite schist but with the south face against a large diabase dike. Through this distance the vein ranges from 3 feet to 1 foot or less in thickness and appears to be largely of ore grade. The narrow portion of the vein appears to represent a local "pinch" caused by an intersecting flat vein coming in from the footwall.

No. 28 Vein is not known in the outcrop but may correlate with Morton 1A vein which outcrops 1500 feet northward from the Sneed Shaft. Morton 1A Vein shows 1½ to 3½ feet of quartz in the outcrop with fairly abundant hubnerite. Six drill holes which undercut the Morton 1A outcrop failed to penetrate ore though all holes showed the mineralized shear zone and three holes cut mineralized quartz from 1½ to 6 feet in thickness.

Project C will start from the north face of the drift on the 900 level approximately at coordinate 17,020 N., 18,290 E., and will follow 28 Vein to the northeast for 1200 feet. The vein as now exposed has a mean strike of about N. 45° E., but it is anticipated that the strike will become more northerly as the drift advances. The project will start in schist, but the schist contact lies only a few feet ahead of the present face and the drift after passing the contact should continue throughout in the granite-gneiss complex. 500 feet of diamond drilling is provided to test the width of the vein zone as may be necessary.

It is quite possible that Project C may prove ore from the start since a narrow vein of ore is exposed in the present drift face. In recommending this project, however, interest centers not on what lies immediately ahead but rather upon the discovery possibilities offered by the full 1200 feet of drifting which is planned.

D.M.E.A. PROJECT D.

Project D is planned to explore the Morton Estate No. 3 Vein where important ore possibilities have been indicated by surface drilling. The work to be done on the 900 level of the Sneed will consist of 2000 feet of crosscut and drift together with 1000 feet of diamond drilling.

The Morton Estate No. 3 Vein lies in the chlorite schist area approximately 1200 feet northwest of the Sneed Shaft. Vein outcrops are rather discontinuous and erratic, possibly due in part to a cover of overburden. No underground work exists in this area, but 15 surface drill holes undercutting the outcrop at depths of 150 to 350 feet have shown very interesting results. Eight of the holes cut definite ore and 4 additional holes cut probable ore, the vein intersections ranging from 3 to 40 feet, with assays from 0.35% WO_3 to 1.79% WO_3 and averaging better than 0.8%. (Logs of these holes are available at the mine or will be submitted on request.)

The holes collectively indicate a possible ore body of approximately 500 feet in length, striking about N. 48° E., and dipping approximately 85° NW.

As planned for Project D, exploration of the Morton Estate No. 3 Vein will involve a crosscut on the 900 level, the crosscut starting from the drift on 28 Vein more or less opposite the main crosscut and approximately at coordinate 16,995 N., 18,265 E. The crosscut will be on a bearing of N. 65° W. and except for the first few feet the first part of the crosscut, possibly for as much as 200 feet, will be in diabase, the crosscut thereafter being in chlorite schist.

The Morton Estate No. 3 Vein projects to a point 1150 feet from the start of the crosscut, but the crosscut should be driven 1300 feet or more if the vein or vein structure is not encountered sooner. Other veins may be encountered in the crosscut. An allowance of 800 feet, more or less is made for drifting on the Morton Estate No. 3 Vein or on other veins which may be found in crosscutting, or a total of 2000 feet for crosscutting and drifting combined. In addition thereto, 1000 feet of diamond drilling is planned to guide and control the tunnel work as may be necessary.

In summary, footage figures for the four proposed projects are:

Project.	Drift & Crosscut.	Diamond Drilling.
A	2200 feet	2000 feet
B	1300	500
C	1200	500
D	2000	1000
Total	6700 feet.	4000 feet.

In submitting these recommendations for four Defense Minerals Exploration Administration exploration projects at the Hamme Mine it may be stated that not only does each project carry my whole-hearted and unqualified endorsement but in addition there exists in each case not only the possibility but a strong degree of probability that important ore discovery will result.

Very truly yours,

Carlton D. Hulin

Carlton D. Hulin
Consultant to
Tungsten Mining Corporation

November 28, 1955

RECEIVED
MAR 15 1956

PROJECT - A

INSTRUCTIONS

ACCOMPANYING PAPERS

Dr. Carlton D. Hulin's report, - Pages 1/7.

1. Name of applicant.

(C) Titles, names and addresses of officers.

W. Lunsford Long, President, 500 Fifth Ave., New York 36, N. Y.
Hewitt S. West, Jr., Executive Vice-President, 500 Fifth Ave., New York 36, N. Y.
Joseph F. Wilmott, Treasurer, 500 Fifth Ave., New York 36, N. Y.
Charles R. Skinker, Vice-President & Secretary, 500 Fifth Ave., New York 36, N. Y.
John M. West, Assistant Secretary, Box 2008, Henderson, Nev.
George V. Boyd, Assistant Secretary, Box 81, Henderson, N. C.
J. R. Sweet, Vice-President & General Manager, Box 81, Henderson, N. C.

4. Physical description.

Refer to the attached report of Dr. Carlton D. Hulin, dated November, 28, 1955, addressed to W. Lunsford Long, President, Tungsten Mining Corp. Requested data that is not included in Dr. Hulin's report is given below.

Included with this application is a map (4-copies) showing the mine workings and the four (4) proposed Projects, A, B, C, and D; - "Plan of Operations, Scale - 1-inch = 100 ft., Date - March 1, 1956".

Also, attached is a property map, (4-copies) also, on which is shown the respective locations of the four proposed Projects, A, B, C, and D; - "Partial Property Map of Tungsten Mining Corporation, Henderson, N. C. , showing location of D. M. E. A. Projects, Scale - 1-inch = 500 feet, 3/1/56".

4. Physical description (Cont'd).

(a) No exploration or mining work is now being conducted in the area to be explored by Projects - A, B, C, and D.

Mine openings are accessible for examination purposes.

(b)

Past production: -

Total thru January 31, 1956 - 836,705.14 short ton units.

Current production: -

Approximate rate of 160,000 short ton units per year.

Ore Reserve as of August 31, 1954 was 936,732 tons of 0.63% WO_3 grade.

Ore Reserves as of August 31, 1955 was 1,276,660 tons of 0.62% WO_3 grade.

(c) Refer to attached report by Dr. Carlton D. Hulin and map showing proposed projects for geologic features, etc., of the property.

(d) Access roads to the property are good hard-surfaced State roads.

Shipping facilities to and from the mine plant are by good truck service and by railroad to Henderson, N. C. located 16-miles distant and to Bullock, N. C., 5-miles distant.

5. The exploration project.

(b) Refer to Dr. Carlton Hulin's report and map "Plan of Operations".

(d) Tungsten Mining Company is an active operating company. The supervision of the work of the proposed Projects will be directed by the engineering and mining personnel of the company.

6. Estimate of costs.

See page - 12, which is a summary of the costs of respective costs of the four proposed Projects A, B, C, and D. This summary of costs followed by detailed costs for each of the four projects.

PROJECT - A

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

All costs of the operation will be paid currently along with costs of mine and plant operation.

It is believed that we have adequate equipment to complete the four projects in the proposed period of time. Should additional equipment be required, the Company would purchase the required equipment and the Projects would pay for its use by a rental fee as set forth in the estimated unit cost figures.

6. Estimate of costs. - PROJECTS - A, B, C, and D.

	PROJECT - A			PROJECT - B			PROJECT - C			PROJECT - D			TOTAL		
	Feet	Per Ft.-$	Amt.$	Feet	Per Ft.-$	Amt.$	Feet	Per Ft.-$	Amt.$	Feet	Per Ft.-$	Amt.$	Feet	Per Ft.-$	Amt.$
DRIFTS and CROSSCUTS	2200			1300			1200			2000			6700		
(a) Independent Contracts		None	None		None	None		None	None		None	None		None	None
(b) Labor, Supervision Consultants		$17.445	$38,379.00		$17.445	$22,678.50		$17.445	$20,934.00		$17.445	$34,890.00		$17.455	$116,881.50
(c) Operating Materials and Supplies		15.401	33,882.20		15.401	20,021.30		15.401	18,481.20		15.401	30,802.00		15.401	103,186.70
(d) Operating Equipment		6.656	14,643.20		6.656	8,652.80		6.656	7,987.20		6.656	13,312.00		6.656	44,595.20
(e) Rehabilitation and Repairs		None	None		None	None		None	None		None	None		None	None
(f) New buildings, improvements, installations.		1.007	2,214.60		0.324	421.85		0.273	328.19		0.164	328.19		0.491	3,292.83
(g) Miscellaneous		4.700	10,340.00		4.700	6,110.00		4.700	5,640.00		4.700	9,400.00		4.700	31,490.00
(h) Contingencies		2.410	5,302.00		2.410	3,133.00		2.410	2,892.00		2.410	4,820.00		2.410	16,147.00
Total Drifts and Crosscuts	2200	$47.619	$104,761.00	1300	$46.936	$61,017.45	1200	$46.885	$56,262.59	2000	$46.776	$93,552.19	6700	$47.103	$315,593.23
TIMBERING:	2200	$10.825	$ 23,815.00	-	-	-	-	-	-	-	-	-	2200	$10.825	$ 23,815.00
DIAMOND DRILLING:	2000	$ 1.644	$ 3,288.00	500	$ 1.644	$ 822.00	500	$ 1.644	$ 822.00	1000	$ 1.644	$ 1,644.00	4000	$ 1.644	$ 6,576.00
TOTAL and AVERAGE:	2200	$59.938	$131,864.00	1300	$47.569	$61,839.45	1200	$47.570	$57,084.59	2000	$47.598	$95,196.19	6700	$51.639	$345,984.23

PROJECT - A

Drifting - - - - - - - - - 2200 Feet
Diamond Drilling - - - - - 2000 Feet

6. Estimate of costs.
DRIFTING. (Timbering not included.)

	Cost per foot $	
(a) Independent contracts	$ None	
(b) Labor, supervision, consultants	$17.445	
(c) Operating materials and supplies	$15.401	
(d) Operating equipment	$ 6.656	
(e) Rehabilitation and repairs	$ None	
(f) New buildings, improvements, installations	$ 1.006	
(g) Miscellaneous	$ 4.700	
(h) Contingencies	$ 2.410	
ESTIMATED TOTAL COST PER FOOT - EXCLUDING TIMBER - PROJECT A	$47.618	
2200 ft. @ $47.618		$104,759.60

6. Estimate of costs.
TIMBERING DRIFT.

	Cost Per Foot $	
(a) Independent contracts	$ None	
(b) Labor, supervision, consultants	$ 7.444	
(c) Materials and supplies	$ 2.230	
(d) Operating equipment	$ None	
(e) Rehabilitation and repairs	$ None	
(f) New buildings, improvements, installations	$ None	
(g) Miscellaneous	$ 1.151	
(h) Contingencies	$ None	
ESTIMATED TOTAL COST PER FOOT - TIMBERING DRIFT - PROJECT A.	$10.825	
2200 ft. @ $10.825		$23,815.00

PROJECT - A

6. Estimate of costs.
DIAMOND DRILLING

	Cost per foot $	
(a) Independent contracts	$ None	
(b) Labor, supervision, consultants	$ 0.535	
(c) Operating materials and supplies	$ 0.938	
(d) Operating equipment	$ 0.051	
(e) Rehabilitation and repairs	$ None	
(f) New buildings, improvements, installations	$ None	
(g) Miscellaneous	$ 0.120	
(h) Contingencies	$ None	
ESTIMATED TOTAL COST PER FOOT - DIAMOND DRILLING	$ 1.644	
2,000 ft. @ $1.644		$3,288.00

Note:

(1) Excavations for diamond drill stations as required and car switching track included in the 2200 feet of drifting.

(2) It is estimated that the drift and diamond drill stations will require timber, however, they will be timbered only as needed.

(3) Diamond drill footage of 2000 feet is the estimated maximum required. The actual footage drilled would be governed by the requirements as developed by the exploration work but not to exceed 2000 feet.

PROJECT - A

6. Estimate of costs.
DRIFTING

(a) Independent contracts - None

However, the costs include an estimated bonus of $1.944 per foot to be earned by both the miner and the muck machine operator.

(b) Labor, Supervision, consultants.

	Salaries Rate/hr.	No. of Men	Man. Hr. per ft.	Cost per foot $	Cost per foot $
Consultant	$100/day	1		.500	
Engineer	$447/mo.	4		.703	
Supervision-Senior	$761/mo.	2		.109	
Supervision-Shift Boss	$2.000/hr.	1	.266	.576	$1.888

LABOR	Basic rate per/hr.	No. of Men	Man Hr. per ft.	Bonus per ft.	Cost/ ft. $	Cost/ ft. $
Head track man	$1.80	1	.013		.025	
Miner	1.75	1	1.825	1.944	5.314	
Muck Mach.Oper.	1.75	1	1.825	1.944	5.314	
Pipeman-Air & Water	1.75	1	.073		.138	
Timberman-Ventilation	1.75	1	.080		.152	
Electrician	1.75	1	.004		.007	
Hoistman	1.75	1	.269		.508	
Skiptender	1.75	1	.269		.508	
Motorman	1.525	1	1.225		2.025	
Truck Driver	1.525	1	.108		.179	
Bulldozer Oper-Waste Dump	1.525	1	.019		.032	
Track Helper	1.525	1	.013		.022	
Elec. Helper	1.525	1	.004		.006	
Ditch Man	1.45	1	.521		.819	$15.049
1/ Allowance for side switches (3% X 16.938)						$0.508
Total - Labor, Supervision, Consultants.						$17.445

PROJECT - A

6. Estimate of costs -(Cont'd)

(c) Operating Materials and supplies

		Cost per ft. $	Cost per ft. $
	Powder - 52.3 sticks per ft.	3.256	
	Caps - 5.3 per ft.	1.239	
	Connecting wire - .07 roll per ft.	.065	
	Bits and regrinds	3.834	
	Steel	.359	
	Oil and Lubrication	.036	
	Small tools	.130	
	Compressed Air	.891	
	Water and air hose	.174	
	Power, battery charger	.050	
	Track, ties, switch, etc.	1.297	
*	2" and 3" pipe with victaulic couplings	1.288	
*	16" vent pipe	1.700	
	Power, ventilation fan	.305	
*	Blasting line @ .035 per ft.	.035	
	Power hoisting	.121	
	Gas and oil, truck	.095	
	Oil, tractor fuel	.020	$14.895
	Allowance for side switches (3% ($14.895 - * 3.023)		.506
	Total Operating Materials and Supplies		$15.401

* These items deductible in calculation of side switches.

(d) Operating equipment -

	Value $	Rent per Mo.	Rent * per Shift	Cost per ft. $	Cost per ft. $
Drill DA-30 Rock Drill	1138.50	91.08	1.786	.407	
Drill Accessories	164.00	13.12	.257	.058	
Compressors 1-500 cfm-$4500 1-315 cfm-$3500	8000.00	187.06	3.668	.840	
Oiler, galvanometer	49.25	3.92	.077	.018	
Mine Lamps (3) MSA Rate	-	1.25	.025	.017	
Mucking Machine	3000.00	240.00	4.706	1.070	
Locomotive, charger, 2 Bat.	7626.00	610.00	11.961	2.725	
Mine Cars (6) @ $510.50	3063.00	245.04	4.804	1.090	
Coffin Hoist	47.20	3.776	.074	.017	
TM 8 Fan (1)	615.00	49.20	.965	.220	$6.462
Allowance for side switches	3% X 6.462				.194
Total, Operating Equipment					$6.656

* Average of 51 Shifts per month.

PROJECT A

6. Estimate of Costs - Cont'd

(e) Rehabilitation and repairs - None

(f) New buildings, improvements, installations.

(1) Installation of locomotive battery charging station in shaft area.

(a) None

(b) Labor:

	Basic Rate @ Hour $	No. of Men	Man Hours	Cost $	Cost $
Timberman	1.75	1	16	30.26	
Timberman Helper	1.525	1	16	26.42	
Electrician	1.75	1	4	7.56	
Electrician Helper	1.525	1	4	6.60	$70.84

(c) Supplies:

Rail	12.80	
Timber	20.00	
Switch, Electric	9.00	
Nails, bolts, etc.	2.50	$44.30

(d) Operating equipment - None -

(e) Rehabilitation and repairs - None -

(f) New buildings, improvements, installations - None -

(g) Miscellaneous:

Accounting:			
Purch. Agent, Warehouseman, Clerks	.93		
Stationery, and supplies	.19		
Telephone and telegraph	.24	1.36	
Workmen's Compensation	4.02	4.02	
Liability Insurance	.07	0.07	
Group Insurance	.76	0.76	
Taxes, Payroll	2.70	2.70	
General Expenses:			
Foreman, Service Depts.	.87		
Service Maintenance	1.17		
Other - Shop, freight & safety	.42		
Vacation and holiday pay	1.63	4.09	$13.00

(h) Contingences - None -

Total cost - Installation of charging station $128.14

Total cost per foot for Project A-2200 ft. $ 0.058

6(f)- Estimate of Costs (Cont'd)

(2) Installation of booster fan.

Due to the distance that Project A will be driven from the nearest fresh air supply, a booster fan will be necessary. The first fan will be located at the crosscut to the shaft and the booster fan 1500 feet from that point.

(a) Independent contracts, None

(b) Labor, supervision, consultants.

	Basic Rate @ hr. $	No. of Men	Man Hrs.	Cost $	Cost $
Timberman	1.75	1	4	7.57	
Timberman Helper	1.525	1	4	6.61	
Electrician	1.75	1	24	45.39	
Electrician Helper	1.525	1	24	39.63	$99.20

(c) Operating materials and supplies

Timber	2.40	
Switches, Electric	33.00	
Nails, Bolts, etc.	2.50	
Power, Cable, 3 ph.,60 V @ $1.29 @ ft.1500'	1935.00	$1972.90

(d) Operating equipment - None -

(e) Rehabilitation and repairs - None -

(f) New buildings, improvements, installations - None -

(g) Miscellaneous

Accounting:			
Purch.Agent, Warehouseman, Clerks	1.31		
Stationery & Supplies	.27		
Telephone and telegraph	.34	1.92	
Workmen's Compensation	1.67	1.67	
Liability Insurance	.05	0.05	
Group Insurance	1.22	1.22	
Taxes, Payroll	3.79	3.79	
General Expenses:			
Foreman, Service Depts.	1.21		
Service Maintenance	1.63		
Other - Shop, Freight & Safety	.59		
Vacation and holiday pay	2.28	5.71	$ 14.36

(h) Contingences - None -

Total Cost - Installation of booster fan $2086.46

Total Cost per foot for Project A - 2200' $ 0.948

6. (f) TOTAL: -

(1) Installation of charging station in shaft area	$ 128.14
(2) Installation of booster fan,	$2,086.46
Total 6 (f), Project A. - - - - - - - - - - - - - -	$2,214.60

6 - Estimate of costs - Cont'd

(g) Miscellaneous

	Cost per ft. $	Cost per ft. $
Repair to operating equipment		
Drill	.312	
Compressor	.023	
Mucking Machine	.088	
Mine Cars and Locomotive	.022	
Bulldozer	.030	$ .475
Maintenance of Operating Equipment		
Compressor	.080	
Mine cars & Locomotive	.022	
Hoist cable, skip shoes, etc.	.258	
Truck tires	.225	
Tractor operation	.020	$ .605
* Assay	.030	$ .030
Accounting		
Purch.Agent, Warehouseman, Clerks	.247	
Stationery & supplies	.049	
Telephone and telegraph	.061	$ .357
Workmen's Compansation	1.216	$ 1.216
Liability Insurance	.019	$ .019
Group Insurance	.123	$ .123
Taxes, Payroll	.658	$ .658
General Expenses		
Foreman, Service Depts.	.229	
Service Maintenance	.309	
Other - Shop, freight and safety	.112	
Vacation and holiday pay	.431	$ 1.081
Total		$ 4.564
Allowance for side switches, 3% ($4.564 - *.03)		$ .136
Total Miscellaneous		$ 4.700

* This item deductible in calculation of side switches.

PROJECT A

6 - Estimate of costs - Cont'd

(h) Contingencies -

Allowing 10 percent of labor and equipment rental costs per foot of drift.

	Cost per ft. $	Cost per ft. $
Schedule b - 10% X 17.445	1.745	
Schedule d - 10% X 6.656	.665	
Provision for contingencies (10%)		$2.410
Total Provision for contingencies		$2.410

1/ Side switches located every 300 feet for the purpose of switching cars to the heading may also be used for diamond drill stations, place of refuge as provided for by North Carolina Mining Regulations, and ventilation for stations.

* Costs itemized and shown, in total.

PROJECTS A-B-C-D.

Timbering of Drifts, Crosscuts, and Diamond Drill Stations

6. Estimate of Costs.

It is not known how much drift timbering will be required by the four Projects. It is believed that drift timber will be required in Project - A only and is the only timbering cost included.

It is estimated that the cost of any drift timbering in any of the four Projects or any part of them will be nearly constant and that the estimated cost per foot of timbering can be applied to all drift timbering.

The estimated cost of drift or crosscut timbering per lineal foot to be applied to all timbering as required and installed is as follows:

Cost Per Lineal Foot of Timbering

(a) Independent Contracts - None
(b) Labor, supervision, consultants.

	Basic Rate Per Hr. $	No. of Men	Man Hrs. Per Ft.	Cost per Ft. $	Cost Per Ft. $
Superv. Shift Boss	2.00	1	.193	0.389	
Timberman	1.75	1	1.593	3.018	
Timber Helper	1.525	1	1.599	2.640	
Timber Haul, Surf.	1.525	1	.095	0.157	
Timber Rustling, U.G.	1.45	1	.695	1.096	
Timber Frame	1.325	1	.105	.144	$7.444
(c) Materials and Supplies				2.230	$2.230
(d) Operating equipment - None					-
(e) Rehabilitation and repairs - None					-
(f) New buildings, improvements, installations - None					-
(g) Miscellaneous					
Accounting					
Purch. Agent, Warehouseman, Clerks			.103		
Stationery & Supplies			.020		
Telephone and telegraph			.025	.143	
Workmen's Compensation			.487	0.487	
Liability Insurance			.009	.009	
Group Insurance			.063	.063	
Taxes, payroll			.024	.024	
General Expenses					
Foreman, Service Depts.			.095		
Service Maintenance			.128		
Other, Shop, freight and safety			.046		
Vacation and holiday pay			.179	.448	$1.151
(h) Contingencies - None					-
Total cost - Timbering per lineal foot					$10.825

PROJECTS - A - B - C - D.

DIAMOND DRILLING

A cost for a possible maximum of diamond drill footage of 4,000 feet is included under Project A, B, C, and D. The 4,000 feet is the estimated maximum footage required and is included in the respective four Projects as follows:

	Feet	Cost $
Project A	2,000 ft.	$3,242.00
Project B	500 ft.	810.50
Project C	500 ft.	810.50
Project D	1,000 ft.	$1,621.00
Total	4,000 ft.	$6,484.00

The Cost per Foot for Diamond Drilling is as follows:

6. Estimate of Costs.
   (a) Independent contracts - None
   (b) Labor, supervision, consultants

	Basic rate per Hr. $	No. of Men	Man Hrs. per Ft.	Cost/ ft. $	Cost per ft. $
Diamond Driller	1.754	1	.249	.477	
Engineers			[illegible]	.058	$0.535

(c) Operating materials and supplies:

Bits - Reset	.464	
Bits - New	.263	
Drill Rods - Core Lifters	.049	
Rod Grease - lubrication	.012	
Compressed Air	.115	
Core boxes	.035	$ .938

(d) Operating Equipment.
Diamond Drill and Rod Puller - $1077.
(8%) ($1077) ÷ 1680 ft. .051 $ .051

(e) Rehabilitation and repairs - None -

(f) New buildings, improvements, installations - None -

(g) Miscellaneous

Repair Labor	.009	.009
Repair Parts	.017	.017
Accounting:		
Purch. Agent, Clerk, Warehouseman,	.007	
Stationery and supplies	.001	
Telephone and telegraph	.002	.010
Workmen's Compensation	.031	.031
Liability Insurance	.001	.001
Group Insurance	.004	.004
Taxes payroll	.018	.018

6 (g) Estimate of Costs - Cont'd

(g) Cont'd

Foreman, Service Depts.	.007	
Service Maintenance	.008	
Other, Shop, Freight & Safety	.003	
Vacation and holiday pay	.012	$ .120
(h) Contingencies - None		-
Total Diamond Drill Cost per foot		$1.644

PROJECT - A

Drifting - 2200-feet

Diamond Drilling -2000-feet

6. Estimate of Costs.

Summary of Costs

Drifting,	2200' @ $47.619	-	$104,761.00
Timbering,	2200' @ $10.825	-	23,815.00
Diamond Drilling,	2000' @ $ 1.644	-	3,288.00
Total Cost - Project A		-	$131,864.00

Property rights
Project B

Amplications p.

PROJECT - B

INSTRUCTIONS

The supplemental data for Project-A as covered by Pages 8/11, is applicable to Project-B, with the exception of item 3 - Applicant's property rights - (a), which is as follows: -

3. Applicant's property rights.

(a) Land owned in fee by Tungsten Mining Corporation, known as the Walker Land, conveyed by Haile Mines, Inc. to Tungsten Mining Corporation by deed dated June 7, 1945 and recorded in Book - 238, Page - 602, Vance County Registry and mineral rights leased of land known as the Nat Morton Land, by Tungsten Mining Corporation from Carl U. Samford and others by Agreement dated March 11, 1946 for period of 99 years, recorded in Book 246, Page 590, Vance Register.

PROJECT- B

Drifting	-	1,300-Feet
Diamond Drilling	-	500-Feet

6. Estimate of costs.

Summary of Costs:

Drifting,	1,300 ft. @	$46.936	-	$61,017.45
Diamond Drilling,	500 ft. @	$ 1.644	-	$ 822.00
Timbering, no cost included			-	-
Total cost Project - B.			-	$61,839.45

Drifting cost per foot, - same as for Project A, excepting cost of item 6.(f), for which detailed costs are given below.

Diamond drilling cost per foot, - same as for Project- A.

Timbering cost per foot, - would be the same as for Project - A if any timbering is done, but no timbering cost is included in this estimate.

PROJECT - B

6. (f) New Buildings, improvements, installations.

(1) Move present locomotive battery charging station to shaft area and install.

(a) Independent contracts - None.
(b) Labor, supervision, consultants:

	Basic Rate @ Hr. $	No. of Men	Man Hours	Cost $	Cost $
Timberman	1.75	1	20	37.82	
Timberman Helper	1.525	1	20	33.02	
Electrician	1.75	1	8	15.13	
Electrician Helper	1.525	1	8	13.21	$99.18

(c) Supplies

Timber		2.40	
Switches, Electric		33.00	
Nails, bolts, etc.		5.00	
Power Cable 3 ph., #4, 600 V @ $1.29 @ ft.50'		64.50	$104.90
(d) Operating equipment - None			-
(e) Rehabilitation and repairs - None			-
(f) New buildings, improvements, installations - None			-
(g) Miscellaneous			
Accounting			
Purch. Agent, Warehouseman, Clerks	.98		
Stationery & Supplies	.19		
Telephone and telegraph	.24	1.41	
Workmen's Compensation	5.37	5.37	
Liability Insurance	.10	.10	
Group Insurance	1.06	1.06	
Taxes, Payroll	3.79	3.79	
General Expenses			
Foreman, Service Depts.	1.27		
Service Maintenance	1.71		
Other - Shop, freight	.62		
Vacation and holiday pay	2.39	5.99	$17.72
(h) Contingencies - None			-
Total cost - Move charging station and install			$221.80
Total cost per foot - Project - B, 1300 ft.			$ 0.1706

PROJECT - B

(2) Installation of ventilation fan, TM-8

(a) Independent contracts - None

(b) Labor, supervision, consultants

	Basic Rate @ Hr. $	No. of Men	Man Hours	Cost $	Cost $
Timberman	1.75	1	4	7.56	
Timberman Helper	1.525	1	4	6.60	
Electrician	1.75	1	4	7.56	
Electrician Helper	1.525	1	4	6.60	$28.32

(c) Supplies

Timber	2.40	
Switches, Electric	33.00	
Nails, bolts, etc.	2.50	
Power cable #4,3-ph.,600 V. @ $1.29 @ ft.,100'	129.00	$166.90

(d) Operating equipment - None -

(e) Rehabilitation and repairs - None -

(f) New buildings, improvements, installations - None -

(g) Miscellaneous

Accounting			
Purch. Agent, Warehouseman, Clerks	0.39		
Stationery & Supplies	0.08		
Telephone and Telegraph	0.10	0.57	
Workmen's Compensation	1.14	1.14	
Liability Insurance	0.02	0.02	
Group Insurance	0.30	0.30	
Taxes, Payroll	1.08	1.08	
General Expenses			
Foreman, Service Depts.	0.37		
Service Maintenance	0.49		
Other - Shop, Freight and Safety	0.18		
Vacation and holiday pay	0.68	1.72	$4.83

(h) Contingencies - None -

Total cost - Install TM-8 Fan - $200.05

Total Cost per foot - Project B, 1300 ft. $ 0.324

6. (f) Total: -

(1) Move present locomotive battery charging station to shaft area and install	-	$221.80
(2) Installation of ventilation fan, TM-8	-	200.05
Total Cost 6.(f), Project - B.	-	$421.85
Cost per foot, 1300 feet,	-	$ 0.324

Marcus C Rights
Sarcol Estate

Application
p. 27

RECEIVED
MAR 15 1956

PROJECT - C

INSTRUCTIONS

The supplemental data for Project-A as covered by Pages 8/11, is applicable to Project-C, with the exception of item 3 - Applicant's property rights - (a), which is as follows: -

3. Applicant's property rights.

(a) Mineral rights owned by Tungsten Mining Corporation of land known as the Abraham Sneed Estate. Mineral rights were conveyed by deed made January 2, 1946 by T. P. Gholson, Commissioner, to Tungsten Mining Corporation, the property being described in deed recorded in book 58, Page 104 and the deed recorded in Book 246, Page 262, Vance Registry. And, mineral rights of one-fourteenth of the Abraham Sneed Estate conveyed to Tungsten Mining Corporation, for a period of 99 years by Agreement made January 16, 1946, by Jasper B. Hicks and recorded in Book 246, Page 264, Vance Registry.

PROJECT - C

Drifting	-	1,200 - Feet
Diamond Drilling	-	500 - Feet

- - - - - - - -

6. Estimate of costs.

Summary of Costs:

Drifting,	1200 ft. @ $46.885	-	$56,262.59
Diamond Drilling,	500 ft. @ $ 1.644	-	822.00
Timbering, no cost included		-	-
Total cost Project - C		-	$57,084.59

Drifting cost per foot, - same as for Project A, excepting cost of item 6.(f), for which detailed costs are given below.

Diamond drilling cost per foot, - same as for Project- A.

Timbering cost per foot, - would be the same as for Project - A if any timbering is done, but no timbering cost is included in this estimate.

PROJECT - C

6. (f) New buildings, improvements, installations

(1) Installation of battery charging station at shaft area.

Same cost as for: -

6. (f) - (1), Project A, Page 17.

Cost, - - - - - - - - - - - - - - - - - - - $128.14

(2) Installation of ventilation fan, TM-8.

Same cost as for: -

6. (f) - (2), Project B, Page 27.

Cost, - - - - - - - - - - - - - - - - - - - $200.05

6. (f), Total: -

(1) Installation of battery charging station at shaft area,	-	$128.14
(2) Installation of ventilation fan, TM-8	-	$200.05
Total Cost 6.(f), Project - C	-	$328.19
Cost per foot, 1200 feet,	-	$ 0.273

PROJECT - D

INSTRUCTIONS

The supplemental data for Project A, as covered by Pages 8/11, is applicable to Project - D.

PROJECT - D

Drifting, Crosscutting -	-	2,000 Feet
Diamond Drilling	-	1,000 Feet

- - - - - - - - -

6. Estimate of costs.

Summary of Costs:

Drifting, crosscutting,	2,000 ft. @	$46.776	-	$93,552.19
Diamond Drilling,	1,000 ft. @	1.644	-	$ 1,644.00
Total cost - Project - D			-	$93,196.19

Drifting cost per foot, - same as for Project - A, excepting cost for item 6.(f), for which detailed costs are given below.

Diamond drilling cost per foot, - same as for Project - A.

Timbering cost per foot, - would be the same as for Project - A, if any timbering is done, but no timbering cost is included in this estimate.

PROJECT - D

6. (f) New buildings, improvements, installations.

(1) Installation of battery charging station at shaft area.

Same cost as for: -

6. (f) - (1), Project - A, Page - 17.

Cost, - $128.14

(2) Installation of ventilation fan, TM-8.

Same cost as for: -

6. (f) - (2), Project - B, Page - 27.

Cost, - $200.05

6. (f), Total: -

(1) Installation of battery charging station at shaft area,	-	$128.14
(2) Installation of ventilation fan, TM-8	-	$200.05
Total Cost 6.(f) - Project - D	-	$328.19
Cost per foot, 2000 feet,	-	$ 0.164

4216
DMEA ~~4126~~

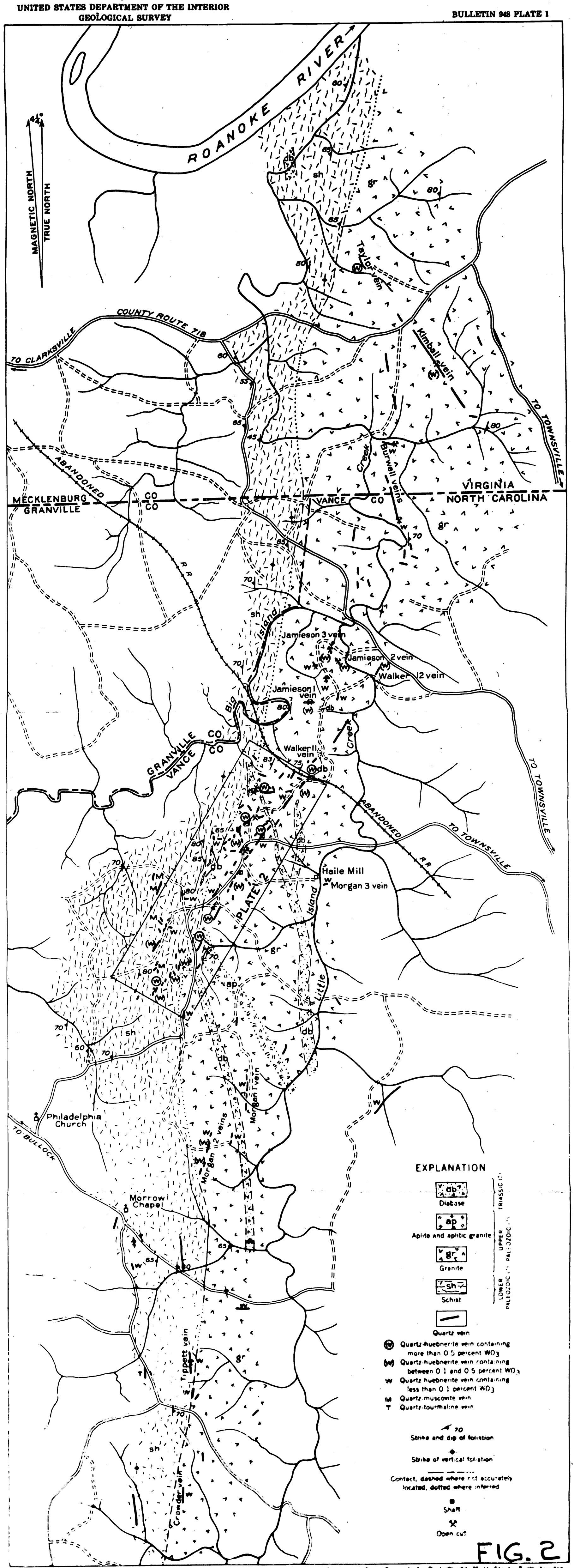


FIG. 2

Compiled from aerial photographs and plane table surveys, contains part of data based on transit surveys by Bureau of Mines (1943)

Geology by G. H. Espenshade, R. J. Wright, M. H. Staatz, T. W. Amsler, E. A. Brown, and N. D. Palmer of the Geological Survey, and C. J. Cohen of the Bureau of Mines

GEOLOGIC MAP OF THE TUNGSTEN DEPOSITS OF VANCE COUNTY, NORTH CAROLINA, AND MECKLENBURG COUNTY, VIRGINIA

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
3/3/72		120
		220

March 3, 1972

AIRMAIL

Ranchers Exploration and Development Corporation
Attention: Mr. M. H. Howard, Vice President
P. O. Box 6217
1776 Montano Road, N. W.
Albuquerque, New Mexico 87107

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Gentlemen:

By the terms of the subject Exploration Project Contract, as amended, and the certification of discovery or development dated December 19, 1958, all minerals mined or produced from November 2, 1956, to November 2, 1971, were subject to the Government's royalty as set forth in said contract.

As the period during which production was subject to royalty has now expired, the Government according to its present records retains no claim or lien against the property subject to the contract or any future production therefrom. Your attention, however, is called to the provisions of the contract which require the Operator to keep and preserve certain records for the periods indicated.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

cc: Director's Reading File
Mineral Resources
OME Docket
OME Reading File
OME Region IV w/cy letter 2/14/72
Branch of Budget and Finance
Mr. Kirkemo
130

GLAult/a 3-3-72

RANCHERS EXPLORATION AND DEVELOPMENT CORPORATION

Box 6217 / 1776 Montano Road, N.W. / Albuquerque, New Mexico 87107 / Telephone (505) 344-3542

February 14, 1972

OFFICE SUPT
O. M. E.
RECEIVED
FEB 17 1972

INITIALS	CODE
HK	120
gla	130
	220

Mr. Harold Kirkemo, Chief
Office of Minerals Exploration
U. S. Department of the Interior
Geological Survey
Washington, D. C. 20242

Dear Mr. Kirkemo:

Your letter of November 29, 1971 has been forwarded to me for answer. As our Mr. Erdahl indicated earlier, no production was removed from the subject areas nor was any material transported through DMEA workings after Ranchers resumed operations. In fact, the area on the other side (to the north and northwest) of Number 6 shaft on the 900 level was not rehabilitated. Also, Number 1 shaft and Number 7 shaft have not been rehabilitated or utilized by Ranchers. All mining by Ranchers was in the main shear zone south of Number 6 shaft except for a small quantity mined below the 1300 level north of such shaft on the main shear zone. These areas are not within the boundaries of the DMEA land.

verified by Jack Gair 3/2/72. H. Kirkemo

As you probably know the mine is currently closed, and we do not have a reopening date scheduled at the present time.

Very truly yours,

M. H. Ward
Vice President

MHW/rz

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
1/17/72		120
		220
		130

JAN 17 1972

AIRMAIL

Mr. Leland O. Erdahl
Vice President - Finance
Ranchers Exploration & Development Corp.
P. O. Box 6217
Albuquerque, New Mexico 87107

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Dear Mr. Erdahl:

We would appreciate receiving a reply to our letter of November 30, 1971, requesting a list of claims from which production from the Hamme mine in 1970 and 1971 was reported and published. Please give this matter your early attention.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

cc: Director's Reading File
Mineral Resources
Docket DMEA-4216
OME Reading File
OME Region IV
Mr. Kirkemo
130

GLAult/a 1-17-72

OME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
11/30/71		120
		220
		130

AIRMAIL

NOV 30 1971

Mr. Leland O. Erdahl
Vice President - Finance
Ranchers Exploration & Development Corp.
P. O. Box 6217
Albuquerque, New Mexico 87107

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Dear Mr. Erdahl:

Thank you for replying to our request of November 15, 1971, for information on present ownership, production and transport of ore through DMEA workings at the Hamme mine. We note that no production is reported from land subject to the contract and no production was transported through DMEA workings.

In view of published reports of production from the mine in 1970 and 1971, and before we close our books on this contract, we would appreciate receiving a list of the claims from which this production originated.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

cc: Director's Reading File
Mineral Resources
OME docket
OME Reading File
OME Region IV, w/cy Form 63
Mr. Kirkemo
130

References: Metals Week
March 29, 1971 - page 18
August 16, 1971 - " 5

HKirkemo/gla 11-30-71

United States Department of the Interior

GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

IN REPLY REFER TO: Office of Minerals Exploration

November 15, 1971

AIRMAIL

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

OFFICIAL COPY
O. M. E.
RECEIVED
NOV 29 1971

INITIALS	CODE
gla	130
HK	120
	220

Ranchers Exploration and
Development Corporation
Attention: Mr. Leland O. Erdahl
Vice President-Finance
P. O. Box 6217
1776 Montano Road, N. W.
Albuquerque, New Mexico 87107

RECEIVED
NOV 17 1971
RANCHERS EXPLORATION
& DEVELOPMENT CORP.

Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. ~~Since~~ From February 18, 1971, to November 2, 1971, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☒

2. ~~Since~~ From February 18, 1971, to November 2, 1971, has there been any production from the land subject to the contract? Yes ☐ No ☒

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser *(name and address)*	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity *(tons)*	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since from Feb. 18, 1971 to Nov. 2, 1971, has any production been transported through workings *(see of contract)*? Yes ☐ No ☒

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name Leland O. Erdahl LELAND O. ERDAHL	*Title* VICE PRESIDENT - FINANCE
Address RANCHERS EXPLORATION & DEVELOPMENT CORP. P. O. Box 6217 Albuquerque, New Mexico 87107	*Date* 11/23/71

United States Department of the Interior

GEOLOGICAL SURVEY

301 WEST CUMBERLAND AVE.
KNOXVILLE, TENN. 37902

November 17, 1971

Memorandum

To: Harold Kirkemo
Chief, Office of Minerals Exploration, Washington, D. C.

From: Robert A. Laurence
Branch of Eastern Mineral Resources
Knoxville, Tennessee

Subject: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Replying to your memo of November 15, I have no further information on the Tungsten Queen mine. It is unlikely that there was any production from the property covered by the subject contract, before November 2. If any on-site examination is desired, I suggest you contact Lawrence E. Shirley, who is now Bureau of Mines liaison representative in Raleigh, North Carolina.

8-0-919-755-4166

Robert A. Laurence
Geologist
Branch of Eastern Mineral Resources

22

120
130
HK
220

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
11/15		120
		220
		130

NOV 15 1971

Memorandum

To: Robert A. Laurence, Geologist
Branch of Eastern Mineral Resources, Knoxville, Tennessee

From: Chief, Office of Minerals Exploration

Subject: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

With reference to your memorandum dated August 27, 1971, advising that the Ranchers Exploration Company planned to close the Tungsten Queen Mine (formerly the Hanna Mine) about September 15, as stated by you, the royalty period under this contract expired on November 2, 1971.

We are today forwarding an MME Form 63 request for information on possible production for the period February 18 to November 2, 1971, to the corporation's office in Albuquerque, New Mexico. If no production during the period is reported, we will proceed to close the contract. Should you have additional information since August concerning the property, please advise us.

Harold Kirkemo

Harold Kirkemo

cc: Director's Reading File
Mineral Resources
OME docket
OME Reading File
Mr. Kirkemo
130

GLAult/a 11-15-71

United States Department of the Interior

GEOLOGICAL SURVEY
301 WEST CUMBERLAND AVE.
KNOXVILLE, TENN. 37902

August 27, 1971

Memorandum

To: Harold Kirkemo

From: Robert A. Laurence

Subject: DMEA-4216, Idm-E 1032

I've been told that Ranchers Exploration Company is planning to close the Tungsten Queen Mine (formerly the Hanna Mine) about September 15.

The royalty period under the DMEA contract will expire on November 2, 1971. Only a portion of the property is subject to royalty, and according to the report submitted by Ranchers last February, no production had come from that area. I do not know if there has been any since then, although I understand that ore has been produced, but I don't know from which part of the property.

OFFICIAL COPY
O. M. E.
RECEIVED
AUG 30 1971

INITIALS	CODE
HK	~~120~~
gla	30
	220

Robert A. Laurence
Geologist
Branch of Eastern Mineral Resources

United States Department of the Interior

GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

IN REPLY REFER TO: Office of Minerals Exploration

February 9, 1971

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Ranchers Exploration and
Development Corporation
Attention: Mr. Chris A. Corondoni
Assistant Vice President
P. O. Box 6217
1776 Montano Road, N. W.
Albuquerque, New Mexico 87107

OFFICIAL COPY
O. M. E.
RECEIVED
FEB 22 1971
INITIALS CODE
1130
HR

Dear Mr. Corondoni:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

This refers to our request for information (MME Form 63) dated November 19, 1970, which was not completed and returned.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

copy to Region IV

Form MME 63
(May 1970)

REQUEST FOR INFORMATION ON CERTIFIED PROJECT OR PROJECT UNDER ROYALTY AGREEMENT

1. Since December 24, 1969, has there been a change in ownership, lease, or sublease? *If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before.* Yes ☐ No ☒

2. Since December 24, 1969, has there been any production from the land subject to the contract? Yes ☐ No ☒

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

Purchaser *(name and address)*	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity *(tons)*	Estimated Grade	Location
Ore			
Concentrates			
Other			

3. Since December 24, 1969, has any production been transported through workings *(see of contract)*? Yes ☐ No ☒

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name Leland O. Erdahl Leland O. Erdahl	*Title* Vice President - Finance
Address P. O. Box 6217 Albuquerque, New Mexico	*Date* February 18, 1971

Ranchers Exploration and Development Corporation

P.O. Box 6217
1776 Montano Road, N.W.

Telephone (505) 345-3311
Albuquerque, New Mexico 87107

December 24, 1969

File
DMEA-4216

Mr. Harold Kirkemo
Chief, Office of Minerals Exploration
Department of the Interior
Geological Survey
Washington 25, D. C.

Dear Mr. Kirkemo:

This is to acknowledge receipt of a copy of your letter of December 18 addressed to J. F. Wilmott of Howmet Corporation and to inform you that Ranchers is aware of the DMEA contract royalty requirement extending until November 2, 1971.

Should any royalties accrue under said DMEA contract, we will forward them pursuant to your instructions.

Very truly yours,

Chris A. Corondoni
Assistant Vice President

CAC:bbh

cc: J. F. Wilmott

☐ ...re delivered ☐ to addressee

(Additional charges required for these services)

RECEIPT

Received the numbered article described below.

REGISTERED NO.

CERTIFIED NO.
133869

INSURED NO.

DATE DELIVERED
3/12/77

(1) SIGNATURE OR NAME OF ADDRESSEE (*Must always be filled in*)
Ranchers Ex & Dev.

(2) SIGNATURE OF ADDRESSEE'S AGENT, IF ANY
Lucy Ross

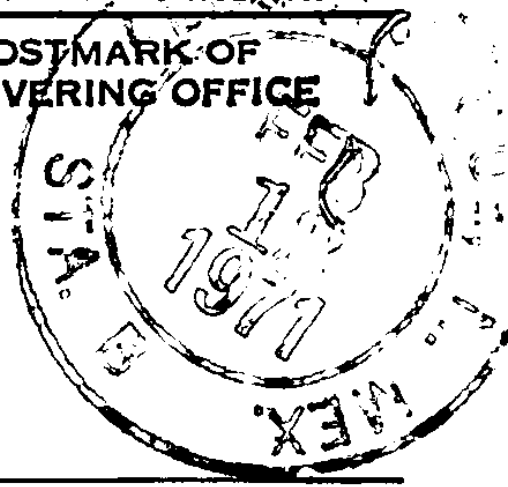
(3) SHOW WHERE DELIVERED (*only if requested*)

POST OFFICE DEPARTMENT
OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE TO AVOID PAYMENT OF POSTAGE, $300

POD Form 3811 Apr. 1967 c55—16—71548-10

POSTMARK OF DELIVERING OFFICE



INSTRUCTIONS: Show name and address below and complete instructions on other side, where applicable. Moisten gummed ends, attach and hold firmly to back of article. Print on front of article *RETURN RECEIPT REQUESTED.*

RETURN TO

NAME OF SENDER U. S. Geological Survey
Office of Minerals Exploration

STREET AND NO. OR P.O. BOX
Department of Interior Building

POST OFFICE, STATE, AND ZIP CODE
Washington, D. C. 20242

4216-Tungsten Mining, Corondoni

Ranchers Exploration and Development Corporation
P.O. Box 6217 • 1776 Montano Road, N.W.
Albuquerque, New Mexico 87107

ALBUQUERQUE, NEW MEX. DEC 29 1969 -PM

ALWAYS USE ZIP CODE

Mr. Harold Kirkemo
Chief, Office of Minerals Exploration
Department of the Interior
Geological Survey
Washington 25, D. C.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON, D. C. 20242

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF THE INTERIOR

RETURNED TO SENDER

☐ Moved, left no address
☒ No such number
☑ Moved, not forwardable
☐ Addressee unknown

A 12

Haile Mines, Inc.
500 Fifth Avenue
New York, New York 10036
Attention Mr. W. Lunsford Long

(001)

Kurkino 4460 - Int'l

120
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130

45

NEW YORK, N.Y.
DEC 30
PM
1969

SAVE
MURRAY HILL
WASTE

NEW YORK, N.Y.
DEC 20
AM
69

TIMES SQUARE
STATION

IN REPLY REFER TO:

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

Mr. J. F. Wilmott
Vice President and Treasurer
Howmet Corporation
277 Park Avenue
New York, New York 10017

DEC 18 1969

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Dear Mr. Wilmott:

This refers to the Agreement, dated August 20, 1968, by and between Ranchers Exploration and Development Corporation and Howmet Corporation, which was sent to us on October 2, 1969, by Mr. Edward J. Hale, Assistant Secretary of your company.

Although not stated specifically in the Agreement as required by Article 2(b) of the subject DMEA contract, we would consider that Sections 4(a) and (b) and 5 of the Agreement preserve the Government's rights to royalties on all minerals mined or produced from the property or on any production regardless of origin that is transported or passed through any workings to the cost of which the Government contributed. Tungsten Mining Corporation, Operator under the DMEA contract, its successor, Howmet Corporation, or its guarantor, Haile Mines, Inc., remain liable for payment of royalty if producers or as surety if not the producers on production from land subject to the contract under provisions of Article 6, Annex I, and the Guaranty of Royalty.

Royalties shall be paid to the Government on all production as set forth above until November 2, 1971, or until the balance of $175,619.13 remaining on the contract is fully repaid, whichever occurs first.

Royalty payments should be made in favor of the U. S. Geological Survey and mailed or delivered to Mr. Robert A. Laurence, U. S. Geological Survey, Room 11, Post Office Building, Knoxville, Tennessee 37902.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation

Copies to:

Ranchers Exploration and Development Corporation
1776 Montano Road, N. W.
Albuquerque, New Mexico 87107
Attention: Mr. Maxie L. Anderson, President

Haile Mines, Inc.
500 Fifth Avenue
New York, New York 10036
Attention: Mr. W. Lunsford Long

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
12/11/69	Kirkemo	120
		220
	Lory	140
	App'd. Sol. Off.	
		120
		220

Mr. J. F. Wilmott
Vice President and Treasurer
Howmet Corporation
277 Park Avenue
New York, New York 10017

DEC 18 1969

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Dear Mr. Wilmott:

This refers to the Agreement, dated August 20, 1968, by and between Ranchers Exploration and Development Corporation and Howmet Corporation, which was sent to us on October 2, 1969, by Mr. Edward J. Hale, Assistant Secretary of your company.

Although not stated specifically in the Agreement as required by Article 2(b) of the subject DMEA contract, we would consider that Sections 4(a) and (b) and 5 of the Agreement preserve the Government's rights to royalties on all minerals mined or produced from the property or on any production regardless of origin that is transported or passed through any workings to the cost of which the Government contributed. Tungsten Mining Corporation, Operator under the DMEA contract, its successor, Howmet Corporation, or its guarantor, Haile Mines, Inc., remain liable for payment of royalty if producers or as surety if not the producers on production from land subject to the contract under provisions of Article 6, Annex I, and the Guaranty of Royalty.

Royalties shall be paid to the Government on all production as set forth above until November 2, 1971, or until the balance of $175,619.13 remaining on the contract is fully repaid, whichever occurs first.

Royalty payments should be made in favor of the U. S. Geological Survey and mailed or delivered to Mr. Robert A. Laurence, U. S. Geological Survey, Room 11, Post Office Building, Knoxville, Tennessee 37902.

Sincerely yours,

Harold Kirkemo (glx)

Harold Kirkemo
Chief, Office of
Minerals Exploration

RECEIVED
DEC 22 1969
Division of Mineral Resources
Mineral Resources

cc: Director's Reading File
Mineral Resources
OME docket
OME Reading File
Robert A. Laurence,
Knoxville, Tenn.
Mr. Kirkemo
130

Copies to additional parties on annexed sheet (shown on original and all copies)

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation

Copies to:

Ranchers Exploration and Development Corporation
1776 Montano Road, N. W.
Albuquerque, New Mexico 87107
Attention: Mr. Maxie L. Anderson, President

Haile Mines, Inc.
500 Fifth Avenue
New York, New York 10036
Attention: Mr. W. Lunsford Long

Cable - Howmetcorp - New York

HOWMET

HOWMET CORPORATION

277 PARK AVENUE • NEW YORK, NEW YORK 10017 • (212) 826-6280

OFFICIAL COPY
O. M. E.
RECEIVED
OCT 10 1969
INITIALS | CODE
gla | 130
| 120
| 220

October 2, 1969

W. L. Emerick
Office of Minerals Exploration
United States Department of the Interior
Washington, D. C. 20242

Re: DMEA - 4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mines
Vance County, North Carolina
Contract Idm-E1032

Dear Mr. Emerick:

In reply to your letter dated September 16, 1969, the Hamme Mine was sold by Howmet Corporation to Ranchers Exploration and Development Corporation, P. O. Box 6217, Albuquerque, New Mexico.

I enclose a copy of the contract (see left-hand side) which you requested.

Very truly yours,

HOWMET CORPORATION

Edward J. Hale

Edward J. Hale
Assistant Secretary

EJH:jcb
Encl.

November 5, 1969:
Thermofax copy this letter and Agreement, dated August 20, 1968, to R. A. Laurence, Knoxville, Tenn. for files

OCT 7 1969

Mr. Marvin L. Anderson, President
Ranchers Exploration & Development Corp.
1775 Montano Road, N. W.
Albuquerque, New Mexico 87107

Dear Mr. Anderson:

The Geological Survey is contemplating a new study of the Hamme tungsten district near Henderson, North Carolina, if satisfactory arrangements can be completed. Part of the proposed work will involve geologic mapping, geochemical sampling, and airborne geophysical surveys of the granodiorite body with which the known deposit seems to be associated. However, no study of the district can be complete without detailed knowledge of the ore occurrence and geologic relationships at the old Hamme tungsten mine, now being redeveloped by Ranchers Corporation.

We are writing to ask if Ranchers would be interested in cooperating in this study to the extent of permitting the geologist we assign to the project to map geology and collect samples in the mine and to examine drill core, existing maps, sections, and analytical data. Access to the mine and to previously collected information would be essential to successfully carrying out this proposed project. Similar arrangements in the past with other companies have been advantageous to both the company and the Geological Survey, and we hope that you can give favorable consideration to this proposal.

The results of Geological Survey work are normally intended for publication. However, during the study of a mine or mining district our geologists hold company data in confidence, and we do not publish any data received from a mining company without its express permission. Company data that we might like to use in a report and the parts of any proposed text based on such information are submitted to the company in advance for written clearance to publish.

We look forward to hearing from you, and will be happy to discuss any questions you may have.

Sincerely yours,

Harold L. James

Harold L. James
Chief Geologist

cc:
DRF
Division
J. Gair
F. Lesure
MR Rdg
MR Files
Peterson Chron
[illegible] 10/7/69

OFFICIAL FILE COPY

Date	Surname	Code
9/16/69	Emerick	120
		220

SEP 16 1969

Mr. J. F. Wilmott
Vice President and Treasurer
Howmet Corporation
277 Park Avenue
New York, New York 10017

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Dear Mr. Wilmott:

Thank you for completing and returning the MME Form 63 on September 12, 1969, in reference to the subject property.

It is noted that the first question was checked by an "X" in the "Yes" box, and the second question under Item 1. was answered by the word "Yes." A Thermofax copy of the page is enclosed. Would you please clarify for us whether there has been a change in the ownership, lease, or sublease of the property. If so, we should be provided with two copies of the document covering the transaction.

Sincerely yours,

William L. Emerick (gla)

W. L. Emerick
For: Harold Kirkemo
Chief, Office of
Minerals Exploration

Enclosure

cc: Director's Reading File
Mineral Resources
OME docket
OME Reading File
Robert A. Laurence, Knoxville, Tenn. w/cy MME Form 63 9/12/69
Mr. Kirkemo
130

Ault/a 9-16-69

IN REPLY REFER TO:
Office of Minerals Exploration

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

SEP 10 1969

Mr. Robert Hockfield
Secretary
Howmet Corporation
277 Park Avenue
New York, New York 10017

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

OFFICIAL COPY
O. M. E.
RECEIVED
SEP 15 1969

INITIALS	CODE
	130
WE	120

Dear Mr. Hockfield:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Harold Kirkemo

Harold Kirkemo
Chief, Office of
Minerals Exploration

Copy to P-IV

MME Form 63
Revised 7-65

REQUEST FOR INFORMATION ON CERTIFIED PROJECT AND PROJECT UNDER ROYALTY AGREEMENT

1. Since December 6, 1967, has there been a change in ownership, lease, or sublease? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before. Yes [X] No [ ]

   Are the 99-year Lease Agreements between Tungsten Mining Corporation and Carl U. Samford, et al., and Jasper B. Hicks, respectively, still in full force and effect? If not, please give details.

   Yes

2. ~~Since ..., has there been any production from ... subject to the contract?~~ Is the mine still closed? Yes [X] No [ ]

   A. If so and it was shipped, give quantity, value, and name and address of purchaser.

	Quantity	Value

   B. If stockpiled awaiting sale, state quantity, grade, and location.

NONE

Type	Quantity		Estimated Grade	Location
Ore		Tons		
Concentrates		Tons		
Other		Tons		

3. Since ..., has any production been transported through workings (see ... of contract)? Yes [ ] No [X]

   If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name J F Ulshafer Title Vice President & Treasurer

Address Howmet Corporation
277 Park Avenue
New York, N.Y. 10017

Date September 12, 1969

DRAFT 9/15/69
GLAult

HK

Mr. J. F. Wilmott
Vice President & Treasurer
Howmet Corporation
277 Park Avenue
New York, New York 10017

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Dear Mr. Wilmott:

Thank you for completing and returning the MME Form 63 on September 12, 1969, in reference to the subject property. It is noted that the first question was check/ed by an X in the "Yes" box, ~~Axxxxxxx~~ and the second question under Item 1. was answered by the word "Yes." A Thermofax copy of the page is enclosed. Would you please clarify for us whether there has been a change in the ownership, lease, or sublease of the property. If so, we should be provided with two copies of the document covering the transaction.

Sincerely yours,

W. K. Emerick
For: Harold Kirkemo
Chief, Office of
Minerals Exploration

Enclosure

Usual dist.

cc: R. A. Laurence w/copy MME Form 63 dated 9/12/69

MME Form 7
(2/63)

OFFICIAL FILE COPY

Date	Surname	Code
9/10/69		120
		220

SEP 10 1969

Mr. Robert Hockfield
Secretary
Howmet Corporation
277 Park Avenue
New York, New York 10017

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Dear Mr. Hockfield:

Reference is made to MME Form 63 (in triplicate) forwarded to Mr. J. F. Wilmott on November 2, 1968, January 6, 1969, and April 21, 1969, for information concerning the status of the subject property. The last two requests, forwarded by Certified Mail, Receipts Nos. 133243 and 133736, were signed by Miss Marie Barulich for Mr. Wilmott, but the information requested has not been received. The date of the last information submitted was December 6, 1967.

A duplicate set of MME Form 63 is enclosed. It will be appreciated if you will complete the forms, retain one copy for your records, and return the original and one copy to this office.

Sincerely yours,

Harold Kirkemo (gla)

Harold Kirkemo
Chief, Office of
Minerals Exploration

Enclosures

cc: Director's Reading File
Mineral Resources
OME docket
OME ReadingFile
Mr. Robert A. Laurence, Knoxville, Tenn.
Mr. Kirkemo
130

GLAult/a 9-10-69

INSTRUCTIONS TO DELIVERING EMPLOYEE

☐ Show to whom, date, and address where delivered ☐ Deliver ONLY to addressee

(*Additional charges required for these services*)

RECEIPT

Received the numbered article described below.

REGISTERED NO.

CERTIFIED NO. 133736

INSURED NO.

1 SIGNATURE OR NAME OF ADDRESSEE (*Must always be filled in*)

Marie Burulich for

2 SIGNATURE OF ADDRESSEE'S AGENT, IF ANY

J. F. Wilmott

DATE DELIVERED 4/23/69

3 SHOW WHERE DELIVERED (*only if requested*)

POST OFFICE DEPARTMENT
OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE TO AVOID PAYMENT OF POSTAGE, $300

POSTMARK OF DELIVERING OFFICE

INSTRUCTIONS: Show name and address below and complete instructions on other side, where applicable. Moisten gummed ends, attach and hold firmly to back of article. Print on front of article *RETURN RECEIPT REQUESTED.*

RETURN TO

NAME OF SENDER U. S. Geological Survey
Office of Minerals Exploration

STREET AND NO. OR P.O. BOX
Department of the Interior Building

POST OFFICE, STATE, AND ZIP CODE
Washington, D. C. 20242

4216-Wilmott

POD Form 3811 Apr. 1967 c55—16—71548-10

DMEA-4216 Contract Idm-E1032 Tungsten Mining Corporation

Third request

follow-up sent 4/21/69
not delivered

INSTRUCTIONS TO DELIVERING EMPLOYEE

☐ Show to whom, date, and address where delivered ☐ Deliver ONLY to addressee

(Additional charges required for these services)

RECEIPT

Received the numbered article described below.

REGISTERED NO.

CERTIFIED NO. 133243

INSURED NO.

DATE DELIVERED 1/8/69

(1) SIGNATURE OR NAME OF ADDRESSEE (*Must always be filled in*)

J. F. WILMOTT

(2) SIGNATURE OF ADDRESSEE'S AGENT, IF ANY

Marie Barulich

(3) SHOW WHERE DELIVERED (*only if requested*)

548-10 GPO

No answer to 63 sent 11/2/68 ?

follow up 63 sent 1/6/69

Not returned

GGK Surns. a copy

2/6/68 110

220

Mr. Chris A. Corondoni
Legal Department
Ranchers Exploration and
Development Corporation
4204 Coal Avenue, S. E.
Albuquerque, New Mexico 87108

FEB 6 1968

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Yancey County, North Carolina
Contract Idm-E1032

Dear Mr. Corondoni:

Thank you for your letter of January 12, 1968, and enclosed check in the amount of $20.00 to cover the cost of reproduction and mailing the Operator's Final Report on the subject project.

Accordingly, we are enclosing a copy of the Operator's Final Report, including maps and drill hole logs.

In answer to your inquiry regarding certification of this project, a certification of discovery or development was issued on December 19, 1958. The Government retains a lien in the amount of $175,619.14 on the property under the contract and any production therefrom until November 2, 1971, payable by a royalty on production from the property or on any production regardless of origin that is transported or passed through workings to the cost of which the Government has contributed.

Sincerely yours,

FRANK E. JOHNSON

Frank E. Johnson
Chief, Office of
Minerals Exploration

Enclosures

Copy to: Howmet Corporation
277 Park Avenue
New York, New York 10017

cc: Director's Reading File
Division File
Economic Geology File
OME docket
OME Reading File
OME Region IV w/cy letrs. 1/10 and 1/12/68

FEJohnson/gla 2-6-68

130

Ranchers Exploration and Development Corporation

4204 Coal Avenue, S.E.
Albuquerque, New Mexico 87108

OFFICIAL COPY
O. M. E.
RECEIVED
JAN 19 1968

INITIALS	CODE
	110
	220

January 12, 1968

Mr. Frank E. Johnson
Chief, Office of Minerals Exploration
United States Department of the Interior
Geological Survey
Washington, D.C. 20242

Dear Mr. Johnson:

I am enclosing written authorization from Howmet Corporation giving us permission to receive all the information you have in your files regarding their contract: DMEA-4216 (Tungsten) Tungsten Mining Corporation, Hamme Mine, Vance County, N.C., Contract Idm - E1032. Enclosed also is a check for $20.00 to cover the cost of reproduction and mailing.

May I ask again if the United States government certified any of the projects pursuant to Article 6 of the above contract?

If I find it necessary to come to Washington after I review the data, I will notify your office in advance.

Thank you.

Sincerely,

Chris A. Corondoni

Chris A. Corondoni
Legal Department

CAC:cb
Enclosure

Cable - Howmetcorp - New York

HOWMET

HOWMET CORPORATION

277 PARK AVENUE • NEW YORK, NEW YORK 10017 • (212) 826-6280

OFFICIAL COPY
O. M. E.
RECEIVED
JAN 12 1968
INITIALS | CODE
| 130
| ~~130~~ ~~140~~
~~FEJ~~ | 140
| |
| |

January 10, 1968

Mr. Frank E. Johnson, Chief
Office of Minerals Exploration
United States Dept. of the Interior
Geological Survey
Washington 25, D. C.

RE: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, N. C.
Contract Idm-E1032

Dear Mr. Johnson:

With reference to your letter of January 3, 1968 to Mr. Chris A. Corondoni of Ranchers Exploration & Development Corporation, this is to authorize you to supply the information requested.

If anything further is needed, please let us know.

Very truly yours,

HOWMET CORPORATION

Robert Hockfield

Robert Hockfield, Secretary

RH/mb

cc: Mr. Chris A. Corondoni

RANCHERS EXPLORATION
& DEVELOPMENT CORP.
ALBUQUERQUE, N. M.

DETACH AND RETAIN THIS STATEMENT
THE ATTACHED CHECK IS IN PAYMENT OF ITEMS DESCRIBED BELOW.
IF NOT CORRECT PLEASE NOTIFY US PROMPTLY. NO RECEIPT DESIRED.

DMEA Contract # 4216 Tungsten (Copy)	a/c 165-30	20.00

OFFICE OF MINERALS EXPLORATION
U.S. GEOLOGICAL SURVEY

OFFICIAL COPY
O. M. E.
RECEIVED
JAN 19 1968
Office of Minerals Exploration

INITIALS	CODE
gla	120
	~~120 PM~~
	110
	220

TO: Budget and Finance

FROM: Office of Minerals Exploration

- ABSTRACT OF REMITTANCES -

Date	Amount	Bank, City and State	Name of Remitter	Docket & Contract Numbers	Purpose
1-16-68	$20.00	Albuquerque Natl' Bank.	Ranchers Exploration & Development Corp.	DMEA 4216 E-1032	Duplicating

REMARKS: (List smelter or mill lot numbers covered by royalties)

1/19/68
Date Prepared

C. Curtis
Person Preparing Abstract

Date Received

Person Receiving Remittance

SURNAME

OME FILES

JAN 3 1968

Mr. Chris A. Corondoni
Ranchers Exploration and
Development Corporation
4204 Coal Avenue, S.E.
Albuquerque, New Mexico 87108

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, N. C.
Contract Idm-E1032

Dear Mr. Corondoni:

This is in reply to your letter of December 22, 1967, concerning information obtained under the subject contract and requesting an appointment for the purpose of reviewing our records on the contract.

The only information on this contract that could be made available to you is that supplied to us by the Operator. This information is compiled in the Operator's Final Report, including maps and drill hole logs. We can furnish copies of this material upon written authorization from the Howmet Corporation. A charge of $20.00 will be made to cover the cost of reproduction and mailing. Check or U. S. Money Order should be made payable to the U. S. Geological Survey.

If you feel that it is desirable for you to come to Washington to review the available data, you may do so any week-day from 9 AM to 4 PM, upon receipt of written authorization from the Howmet Corporation. It would be helpful if you notified us in advance of the time and date you expect to be here.

Sincerely yours,

FRANK E. JOHNSON (gla)

Frank E. Johnson
Chief, Office of
Minerals Exploration

cc: Director's reading file
Division file
Economic Geology file
OME file
OME reading file
OME Region IV w/cy inc.ltr.

FEJohnson/bih 1/2/68

Copy to: Howmet Corporation
277 Park Avenue
New York, N. Y. 10017

Ranchers Exploration and Development Corporation

4204 Coal Avenue, S.E.
Albuquerque, New Mexico 87108

OFFICIAL COPY
O. M. E.
RECEIVED
DEC 26 1967
INITIALS | CODE
gla | 130
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110
220

December 22, 1967

Mr. Frank Johnson
Chief, Office of Mineral Exploration
U. S. Department of Interior
Geological Survey
Washington, D.C. 20242

Dear Mr. Johnson:

Our company is negotiating with Howmet Corporation regarding the Hamme Tungsten Mine in Vance County, North Carolina. We are presently evaluating the economics of re-opening this mine.

I have checked the records of Howmet Corporation in New York to gather all this information they have concerning the mine. However, their records are deficient in some respects with regard to the Defense Minerals Exploration Administration Project Contract entered into on November 2, 1956, between the United States government and Tungsten Mining Corporation (Howmet's predecessor in interest). The DMEA number is 4216 and the contract number is Idm - E 1032.

I have been working with Mr. Joe Wilmot, Vice President of Howmet Corporation, on this matter and he has given me authority to receive whatever information the government may have regarding the exploration activities carried on pursuant to the DMEA contract. We would like to have someone from our office go to Washington, D.C. to examine whatever information you may have. We are particularly interested in obtaining whatever drill logs and other information that resulted from the DMEA exploration. We also need to know if the United States government certified any of the projects pursuant to Article 6 of the contract.

Mr. Wilmot informed me that if you need any type of written release authorizing us to go through the government records he would furnish such release upon your request. Please let me know when it would be convenient for me to arrange to be in Washington to go through the records.

Thank you.

Very truly yours,

Chris A. Corondoni

Chris A. Corondoni
Legal Department

CAC:cb

IN REPLY REFER TO:
Office of Minerals Exploration

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

NOV 28 1967

Mr. J. F. Wilmott
Treasurer
Howmet Corporation
277 Park Avenue
New York, New York 10017

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

COPY
O. M. E.
RECEIVED
DEC 18 1967

INITIALS	CODE
	130
	~~120~~
JEJ	110

Dear Mr. Wilmott:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Frank E. Johnson

Frank E. Johnson
Chief, Office of
Minerals Exploration

cy to Robert A Laurence
Knoxville, Tenn.

MME Form 63
Revised 7-65

REQUEST FOR INFORMATION ON CERTIFIED PROJECT AND PROJECT UNDER ROYALTY AGREEMENT

1. Since December 1966, has there been a change in ownership, lease, or sublease? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before. Yes [ ] No [X]

   Are the 99-year Lease Agreements between Tungsten Mining Corporation and Carl U. Samford, et al., and Jasper B. Hicks, respectively, still in full force and effect? If not, please give details. Yes [X] No [ ]

2. ~~Since xxxxxxxxxxxxxxxxxxxxxxxx, has there been any production from the land subject to the contract?~~ Is the mine still closed? Yes [X] No [ ]

   A. If so and it was shipped, give quantity, value, and name and address of purchaser.

	Quantity	Value

   B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity		Estimated Grade	Location
Ore		Tons		
Concentrates		Tons		
Other		Tons		

3. Since , has any production been transported through workings (see of contract)? Yes [ ] No [X]

   If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name J Z Wilmott Title Vice President

Address Hommet Corp Date 12/6/67
277 Park Ave
New York NY 10017

IN REPLY REFER TO:
Office of Minerals Exploration

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

December 12, 1966

Mr. J. F. Wilmott
Treasurer
Howmet Corporation
277 Park Avenue
New York, N. Y. 10017

OFFICIAL COPY
O. M. E.
RECEIVED
DEC 19 1966

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Dear Mr. Wilmott:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Frank E. Johnson
Chief, Office of
Minerals Exploration

copy to R-IV
12/21/66

MME Form 63
Revised 7-65

REQUEST FOR INFORMATION ON CERTIFIED PROJECT AND PROJECT UNDER ROYALTY AGREEMENT

1. Since **February 1966**, has there been a change in ownership, lease, or sublease? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before. Yes [ ] No [X]
Are the 99-year Lease Agreements between Tungsten Mining Corporation and Carl U. Samford, et al., and Jasper B. Hicks, respectively, still in full force and effect? If not, please give details. Yes /X/ No/ /

2. ~~Since _____, has there been any production from the land subject to the contract?~~ Yes [ ] No [ ]
Is the mine still closed? Yes /X/ No/ /

A. If so and it was shipped, give quantity, value, and name and address of purchaser.

	Quantity	Value
_____		
_____	_____	_____

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity		Estimated Grade	Location
Ore	_____	Tons	_____	_____
Concentrates	_____	Tons	_____	_____
Other	_____	Tons	_____	_____

3. Since _____, has any production been transported through _____ workings (see _____ of contract)? Yes [ ] No [ ]

If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value
_____	_____	_____

Submitted by:

Name J. Z. Wilmott Title Treasurer

Address _____ Date 12/15/66

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON, D.C. 20242

February 17, 1966

Howe Sound Company
500 Fifth Avenue
New York, New York 10036

OFFICIAL COPY
O. M. E.
RECEIVED
FEB 24 1966
INITIALS | CODE
FEJ | 110
| 120
| 220

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

Frank E. Johnson

Frank E. Johnson
Chief, Office of
Minerals Exploration

MME Form 63
Revised 7-65

DMEA-4216
Idm-E1032

REQUEST FOR INFORMATION ON CERTIFIED PROJECT AND PROJECT UNDER ROYALTY AGREEMENT

1. Since April 1964, has there been a change in ownership, lease, or sublease? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before. Yes [ ] No [X]

   Are the 99-year Lease Agreements between Tungsten Mining Corporation and Carl U. Samford, et al., and Jasper B. Hicks, respectively still in full force and effect? If not, please give details. Yes /X/ No /__/

2. ~~Since , has there been any production from the land subject to the contract?~~ Yes [ ] No [ ]

   Is the mine still closed? Yes /X/ No /__/

   A. If so and it was shipped, give quantity, value, and name and address of purchaser.

	Quantity	Value

   B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity		Estimated Grade	Location
Ore		Tons		
Concentrates		Tons		
Other		Tons		

3. Since , has any production been transported through workings (see of contract)? Yes [ ] No [ ]

   If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name J. F. Wilmott Title Treasurer

Address Howmet Corporation
277 Park Avenue
New York, N. Y. 10017

Date Feb. 23, 1966

Area Code 212
PEnnsylvania 6-5577

HOWE SOUND

HOWE SOUND COMPANY
500 FIFTH AVENUE · NEW YORK 36, NEW YORK

April 22, 1964

OFFICIAL FILE COPY
O. M. E.
RECEIVE APR 23 1964

DATE	INITIALS	CODE
4/23	[illegible]	800
		~~120~~
4-23	[illegible]	100
4/23	[illegible]	~~110~~
	Griswold	500
		220

Mr. W. R. Griswold, Chief
Division of Minerals
United States Department of the Interior
Office of Minerals Exploration
Washington 25, D. C.

RE: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Dear Mr. Griswold:

We return herewith Form 63, in duplicate.

We are unable to complete questions 2 and 3 for the following reasons. Tungsten Mining Corporation completely shut down its mine during February 1963, has no remaining personnel except for a caretaker and its records placed in storage at the property. The only records at this office are the Corporation's current accounting books. These records indicate that from January to May of 1963 payments were made to your department. We assume they relate to the above contract and represent all royalties due.

Inasmuch as the operating plant and equipment has been disposed of and in view of the present and future economics of mining tungsten ore, it appears very unlikely that the mine will ever be re-opened.

Should you require further information, will be pleased to hear from you.

Very truly yours,

HOWE SOUND COMPANY

S. Geisen

S. Geisen
Assistant Treasurer

SG:TL
Encs.

MME Form 63
Revised 3-62

REQUEST FOR INFORMATION ON CERTIFIED PROJECT AND PROJECT UNDER ROYALTY AGREEMENT

1. Since November 1961, has there been a change in ownership, lease, or sublease? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before. Yes ☐ No ☒

2. Since November 1961, has there been any production from the land subject to the contract? Yes ☐ No ☐

   A. If so and it was shipped, give quantity, value, and name and address of purchaser.

	Quantity	Value

   B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity		Estimated Grade	Location
Ore		Tons		
Concentrates		Tons		
Other		Tons		

3. Since November 1961, has any production been transported through workings (see of contract)? Yes ☐ No ☐

   A. If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name S. Geisen Title Assistant Treasurer

Address Howe Sound Company
500 Fifth Avenue
New York, N. Y. 10036

Date 4-22-64

4511

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

April 14, 1964

Tungsten Mining Corporation
Star Route 36130
Henderson, North Carolina

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolin
Contract Idm-E1032

Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

W. R. Griswold, Chief
Division of Minerals

APR 20 196

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
5/22	GCS	120
		220

MAY 22 1963

Tungsten Mining Corporation
Division of Howe Sound Company
Star Route 36130
Henderson, North Carolina

Re: IMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Gentlemen:

Enclosed for your information and files are one copy each of a Royalty Audit Certificate and Royalty Audit Report, both dated May 17, 1963, prepared by our Division of Contract Administration and Audit.

We sincerely appreciate the courtesies shown Mr. C. E. Fisher during his visit to Henderson.

Sincerely yours,

George C. Selfridge

George C. Selfridge, Chief
Division of Field Operations

Enclosures

GCSelfridge/gla (5-22-63)

Copy to: Docket
Director's Reading File
CA&A Division
G. C. Selfridge
R. A. Laurence, USGS, Reg. IV
Avery Reed, USBM, Reg. IV

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
5/21	Fisher	800
		220

MAY 21 1963

Memorandum

To: Chief, Division of Field Operations

From: E. D. Talbert, Chief (Signed) E. D. Talbert
Contract Administration and Audit Division

Subject: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Enclosed are the original and three copies of a Royalty Audit Certificate and Royalty Audit Report covering the subject Region IV contract. If you concur in the facts stated therein, please make the following distribution:

(a) Original to the Fiscal Section, Division of Administrative Services, Office of the Secretary;
(b) One copy to the Operator; and
(c) Two copies to Region IV files.

As evidence of your concurrence, a copy of your letter transmitting the Operator's copy should be furnished this Division. If for any reason you do not concur, the original and all copies should be returned to this Division with your comments.

Enclosures

CEFisher/ama 5-21-63

cc:
Docket
Director's Reading File
CA & A Division
Fiscal Section

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
5/22	GCS	120
		220

MAY 22 1963

Memorandum

To: Chief, Fiscal Section, Division of Administrative Services, Office of the Secretary

From: Chief, Division of Field Operations, OME

Subject: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Enclosed for your files are the originals of a Royalty Audit Certificate and Royalty Audit Report, both dated May 17, 1963, on the subject contract.

George C. Selfridge (gla)

Enclosures

GCSelfridge/gla (5-22-63)
Copy to: Docket
Director's Reading File
CA&A Division
G. C. Selfridge
R. A. Laurence, USGS, Reg. IV, w/cy of Royalty Audit Certificate and Royalty Audit Report dtd 5/17/63, orig. cy of memo dtd. 5/21/63 to Chief, Div. of Field Operations from CA&A Div., and cy letr. to Operator.
Avery Reed, USBM, Reg. IV, w/cy of ea. item sent to Mr. Laurence.

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
		220

May 6, 1963

Memorandum

To: The Files

From: E. D. Talbert, Chief
Contract Administration and Audit Division

Subject: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Mr. W. L. Kendrick telephoned this date in response to the Director's May 3 letter regarding an audit of the Operator's production and sales records. He advised that only the records pertaining to 1961 and later operations are available in his office and that all prior records are in the New York offices.

He suggested that the auditor take the Sunday afternoon train from Washington and call him at his residence on arrival (Telephone: GE 8-3349). He will then pick up the auditor on Monday morning, May 13, and provide transportation to the offices, which presently are occupied by only himself and his secretary. He also suggested the Lake Drive Motel for over-night accomodations, as the local hotel left much to be desired.

EDTalbert/ama 5-6-63

cc:
Director's Reading File
CA & A Division
Mr. Fisher

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
5/2	Talbert	800
	Selfridge	120
"	Johnson	110
"	Fumich	100
		220

MAY 3 1963

Tungsten Mining Corporation
Star Route 36130
Henderson, North Carolina

Attention: Mr. W. L. Kendrick
Vice President & General Manager

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hanme Mine
Vance County, North Carolina
Contract Idm-E1032

Gentlemen:

It is our policy to occasionally audit an Operator's records pertaining to production subject to royalty under a DMEA exploration project contract.

We contemplate having Clarence E. Fisher visit your office on May 13, 1963, for the purpose of confirming the status of the royalty account under the referenced contract. Your cooperation in making available to Mr. Fisher the pertinent production and sales records will be appreciated.

Your advice as to the exact location of your office and the availability of transportation from Henderson also will be appreciated.

Sincerely yours,

George Fumich, Jr.

Director

EDTalbert/ama 5-2-63

cc:
Docket
Director's Reading File
CA & A Division
Mr. Fisher
Region IV Files (2)

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
12/4	Talbert	800
"	On leave	500
		500
12/4	On leave	120
		110
12/4	on leave	100
		220

DEC 4 1962

Defense Materials Service
General Services Administration
Washington 25, D. C.

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idc-E1032

Gentlemen:

By letter dated November 16 we requested that payments to Tungsten Mining Corporation under the Lead and Zinc Stabilization Program be withheld until the facts in a possible indebtedness under the referenced contract were established.

The matter in question has now been settled by Tungsten Mining Corporation's payment of royalty on lead, silver, and copper production from the area of the Hamme Mine under the DMEA contract. The remittance included the Government's royalty on an allocated portion of your recent $11,708.58 lead subsidy payment. Accordingly, our request to withhold payments is hereby rescinded.

Thanks again for your cooperation.

Sincerely yours,

(signed) FRANK E. JOHNSON

ACTING Director

(pl)

EDTalbert/ama 12-4-62

cc:
Docket
Director's Reading File
CA & A Division
Region IV Files (2)
Mr. Clarence A. Fredell, Director
Technical Research and Development Staff
Defense Materials Service, GSA

43683

Area Code 919
GEneva 8-4139

HOWE SOUND

TUNGSTEN MINING CORPORATION

A SUBSIDIARY OF HOWE SOUND COMPANY
STAR ROUTE 36130 • HENDERSON, NORTH CAROLINA

OFFICIAL FILE COPY
O. M. E
RECEIVED NOV 29 1962

DATE	INITIALS	CODE
12/3		800
		~~120~~
		500
12-5		~~500~~
		720

November 28, 1962

U. S. Department of Interior
Office of Minerals Exploration
Washington 25, D. C.

Att: Mr. George Furmick

RE: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine, Vance County, N. C.
Contract Idm-E1032

Dear Sir,

Check for royalty on minerals other than tungsten has been mailed to Knoxville OME office today.

To clear the records as requested in your letter 26 November the following is stated and certified.

(1) From November 1956 thru May 1958 inclusive, no minerals other than tungsten concentrates were recovered from ores produced lands of subject contract nor transported thru workings to the cost of which the Government contributed.

(2) From June 1958 thru November 1961, inclusive, no ores were mined from contract area nor was any material transported thru workings to the cost of which the Government contributed.

With restarting of mine and mill in 1960 a separate unit was installed in the mill for recovery of lead, copper, silver concentrates and thus when production of ore from subject contract area was started in December 1961, and since, minerals other than tungsten have been recovered and marketed.

Very truly yours,

TUNGSTEN MINING CORPORATION

W. L. Kendrick

W. L. Kendrick
Vice President & General Manager

Copies sent to Reg. IV
Talbert 12/3/62

WLK:mak

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
11/26	Talbert	800
11-26	Holt	500
	Linwood	500
	Selfridge	120
11/26	Johnson	110
11/26	Fumich	100
		220

NOV 2 6 1962

Tungsten Mining Corporation
Star Route 36130
Henderson, North Carolina

Attention: Mr. W. L. Kendrick
Vice President & General Manager

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Gentlemen:

Receipt is acknowledged of your November 20 reply to my inquiry of November 16 in regard to royalty payable to the Government under the referenced contract. The courtesy of your prompt reply is appreciated.

Your method of distributing the smelter returns on lead, silver, and copper concentrates from the commingled mine production is accepted subject to future audit of your records by the Government. Your prompt submission of the calculated $67.73 royalty to the OME Field Office, Region IV, Room 11, Post Office Building, Knoxville 2, Tennessee, is solicited.

It appears from your November 20 letter and prior correspondence and reports in our files that:

(1) from November 1956 through May 1958, inclusive, no minerals other than tungsten concentrates were recovered from ores produced from the land under the contract or transported through the workings to the cost of which the Government contributed; and
(2) from June 1958 through November 1961, inclusive, no ores whatsoever were produced from the land under the contract or transported through workings to the cost of which the Government contributed.

In order to clarify our records, your specific confirmation of these two statements will be appreciated.

Sincerely yours,

George Fumich, Jr.

Director

EDTalbert/ama
11-26-62

cc: Docket
Director's Reading File
CA & A Division
Region IV Files (2) (w/cys of incoming ltr.)

43683

4216

Director, Regional Financial
Management - 3BC

November 23, 1962

Acting Technical Advisor (Engineering)
Economics and Research Staff

Lead-Zinc Mining Stabilization Program
Docket No. 32-1, Tungsten Mining Corporation
Hamme Mine, Vance County, North Carolina

Enclosed is a letter from the Department of the Interior, referring to a possible indebtedness of the Tungsten Mining Corporation for your information and necessary action under the lead and zinc mining stabilization program.

/s/
J. D. McPherson

Enclosure

DATE		
11/27		800
11/28	Def STPH	500
		220

cc:
Office of General Counsel - LP
Mr. Brooks - BCF
Mr. George Fumnich, U. S. Department of the Interior
Official Files

LJO'Neill:vah 11-23-62

Area Code 919
GEneva 8-4139

HOWE SOUND

TUNGSTEN MINING CORPORATION

A SUBSIDIARY OF HOWE SOUND COMPANY

STAR ROUTE 36130 · HENDERSON, NORTH CAROLINA

OFFICIAL FILE COPY
O. M. E
RECEIVED NOV 21 1962

DATE	INITIALS	CODE
		800
		~~120~~
		500

November 20, 1962

U. S. Department of Interior
Office of Minerals Exploration
Washington 25, D. C.

ATT: Mr. George Fumich, Jr.

RE: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine, Vance County, N. C.
Contract Idm-E1032

Dear Sir,

Thank you for reminding us of royalty due on lead and other minerals under the subject contract. This sale of other minerals is such a very small proportion of our operation. It was simply an oversight on our part.

The lead, silver, copper concentrate recovered is a by-product operation started when we resumed operation in 1960. The gravity tungsten concentrates are run thru a bulk sulfide float to remove the pyrite and other sulfides from the tungsten concentrates before sending them to magnetic concentration. This bulk float product is pumped to a selective floation section which is run 4 days a week single shift. About 11 to 12 tons of bulk sulfides are produced per day from the 950 to 1,000 tons fed to the plant. From this one to two tons of lead concentrate is produced per day which is accumulated and shipped to the smelter at El Paso, Texas.

The crude ore from the mine analysis less than 0.1% Pb and less than 0.05% Cu so no assays are run on the crude as it would be impractical.

Thus we have no records of the content of other minerals from any section of the mine in particular but have found that our lead product increases with the increase in tonnage from the lower levels. There are no records of the lead or copper content from the ore from the subject contract.

We have therefore prepared the attached statement as what we feel is the fairest distribution of values from the ore from the subject contract.

There was no sulfide float operation during the original work on this contract so have confined the report to ore mined in and since December 1961.

The tabulation shows the total tonnage of mine ore per month, the tons from the DMEA Contract section and the net smelter receipts for each month, including the $11,708.58 subsidy payment received in October.

As noted, the ore from the subject contract amounted to 1.219% of the total ore treated. Therefore, 1.219% of the total net smelter returns has been computed and 5% royalty computed on this figure to show $67.73 due DMEA on other minerals taken from the subject contract ores.

Frankly we cannot come up with any other method of calculating this royalty. Actually the heavy shipments in January and February result from accumulation of concentrates from the latter part of 1961 before any DMEA ore was treated but it would be impractical to try and compute the amount actually recovered.

We propose this calculation and will submit this in proper form with check to cover the $67.73 if this is satisfactory.

We will appreciate your comments on this matter.

Very truly yours,

TUNGSTEN MINING CORPORATION

W. L. Kendrick
Vice President & General Manager

WLK:mak

Enclosure

DMEA Contract Idm E1032

Calculation of Royalty on Lead Concentrates

Month	Total D.S.T.	DMEA D.S.T.	Net Smelter Returns from Lead, Silver, Copper Concentrates
December '61	26,374	348	Shipped in January 1962
January '62	28,278	337	$15,934.33
February	25,705	418	12,815.42
March	27,108	160	7,449.22
April	25,657	269	11,512.73
May	27,917	410	5,588.70
June	26,845	297	11,826.94
July	21,639	219	7,449.56
August	27,795	346	6,971.74
September	27,164	352	9,131.43
October	28,655	417	22,444.76 *
Total	293,137	3,573	$111,124.83

* Includes $11,708.58 GSA Lead Subsidy Payment for first nine months of 1962.

Calculation of Royalty

$$\frac{3573 \times 100}{293,137} = 1.219\% \text{ of Total Tons}$$

0.01219% X $111,124.83 = $1,354.61

Royalty @ 5.0% = $67.73

or

$$\frac{111,124.83 \times 3573}{293,137} = \$1,354.49$$

Royalty @ 5% = $67.72

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
11/16	Talbert	800
"	Holt	500
	Fumich	500
	Selfridge	120
11/16	Johnson	110
11/16	Tomy	100
		220

NOV 1 6 1962

Defense Materials Service
General Services Administration
Washington 25, D. C.

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Gentlemen:

Under the referenced exploration project contract a royalty is payable to the Government on all minerals produced from or transported through certain areas of the Hamme Mine. To date royalty has been paid on tungsten concentrates only.

Your quarterly report on the Lead and Zinc Stabilization Program under Public Law 87-347, however, indicates that the Operator has been certified for participation therein. Accordingly, we have requested the Operator for advice as to the production of minerals, other than tungsten, which may be subject to royalty under the exploration project contract.

In the meantime, in order to protect the Government's royalty interest, it is requested that payments to Tungsten Mining Corporation be withheld until the facts in this possible indebtedness are established.

Your cooperation in this matter will be appreciated.

Sincerely yours,

George Fumich, Jr. (glo)

Director

EDTalbert/ama 11-16-62

cc:
Docket
Director's Reading File
CA & A Division
Region IV Files (2)
Mr. Clarence A. Fredell, Director
Technical Research and Development Staff
Defense Materials Service, GSA

43683

ONeill
3062

Gentlemen:

Article 6(b) of the referenced contract, as amended by Article 10 thereof, provides that royalty shall be paid to the Government on all minerals produced from the land under the contract and also on all minerals, regardless of where produced, transported through any workings to which the Government contributed. Our records, however, indicate that since the date of the contract royalty has been paid only on the proceeds from sales of tungsten concentrates.

Inasmuch as you have applied to the Mineral Services Administration for participation in the Lead and Zinc Stabilization Program (Public Law 87-347), the question arises as to ~~[illegible]~~ your entitlement for royalty on part production of minerals other than tungsten concentrates.

Your advice in the matter will be appreciated,

(Do not type.)

OK

ONeill, of G.S.A., says application was for Hanna mine and that they have reported -

1st quarter	136,640 lbs. Pb	
Second "	104,312 "	"
Third "	77,218 "	"
Total To Sept. 30	318,170 "	"

800

DRAFT
SPHOLT/mm
11/14/62

120

110

100

Tungsten Mining Corporation
Star Route 36130
Henderson, North Carolina

500

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Gentlemen:

It is our understanding that you have applied to the Administrator, General Services Administration, for s~~tabilization payments on production of lead and zinc~~ participation under the Lead and Zinc Mining Stabilization Program (Public Law 87 ~~-3407~~ -349).

We wish to call your attention to the fact that under Article 6(b) of the subject contract royalty payments are due the Government on <u>all</u> minerals (not tungsten only) mined or produced from the land of the contract. See also Article 10, which provides for royalty payments on minerals transported through DMEA workings.

You also, of course, realize that payments received under the Lead and Zinc Mining Stabilization Program are subject to the royalty provisions of the said contract, as are also payments for lead and zinc sales which you may have received in the past.

Sincerely yours,

Director

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
11/15	Holt	500
	Driscoll	500
11/15	Talbert	800
	Selfridge	420
11/15	Johnson	110
	Forsch	100
		200

Tungsten Mining Corporation
Star Route 36130
Henderson, North Carolina

NOV 16 1962

Re: DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-E1032

Gentlemen:

Article 6(b) of the referenced contract, as amended by Article 10 thereof, provides that royalty shall be paid to the Government on all minerals produced from the land under the contract and also on all minerals, regardless of where produced, transported through any workings to which the Government contributed. Our records, however, indicate that since the date of the contract royalty has been paid only on the proceeds from sales of tungsten concentrates.

Inasmuch as you have applied to the General Services Administration for participation in the Lead and Zinc Stabilization Program (Public Law 87-347), the question arises as to your indebtedness for royalty on past production of minerals other than tungsten concentrates.

Your advice in the matter will be appreciated.

Sincerely yours,

Director

EDTalbert/mm
11-15-62
cc: Director's Reading File
Region IV (2)
CA&A Division
Docket
Code 500

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
6/26	Talbert	800
6/26	Holt	500
	Hymond	500
6/26	Selfridge	120
"	Johnson	110
	Fumich	100
		220

JUN 2 6 1962

Tungsten Mining Corporation
Star Route 36130
Henderson, North Carolina

Re: DMSA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-31032

Gentlemen:

Receipt is acknowledged of your June 22 letter, with which you enclosed two copies of the certified statement requested in my June 20 letter. Your promptness in this matter is appreciated.

In reply to your question, your monthly remittances and two copies of certified supporting statements should be sent to the OME Field Office, Region IV, Room 11, Post Office Building, Knoxville 2, Tennessee.

Sincerely yours,

George Fumich, Jr.

Director

EDTalbert/ama 6-26-62

cc:
Docket
Director's Reading File
CA & A Division
Region IV Files (2) (w/cys of incoming ltr. and attachment)

43683

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
6/20	Talbert	800
	Wilson	500
"	Hoff	500
6/20	Selbudge	120
"	Johnson	110
6/20	Fumich	100
		220

JUN 20 1962

Tungsten Mining Corporation
Star Route 36130
Henderson, North Carolina

Re: DMA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract Idm-41032

Gentlemen:

On May 3 our Region IV office received your check no. 31175 in the amount of $929.15 for royalty due the Government on sales of production during the period of December 1, 1961, through March 31, 1962, from property under the referenced contract. This remittance was accompanied by the enclosed uncertified statement.

Your remittance is appreciated, but regrettably your statement without certification is not acceptable documentation. Article 5(d) of the contract specifies:

> "The Operator shall provide the Government with suitable accounting and documentary evidence covering all production to which the Government's percentage royalty relates, such as copies of smelter or concentrator settlement sheets, and certified accounts of production and sale or other disposition of production".

If the production subject to royalty is not commingled with other production, two copies of each sales document should be provided this office. If the production is commingled, two copies of a summary similar to the enclosed statement, but appropriately certified, should be submitted. The certification, over the signature and title of a company official, should state that the production, mill recovery, average short ton unit prices, and proceeds are correctly set forth.

Your prompt submission of acceptable documentation in support of the December through March production will be appreciated. Also, your prompt remittance of royalty due for April and May, together with supporting documentation, and thereafter on a monthly basis, is requested.

Sincerely yours,

George Fumich, Jr.

Director

Enclosure

cc: Docket
Director's Reading File
CA & A Division
Region IV files (2)

EDTalbert/ama
6-20-62

43683

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

MAR 27 REC'D

MAR 2 6 1962

OFFICIAL FILE COPY
O. M. E
RECEIVED MAY 4 1962

Re: DMEA-4216 (Tungsten)
Hamme Mine
Tungsten Mining Corp.
Vance County, No. Carolina
Contract Idm-E1032

5/8	Received	800
5/9	Hoyt	500
		220

Tungsten Mining Corporation
Division of Howe Sound Co.
Star Route #36130
Henderson, North Carolina

Gentlemen:

After the completion of the approved exploration work under the contract identified above, we asked to be informed about changes in the status of the property and production from it during the period of royalty obligation.

To assist you to furnish this information and to assure the accuracy of our records, please answer the questions on the back of this letter and return two copies to this office with copies of any pertinent documents.

Sincerely yours,

George C. Selfridge

George C. Selfridge, Chief
Division of Field Operations

RECEIVED
MAY 3 - 1962
U. S. Geological Survey
Geologic Division
Knoxville, Tenn.

MME Form 63
Revised 3-62

REQUEST FOR INFORMATION ON CERTIFIED PROJECT AND PROJECT UNDER ROYALTY AGREEMENT

1. Since March 1, 1961 , has there been a change in ownership, lease, or sublease? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents, unless they have been provided before. Yes ☐ No ☒

2. Since March 1, 1961 , has there been any production from the land subject to the contract? Yes ☒ No ☐

   A. If so and it was shipped, give quantity, value, and name and address of purchaser.

	Quantity	Value
General Electric Co., Cleveland, Ohio	874.62 STU	$18,583.02

   B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity		Estimated Grade	Location
Ore		Tons		
Concentrates		Tons		
Other	4.56	Tons	30.48% WO_3	At Plant

3. Since March 1, 1961 , has any production been transported through DMEA workings (see Article 10 of contract)? Yes ☐ No ☒

   A. If so, state quantity, value, and disposition of material.

Disposition of Material	Quantity	Value

Submitted by:

Name [signature] Title Vice President & General Manager

Address Date April 30, 1962

4511

REQUEST FOR INFORMATION
FROM OPERATOR ON CERTIFIED PROJECT
AND PROJECT UNDER ROYALTY AGREEMENT

MAR 1 REC'D

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

From: Chief, Division of Field Operations
~~Field Officer, OME~~
Office of Minerals Exploration
Department of the Interior
Washington 25, D. C.

Concerning:
Docket No. DMEA-4216 (Tungsten)
Property Hamme Mine
Tungsten Mining Corporation
Location ~~Vance County, North Carolina~~
Contract ~~DMEA-4108~~

Date: February 24, 1961

OFFICIAL FILE COPY
O. M. E
RECEIVED MAR 2 1961

DATE	INITIALS	CODE
3-2	gad	VVO
3/2	[illegible]	800
"	~~Hodge~~ S.T.H	~~500~~
		220

Tungsten Mining Corporation
Division of Howe Sound Co.
Star Route #36130
Henderson, North Carolina

With the certification of the exploration project identified above, you were asked to inform our office about changes in the status of the property ~~and production from it.~~

To assist you to furnish this information and to assure the accuracy of our records, we ask that you answer the questions below and return ~~one copy~~ two copies to this office with copies of any pertinent documents.

George C. Selfridge
~~Field Officer~~
Chief, Division of Field Operations

1. Since August 31, 1960, has there been a change in ownership, lease, or sublease about which the OME has not been notified? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents. Yes ☐ No ☒

2. Since August 31, 1960, has there been any production from the property?* Yes ☐ No ☒

A. If so and it was shipped, give name and address of purchaser?

	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity		Estimated Grade	Location
Ore		Tons		
Concentrates		Tons		
Other		Tons		

Submitted by:

Name H. L. Fendrick
Title Sec Pres & Gen Mgr
Address (As above)
Date 3-1-61

MME Form 63 8-60 * Property means land subject to the contract. 79340-60

Copy to Region IV

1 V4

AUG 31 PM

REQUEST FOR INFORMATION
FROM OPERATOR ON CERTIFIED PROJECT
AND PROJECT UNDER ROYALTY AGREEMENT

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

From: ACTING Field Officer, OME
Region IV
Washington 25, D. C.

Date: August 29, 1960

Concerning:
Docket No. DMEA-4216
Property Hamme Mine
Tungsten Mining Corporation
Location Vance County, North Carolina
Contract Idm-E1032

SEP 2 1960 O.M.E.

Tungsten Mining Corporation
~~Box 81~~ Star Route #36130
Henderson, North Carolina
Division of Hone Sound Co

With the certification of the exploration project identified above, you were asked to inform our office about changes in the status of the property and production from it.

To assist you to furnish this information and to assure the accuracy of our records, we ask that you answer the questions below and return one copy to this office with copies of any pertinent documents.

ACTING Field Officer Lawrence G Hook

1. Since June 15, 1959, has there been a change in ownership, lease, or sublease about which the OME has not been notified? If yes, please state details of the transaction below and provide a true or signed copy of the pertinent documents. Yes ☐ No ☒

2. Since June 15, 1959, has there been any production from the property?* Yes ☐ No ☒

A. If so and it was shipped, give name and address of purchaser?

	Quantity	Value

B. If stockpiled awaiting sale, state quantity, grade, and location.

Type	Quantity		Estimated Grade	Location
Ore		Tons		
Concentrates		Tons		
Other		Tons		

Submitted by:

Name N. L. Kendrick Title Vice Pres & Gen Mgr.

Address as above. Date Aug 31, 1960

MME Form 63 8-60 * Property means land subject to the contract. 79340-60

TUNGSTEN MINING CORP.

BOX 931

HENDERSON, N. C.

TELEPHONE NO. GE 8-4139

OFFICIAL FILE COPY
O. M. E.
RECEIVED DEC 29 1958

DATE	INITIALS	CODE
12/29	C	220
12/30	EEJ	800
12/30	WSM	500

December 23, 1958

United States Department of the Interior
Office of Minerals Exploration
Washington 25, D. C.

Att: Mr. Frank E. Johnson
Acting Director

Dear Sir:

RE: - Docket No. DmEA 4216
Tungsten Hamme Mine
Vance County, North Carolina
Contract No. Idm-E1032

Please refer your letter of December 22, 1958 in respect to captioned subject.

This is to advise you as directed by your correspondence, the Hamme Mine, Vance County, North Carolina, suspended ore production on June 27, 1958, and has not re-opened to date.

We will thank you to address all future communications to:-
Tungsten Mining Corporation
500 Fifth Avenue
New York 36, N. Y.

Sincerely yours,

TUNGSTEN MINING CORPORATION

J. R. Sweet

J. R. Sweet,
Vice Pres. & Gen. Mgr.

JRS/es

No reply necessary

TELEPHONE
PENNSYLVANIA 6-5577

OFFICIAL FILE COPY
O. M. E.
RECEIVED JAN 2 1959

DATE	INITIALS	
1/2	C	220
1/2	WSM	400

HOWE SOUND COMPANY
(A CORPORATION)
500 FIFTH AVENUE
NEW YORK 36, N. Y.

December 30, 1958

Mr. Frank E. Johnson,
Acting Director
United States
Department of the Interior
Office of Minerals Exploration
Washington 25, D. C.

Re: Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract No. Idm-E1032

Dear Mr. Johnson:

This will thank you for your letter of December 22 on the above subject together with copies of the two letters dated December 19 and December 22 pertaining to the certification of discovery or development.

Under date of December 23, you were advised by Mr. James R. Sweet, Vice President and General Manager of Tungsten Mining Corp. that the Hamme Mine suspended ore production on June 27, 1958. It still remains closed.

Future communications from your office with the Tungsten Mining Corporation should be addressed to 500 Fifth Avenue, New York 36, N. Y. in care of the writer. I will appreciate this service.

Sincerely yours,

F. A. McGonigle

F. A. McGonigle
Vice President

FAM:id

AUG 7 1959
O.M.E.

OFFICE OF MINERALS EXPLORATION
REGION V

Semi-Annual Report of Certified Project

Reporting Period: 1-1-59 to 7-1-59. Date Examined: June 23, 1959

Operator: Tungsten Mining Corporation, Henderson, N.C.

Mine Name: Hamme . County: Vance . State: North Carolina.

Docket No: DMEA-4216. Contract No: Idm-E1032. Commodity: Tungsten

Contract Date: November 6, 1956. Date Certified: Dec. 19, 1958 .

Expiration Date of Royalty Payments: November 2, 1971.

Total Amt. of Contract: $246,660. Total Expended: $244,342.60

Amount of Gov. Participation at 75%.....$183,256.95.

Royalty Paid this Period: $2.52 Previous Royalty Pay't: $1515.48

Total Royalty Paid to Date: $1518.

Percent Gov. Participation Repaid: 0.83%. Royalty Due: None.

Royalty Remarks: There has been no production since June 1958. No royalty is due.

Original Estimate of Reserves(from final Engr--Geol.Report):
30,569 tons @ 0.68% WO_3.

Increase (or decrease) of reserves by work performed subsequent to original and last Field Team estimates: None .

Revised Estimate of Reserves: 30,569 tons.

Production this Period: None
Amount of Previous production(since date of contract) ~~xxxxx~~ $2577.
Total DMEA Production to date: $2577.
Percent of Revised Reserves Mined: 8.4%.

Production Remarks: Mining and milling operations were suspended in June 1958. No production since that time.

Other Remarks: The personnel at the mine on the date of this examination consisted of the assistant manager, Mr. Atkins, the Chief Engineer, Mr. Szynklewski, an office clerk and a maintenance crew of 18 men. The mine and mill are being maintained in excellent condition.

V. J. Lynch, Mining Engineer
Bureau of Mines, OME

z

DMEA Form 18
Feb. 58

DEFENSE MINERALS EXPLORATION ADMINISTRATION

ANALYSIS OF SEMIANNUAL REPORT OF CERTIFIED PROJECT

Prepare in duplicate. File original in Official Docket. Send copy

To: Statistics Branch (Code 210)

From: Division of Minerals

Report Period	
1-1 — 7.1.59	

DMEA No.	Operator	Contract No.
4216	Tungsten Mining Corp.	E-1032

30,569
2,577
33,196

ORE ESTIMATES

	Tons	Analysis
DMEA	35,900	0.67% WO_3
Operator to date		
Total		
Production to date	2,262 1/	0.67 1/
Ore in ground	32,638	0.67

INVESTMENT

Type	Size		Feet	Cost
Shafts				
Winzes				
Drifts and Crosscuts				
Raises				
Drilling	Type			
Rehabilitation	Description			

FACILITIES

Mine Plant		
Mill		
Roads		

REMARKS

Operations suspended in June, 1958
Crew at mine - 3 staff, 18 maintainance men
Reported mine and mill being maintained in excellent condition.

1/ Production Tonnage adjusted to "official" grade.

Prepared by S. P. Holt Date 8/12/59

31398

MME Form 7
(10-58)

OFFICIAL FILE COPY

Date	Surname	Code
12/18	Holt	400
12/18	Martin	400
12-18	Chamberlain	800
12/19	Selfridge	130
12/19	Brook	130
"	Nelson	130
"	Johnson	110
		~~110~~
		~~800~~ 225

DEC 22 1958

Tungsten Mining Corporation
Box 931
Henderson, North Carolina

Re: Docket No. DMEA 4216 - Tungsten
Hanna Mine
Vance County, North Carolina
Contract No. Idm-K1032

Gentlemen:

Enclosed is a certification of discovery or development which covers all the land described in Article 2 of the contract.

By the terms of the Exploration Project Contract, as amended, and of the certification all minerals mined or produced from November 2, 1956, to November 2, 1971, are subject to the Government's percentage royalty as set forth in the contract until the sum of $183,256.95 is paid.

Royalty should continue to be paid, as it has been in the past, to the Executive Officer, OME Field Team, Region V, Room 2-B, Post Office Building, Knoxville 2, Tennessee. Checks covering royalty should be made payable to the Office of Minerals Exploration (which is the successor to the Defense Minerals Exploration Administration) accompanied by certified supporting documents, such as you have been furnishing, which show quantity and grade of the product sold, the name of the purchaser, and any charges.

You are requested to notify the Executive Officer of any changes in ownership or production rights that might have any effect on the Government's right to its percentage royalty. Your attention is especially called to Article 2(c) of the contract, relating to the preservation of the Government's right to a percentage royalty on production. Also, if production ceases at any time for any extended period, please notify the Executive Officer at 6-month intervals that no production has been made, when that is the case.

Sincerely yours,

Frank E. Johnson (for)

Acting Director

Enclosure

cc to: R. W. Holliday, USBM
T. H. Kiilsgaard, USGS
Haile Mines, Inc.

cc to: Operating Comm.
FT. REG. V
F. D. Lamb USBM

cc to: Codes 110, 800, 400
Director's Read. File

SPHOLT:foc 12-18-58

43683

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
12/18	Holt	400
12/18	Martin	400
12-19	Chamberlin	800
12/19	Selfridge	130
12/19	Barnett	130
"	Nelson	130
"	Jones	110
		225
		400

DEC 22 1958

Mr. C. A. Fredell, Director
Technical Research and Development Division
Defense Materials Service
General Services Administration
6018 GSA Building
Washington 25, D. C.

Re: Docket No. DMEA 4216 - Tungsten
Tungston Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract No. Idn-E1032

Dear Mr. Fredell:

Enclosed is a copy of certification of discovery or development issued under the subject contract.

Contract No. Idn-E1032 for the exploration of the Hamme mine property was executed November 2, 1956. Expenditures up to $246,660.00 were authorized by the contract as amended, of which the Government's share at 75% was $184,995.00. Cost of the work completed was $244,342.60, of which the Government's share was $183,256.95.

The object of the exploration program was to test the possible tungsten occurrences in quartz veins along northeasterly trending shear zones in Precambrian and/or Paleozoic granites and schists. The program employed drifting, crosscutting, and diamond core drilling on the 900 level of the Hamme mine to explore the mineralized zones.

The contract, as amended, provided for 6,700 feet of drifting and crosscutting, 1,415 feet of drift and crosscut timbering, 4,000 feet of diamond core drilling, and assaying 250 samples for WO_3. Assaying of not more than 50 samples for Mo was also authorized.

Work completed comprised 6,699 feet of drifting and crosscutting, 874 feet of drift and crosscut timbering, 4,000 feet of diamond core drilling, and assaying of 102 samples.

Tungsten ore discovered by project work is estimated as 35,900 short dry tons of indicated and inferred ore, averaging 0.67 percent tungsten trioxide (WO_3).

Sincerely yours,

Frank E. Johnson (for)

Acting Director

Enclosure

SPHOLT:foc 12-18-58
cc to: Codes 400, 800, 110
Director's Read. File
Operating Comm.
cc to: FT. REG. V
F. D. Lamb, USBM
R. W. Holliday, USBM
T. H. Kiilsgaard, USGS

8623

Note. There is no copy of this guaranty in our Docket.
The only copy I found is attached to Audits original copy of the contract

S.P.H.
12.9.58

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
12/11	Holt	400
12/11	Martin	400
12-15	Chamberlin	800
12/19	Selfridge	130
12/19	Bhoat	130
"	Nelson	130
"	Jameson	110
		~~100~~
		225

DEC 22 1958

Haile Mines, Inc.
500 Fifth Avenue
New York, N. Y.

Re: Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract No. Idm-E1032

Gentlemen:

Enclosed are copies of a certification of discovery or development and a self-explanatory letter of today to the Operator under the above-cited contract.

This correspondence relates to the Guaranty of Royalty signed by you on November 10, 1956, under the DMEA program which has now been succeeded by the Office of Minerals Exploration program.

Sincerely yours,

Frank E. Johnson (for)

Acting Director

Enclosure

SPHOLT:foc
12-11-58
cc to: Code 400
800 + 110
Director's Read. File
Oper. Comm.
FT. REG. V
Finance Officer, Reg. V

8623

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
	Wolf	430
12-12	Martin	~~400~~
		~~140~~
		~~140~~
		120
		110
		100

December 12, 1958

PROJECT SUMMARY REPORT

Memorandum

To: Acting Director, Office of Minerals Exploration

From: Division of Iron and Ferro-Alloys, OME

Subject: General Summary of Contract and Results Obtained
Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract No. Idm-E1032

Operator:

Tungsten Mining Corporation, Box 81, Henderson, North Carolina.

Operator's Property Rights:

The Operator owns two tracts, known as the Walker land and the Peck land, and controls by lease the Nat Morton land. It also owns 13/14 interest, and controls by lease 1/14 interest, in the mineral rights on the Abraham Sneed estate, all situated in Vance County, North Carolina. The portions of these tracts covered by the contract are more particularly described in Annex I of the contract.

[redacted]:

(a) Executed November 2, 1956, on Short Form, MF-200A (Revised April, 1956).

(b) Completion period: Work to be started on or before January 15, 1957, and to be completed within a period of 24 months from the date of the contract (or before November 2, 1958).

(c) Work authorized:

Fixed Unit Costs

Drifting and crosscutting, 6,700 feet @ $35.00/ft	$234,500.00
Timbering drift and crosscut, 1,415 feet @ $6.00/ft	8,490.00
Diamond core drilling, 4,000 feet @ $1.65/ft	6,600.00
Assaying, 250 samples for WO_3 @ $3.00/sample	750.00
Estimated Total Cost of the Project	$250,340.00
Government Participation @ 75%	187,755.00

Work authorized was divided into four "projects", A, B, C, and D.

Amendment No. 1, executed January 30, 1957, authorized setting drift timber, where needed, within the $7\frac{1}{2}$ foot overall width previously specified as minimum "in the clear" width of drifts and crosscuts, and reduced correspondingly the prices paid for drifting or crosscutting where timbering would be required. Total estimated cost of the project was reduced to $246,660.00, and Government participation to $184,995.00.

Amendment No. 2, executed July 15, 1957, authorized shifting of diamond drilling not performed in any "project" to another "project" where needed, with the prior approval of the Government, and without increase in the total cost of the contract or the Government's participation therein.

Amendment No. 3, executed October 14, 1957, authorized the transfer of funds not needed for timbered drifts to driving an equivalent dollar value of footage of untimbered drifts, where approved by the Government, and at no increase in total cost of the contract, or Government participation.

Amendment No. 4, executed January 8, 1958, authorized transfer of not to exceed $150.00 from funds allocated for drifting to pay for assaying samples for molybdenum (Mo), at no increase in the total cost of the contract, or the Government's participation.

(d) Work completed:

Drifting, untimbered,	4,231 feet
Drifting, timbered,	313 feet
Crosscutting, untimbered,	1,594 feet
Crosscutting, timbered,	561 feet
Timbering, drift and crosscut	874 feet
Total drifting and crosscutting	6,699 feet
Diamond core drilling	4,000 feet
Assays, 102	

Total cost of the contract	$244,342.60
Government participation @ 75%	183,256.95

Work on the project started November 19, 1956, and was completed June 16, 1958.

Audits:

A review in lieu of final audit, dated August 4, 1958, was received August 4, 1958.

Reports:

The Operator's Final Report, dated July 12, 1958, was received by the Field Team on some date prior to July 28, 1958, and received in this office July 30, 1958. The Final Report of the Field Team, dated August 1958, was received August 25, 1958.

Past Production:

Total recorded production from the mine, from discovery of the deposit in 1942 through January 31, 1956, was 836,705 short ton units of WO_3, of which 89% was huebnerite and 11% scheelite. Production in 1956 was at the rate of 160,000 units of WO_3 a year.

Present Production:

Since the date of the contract 2,577 wet tons of ore, averaging 0.588% WO_3, have been produced from DMEA workings, yielding 1,281.10 short ton units of WO_3, valued at $30,309.61, on which $1,515.48 royalty has been paid to the Government.

Certification:

In agreement with the recommendation of the Field Team, a certification of discovery or development was issued on Dec. 19, 1958.

Comments:

All work under the contract was conducted in a highly efficient manner. No errors were found in progress reports. Safety rules were rigidly adhered to, and no accidents occurred on project work.

The project was established to explore for tungsten in the Hamme mine area, where it occurs as lenses containing huebnerite with some scheelite in quartz veins along northeasterly trending shear zones in Precambrian and/or Paleozoic granites and schists.

Work was divided into four subdivisions, or "projects", A, B, C and D, all on the 900 level, intended to explore possible downward extensions of surface showings as follows: A, northeast of present mine workings and on the north side of a large diabase dike, under surface showings on the Walker No. 5 and No. 10 veins; B, in the footwall area southwest of No. 7 shaft; C, in the footwall area

north of No. 6 shaft; and D, far to the west of No. 6 shaft, under surface showings on the Morton Estate No. 3 vein.

Reserves of tungsten ore discovered by project work are most conservatively estimated as 35,900 short dry tons of indicated and inferred ore, averaging 0.670 percent WO_3.

W S Martin

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

SPHolt:kb - December 12, 1958
cc: Docket
Code 400
Dir. reading file
Oper. Comm.

DEFENSE MINERALS EXPLORATION ADMINISTRATION

WORK COMPLETED ANALYSIS

After final audit or review report is received, prepare original only and file in official docket

Operator: Tungsten Mining Corporation		Actual Cost	
State: Vance County, North Carolina Contract		Agreed Unit Cost $250,340	
Final Report of Audit	Commodity: Tungsten	Docket No. DMEA-4216	
Final Report of Review 244,342.60		Contract No. Idm-E1032	

Operation	Authorized by Contract and Amendments		Completed		Net cost after sale of Government Property
	Units	Cost	Units	Cost	
Drifting & Crosscutting	6,700 ft.	$242,990	6,699 ft.	$237,436.60	
Raising					
Shafts					
Winzes					
Drilling (Specify) Diamond	4,000 ft.	6,600	4,000ft.	6,600	
Surface Excavation					
Underground Excavation					
Roads and Trails					
Operating Equipment Purchased					
Surface Rehabilitation & Repairs					
Underground Rehabilitation					
New Building, Improvements, etc.					
Other (Specify) Assaying		~~750.00~~	XXX	306	
Totals		$250,340		$244,342.60 *	

* Net cost total must agree with final report of audit or review.

Prepared by ~~T.L. Chapman~~ Date ~~8/29/58~~

31390

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

August 20, 1958

COPY
DMEA
RECEIVED AUG 25 1958

DATE	INITIALS	CODE
8/25	C	220
8/25	HB	130
"	HL	110
8/29	HB	130
8/29	C	220
9/2	WSM	400

Memorandum

To: Operating Committee, DMEA - Washington

From: DMEA Field Team, Region V - Knoxville, Tennessee

Subject: Field Team Final Report - DMEA-4216, Idm-E1032, ~~Rutile~~ Tungsten
Tungsten Mining Corporation, Henderson, N.C.
Hamme Mine, Vance County, N.C.

Transmitted are the original and two copies of the subject final report with maps, ore reserve calculations attached.

The Field Team is in agreement with the Field Examiners in their recommendation for certification of this project.

Robert A. Laurence
Robert A. Laurence, Executive Officer
DMEA Field Team, Region V

V. J. Lynch
V. J. Lynch, Member
Bureau of Mines (DMEA)

Field Team
Final
Reviewed by
DMEA OPERATING COMMITTEE
8-29-58
(date)

Maps filed in folder marked "Maps".

7 maps attached
HB 8/25

OFFICIAL FILE COPY
DMEA
RECEIVED AUG 25 1958

DATE	INITIALS	CODE
8/29	LB	130
		220

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

FINAL REPORT

DMEA FIELD TEAM, REGION V

FT's
FINAL
REPORT

ON

DMEA-4216, Idm-E1032(Tungsten)HAMME MINE
Vance County, North Carolina

H. L. Burmeister, Mining Engineer
U. S. Bureau of Mines-DMEA

and

W. P. Williams, Geologist
U. S. Geological Survey
DMEA

Reviewed by
DMEA OPERATING COMMITTEE
8-29-58
(date)

August, 1958

FIELD TEAM FINAL REPORT ON COMPLETED CONTRACT

DMEA Docket No. 4216 (Tungsten)
Contract Idm-E 1032
Tungsten Mining Corporation
Box 81, Henderson, North Carolina
Hamme Mine, Vance County, N. C.

The Hamme mine and company officer are located 3.4 miles westward from the village of Townsville, on a paved but un-numbered road.

INTRODUCTION AND SUMMARY

The Tungsten Mining Corporation, Henderson, North Carolina performed exploration work at the Hamme Mine, Vance County, North Carolina, under the terms of DMEA contract Idm-E 1032, Docket 4216. The work consisted in general of drifting, crosscutting, and underground diamond drilling. Total cost of the project was $244,342.60. Drifts and crosscuts driven totaled 6699 feet and core drilling totaled 4,000 feet.

The main objective of the exploratory work was to search for ore extensions and new ore deposits at the Hamme Tungsten Mine. The work was begun on November 19, 1956, and was completed on June 16, 1958. Four amendments were made to the contract.

Economically minable ore deposits were discovered in three of the four sub-projects. The project warrants certification by the Government as a discovery.

CONCLUSIONS AND RECOMMENDATIONS

The mineral exploration project completed by Tungsten Mining Corporation under the terms of DMEA contract Idm-e 1032 was successful in discovering minable tungsten ore deposits which average a higher tungsten

content than the normal mill feed (Table III). It is recommended that the project be certified by the Government as a discovery.

All exposures of ore in the project areas to date have been made only in drifts and crosscuts on the 900 level of the mine. The ore reserves that have been calculated on the basis of these limited exposures would be increased if further exploration in the form of raising or winzing were performed at the sites where ore has been discovered by this DMEA exploration. From the results so far obtained and from geological characteristics present, more exploration work is warranted in projects A, B, and D in the Hamme Mine.

DESCRIPTION OF WORK COMPLETED

Operations under this contract started November 19, 1956 and were completed on June 16, 1958. Work was done under four separate projects, all on the 900 level of the Hamme Mine. In all projects work consisted of drifting and crosscutting, core drilling horizontal holes from exploration openings and timbering drifts and crosscuts where necessary. Projects were designated as, A, B, C and D and completely separate records were kept under these designations.

Of the 6699 feet of 8 x 7½ foot drifts and crosscuts, crosscutting accounted for a total of 2,155 feet of which 581 feet was in diabase or diorite dike. Of the total 874 lineal feet of timbering, 313 feet was placed in drifts and 561 feet in crosscuts. Roof bolting was tried with unsatisfactory results in a 30 foot section of diabase crosscut.

In general the ground stands well without timber. Drifting, crosscutting and timbering in all faces was in general conducted on a two shift six day per week basis. The same crews did both mining and timbering, due to the fact that where timber was necessary it had to be carried close to the face. Each shift mucked the previous round, drilled a 5 to 5½ foot round,

loaded and blasted. Column and arm mounted Leyner drifters were used and an air powered $\frac{1}{4}$ cu. yd. capacity, 12B Eimco mucking machine was employed. Core drilling was limited to underground lateral exploration of the shear or altered zone during advance in exploration faces. All core was EX size.

An accurate record was kept during a total of 276.75 simultaneous and consecutive shafts in all four projects. A total of 1261 feet of advance was made in diabase, quartz vein and schist or gneiss during this period. This record indicated an overall average advance of 4.56 feet per shift. This compares favorably with the 4.39 foot average advance used in preparing cost estimates.

The following, Table I is a compilation of work accomplished in the four projects.

TABLE I
-Work Completed-

	Project A	Project B	Project C	Project D	Totals
Drifting, untimbered (ft.)	1,494	1,015	929	793	4,231
Drifting, timbered (ft.)	214	40	59	0	313
Crosscutting, untimbered (ft.)	224	245	211	914	1,594
Crosscutting, timbered (ft.)	268	0	0	293	561
Timbering (lineal ft.)	482	40	59	293	874
Core drilling (holes)	16	10	6	7	39
Core drilling (ft.)	1,617	1,041	487	855	4,000
Number of Assays	13	19	5	65	102

Table II compares the number of various units allowed by the contract and those actually accomplished.

TABLE II

	Contract	Actual
Total drifts and crosscuts (ft)	6,700	6,699
Diamond drilling (ft)	4,000	4,000
Timbering (lineal ft)	1,415	874
Assays (units)	250	102

A record of ore recovered during exploration is contained in Table III. Due to mucking machine loading and consequent wall dilution, some car sample assays are low.

GEOLOGY AND ORE DEPOSITS

The Hamme mine is located in the Piedmont physiographic province about 50 miles west of the Coastal Plain. The mine is in a northeast-trending belt of tungsten-bearing quartz veins. The belt is about 8 miles long and a mile wide and is known as the Hamme tungsten district. The location of the district is shown on figure 1 of the examination report.

In the Hamme district the country rocks are composed mainly of granite and schist. The contact between the two rock types strikes generally due north through the district and generally has a steep dip to the west. Locally the dip of the contact may be vertical or steep to the east. Granite lies east of the contact while schist lies to the west.

The metamorphic rocks are composed dominantly of chlorite and sericite phyllites and schists. The color of these rocks ranges from grayish green to very dark green and almost black. The texture may be fine grained and massive or coarser grained and schistose. In the chloritic rocks some of the harder, denser varieties contain epidote and quartz. The sericitic rocks are generally heavily speckled with martite (iron sesqui-oxide).

The age of the metamorphic rocks is thought to be pre-Cambrian or early Paleozoic.

The eastern part of the district is made up of biotite-albite granite. The age of the granite is late Paleozoic and the rocks are intrusive into the older schists and phyllites to the west.

TABLE III

EXPLORATION ORE - (WET TONS) (CAR SAMPLES, WO_3)

DATE	A	B	C	D	TOTAL TONS & AVER. % WO_3	S.T.U. RECOVERED	AVERAGE PRICE, $	VALUE DOLLARS	ROYALTY DUE 5 @ %	ROYALTY PAID
NOV. 1956	0	0	0	0	0	0		0	0	0
DEC. 1956	0	0	140 @ 0.27 %	0	140 @ 0.27 %	32.44				
JAN. 1957	154 @ 0.32 %	0	17 @ 0.27 %	0	171 @ 0.315	45.81				
FEB 1957	68 @ 0.14 %	0	0	0	68 @ 0.14	7.92				
MARCH 1957	0	165 @ 0.39 %	0	0	165 @ 0.39	54.49				
APRIL 1957	0	0	0	0	0	0.				
PERIOD TOTALS	222 @ 0.265 %	165 @ 0.39 %	157 @ 0.27 %	0	544 @ 0.304	140.66	32.996	4641.24	232.06	232.06
May 1957	49 @ 0.57 %	0	0	0	49 @ 0.57	23.99				
JUNE 1957	0	0	0	0	0	0				
JULY 1957	0	264 @ 0.75 %	0	0	264 @ 0.75	159.80				
AUG. 1957	0	3 @ 0.75 %	0	0	3 @ 0.75	1.84				
PERIOD TOTALS	49 @ 0.57 %	267 @ 0.75 %	0	0	316 @ 0.722	185.63	27.17	5043.57	252.18	252.18
SEPT. 1957	0	0	0	107 @ 1.34 %	107 @ 1.34	119.51				
OCT. 1957	0	0	0	594 @ 0.81 %	594 @ 0.81	406.88				
NOV. 1957	0	9 @ 0.35 %	0	283 @ 0.85 %	292 @ 0.83	208.40				
DEC. 1957	241 @ 0.22 %	0	0	277 @ 0.55 %	518 @ 0.40	179.05				
PERIOD TOTALS	241 @ 0.220 %	9 @ 0.350 %	0	1261 @ 0.807 %	1511 @ 0.711	913.84	21.67	19,802.19	990.15	990.15
JAN. 1958	12 @ 0.41 %	0	0	166 @ 0.25 %	178 @ 0.26	39.33				
MAY 1958	28 @ 0.07 %	0	0	0	28 @ 0.07	1.64				
PERIOD TOTALS	40 @ 0.17 %	0	0	166 @ 0.250 %	206 @ 0.234	40.97	20.06	821.88	41.09	41.09
GRAND TOTAL	552 @ 0.266 %	441 @ 0.607 %	157 @ 0.270 %	1427 @ 0.742 %	2577 @ 0.588	1281.10	23.659	30,309.61	1515.48	1515.48

The granite is coarse grained and is composed of albite, blue opalescent quartz, perthite, and microcline. Biotite may be nearly lacking or very abundant. Common accessory minerals are magnetite, pyrite, sphene, apatite, and zircon.

Several types of dike rocks are found in the district. An aplite granite dike cuts the granite in the vicinity of the Sneed shaft. The dike is about 500 feet thick at its thickest part, and is composed mainly of quartz and albite with some sericite and biotite. The aplite is fine grained and light gray to white. It is probably closely related to the granite but somewhat younger.

Both the schists and the granite are cut by diabase dikes of Triassic age. Dikes and sills of diabase are common throughout the district. Their thicknesses range from a few inches to as much as 200 feet, and they have been traced as much as 2 miles without reaching an end. The thinner dikes are fine grained while the thicker ones are coarser. Dark gray feldspar and black pyoxene are the main constituents, and the dikes are dark gray to black. Most of the diabase dikes have a northerly trend with steep dips.

In the mine the applicant's consulting geologist has mapped a particular type of basic dike rock as lamprophyre. This rock cuts the quartz veins and is generally of a finer granular texture, is composed of hornblende, augite, and much biotite, and is dark greenish black in color. The thickness of the lamprophyre dikes ranged from a few inches to about 10 feet.

Quartz veins are found throughout the district. They range in thickness from a fraction of an inch to 30 feet. The quartz veins cut all rock types except diabase and lamprophyre.

The quartz veins are composed of at least three main types of quartz, 1) coarse grained and glassy, 2) medium to fine grained, shattered and fractured, somewhat dull-lustered, containing tungsten mineralization, and 3) dull, fine-grained sugary-textured quartz that is usually barren of mineralization but may contain, locally, sparse huebnerite, scheelite, and metal sulphides.

The tungsten-bearing quartz veins are in a narrow north-east-trending zone that is roughly parallel to the granite-schist contact. Most of the veins are in granite but some extend into the schist.

The largest and best developed quartz veins are localized in the granite along a shear zone that extends through the district for at least $3\frac{1}{2}$ miles. The main shear zone strikes about N 35° E. and dips about 75° southeast, figure 1. Figure 1 and longitudinal sections 2 and 3 give some idea of the vertical continuity and pitch of the quartz veins.

Within the shear zone the granite is altered variously from moderately sheared granite to sericite and chlorite schist. The altered and sheared zone reaches a maximum thickness of about 100 feet.

Some movement has taken place along the shear zone, as evidenced by slickensides in places along the shear. Displacement appears to have been only a few feet at most. The pitch of the slickensides is usually less than 5 degrees to the south. Drag folds associated with the shearing show that the southeast side moved south with relation to the west side.

Tungsten is found in quartz veins as huebnerite ($MnWO_4$) and scheelite ($CaWO_4$). The veins are best developed and richest in the sheared granite. The next best vein locality is the granite west of the main shear zone and east of the schist contact. Heretofore it was thought that the schists were

not good host rocks for the tungsten veins, but the Tungsten Mining Corporation has been successful in developing at least two large veins within the schist in the Hamme Mine. The largest of those, known in the Company as "22 vein", has been developed on the 500, 700 and 900 foot levels.

In addition to the vein system in the main, northeast-trending shear zone, there are several other subordinate veins which have been important tungsten producers. Chief among those is Walker No. 3 vein which strikes east-northeast and appears to join the main Walker No. 2 vein at about the location of Walker No. 5 vein, figure 1.

The quartz veins range in length from a few feet to a thousand feet, and from an inch or less in thickness to as much as 30 feet. The veins pinch and swell and in many places the quartz forms lenses. The pitch of the ore shoots in the veins is vertical in some places. In other places the pitch of ore shoots may be southeast. An intermediate southwest pitch appears to be predominant. Offshoot quartz stringers often extend from the veins into the enclosing altered wall rocks.

The principal metallic minerals in the quartz veins are huebnerite, pyrite, galena, tetrahedrite, sphalerite, chalcopyrite, and scheelite. Huebnerite is the important tungsten mineral. Scheelite practically everywhere in the veins is found as a sparse alteration product of hydrothermal alteration of huebnerite. Very little huebnerite seems to have been leached at the surface, consequently there is no significant zone of secondary enrichment at depth.

Quartz, fluorite, sericite, and rhodochrosite, in that order, are the principal gangue minerals. Huebnerite is found as long, platy, brown crystals that are arranged in irregular masses or seams that are parallel to the walls of the vein.

At least two varieties of quartz are discernible in the Hamme Mine. The huebnerite-bearing variety is duller in luster and is more granular and shattered. The barren quartz is more massive and has a more vitreous luster.

The area controlled by Tungsten Mining Corporation is situated in about the center of the district. The huebnerite quartz veins exposed on the surface in outcrops and trenches on the property are richer and more strongly mineralized than any other place in the district. This fact, however, probably has little to do with the ultimate potentialities of the district as large ore bodies have been developed in the Hamme Mine where the ore had little or no outcrop at surface.

The size of the ore bodies within the veins ranges within wide limits. Persistent veins may extend in length to as much as 500 feet or more. The larger lens-type bodies may be 250 feet long, average 30 feet in width, and extend to depths of 400 to 500 feet. The veins are discontinuous and may pinch down to a mere fracture between ore bodies. The largest single ore body has a short, narrow outcrop, has a length of 1,180 feet on the 900 level and has maximum thicknesses up to 40 feet. This body is in the southern part of the main shear zone and is known as the Walker 1-1A vein.

The geology of the Hamme district has been ably described by G. H. Espenshade and J. M. Parker, III. See Appendix A for references.

Project A: The purpose of Project A drift was to seek for projections and undiscovered ore shoots northeast of the mine workings. The special target areas were the truncated portion of the No. 2 vein north of a thick diabase dike and the down dip extensions of the ore found in shallow drill holes, known as Walker No. 5 and No. 10 veins.

The project A work disclosed that the first diabase dike is about 130 feet thick. Shortly after the dike was penetrated the ore vein was found as anticipated, figure A. As the drift progressed northeastward the vein unfortunately pinched down into a series of disconnected small lenses and finally pinched out altogether.

Project A drift, for about half its length, passed through sericitic and chloritic schists. The schists gradually gave way to grayish and brownish green granite gneiss. The drift was terminated in gneiss and schist.

A second large ultramafic dike was penetrated about 1,380 feet from the beginning of project A. The dike is about 53 feet thick. A third large dike was encountered about 1,770 feet from the beginning point. The dike is about 145 feet thick. The dike at the start of the project is diabasic. The other two, however, appear to be dioritic in texture and composition.

The last 100 feet of the drift encountered lenticular, disconnected white quartz masses that contained sparse disseminated hubnerite. A strong quartz-bearing shear structure is present in the face of the project A drift. The chances appear to be good that the structure represents the southwest extremity of an ore-bearing quartz shear zone.

Project B: Project B consisted of a drift from existing mine opening; and the drift was designed to explore for southward extensions of the No. 3 vein.

The drift was driven mostly through grayish brown and green granite and gneiss. A short crosscut and drift were driven is sericite schist and gneiss, figure B. As was anticipated, an ore-bearing quartz vein structure was found at the granite-schist contact, but the ore body proved to be

disappointingly small. The hubnerite and white quartz is associated with abundant purple fluorite and disseminated pyrite and very sparse chalcopyrite.

At about three-fourths of its total length the project B drift passed through a diabase dike. The dike is about 20 feet thick. At its termination the drift is in green and brown gneiss. A small, tight shear structure is present in the face with small discontinuous white quartz lenses and, locally, very sparse hubnerite. The drift face does not appear very favorable as a site for further work.

Project C: The purpose of the Project C drift was to explore for northward extensions of what is known as the No. 28 vein. The drift also searched for down dip extensions of a mineralized quartz vein structure known on surface as Morton 1-A vein, figure 1.

The drift progressed mostly through green and gray granite and granite schist. Purple and blue florite and disseimnated pyrite are locally abundant. Scattered, thin lamprophyre and diabase dikes cross the drift at wide intervals. Toward its termination the drift disclosed that the white quartz-filled shear zone that was being followed became narrower until the shear became very tight and narrow and practically devoid of white quartz. The face of the drift does not appear promising for further work.

Project D: Project D consists of a long crosscut with attendant drifting. The work was designed to seek for the down dip extension of an outcropping ore body known as Morton Estate No. 3 vein. The broad objective was to seek for ore bodies well to the west of the main mine workings.

At the start the crosscut penetrated a diorite dike that is about 200 feet thick. After that the crosscut and attendant drifting remained in chlorite and sericite schist. Thin, scattered lamprophyre and diabase dikes were encountered at wide intervals by the crosscut.

As anticipated the crosscut eventually reached a strong, mineralized white quartz-filled shear zone. The quartz carried abundant hubnerite. The shear zone was followed by drifting which resulted in a significant ore discovery.

In the northeast drift, the quartz vein pinched down relatively rapidly. To the southwest, however, the hubnerite-bearing quartz vein is more or less continuously mineralized over a length of about 700 feet. The vein pinches to the southwest, and at the southwest drift face the white quartz vein has reduced to separated inch-wide quartz veinlets. The shear structure is well developed, however; so that the southwest drift is a very favorable site for further exploration work.

An interesting occurrence of molybdenite, MoS_2, was noted in the northeast drift. A white quartz vein, up to 3 feet thick, is visible in the northwest rib of the drift. The quartz carries a small amount of molybdenite that is associated with disseminated graphite and pyrite. Two chip samples of the vein, taken by the Operator assayed 0.19 and 0.10 percent Mo. Economic amounts of molybdenum do not appear to be present in the vein.

Projects A, B, and D can be considered as successful in discovering minable ore deposits, figures A, B and D. Project B penetrated a hubnerite ore lens but only a few hundreds of tons of ore are likely to be present. Project C may be considered as unsuccessful.

Some geologic generalizations in the ore were borne out by the work:

1) The principal shear zones and hubnerite-bearing quartz veins have a general northeast strike and dip 70° or more to the southeast.

2) At least two, and possibly three, generations of quartz are present of which only one is favorable for the presence of hubnerite.

3) Ultramafic dikes, some very thick and of long lateral extent, are comparatively young. The dikes do not appear to have had any mineralogical effect on either the enclosing rocks or the quartz veins. The dikes do truncate the ore veins and displace the cut-off ends of the veins by a distance equal to at least the thickness of the dike.

4) Hubnerite is usually associated in the quartz veins with fluorite and metal sulfides. Fluorite and sulfides are, however, commonly present in the absence of hubnerite.

5) The hubnerite-bearing quartz veins are directly associated with sheared and fractured zones in the schist-granite complex. A well developed shear zone if followed by drift or crosscut or explored by drilling will, in many cases, show the presence of favorable white quartz.

A total of 4,000 feet of EX size exploratory diamond drilling was performed in the four project headings. Nearly all of the drilling was used in short holes from the sides or ends of drifts in the effort to guide the drifting by locating quartz lenses or shear structures. Only one hole, No. U-1283, figure B, may be considered as penetrating hitherto unknown ore. Assays of samples taken by the Operator in the various drifts and crosscuts are shown on figures A, B, and D.

ORE RESERVES

Ore reserves were developed in Projects A, B and D. No minable ore was found in Project C. Due to the fact that all ore has been exposed only in a drift on one level, reserves are here reported as the sum of indicated and inferred tonnage.

In calculating all ore reserves, the Operator considers 25 feet above and 25 feet below a drift to be proven or measured ore. He also considers the next 25 feet above and below his measured ore to be the total of indicated and inferred ore. The writers do not subscribe to this method. The writers calculations include no measured ore, but do assume that each ore shoot includes the sum of indicated and inferred ore contained in a block 50 feet above and 50 feet below the drift and having a length equal to that of the ore lens as exposed in the drift. Lenses as designated in Table IV are indicated on maps A, B and D. A factor of 12 cubic feet has been used in calculating tonnage.

Figures 2 and 3 are representative longitudinal sections of ore bodies as they occur in this mine. These sections indicate that when a lens or series of lenses is of considerable horizontal extent, the vertical measurement is also extensive. This habit may well be followed in project D. Based on mine experience, it is believed that the Field Team's estimate of ore reserves is conservative.

EXPENDITURES

The original total approved amount of the contract was $250,340.00. By amendment No. 1 this was changed to a total of $246,660.00.

TABLE IV
ORE RESERVES

CALCULATED RESERVES								ORE MINED		RESERVE PLUS ORE MINED	
PROJECT	LENS NO.	LENGTH	WIDTH	HEIGHT	CUBIC FEET	TONS	AVERAGE GRADE % WO_3	TONS	AVERAGE GRADE % WO_3	TONS	AVERAGE GRADE % WO_3
A	1	75	9.39	100	70,425	5,869	0.56	552	0.266	6,421	0.535
B	2	45	5.2	100	23,400	1,950	0.63				
B	3	85	4.9	100	41,700	3,475	0.51				
TOTAL B					135,525	5,425	0.55	441	0.607	5,866	0.554
C								157	0.270	157	0.270
D	4	30	4.8	100	14,400	1,200	0.88				
D	5	130	6.9	100	89,700	7,475	0.96				
D	6	140	3.0	100	42,000	3,500	0.80				
D	7	80	6.8	100	54,400	4,533	0.74				
D	8	120	2.9	100	34,800	2,900	0.42				
D	9	65	4.5	100	29,250	2,437	0.42				
TOTAL D					264,550	22,045	0.74	1,427	0.742	23,472	0.740
GRAND TOTAL					470,500	33,339	0.68	2,577	0.588	35,916	0.670

Total approved	$246,660.00
Total cost of project (Report of review)	244,342.60
Government's share of cost at 75%	183,256.95
Government's share unexpended	1,738.05
Value of production during operations	30,309.61
Royalty due the Government on production	1,515.48
Royalty paid to the Government	1,515.48

EFFICIENCY OF OPERATIONS

All work under this contract was conducted in a highly efficient manner. No errors were found in progress reports. Safety rules were rigidly adhered to and no accidents occured.

EQUIPMENT PURCHASED

No equipment was purchased for this project.

W. P. Williams, Geologist
U. S. Geological Survey

H. L. Burmeister, Engineer
U. S. Bureau of Mines

August, 1958

APPENDIX A

1. Espendhade, G. H. Tungsten Deposits of Vance County, North Carolina and Mecklenburg County, Virginia: U.S.G.S. Bull. 948-A, 1947.

2. Parker, J. M. Geology and Structure of Part of the Hamme Tungsten District, Vance County, North Carolina, and Mecklenburg County, Virginia: U.S.G.S. progress report (unpublished) in cooperation with North Carolina Department of Conservation and Development, Division of Mineral Resources, 1951.

3. Advisory Board to the District Engineer, Corps of Engineers: Report on the Investigation of the Hamme Tungsten District in its Relationship to the Buggs Island Reservoir, Roanoke River, Va.-N.C., April 28, 1948.

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

9/5 C 200
9/5 WSM 400

September 3, 1958

Memorandum

To: W. S. Martin, Chief, Iron and Ferroalloys Division - DMEA
Through: Chief, Branch of Ferrous Metals and Ferroalloys

From: R. W. Holliday, Commodity Specialist, Branch of Ferrous Metals and Ferroalloys

Subject: Docket No. DMEA-4216 (Tungsten)
Field Team Final Report
Tungsten Mining Corp., Henderson, N. C.
Hamme Mine, Vance County, N. C.

I agree with the Field Team recommendation that this project be certified as a discovery.

R W Holliday
R. W. Holliday

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
8/4	Talbert	800
8/4	C	220
8/4	WSG	400

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville 2, Tennessee

AUG 4 1958

Re: Docket No. DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Contract No. Idm-E1032

Dear Mr. Laurence:

The original and three copies of the Report of Review in lieu of a final audit, as requested by your memorandum of July 28, are enclosed.

This Report of Review is premised on the acceptable performance of a total of 6,699 feet of drifting and crosscutting rather than the 5,825 feet (4,231 feet of drifting and 1,594 feet of crosscutting) confirmed by your memorandum. If you concur with this, as well as the facts stated in the Report of Review, the original and one copy should be submitted to the regional finance officer, one copy should be forwarded to the Operator, and one copy should be retained in your files. If for any reason you do not concur, please return the original and all copies with your comments to this Division.

The final (June 1958) MF-104 and attachments, together with the assay sheets supporting prior forms MF-104, are being returned by certified mail to Mrs. Miller with a copy of this letter.

Sincerely yours,

(Signed) J. L. Chambers

Jay L. Chambers, Director
Contract Administration
and Audit Division

Enclosures

EDTalbert/GMcC
August 4, 1958

cc: Docket
Admr. Reading File
Helen R. Miller w/104, attachments, and assay sheets - via certified mail
Mr. Chambers
Mr. Talbert

8623

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

copy sent to 800

DEPTH. FILE COPY
DMEA
RECEIVED JUL 30 1958

DATE	INITIALS	CODE
7-30	C	220
	WSM	400

July 28, 1958

Memorandum

To: Jay L. Chambers, DMEA - WAshington, D. C.

From: Executive Officer, DMEA - Region V - Knoxville, Tenn.

Subject: DMEA-4216, Udm-E1032(tungsten) Hamme Mine, Vance County, North Carolina. Tungsten Mining Corp.

Work on the subject contract has been completed. The following units of work have been acceptably performed as verified by our Field Examiners:

1) Drifting completed----------4231 feet
2) Crosscutting completed----------1594 "
3) Timbering in drifts and crosscuts 874 "
4) Diamond drilling completed-------- 4000 "
5) Number pf analyses made---------- 102 "

An adequate engineering and geological report has been received. This project was completed June 16, 1958.

A report of review is requested.

Robert A. Laurence

VJL/sm
cc
Opr. Com.-2
Lynch
Files
Finance

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

July 28, 1958

RECEIVED JUL 30 1958		
DATE	INITIALS	CODE
7/30	C	220
8/1	EW	800
	WSM	400

Memorandum

To: Operating Committee, DMEA - Washington

From: DMEA Field Team, Region V - Knoxville, Tennessee

Subject: Operator's Final Engineering and Geological Report-DMEA-4216, Idm-E1032 (tungsten) Hamme Mine, Vance County, North Carolina

Enclosed are three copies of the subject final report.

Robert A. Laurence
Robert A. Laurence
Executive Officer, DMEA
Region V

V. J. Lynch
V. J. Lynch, Member
Bureau of Mines

1 copy to USGS
1 copy to Bureau of Mines
S.H.H. 8/5/58

z

TUNGSTEN MINING CORP.

BOX 931

HENDERSON, N. C.

TELEPHONE NO. 4139

OFFICIAL FILE COPY
DMEA
RECEIVED JUL 30 1958

DATE	INITIALS	CODE

July 12, 1958

Mr. Harry Burmeister
Mine Examination & Exploration Engineer
United States Department of the Interior
Bureau of Mines, Region V
College Park, Maryland

Operator's Final Report

Re: DMEA 4216, Idm-E 1032 (Tungsten)
Hamme Mine Vance County, N.C.

Dear Mr. Burmeister:

The above captioned Defense Minerals Exploration Contract agreed to November 2, 1956, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration and Tungsten Mining Corporation, Henderson, North Carolina, was completed on June 16, 1958.

Attached hereto please find the final report, five (5) copies, which covers the work conducted under this project. Also, as part of this report, we are mailing you under separate covers by parcel post, five (5) prints each of the required Maps for the report and five (5) copies of the Diamond Drill Logs.

We trust that the report properly meets the requirements under the Contract and also conforms with the suggestions advanced by you and your associates to Mr. A. M. Szynklewski, our Chief Engineer, for its compilation.

Very truly yours,

TUNGSTEN MINING CORP.

J. R. Sweet

J. R. Sweet
Vice-President & Gen. Mgr.

JRS:mlb

Enclosures

Maps filed in "Maps Folder"

July 12, 1958

FINAL REPORT

DMEA EXPLORATION PROJECT

at

Hamme Mine, Vance County, N.C.

for

Tungsten Mining Corp.

Docket No. DMEA 4216
Contract No. Idm-E 1032

TUNGSTEN MINING CORP.

J. R. Sweet
Vice-President & Gen. Mgr.

CONTENTS OF REPORT
(Five Copies)

Summary and Evaluation of Entire Project

Brief General Geology of the Hamme Mine

Table-I, Cost Summary of Entire DMEA Project.
Table-II, Summary For Projects A,B,C and D.
Table-III, Summary of Royalty Payments by Tungsten Mining Corp. to DMEA for Ore Mined During Exploration Period.
Table-IV, Summary of Ore Mined From DMEA Projects During Exploration Period.
Table-V, Overall Ore Reserve Summary And Tonnage Mined in Exploration Work.

Operators Unit Cost and Progress Report, (Form MF-104A)

Operators Monthly Report and Voucher, (Form MF-104)

Report on Each Project A,B,C and D Under Following Sub-titles:-
- Evaluation of Project
- General Geology of Project
- Narrative Summary of work for Project.
- Summary of Progress for Project
- Total Exploration and Cost for Project
- Ore Reserves for Project

Maps Submitted:
- 5 - prints, 40 Scale, Geology Map of Project A
- 5 - prints, 40 Scale, Geology Map of Project B
- 5 - prints, 40 Scale, Geology Map of Project C
- 5 - prints, 40 Scale, Geology Map of Project D
- 5 - prints, 100 Scale, Composite Mine Map, of the Projects with skeletonized geology of the Projects and DMEA Boundaries

Diamond Drill Logs: -
- 5 - sets of Drill Logs for all DMEA Diamond Drill Holes.

Summary and Evaluation of Entire Project

The Exploration Project Contract No. Idm E-1032, Docket No. DMEA-4216, between the United States Dept. of the Interior, Defense Minerals Exploration Administration, and Tungsten Mining Corporation was dated November 2, 1956 and was received by Tungsten Mining Corporation on November 17, 1956.

Exploration work was started on November 19, 1956 and was completed on June 16, 1958.

Work was performed in four separate Projects, A, B, C, D. Under the contract, the following footages of drifts and crosscuts were allocated to each Project:

Project A	-	2200 ft.	(2200 ft. actually driven)
Project B	-	1300 ft.	(1300 ft. actually driven)
Project C	-	1200 ft.	(1199 ft. actually driven)
Project D	-	2000 ft.	(2000 ft. actually driven)

Diamond drill footage was also allocated to each Project, but by Amendment No. 2, the original contract was changed to permit the Operator to transfer unused drill footage from one Project to another Project, with prior government approval.

A total of 6699 ft. of drifts and crosscuts were driven. Of this 874 ft. or 13% required timber. Diamond drilling amounted to 4000 ft. 102 assay determinations were made. Below is a tabulation showing contrast allowances compared to actual work perfomed.

		Contract	Actual	Per Cent Utilized
Drifts and Crosscuts	-	6700 ft.	6699 ft.	99.99%
Diamond Drilling	-	4000 ft.	4000 ft.	100.00%
Timbering	-	1415 ft.	874 ft.	61.77%
Assays	-	250	102	40.80%

The Contract as amended allowed a total expenditure of $246,660.00. Actual Contract expenditure was $244,342.60 as shown in Table I.

Table II shows a Summary of Work Performed in each of the four Projects, namely A,B,C,D, and the tons of ore produced from each Project. Table IV also shows tons of ore produced from each Project.

As a result of the exploration work performed under this Contract, 2,577 tons of exploration ore was mined at an average grade of 0.57% WO_3. From this ore 1276.10 short ton units of WO_3 were recovered. (Table II and Table IV show the tonnage mined from each Project.)

Royalty payments to the Government on this tonnage amounted to $1,515.48. Tables III and IV show data pertaining to royalty payments and ore production.

Calculated Ore Reserves obtained as a result of the work under the Contract amount to 27,992 tons at an average grade of 0.69% WO_3. Table V shows data relative to Ore Reserves and tonnage mined in the four Projects.

Exploration work under the Contract resulted in an Ore Reserve of 27,992 tons plus 2577 tons of ore mined, a total of 30,569 tons, at an average grade of 0.68% WO_3.

Mineable ore bodies were located in three of the four Projects, namely A, B, and D. In the fourth, Project C, mineralized vein was encountered, especially

in Project D.

Following is a brief analysis of each Project.

Project A- Results somewhat disappointing. One relatively small ore body was located.

Several areas require additional exploration

Calculated Ore Reserve	-	6452 tons @ 0.49% WO_3
Tons Mined	-	552 tons @ 0.27% WO_3
	Total	7004 tons @ 0.47% WO_3
Cost of Project		$81,345.85

Project B- Results rather disappointing. Two small ore bodies were located.

Additional exploratory work in several areas is justified.

Calculated Ore Reserve	-	6408 tons @ 0.51% WO_3
Tons Mined	-	441 tons @ 0.61% WO_3
	Total	6849 tons @ 0.52% WO_3
Cost of Project		$47,410.65

Project C- Results were disappointing. A small narrow vein was encountered but it is not regarded as being mineable.

Calculated Ore Reserve	-	None
Tons Mined	-	157 tons @ 0.27% WO_3
	Total	157 tons @ 0.27% WO_3
Cost of Project		$42,984.15

Project D- Results were good. In the drift on the main vein system, there is continuous mineralization over a length of about 740 ft. there are at least two mineable ore lenses and portions of four other lenses may be mineable.

Additional lateral exploration is warranted as both faces in the drift still contain mineralization. Exploration in the form of raises and/or winzes could locate additional mineable ore lenses.

Calculated Ore Reserve	-	15132 tons @ 0.85% WO_3
Tons Mined	-	1427 tons @ 0.74% WO_3
	Total	16559 tons @ 0.84% WO_3
Cost of Project		$72,601.95

The remainder of this report includes a brief outline of the Geology of the Hamme Mine; and a section devoted to each of the four Projects in which there is outlined the following:

(a) Evaluation of the Project
(b) Geology of the Project
(c) Narrative Summary of Work Performed
(d) Summary of Progress for Project
(e) Total Exploration and Cost for Project
(f) Ore Reserves for Project

Included with this report are also:

1 - 5	prints	40	scale	Geology Map of Project A
2 - 5	"	"	"	Geology Map of Project B
3 - 5	"	"	"	Geology Map of Project C
4 - 5	"	"	"	Geology Map of Project D
5 - 5	"	100	"	Composite Mine Map, with skeletonized geology of the Projects and DMEA Boundaries.

6 - 5 sets of Drill Logs for all DMEA diamond drill holes
7 - 5 copies Form MF-104A
8 - 5 copies Form MF-104

Docket No. DMEA 4216
Contract E-1032

Brief General Geology of the Hamme Mine

The Hamme Mine, located in northern Vance County, N.C. was discovered by the Hamme brothers in 1943.

Since that time it has become one of the major tungsten producers in the United States.

The geology of the district has been described quite thoroughly by G. H. Espenshade in Bulletin 948A, U.S. Dept. of the Interior, Geological Survey, titled "Tungsten Deposits of Vance County, North Carolina, and Mecklenburg County, Virginia". Therefore no comprehensive report on geology will be made in this report.

The area is underlain by a granite-gneiss complex in the eastern part of the district and by schist in the western part. The granite is generally gneissic near the contact and adjacent to major shear zones, but is more massive elsewhere.

The schist is quite varied in appearance and composition but is generally a monotonous chlorite schist, quite often chlorite-epidote schist. Some sericitic schist is also present.

In the central part of the district there is a well-defined shear zone striking approximately N30E and dipping to the southeast at about 70 degrees. This is the main shear zone or Walker No. 2 Vein shear zone. In the areas adjacent to this zone the granite has been considerably sheared, sometimes for a width of 80 to 100 ft. This shearing varies considerably from slightly sheared granite to schistose gneiss, to sericitic schist.

Near the northern end of the district another major shear zone diverges away to the southwest from the main shear zone. This shear strikes about S50W and dips to the southeast at about 70 degrees. However further to the west in this zone the dip is reversed to the north at about 70 degrees. This shear zone is known as the Walker No. 3 and Walker No. 6 shear zone. Relatively speaking this zone is considerably tighter than the main shear zone, but has been economically important.

The main shear zone which is within the granite complex has been mapped on the surface for a length of about 2 miles. It had been developed in the mine for a length of about one mile (previous to DMEA Project A).

Mineralization in the district has been noted over a distance of about 8 miles.

The tungsten deposits occur as quartz veins, carrying huebnerite and a lesser amount of scheelite along with numerous accessory minerals including pyrite, fluorite, rhodochrosite, tetrahedrite, galena, chalcopyrite, sphalerite and several others.

The veins usuall occur as lenses en echelon within the main shear zone and within the other shear zones. Vein widths vary from a few inches to over 40 ft., the average being 12 to 14 ft. The individual lenses vary in length from a few feet to over 800 ft. in length.

Most of the veins occur in shear zones within the granite-gneiss complex but there are several economically important veins in the schist.

Within the district are several major diabase and diorite dikes, which have spread or displaced the veins. Major dikes occur on both the north and south ends of the mine. Minor dikes occur elsewhere.

TABLE I

Docket No. DMEA 4216
Contract No. E-1032

COST SUMMARY FOR ENTIRE DMEA PROJECT

		PROJECT A		PROJECT B		PROJECT C		PROJECT D		TOTAL	
	UNIT	UNITS	COST	UNITS	COST	UNITS	COST	UNITS	COST	UNITS	COST
Drifting, bare@$35.00	FT	1494	$52,290.00	1015	$35,525.00	929	$32,515.00	793	$27,755.00	4231	$148,085.00
Drifting, timbered@$32.40	FT	214	6,933.60	40	1,296.00	59	1,911.60	--	--	313	10,141.20
Crosscutting, bare@$35.00	FT	224	7,840.00	245	8,575.00	211	7,385.00	914	31,990.00	1594	55,790.00
Crosscutting, timbered@$32.40	FT	268	8,683.20	--	--	--	--	293	9,493.20	561	18,176.40
Timbering @ $6.00	FT	482	2,892.00	40	240.00	59	354.00	293	1,758.00	874	5,244.00
Diamond Drilling @ $1.65	FT	(a) 1617	2,668.05	(b) 1041	1,717.65	(c) 487	803.55	(d) 855	1,410.75	(e) 4000	6,600.00
Number of Assays @ $3.00	ea	13	39.00	19	57.00	5	15.00	65	195.00	102	306.00
			$81,345.85		$47,410.65		$42,984.15		$72,601.95		$244,342.60

(a) 16 holes
(b) 10 holes
(c) 6 holes
(d) 7 holes
(e) 39 holes

TABLE II

Docket No. DMEA 4216
Contract No. E-1032

SUMMARY FOR PROJECTS A,B,C, and D

	Drifts (Bare) $35.00/ft	Drifts (Timbered) $32.40/ft	Crosscuts (Bare) $35.00/ft	Crosscuts (Timbered) $32.40	Total Drifts and Crosscuts	Timber $6.00/ft	Diamond Drilling $1.65/ft	Assays $3.00each	ORE PRODUCTION Wet Tons	WO_3
Project A	1494	214	224	268	2200	482	(a) 1617	13	552	0.27
Project B	1015	40	245	-	1300	40	(b) 1041	19	441	0.61
Project C	929	59	211	-	1199	59	(c) 487	5	157	0.27
Project D	793	-	914	293	2000	293	(d) 855	65	1427	0.74
TOTAL	4231	313	1594	561	6699	874	(e) 4000	102	(f) 2577	0.59%

(a) 16 holes
(b) 10 holes
(c) 6 holes
(d) 7 holes
(e) 39 holes
(f) 1276.10 S.T.U.'s Recovered

TABLE IV

Docket No-DMEA 4216
Contract E-1032

SUMMARY OF ORE MINED FROM DMEA PROJECTS DURING EXPLORATION PERIOD

Month	Year	PROJECT A Wet Tons	PROJECT A Grade	PROJECT B Wet Tons	PROJECT B Grade	PROJECT C Wet Tons	PROJECT C Grade	PROJECT D Wet Tons	PROJECT D Grade	TOTAL Wet Tons	TOTAL Grade	S.T.U.'s Recovered	
November	1956	—	—	—	—	—	—	—	—	—	—	—	
December	1956	—	—	—	—	140	0.27	—	—	140	0.27	32.44	
January	1957	154	0.32	—	—	17	0.27	—	—	171	0.315	45.81	
February	"	68	0.14	—	—	—	—	—	—	68	0.14	7.92	
March	"	—	—	165	0.39	—	—	—	—	165	0.39	54.49	
April	"	—	—	—	—	—	—	—	—	—	—	—	
Sub-Total		222	0.265	165	0.390	157	0.270			544	0.304	140.66	Royalty Settlement No.1
May	1957	49	0.57	—	—	—	—	—	—	49	0.57	23.99	
June	"	—	—	—	—	—	—	—	—	—	—	—	
July	"	—	—	264	0.75	—	—	—	—	264	0.75	159.80	
August	"	—	—	3	0.75	—	—	—	—	3	0.75	1.84	
Sub-Total		49	0.570	267	0.750	—	—	—	—	316	0.722	185.63	Royalty Settlement No.2
September	1957	—	—	—	—	—	—	107	1.34	107	1.34	119.51	
October	"	—	—	—	—	—	—	594	0.81	594	0.81	406.88	
November	"	—	—	9	0.35	—	—	283	0.85	292	0.83	203.40	
December	"	241	0.22	—	—	—	—	277	0.55	518	0.40	179.05	
Sub-Total		241	0.220	9	0.350			1261	0.807	1511	0.711	908.84	Royalty Settlement No.3
January	1958	12	0.41	—	—	—	—	166	0.25	178	0.26	39.33	
February	"	—	—	—	—	—	—	—	—	—	—	—	
March	"	—	—	—	—	—	—	—	—	—	—	—	
April	"	—	—	—	—	—	—	—	—	—	—	—	
May	"	28	0.07	—	—	—	—	—	—	28	0.07	1.64	
Sub-Total		40	0.172	—	—	—	—	166	0.250	206	0.234	40.97	Royalty Settlement No.4
GRAND TOTAL		552	0.266	441	0.607	157	0.270	1427	0.742	2577	0.588	1276.10	

Note: Grade is Percent WO_3

Docket No. DMEA 4216
Contract No. E-1032

TABLE III

SUMMARY OF ROYALTY PAYMENTS BY TUNGSTEN MINING CORPORATION
TO DMEA FOR ORE MINED DURING EXPLORATION PERIOD

Date of Payment	Period Covered	S.T.U.'s Recovered	Calc. Ave. Selling Price	Amt. of Royalty Payment	Remarks
May 18, 1957				$ 92.82	
July 2, 1957	Nov.1,1956-April 30,1956	140.66	$32.9962	139.24	Royalty Settlement No.1
Sept.28, 1957	May 1,1957-Aug 31, 1957	185.63	$27.1700	$ 252.18	Royalty Settlement No.2
Jan. 28, 1958	Sept.1,1957-Dec.31,1957	908.84	$21.6700	$ 990.15	Royalty Settlement No.3
June 30, 1958	Jan.1,1958-June 30,1958	40.97	$20.0605	$ 41.09	Royalty Settlement No.4
		1276.10	$23.6668	$1,515.48	

Payments are based on 5% of gross value of tungsten concentrates

TABLE V

Docket No. DMEA 4216
Contract No. E-1032

OVERALL ORE RESERVE SUMMARY, AND TONNAGE MINED IN EXPLORATION WORK

	CALCULATED ORE RESERVES				TONNAGE MINED		RESERVE PLUS ORE MINED	
	Tons Proven	Tons Probable	Tons Total	$\%WO_3$ Grade	Tons	Grade $\%WO_3$	Tons	Grade $\%WO_3$
Project A	3226	3226	6452	0.49	552	0.27	7004	0.47
Project B	3204	3204	6408	0.51	441	0.61	6849	0.52
Project C	--	--	--	--	157	0.27	157	0.27
Project D	7566	7566	15132	0.85	1427	0.74	16559	0.84
	13,996	13,996	27,992	0.69	2577	0.59	30,569	0.68

Evaluation of Project A

2200 Lineal feet of drifting and crosscutting, and 1617 ft. of diamond drilling were expended in Project A. 482 lineal feet of timber was installed.

One medium sized ore body was opened up which is of mineable size and grade. Scattered mineralization is present for a distance of about 690 ft. north of this ore body, just north of the first dike.

Ore Reserves are calculated to be 6452 tons at 0.49% WO_3. Tonnage mined as a result of this exploration is 552 tons at 0.27% WO_3

The results obtained in Project A are not very rewarding. However it must be pointed out that in the area north of the mineable ore lens just beyond the first dike, to a point near survey station 1439, a strike distance of about 690 ft., there is considerable mineralization present in small veins. Additional exploratory work in this area in the form of raises and/or winzes could locate economically important ore. It may be that this mineralization represents either the top or bottom of mineable ore lenses.

It should be noted that just north of the dike on the 900 Level in Project A we have one mineable ore lens. On the 700 Level in the same area we have some fair mineralization. It is quite possible that these are on the same ore lens.

Beyond this point northward, the Project is definitely disappointing with very little mineralization being present. The last 112 ft. of drift at the end of the Project contains some mineralization in narrow quartz seams and further exploration work is justified northward.

Docket No. DMEA 4216
Contract No. E-1032

GENERAL GEOLOGY OF PROJECT A

Exploration in Project A was performed on what is locally called the No. 2 Vein shear zone. This shear zone has been by far the most productive zone in the mine.

On the surface it has been traced for a length of about 2 miles with mineralization present for the entire length.

Within the mine it has been developed for lengths approximating 1 mile on all except the lower levels.

South of the Sneed Shaft, this shear is displaced into the footwall by a large diabase dike. This shear has been picked up south of the dike and an excellent ore body known as the No. 22 Vein has been developed.

The developed mine limits to the north on the No. 2 Vein shear zone (with the exception of the 700 Level) terminated against a large diabase dike. On the 700 level favorable structure and some fair mineralization was encountered north of the dike but this occurence was not considered to be mineable.

North of this dike surface drilling on the Walker No. 5 and Walker No. 10 veins indicated favorable structure and scattered mineralization.

Project A was designed to explore the area on the 900 Level below the outcrops and drill hole intersections of the Walker No. 5 and Walker No. 10 veins.

The shear zone upon which drifting was performed in Project A is entirely within the granite-gneiss complex. The shear zone strikes about N 30 E and dips to the southeast at about 70 to 75 degrees.

Crosscutting the shear are three major diabase or diorite dikes which are post-mineral in age. The first dike is about 130 ft. thick, the second about 55 ft. thick and the third about 140 ft. thick. Each of these dikes have spread or displaced the vein structure to the east. Crosscuts were designed to pick up the structure on the north side of each of these dikes.

The structure followed consists of shearing in altered granite-gneiss, and schistose facies of this granite-gneiss complex developed along the shear zone. Varying amounts of hydrothermal alteration and gouge is present. In the livelier portion of the shear zone, sericitization is more abundant and quartz lenses are more numerous.

In brief, the first 750 ft. north of the first dike and the last 112 ft. of Project A present the liveliest structure present in this Project. The area between these points is generally much tighter and lacks evidence of much hydrothermal alteration and therefore less chance for ore occurence.

Docket No. DMEA 4216
Contract No. E-1032

FINAL REPORT - PROJECT A

Narrative Summary of Work

Crosscutting in Project A was started on November 19, 1956, on a bearing of N 80 E through a diabase dike. This dike is about 130 ft. thick in the crosscut.

About 25 ft. east of the north dike contact a mineralized vein was encountered. At this point the vein is about 16 ft. wide. Drifting to the northeast on this vein followed but in about 25 ft. the lens pinched out. (Back-drifting to the southwest on this ore was not undertaken until December 1957. At that time, 55 ft. of drifting was done to the southwest. This advance opened up a mineable lens of ore about 90 ft. long. 9 chip samples on this ore lens averaged 8.6 ft. wide and assayed 0.49% WO_3. The ore is cut off very abruptly by the dike on the south west end.)

Drifting to the northeast was continued until the vein and structure pinched out. When the drift was at point about 30 ft. NE of survey station 1385, two diamond drill holes U1241 and U1242 were drilled into the hanging wall and indicated good structure and mineralization. As a result of this drilling, a crosscut to the east was started and encountered four distinct mineralized zones each 1 to 2 ft. wide. Drifting to the northeast was undertaken on the last zone but it pinched out within a few feet. Two additional diamond drill holes U1252 and U1254 were drilled to test the walls. U1254 in the hanging wall did not encounter any mineralization. U1252 cut 1-1/2 ft. of vein from 6 to 7-1/2 ft. in the footwall. Drifting was resumed on a bearing of about N 30 E and intercepted the vein which was cut in drill hole U1252. The vein varied in width from 6 inches to 2 feet and had some fair but spotty mineralization. This vein is located near survey station 1407 and was drifted upon for a length of about 45 ft. The next 135 ft. was on tight structure with little quartz. The following 370 ft. of drift was on very lively structure with small and scattered lenses of mineralized vein usually 1 to 3 ft. wide. These lenses, lying between survey stations 1418 and 1439 are not of mineable size or grade at this level. However it is quite possible that either above or below the level anyone of these might open up into a mineable ore body. They could represent either the top or bottom of mineable ore bodies. Further exploratory work in the form of raises and/or winzes is justified to determine this possibility. In the area described above three additional drill holes were drilled to test the walls, indicating the presence of other structures, but no mineralization to speak of.

The next 500 ft. was on tight structure to a point near survey station 1466 where a second diabase dike was encountered. Two additional drill holes were drilled in this area to test the walls but nothing of interest was shown up. The heading then was turned further to the northeast to crosscut the dike, which is about 55 ft. wide in the crosscut.

A structure was located about 20 ft. beyond the dike but the crosscut was continued into the hanging wall to eliminate the possibility of another structure, since surface drilling indicated two definite mineralized structures. Since no favorable structure was located drifting to the northeast was resumed on the structure first encountered.

A small amount of mineralization in a narrow vein 1 to 1-1/2 ft. wide was present for a few feet but this pinched out and the structure also tightned up until a third diabase dike was encountered near survey station 1476. Four drill holes were drilled in the area between these two dikes but failed to indicate anything note worthy except the presence and location of the two dikes.

The dike was crosscut on a bearing of about N 56 E and is about 140 ft. wide in the crosscut. At a point about 30 ft. beyond the dike a fairly lively structure was intersected. The structure consists of one, sometimes two or more narrow veins, which pinch and widen, but usually are under 1 ft. wide. Some mineralization is present. This structure has been drifted upon for a length of about 112 ft. to the end of the Project. At a point about 8 ft. back from the present face one of these narrow veins widened out to about 4 ft. but it pinched out rapidly. This structure looks favorable for ore and additional drifting to the northeast is certainly in order.

Two drill holes were drilled near the present face, U1316 was drilled into the hanging wall. U1317 was drilled into the footwall. No promising structure or veins were intersected. Drill hole U1317 was in diorite dike from a depth of 40 ft. to the end of the hole at 108 ft. The following tabulations show the units of each type of work performed in Project A in chronological sequence, as well as a summary of the costs involved.

Docket No. DMEA No. 4216
Contract No. E-1032

SUMMARY OF PROGRESS FOR PROJECT A

	Drifts (Bare) Ft.	Drifts Timbered Ft.	X-Cuts Bare Ft.	X-Cuts Timbered Ft.	Timber Ft.	Diamond Drilling Ft.	Assays No.	Ore Production Wet Tons	Grade % WO_3
November 1956			16	18	18				
December 1956			5	50	50				
January 1957	23		31	40	40		1	154	0.32
February 1957	114		54			190	2	68	0.14
March 1957	148					210			
April 1957	182		-5*	+5	5	-	-		
May 1957	82	70	-	-	70	269	-	49	0.57
June 1957	85								
July 1957	177						2		
August 1957	32	85			85				
September 1957	155								
October 1957	84		11			269			
November 1957	20		23	75	75				
December 1957	151					45	5	241	0.22
January 1958	136					348	1	12	0.41
February 1958	60 -59 *	+59	66* -66	+66		70			
March 1958			20	14	139				
April 1958	22		69				1		
May 1958	82					45	1	28	0.07
June 1958						171			
Totals	1494	214	224	268	482	1617 (16 holes)	13	552	0.27%

*Reported as untimbered, later partially or all timbered as indicated by negative numbers

Form MF-104A
(April 1952)

Budget Bureau No. 42-R1151.2

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S UNIT COST AND PROGRESS REPORT

FINAL REPORT

Month of _____ 195____ Docket No. DMEA 4216 Contract No. E-1032

Operator's Name TUNGSTEN MINING CORPORATION Minerals TUNGSTEN

Address BOX 931, HENDERSON, N. C.

OPERATION	UNIT	COSTS THIS MONTH	UNITS THIS MONTH	COSTS TO DATE	UNITS TO DATE	UNIT COSTS TO DATE	AUTHORIZED BY CONTRACT	
							Units	Unit Costs
Drifting Not timbered	Ft	-	-	$148,085.00	4231	$35.00		
~~Cross cuts~~ Drifts timbered	Ft	-	-	10,141.20	313	32.40		
~~Raises~~ XC not timbered	Ft	-	-	55,790.00	1594	35.00		
~~Shafts~~ XC timbered	Ft	-	-	18,176.40	561	32.40		
Winzes								
Drilling: Core	Ft	-	-	6,600.00	4000	1.65		
Churn								
Auger								
~~Stripping~~ Sampling	Ea	-	-	306.00	102	3.00		
Trenching								
Test Pits								
Roads and Trails								
Timbering	Ft	-	-	5,244.00	874	6.00		
TOTAL DISTRIBUTED COSTS		-	-	$244,342.60				TOTAL COSTS AUTHORIZED BY CONTRACT
Operating Equipment Purchased								
Initial Rehabilitation and Repairs								
New Buildings, Improvements, etc								
TOTAL COSTS								

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

Date JULY 11, 1958 Operator TUNGSTEN MINING CORPORATION

Per J. R. Sweet Title VICE PRES & GEN MGR.

J.R. Sweet

REMARKS:

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

(Instructions on reverse)

(For Government use only)

INSTRUCTIONS

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

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

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

GPO 872894

Form MF-104 (Rev.)
(April 1952)

Budget Bureau No. 42-R1036.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

OPERATOR'S MONTHLY REPORT AND VOUCHER

Month of FINAL REPORT, 195..... Docket No. DMEA 4216 Contract No. E-1032
Operator's Name TUNGSTEN MINING CORPORATION Minerals Tungsten
Address BOX 931, HENDERSON, N. C.
Contract Amount, $ 246,660.00 Government Participation: 75 % Amount, $ 184,995.00

ITEMS OF COSTS	FOR OPERATOR'S USE			FOR GOVERNMENT USE ONLY		
	Monthly Total	Totals Previously Reported	Totals To Date	Approved Monthly Total	Approved Totals Previously Reported	Approved Totals To Date
(1) Independent Short Form Contracts:						
Drifts not timbered	-	$148,085.00	$148,085.00			
Drifts timbered	-	10,141.20	10,141.20			
Crosscutting not timbered	-	55,790.00	55,790.00			
XC timbered	-	18,176.40	18,176.40			
Timbering	-	5,244.00	5,244.00			
(2) Labor and Supervision:						
Core drilling	-	6,600.00	6,600.00			
Supervision						
Technical Services						
(3) Operating Mat'ls. and Supplies:						
Timber						
Explosives						
Pipe						
Track						
(4) Operating Equipment:						
Rental						
Purchase						
Depreciation						
(5) Initial Rehabilitation and Repairs						
(6) New Bldgs., Improvements, etc.						
(7) Miscellaneous:						
Repairs to Equipment						
Sampling and Analysis		306.00	306.00			
Payroll Taxes						
Liability Insurance						
(8) Contingencies (specify):						
TOTALS		$244,342.60	$244,342.60			

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

Date JULY 11, 1958 *Payee TUNGSTEN MINING CORPORATION

Per J. R. Sweet Title VICE PRES & GEN MGR.

J. R. Sweet

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

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

(Instructions on reverse)

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

$.....

Signature .....
(Authorized Certifying Officer)

Date ..... Vou. No. .....
(See other side)

(For Government use only)

CERTIFICATION BY GOVERNMENT REPRESENTATIVE:

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

Signature ..... Title ..... Date .....

APPROVAL BY DMEA EXECUTIVE OFFICER OR ALTERNATE:

Signature ..... Title ..... Date .....

MONTHLY REPORT OF OPERATOR

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

GPO 872893

TOTAL EXPLORATION AND COST, PROJECT A

Drifting, bare @ $35.00	1494 ft.	$52,290.00
Drifting, timbered @ $32.40	214 ft.	6,933.60
Crosscutting, bare, @ $35.00	224 ft.	7,840.00
Crosscutting, timbered, @ $32.40	268 ft.	8,683.20
Timbering @ $6.00	482 ft.	2,892.00
Diamond Drilling @ $1.65	1617 ft.	2,668.05
Number of Assays @ $3.00	13	39.00
		$81,345.85

ORE RESERVES ** PROJECT A

There is only one lens in Project A for which Ore Reserves may be calculated. This is the first vein cut north of the first dike in the Project:

This lens is 90 ft. long. Average width and grade is based on sampling. The width is 8.6 ft. The grade is 0.49% WO_3.

Reserves are calculated on the same basis as are the reserves for the remainder of the mine. The first 25 ft. above the level and the first 25 ft. below the level is classed as Proven Ore. The next 25 ft. in both directions, is classed as Probable Ore. Tonnage factor is 12 cu. ft. per ton of ore.

On this basis the Ore Reserve is:

3226 tons Proven @	0.49% WO_3
3226 tons Probable @	0.49% WO_3
6452 tons Total @	0.49% WO_3

Half of this ore is above the 900 Level and half is below the 900 Level.

Docket No. DMEA 4216
Contract No. E-1032

FINAL REPORT - PROJECT B

Evaluation of Project B

1300 lineal feet of drifting and crosscutting and 1041 ft. of diamond drilling were expended in Project B, and 40 lineal feet of timber was installed. Two small ore lenses were discovered. The total ore reserve calculated is 6408 tons at 0.51% WO_3. Tonnage mined as a result of this exploration work is 441 tons at 0.61% WO_3.

Generally speaking, the results did not live up to our expectations. However the presence of ore in the vicinity of station 1419 is encouraging in view of the fact that on the 500 Level in this same general area we do have some good ore, although narrow. Thus there is a vertical height of approximately 400 ft. in which additional ore may occur. Also on the 1100 Level there is one diamond drill hole which indicates mineralized vein about 150 ft. northeast of the ore occurence on the 900 Level in Project B.

Thus we have ore 400 ft. vertically above this point and mineralization 200 ft. below and northeast of this point.

Potentially, a fair tonnage of ore may be present, but this will have to be shown by further exploratory work in the form of raising and winzing.

The second ore lens (stations 1440 and 1462) at this stage is difficult to evaluate. Its persistence up dip and down dip is unknown. Additional exploratory work in the form of raising and winzing is indicated. However the presence of good mineralization is encouraging, and there is a good possibility of a fair sized ore body on the northeast - southwest segment of this ore lens.

Two other geological possibilities are present:

1. The shear indicated on the mapping between survey stations 1420 and 1429 should encounter the granite-schist contact about 300 ft. west of its position at station 1429. This shear is a relatively strong shear and does contain quartz with traces of mineralization. The point where this shear intersects the granite-schist contact may be a likely location for an ore body. One drill hole U1318 failed to indicate anything of interest, but additional drilling is justified.

2. The continuation of the No. 3 Vein structure to the southwest still offers promise especially where the shear would encounter the granite-schist contact.

   On the 100 Scale Map the relationship of Morton Estate No. 3 Vein, Morton Estate No. 2 Vein, and No.3 Vein in Project B is interesting in that they seem to align themselves quite well. This possibility will certainly be explored at a later date.

General Geology of Project B

Exploration in Project B was performed on the southward extension of the No. 3 Vein shear Zone. This shear zone diverges to the southwest from the No. 2 Vein zone, but is considerably shorter. The average strike is about N 50 E, with a dip of about 70 degrees to the southeast.

The No. 3 Vein shear zone is not as strong as the Main Shear Zone (No. 2 Vein Shear Zone). It has however been productive from the surface to the 900 Level. Practically all of this production came from areas developed north of the main shaft crosscuts.

On only one level (the 500) has any exploratory work been performed south of the shaft crosscuts. On the 500 Level, 200 ft. of narrow vein has been opened up, with ore still present in the south face.

The entire Project remained in the granite-gneiss complex. The shear zone is fairly strong for the first 350 ft. of drifting in the Project, consisting of numerous lenses of quartz along with some sericitization and evidence of shearing. The strike is about S 40 W and dip about 70° to the southeast.

Beyond this point, the structure has not been definitely identified, although several segments may have been opened up by later drifting, in the vicinity of survey station 1430, and between survey stations 1447 and 1458. The shear zone evidently weakens and is difficult to identify in the drifts and diamond-drill holes. There is a possibility the structure may yet be in the footwall of the drifts. Further drilling is justified to determine this. The importance of diamond drilling is shown by the discovery of the small ore lense in the vicinity of survey station 1440 where the junction of two zones resulted in a small ore body.

Docket No. DMEA 4216
Contract No. E-1032

Final Report - Project B

Narrative Summary of Work

Crosscutting westward to No. 3 Vein was started on December 1, 1956. At a point about 38 ft. from the starting point a narrow vein was encountered. The crosscut was continued to the expected location of No. 3 Vein but no structure was located. It then became apparent that the vein previously cut was No. 3 Vein and that the No. 3 Vein structure had made a rather sudden change in strike. Drifting was then started on this narrow vein to the southwest on this structure for about 380 ft. encountering sporadic mineralization. One short lens of ore about 45 ft. long immediately north of survey station 1419 was opened up. Four samples on this lens of ore averaged 5.2 ft. wide and assayed 0.63% WO_3.

During the month of March 1957, 165 wet tons of ore was produced from this lens. Grab samples of this ore assayed 0.39% WO_3.

At a point 20 ft. north of survey station 1420 an intersecting structure was encountered. This was a comparatively strong structure and was followed westward to survey station 1429 at which point it became evident that this was not No. 3 Vein.

Two drill holes U-1269 and U1270 indicated the presence of No. 3 Vein structure in the hanging wall. A crosscut was driven on the line of Drill Hole U1269 and encountered two narrow veins, one at the location of survey point 1434 and one at the location of survey point 1430.

The latter appeared to have the proper strike and dip for No. 3 Vein and drifting was started to the southwest on this narrow vein. However within a few feet this vein and structure pinched out completely.

A few crosscut rounds were taken in the vicinity of survey station TP 26 to explore scattered narrow veins in this area, but none proved to be very promising.

The drift was continued on the general strike of No. 3 Vein while two drill holes U1283 and U1284 were drilled to test the foot wall area.

Drill Hole U1283 encountered vein from 22-1/2 ft. to 48 ft.:

Assays as follows:

22-1/2'-30'	0.36% WO_3
30' - 40'	NIL
40' - 48'	0.75% WO_3

Drill Hole U-1284 encountered vein from 17 ft. to 20 ft.

Assay:

17' - 20'	0.02% WO_3

As a result of this drilling it was decided to drop back to survey point 1434 and drift westward on the first of the two veins cut in the crosscut. This work opened up some ore in a narrow vein striking approximately eastwest and dipping at about 50 degrees to the south. This vein junctioned with another vein striking about N 25 E and dipping to the southeast at about 75 degrees.

The first vein mentioned above is mineralized for a length of about 73 ft; the latter for about 45 ft.

As a result of the development work in this area 276 net tons of ore were produced. Grab samples of this ore assayed 0.74% WO_3. This production came in July, August, and November of 1957.

Five samples taken on the narrow westerly vein averaged 3.2 ft. wide and assayed 0.46% WO_3. Four samples on the N 25 E vein averaged 6.8 ft. wide and assayed 0.46% WO_3.

While this work was in progress two drill holes U1289 and U 1290 were drilled from the main drift into the hanging wall. These failed to indicate any structures.

When the major portion of the work in this area (described above) was completed, the drift to the southwest was continued again and soon encountered a small diabase dike. When this dike was crosscut, the drift was turned to the west and another structure was encountered at the location of survey station 1447.

One sample taken here across a width of 2.4 ft. assayed 0.05% WO_3.

Drifting was then undertaken to the southwest on this structure, but the structure tightened up almost immediately. This drift on this structure accounted for about 183 ft. of advance.

When very little quartz remained, two holes U1296 and U1297, were drilled into the footwall, Each encountered narrow veins with some mineralization.

A crosscut was driven to this structure and about 30 ft. of drifting to the southwest followed. This structure showed a few inches of quartz with traces of mineralization.

Inasmuch as only a few feet of the alloted 1300 ft. for this Project remained, the last few rounds of advance were taken in the "room area" in the vicinity of survey station 1462. Advance was both to the northeast and to the southwest. The vein to the southwest pinched rapidly. The advance to the northeast exposed some scattered mineralized quarts.

One additional drill hole U1298 was drilled at +33 degrees to test the N25°E structure above the level indicating 1-1/2 ft. vein which assayed 1.35% WO_3.

Drifting and crosscutting advance was completed in Project B on November 26, 1957.

In June 1958, one drill hole (U1318) was drilled to check the intersection of the structure which is in the drift between survey stations 1429 and 1420, and the schist contact. No encouraging results were obtained. Drilling was completed on June 16, 1958 which marked the completion of all DMEA work under the Contract.

The following tabulations show the units of each type of work performed in Project B in chronological sequence as well as a summary of the costs involved.

Docket No. DMEA No. 4216
Contract No. E-1032

SUMMARY OF PROGRESS FOR PROJECT B

	Drifts (Bare) Ft.	Drifts Timbered Ft.	X-Cuts Bare Ft.	X-Cuts Timbered Ft.	Timber Ft.	Diamond Drilling Ft.	Assays No.	Ore Production Wet Tons	Grade % WO_3
November 1956	-	-	-	-	-	-	-	-	-
December 1956	42	-	80	-	-	-	-	-	-
January 1957	137	-	-	-	-	-	-	-	-
February 1957	36	-	-	-	-	-	-	-	-
March 1957	126	-	-	-	-	-	4	165	0.39
April 1957	135	-	19	-	-	189	-	-	-
May 1957	102	-	85	-	-	-	-	-	-
June 1957	42	-	-	-	-	162	4	-	-
July 1957	120	20	-	-	20	149	9	264	0.75
August 1957	141	15	-	-	15	-	-	3	0.75
September 1957	51	5	6	-	5	312	1	-	-
October 1957	53	-	-	-	-	-	1	9	0.35
November 1957	-	-	-	-	-	-	-	-	-
December 1957	-	-	-	-	-	-	-	-	-
January 1958	-	-	-	-	-	-	-	-	-
February 1958	-	-	-	-	-	-	-	-	-
March 1958	-	-	-	-	-	-	-	-	-
April 1958	-	-	-	-	-	-	-	-	-
May 1958	-	-	-	-	-	-	-	-	-
June 1958	-	-	-	-	-	229	-	-	-
TOTAL	1015	40	245	-	40	1041 (10 holes)	19*	441	0.61%

* 5 Drill Hole Assays
14 Chip Sample Assays

TOTAL EXPLORATION AND COST, PROJECT B

Drifting, bare @ $35.00	1015 ft.	$35,525.00
Drifting, timbered @ $32.40	40 ft.	1,296.00
Crosscutting, bare @ $35.00	245 ft.	8,575.00
Crosscutting, timbered @ $32.40	--	--
Timbering @ $6.00	40 ft.	240.00
Diamond Drilling @ $1.65	1041 ft.	1,717.65
Number of Assays @ $3.00	19	57.00
	Total	$47,410.65

Docket No. DMEA 4216
Contract No. E-1032

Ore Reserves Project B

There are two areas in which ore reserves may be calculated.

One of these is the ore in the vicinity of survey station 1419. (Lens No.1)

The other is in the area in the vicinity of survey stations 1440 and 1462. (Lens No. 2)

The reserves are calculated in the same manner that reserves are figured for the rest of the mine. Normally the first 25 ft. above and below the level are classed as Proven. Ore. The next 25 ft. above and below are classed as Probable Ore. Since no raising, winzing, or diamond drilling was done on any of these ore lenses, no additional ore above or below the 50 ft. mark is included.

The tonnage factor used for ore in place is 12.00 cu. ft. per ton.

Grades are based on cut samples taken and given as per cent WO_3.

Following is a Summary of Calculated Ore Reserves in Project B:

	Tons, Proven	Tons, Probable	Tons, Total	Grade, %WO_3
Lens No. 1	874	874	1748	0.63%
Lens No. 2	2330	2330	4660	0.46%
Total	3204	3204	6408	0.51%

The total reserves in Project B are thus:

3204 tons	Proven	@	0.51% WO_3
3204 tons	Probable	@	0.51% WO_3
6408 tons	Total	@	0.51% WO_3

Due to the method of calculation 50% of this ore is above the 900 Level and 50% is below the 900 Level.

Lens No. 1 is in the vicinity of survey station 1419
Lens No. 2 is in the "Room area" in the vicinity of survey station 1440

Evaluation of Project C

1199 lineal feet of drifting and crosscutting, and 487 ft. of diamond drilling were expended in Project C. 59 lineal feet of timber was installed.

One lens of mineralized vein about 166 ft. long was opened up. This vein varies in width from 1 ft. to 3-1/2 ft., the average being about 2.4 ft. Mineralization in this vein is very irregular and spotty. Five cut samples taken averaged 0.46% for an average width of 1.9 ft. Tonnage mined as a result of this exploration work amounted to 157 wet tons at 0.27% WO_3.

No Ore Reserve Tonnage can be calculated in this Project.

The results of the exploration in this Project were very discouraging, especially so after the first 500 ft. of drift had been driven. Up to that point the structure was quite strongand contained vein quartz for much of this distance, approximately 200 ft. of which contained some mineralization. However, beyond this point the structure is very tight and unimpressive.

It appears that any hope for ore is largely centered in the first 200 ft. of drift in the Project, either upwards or downwards. Additional exploration work in the form of raising and winzing is necessary to more fully evaluate this prospect. It is certainly quite possible that the drift may be either at the top or the bottom of an ore lens. This remains to be determined by further exploratory work.

General Geology of Project C

Exploration in Project C was performed on No. 28 Vein. No. 28 Vein was encountered in sinking the Sneed Shaft at about the 1320 ft. level. Subsequently a small amount of exploratory work was done on this vein on the 900, 1100, 1300 and 1500 Levels in the immediate shaft area. This proved the vertical continuity of the vein, but little was known about the continuity or character of this vein along its strike. Project C was designed to determine this.

The Project originated on the 900 Level on a very narrow vein in the schist. Within approximately 10 ft., the drift crossed from the schist into the granite-gneiss complex and remained in it to the end. The granite schist contact strikes about N20E and dips at about 80° to the south.

The vein widened out almost immediately and attained a true thickness of approximately 2 to 2-1/2 ft. The strike of the vein is about N33E. The dip is rather flat at about 50° to the south. The first 190 ft. of the Project is on mineralized vein. The next 250 ft. is also on narrow vein but very little mineralization is present. The following 100 ft. was on a fairly strong shear with little or no quartz.

In the area in the vicinity of the lamprophyre dike near survey station 1421, the shear zone split up into several weak branches and there after no strong shear was encountered.

A short crosscut was driven into the footwall in order to pick up this shearing, but failed to encounter it. Drifting was pursued on a rather weak structure and when this feathered out a longer crosscut was driven to the projected location of the main shear in the footwall. A very tight structure with a few inches of quartz was drifted upon to the completion of the Project.

Several pre-mineral lamprophyre dikes were encountered in this Project.

Docket No. DMEA 4216
Contract No. E-1032

Final Report - Project C

Narrative Summary of Work

Drifting was started on December 3, 1956 in Project C. The first 25 ft. of this drift was on tight structure with traces of mineralization, but very little vein. At this point a narrow vein was encountered. For the next 166 ft. or so drifting was on vein varying in width from 1 ft. to 3-1/2 ft. wide, averaging about 2.4 ft. wide. Mineralization was very irregular and spotty.

Five cut samples taken averaged 1.9 ft. wide (true width) and assayed 0.46% WO_3.

As a result of the drifting on this vein 157 tons of ore were produced. Grab samples of this ore assayed 0.27% WO_3.

At a point about 26 ft. northeast of survey station 1380, a small diabase dike about 2 ft. wide was encountered. For practical purposes the mineralization ended at this point. For approximately the next 250 ft. northeast of the dike drifting was continued on a narrow vein 1 to 2 ft. wide. This section of the vein does not appear very lively and no mineralization is present.

At a location about 20 ft. northeast of survey station 1398 the vein pinched out but the shear continued fairly strong, requiring timber to support the slabby back. About 25 ft. northeast of survey station 1409 a lamprophyre dike came into the drift on the east side. The drift cut across this dike and picked up a shear on the north side of the dike; however this shear did not appear very lively, and diamond drilling was undertaken to test both walls. Drill hole U1265 was drilled into the footwall and drill holes U1264, U1266, and U1267 were drilled into the hanging wall. The only possible shear indicated by this drilling which might correlate with the vein previously drifted upon was in the footwall. A short crosscut was driven into the footwall crosscutting the dike but this failed to indicate any structure.

Drifting was again resumed on the general strike of the vein, about N30E, on a tight structure (from survey station 1436 to the northeast). This structure pinched out and two drill holes, U1292 and U1293 were drilled to test both walls. Shearing was indicated in both holes, but no well defined veins were cut.

At this time it was deemed advisable to further advance the short crosscut previously driven to the northwest in the vicinity of survey station 1436. Although some shearing was exposed, none tied in with the expected strike and dip of the structure, except one very tight seam in the granite.

Inasmuch as all indications were that the structure should be to the northwest of the drift face (in the area of survey station 1448), a cross cut was started on the line of Drill Hole U1292 to the northwest. This crosscut exposed only one narrow vein which correlated fairly well with the strike and dip expected of No. 28 Vein.

Drifting on this structure was undertaken to the northeast (from survey station 1453). The advance, about 193 ft. was on a narrow vein 3 to 6 inches wide to a point where 1199 ft. of the contracted 1200 ft. had been completed.

Work was terminated at this point on October 10, 1957.

The following tabulation shows the units of each type of work performed in Project C in chronological sequence, as well as a summary of the cost involved.

Docket No. DMEA 4216
Contract No. E-1032

SUMMARY OF PROGRESS FOR PROJECT C

	Drifts (bare) Ft.	Drifts Timbered Ft.	X-Cuts Bare Ft.	X-Cuts Timbered Ft.	Timber Ft.	Diamond Drilling Ft.	Assays No.	Ore Production Wet Tons	Grade % WO_3
November 1956	-	-	-	-	-	-	-	-	-
December 1956	191	-	-	-	-	-	-	140	0.27
January 1957	186	-	-	-	-	-	-	17	0.27
February 1957	127	-	-	-	-	-	-	-	-
March 1957	24	59	-	-	59	-	-	-	-
April 1957	58	-	-	-	-	200	-	-	-
May 1957	14	-	43	-	-	30	-	-	-
June 1957	43	-	-	-	-	-	-	-	-
July 1957	89	-	26	-	-	257	-	-	-
August 1957	-	-	142	-	-	-	-	-	-
September 1957	134	-	-	-	-	-	5	-	-
October 1957	63	-	-	-	-	-	-	-	-
November 1957	-	-	-	-	-	-	-	-	-
December 1957	-	-	-	-	-	-	-	-	-
January 1958	-	-	-	-	-	-	-	-	-
February 1958	-	-	-	-	-	-	-	-	-
March 1958	-	-	-	-	-	-	-	-	-
April 1958	-	-	-	-	-	-	-	-	-
May 1958	-	-	-	-	-	-	-	-	-
June 1958	-	-	-	-	-	-	-	-	-
Totals	929	59	211	-	59	487 (6 holes)	5	157	0.27

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TOTAL EXPLORATION AND COST -- PROJECT C

Drifting, Bare	@	$35.00	929 ft.	$ 32,515.00
Drifting, Timbered	@	$32.40	59 ft.	1,911.60
Crosscutting, Bare	@	$35.00	211 ft.	7,385.00
Crosscutting, Timbered	@	$32.40	--	--
Timbering	@	$ 6.00	59 ft.	354.00
Diamond Drilling	@	$ 1.65	487 ft.	803.55
Number of Assays	@	$ 3.00	5	15.00
				$ 42,984.15

Ore Reserves

No ore reserves in Project C are calculated.

Undoubtedly some ore will be obtained from future exploration work on the mineralized vein exposed in the first 190 ft. of drifting in this Project, but the vein is too narrow and too irregular in value to be classed as mineable ore or to permit calculation of any tonnage.

Final Report - Project D

Evaluation of Project D

2000 ft. of drifting and crosscutting and 855 ft. of diamond drilling were expended in Project D.

293 lineal feet of timber was installed.

As a result of this exploration work, 1427 tons of ore were mined at an average assay of 0.74% WO3. An ore estimate of 15,132 tons @ 0.85% WO3 has been calculated for ore encountered in this Project.

Based on the limited amount of exploratory work performed in the vein area, these results are good. They do not however, accurately reflect the true potential of this ore discovery. It should be noted that of the 2000 lineal ft. of drifts and crosscuts, 793 ft. was drifting and 1207 ft. was crosscutting. For practical purposes, the entire 793 ft. of drifting was on mineralized vein. There are present six major lenses occuring en echelon. Two of these lenses are quite likely of mineable grade and size. The other lenses may be mineable in part, depending upon results of further exploratory work. In the ore estimate for this Project, some tonnage has been calculated for each of the six major lenses in the main vein system. Some of these are of marginal widths and some of marginal grade. It can readily be seen that these conditions may be due to the fact that the drift encountered the top or bottom of an ore lens and that grade and width may improve either up-dip or down-dip. These conditions have been encountered in other parts of the mine. Additional exploratory work in the form of raises and winzes might well disclose additional ore.

It should also be noted that the southwest face of the drift is still in very lively looking structure with some fair mineralization. The northeast face still shows some mineralization although the structure is somewhat tighter, perhaps locally. Both are regarded as having possibilities of encountering additional ore.

Surface drilling performed by the company several years ago indicates some ore over a strike length of about 500 ft. The lowest intersection (in elevation) is about 540 ft. above Project D. The surface is about 900 ft. above Project D. The ore potential between the 900 Level and the surface is sizeable; however on the basis of present drilling and exploratory work it is almost impossible to calculate with any degree of certainty, the ore in this block. Also the ore potential below the 900 Level is sizeable, especially since the lowest working level in the mine is 600 ft. below Project D at the 1500 Level.

Other veins in the schist have shown a marked degree of persistence in depth. It is quite likely that this is also true of the Morton Estate No. 3 Vein.

The ore estimate plus ore mined as a result of work in Project D amounts to 16,559 tons. This covers a maximum height of 100 ft. in the estimate.

Further exploratory work on the level is justified by additional drifting in both directions.

To the northeast, Morton Estate No. 2 Vein, 900 ft. distant, shows some mineralizations on the surface. The possibility of ore between the present northeast face of Project D and Morton Estate No. 2 Vein must be considered. Also as mentioned in the Project B report, the remaining area between Project D and Project B should

be explored.

The southwest face of Project D is still in very lively structure with mineralization and further drifting to the southwest is warranted. Surface mineralization continues 300 ft. south of the south face in the Project D.

General Geology of Project D

Exploration work in Project D consisted of a crosscut approximately 1200 ft. long to the Morton Estate No. 3 Vein on the 900 Level.

The Morton Extate No. 3 Vein is know on the surface by several scattered outcrops about 1200 ft. northwest of the Sneed Shaft. Surface drilling under this outcrop indicated good mineralization. Vein widths varied considerably from 3 to 40 ft.

No underground work or surface work (other than trenching) has been done on this vein previously.

The Morton Extate No. 3 Vein is entirely within the chlorite schist area west of the main shear zone (No. 2 Vein) which is in the granite-gneiss complex.

The crosscut on a bearing of N65W was started in chlorite schist, considerably baked by the large diabase dike. Within 10 ft., the diabase dike was encountered. This dike proved to be about 200 ft. thick. The crosscut was continued in chlorite schist to the vein intersection. For about 90 ft. northwest of the dike the schist was baked and contained a few seams of dike.

Several narrow barren quartz veins which contained mica on the outer borders of the veins were intersected but none contained any tungsten mineralization. Several shear zones were also encountered, but these do no appear to be of any importance, although they should be tested by drilling.

The chlorite schist is generally dark colored, rather massive in areas and foliated in others. Epidote is quite common. The attitude of the foliation is about N10E, dip about 70 degrees to the northwest.

The first mineralization was encountered about 50 ft. southeast of the main vein where a small amount of drifting indicated the presence of a narrow vein striking about S70 W and dipping at 74 degrees to southeast.

The main vein was encountered in the crosscut and subsequent drifting to the southwest and to the northeast opened up six major lenses of ore. These lenses occur en echelon and cover a strike length of about 740 ft. Practically all of this length contains mineralization.

Vein widths vary from a few inches up to 9-1/2 ft.

The general strike is about N40E and the dip is about 82 degrees to the northwest.

Both the south face and the north face still contain mineralization and offer excellent opportunities for further exploration.

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Contract No. E-1032

Final Report - Project D

Narrative Summary Work

Crosscutting in Project D was started on November 26, 1956 on a bearing of N65W toward the Morton Estate No. 3 Vein.

The first seven feet of crosscut were in chloritic schist. The next 200 ft. were in diabase dike which had to be timbered.

For the next 895 ft. to the vicinity of survey station 1455, the crosscut was in schist. This is chlortie schist with varying amounts of epidote. Adjacent to the dike the schist was considerably baked and contained seams of dike for a distance of about 20 ft.

Three fairly lively shears were encountered in the 895 ft. of crosscut mentioned above, but no mineralization was present. These are located as follows:

A - 108 ft.	northwest	of survey	station	1437
B - 177 ft.	"	"	"	1437
C - 25 ft.	"	"	"	1449

At a point about 87 ft. northwest of survey station 1449, a rather lively structure was encountered. Branching off from this structure to the southwest was a narrow quartz vein with some fair mineralization. This mineralization was drifted upon to the southwest for a distance of about 52 ft. The vein varied in width from a few inches to about 2-1/2 or 3 ft. Two samples were taken on this vein and assayed 0.03% WO3 for a width of 2.7 ft. and 0.07% WO3 for a width of 2.5 ft.

Inasmuch as this vein did not appear to improve in width and grade, the crosscut was again advanced and at a point about 53 ft. northwest of survey station 1455, a well mineralized vein about 9 ft. wide was encountered. This vein and structure was crosscut and drifting to the southwest was started.

At various intervals drifting was performed both to the southwest and to the northeast on this structure. The advance in the south drift amounted to 579 ft. of drift and 6 ft. of crosscut. In the north drift, the advance was 162 ft. of drift and 5 ft. of crosscut. The structure has an average strike of S40°E, and dips at about 82 degrees to the northwest.

As a result of this drift work, 1427 wet tons of ore were produced. Grab samples of this ore assayed 0.74% WO3.

Of academic interest only, it should be mentioned that molybdenite mineralization is present in this area, usually in very narrow veins striking a few degrees off the general strike of the main vein. Two samples assayed for Molybdenum ran 0.19% Mo and 0.10% Mo.

Following is a tabulation of assay results for the several lenses, starting at the one furthest north and going southward to the face of the southwest drift:

Lens	Number of Samples	Average Width	Length Represented by Sample	Grade % WO_3
No. 1	3	4.8	20 ft.	0.88%
No. 2	14	6.9	120 ft.	1.08%
No. 3	15	2.9	138 ft.	0.76%
No. 3A	2	2.7	7 ft.	1.27%
No. 4	7	7.9	60 ft.	0.72%
No. 5	12	3.0	120 ft.	0.42%
No. 6	7	4.5	60 ft.	0.36%

The above results indicate that Lens No. 2 and Lens No. 4 are of mineable grade and width.

Lens No. 1 is of good grade but is only 20 ft. long.

Lens No. 3 is of good grade and length but the average width is low. It is interesting to note that a portion of this vein is occupied by a diabase dike averaging about 1 ft. wide. A section of this lens may be mineable.

Lens No. 3A is not of any importance being very short and narrow.

Lens No. 5 is narrow and grade is rather low; however the southern end of this lens may be mineable.

Lens No. 6 is of mineable width but the indicated grade is low.

Seven diamond drill holes were drilled in Project D. Four of these were drilled into the hanging wall of three into the footwall. No mineralized veins were encountered.

293 lineal feet of timbering was installed, most of this was in and adjacent to the main dike near the start of the Project.

The following tabulations show the units of each type of work performed in Project D in chronological sequence, as well as a summary of the costs involved:

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SUMMARY OF PROGRESS FOR PROJECT D

	Drifts (Bare) Ft.	Drifts Timbered Ft.	X-Cuts Bare Ft.	X-Cuts Timbered Ft.	Timber Ft.	Diamond Drilling Ft.	Assays No.	Ore Production Wet Tons	Grade % WO_3
November 1956	-	-	43 -8 *	+8	-	-	-	-	-
December 1956	-	-	13 -13 *	+13	-	-	-	-	-
January 1957	-	-	54 -54 *	+54	-	-	-	-	-
February 1957	-	-	20	61	136	-	-	-	-
March 1957	-	-	73	40	40	-	-	-	-
April 1957	-	-	56	87	87	-	-	-	-
May 1957	-	-	219	-	-	-	-	-	-
June 1957	-	-	100	-	-	-	-	-	-
July 1957	-	-	186	-	-	-	-	-	-
August 1957	-	-	172	-	-	-	-	-	-
September 1957	70	-	42	30	30	-	4	107	1.34
October 1957	209	-	5	-	-	-	18	594	0.81
November 1957	181	-	6	-	-	269	16	283	0.85
December 1957	158	-	-	-	-	375	16	277	0.55
January 1958	175	-	-	-	-	160	11	166	0.25
February 1958	-	-	-	-	-	51	-	-	-
March 1958	-	-	-	-	-	-	-	-	-
April 1958	-	-	-	-	-	-	-	-	-
May 1958	-	-	-	-	-	-	-	-	-
June 1958	-	-	-	-	-	-	-	-	-
Totals	793	-	914	293	293	855 (7holes)	65	1427	0.74 %

* Reported as untimbered, later partially or all timbered as indicated by the negative numbers.

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TOTAL EXPLORATION AND COST, PROJECT D

Drifting, bare @ $35.00	793 ft.	$27,755.00
Drifting, timbered @ $32.40	--	--
Crosscutting, bare @ $35.00	914 ft.	31,990.00
Crosscutting, timbered @ $32.40	293 ft.	9,493.20
Timbering @ $6.00	293 ft.	1,758.00
Diamond Drilling @ $1.65	855 ft.	1,410.75
Number of Assays @ $3.00	65	195.00
		$72,601.95

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Ore Reserves - Project D.

There were six major lenses opened up in the drifting on the vein structure in Project D. On the basis of sampling and indicated widths, two of these are of mineable grade and size.

Referring to the maps, these are lenses No. 2 and No. 4.

Ore reserves are calculated for these two lenses on the same basis that reserves are calculated for the rest of the mine. "Proven Ore" is calculated 25 ft. above and below the level. "Probable Ore" is calculated for the next 25 ft. above and below the level; a total of 50 ft. above, and 50 ft. below the level.

Some ore reserves are also estimated for the other lenses; however due to the small widths or the relatively poorer grades indicated, the reserves are calculated only to a total height, of 25 ft. above and 25 ft. below the level. The first 12-1/2 ft. is taken as Proven Ore; the next 12-1/2 ft. as Probable Ore. This also is in line with our normal method of calculating reserves at this mine.

Widths and assays used are based on the samples taken.

Following is a summary of Calculated Ore Reserves for Project D:

	Tons, Proven	Tons, Probable	Tons, Total	Grade, %WO_3
Lens No. 1	200	200	400	0.88%
Lens No. 2	3450	3450	6900	1.08%
Lens No. 3 (Part of)	688	688	1376	0.84%
Lens No. 4	2140	2140	4280	0.72%
Lens No. 5 (Part of)	526	526	1052	0.40%
Lens No. 6	562	562	1124	0.36%
Total	7,566	7,566	15,132	0.85%

The total reserves in Project D are thus:

7566 tons Proven @ 0.85% WO_3
7566 tons Probable @ 0.85% WO_3
15132 tons Total @ 0.85% WO_3

Due to the method of calculation 50% of this ore is above the 900 Level, and 50% is below the 900 Level.

TUNGSTEN ALLOY CORPORATION
HAWTHORNE, N. J.

No. DDH No. DMEA H - 1241	PARTY N 32 10 E	COORDINATES
HOLE NO. A	DIP 0°	E 20,103.3
DATE 8-12-57	DEPTH 100 ft.	N 20,777.5

Interval (ft)	Description of Core
0 - 13	Chloritic schist. Minor quartz seam and slight hubnerite mineralization. Pyritic.
13 - 36	Sericitic schist. Chloritic in spots. Pyritic. Contains several ⅛" to 8" quartz veins with minor hubnerite and scheelite mineralization.
36 - 86½	Chloritic schist. Few sericitic seams. Several quartz stringers, one with minor mineralization. Few specks of hubnerite in schist along with pyrite and garnet.
86½ - 88½	Quartz vein - barren.
88½ - 90½	Siloxite - pinkish.
90½ - 94	Siliceous schist. Some quartz seams.
94 - 95	Chloritic schist.
95 - 100	Gneiss.

End

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DATE	INITIALS	CODE

[illegible] MINING CORPORATION
[illegible]

[illegible] HOLE NO. DHDA K - 1242	BEARING N 36° E	COORDINATES
PROJECT A	DIP 0°	N 20,0[illegible].2
DATE 2-13-57	DEPTH 90 ft.	E 23,7[illegible].4

Interval (ft)	Description of Core
0 - 13	Sericitic schist. Few narrow quartz seams.
13 - 17½	Chloritic schist with sericitic areas.
17½ - 19	Sericitic schist - foliated.
19 - 36½	Chloritic schist. 8 inches of quartz with trace of hubnerite at 19 ft.
36½ - 47½	Quartz vein with minor chloritic seam. Not mineralized.
47½ - 50	Chloritic schist with 7 inches of barren quartz.
50 - 51½	Quartz with calcite.
51½ - 53	Sericite schist.
53 - 53½	Barren quartz.
53½ - 67½	Chlorite schist. A few minor quartz seams.
67½ - 71	Silexite or silicified schist.
71 - 72½	Chlorite schist.
72½ - 73½	Sericite schist.
73½ - 90	Granite.

End.

[illegible] MINING [illegible]
[illegible], [illegible]

[illegible] NO.	HOLE U - 1252	APPROX. N 44½° W	[illegible]
PROJECT A		DIP 0°	N 20,163.0
DATE 3-4-57		LENGTH 120 ft.	[illegible] 20,241.1

Interval (ft)	Description of core
0 - 2½	Chlorite schist with a quartz stringer.
2½ - 8	Sericite schist. 3" to 4"-quartz and fluorite with some schist. 6" to 7½"-quartz with some hubnerite and scheelite.
8 - 69	Chloritic schist with numerous quartz stringers. Some scattered traces of scheelite in the schist.
69 - 72½	Gneiss, sheared.
72½ - 76	Lamprophyre dike.
76 - 79	Gneiss.
79 - 118	Chlorite schist. Several 1" quartz stringers and two 6" intervals, all barren. Trace of scheelite in the schist at 113 ft.
118 - 120	Gneiss.

End

[illegible] MINING CORPORATION
[illegible]

DRILL HOLE NO. AREA U - 1254 BEARING N 64½° E ELEVATION [illegible]

PROJECT A DIP 0° N 20,135.5

DATE 3-3-57 DEPTH 90 ft. E 20,354.1

Interval (Ft)	Description of Core
0 - 2½	Sericitic schist, gneissic texture.
2½ - 40	Chlorite schist, gneissic texture. Few specks of scheelite at 10 ft.
40 - 60	Chlorite schist. Several 2" to 6" quartz seams, all barren.
60 - 62	Quartz vein, barren.
62 - 66	Sericite schist with 6" of barren quartz.
66 - 68½	Chlorite schist.
68½ - 72	Siliexite or siliceous schist.
72 - 82	Sericite schist with garnet, fluorite, and a speck of scheelite.
82 - 84	Chlorite schist.
84 - 90	Gneiss.

End

Transcontinental Oil Corporation
Henderson, Texas

DHEA

U. S. LEASE NO. U - 1264	BEARING S 65° E	COORDINATES
ELEVATION 0	DIP 0°	N 17,336.7
DATE 4-11-47	DEPTH 40 ft.	E 19,623.5

Interval (ft.)	Description of Core.
0 - 8	Gneiss
8 - 17½	Sericite schist with some fluorite.
17½ - 22	Gneiss.
22 - 26	Chlorite schist.
26 - 32½	Gneiss.
32½ - 35½	Chlorite schist.
35½ - 40	Gneiss.

End.

[illegible]

DMEA

[illegible] U - 1365 | BEARING N 26½° W | COORDINATES

PROJECT C | DIP 0° | X 17,583.2

DATE 6-11-47 | DEPTH 73' | Y 15,617.1

Interval (ft)	Description of Core
0 - 14	Gneiss with stringers of quartz and lamprophyre.
14 - 18	Lamprophyre dike.
18 - 20	Sericite schist.
20 - 59	Gneiss with a 1½ ft. seam of chlorite schist at 31½ ft. and a quartz stringer at 58½ ft.
59 - 70	Gneiss.

End.

[illegible] MINING CORPORATION
[illegible], L. C.

[illegible] FORM NO. DMMA U - 1266	AZIMUTH N 31½° E	COORDINATES
PROJECT [illegible]	DIP 0°	N 17,942.0
DATE 4-23-57	[illegible] 70 ft.	E 15,627.0

Interval (ft)	Description of core
0 - 6¾	Sericitic schist.
6¾ - 23	Gneiss with a lamprophyre stringer.
23 - 30	Lamprophyre dike with two gneiss intervals.
30 - 40	Gneiss with minor schist bands.
40 - 43¾	Chlorite schist with an 8" gneiss interval.
43¾ - 70	Gneiss.

End

[illegible]

[illegible] DMEA DH. H - 1267 BEARING S 20½° E COORDINATES N 17,526.4

PROJECT C DIP 0° E 20,503.0

DATE 6-11-57 DEPTH 50 ft.

Interval (ft.)	Description of Core
0 - 1½	Gneiss
1½ - 17½	Sericite schist with some fluorite in the foliation.
17½ - 50	Gneiss.

End

TUNGSTEN MINING CORPORATION
HENDERSON, N. C.

DMEA

Co. Hole No. U - 1969 | BEARING S 03½° W | Coord. Y: 19,720.1

PROJECT B | DIP 0° | X: 19,258.3

DATE 4-25-57 | DEPTH 107 ft.

Interval (ft)	Description of Core
0 - 5½	Sericite schist, pyritic, with a few quartz stringers.
5½ - 7½	Gneiss.
7½ - 10	Sericite schist.
10 - 14	Gneiss.
14 - 26	Sericite schist. 14½' to 15½' and 19' to 20'-barren quartz. Trace of scheelite at 20½'. 24' to 25'-gneiss.
26 - 58	Gneiss with a few minor quartz stringers and seams of sericitic schist.
58 - 60	Sericite schist. 58' to 59' is chloritic.
60 - 62½	Quartz vein with only a trace of scheelite.
62½ - 65	Chlorite schist with abundant pyrite.
65 - 69½	Gneiss.
69½ - 81	Sericite schist with several thin quartz seams with traces of scheelite.
81 - 107	Gneiss and granite.

End.

[illegible] MINING CORPORATION

[illegible], N. C.

[illegible] NO. DDH U - 1470	[illegible] S 30½° W	[illegible] E 19,736.8
[illegible] B	DIP 0°	N 19,327.6
DATE 6-26-57	[illegible] 52 ft.	

Depth (ft.)	Description of Core
0 - 17½	Gneiss with several minor quartz seams.
17½ - 21	Chloritic schist.
21 - 24	Sericitic schist.
24 - 31	Gneiss.
31 - 52½	Sericitic schist with several minor quartz stringers.
52½ - 31 82	Gneiss with a few minor quartz stringers.

End.

[illegible] CORPORATION
[illegible], D. C.

DMRA

D. D. HOLE NO. C - 1273 BEARING S 41° E COORD. VERT. E 80,230.9

DIRECTION A DIP 0° N 21,[illegible]5.3

DATE 1-25-57 DEPTH 100 ft.

Interval (ft)	Description of Core
0 - 2	Sericitic schist with fluorite and pyrite.
2 - 4	Chloritic schist.
4 - 7	Gneiss.
7 - 8	Chloritic schist.
8 - 10½	Mostly bare quartz, some gneiss seams.
10½ - 12	Chloritic schist.
12 - 20	Gneiss with minor chlorite schist seams.
20 - 30	Chloritic gneiss.
30 - 34	Chloritic schist.
34 - 40	Chloritic gneiss.
40 - 67½	Chloritic schist with gneissic areas and some calcite seams.
67½ - 73	Silexite.
73 - 77½	Chlorite schist.
77½ - 100	Gneiss.

End.

[illegible]

DMEA

[illegible] NO. U - 1279 | BEARING N 34½°W | COORDINATES N 80,[illegible].9

PROJECT A | DIP 6° | E 21,[illegible].4

DATE [illegible] | DEPTH 201 ft.

Interval (Ft.)	Description of Core
0 - 3½	Sericite schist with minor quartz and gneiss seams.
3½ - 5	Chlorite schist and gneiss.
5 - 25	Chloritic gneiss. 6" diabase dike at 7½ ft. Minor quartz stringer at 12 ft.
25 - 31	Chlorite schist and gneiss mixed. Minor quartz stringer at 30 ft.
31 - 57½	Gneiss with a 6" sericite schist zone at 32½'.
57½ - 66	Chlorite schist, Pyritic. 58½ to 59½-quartz, fluorite, and calcite, bare.
66 - 67½	Sericite schist.
67½ - 68½	Vein quartz, bare.
68½ - 70	Chloritic schist.
70 - 77½	Mixed sericite and chlorite schist.
77½ - 80	Sericite schist. Trace of anhydrite and scheelite at 79½ ft.
80 - 201	Gneiss with chloritic schist seams.

End

[illegible]

DDH NO. DHEA U - 1230 BEARING N 60° E COORDINATES 20,224.4

PROJECT A DIP 0° 20,[illegible]

DATE 5-28-57 DEPTH 68 ft.

Interval (ft)	Description of Core
0 - 2	Quartz, highly pyritic, and with 6" of scrpolite mineralization.
2 - 10	Sericite schist with minor quartz seam at 5 ft. and traces of hubnerite and scheelite at 6 ft.
10 - 20	Sericite schist somewhat gneissic.
20 - 40	Chlorite schist. 36' to 37'-dead quartz, also a few minor quartz seams.
40 - 47	Gneiss.
47 - 65	Chlorite schist with two minor quartz seams.
65 - 68	Sericitic schist.

End

TUNGSTEN MINING CORPORATION
WASHINGTON, D. C.

DMDA
U. S. Hole No. U - 1283 | Bearing N 44° W | Coordinates: N 19,634.8
Elevation B | Dip 0° | E 19,215.0
Date 6-6-47 | Depth 115 ft.

Interval (ft)	Description of Core
0 - 1	Sericite schist, gneissic.
1 - 10	Gneiss with a minor schist seam.
10 - 17½	Sericite schist, gneissic. Minor quartz seam at 17 ft.
17½ - 20	Gneiss.
20 - 22½	Sericite schist.
22½ - 48	Quartz vein with fair hubnerite and scheelite.
	Assays: 22½' - 30' 0.36% WO_3
	30' - 40' Nil
	40' - 48' 0.75% WO_3
48 - 50	Chlorite schist with traces of scheelite.
50 - 86	Gneiss with a few quartz stringers and several sericitic zones. 14" of lamprophyre at 69½ ft. and a diabase stringer at 83½ ft.
86 - 88	Chlorite schist.
88 - 92	Sericite schist.
92 - 96	Gneiss.
96 - 104½	Sericite schist with a minor quartz stringer and a 2-foot gneissic zone.
104½ - 115	Diabase dike.

End.

TUNGSTEN MINING CORPORATION
[illegible] No. [illegible]

DMGA

[illegible] No. U - 1264 | BEARING N 39½° W | COORDINATES [illegible] 19,[illegible]19.4

PROJECT B | DIP 5° | [illegible] 19,217.3

DATE 6-7-57 | DEPTH 47 ft.

Interval (ft.)	Description of Core
0 - 10	Mixed sericite schist and gneiss.
10 - 11½	Gneiss.
11½ - 17	Sericite schist with a minor quartz seam.
17 - 20	Quartz vein. Very light ferberite and scheelite mineralization.
	Assay: 0.32% WO_3.
20 - 23	Sericite schist.
23 - 36	Gneiss.
36 - 40	Sericite schist.
40 - 47	Gneiss.

END.

[illegible]

DDH

A. A. Hole No. U - 1289 Bearing S 268° E Coordinates

E 12,615.3

Project B Dip 0° N 12,[illegible]

Date 7-10-57 Depth 80 ft.

Interval (ft)	Description of Core
0 - 8	Gneiss.
8 - 10	Silexite.
10 - 20	Gneiss with an 8" seam of sericite schist.
20 - 60	Gneiss.
60 - 80	Gneiss with a few minor quartz seams.

End.

TUNGSTEN MINING CORPORATION
HENDERSON, N. C.

D.D. HOLE NO. EMBA 3 - L290 BEARING S 44½° E COORDINATES

PROJECT B DIP 0° N 10,547.7

DATE 7-11-57 DEPTH 69' E 10,450.

Interval (ft.)	Description of Core
0 - 36	Gneiss. 0' - 7'-slightly sericitic with a few minor quartz seams.
	6" bare quartz at 26 ft.
36 - 39	Diabase dike.
39 - 45	Gneiss with several short intervals of diabase.
45 - 69	Diabase dike.

End

TUNGSTEN MINING CORPORATION
HANGTOWN, N. C.

D.D. HOLE NO. DMM U - 1292 BEARING N 45° W COORDINATES

PROJECT C DIP 0° N 27,036.3

DATE 1-22-57 DEPTH 160 ft. E 10,093.3

Interval (ft)	Description of Core
0 - 12	Gneiss with a thin quartz stringer at 7 ft.
12 - 13	Sericite schist, gneissic.
13 - 14	Gneiss.
14 - 16½	Sericite schist, with 2" quartz and fluorite.
16½ - 26½	Gneiss.
26½ - 28½	Sericite schist with 1" of quartz.
28½ - 29½	Gneiss.
29½ - 33½	Sericite schist. Chloritic toward end of interval.
33½ - 37	Gneiss, sericitic and with some irregular quartz.
37 - 64½	Gneiss with 12" of sericitic schist at 46½ ft.
64½ - 65½	Sericite - chlorite schist with 4" of bore quartz.
65½ - 67	Gneiss.
67 - 68	Lamprophyre dike.
68 - 93½	Granite with several quartz stringers.
93½ - 116½	Lamprophyre dike.
116½ - 160	Gneiss with some minor quartz and some schist seams.

End

[illegible]
[illegible] No. 6.

DMRA

D.D.H. [illegible] No. U - 1293 Bearing [illegible] 72½° E. Elevation [illegible]

Angle of Dip C Dip 9° N 17,675.2

Date [illegible] Depth 97 ft. E 18,[illegible]7.6

Interval (ft)	Description of Core
0 - 12½	Gneiss
12½ - 22½	Sericite schist.
22½ - 23½	Chlorite schist.
23½ - 24½	Gneiss.
24½ - 26½	Chlorite schist
26½ - 27½	Sericite schist with a quartz stringer.
27½ - 35	Gneiss.
35 - 37½	Chlorite schist.
37½ - 42½	Gneiss.
42½ - 44	Chlorite schist with a trace of scheelite.
44 - 45	Sericite schist.
45 - 48½	Gneiss with a trace of scheelite.
48½ - 50	Sericite schist with a trace of scheelite.
50 - 57	Gneiss.
57 - 57½	Sericite schist.
57½ - 60	Quartz with pyrite, bare.
60 - 62½	Sericite schist with 8" of bare quartz.
62½ - 72½	Gneiss.
72½ - 75	Silexite.
75 - 79	Gneiss.
79 - 82½	Sericite schist with 8" bare quartz.
82½ - 97	Gneiss.

End.

EUREKA MINING CO. CANADA
HEDLEY, B. C.

D.D. HOLE NO. EMA 5-1296 STATION E 47 W COORDINATES N 10,495.5 E 10,[illegible].2

PROJECT B DIP C

DEPTH 72 ft. DATE 4-15-57

INTERVAL (ft)	Description of Core
0 - 10	Gneiss, somewhat sericitic, with a few minor quartz stringers and a two-foot interval of sericite schist.
10 - 30	Gneiss with an interval of sericite schist from 22 to 23 ft.
30 - 40	STRUCTURE. Mostly sericite schist with quartz from 34 to 36 ft. mineralized with some scheelite and a trace of molybdenite along with fluorite. At 38 ft., [illegible] of silicate.
40 - 50	Gneiss with barren quartz from 46½ to 46½ ft., and from 47½ to 48 ft.
50 - 55	Gneiss
55 - 56	Lamprophyre dike.
56 - 59	Sericite schist.
59 - 67½	Gneiss.
67½ - 70	Silexite with a trace of scheelite at 70 ft.
70 - 72	Gneiss.

End.

TENNESSEE MINING CORPORATION
HENDERSON, N. C.

D.D. HOLE NO. E-1297 | BEARING S 65 E | COORDINATES N 10,275.3

PROJECT B | DIP 0 | E 10,900.0

DATE 9-19-57 | DEPTH 130 ft.

INTERVAL (ft)	Description of Core
0 - 30	Gneiss with minor seams of sericite schist.
30 - 50	Gneiss
50 - 72½	Gneiss with two minor silexite zones.
72½ - 74	Lamprophyre dike.
74 - 88	Gneiss.
88 - 122	STRUCTURE. Mostly sericite schist with bare quartz from 92½ to 92¾ ft., and also from 94 to 94½ ft. Interval has other minor seams of chlorite schist and quartz stringers along with ½ in. of spot hutcherite and scheelite mineralization in schist at 100 ft. Silexite from 102½ to 110 ft. and also from 111 to 112½ ft.
122 - 127½	Gneiss.
127½ - 129	Lamprophyre dike.
129 - 130	Gneiss.

End

STEWART MINING CORPORATION
PRESCOTT, ARIZ.

D. D. HOLE NO. DDH-1398	BEARING N 37° W	COORDINATES
PROJECT B	DIP + 30°	N 20,000.0
DATE 6-26-57	DEPTH 110 ft.	E 20,000.0

INTERVAL (ft.)	DESCRIPTION OF CORE
0 - 11	Sericitic schist. Granule from 2½ to 4 ft.
11 - 23	Gouge
23 - 38	Sericitic schist with two minor granule bands.
38 - 52	Gouge
52 - 70	Sericite schist with ½ in. of diabase dike at 61½ ft. The schist is silicified in areas from 65 to 70 ft. and has calcareous fluorite. A trace of scheelite at 63 ft.
70 - 77½	Sericite schist with a few chloritic areas.
77½ - 78½	Intraphyre dike or chloritic schist.
78½ - 82½	Gouge, altered to black appearance by dike. A diabase stringer occurs at 77 ft. followed by 9 in. of diabase at 81 ft.
82½ - 84	Quartz, fractured breccia by dike. Also poor scheelite mineralization. Assay - 1.3% WO_3
84 - 96	Diabase dike.
96 - 99	Gouge, altered pinkish. ½ in. of quartz and pieces breccia at diabase-gouge contact.
99 - 103½	Mostly sericitic schist. At 99 3/4 ft. ½ in. of quartz with a trace of scheelite. Last ½ ft. of interval was chloritic.
103½ - 108½	Diabase dike.
108½ - 109½	Chlorite schist.
109½ - 110	Sericite schist with ½ in. of quartz at 109½ ft.

End.

TUNGSTEN MINING CORPORATION
HENDERSON, N. C.

D. D. HOLE NO. DMRA 3-1299 | BEARING S 55½° E | COORDINATES

PROJECT A | DIP 0° | N 20,791.3

DATE 10-2-57 | DEPTH 131 ft. | E 21,217.7

INTERVAL (ft.)	Description of Core
0 - 21	Mostly chlorite schist. Numerous Minor quartz intervals. Many 3" to 6" gneissic zones.
21 - 32	Gneiss with barren quartz from 27' to 28'.
32 - 36	Chlorite schist with a trace of scheelite at 35' and also at 35½'. Interval is gneissic toward end.
36 - 38½	Gneiss.
38½ - 40½	Chlorite schist with a trace of scheelite at 39'.
40½ - 46½	Chloritic gneiss. At 43', 6" chlorite schist and at 45½', 3" of dead quartz.
46½ - 49	Sericite schist with mixed quartz and schist from 47½' to 49'. At 48', 3" of good scheelite.
49 - 50	Chlorite schist with 3" of bare quartz at 49 1/4' followed by 4" of chlorite schist with good scheelite.
50 - 54	Chloritic gneiss.
54 - 56	Chloritic schist.
56 - 59	Siliceous sericite schist with 8" of chlorite schist at 58 ft.
59 - 66	Chlorite schist with 6" of gneiss at 59½ ft. and a quartz stringer at 66 ft.
66 - 99	Chloritic gneiss with numerous minor chlorite schist seams.
99 - 112	Chlorite schist. Gneissic and brecciated from 101' to 102'.
112 - 115½	Chloritic-sericitic schist.
115½ - 116½	Chlorite schist.
116½ - 118	Sericitic - chloritic schist.
118 - 120½	Silicified sericite schist, brownish gray.
120½ - 124½	Sericite - chlorite schist.
124½ - 129	Chlorite schist. Gneissic from 127' to 128'.
129 - 131	Gneiss.

End.

TUNGSTEN MINING CORPORATION
HENDERSON, N. C.

D. D. HOLE NO. DMEA T-1300 | BEARING N. 30° W. | COORDINATES

PROJECT A | DIP 0° | N 20,990.2

DATE 10-9-57 | DEPTH 138' | E 21,354.0

INTERVAL (Ft.)	Description of Core
0 - 19	Gneiss with chlorite schist from 1' to 3' and from 9½ to 10'. 4" of bare quartz at 8'.
19 - 31	Chlorite schist. At 20½', 1" of qtz. above 10" of diabase. Also 4" of diabase at 23½' and 9" of diabase at 26½'. Sericite schist from 28' to 29' and ½" of diabase at 29'.
31 - 33	Diabase dike.
33 - 34½	Chlorite schist.
34½ - 39½	Diabase dike with 7" of chlorite schist at 36'.
39½ - 44½	Chlorite schist.
44½ - 46½	Quartz, lively looking but barren.
46½ - 82	Gneiss with 7" of lamprophyre dike at 53½' and lamprophyre also from 56' to 57'.
82 - 83	Lamprophyre dike.
83 - 127½	Gneiss except as follows: At 84' 4" of silexite; at 89', 8" of sericitic schist; at 103', 1" of lamprophyre; at 107½', 9" of lamprophyre; and at 110', ½" quartz.
127½ - 129½	Sericitic schist.
129½ - 138	Gneiss.

End.

BUNGER-HENRY CORPORATION
HANCOCK, [illegible]

D. D. HOLE NO. DMEA M-1301 | BEARING N 65° | COORDINATES

PROJECT D | DIP 0° | N 17,[illegible]

DATE 11-1[illegible]-[illegible] | DEPTH 259 ft. | E 17,[illegible]

INTERVAL (ft.)	Description of Core
0 - 19½	Chlorite schist - siliceous from 0 to 2 ft. Barren quartz from 3 to 4 ft.
19½ - 20	Diabase dike.
20 - 26	Chlorite schist with 2 inches of barren quartz at 22 ft.
26 - 28	Sericite schist with 2 inches of lively quartz at 26½ ft.
28 - 41	Chloritic schist.
41 - 42½	Sericitic schist.
42½ - 49½	Quartz vein, lively looking, with FeS and MoS.
49½ - 50	Sericitic Schist
50 - 67	Chloritic schist, green.
67 - 81	Chloritic schist, reddish, with 6 inches of pyritic quartz at 67 ft; 8 inches of mixed quartz and schist at 7[illegible] ft; and 5 inches of barren quartz at 7[illegible] ft.
81 - 86	Chloritic schist, greenish, reddish, and greyish.
86 - 99½	Chloritic schist, reddish. Four inches of barren quartz at 89 ft. Schist is greenish from 98 to 99½ ft.
99½ - 129	Sericitic schist looks like a country rock type of schist rather than that associated with shearing. Rock is red to gray. Barren quartz from 114½ to 115½ ft. Also 6 inches of quartz at 1[illegible] ft.
129 - 152	Chloritic schist, greenish to reddish.
152 - 155	Small structure. Barren quartz from 152 to 153 ft. Coarse sericite schist with CaF from 153 to 155 ft. Trace of serpolite in schist at 153 ft.
155 - 217	Green to gray chlorite schist with barren quartz from 212 to 213 ft.
217 - 241	Chlorite schist with barren quartz from 216 to 219 ft. Also 4 inches of barren quartz at 223 ft.

TUNGSTEN MINING CORPORATION
NEDERSON, N. C.

AREA

No. Hole No. T-1301 BEARING N 65°W COORDINATES

PROJECT D DIP 0° N 17,[illegible] E [illegible]

DATE 11-21-57 DEPTH 259 ft. N 17,[illegible] E [illegible]

24' - 244	Mostly barren quartz with 6 inches of coarse sericite schist at 243 ft.
244 - 259	Chlorite schist with 5 inches of bare quartz at 243 ft.

End.

[illegible] NATIONAL CORPORATION
[illegible], [illegible].

DRILL NO. [illegible] BEARING [illegible] COORDINATES [illegible]

PROJECT [illegible] DIP [illegible] [illegible]

DATE [illegible] TYPE [illegible]

DEPTH (ft.)	Description of Core
0-10	Sericitic schist. Schist to siliceous from [illegible] ft. to [illegible] ft. and also from [illegible] ft. to [illegible] ft. [illegible] inches of server quartz at [illegible] ft.
10-33	Sericitic-chloritic schist. Siliceous-varies in color from reddish to grayish.
33-70	Mostly sericite schist. Siliceous and chloritic-varies in color from light gray to red. Quartz stringers at [illegible] ft., [illegible] ft., [illegible] ft., 6 inches of blue quartz followed by 6 inches of coarse sericite schist with fluorite.
70-97	Siliceous schist. Very siliceous in spots. Darker than previous.
97-99½	Mixed quartz and schist. Traces of [illegible] at [illegible] ft.
99½-140	Schist-dark green, fine-grained, siliceous, hard, no activity. A quartz stringer at [illegible] ft. and 6 inches of server quartz at 133½ ft.
140-158	Sericite schist country rock. 6 inches of quartz with some fluorite at 151 ft.
158-162	Chlorite schist, siliceous.
162-163	Sericite schist country rock.

END

HUMBLE OIL & REFINING COMPANY
[illegible], N. C.

U. S. HOLE NO. [illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

Depth (ft.)	Description of Core
[illegible]	Dark green chlorite schist with minor quartz lenses at 3 ft., 15 ft., 17 ft., 23 ft., 25 ft., 29½ ft., 32½ ft., 43 ft., and 46 ft.
48-71	Sericite schist, calcitic in part. Lodes like strata m., hence intervals as follows: 2 inches at 48½ ft., 4 inches at 50 ft., 4 inches at 63 ft., and 6 inches at 67 ft. Core badly broken from 48 ft. to 71 ft.
71-81	Chloritic schist with 3 inches of quartz at 73½ ft. and 7 inches of pink aplite at 75 ft.
81-101	Dark green chloritic schist with 2 inches of pyritic quartz at 86 ft., 3 inches of chloritical schist at 98 ft., and 4 inches of blue quartz at 101 ft.

END

TINGLEY MINING CORPORATION
DIAMOND DRILL No. 6.

DRILL HOLE NO. D-15[illegible]	BEARING [illegible]	COORDINATES
PROJECT B.	DIP 29	N 17,[illegible]
DATE 10-10-47	[illegible]	E [illegible]

Intervals (Ft.)	Description of Core
[illegible]	Light green chlorite-sericite schist, with two minor quartz stringers.
2-7[illegible]	Reddish sericite schist, with 6 inches of chlorite schist at [illegible] ft.
7[illegible]-9	Gray sericite schist.
9-10	Mixed quartz and sericite schist, lively.
10-11[illegible]	More quartz, lively.
11[illegible]-12	Gray sericite schist.
12-14	Red sericite schist with two minor quartz stringers.
14-17	Dark green chloritic schist.
17-19[illegible]	Gray sericite schist.
19[illegible]-21	Greenish chlorite schist with three 2-inch quartz stringers.
21-24	Barren quartz.
24-36	Greenish chlorite schist with 4 inches of quartz at 31 ft.
36-53	Greenish chlorite schist with a quartz stringer at 46 ft. and 5 inches of quartz with MoS_2 and FeS_2 at 51[illegible] ft.
53[illegible]-67	Mostly sericitic schist with minor intervals of chloritic schist and 3 small quartz stringers.
67-73[illegible]	Chlorite schist.
73[illegible]-75	Quartz with MoS_2 and FeS_2
75-76	Sericite schist.

END

TUNGSTEN MINING CORPORATION
HENDERSON, N.C.

D. D. HOLE NO.	DMEA U-1305	BEARING	S65°E	COORDINATES	
PROJECT	A	DIP	0°	N	21,076.3
DATE	12-30-57	DEPTH	45 ft.	E	21,531.6

INTERVAL (Ft.)	Description of Core
0 - 8	Gneiss
8 - 10	Lamprophyre or chlorite schist.
10 - 21½	Gneiss
21½ - 24½	Silicified sericite-chlorite schist not lively.
24½ - 35	Gneiss
35 - 36½	Gneiss and chlorite schist mixed
36½ - 39¼	Possible structure not too lively. Mostly chlorite schist, some gneiss seams. Flesh colored silexite from 38 to 39¼ ft.
39¼ - 40	Chlorite schist.
40 - 45	Gneiss.

END

TUNGSTEN MINING CORPORATION
HENDERSON, N.C.

D. D. HOLE NO. DMEA U 1306	BEARING S87½° E	COORDINATES
PROJECT A	DIP 0°	N 21,187.81
DATE 1-1-58	DEPTH 105 ft.	E 21,557.25

INTERVAL(Ft.)	Description of Core
0 - 32½	Gneiss
32½ - 36	Altered epidotized gneiss, siliceous.
36 - 46	Gneiss with 4 inches of silexite at 41 ft.
46 - 48½	Gneiss with 6-inch intervals of chlorite schist at 46½ ft. and at 48½ ft.
48½ - 65	Gneiss, silified from 56½ to 58½ ft.
65 - 92	Gneiss, epidotized.
92 - 99	Siliceous, highly chloritic gneiss.
99 - 102	Chlorite schist.
102 - 104	Silexite
104 - 105	Gneiss

END

TUNGSTEN MINING CORPORATION
HENDERSON, N.V.

C. P. HOLE NO. DMRA U-1337	BEARING 271½°	COORDINATES
PROJECT D	DIP 0°	N 17,203.59
DATE 1-6-58	DEPTH 60 ft.	E 16,990.70

INTERVAL (Ft.)	Description of Core
0 - 15	Sericite schist with numerous 1 to 8-inch quartz seams.
15 - 38½	Chlorite schist with 6 inches of bare quartz at 22 ft.
38½ - 43	Sericite schist with bare quartz from 41 to 42 ft.
43 - 60	Chlorite schist.

END

TUNGSTEN MINING CORPORATION
HENDERSON, N. C.

DMEA

D. D. HOLE NO. U-1308 | BEARING Due West | COORDINATES

PROJECT D | DIP 0° | N 17,133.28

DATE 1-7-58 | DEPTH 100 ft. | E 16,885.34

INTERVAL (Ft.)	Description of Core
0 - 1¼	First 4 inches sericite schist followed by 16 inches of bare, pyritic quartz.
1¼ - 2	Sericite schist.
2 - 3	Lively quartz with one large hubnerite crystal.
3 - 4	Sericite schist.
4 - 5	Quartz, lively.
5 - 10	Sericite schist.
10 - 16½	Sercite - chlorite schist.
16½ - 17½	Dead quartz.
17½ - 44	Chlorite schist with a few minor quartz intervals.
44 - 46½	Sericite schist with a minor quartz stringer.
46½ - 53½	Chlorite schist.
53½ - 56½	Sericite schist, siliceous.
56½ - 68½	Chlorite schist.
68½ - 69½	Sericite schist.
69½ - 70½	Quartz, bare.
70½ - 100	Chlorite schist with 8 inches of barren quartz at 90 ft.

END

TUNGSTEN MINING CORPORATION
HENDERSON, N.C.

D.D. HOLE NO. OMEA H-1311

BEARING N 62½° W

COORDINATES

PROJECT A

DIP 0°

N 21,302.7

DATE 1-27-58

DEPTH 123 ft.

E 21,629.3

INTERVAL (FT)	Description of Core
0 - 24	Dark Gneiss with chloritic areas as follows: 6 inches at 7½ ft., 12 inches at 12 ft., and 4 inches at 24 ft.
24 - 34	Dark, chloritic gneiss.
34 - 46½	Gneiss with chloritic seams.
46½ - 55½	Gneiss with 1 inch of dead quartz at 52 ft. and 2½ inches of dead quartz at 52½ ft.
55½ - 56	Diabase dike
56 - 65	Gneiss with chloritic schist most of which is 12 inches from 58 to 59 ft.
65 - 70	Gneiss
70 - 71	Chlorite schist.
71 - 72	Gneiss
72 - 75	Chlorite schist
75 - 77½	Sericitized gneiss
77½ - 81½	Chlorite schist
81½ - 82½	Diabase dike
82½ - 86	Chlorite schist.
86 - 87½	Diabase dike
87½ - 91	Chlorite schist, pyritic
91 - 93	Diabase dike with 4 inches of chlorite schist
93 - 123	Diabase dike

END

TUNGSTEN MINING CORPORATION
HENDERSON, N.C.

D.D. HOLE	DMEA U-1312	BEARING	S88½°E	COORDINATES	
PROJECT	A	DIP	0°	N	21,298.1
DATE	1-29-58	DEPTH	120 ft.	E	21,643.0

INTERVAL (Ft.)	Description of Core
0 - 45	Gneiss
45 - 50	Diorite Dike, no clean contacts
50 - 52	Gneiss
52 - 60	Diorite Dike (2ft. core recovered)
60 - 120	Diorite Dike. Rock from 108 to 110 ft. is fine - grained, hard, somewhat lighter color. Diabase?

END

TUNGSTEN MINING CORPORATION
HENDERSON, N. C.

D. D. HOLE NO. [illegible] BEARING 358°E COORDINATES

PROJECT [illegible] DIP 90 N [illegible]

DATE [illegible]-3-58 DEPTH 70 ft. E [illegible]

INTERVAL (Ft.)	Description of Core
0 - 20	Sericite schist with several 1 to 3-inch quartz intervals.
20 - 30	Sericite schist, graphitic in appearance, and chloritic from 28 to 30 feet.
30 - 31	Quartz with small schist seams.
31 - 32½	Sericite - chlorite schist.
32½ - 35	Quartz vein with several specks of scheelite at 33 ft.
35 - 40	Mostly chloritic schist with three narrow quartz seams.
40 - 43½	Quartz vein with several specks of scheelite.
43½ - 46	Sericite schist.
46 - 51½	Mostly chloritic schist, some sericitic, with several specks of scheelite at 50 ft.
51½ - 54	Quartz vein with several specks of scheelite at 54 ft.
54 - 65	Siliceous sericite schist.
65 - 70	Granite.

End.

TUNGSTEN MINING CORPORATION
HENDERSON, N.C.

D. D. HOLE NO.	DMEA U 1315	BEARING	S 89½° E	COORDINATES	
PROJECT	D	DIP	0°	N	17,540.7
DATE	2-17-58	DEPTH	51 ft.	E	17,246.0

INTERVAL (Ft.)	Description of Core
0 - 21½	Sericite - chlorite schist, predominately sericitic, with 1 inch of quartz and 1 inch of fluorite at 7 ft., and 1 inch of quartz at 21 ft.
21½ - 22	Sericite schist with quartz-fluorite seam. Possible structure.
22 - 36	Sericite - chlorite schist with two minor quartz intervals.
36 - 51	Chlorite - sericite schist, mostly chlorite.

End.

[illegible]

[illegible] Hole No. [illegible]	Bearing [illegible]	COORDINATES
Project [illegible]	Dip [illegible]	N [illegible]
[illegible]	Depth [illegible]	E [illegible]

Interval (ft)	Description of Core
0 - 12	Chlorite schist with minor quartz interval and traces of pendelite at 1/2 ft. and at 6-1/2 ft.
12 - 24	Gneiss
24 - 36-1/2	Chlorite schist with numerous minor quartz seams
36-1/2 - 64	Predominantly chlorite gneiss with two 4-inch intervals of schistose schist at 40-1/2 ft. and 45 ft.
64 - 65	Seams of Limit.
65 - 74	Chlorite schist
74 - 94	Gneiss
94 - 105	Chlorite Schist
105 - 106	Gneiss

END

PENNSYLVANIA MINING CORPORATION
[illegible]

U. D. Hole No. [illegible]	BEARING [illegible]	COORDINATES
PLUNGE [illegible]	DIP [illegible]	N [illegible]
DATE [illegible]	TOTAL [illegible]	E [illegible]

Interval (Ft)	Description of Core
0 - 5	Chloritic schist with 1 inch of quartz at 3 ft.
5 - 6	Gneiss
6 - 6-3/4	Impure quartz and schist
6-3/4 - 6-1/2	Diabase dike with 2 inches of quartz at 6-1/2 ft.
6-1/2 - 29	Gneiss
29 - 31-1/2	Diabase dike with schist seams
31-1/2 - 35	Gneiss with 1 inch of quartz at 31-1/2 ft.
35 - 40	Schist with traces of schorlite and 1 inch of quartz at 40 ft.
40 - 108	Diorite dike.

END

[illegible]

Z. D. Hole No. [illegible]	BEARING [illegible]	COORDINATES
[illegible]	DIP [illegible]	E [illegible]
DATE [illegible]	DEPTH [illegible]	N [illegible]

Interval (Ft)	Description of Core
0 - 8	Sericite schist with traces of chlorite from 0 to 6-1/2 ft. 4 inches of quartz at 1 ft. with some admixture of chlorite and 1 inch of quartz at 5 ft. with crystals of hematite and [illegible]. Chlorite schist from 6-1/2 to 8-1/2 ft.
8 - 13-1/2	Gneiss
13-1/2 - 15	Sericitic schist
15 - 34	Gneiss with 1 inch of quartz at 30 ft.
34 - 41	Sericite schist with 1 inch of quartz at 35 ft.
41 - 42-1/2	Gneiss
42-1/2 - 44-1/2	Sericite schist with 2 inches of quartz at 44 ft.
44-1/2 - 64	Gneiss with 1 inch of quartz at 46 ft. and a sericitic interval from 66 to 67 ft.
64 - 97-1/2	Gneiss with 6 inches of hornblende at 93 ft.
97-1/2 - 107	Gneiss with quartz parallel with zone dip from 100 to 102 ft.
107 - 109	Chlorite
109 - 124	Gneiss with 4 inches of quartz at 1[illegible]-1/2 ft.
124 - 134-1/2	Gneiss with 4 inches of dike at 129-1/2 ft.
134-1/2 - 141	Diabase dike.
141 - 142-1/2	Gneiss with 1-1/2 inches of dead quartz at 142-1/2 ft.
142-1/2 - 164	Chlorite schist
164 - 199	Chlorite schist, sericitic, with 1/2 inch of quartz containing a trace of chalcopyrite at 1[illegible]-1/2 ft.
199 - 205	Chlorite schist
205 - 206	Siliceous chlorite schist with 1 inch of quartz
206 - 224	Chlorite schist

END

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

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To:

From:

Subject:

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DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
4-22	Holt	400
4-22	Martin	400
4-22	Chambers	800
	Butler	140
	Sawyer	140
4/25	Jeffordge	120
"	Johnson	110
"	Mittendorf	100
4/25	"	220
4/25	Lamb	(130
4/25	Kilsgaard	(130
		400

INTERIOR DEPT.
APR 23 1958

APR 25 1958

SOLICITOR

Mr. J. R. Sweet, Vice President
and General Manager
Tungsten Mining Corporation
Henderson, North Carolina

Re: Docket No. DMEA 4216 - Tungsten
Hamme Mine
Vance County, North Carolina
Contract No. Idm-K1032

Dear Mr. Sweet:

As requested in your letter of April 11, 1958, to Mr. Robert A. Laurence, we shall not act for the time being on your application for an amendment allowing additional work under the subject contract.

Sincerely yours,

C. O. Mittendorf

Administrator

SPHOLT/WSMARTIN/foc
4-22-58
cc to: Docket
Code 400
Admr. R. File
FT. REG. V
Messrs. R. W. Holliday, USBM
T. H. Kiilsgaard, USGS
Operating Committee

FROM SOLICITOR
APR 24 1958
FOR SIGNATURE

8623

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

April 14, 1958

OFFICIAL FILE COPY
DMEA
RECEIVED APR 16 1958

DATE	INITIALS	CODE
4/16	C	226
		1504
	WSM	460

Memorandum

To: Operating Committee, DMEA - Washington

From: DMEA Field Team, Region V - Knoxville, Tennessee

Subject: DMEA-4216, Idm-E1032(tungsten) Tungsten Mining Corp. Henderson, N.C. Hamme Mine, Vance County, N. C.

Enclosed are the original and two copies of a letter from the Operator, requesting that the application for an amendment to extend the Hamme project be held in abeyance.

Robert A. Laurence
Robert A. Laurence
Executive Officer, DMEA-Reg. V

V. J. Lynch
V. J. Lynch, Member
Bureau of Mines

4-17-58
Copy to
[illegible]

TUNGSTEN MINING CORP.
BOX 931
HENDERSON, N. C.
TELEPHONE NO. 4139

OFFICIAL FILE COPY
DMEA
RECEIVED APR 16 1958

DATE	INITIALS	CODE

April 11, 1958

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team
Region 5, Room 13
P.O. Building
Knoxville 2, Tennessee

Re: DMEA - 4216
Idm - E 1032(Tungsten)
Hamme Mine
Vance County, N.C.

Dear Mr. Laurence:

By our correspondence to you dated December 9, 1957 we filed with you a request for an amendment to our DMEA Contract Idm - E 1032 Docket 4216 supplemented later as of February 15, 1958 by certain requested maps.

Due to the uncertain condition of the tungsten industry today, we hereby respectfully request that you please hold this application for amendment to our DMEA Contract in abeyance.

We thank you for your attention to this matter for us.

Very truly yours,

TUNGSTEN MINING CORP.

J. R. Sweet

J. R. Sweet
Vice-President & Gen. Mgr.

JRS:mlb

RECEIVED
APR 14 1958
U. S. Geological Survey
Geologic Division
Knoxville, Tenn.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

April 14, 1958

ORIGINAL FILE COPY
DMEA
RECEIVED APR 16 1958

DATE	INITIALS	CODE
4/16	C	226
		200
4/16		
	WSM	402

Mr. J. R. Sweet, Vice President
and General Manager
Tungsten Mining Corporation
Henderson, North Carolina

Re: DMEA-4216, Idm-E1032-tungsten
Hamme Mine, Vance County,
North Carolina

Dear Mr. Sweet:

Your request to hold the application for an amendment to the cited contract, has been forwarded to our Washington office for appropriate action.

Sincerely yours,

Robert A. Laurence, Executive Officer
DMEA Field Team, Region V

RAL/zm
cc

Lynch
Burmeister
Opr. Com-2
Files

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

March 31, 1958

Memorandum

To: W. S. Martin, Chief, Iron and Ferroalloys Division-DMEA
Through: Chief, Branch of Ferrous Metals and Ferroalloys

From: R. W. Holliday, Commodity Specialist, Branch of Ferrous Metals and Ferroalloys

Subject: DMEA Docket No. 4216
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Interim Report on Operating Contract and Review of Operator's Request for Additional Exploration (March 7, 1958)

The subject document states that "So far the DMEA sponsored work has exposed newly discovered ore veins in only horizontal dimension along the drifts.", and "The requested exploration was to be done in certain mineralized sections already discovered under this contract in each of the four projects."

The proposed additional work would consist of raises and/or winzes and sublevel drifting or crosscutting from the raises or winzes.

Justification of the additional work is that the ore veins in this area characteristically pinch and swell and that their size can be determined accurately and feasibly only by mine openings of the types proposed.

There seems little doubt that the proposed work, starting in known mineralized sections, would expose additional ore; or that the value of such ore would be substantial in relation to cost of the proposed work. However a decision is required as to whether such work should be classified as exploration or as development.

R. W. Holliday

R. W. Holliday

DMEA
RECEIVED MAR 31 1958

DATE		CODE
3/31	C	326
	WSM	400

Copy to: Branch of Ferrous Metals (2)
Division of Minerals - Mr. F. Lamb
Files

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

March 21, 1958

OFFICIAL FILE COPY
DMEA
RECEIVED MAR 24 1958

DATE	INITIALS	CODE
3/24	C	220
		130
	WSM	400

Memorandum

To: Operating Committee, DMEA, Washington, D. C.

From: Field Team, Region V, Knoxville, Tennessee

Subject: Docket No. DMEA-4216, Contract No. Idm-E1032 (Tungsten)
Tungsten Mining Corp., Henderson, North Carolina
Hamme Mine, Vance County, North Carolina

Reference is made to the March 7 interim report, recently sent to you.

This modification of the Operator's original request for additional work affords a good chance of substantially increasing the reserves already discovered, and we recommend approval of an amendment authorizing the additional work outlined in the report.

Robert A. Laurence
Robert A. Laurence
Executive Officer

V. J. Lynch
V. J. Lynch, Member
Bureau of Mines

3-25-58
Copy to:
BJM
LS
JG

Docket 4216-

Hold until trip and recommendations of Burmeister and Williams - then re-write last paragraph on 3rd page

7-15-58
Do you still want to see this.
fs

S.P.H.
2/10/58

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
2/4	Holt	400
2/4	Martin	400
2/5	[illegible]	110
6	Whitendorf	100
		400

February 3, 1958

MEMORANDUM

To: Administrator, DMEA

From: Division of Iron and Ferro-Alloys, DMEA

Subject: Justification for Additional Exploration Assistance
Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract No. Idm-E1032

Application was made for a project estimated by the applicant to cost $345,984.23, with Government participation at 75 percent, to explore for tungsten ore, occurring predominantly in the form of hubnerite, with some scheelite.

A tungsten deposit was found on the property in 1942, and the deposit was subsequently developed by two main shafts, each 1,625 feet deep, with levels at 200-foot intervals. The property has become the most important tungsten producer in the United States. Production in March, 1956, was at the rate of 160,000 short-ton units of WO_3 per year, with total recorded production through October, 1956, of 784,492 units of WO_3.

The mineralization occurs in irregular lenses of varying sizes, erratically distributed along shear zones in granite gneiss and, to a lesser extent, in chlorite schists, with both rock types intruded in places by diabase dikes.

Work requested comprised 6,700 feet of drifting and/or crosscutting, with 4,000 feet of underground diamond drilling in flat holes, in four sub-projects, A, B, C, and D, all on the 900-foot level of the mine. The applicant's proposal, with some downward revision of costs, was accepted and a contract was executed November 2, 1956, comprising 6,700 feet of drifting and crosscutting, 4,000 feet of diamond drilling, and assaying 250 samples for WO_3. Total estimated cost of the contract was $250,340.00, of which the Government's share at 75 percent was $187,755.00.

8623

Project work accomplished, as of December 31, 1957, is as follows:

Project	Class of Work	Authorized	Completed	Remaining
A	Drift and crosscut	2,200 ft.	1,731 ft.	469 ft.
	Diamond drilling	2,000 "	983 "	1, 017 "
	Assaying, samples	-	10	-
B	Drift and crosscut	1,300 "	1,300 "	0 "
	Diamond drilling	500 "	812 "	-312 "
	Assaying, samples	-	19 "	-
C	Drift and crosscut	1,200 "	1,199 "	1 "
	Diamond drilling	500 "	487 "	13 "
	Assaying	-	5	-
D	Drift and crosscut	2,000 "	1,825 "	175 "
	Diamond drilling	1,000 "	644 "	356 "
	Assaying	-	54 "	-
Totals,	Drift and crosscut	6,700 "	6,055 "	645 "
All projects	Diamond drilling	4,000 "	2,926 "	1,074 "
	Assaying, samples	250	88	162

Total cost of the project to above date is $219,515.90, of which the Government's share at 75 percent is $164,636.92, (subject to final audit).

Work under the contract is completed on projects B and C, and nearing completion on A and D. Seven lenses of ore have been discovered, six of which are small, but of good grade, where intersected, and may prove to be important when further explored. The seventh lens, in project D, has been followed for over 380 feet, mostly in minable grade and width ore, so it now seems to be a discovery of major importance.

The Operator now requests additional exploration assistance in the amount of $64,750.00 to drive 1,600 feet of drifts, crosscuts and raises or winzes, to further explore the six smaller ore lenses discovered during project work. No request is made for more work on the large lens discovered in project D.

This Division, in view of the generally favorable results of exploration work to date on this project, and good chances that more lenses of minable grade and width tungsten ore are yet to be discovered, believes that project work to date should be carefully reviewed before a decision is made as to terminating or continuing this contract.

W S Martin

W. S. Martin, Director
Division of Iron and
Ferro-Alloys

SPHOLT/foc
2-4-58
cc to: Docket
Code 400
Admr. R. File
Mr. Johnson
Mr. Selfridge

DMEA Form 7
(12-56)

OFFICIAL FILE

Date	Surname	
1/29	Holt	400
1/29	Martin	400
1/31	[illegible]	1301
"	Johnson	110
"	Brockenbrough	100
1/31	[illegible]	220
		400

JAN 31 1958

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville 2, Tennessee

Re: Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract No. Ida-1032

Dear Mr. Laurence:

We are reviewing the Operator's request, transmitted with your letter of December 23, 1957, for further exploration assistance on the above-captioned project.

While we cannot approve requests for additional unspecified exploration assistance, if it is believed that any of the zones listed for exploration are wide enough and long enough to justify further exploration, we would consider a limited amount of additional exploration, including raising or winzing.

Please review the entire project and submit such specific recommendations as you feel are justified for winzes or raises at each of the four sub-projects, (A, B, C and D). If, on account of the width or length of a showing, you believe more drifting or crosscutting is also justified, please make the appropriate recommendations.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

APPROVED:

O. M. Bishop
Member, Bureau of Mines

Thor H. Kiilsgaard
Member, Geological Survey

SPHOLT/foc 1-29-58
cc to: Docket
Code 400
Admr. R. File
Oper. Comm.
FT. REG. V
Messrs. R. W. Holliday, USBM
T. H. Kiilsgaard, USGS

8623

Mr. Selfridge -

Although sufficient ore lenzes have been found to justify certification, the seven lenzes indicated for additional work cannot be classed as ore lenzes based upon assay data.

The operator's request has some merit for further exploration. However, some of the seven lenzes are quite narrow. It would seem that we could allow a reasonable amount of winzing and/or raising in the widest lenzes in each project but cut down the amount of work proposed for them to explore vertically with some drifting and crosscutting from the winzes and raises. Specific work for each project.

FEJohnson

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
1/10/58	Holt	400
1/10/58	Martin	400
		130
		110
		100
		220

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville 2, Tennessee

Re: Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hanne Mine
Vance County, North Carolina
Contract No. Idm-E1032

Dear Mr. Laurence:

The Operator's request of December 9, 1957, forwarded with your letter of December 23, 1957, for additional exploration assistance on the above-referenced project, has been carefully reviewed by this office.

In view of the successful outcome of exploration to date, resulting in the discovery of sufficient ore to justify certification, we concur with your recommendation that no additional exploration assistance need be given.

Please notify the Operator that ~~his~~ the request for a contract amendment authorizing additional exploration is not approved.

Sincerely yours,

Chairman, Operating Committee

APPROVED:

Member, Bureau of Mines

Member, Geological Survey

SPHOLT:foc 1-10-58
cc to: Docket
Code 400
Admr. R. File
Oper. Comm.
FT. REG. V
Messrs, R. W. Holliday, USBM
T. H. Kiilsgaard, USGS

8623

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

DMEA RECEIVED JAN 20 1958		
DATE	INITIALS	CODE
1-20	gb	220
	WSM	400

January 17, 1958

Memorandum

To: Operating Committee, DMEA - Washington

From: DMEA Field Team, Region V - Knoxville, Tennessee

Subject: Amendment No.4. Tungsten Mining Corp. North Carolina. DMEA-4216, Hamme Mine, Vance County, N.C.

Attached is the Government and Audit copies of the subject Amendment signed by the Vice-president and General manager of the Company. The usual distribution of the other copies has been made.

Robert A. Laurence
Robert A. Laurence
Executive Officer, DMEA
Region V

V. J. Lynch
V. J. Lynch, Member
Bureau of Mines

zm

Amend #4

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
1-7-'	Holt	400
1-7	Martin	400
1/8	[illegible]	130
"	Johnson	110
		~~400~~
1/9	[illegible]	220
1/7	Talbert	800
		400

JAN 8 1958

Mr. Robert A. Laurence, Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville 2, Tennessee

Re: Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract No. Idm-E1032

Dear Mr. Laurence:

In accordance with the recommendation of the Field Team of December 5, 1957, enclosed are the original and four copies of a proposed Amendment No. 4 to the above-referenced contract, signed by the Administrator for the Government. Two extra copies are enclosed for the use of the Field Team.

If the terms and conditions of this proposed amendment are satisfactory to you and the Operator, all five copies should be signed by the Operator and the usual distribution made.

If any part of the proposed amendment does not have your approval or that of the Operator and cannot be altered within your delegated authority, the original and all copies are to be returned to this office, together with the proposed changes for consideration.

Sincerely yours,

George C. Selfridge
(esf)
Chairman, Operating Committee

Enclosure

APPROVED:

O. M. Bishop
(esf)
Member, Bureau of Mines

Thor H. Kiilsgaard
(esf)
Member, Geological Survey

SPHOLT/dlm 1-7-58
cc to: Code 400
Admr. R. File
Oper. Comm.
REGION V
Messrs. R. W. Holliday, USBM
T. H. Kiilsgaard, USGS

8623

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

WASHINGTON 25, D.C.

OFFICIAL FILE COPY
DMEA
RECEIVED 1957

DATE		CODE
12/26	gb	220
		1304
12/27	WSM	400

December 23, 1957

Memorandum

To: Operating Committee, DMEA - Washington

From: DMEA Field Team, Region V - Knoxville, Tennessee

Subject: DMEA-4216, Idm-E1032 (tungsten) Tungsten Mining Co. Hamme Mine, Vance County, North Carolina

Enclosed are 2 copies of a letter from J. R. Sweet, Vice President, Tungsten Mining Corporation, requesting an amendment to the subject contract. The letter is accompanied by a letter from Carlton D. Huline, Consulting Geologist, and maps supporting the request.

Several months ago, Mr. Sweet and the Field Examiners discussed the subject of requesting an amendment for additional footage. At that time little ore had been discovered and the Field Examiners were of the opinion that some raising and winzing at favorable places might show some ore. Since that time conditions have changed. The Field Examiners are now of the opinion that sufficient ore has been discovered to justify certification when the current contract has been completed.

Under these circumstances the Field Team does not recommend additional exploration work beyond that called for in the present contract.

S. C. Bergman

S. C. Bergman, Geologist
Geological Survey

V. J. Lynch

V. J. Lynch, Acting
Executive Officer, DMEA
Region V

[illegible]

OFFICIAL FILE COPY
DMEA
RECEIVED DEC 26 1957
DATE | INITIALS | CODE

TUNGSTEN MINING CORP.
BOX 931
HENDERSON, N. C.
TELEPHONE NO. 4139

DEC 10 1957

December 9, 1957

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team
Region 5, Room 13
P.O. Building
Knoxville 2, Tennessee

Re: DMEA - 4216
Idm -E 1032(Tungsten)
Hamme Mine
Vance County, N.C.

Dear Mr. Laurence:

Please consider this as a written request for an Amendment to DMEA Contract Idm-E 1032 Docket 4216, as amended.

Contract Idm-E 1032 Docket 4216, as amended, recites that specific footages be conducted under four (4) Projects A, B, C, and D and has a Contract Amount of $246,660.00. We would like to have Contract Idm-E 1032 amended to provide for additional exploration footage amounting to 1600 lineal feet and having an estimated additional cost of $64,750.00. The $64,750.00 additional estimated cost is 26 per cent (26%) of the Contract Amount, $246,660.00, of our present contract Idm E 1032.

The additional exploration footage requested herein is to further explore specific lenses having some tungsten mineralization which were encountered by the exploration work completed to date in the Projects A, B, C, and D.

Justification for this requested additional exploration footage is included in the following referred letter of Dr. Carlton D. Hulin's. Corroborating the statements that Dr. Hulin makes in his letter, we find that in the mining of the ore bodies, they are characterized by their irregular boundaries and by their lenticular form. Due to these unique structual features found in the ore bodies, exploration work conducted laterally only, does not fully explore a mineralized zone. Vertical exploration of the zone is of equal importance. There are many specific examples in this mine which evidence the necessity of vertical exploration along with supplemental sub-lateral work to explore a mineralized area or zone.

Attached hereto is a letter dated November 26, 1957, by Dr. Carlton D. Hulin, Consulting Geologist for Tungsten Mining Corporation, addressed to Mr. William M. Weaver, Jr., President of Tungsten Mining Corporation. We respectively submit this letter herewith as being a part of this requested amendment for additional exploration footage under our present DMEA Contract. Also enclosed herewith and submitted as a part of this request are four maps showing the locations of the lenses which we wish to further explore and the locations of the proposed exploration work.

The additional exploration footage herein requested consists of 1350 feet of raises, sub-drifts and sub-crosscuts and 250 feet of winzes, a total of 1600 lineal feet.

In Project A three (3) locations are proposed for additional exploration work, in Project B two (2) locations, in Project C one (1) location, and in Project D one (1) location.

In Project D the proposed exploration footage is greater than that proposed for the other locations. This is because that in this area, diamond drilling conducted from the surface encountered mineralization at a depth of 350 feet. The vertical interval between the horizon at which Project D is located, the 900 Level, and the mineralization encountered by the surface drilling is 550 feet. Based upon the history of similar mineralized areas, this unexplored vertical interval upward from the 900 Level and the unexplored zone in depth warrants additional exploration work, 200 feet of which is proposed to be conducted from the horizon of Project D located on the 900 Level.

The distribution, by type of work and to the respective Projects A, B, C, and D, of the total 1600 feet of proposed additional exploration footage is given by the following tabulation:

PROJECT	A	B	C	D	TOTAL
Winzes, feet	100	50	50	50	250
Raises, sub-drifts and sub-crosscuts feet	500	350	150	350	1350
Total Feet	600	400	200	400	1600

The locations proposed for conducting the additional exploration footage in the above four Projects is set forth in the attached letter by Dr. C. Hulin and are shown on the maps submitted.

The cost of the additional exploration footage is herewith proposed to be on a unit cost basis.

That the unit cost of the proposed exploration work be kept at a minimum, it is proposed that the exploration openings be of minimum dimensions and that timbering be kept at a minimum and only done as necessary, both considerations being limited and subject to practical operation and to safety requirements. Chute boxes as required for the raises and the facilities at the collar of the winzes for hoisting and dumping are to be of simple construction.

The proposed footage for winzes is less than that proposed for raises, sub-drifts, and sub-crosscuts, due to the higher cost of winzes as compared with raises, sub-drifts, and sub-crosscuts.

A unit cost for winzes is estimated at $70.00 per foot, and for raises, sub-drifts, and sub-crosscuts the unit cost is estimated at $35.00 per foot. On this basis the cost for the additional proposed total of 1600 feet of exploration footage is:

250 - feet, Winzes @ $70.00 per foot	$17,500.00
1350 - feet, Raises, Sub-drifts and sub-crosscuts @ $35.00 per foot ---	47,250.00
1600 - feet	$64,750.00

The unit cost for raises, sub-drifts, and sub-crosscuts is estimated at $35.00 per foot. This cost is the same unit cost for drifts in our present DMEA Contract. Based upon cost records over a period of 11 years at this property, the cost per foot for raises and per foot for drifts differ by only $.02 per foot. Further, the actual cost of drifts under our present DMEA Contract, (excluding the cost of car turn outs and excavations for diamond drilling) is slightly in excess of the $35.00 per foot Contract price. The type of work proposed under this request is considered comparable to the type of work to which the above cost comparisons are made.

The unit cost for winzes is estimated at $70.00 per foot. This cost of $70.00 per foot is twice the unit cost per foot of our present DMEA Contract for drifts and for the above proposed cost for raises, sub-drifts, and sub-crosscuts. The cost of winzes includes drilling down holes, blasting, mucking off the bottom, hoisting the rock, and then cleaning the bottom for the ensuing cycle. The cost of raises includes staging, drilling up holes, blasting, and then making the face safe for the ensuing round. The cost of winzes will not be less than twice that for raises due to the additional requirements for labor in winzes. The comparable unit cost for winzes over 11 years at this mine is 48% above the proposed unit cost of $70.00 per foot. This lower estimated cost of $70.00 proposed for this type of exploration work is because some of our winze footage is fully timbered and also of a larger section; however, a considerable amount of the winze footage done in this mine is comparable in all respects to that proposed in this exploration work.

The estimated cost of $70.00 per foot for winzes includes the cost of all installations at the level required for sinking the winzes and of all timbering placed at the level and in the winzes. The excavation at the collar of the winze, to make room for hoisting and dumping, is proposed to be paid for on a comparable cubic foot basis and be included in the total winze footage.

The estimated cost of $35.00 per foot for raises, sub-drifts, and sub-crosscuts is to include construction of the chute boxes as required, any other installations that are necessary and all timbering done in the raises and sub-drifts and sub-crosscuts.

It is proposed that the driving and the location of the sub-drifts and sub-crosscuts be with the prior approval of the Government.

It is requested herewith that, with the prior approval of the Government, we be permitted to transfer the footages, namely, - 1350 feet of raises, sub-drifts and sub-crosscuts and 250 feet of winzes, set forth under the four Projects A, B, C, and D, to any one or more of the four Projects as may be required. The justification for this request is that as the exploration work progresses, the footage re-

quirements for each location, as determined by results obtained with the respective advances, would better be met, and that more flexibility would be afforded the total remaining exploration work as it advances and approaches its conclusion.

This stipulation to the requested amendment shall not be construed to increase the total Contract amount of the requested amendment nor the total respective contract amounts for the 250 feet of winzes and the 1350 feet of raising, sub-drifts and sub-crosscuts. As stated above, any transfer of footage would not be without the prior approval of the government.

This request for an amendment to our DMEA Contract Idm-E 1032 was tentatively discussed with the representatives of DMEA during their last visit to this property.

We thank you for your consideration of this requested amendment to our present DMEA Contract and trust that you can see fit to grant the amendment.

Very truly yours,

TUNGSTEN MINING CORPORATION

J. R. Sweet

J.R. Sweet
Vice-President & General Mgr.

JRS:mlb

0/4 CC: Robert A. Laurence

Enclosure: 5 copies of each of 4 maps

RECEIVED
DEC 19 1957
U. S. Geological Survey
Contracts Division
Denver, Colo. Area

CARLTON D. HULIN
MINING GEOLOGY
26TH FLOOR, SHELL BUILDING
SAN FRANCISCO 4, CALIFORNIA

OFFICIAL FILE COPY
DMEA
RECEIVED DEC 26 1957

DATE	INITIALS	CODE

Mr. William M. Weaver Jr., President,
Tungsten Mining Corporation,
500 Fifth Avenue,
New York 36, N.Y.

Exploration Program, Hamme Mine,
Vance County, North Carolina.

Dear Mr. Weaver:

I wish to recommend for your consideration and for consideration by the Defense Minerals Exploration Administration certain exploration work at the Hamme Mine which will represent an addition to the exploration program which is now in progress under the existing D.M.E.A. contract. This additional exploration work could presumably be added to and included in the D.M.E.A. contract now in force by an amendment to that contract.

Of the four projects represented in the exploration program covered by the existing D.M.E.A. contract, projects "B" and "C" have been completed but additional work remains to be done in projects "A" and "D". In each of the four projects lenses of ore or "sub-ore" of varying length have been exposed.

Based upon experience with the ore bodies of the Hamme Mine, the positive statement can be made that lenses of "ore" which are narrow or low grade and which possess little or no economic value as exposed in the initial drifting, not infrequently open up and pass transitionally into economically valuable bodies of ore when followed and explored in the third dimension.

Lenses of "ore" which on the basis of present exposures are of doubtful economic value, but which possess sufficient strength, width or contained values as to suggest that they might pass into economically valuable bodies of ore up or down dip, are present in the several D.M.E.A. projects, completed or in progress, approximately at the following coordinate locations:

Project A. 20,525 N., 21,040 E.
20,190 N., 20,860 E.
20,070 N., 20,740 E.

Project B. 19,655 N., 19,200 E.
19,805 N., 19,415 E.

Project C. 17,180 N., 18,415 E.

Project D. 17,400 N., 17,120 E.

These as well as other lenses which have been exposed in the D.M.E.A. projects are of sufficient promise as to definitely warrant further exploration along the dip, either by raises or winzes, together with limited sub-level exploration from these raises or winzes.

To this end it is recommended that the existing D.M.E.A. contract be amended to include an additional 800 feet of raise and/or winze and an additional 800 feet of sub-level drift and/or crosscut, to be conducted at approximately the above co-ordinate locations.

It is further recommended that the exact location of the raises and/or winzes which may be driven be based upon the best judgement of and mutual agreement between the mine staff and the representatives of D.M.E.A. as determined on the ground, and further that decisions relative to sub-level work and the horizon or elevation at which the sub-level may be driven from raise or winze be determined as the exploration work progresses and again be based upon the best judgement of and mutual agreement between the mine staff and the D.M.E.A. representatives.

It should be recognized that the extent of work which may be justified in any given raise, winze or sublevel can only be determined as the work progresses. Thus, while a limitation of 100 feet might be imposed for each individual raise, winze or sublevel, it is believed that the efficiency and the results obtained from the exploration work here proposed would be considerably enhanced if decisions concerning the extent and termination point for each item of work, raise, winze or sub-level, were again left to the best judgement of and mutual agreement between the mine staff and the representatives of D.M.E.A.

Although an allowance for winzes is requested, it is believed that for most lenses of "ore" whose exploration in the third dimension is justified, exploration from raises would appear preferable to exploration by winzing, this due to the greater cost, the slower progress and the preliminary preparation needed in sinking a winze, and in doing sub-level work from the winze.

It is my considered opinion that the additional exploration work which is herein proposed and recommended will serve to indicate the occurrence of economic ore in a number of lenses to which on the basis of present exposures little or no value can be assigned. This additional work would appear to be a logical and necessary follow-up to the exploration work, completed and in progress, under the present D.M.E.A. contract.

Respectfully submitted,

Carlton D. Hulin.

Carlton D. Hulin.

cc/ W L Long
J R Sweet

November 26, 1957

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
12-20	Holt	400
12-20	Martin	400
		140

December 20, 1957

MEMORANDUM

To: Associate Solicitor, Division of Mineral Resources

From: Division of Iron and Ferro-Alloys, DMEA

Subject: Preparation of Amendment
Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract No. Idm-E1032

Attached is a rough draft of Amendment No. 4 to the above-captioned contract for your use in preparing it in final form.

W. S. MARTIN

W. S. Martin, Director
Division of Iron and Ferro-Alloys

Attachments

SPHOLT/dlm 12-20-57
cc to: Code 400

DEC 23 1957

Recd
DEC 23 1957
D.V.M.N.Res

8623

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA - 4216

AMENDMENT NO. 4

It is agreed this _____ day of _____, 195_, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and Tungsten Mining Corporation that Exploration Project Contract No. Idm-E1032 (Docket No. DMEA -4216), dated November 2, 1956, as amended, hereinafter called the "Contract", is further amended, effective November 13, 1957, as follows:

In Exhibit "A", Description of the Work, page 3, General Specifications for Projects A, B, C. and D, under item 2 add a sentence reading "When approved by the Government, not more than 50 samples may be assayed for molybdenum (Mo)", and in item 4, second line, after (WO_3) add a sentence reading "and when approved by the Government, for molybdenum (Mo)."

Not to exceed $200.00 of funds provided in this Contract 150.00 for drifting and crosscutting under Projects A, B, C. and D may, at the option of the Operator and when approved by the Government, be used for assaying samples from drifts, crosscuts or diamond drill holes for molybdenum (Mo).

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may be required to contribute, or the fixed unit cost of any item of work.

Executed in quintuplicate the day and year first above written.

TUNGSTEN MINING CORPORATION

By_____

Title _____

THE UNITED STATES OF AMERICA

By_____
Administrator, Defense Minerals
Exploration Administration

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA-4216

Justification for Amendment No. 4

The Field Team, noting that molybdenite had been discovered in a quartz-molybdenite vein in the north drift of Project D, requested that an amendment be prepared to allow the Operator to assay some of the 250 samples authorized by the contract for molybdenum (Mo), as well as tungsten trioxide (WO_3).

This amendment authorizes such assaying, when approved by the Government.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 43 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

WASHINGTON OFFICE

OFFICIAL FILE COPY DMEA RECEIVED DEC 9 1957		
DATE	INITIALS	CODE
12/9	C	220
		130
12/9	WSM	400

December 5, 1957

Memorandum

To: Operating Committee, DMEA - Washington

From: DMEA Field Team, Region V - Knoxville, Tennessee

Subject: DMEA-4216, Idm-E1032(tungsten) Tungsten Mining Corp. Henderson, N.C. Hamme Mine, Vance County, N.C.

On a recent inspection trip, Mr. Burmeister requested the Operator to sample a quartz-molybdenite vein in the north drift of project D. The results were: 0.19% Mo and 0.10% Mo, as indicated on the accompanying letter from the Operator.

As this work was requested by our representative, and showed results beneficial to the project, it seem to us that DMEA should share in the costs, even though only $3.00 of Government participation is involved, unless additional molybdenum assays are to be made.

Therefore we request preparation of an amendment authorizing that some of the 250 samples, when approved by the Government representatives, be sampled and assayed for molybdenum.

Robert A. Laurence
Robert A. Laurence
Executive Officer, DMEA
Region V

V. J. Lynch
V. J. Lynch, Member
Bureau of Mines

TUNGSTEN MINING CORP.
BOX 931
HENDERSON, N. C.
TELEPHONE NO. 4139

OFFICIAL FILE COPY
DMEA
RECEIVED DEC 9 1957
DATE | INITIALS | CODE

November 25, 1957

Mr. H.L. Burmeister
Mine Examination and Exploration Engineer
U.S. Bureau of Mines
College Park, Maryland

Re: DMEA-4216
Idm-E 1032

Dear Mr. Burmeister:

As you requested, we have sampled the quarts-molybdenite vein in the north drift of Project D.

The assays were 0.19% Mo and 0.10% Mo respectively.

Although the contract does not to my knowledge include any provision for assaying for elements other than tungsten, it is our intention to include these as DMEA assays at $3.00 each just as we have been doing with the WO_3 assays, since the amount of effort required for these samples was as much or more than that required for WO_3 samples.

In Project D, we have continued drifting mostly in the south drift following the structure which tightened considerably and then pinched out. However, a crosscut round into the hanging wall a round or two from the face, exposed a new lens at a point about 170 feet south of station 1461. Drifting on this lens followed and we presently have 9 feet or more of good ore. The length of this new lens is about 20 or 25 feet to date.

There is nothing new in Projects A or B.

Yours very truly,

TUNGSTEN MINING CORPORATION

A.M. Szynklewski

A.M. Szynklewski
Chief Engineer

AMS/mlb

cc: J.R. Sweet
W.R. Atkins

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 1310, 1000 Vol. No.
WASHINGTON 25, D. C.
KNOXVILLE 2, TENN.

06

OFFICIAL FILE COPY
DMEA
RECEIVED NOV 1957

DATE		
11/4	g.b	220
11/4		800
11/5	WSM	400

Dmca-4216

November 1, 1957

Mr. James H. Sweet
Vice-President & General Manager
Tungsten Mining Corp.
Box 831
Henderson, North Carolina

Dear Mr. Sweet:

Enclosed is a copy of DMEA Order-1 Amended, marked to indicate which minerals are eligible for 50% participation instead of 75%, effective October 22, 1957.

The 50% rate applies to all applications, either for new work or extensions of existing contracts, received on or after October 22. Therefore, your proposed extension of the same contract would (if approved) be at the 50% rate for any work beyond the $250,310.00 authorized in the existing contract.

Sincerely yours,

Robert A. Laurence
Executive Officer
DMEA Field Team, Region V

RAL/mg
Enclosure
cc - Operating Committee (2)
Mr. V. J. Lynch
Mr. H. L. Burmeister
Mr. John M. Parker III
File

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 18 POST OFFICE BLDG.
WASHINGTON 25, D. C.
KNOXVILLE 2, TENN.

OFFICIAL FILE COPY
DMEA
RECEIVED OCT 23 1957

DATE	INITIALS	CODE
10/23	gb	220
10/23	WSM	400

October 21, 1957

Memorandum

To: Operating Committee, DMEA - Washington

From: Executive Officer, DMEA - Region V - Knoxville, Tenn.

Subject: Amendment No.3, DMEA-4216, Idm-E1032-Hamme Mine(tungsten)
Tungsten Mining Corp. Henderson, North Carolina

Transmitted are two signed copies of the subject amendment.

The usual distribution of the other copies has been made.

Robert A. Laurence

Robert A. Laurence

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
10-11	Holt	400
	Martin	400
10-14	Chambers	800
10/14	GCS	130
	Johnson	110
		100
10/15	B	220
		400

OCT 14 1957

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville 2, Tennessee

Re: Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hamme mine
Vance County, North Carolina
Contract No. Idm-E1032

Dear Mr. Laurence:

In accordance with the recommendation of the Field Team of September 19, 1957, enclosed are the original and four copies of a proposed Amendment No. 3 to the above-referenced contract, signed by the Administrator for the Government. Two extra copies are enclosed for the use of the Field Team.

If the terms and conditions of this proposed amendment are satisfactory to you and the Operator, all five copies should be signed by the Operator and the usual distribution made.

If any part of the proposed amendment does not have your approval or that of the Operator and cannot be altered within your delegated authority, the original and all copies are to be returned to this office, together with the proposed changes for consideration.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

APPROVED:

Frank D. Lamb
Member, Bureau of Mines

W. P. Williams
Member, Geological Survey

SPHolt:foc 10-14-57
cc to: Code 400
Admr. R. File
Oper. Comm.
FT. REG. V
Messrs. R. W. Holliday, USBM
T. H. Kiilsgaard, USGS

Enclosures

8623

orm 7
5)

OFFICIAL FILE COPY

Date	Surname	Code
10-2	Holt	400
10-2	Martin	400
		140

October 2, 1957

MEMORANDUM

To: Associate Solicitor, Division of Mineral Resources

From: Division of Iron and Ferro-Alloys, DMEA

Subject: Preparation of Amendment
Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract No. Idm-E1032

Attached is a rough draft of Amendment No.3 to the above captioned contract for your use in preparing it in final form.

W. S. MARTIN

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

Attachments

SPHolt/dlm 10-2-57
cc to: Code 400

8623

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA 4216

AMENDMENT NO. 3

It is agreed this _____day of _____, 1957, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and Tungsten Mining Corporation that Exploration Project Contract No. Idm-E1032 (Docket No. DMEA 4216), dated November 2, 1956, as amended, hereinafter called the "Contract", is further amended, effective September 19, 1957, as follows:

In Exhibit"A", as amended by Amendment No. 1, any part of the 1,415 feet of timbered drift authorized by Amendment No. 1, remaining unused may, where timbering is not needed for safety, and with the approval of the Government, be driven untimbered, and paid for at the same unit price as authorized in the Contract and Amendment No. 1 for 5,285 feet of untimbered drift, provided that the total of all timbered and untimbered drift shall not exceed 6,700 feet, and the total maximum cost of all drifting and timbering shall not exceed $239,310.00.

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may be required to contribute, or the fixed unit cost of any item of work.

Executed in quintuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By _____
Administrator, Defense Minerals
Exploration Administration

TUNGSTEN MINING CORPORATION

By _____

Title _____

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA 4216
Contract No. Idm -1032

Justification for Amendment No. 3

The Operator has requested and the Field Team recommends approval of the request that Amendment No. 1 to the subject contract be clarified as to the Operator's authorization to drive any part of the 1,415 feet of timbered drift allowed in the contract, without timber where timber is not needed, at the rate for untimbered drift.

This amendment authorizes such changes with the approval of the Government.

Re: DMBU-4216

Mr. Selfridge —

I do not agree!

We have always held that the number of units specified in "Estimate of Costs" on fixed unit cost contracts are maximums. Therefore maximum for untimbered drifts in this case is 5,285 ft, unless revised by further amendment.

Talbert

9/20/57

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
9-30	Holt	400
9-30	Martin	400
		~~700~~
		800
		130
		110
		100
		220

Mr. Robert A. Laurence, Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville 2, Tennessee

Re: Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract No. Idr-71032

Dear Mr. Laurence:

Your interpretation of Amendment No. 1 to the above-subject contract, as stated in your letter of September 19, 1957, to the Operator, is correct.

The total of drifting and crosscutting authorized by the contract is 6,700 feet, of which 1,415 may be timbered if necessary. If timbering is not necessary the entire 6,700 feet may be driven without being timbered. Amendment No. 1, written at the Operator's request, merely changes the permissible size of a drift or crosscut where timbering is necessary, and revises the price and method of payment for timbered drifts. There is no provision in either the contract or Amendment No. 1 requiring that any drift or crosscut shall be timbered where timbering is not needed, and the Field Team, under its general authority, would be justified in objecting to such unnecessary work if it were done, in this case or any other.

Accordingly, no amendment is necessary in order to permit the Operator to continue drifting and crosscutting without timbering where such is desirable and can be accomplished without increasing the total footage or the total expenditure authorized by the contract.

Sincerely yours,

APPROVED:

Chairman, Operating Committee

Member, Bureau of Mines

Member, Geological Survey

SPHolt:/dlm 9-30-57
cc to: Code 400
Admr. R. File Messrs.: R. W. Holliday, USBM
Oper. Comm. T. H. Kilsgaard, USGS
FT. REG. V

8623

Sep. 27, 1957

Mr. Martin:

Approved with pencil changes as indicated.

R.W.Long.

Typed Dtr 9-25-57 R.W.L. Initialed

DRAFT 9/25/57

Mr. Robert A. Laurence, Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville 2, Tennessee

Re: Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract No. Idm-E1032

Dear Mr. Laurence:

Your interpretation of Amendment No. 1 to the above-subject contract, as stated in your letter of September 19, 1957, to the Operator, is correct.

The total of drifting and crosscutting authorized by the contract is 6,700 feet, of which 1,415 may be timbered <u>if necessary.</u> If timbering is not necessary the entire 6,700 feet may be driven without being timbered. Amendment No. 1, written at the Operator's request, merely changes the permissible size of a drift or crosscut where timbering is necessary, and revises the price and method of payment for timbered drifts. There is no provision in either the contract or Amendment No. 1 requiring that any drift or crosscut shall be timbered where timbering is not needed, and the Field Team, under its general authority, would be justified in objecting to such unnecessary work if it were done, in this case or any other.

Accordingly, no amendment is necessary in order to permit the Operator to continue drifting & crosscutting without timbering

~~You have the authority to transfer any "timbered drift or crosscut" footage to the "untimbered drift or crosscut" category,~~ where such ~~change~~ is desirable and can be accomplished without increasing the total footage or the total expenditure authorized by the contract.

APPROVED:

Sincerely yours,

Member, Bureau of Mines

Chairman, Operating Committee

Member, Geological Survey

DRAFT 9/25/57

Mr. Robert A. Laurence, Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville 2, Tennessee

Re: Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract No. Idm-E1032

Dear Mr. Laurence:

Your interpretation of Amendment No. 1 to the above-subject contract, as stated in your letter of September 19, 1957, to the Operator, is correct.

The total of drifting and crosscutting authorized by the contract is 6,700 feet, of which 1,415 may be timbered <u>if necessary.</u> Amendment No. 1, written at the Operator's request, merely changes the permissible size of a drift or crosscut where timbering is necessary, and revises the price and method of payment for timbered drifts. There is no provision in either the contract or Amendment No. 1 requiring that any drift or crosscut shall be timbered where timbering is not needed, and the Field Team, under its general authority, would be justified in objecting to such unnecessary work if it were done, in this case or any other.

You have the authority to transfer any "timbered drift or crosscut" footage to the "untimbered drift or crosscut" category, where such change is desirable and can be accomplished without increasing the total footage or the total expenditure authorized by the contract.

APPROVED:

Member, Bureau of Mines

Member, Geological Survey

Sincerely yours,

Chairman, Operating Committee

OFFICIAL FILE COPY
DMEA
RECEIVED SEP 30 1957

DATE	INITIALS	CODE
10/1	B	220
"	WSay	400

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

Date September 27, 1957

DMEA Docket No. 4216
DMEA Contract No. Idm-E 1032
Commodity Tungsten
Name of applicant Tungsten Mining Corp.
Name of property Hamme Mine
Location of property Vance Co. North Carolina
Estimated cost of project

Memorandum

To: W. S. Martin, Chief, Iron and Ferroalloys Division-DMEA
Through: Acting Chief, Branch of Ferrous Metals and Ferroalloys

From: R. W. Holliday, Commodity Specialist, Branch of Ferrous Metals and Ferroalloys

Subject: Review of Request for Amendment
(Application, Field Team Report, etc.)

1. Date of subject document: 9/12/57 2. Date received by reviewer: 9/25/57

3. Prior reports on this property known to reviewer: Yes [ ] No [X]

4. Prior reports on nearby properties known to reviewer: Yes [ ] No [X]

5. Information available on past production: Yes [ ] No [X]

6. Other pertinent factors known to reviewer: Yes [ ] No [X]

7. Explain items marked yes above:

8. Factors needing special consideration:
a. Location [ ]
b. Ownership [ ]
c. Evidence of mineralization [ ]
d. Geology [ ]
e. Proposed exploration method [ ]
f. Alternate exploration method [ ]
g. Costs [ ]
h. [ ]

9. Action advised:
a. Obtain information from applicant [ ]
b. Refer to Field Team [ ]
c. Denial [ ]
d. Agree with Field Team [X]
e. Disagree with Field Team [ ]
f. Suggest alternate plan [ ]
g. Request another examination [ ]
h. Approval [X]
i. Consult with Mr. _____ at _____ AEC office.

10. Remarks: (Use back of page if necessary)

R. W. Holliday

R. W. Holliday

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
9-25	Holt	400
9-25	Martin	400
		140

SOLICITOR

SEP 25 1957

INTERIOR DEPT.

September 25, 1957

MEMORANDUM:

To: Associate Solicitor, Division of Mineral Resources

From: Division of Iron and Ferro-Alloys, DMEA

Subject: Review of proposed letter
Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hamme Mine
Contract No. Idm-E1032

Attached is rough draft of a proposed letter to Mr. Robert A. Laurence, Executive Officer, DMEA Field Team, Region V, concerning the above-captioned contract.

Your review and comments on the proposed letter will be appreciated.

W. S. MARTIN

W. S. Martin, Director
Division of Iron and Ferro-Alloys

Enclosure

SPHolt/dlm 9-25-57
cc to: Code 400

RECEIVED
SEP 25 1957
ASSOC. SOLICITOR
MINERAL RESOURCES

RECEIVED
SEP 25 1957
ASSOC. SOLICITOR
MINERAL RESOURCES

8623

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 1-1-1 FED. BLDG.
KNOXVILLE 2, TENN.

OFFICIAL FILE COPY
DMEA
RECEIVED SEP 23 1957

DATE	INITIALS	CODE
9/23	C	220
		130
9/24	WJM	400

September 19, 1957

Memorandum

To: Operating Committee, DMEA - Washington

From: DMEA Field Team, Region V - Knoxville, Tennessee

Subject: DMEA-4216, Idm-E1032(tungsten) Hamme Mine, Vance County, North Carolina. Tungsten-Mining Corporation, Operators.

Enclosed are 3 copies of the latest interim report, 3 copies of a letter from the Operator requesting an amendment, and 3 copies of our reply to the Operator.

We recommend the changes requested by both the Operator and the Field Examiners. It is our opinion that the contract permits these changes without amendment. If this opinion is incorrect and an amendment is necessary, we request approval of an amendment changing Amendment No. 1 to authorize a total of 6,700 feet of drift both timbered and untimbered of which not more than 1415 feet is to be timbered, and a maximum total cost for drifting and timbering of $239,310.00.

Robert A. Laurence
Robert A. Laurence
Executive Officer, DMEA-Region V

Wm. A. Beck
Wm. A. Beck, for V. J. Lynch
Member, Bureau of Mines

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

September 19, 1957

OFFICIAL FILE COPY DMEA RECEIVED SEP 23 1957		
DATE	INITIALS	CODE
9/24	WSM	400

Mr. James R. Sweet,
Vice President & Gen'l Mgr.
Tungsten-Mining Corporation
P.O. Box 931
Henderson, North Carolina

Re: DMEA-4216 (tungsten)
Hamme Mine
Vance County, N. C.
Contract No. Idm-E1032

Dear Mr. Sweet:

After a study of the request made in your letter of September 12, it is my opinion that an amendment is not necessary to authorize the transfer of "timbered drift" footage to the "untimbered drift" category.

I believe these changes can be authorized without an amendment, but to be completely certain, I am referring your letter to our Washington office with a request to prepare the amendment if it is considered necessary. I believe the second sentence of Article 4 is intended to authorize such changes, providing unit costs, total costs, and footage maximums for each project are not exceeded.

If an amendment is required, we will forward it to you for signature as soon as it is received.

Sincerely yours,

Robert A. Laurence
Executive Officer, DMEA
Region V

RAL/sm
cc
Opr.-Com-3
Lynch
Millar-Burmeister

Parker
Files

TUNGSTEN MINING CORP.

BOX 931

HENDERSON, N. C.

TELEPHONE NO. 4139

September 12, 1957

RECEIVED
SEP 16 1957
Survey
Geologic Division
Knoxville, Tenn.

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team
Region 5, Room 13
P. O. Building
Knoxville 2, Tennessee

Re: DMEA 4216
Idm E 1032 (Tungsten)
Hamme Mine
Vance County, N. C.

RECEIVED
SEP 13 1957
D.M.E.A.

Dear Mr. Laurence:

Please consider this as a written request for an amendment to DMEA Contract Idm - E 1032, Docket 4216.

Amendment No. 1 to this Contract, under "Estimated Costs of the Project, Fixed Unit Costs", recites that 5285 ft. of "Untimbered drifts and crosscuts" be driven at a unit cost of $35.00 per foot, and that 1415 ft. of "Timbered drifts and crosscuts" be driven at a unit cost of $32.40 per foot, and that the timbering for this 1415 ft. be performed at a unit cost of $6.00 per lineal foot.

We hereby request that Amendment No. 1 be further amended to permit transfer of any unused portion of the 1415 feet of "Timbered drift and crosscut", to the category of "Untimbered drift and crosscut". This transfer would be made after exhaustion of the contract allowed 5285 feet of, "Untimbered drift and crosscut", and would not change the total allowed footage of 6700 for both categories in all four Projects.

Justification for such an amendment is that when we have performed the entire 5285 ft. of advance in "Untimbered drifts and crosscuts", we would then have to timber all the remaining footage at that time in order to complete the 6700 ft. of drifts and crosscuts contracted for. The experience record to date of the contract indicates that the 5285 feet will be exhausted prior to the completion of the 1415 ft. allowed for "Timbered drifts and crosscuts" for all four Projects.

We feel that timbering where unnecessary would not be good mining practice and it would also entail unnecessary expense at the rate of $3.40 per foot for any drift or crosscut which is timbered when timber is not required. The $3.40 per foot is the difference in rate that the contract pays for "Timbered drifts and crosscuts" as against "Untimbered drifts and crosscuts". The rate for "Untimbered drifts and crosscuts" is $35.00 per foot; the rate for "Timbered drifts and crosscuts" is $32.40 per foot, plus $6.00 per

foot for material and installation of the timber, or a total of $38.40 per foot, the net difference being $3.40 per foot.

As of September 1, 1957, we have completed 3813 ft. of "Untimbered drifts and crosscuts". Inasmuch as the present amendment calls for 5285 ft. in this category, we have 1472 ft. of drifts and crosscuts to drive without timber. Also, as of that date, we have completed 625 ft. of "Timbered drifts and crosscuts", leaving the difference between 1415 ft. and 625 ft., or 790 ft. of "Timbered drifts and crosscuts", to be driven. If no additional timbering were required after September 1, 1957, we would not be able to perform this 790 ft. of drifting and crosscutting unless we timbered all of it.

Although estimating necessary timber in new ground cannot be expected to be highly accurate, on the basis of past experience in the DMEA Projects to date, it appears probable that we will require 413 ft. of additional timber after September 1, 1957. If this were to be the case, the difference between 790 ft. and 413 ft., or 377 ft., could not be completed under the contract unless it was timbered.

The requested amendment is not construed to increase the overall amount of allowable expenditures in Contract Idm. E 1032, or to increase the total allowed footage units. On the other hand it represents a possible saving to the Government.

The above estimate should be considered as such and not construed as a basis for a new estimate of costs. Our only desire is to provide a method whereby the total contract allowed footage of drifts and crosscuts may be used and in so doing most probably reduce the total cost of the contract to both the Government and the Operator.

This request for amendment was discussed with and approved by the Government representatives during their inspection visit on September 11, 1957. We are assured by them that this request for amendment will be mentioned in their interim report of this visit.

Very truly yours,

TUNGSTEN MINING CORPORATION

J. R. Sweet

J. R. Sweet
Vice-President & General Mgr.

JRS:fnj
Robert A. Laurence 0/4 copies.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

OFFICIAL FILE COPY
DMEA
RECEIVED AUG 1 1957

DATE	INITIALS	CODE
8/1	P.K.	220
8/1	[illegible]	800
8/1	WSM	400

July 30, 1957

Mr. James R. Sweet,
Vice President and General Mgr.
Tungsten Mining Corporation
P.O. Box 931
Henderson, North Carolina

Re: DMEA-4216(tungsten)
Hamme Mine, Vance County, N.C.
Idm-E1032

Dear Mr. Sweet:

This replies to your letter of July 25, requesting permission to skeletonize the drill cores after they have been logged by your staff.

Mr. Burmeister and Mr. Williams have recommended that this be permitted as the skeletonized cores plus your logs will provide adequate information for the Government. Therefore, this letter constitutes approval to skeletonize the cores as described in your letter, subject to revocation if the procedure should prove unsatisfactory in future Government field inspections.

Sincerely yours,

Robert A. Laurence
Executive Officer, DMEA
Field Team, Region V

RAL/zm
cc
Opr. Com-2
Lynch
Millar
Parker
Williams
Files

TUNGSTEN MINING CORP.

BOX 931

HENDERSON, N. C.

TELEPHONE NO. 4139

July 25, 1957

8/1 WSM 400

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team
Region 5, Room 13
P. O. Building
Knoxville 2, Tennessee

Re: DMEA-4216
Idm E-1032 (Tungsten)
Hamme Mine
Vance County, N. C.

Dear Mr. Laurence:

We are writing with reference to DMEA diamond drill cores. As you know, we have been storing these cores intact except for the splitting of mineralized zones. Normally, it is our practice to skeletonize our cores upon logging and then put them in storage.

According to the DMEA contract, all cores are to be "stored by the operator until logged and released by the Government."

Mr. Burmeister and Mr. Williams, on their visit here on July 24th, indicated that it was agreeable with DMEA to allow us to skeletonize DMEA cores at the time that they are logged by us and to skeletonize the accumulated DMEA cores which are on hand now. They indicated that you are familiar with this decision, and if possible, we would like to have your written approval to proceed on this basis.

Yours very truly,

TUNGSTEN MINING CORPORATION

J. R. Sweet

J. R. Sweet
Vice-President & General Mgr.

JMS:fnj

RECEIVED
JUL 29 1957
U. ... Knox...

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
7-17	Chapman	400
7-17	Martin	400
7-17	Chambers	800
7/17	Martin	130
"	Johnson	110
		100
7/17	P.K.	220
		400

JUL 18 1957

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville 2, Tennessee

Re: Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hamme mine
Vance County, North Carolina
Contract No. Idm-E1032

Dear Mr. Laurence:

Enclosed are the original and four copies of a proposed Amendment No. 1 to the above-referenced contract, signed by the Administrator for the Government. Two extra copies are enclosed for the use of the Field Team.

If the conditions and terms of the proposed amendment are satisfactory to you and the Operator, all five copies are to be signed by the Operator and the usual distribution made.

If any part of the proposed amendment does not have your approval or that of the Operator and cannot be altered within your delegated authority, the original and all copies are to be returned to this office, together with the proposed changes for consideration.

Sincerely yours,

W. S. Martin

ACTING Chairman, Operating Committee

APPROVED:

P. F. Yopes
Member, Bureau of Mines

Thor H. Kiilsgaard
Member, Geological Survey

TLChapman:foc 7-17-57
cc to: Docket
Code 400
Admr. R. File
Oper. Comm.
FT. REG. V
Messrs. R. W. Holliday, USBM
T. H. Kiilsgaard, USGS

Enclosures

8623

Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
7-1	Holt	400
7-1		400
		140

July 1, 1957

To: Associate Solicitor, Division of Mineral Resources

From: Division of Iron and Ferro-Alloys, DMEA

Subject: Preparation of Amendment No. 2
Docket No. DMEA 4216
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract No. Idm-E1032

Attached is a rough draft of a proposed Amendment No. 2 to the above-captioned contract for your use in preparing it in final form.

Thos. L. Chapman, Acting Director
Division of Iron and Ferro-Alloys

Attachment

SPHolt/dlm 7-1-57
cc to: Docket
chron

8623

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA 4216
CONTRACT NO. Idm-E1032

AMENDMENT NO. 2

It is agreed this _____day of _____, 1957, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and Tungsten Mining Corporation that Exploration Project Contract No. Idm-E1032 (Docket No. Idm-E1032), dated November 2, 1956, as amended, hereinafter called the "Contract", is further amended effective June 12, 1957, as follows:

1. In Exhibit "A", on page 3, under the heading General Specifications for Projects A, B, C, and D add a new item 6, to read:

6. Diamond drilling authorized in this contract under any one of the projects A, B, C, and D, remaining unused as of the effective date of this Amendment 2 may, with the prior approval of the Government, be transferred to and used in any other of the projects A, B, C, or D.

This amendment shall not be construed to increase the estimated total cost of the project, the aggregate total amount which the Government may be required to contribute, or the fixed unit cost of any item of work.

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

By_____
Administrator, Defense Minerals
Exploration Administration

TUNGSTEN MINING CORPORATION

BY_____

Title_____

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA 4216

Justification for Amendment No. 2

The Operator has requested and the Field Team recommends approval of the request for an amendment permitting shifting authorization for unused diamond drilling from one subdivision, or "Project", to another "Project." The purpose is to allow transfer of such drilling from subdivisions with relatively simple structure requiring proportionally less drilling to subdivisions with more complex structure, requiring more drilling for the control of the direction and extent of the horizontal workings and thus allow use of the drilling to the best advantage.

This amendment authorizes such changes with prior approval of the Field Team.

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

OFFICIAL FILE COPY
DMEA
RECEIVED JUL 1 1957

DATE	INITIALS	CODE
7/1	C	220
7/1	RC.	400
June 28, 1957		

Memorandum

To: W. S. Martin, Chief, Iron and Ferroalloys Division-DMEA
Through: Chief, Branch of Ferrous Metals and Ferroalloys

From: R. W. Holliday, Commodity Specialist, Branch of Ferrous Metals and Ferroalloys

Subject: Docket No. DMEA-4216 (Tungsten) - Proposed Amendment
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina

The subject proposed amendment would allow the projects' (A, B, C and D) authorized diamond drilling "to be used in any one or more of the four projects as may be required by the future diamond drill exploration work of these projects".

I agree that the operator should have as much freedom as possible for the exercise of judgement and recommend approval of the amendment. However provision should be made for future requirements so that exploration in the later stages of the project will not be hampered by insufficient drilling.

R. W. Holliday
R. W. Holliday

IN REPLY REFER TO:

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

OFFICIAL FILE COPY
DMEA
RECEIVED JUL 1 1957

DATE		CODE
7/1	C	220
7/1	DKC.	400

June 28, 1957

Memorandum

To: W. S. Martin, Defense Minerals Exploration Administration

From: W. P. Williams, U. S. Geological Survey

Subject: Review of request for contract amendment, DMEA 4216, Contract Idm-E1032 (tungsten), Tungsten Mining Corporation, Hamme Mine, Vance County, North Carolina

The Operator under the subject contract has requested, in a letter dated June 13, 1957 to the Executive Officer of Region V, for an amendment to Contract Idm-E1032.

Contract Idm-E1032 now specifies the exact amount of drilling footage that may be completed in each of four sub-projects known as A, B, C, and D. Inasmuch as allowable underground drilling footage is now running short in Project B and may also become short in one or two of the other sub-projects while an excess of available drilling could remain unused in one or two of the projects, the Operator requests that the contract be amended to allow all the drilling under the contract to be used wherever, and as, needed.

The contract follows the recommendations of the examining team in specifying certain drilling footages in each sub-project. Those footages, however, only represent estimates of the footages needed and are based on the Operator's past experience in the Hamme Mine and the best judgment of the Operator and the examining team.

I am in agreement with the views of the Operator and the Field Team, Region V, and recommend that contract Idm-E1032 be amended to conform to the Operator's request.

The proposed amendment was discussed in the DMEA inspecting team's Interim Report covering a project inspection on June 12, 1957.

W. P. Williams

W. P. Williams

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

WASHINGTON 25, D. C.

OFFICIAL FILE COPY
DMEA
RECEIVED JUL 31 1957

DATE	INITIALS	CODE
7/31	P.K.	220
7/31	WSM	400

July 29, 1957

Memorandum

To: Operating Committee, DMEA - Washington

From: Executive Officer, DMEA - Region V - Knoxville, Tenn

Subject: Amendment No. 2, DMEA-4216, Idm-E1032(tungsten)
Tungsten Mining Corporation, Vance County, N.C.

Transmitted is the original and audit copy of the subject amendment signed by J. R. Sweet, Vice-President and General Manager of the company.

The usual distribution of the other copies has been made by this office.

Robert A. Laurence

Robert A. Laurence

TUNGSTEN MINING CORP.
BOX 931
HENDERSON, N. C.
TELEPHONE NO. 4139

OFFICIAL FILE COPY
DMEA
RECEIVED JUL 8 1957
DATE REFERENCE CODE
7/8 C 220
7/8 800
7/8 WSM 400

July 2, 1957

Mr. Robert A. Laurence, Executive Officer
DMEA Field Team, Region V
Room 13
Post Office Building
Knoxville 2, Tenn.

Re: DMEA 4216
Idm E 1032 (Tungsten)
Hamme Mine
Vance County, N. C.

Dear Mr. Laurence:

With reference to your letter of June 18, 1957 addressed to Mr. J. R. Sweet, concerning royalty payments on ore extracted from our DMEA Projects, we are enclosing our check in the amount of one hundred thirty-nine dollars and twenty-four cents which is the balance due DMEA in accordance with your letter. This added to our previous payment of ninety-two dollars and eighty-two cents totals two hundred thirty-two dollars and six cents, which amount is 5 percent of $4641.2455, the value of the DMEA ore.

We wish to point out, however, that the value of the concentrate is not $3299.62 per ton as indicated in your letter. The value per ton as you have calculated it, is based on 100% WO_3 content. Our concentrate runs approximately 70% WO_3; therefore, at a price of $32.9962 per S.T.U., the value would be approximately $2310 per ton of concentrate.

We regret that we did not interpret the contract correctly and wish to thank you for calling it to our attention.

Very truly yours,

TUNGSTEN MINING CORPORATION

G. V. Boyd

G. V. Boyd

RECEIVED
JUL 5 - 1957
U. S. Geological Survey
Geologic Division
Knoxville, Tenn.

GVB:fnj
Encl.

We should have views of GS and BM before we hurry to say idea is OK

Holliday sending memo, apparently approved. 6.27.57

Called Nelson 6.28.57
He called back, says memo overlooked, will call one person be been [illegible] [illegible] of another [illegible] Williams.
6.28.57
S.P.H.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROWAN-ROSTON OFFICE BLDG.
KNOXVILLE 2, TENN.

OFFICIAL FILE COPY
DMEA
RECEIVED JUN 20 1957

DATE	INITIALS	CODE
6/20	JWL	220
		230
	WSM	400

June 18, 1957

Memorandum

To: Operating Committee, DMEA - Washington

From: Executive Officer, DMEA - Region V -Knoxville, Tenn.

Subject: DMEA-4216, Idm-E1032(tungsten) Tungsten Mining Corp. Hamme Mine, Vance County, N.C.

Enclosed are the original and 2 copies of a letter from the Operator requesting an amendment to the contract.

Mr. Burmeister and Mr. Williams discussed this with the Operator on their June 12 inspection of the contract.

We recommend approval of the amendment, effective June 12, 1957. The advantage to the Government will be a more efficient use of the overall amount of authorized drill footage. If you agree, please prepare the amendment and sent it to us for transmittal to the Operator.

V. J. Lynch, Member
Bureau of Mines

Robert A. Laurence
Executive Officer, DMEA
Region V

6-21-57
Copies sent
BM & GS
for,

TUNGSTEN MINING CORP.
BOX 931
HENDERSON, N. C.
TELEPHONE NO. 4139

RECEIVED
JUN 17 1957

OFFICIAL FILE COPY
DMEA
RECEIVED JUN 20 1957

DATE	INITIALS	CODE

June 13, 1957

Mr. Robert A. Laurence
Executive Officer
DMEA Team
Region 5, Room 13
P. O. Building
Knoxville 2, Tenn.

Re: DMEA - 4216
Idm - E 1032 (Tungsten)
Hamme Mine
Vance County, N. C.

Dear Sir:

Please consider this as a written request for an amendment to DMEA Contract Idm-E 1032, Docket 4216.

Contract Idm-E 1032 now recites that specific footages of diamond drilling shall be allowable in each of four projects, designated A, B, C, and D. We would like to have Contract Idm-E 1032 amended so as to allow the total remaining diamond drill footage of the four Projects A, B, C, and D to be used in any one or more of the four projects as may be required by the future diamond drill exploration work of these projects.

Also, we respectively request that this amendment to the contract be dated as of June 12, 1957 in order that the proposed diamond drill footage for Project B, which we wish to do immediately, be covered by the above proposed amendment.

Justification for such an amendment would be that the diamond drill footage requirements of the individual projects, as determined by results obtained with their respective advances, would better be met, and that much more flexibility would be afforded the whole project as the exploration work progresses and approaches its conclusion. Toward the end of the project, it would be reasonable, and desirable, to concentrate diamond drill exploration work in those areas in which it would be expected to obtain the most productive results while directing less attention to less favorable areas.

The specific instance in which this matter now arises is in Project B. As of June 12, we have completed 351 feet of diamond drilling in this project and now require two additional holes. These two holes are immediately required to aid in defining the course on which to advance the present face of the drift. One of these proposed holes is 90 feet deep and the other 80 feet, making a total of 170 feet of drilling footage. The 170 feet added to the 351 feet now completed is 521 feet. The contract limits the diamond drill footage for Project B to 500 feet and therefore does not permit the complete drilling of one of these two

proposed holes. Also, as of June 12, Project B has advanced 788 feet or 60.6% of the total 1300 feet allowed for this project. It is most probable that additional diamond drilling will be required on this Project B, over and above the above proposed 170 feet of driling, before the 1300 feet of drifting and cross cutting covered by this Project B is completed.

The requested amendment is not construed to increase the over-all amount of allowable expenditures in Contract Idm-E 1032.

Very truly yours,

TUNGSTEN MINING CORPORATION

J. R. Sweet

J. R. Sweet
Vice-President & General Mgr.

JRS:fnj
5 cc: Mr. Laurence

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 13 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

OFFICIAL FILE COPY
DMEA
RECEIVED JUN 20 1957

DATE	INITIALS	CODE
6/20	JWD	220
6/24		800
	DLP	400

June 18, 1957

Mr. J. R. Sweet,
Vice-President & Gen'l Mgr.
Tungsten Mining Corp.
P.O. Box 931
Henderson, N.C.

Re: DMEA-4216(tungsten)
Hamme Mine, Vance County, N.C.
Contract No. Idm-E1032

Dear Mr. Sweet:

Your letter of June 13, requesting an amendment to the contract, has been forwarded to our Washington office for appropriate action. I will notify you when a decision is obtained.

In another connection, please refer to your letter of May 18, which accompanied your check for $92.82 as royalties.

Please note that Article 6(c) of the contract provides that " The Government's royalty shall be a percentage of the gross proceeds...from the production sold, <u>in the form in which sold</u> (ore, concentrates, metal or equivalent)..." and that Article 6(e) provides that "the percentages of the Government's royalty shall be...percent of amounts (gross proceeds" or "value.")... per ton of production in the form in which sold..."

Therefore the royalty should have been based on the value of the concentrate $3,299.62 per ton. At the 5 percent rate, this would be $232.06 instead of $92.82 as calculated by you. The difference ($139.24) should be added to your next royalty payment, or you may send a check for that amount how if you prefer.

Very truly yours,

Robert A. Laurence, Executive Officer
DMEA Field Team, Region V

RAL/sm
cc
Opr. Com.-2
Millar
Finance
Lynch
Files

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
	Boston	140
	Sawyer	140
6/7	Holt	400
6/7	Martin	400
6-7	Chamberlin	~~400~~
6/7	GCL	130

400
100
225

JUN 10 1957

Mr. Robert A. Laurence, Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville 2, Tennessee

Re: Docket No. DMEA 4216--Tungsten
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract No. Idm-E1032

Dear Mr. Laurence:

Reference is made to the memorandum of May 20, 1957, from Mr. V. J. Lynch to the Finance Officer, Region V, forwarding copies of calculation sheets for production from the subject mine.

On the sheet titled "Calculation of Government Royalty" the Operator computed royalty at the rate of 2 percent, based on a calculated value of $8.53 per ton for 544 tons of DMEA ore. However, the royalty should have been computed at the per ton value of the concentrate sold ($3,299.62 per ton). Thus, at the rate of 5 percent, the total royalty due the Government is $232.06, instead of $92.82 as calculated by the Operator.

In this connection the attention of the Operator should be called to this error, referring to Article 6(c) of the Contract, which provides that "The Government's royalty shall be a percentage of the gross proceeds... from the production sold, in the form in which sold (ore, concentrates, metal or equivalent)...," and to Article 6(e) which provides that "the percentages of the Government's royalty shall be...percent of amounts ('gross proceeds' or 'value')...per ton of production in the form in which sold..." (emphasis supplied).

DMEA Circular 32, Supplement No. 2, also discusses this matter.

Sincerely yours,

APPROVED:

George C. Selfridge

Frank D. Lamb (JB)
Member, Bureau of Mines

Chairman, Operating Committee (JB)
SP Holt/HCRubin/md 6/6/57

Thor H. Kiilsgaard (JB)
Member, Geological Survey

Copies to: DMEA Docket
R.P. Dwyer
H.C.Rubin
Chron
Pending
Admin. Read. File
Operating Com.
T.H. Kiilsgaard USGS
W.S. Martin
Holliday

8623

MEMORANDUM

To: File

From: S. P. Holt, Iron and Ferro-Alloys Division

Subject: Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hamme Mine
Vancerus County, North Carolina
Contract No. Idm-E1032

Mr. George F. Selfridge phoned to ask what figure was used for expected advance per shift in estimating cost of drifting and crosscutting under the above contract.

He was informed that the figure used was 4.39 feet of advance per shift, see Field Examination Report (tabbed "On Site Exam") July 3, 1956, page 7.

For comparison, the January-March, 1957, Interim Report for this project shows average daily advance in drift and crosscuts, over a 3-month period, as 4.56 feet per shift.

S. P. H.
S. P. Holt

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 1, POST OFFICE BLDG.
KNOXVILLE 2, TENNESSEE

OFFICIAL FILE COPY
DMEA
RECEIVED MAR 6 1957

DATE	INITIALS	CODE
3-6	C	220
3/6	[illegible]	800
		225

March 4, 1957

Mr. J. R. Sweet, Gen. Mgr.
Tungsten Mining Corporation
Henderson, North Carolina

Re: DMEA-4216, Idm-31032,
Hamme Mine, Vance County, N.C.
(tungsten)

Dear Mr. Sweet:

It has been necessary to change some of the cost figures on the December and January vouchers (forms MF_104 and 104A) relating to the above referenced contract. This was necessary because of changes brought about by Amendment No. 1 to the contract.

Enclosed are copies of forms 104 and 104A which indicate the changes made on these vouchers.

Very truly yours,

Robert A. Laurence
Executive Officer, DMEA
Region V

VJL/am
cc
Lynch
Millar
Finance Officer
Files
Operating Cons.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D.C.
ROOM POST OFFICE BLDG.
KNOXVILLE 2, TENN.

OFFICIAL FILE COPY
DMEA
RECEIVED FEB 27 1957

DATE	INITIALS	CODE

February 25, 1957

Memorandum

To: Operating Committee, DMEA - Washington

From: DMEA Field Team, Region V - Knoxville, Tennessee

Subject: Amendment No. 1, Tungsten Mining Corp. DMEA-4216, Idm-E1032. Hamme Mine, Vance County, North Carolina

Transmitted are three signed copies of the subject amendment with justification attached.

The usual distribution of the other copies has been made by this office.

Robert A. Laurence
Robert A. Laurence
Executive Officer, DMEA
Field Team, Region V

V. J. Lynch
V. J. Lynch, Member
Bureau of Mines

Drifts and crosscuts, not timbered, 7'x7'6" in the clear, 5,285 feet @ $35.00/ft.	$184,975.00
Drifts and crosscuts, timbered, 5'8" x 7'6" in the clear of timber, 1,415 feet @ $32.40/ft. (rounded to)	45,845.00
Timbering of drifts and crosscuts, 1,415 feet @ $6.00/ft.	8,490.00

Government's copy

Fels

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA-4216

AMENDMENT NO. 1

It is agreed this 30th day of January, 1957, between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, and Tungsten Mining Corporation that Exploration Project Contract No. Idm-E1032 (Docket No. DMEA-4216), dated November 2, 1956, hereinafter called the "Contract," is amended effective November 2, 1956, as follows:

1. In Article 1(b) of the Contract, the estimated total cost of the project is changed from $250,340.00 to $246,660.00 and the Government's contribution at 75 percent is changed from $187,755.00 to $184,995.00.

2. In Exhibit "A," on page 3, under the heading General Specifications for Projects A, B, C, and D, paragraph 1 is deleted and the following paragraph is substituted:

"1. Drifts and crosscuts shall be driven a minimum of 7 feet wide by 7½ feet high above top of rail. Where timber is necessary, it shall consist of 8 inch by 8 inch oak posts and caps with 2 inch or 3 inch top and side lagging as required. The inside width between posts shall be not less than 5 feet 8 inches and the bottom of the cap shall be not less than 7½ feet above top of rail. No sills are required."

3. In Exhibit "A," on page 3, the Estimated Costs of the Project are revised to read as follows:

"Estimated Costs of the Project

Fixed Unit Costs

Drifting and crosscutting, not timbered, 5,285 feet @ $35.00/ft.	$184,975.00
Drifting and crosscutting, where timber is necessary, 1,415 feet @ $32.40/ft. (rounded)	45,845.00
Timbering of drifts and crosscuts, 1,415 feet @ $6.00/ft.	8,490.00

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA 4216

AMENDMENT NO. 1

JUSTIFICATION

The Operator has requested, and the Field Team examiner approves, a change in the contract to permit the installation of timber sets 5 feet 8 inches wide and 7½ feet high in the clear of timber, where timber is necessary, instead of 7 feet wide by 7½ feet high in the clear, as now specified in the contract. The Operator states that the narrower sets conform with North Carolina State Mining Laws. The smaller clearance will be as effective for purposes of exploration as the previously required size.

The saving to the Government by this amendment will be $2.60 per foot of drift or crosscut, where timbering is necessary.

OFFICIAL FILE COPY
DMEA
RECEIVED FEB 18 1957

DATE	INITIALS	CODE
2/19	CBM	100
2-20	C	220

DEFENSE MINERALS EXPLORATION ADMINISTRATION

DMEA 4216, Contract Idm-E1032
Tungsten Mining Corporation
Henderson, N. C.
Hamme Mine, Vance County, N. C.
Tungsten

Interim Report
by

H. L. Burmeister
U. S. Bureau of Mines

W. P. Williams
U. S. Geological Survey

January, 1957

Introduction

The Hamme Mine, Tungsten Mining Corporation, DMEA 4216, Contract Idm-E1032 was visited on January 29, 1957 by a field party composed of H. L. Burmeister, U. S. Bureau of Mines; R. A. Laurence, Executive Officer, Region V; and J. M. Parker III and W. P. Williams, U. S. Geological Survey. The group was conducted on an underground inspection of the project work sites by W. R. Atkins, General Superintendent and A. M. Szynklewski, Chief Mining Engineer, of Tungsten Mining Corporation.

Project Results

Project A: On the date of the inspection the drift had penetrated the diabase dike which truncated the ore vein and had passed into granite and/or granite-gneiss. The diabase dike is about 120 feet thick, as measured in the drift. A thick, huebnerite-bearing quartz vein was discovered, as hoped, immediately upon penetrating the dike. The west contact of the vein and the north contact of the dike was encountered at a point 137 feet from the starting point, or 61 feet east of Sta. 1379. The vein is about 15 feet thick, strikes about N. 30°E and dips 72° SE. Total advance in the drift, to January 29, was 155 feet from the starting point. Locations of survey stations may be found on maps accompanying the Operator's monthly reports.

The vein is composed of white, massive quartz that locally may have a sugary texture. The vein is much sheared and contains many dark colored gneissic and schistose veinlets. The wall rocks are greenish gray gneissic granite containing abundant disseminated pyrite. At many places the white quartz contains masses, up to 2 feet in diameter, of pale, sky-blue fluorite. Huebnerite is disseminated through the quartz, often in crystals a half inch in diameter. The vein is estimated to contain about 0.5 percent WO_3.

One drift round had been blasted beyond the dike contact. After drifting about 20 feet farther on the vein the Operator intends to drill

a diamond drill hole eastward into the hanging wall to search for possible splits of the crown vein or for parallel veins.

Assays of car samples were not available as the vein rounds had not been completely mucked. Cut samples had not yet been taken. Twenty sets of timber have been placed.

Project B: The face of this drift is 160 feet southwest of the original DMEA crosscut and 50 feet west of Sta. 1378. The drift passes through greenish gray to reddish brown, relatively unfractured, granite. A 6-inch to one foot thick quartz vein is being carried in the back of the drift. Off-shoot white quartz veinlets at many places veer off into the ribs of the drift. The dip of the vein is about vertical. Pyrite is disseminated throughout the drift but appears to be more abundant toward the face. Pale blue and purple fluorite is found in small, irregular masses in the quartz vein. Huebnerite is either extremely sparsely disseminated in the quartz or absent.

After a false start in drifting the vein has gradually changed strike and is now apparoximately on the strike projected from the 500 level, so that the DMEA drift on 900 level appears to be on structure.

Project C: The drift face is 375 feet northwest of the starting point of the project and 110 feet northwest of Sta. 1381.

The drift has been driven in medium grained, greenish gray granite, and granitic schist. A diabase dike was penetrated at a point 191 feet beyond the starting point. The dike is about 4 feet thick, dark greenish black, and very fine grained. The dike strikes about N. 15° W. and the dip is about vertical. The drift follows a white quartz vein about 1 to 2 feet thick. The vein strikes N. 20° E. and dips about 55° southeast.

A curious feature of the quartz vein is that south of the diabase dike the vein carries sparse disseminated huebnerite. North of the dike huebnerite is completely lacking although very small amounts of scheelite are present. At the drift face, and for about 20 feet back along the drift, abundant disseminated pyrite and irregular masses of fluorspar are present in both the wall rocks and the quartz vein.

The Operator plans to suspend work temporarily in Project C and to intensify work on the other three projects.

Project D: The crosscut has proceeded through gray and greenish gray diorite (or granodiorite) that is relatively unfractured and of granitic texture in that no gneissic or schistose characteristics were noted. The drift face was at a point 115 feet northwest of Sta. 1354,

or 81 feet from the starting point of the project. No quartz veins have been encountered yet, nor are any expected until the crosscut reaches the down-dip projection of Morton Estate No. 3 vein on surface.

No timber has been used to date in Project D although post hitches have been cut in anticipation of using some timber. Three or four additional roof bolts have been installed since the previous visit. Roof bolts will probably not hold the ground permanently.

During the visit the Messrs. Sweet, Szynklwski, Laurence, Williams, Parker, and Burmeister discussed the pending request for amendment of the contract.

It appeared that the work was being pursued in a competent and workmanlike manner. Efficiency of operations in the DMEA headings appears to be at least as good as the efficiency of the mine operations as a whole.

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
2/8	Talbert	800
2/8	C	220
		225

Mrs. Helen R. Miller
Administrative Assistant
Bureau of Mines
P. O. Box 217
Norris, Tennessee

FEB 8 1957

Re: Docket No. DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract No. Idm-E1032

Dear Mrs. Miller:

By memorandum dated February 5, 1957, you request advice relative to the payment of the December, 1956, Form MF-104 submitted by the referenced Operator and approved with reservations by the DMEA examining engineer. The December MF-104, as well as the previously paid November MF-104, covers work not fully meeting the specifications with respect to timbered drifts as set forth in the contract.

The original and five copies of a proposed Amendment No. 1 to the contract, signed by the Administrator for the Government, was sent to Mr. Laurence on January 30, 1957, for the purpose of obtaining the Operator's signature thereon. This proposed amendment, to be effective November 2, 1956, changes the specifications for timbered drifts and crosscuts and establishes a reduced fixed unit cost of $32.40 (in lieu of $35.00) a foot for such work.

It is suggested, therefore, that payment of the December MF-104 be withheld until the Operator has executed the proposed amendment. Thereafter payment should be made, after adjustment in the "approved" column for disallowance of $2.60 a foot for the 68 feet of timbered drift claimed through December, 1956.

Sincerely yours,

(Signed) J. L. Chambers

Jay L. Chambers, Chief
Contract Administration
and Audit Division

EDTalbert/wb
February 8, 1957

Copy to: Docket
Admr. Reading File
Mr. Laurence, Region V
Mr. Martin
Mr. Chambers

R.S.

8623

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
1/28	Holt	400
1/28	Martin	400
1-29	Chambers	300
1/30	Selfridge	130
"	Johnson	100
"	Hathaway	100
1-31	C	220
		225

JAN 30 1957

Mr. Robert A. Laurence, Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville 2, Tennessee

Re: Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina
Contract No. Idm-81032

Dear Mr. Laurence:

In accordance with the Operator's request of January 4, 1957, approved by Mr. V. J. Lynch's memorandum of January 8, 1957, enclosed are the original and five copies of a proposed Amendment No. 1 to the above-referenced contract, signed by the Administrator for the Government. Two extra copies are enclosed for the use of the Field Team.

If the terms and conditions of this proposed amendment are satisfactory to you and the Operator, all six copies should be signed by the Operator and the usual distribution made.

If any part of the proposed amendment does not have your approval or that of the Operator and cannot be altered within your delegated authority, the original and all copies are to be returned to this office, together with the proposed changes for consideration.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee (SHB)

APPROVED:

Frank D. Lamb (SHB)
Member, Bureau of Mines

N. E. Nelson (SHB)
Member, Geological Survey

SPHolt:am 1-28-57
cc to: Docket
Code 400
Admr. Read. File
Oper. Comm.
FT REG V
Messrs. R. W. Holliday, USBM
T. H. Kiilsgaard, USGS

Enclosure

A.G.S.

8623

OFFICIAL FILE COPY DMEA RECEIVED JAN 29 1957		
DATE	INITIALS	CODE
1-29	cw	220
		225

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

Date January 28, 1957

DMEA Docket No. 4216
DMEA Contract No. Idm-E1032
Commodity Tungsten
Name of applicant Tungsten Mining Corp.
Name of property Hamme Mine
Location of property Vance County, North Carolina
Estimated cost of project

Memorandum

To: W. S. Martin, Chief, Iron and Ferroalloys Division-DMEA HAR
Through: Chief, Br. of Ferrous Metals & Ferroalloys

From: R. W. Holliday, Commodity Specialist, Br. of Ferrous Metals & Ferroalloys

Subject: Review of Letter request for amendment (1/4/57 to Field Team)
(Application, Field Team Report, etc.)

1. Date of subject document: _____. 2. Date received by reviewer: _____
3. Prior reports on this property known to reviewer: Yes [ ], No [X].
4. Prior reports on nearby properties known to reviewer: Yes [ ], No [X].
5. Information available on past production: Yes [ ], No [X].
6. Other pertinent factors known to reviewer: Yes [ ], No [X].
7. Explain items marked yes above:

8. Factors needing special consideration:
a. Location [ ]
b. Ownership [ ]
c. Evidence of mineralization [ ]
d. Geology [ ]
e. Proposed exploration method [ ]
f. Alternate exploration method [ ]
g. Costs [ ]
h. _____ [ ]

9. Action advised:
a. Obtain information from applicant [ ]
b. Refer to Field Team [ ]
c. Denial [ ]
d. Agree with Field Team [ ]
e. Disagree with Field Team [ ]
f. Suggest alternate plan [ ]
g. Request another examination [ ]
h. Approval [X]
i. Consult with Mr. _____ at _____ AMD office.

10. Remarks: (Use back of page if necessary) The company requests permission to reduce drift and crosscut dimensions to 5'8" inside of timber. I recommend concurrence with the request.

R W Holliday
R. W. Holliday

DMEA Form 7
(12-56)

SOLICITOR

JAN 23 1957

INTERIOR DEPT.

OFFICIAL FILE COPY

Date	Surname	Code
1/23	Holt	400
1/23	Martin	400
		140

January 23, 1957

MEMORANDUM

To: Associate Solicitor, Division of Mineral Resources

From: Iron and Ferro-Alloys Division, DMEA

Subject: Preparation of Amendment No. 1
Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Harme Mine
Vance County, North Carolina
Contract No. Idm-E1032

Attached is a rough draft of a proposed Amendment No. 1 to the above-captioned contract for your use in preparing the final draft.

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

Attachment

SPHolt:am
cc to: Docket
Code 400

RECEIVED
JAN 23 1957
ASSOC. SOLICITOR
MINERAL RESOURCES

8623

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 425 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

January 8, 1957

OFFICE FILE COPY
DMEA
RECEIVED JAN 10 1957

DATE	INITIAL	CODE
1-10	C	220
	E	225

Memorandum

To: Operating Committee, DMEA - Washington

From; Acting Executive Officer, DMEA - Region V, Knoxville, Tenn.

Subject: DMEA-4216, Idm-E1032 (tungsten) Hamme Mine, Vance County, North Carolina. Tungsten Mining Corporation, operators.

Enclosed are 4 copies of a letter from Mr. J. R. Sweet, Vice President and General Manager, Tungsten Mining Corporation, requesting an amendment to the subject contract. The proposed amendment, which appears to us to be satisfactory, is to be substituted for the proposal contained in Mr. Sweet's letter of December 17 to Mr. Laurence, copies of which were forwarded to the Operating Committee.

Also enclosed are four copies of Mr. Burmeister's interim report made January 3 and 4, 1957.

V. J. Lynch

V. J. Lynch

TUNGSTEN MINING CORP.

BOX 81

HENDERSON, N. C.

TELEPHONE NO. 4139

DMEA
RECEIVED JAN 10 1957
DATE INITIALS CODE

January 4, 1957

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team
Region 5, Room 13
Post Office Building
Knoxville 2, Tenn.

Re: DMEA - 4216
Idm - E 1032 (Tungsten)
Hamme Mine
Vance County, North Carolina

Dear Mr. Laurence:

Referring to my letter to you dated December 17, 1956 by which I requested an amendment to the captioned DMEA contract, I wish to have that request cancelled and to substitute the enclosed request in its place.

It is believed that the enclosed request is more explanatory of the problem than as covered by my previous correspondence. We believe and hope that with this additional information that this matter in respect to timber sets may be concluded at the earliest date possible.

It will be noted that Tungsten Mining Corporation is willing to make a cost concession in order that the existing difficulty can be cared for and the matter concluded.

We are enclosing herewith the original and five copies of this correspondence.

Thanking you for your earliest attention to this matter, we are

Very truly yours,

TUNGSTEN MINING CORPORATION

J. R. Sweet

J. R. Sweet
Vice-President & General Mgr.

RECEIVED
JAN 7 - 1957
U. ... Division
Knoxville, Tenn.

JRS:fnj
Encls.

TUNGSTEN MINING CORP.

BOX 81

HENDERSON, N. C.

TELEPHONE NO. 4139

January 4, 1957

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team
Region 5, Room 13
Post Office Building
Knoxville 2, Tenn.

Re: DMEA - 4216
Idm - E 1032 (Tungsten)
Hamme Mine
Vance County, North Carolina

Dear Mr. Laurence:

It is the belief of the Tungsten Mining Corporation that certain changes should be made in the contract as written in respect to the inside timber dimensions in the sections requiring timber. Sections not requiring timber would not be affected.

Further to these changes, we submit this request for an amendment to the contract. The proposed amendment as set forth below will not be to the disadvantage of the Government and will meet all requirements of best mining practice as well as all safety requirements.

The drifts and crosscuts are being driven in rock according to contract dimensions. These drift dimensions provide only the necessary opening to accommodate the present timber sets which have a minimum inside dimension of 5 feet 8 inches between posts.

Drift and crosscut costs were calculated on the basis of breaking 7 feet wide and 7½ feet high. To meet contract specifications in timbered areas, the openings would have to be driven in rock a minimum of 9 feet wide or 1½ feet in excess of that calculated in costs. The height of the drifts and crosscuts as driven is adequate to take the contract dimensions of the timber and is not a point of controversy and no changes in this regard is being requested.

In many cases, the 7 feet width between posts as specified in the contract would make it strengthwise inadvisable to use an 8 X 8 timber as provided in the contract. Also, a 7 feet width between posts would disrupt the pattern of stope timber used throughout the mine. This would entail re-timbering the drift after exploration is completed and before mining could start in a vein area. It should be noted that the presently used timber set having a 5 feet 8 inch clearance between posts provides a 7 foot clearance between side lagging.

As previously stated in several communications, this company has had and does have the approval of the State Mining authorities to use the present timber; namely, 5 feet 8 inches between posts and in addition to this on all DMEA work, we are providing a place of refuge at each 60 feet

TUNGSTEN MINING CORP.
BOX 81
HENDERSON, N. C.
TELEPHONE NO. 4139

interval of drift in timbered areas as required by the N. C. State Mining Regulations where the 2½ foot clearance cannot be maintained. The untimbered drifts and crosscuts are being driven to provide the 2½ foot clearance required by the State Regulations where this clearance can be maintained. This completely satisfies safety requirements as expressed in "Rules and Regulations Governing Mining Industry, N. C. Department of Labor under date of June 23, 1942."

In consideration of the above data, we herewith request an amendment to the contract embodying the following condition:

> We request that under "General Specifications for Projects A, B, C, and D", Paragraph 1, the first sentence, be changed to read:
>
> > Drifts and crosscuts shall be driven a minimum of 7 feet wide by 7½ feet high above top of rail. Where timber is necessary, it shall consist of 8"X 8" oak posts and caps with 2" or 3" top and side lagging as required. The inside dimension between posts shall be not less than 5 feet 8 inches and the bottom of the cap shall be not less than 7½ feet above top of rail. No sills are required.

It has been calculated that the excavation necessary to provide for the requested timber sets is 14.82% less than would be required for the 9 feet wide excavation necessary for the contract specified timber sets. This reduction in volume is equivalent to a reduction of $5.19 per foot in the $35 specified in the contract per foot.

In consideration of this fact, the Tungsten Mining Corporation is agreeable to a reduction in the unit costs per foot of drifts and crosscuts in timbered areas only by approximately 50% of the above $5.19 difference. This will effect a considerable saving to the Government. It is believed that this is an equitable and reasonable request.

In consideration of the fact that the present situation is not clear in regard to recording work done and the possibility that it may not be approved for payment without the requested amendment, we will greatly appreciate any expedition you may make in regard to this request.

Very truly yours,

TUNGSTEN MINING CORPORATION

J. R. Sweet

J. R. Sweet
Vice-President & General Manager

JRS:fnj

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 1, POST OFFICE BLDG.
KNOXVILLE 2, TENNESSEE

WASHINGTON 25, D. C.

RECEIVED DEC 26 1956 D.M.E.A.

December 21, 1956

Memorandum

To: Operating Committee, DMEA - Washington

From: DMEA Field Team, Region V - Knoxville, Tennessee

Subject: DMEA-4216, Idm-E1032-Tungsten. Hamme Mine, Vance County, N.C. Tungsten Mining Corporation, Henderson, N.C., applicants

Enclosed are three copies of a letter from J. R. Sweet, Vice President and General Manager, Tungsten Mining Corporation in which he requests an amendment to the subject contract.

The proposed amendment would permit the use of timber sets having inside dimensions of 5 feet 8 inches wide and 7 feet 6 inches high rather than 7 feet wide and 7 feet 6 inches high.

We believe the smaller size drifts would be adequate for purposes of exploration. The larger size was recommended by the field examiners because of certain regulations in the Mining Laws of North Carolina. But according to Mr. Sweet these regulations are not effective.

If you think the contract can be amended without conflicting with North Carolina State Mining Regulations, please prepare an amendment along the lines suggested by Mr. Sweet.

Three copies of Mr. Sweet's letter of November 30 are also attached.

V. J. Lynch

V. J. Lynch, Acting Executive Officer
DMEA Field Team, Region V

S. C. Bergman

S. C. Bergman, Geologist
U. S. Geological Survey

TUNGSTEN MINING CORP.
BOX 81
HENDERSON, N. C.
TELEPHONE NO. 4139

December 17, 1956

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team
Region 5, Room 13
P. O. Building
Knoxville 2, Tennessee

Dear Mr. Laurence:

Re: DMEA - 4216
Idm - E 1032 (Tungsten)
Hamme Mine
Vance County, North Carolina

Please refer to our Exploration Project contract Exhibit "A", Page 3, general specification for Projects A, B, C, and D, Paragraph 1.

Your interpretation of this Paragraph 1 that applies to timber sets is that the timber sets are to be 7 feet wide by 7½ feet high inside of timber.

By our past telephone conversation and my letter to you dated November 30, 1956, we requested that we be permitted to use timber sets having inside timber dimensions of 5 feet 8 inches wide by 7 feet 6 inches high rather than the dimensions 7 feet wide by 7½ feet high. We advised that the dimensions which we recommend have a 2-inch greater width than what we use throughout the mine for level stope-sill timbering and advanced the opinion that the use of the drift set with the smaller dimensions would be fully satisfactory in all respects and that it would be better mining practice.

In view of these conditions, we respectfully request that an amendment be made to our Exploration Contract changing the timber set dimensions as given in the above Paragraph 1 from 7 feet wide by 7½ feet high to 5 feet 8 inches wide by 7 feet 6 inches high, inside timber.

Secondly, in reference to Regulation 3, "Places of Refuge", Page 8 of the Rules and Regulations covering Mining Industries, N. C. Department of Labor, this Regulation 3 deals with the clearance in drifts and crosscuts and the use of refuge places.

This Regulation 3, as it may apply to our operation, was taken up by myself personally with the Mine Inspector of the North Carolina Department of Labor a number of years past. At that time, I explained to him our practice underground, and which he examined for himself, and also drew to his attention our practice as compared with the regulation as written. Our underground practice today in respect to this matter is the same as it was then and as it always has been.

The Mines Inspector at that time agreed that our underground practice in respect to proper clearance in our timbered drifts was satisfactory and

TUNGSTEN MINING CORP
BOX 81
HENDERSON, N. C.
TELEPHONE NO. 4139

that we did not have to provide places of refuge in the drifts and crosscuts as set forth in the Regulation 3.

We have never used refuge places in any of our drifts and crosscuts underground. Also, never have any of the mine inspectors nor has the Department of Labor ever initiated any question with us either verbally or in writing in respect to this regulation as it may be applied to our operation. Our underground operations are inspected one or two times each year by one or more mine inspectors of the Department of Labor.

For these reasons, places of refuge are not required in the exploration projects. We will not be in contravention of the North Carolina State Mining Regulations as agreed to by the Mine Inspector of the N. C. Department of Labor and this company in not providing places of refuge or by using timber sets having the 5 feet 8 inches width inside timber which we recommend.

We trust that the above explanation properly clarifies these matters for you and sincerely hope that you will amend the contract as required above.

Thanking you, we are

Very truly yours,

TUNGSTEN MINING CORPORATION

J. R. Sweet

J. R. Sweet
Vice-President & General Mgr.

JRS:fnj

TUNGSTEN MINING CORP.
BOX 81
HENDERSON, N. C.
TELEPHONE NO. 4139

November 30, 1956

RECEIVED
DEC 3 - 1956
U. S. Geological Survey
Geologic Division
Knoxville, Tenn.

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team
Region 5
Room 13, P. O. Building
Knoxville 2, Tenn.

Re: DMEA - 4216
Idm - E1032 (Tungsten)
Hamme Mine
Vance County, North Carolina

Dear Mr. Laurence:

Please refer to our Exploration Project Contract, Exhibit "A", Page 3, General Specification for Project A, B, C, and D, Paragraph 1.

Further to our conversation today in respect to the dimensions of the timber sets by which I raised the question with you as to exactly what was meant. You indicated that your interpretation of this clause would mean that the timber should be 7 X 7½ feet inside of timber. I had tentatively placed the interpretation to mean that the drift excavation would be 7 X 7½ feet and that the timber would be placed inside of these dimensions. My phone call to you was to clarify this point.

If we were to use the dimensions of 7 X 7½ feet inside of timber, this would call for an 8-in. X 8-in. cap, 8-ft. 4-in. long and would require an excavation of some 9-ft. width at the back. I explained to you that an excavation of this width in ground that has to be timbered could well lead to unnecessary trouble and if the ground was really heavy, an 8-in. X 8-in. cap would have questionable strength.

I suggested to you that these timber sets have a cap 7-feet long which would leave 5 ft. 8 in. in the clear between posts and would require an excavation a little over 7 ft. in width; also, I mentioned that these exploration drifts are being driven the size that they are rather than say 5 ft. wide by 7 ft. high is because we use mucking machines in the drifts which require the extra size. Also, I mentioned that inasmuch as our timbering follows behind our mucking, that drift sets with 5 ft. 8 in. in the clear would be adequate and also that this width is 2 inches greater than what we carry in our stope-sill timbering on the level. The smaller set will be a good job.

Upon this explanation, I understood you to be in complete agreement that the timber sets have the dimensions which I recommended and not the 7' X 7½' inside of timber as you would interpret the above Item 1 of the contract. Accordingly, we are installing the timber sets with the smaller dimensions.

Very truly yours,
TUNGSTEN MINING CORP.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 1, POST OFFICE BLDG.
KNOXVILLE 2, TENNESSEE
WASHINGTON 25, D. C.

RECEIVED NOV 26 1956

November 23, 1956

Memorandum

To: Operating Committee, DMEA - Washington

From: Acting Executive Officer, DMEA - Region V -Knoxville

Subject: Signed Contract - Idm-E1032, DMEA-4216, Tungsten,
Tungsten Mining Corporation, a Delaware Corp.
Hamme Mine, Vance County, N.C.
P.O. Box 81, Henderson, N.C.

Transmitted are three signed copies of the subject contract.

The usual distribution of the other copies has been made.

V. J. Lynch

V. J. Lynch

Docket

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D.C.
KNOXVILLE 2, TENN.

RECEIVED NOV 16 1956 D.M.E.A.

November 14, 1956

Memorandum

To: Operating Committee, DMEA, Washington, D. C.

WSG

From: Executive Officer, DMEA Field Team, Region V

Subject: Docket No. DMEA-4216 (Tungsten)
Tungsten Mining Corporation
Hamme Tungsten Mine, Vance County, North Carolina

Enclosed is the extra copy of the contract (before revision), which was sent to the Applicant in August 1956, and which they have just returned to me.

The signed Guaranty of Royalty has been received, and we are forwarding the contract to the Company for signature.

Robert A. Laurence

Robert A. Laurence

Enclosure

4 Ctr.
Copy retained 400

DOCKET
SURNAME

Holt
Talbert
Chapman
Selfridge
Jefferson
Mitchenson

400

B

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

NOV - 2 1956

Mr. Robert A. Laurence
Executive Officer
DMEA Field Team, Region V
Room 13, Postoffice Building
Knoxville 2, Tennessee

Re: Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hanna Mine
Vance County, North Carolina

Dear Mr. Laurence:

Enclosed are the original and five copies of a proposed contract for an exploration program at the above-referenced property, signed by the Administrator for the Government, including Annex I (2 pages), Exhibit A (3 pages), and 4 maps. Two extra copies of Exhibit A and the Annex and maps are enclosed for the use of the Field Team.

If the terms and conditions of this proposed contract are satisfactory to you and the operator, all six copies should be signed and the usual distribution made.

If any part of this proposed contract does not meet with your approval or that of the operator and cannot be amended within your delegated authority, the original and all copies of the proposed contract are to be returned to this office, together with the proposed changes for consideration.

Under Article 1, the starting date has been left blank and is to be filled in when the contract is signed by the operator.

In Annex I for projects B-C-D we have omitted land which would fall outside of the property boundary of the Nat Morton tract, and for project A we have omitted land in the Walker tract east of Little Island Creek and land in the Abraham Sneed Estate east of coordinate E 20,580. However, we have added the provision that any ore mined or extracted through DMEA workings shall be subject to the royalty provisions of the contract.

Also enclosed are copies of a "Guaranty of Royalty" which we have prepared as the operator requested.

If you have not already done so, please ask the operator to return to you for return to us the extra copy of the contract, which was sent to him for his information with our letter of August 6, 1956, so that we can add the revised Annex I and revised maps for your use.

Sincerely yours,

George C. Selfridge
(es)

Chairman, Operating Committee

APPROVED:

P. F. Yopes
(es)

Member, Bureau of Mines

Thor H. Kiilsgaard
(es)

Member, Geological Survey

P.S. Final review of the subject proposed contract resulted in deletion of contingencies and slight lowering of the estimated cost listed by the field examiners, chiefly relating to the consultant and accounting items.

See the last paragraph of the Administrator's letter of August 6, 1956, to the Corporation.

Enclosures

SPHOLT:foc
10/25/56
cc to: Docket
Code 400
Admr. Read. File
Oper. Comm.
FT. REG. V
Messrs. R. W. Holliday, USBM
T. H. Kiilsgaard, USGS

400

DOCKET
SURNAME
Holt
Martin

October 16, 1956

MEMORANDUM

To: Associate Solicitor, Division of Mineral Resources

From: Iron and Ferro-Alloys Division, DMEA

Subject: Preparation of revised Annex I to proposed contract
Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hesse Mine
Vance County, North Carolina

Attached for your use in preparing the proposed contract for the captioned project in final form is a draft of a revision of Annex I.

As requested by the applicant, please also prepare a draft of a guarantee of performance by Hale Mines, Inc., as referred to in letters of Tungsten Mining Corporation, August 28, 1956, and Frank E. Johnson, September 3, 1956.

All copies of the proposed contract are also attached, for addition of the revised Annex I. Revised maps to accompany the contract are being prepared. One rough copy of Fig. 1 is enclosed for your reference in preparing the revision, and should then be returned to this Division.

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

Attachment

SPHOLT:foc
10/16/56
cc to: Docket
Code 400

DOCKET
SURNAME
Holt
Martin
Selfridge
H. Johnson

400

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

SEP 21 1956

Mr. J. R. Sweet
Vice-President & General Manager
Tungsten Mining Corporation
Box 51
Henderson, N. C.

Re: Docket No. DMEA 4216 - Tungsten
Hamme Mine
Vance County, North Carolina

Dear Mr. Sweet:

Reference is made to your letter of August 27, 1956, and your call of September 6 to our Iron and Ferro-Alloys Division, regarding boundaries of the ground to be included in the proposed contract covering the subject application. Receipt is acknowledged of the related maps sent to us under separate cover.

We are now redrafting the proposed contract so that for Project A the land included in Annex I and the excluded land are separated by planes running through or between the following points:

From the property line vertically through N 22175, E 23000 to N 23030, E 21700; thence vertically to N 22000, E 21000; thence vertically to N 20020, E 20580; thence vertically through N 19000, E 20580 to the property line.

For Projects BCD we are moving point N 18790, E 19490 to your suggested point N 18790, E 19405 and changing to 78°45' the inclination of the two boundary planes that run respectively from N 18790, E 19405 to N 18000, E 19050, and from N 18000, E 19050 to N 16745, E 18360. However, because of the possibility of finding ore by diamond drilling from the DMEA workings, we are extending the second inclined plane from N 16745, E 18360 to N 16245, E 18085; moving the plane that run from N 16745, E 18360 to N 16745, E 16100 so that it will run from N 16245, E 18085 to N 16245, E 14660; and moving the plane that ran through N 16745, E 16100, N 18790, E 17982, N 19820, E 18929 and N 20060, E 19150 so that it will run from N 16245, E 14660 through N 19820, E 17929 to N 20060, E 18150.

RCG.

There will be an added proviso that any ore removed through mine workings driven as part of the DMEA project will be included for royalty purposes whether it is mined from land in Annex I or excluded therefrom.

It is realized that we have not acceded to all your requests in this matter, but there are some areas now where the work will be unusually close to the boundaries.

This letter is not to be construed as making any commitment. May we have your comments on the above-cited proposed boundary changes.

Sincerely yours,

E. O. Larson (for)

Administrator

WSMARTIN/fcc
9/19/56
cc to: Docket
Admr. Read. File
Code 400
FT. REG. V
Messrs: R. W. Holliday, USBM
T. H. Kiilsgaard, USGS

Docket

TUNGSTEN MINING CORP.

BOX 81
HENDERSON, N. C.
TELEPHONE NO. 4139

RECEIVED
SEP - 4 1956

August 31, 1956

Mr. C. O. Mittendorf, Administrator
Defense Minerals Exploration Administration
Department of the Interior
Washington 25, D. C.

WSM

Re: Docket No. DMEA-4216
Tungsten - Hamme Mine
Vance County, North Carolina

Dear Mr. Mittendorf:

You requested by your letter of August 29, 1956, that we submit a copy of this company's operating records and financial statement, as we offered to do, so that such information would be available to you in considering our request to you to waive the furnishing of consents to lien or a performance bond for the proposed contract.

Accordingly, we are enclosing herewith a financial statement and various operating records.

The enclosed Balance Sheet is as of July 31, 1956. Since our fiscal year ends on August 31, we do not have a certified auditor's report covering these eleven (11) months of this year. It will not be until about November 1, that the auditors report will be available.

The operating records submitted give a record of the past and current operations of this company. The operating records enclosed are as follows:

1. "Production in short-ton units of WO_3 and Revenue Received," by fiscal year periods; July 1, 1944 - to date.

2. Tabulation showing operating records by fiscal year periods from July 1, 1944 - to date:

   (a) Tonnage milled, dry tons.
   (b) Tonnage mined, wet tons.
   (c) Surface ore stockpile, wet tons.
   (d) Shaft Sinking, feet.
   (e) Other development, feet.
   (f) Diamond drilling, feet.
   (g) Ore Reserves, giving percentage change over the ore reserve of the previous year.

3. Tabulation showing production of the chemical plant, March 15, 1955 thru June 1956.

4. Tabulation showing Mill production records for July 1956 and year to-date.

(No copy rec'd & none required for Division Docket per W.S. Martin. 9/6/56. ls)

5. Progress report of mine operation for July 1956 and year to-date, covering Diamond Drilling, Development, Ore Production, Waste Rock Hoisted - Stope Fill placed underground, and Surface Stockpile tonnage.

6. Statement in respect to our inventory of finished concentrates.

We trust that these records will meet your needs. Should you require additional information, please advise us.

Very truly yours,

TUNGSTEN MINING CORPORATION

J. R. Sweet

J. R. Sweet, General Manager

JRS/ebh

TUNGSTEN MINING CORPORATION
BALANCE SHEET
JULY, 1956

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ASSETS

CURRENT ASSETS			
Cash		$3,523,912.26	
Inventory - tungsten concentrates at mine		849718.02	
Inventory - ore in stockpile		53,829.80	
Accounts receivable - sundry		33,902.39	
Mill & mine supplies at North Carolina		189,964.65	
Prepaid insurance		45,115.62	
			$4,687,442.74
CAPITAL ASSETS			
Tungsten Mining Properties			
Land & mineral rights - North Carolina	$ 102,200.21		
Capital development	772,152.04		
	$ 874,352.25		
Less: Reserve for cost depletion	860,776.86		
	13,575.39		
Idaho	3,111.89		
Arizona	4,000.00		
		$ 20,687.28	
Plant and Equipment			
North Carolina			
Land appurtenances & structures	$ 145,178.08		
Buildings	1,216,544.08		
Machinery & equipment	1,306,420.89		
Automotive equipment	56,317.20		
Furniture & fixtures	53,350.79		
	$2,777,811.04		
Less: Reserve for depreciation & amortization	1,584,152.55	$1,193,658.49	
Idaho			
Buildings	5,000.00		
Less: Reserve for depreciation	5,000.00	-0-	
Arizona			
Buildings	1,000.00		
Less: Reserve for depreciation	1,000.00	-0-	
			$1,214,345.77
DEFERRED OPERATING CHARGES			
Deferred operating costs			
Miscellaneous		527.19	527.19
			$5,902,315.70

LIABILITIES

CURRENT LIABILITIES				
Account payable - trade			$ 106,278.48	
Employees' Federal income tax withheld			16,680.90	
Accrued Expenses				
Wages		$ 41,078.98		
Royalties		24,508.35		
Sundry		21,196.48		
Compensation insurance		11,272.46		
			98,056.27	
Accrued Taxes				
Fed eral & State payroll		17,378.90		
Sundry taxes		1,985.19		
Federal & State income - prior year		49,310.56		
current year	$929,000.00			
Less Estimated Payment	47,856.86	881143.14		
			$ 949,817.79	
				$1,170,833.44
CAPITAL				
Capital Stock				
Autherized 200,000 shares				
Par value @ $1.00 per share				
Issued 196,000 shares			$ 196,000.00	
Paid in surplus			534,000.00	
Add: Earned surplus		$3,512,448.20		
Profit for 11 Months ending 7/31/56		2,057,034.06	5,569,482.26	
Surplus arising from difference between cost depletion and percentage depletion				
			$6,299,482.26	
Less: Dividends Paid			1,568,000.00	$4,731,482.26
				$5,902,315.70

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TUNGSTEN MINING CORPORATION

(1)

PRODUCTION IN SHORT-TON UNITS OF WO_3
AND REVENUE RECEIVED
TUNGSTEN MINING CORPORATION

Year	Production S. T. U.	Revenue $
Year ended 6/30/45	223.99	$5,375.73
" " 6/30/46	7,065.22	158,451.47
" " 6/30/47	33,143.00	820,404.05
" " 6/30/48	36,770.24	1,067,043.37
" " 6/30/49	63,361.38	1,606,297.05
" " 6/30/50	57,647.44	1,510,641.93
" " 6/30/51	63,076.99	3,353,621.44
" " 6/30/52	61,894.24	4,023,517.41
2-Mos. " 8/31/52	11,673.60	751,339.73
Year ended 8/31/53	116,378.21	7,365,846.16
" " 8/31/54	144,525.68	9,117,933.69
" " 8/31/55	155,133.26	9,773,395.45
9/1/'55 to 6/5/'56	121,523.12	7,655,955.72
6/6/'56 to 7/31/56	29,374.20	-
Total Production and Revenue	901,790.57	$47,209,823.20

(2)

TUNGSTEN MINING CORPORATION

MINE AND MILL OPERATING RECORD

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1944 to 1956

Fiscal Year	Tonnage Milled Dry Tons	Tonnage Mined Wet Tons	Surface Ore Stockpile Wet Tons	Shaft Sinking Feet	Other Development Feet	Diamond Drilling Feet	Ore Reserves % Change Over Previous Year
1/ 1944/45	-	-	-	-	-	-	-
1945/46	-	-	-	401	1,569	-	+ 100%
1946/47	47,273	48,180	-	225	1,440	2,903	+ 11%
1947/48	52,531	53,870	-	299	6,685	23,893	+ 154%
1948/49	75,090	76,690	-	499	4,992	6,295	- 29%
1949/50	89,546	90,289	-	262	4,077	8,483	- 21%
1950/51	94,958	98,119	459	321	6,426	15,557	+ 37%
1951/52	107,575	118,880	8,040	385	9,703	15,218	+ 42%
2-Mo.July/Aug./52 2/	18,770	22,108	10,407	43	1,710	2,951	+ 3%
1952/53	204,334	209,760	9,698	865	12,206	14,266	+ 33%
1953/54	275,883	289,411	14,978	609	17,026	17,862	+ 41%
1954/55	299,098	311,593	18,725	0	25,696	26,645	+ 36%
11-Mo. 1955	304,752	314,184	18,562	3/ 0	23,126	29,323	-

1/ Fiscal Year 1944 to 1952 ended June 30.
2/ Fiscal Year 1952 to date ends August 31.
3/ Both of our two vertical operating shafts are currently bottomed at 1625-ft. depths.

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TUNGSTEN MINING CORPORATION

(3) CHEMICAL PLANT OPERATION

The chemical plant was put into operation on March 15, 1955. The plant produces a high-grade sintered synthetic scheelite. The following tabulation shows by months the concentrate treated and product produced:

1955	Treated During Month			Production		
	Tons	WO_3	STU	Tons	% WO_3	STU
Ave/Mo.	89.077	21.19	1887.54	25.470	70.19	1787.71
Sept.	85.264	21.20	1807.45	24.774	70.62	1749.66
Oct.	82.296	21.51	1770.34	23.601	70.23	1657.54
Nov.	67.429	23.71	1598.63	21.199	72.75	1542.17
Dec.	105.612	23.53	2484.79	33.166	72.30	2397.85
Jan.	105.557	24.236	2558.29	33.8915	73.086	2476.99
Feb.	103.900	20.825	2163.75	28.9135	73.08	2112.98
Mar.	112.692	24.190	2726.03	36.072	73.71	2658.76
Apr.	94.207	25.188	2372.89	31.51	73.284	2309.18
May	105.943	26.050	2759.86	36.094	74.196	2678.03
June	71.547	27.268	1950.94	28.232	72.012	2033.05

(4)

TUNGSTEN MINING CORPORATION

MILL REPORT MONTH OF JULY 1956

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	This Month	Last Month	Year to-Date
On hand 1st of month intermediate & coarse	1900	2100	
Delivered to mill wet tons @ 2.94 % Moist.	29326	28114	314347
Delivered to mill dry tons	28464	27285	305272
Less sorted waste	20	20	220
Total to account for - coarse bin	30344	29365	
On hand end of month - intermediate & coarse bin	1300	1900	
Tons crushed	29044	27465	304702
On hand 1st. of month - fine bin	425	440	
Total to account for - fine bin	29469	27905	
On hand end of month - fine bin	400	425	
Dry tons milled	29069	27480	304752
Percent moisture	2.94	2.95	2.89
Wet tons milled	29950	28315	313807
Weightometer - wet tons	29950	28315	313807
Adjustment of weightometer wet tons	- 0 -	- 0 -	- 0 -
Hours mill operated	737.75	710.75	7966.50
Tonnage milled per hour	39.40	38.66	38.25
Dry run (24 hrs./day)	30.74	29.61	331.93
Tons milled per day	945.64	928.06	918.12
Ave. hours both sections operated	734.25	700.12	7889.12
Tons milled per hour both sections	39.59	39.25	38.63
Ave. days both sections operated	30.59	29.17	328.70
Tons milled per day both sections	950.28	942.06	927.14
Hours crushing plant operated	437.50	427.50	5070.25
Tonnage crushed per hour	66.39	64.25	60.10

(5)

PROGRESS REPORT
TUNGSTEN MINING CORPORATION
JULY, 1956

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Fiscal Year 1955-1956

Mining Dept.

DIAMOND DRILLING, feet	July	June	Year to Date
TOTAL SURFACE	0	0	0
DDH U 1133	26		
DDH U 1134	413		
DDH U 1135	257		
DDH U 1136	157		
DDH U 1137	233		
DDH U 1138	73		
DDH U 1139	260		
DDH U 1140	370	Drilling	
DDH U 1141	251		
DDH U 1142	81	Drilling	
TOTAL UNDERGROUND	2121	2439	29323
TOTAL DIAMOND DRILLING	2121	2439	29323
DEVELOPMENT, infeet			
15-20-0 X Cut	115		
1500-1300 O.P. Ra. #7 Shaft	-	(Installing Gate)	
15-2-0 X Cut	110		
TOTAL MAJOR	225	115	3360
CURRENT:			
5-22-3 Ra.	-	(Enlarging & Timbering)	
9-20-12 St. Ra. #1	35		
11-20-1 St. Ra. #2	18		
11-20-1 St. Ra. #3	43		
11-20-4 A St. Ra. #4	22		
11-20-10 St. Ra. #1	18		
13-20-1 D.S.	4		
13-20-2 D.N.	221		
13-20-4 D.	109		
CURRENT, SNEED SHAFT, TOTAL	470	433	9414
7-5-31 St. Ra. #8	8		
6-3-6 Sub-Drift #1	8		
6-6-2 St. Ra. #1	15		
7-1-7 St. Ra. #3	32		
7-3-16 M.W. Ra.	12		
7-6-3 St. Ra. #11	15		
7-6-6 St. Ra. #5	5		
9-20-22 St. Ra. #4	10		
7-5-11 Winze	-	(Slabbing & Timbering)	
11-2-8 O.P. Ra.	23		
11-6-6 D.	118		
11-7-2 St. Ra. #3	10		
13-2-1 D.S.	85		
13-2-2 D.N.	47		
13-6-4 D.	23		
CURRENT, CENTRAL SHAFT, TOTAL	411	869	10352
TOTAL CURRENT	881	1302	19766
TOTAL CURRENT AND MAJOR	1106	1417	23126

Mining Dept.

ORE PRODUCTIONS, in Tons	July	[illegible]	Year to Date
SILLS:			
13-20-1 Sill	1694	1372	4262
13-20-2 Sill	0	606	1128
11-20-1 Sill	0	0	1706
11-20-4 Sill	0	0	1669
11-20-5 Sill	0	0	331
11-20-10 Sill	0	0	1652
11-20-12 Sill	0	0	375
11-20-14 Sill	0	0	374
11-20-16 Sill	533	329	1593
11-20-18 Sill	0	506	679
11-20-20 Sill	0	293	293
11-20-22 Sill	0	0	16
11-20-24 Sill	558	100	982
11-20-26 Sill	613	489	1824
11-2-1 Sill	0	0	66
11-2-3 Sill	0	0	830
11-6-3 Sill	0	0	221
11-6-5 Sill	0	0	418
9-2-3 Sill	0	0	454
9-2-4 Sill	0	0	274
9-2-5 Sill	0	0	690
9-2-6 Sill	0	0	385
9-3-6 Sill	0	0	44
9-6-6 Sill	0	0	88
9-20-10 Sill	0	0	2743
9-20-12 Sill	0	0	771
9-20-14 Sill	0	0	580
9-20-16 A Sill (#6 Shaft)	0	0	269
9-20-16 Sill (#7 Shaft)	0	0	390
9-20-18 Sill	0	0	1846
9-20-20 Sill	0	0	4663
9-22-11 Sill	0	0	365
9-22-15 Sill	0	0	684
9-22-17 Sill	0	0	427
7-22-9 Sill	0	0	51
6-3-1 Sill	0	0	682
6-3-6 Sill	0	0	663
6-6-2 Sill	0	0	411
5-22-7 Sill	0	0	16
5-22-9 Sill	0	0	424
TOTAL TONS	3398	3695	35339
STOPES:			
13-20-1 Stope	51	0	51
11-20-1 Stope	553	926	8705
11-20-4 Stope	604	919	4062
11-20-5 Stope	122	93	569
11-20-10 Stope	360	601	2281
11-20-12 Stope	519	510	1569
11-20-14 Stope	571	66	1256
9-20-2 Stope	621	1081	10058
9-20-4 Stope	696	694	7290
9-20-6 Stope	521	584	4695
9-20-8 Stope	187	34	1111
9-20-10 Stope	797	335	2312
9-20-12 Stope	363	635	3622

Mining Dept.

ORE PRODUCTION, in Tons con't	July	June	Year to Date
9-20-14 Stope	416	313	1636
9-20-16 A Stope	334	32	366
9-22-11 Stope	0	33	847
9-22-15 Stope	483	660	1934
9-22-17 Stope	304	150	454
7-1-17 Stope	456	125	7435
7-1-19 Stope (#6 Shaft)	599	520	5311
7-1-19 Stope (#7 Shaft)	0	0	59
7-20-1 Stope	0	0	856
7-20-2 Stope	327	0	10451
7-20-4 Stope	586	51	9832
7-20-10 Stope	94	0	2795
7-20-12 Stope	0	0	4615
7-22-11 Stope	665	22	3800
7-22-15 Stope	335	85	4813
6-2-19 Stope	0	101	2247
6-2-19 A Stope	0	0	1970
6-5-6 Stope	0	44	1089
6-5-9 Stope	52	180	2737
6-5-10 Stope	0	0	753
6-4-5 Stope	0	0	13
6-4-6 Stope	0	0	277
6-1-10 Stope	0	0	329
11-2-3 Stope	752	328	1390
11-2-4 Stope	0	0	10
11-2-6 Stope	0	0	101
11-6-3 Stope	0	51	1294
11-6-5 Stope	0	0	129
11-7-2 Stope	399	268	2565
9-1-5 Stope	0	0	84
9-2-4 Stope	164	0	164
9-2-5 Stope	0	101	339
9-2-6 Stope	226	245	580
9-2-8 Stope	468	475	3934
9-2-10 Stope	517	239	4634
9-6-3 Stope	46	0	781
9-6-6 Stope	0	83	1234
9-7-2 Stope	242	417	3453
9-20-16 Stope (To#7 Shaft)	253	180	451
9-20-18 Stope	619	741	2940
9-20-20 Stope	795	744	4691
9-20-22 Stope	769	798	5151
7-1-1 Stope	1046	916	12633
7-1-7 Stope	1515	1370	13788
7-1-9 Stope	641	1723	9423
7-1-11 Stope	1123	1224	9134
7-1-15 Stope	869	743	6576
7-2-2 Stope	0	263	2988
7-3-6 Stope	114	186	708
7-3-13 Stope	0	0	45
7-3-14 Stope	0	110	1257
7-6-3 Stope	603	594	3312
7-6-6 Stope	40	167	1689
7-7-3 Stope	100	127	1564
7-9-2 Stope	0	0	2440
6-3-6 Stope	263	334	2283
6-6-2 Stope	386	174	2292

Mining Dept.

	July	June	Year to Date
ORE PRODUCTION, in Tons con't			
7-5-10 Stope	178	715	4374
7-5-29 Stope	0	0	80
7-5-30 Stope	0	0	976
7-5-31 Stope	0	0	4846
7-5-32 Stope	0	0	3888
7-5-33 Stope	0	1184	9012
7-5-35 Stope	0	0	2609
7-5-39 Stope	0	0	125
7-5-41 Stope	0	0	58
2-3-19 Stope	107	806	9887
2-3-23 Stope	0	0	1387
2-4-2 Stope	0	0	31
TOTAL TONS	22851	24100	253530
DEVELOPMENT, in Tons			
13-20-2 D.N.	882		
13-20-4 Drift	103		
11-20-1 St. Raises #2 & #3	42		
11-20-10 St. Ra. #1	37		
9-20-12 St. Ra. #1	73		
11-6-6 Drift	254		
9-20-22 St. Ra. #4	21		
7-1-7 St. Ra. #3	21		
7-3-16 MW Ra.	32		
7-6-3 St. Ra. #11	31		
6-3-6 Sub Drift #1	24		
6-6-2 St. Ra. #1	31		
TOTAL TONS	1551	462	25315
TONS MINED			
SILLS	3398	3695	35339
STOPES	22851	24100	253530
DEVELOPMENT	1551	462	25315
TOTAL, TONS	27800	28257	314184
WASTE HOISTED			
Central Shaft	2402	4119	49843
Sneed Shaft	1345	1932	26620
TOTAL, TONS	3747	6051	76463
FILL DELIVERED UNDERGROUND			
Rock Fill	1330	1215	14073
Sand Fill	6735	7735	73142
TOTAL TONS	8065	8950	87215
TONS IN STOCK PILE	18562	20088	

MILL REPORT MONTH OF JULY 1956

	This Month	Last Month	Year To-Date
On hand 1st of month intermediate & coarse	1900	2100	
Delivered to mill wet tons @ 2.94 % Moist.	29326	28114	314347
Delivered to mill dry tons	28464	27285	305272
Less sorted waste	20	20	220
Total to account for - coarse bin	30344	29365	
On hand end of month - intermediate & coarse bin	1300	1900	
Tons crushed	29044	27465	304702
On hand 1st of month - fine bin	425	440	
Total to account for - fine bin	29469	27905	
On hand end of month - fine bin	400	425	
Dry tons milled	29069	27480	304752
Percent moisture	2.94	2.95	2.89
Wet tons milled	29950	28315	313807
Weightometer - wet tons	29950	28315	313807
Adjustment of weightometer wet tons	- 0 -	- 0 -	- 0 -
Hours mill operated	737.75	710.75	7966.50
Tonnage milled per hour	39.40	38.66	38.25
Days run (24 hrs./day)	30.74	29.61	331.93
Tons milled per day	945.64	928.06	918.12
Av. hours both sections operated	734.25	700.12	7889.12
Tons milled per hour both sections	39.59	39.25	38.63
Av. days both sections operated	30.59	29.17	328.70
Tons milled per day both sections	950.28	942.06	927.14
Hours crushing plant operated	437.50	427.50	5070.25
Tonnage crushed per hour	66.39	64.25	60.10

METALLURGICAL DATA MONTH OF JULY 1956

Product	Tons	% WT.	% WO3	Units	% Dist.
Assayed heads	29069.000	100.00	0.650	18894.85	108.96
Calc. heads	29069.000	100.00	0.597	17341.80	100.00
Jig & Flot Conc.	243.595	0.84	57.873	14097.61	81.29
Conc. Dust	24.533	0.08	38.636	947.85	5.47
Total Conc.	268.128	0.92	56.113	15045.46	86.76
Sulfide tails	368.000	1.27	0.059	21.71	0.12
Gravity tails	28432.872	97.81	0.080	2274.63	13.12
Total tails	28800.872	99.08	0.080	2296.34	13.24

-YEAR TO-DATE

Assayed heads	304752.0000	100.00	0.600	182943.67	105.84
Calc. heads	304752.0000	100.00	0.567	172853.62	100.00
Jig & Flot Conc.	2659.5325	0.87	53.956	143499.01	83.02
Conc. Dust	215.6200	0.07	37.780	8146.05	4.71
Total Conc.	2875.1525	0.94	52.743	151645.06	87.73
Sulfide tails	4400.0000	1.45	0.063	277.87	0.16
Gravity tails	297476.8475	97.61	0.070	20930.69	12.11
Total tails	301876.8475	99.06	0.070	21208.56	12.27

TUNGSTEN MINING CORPORATION

(6) Concentrate Inventory

As of July 31, 1956, we had on hand 29,390 short-ton units of WO_3 concentrate.

This stock of concentrate plus projected production thru this calendar year has in its major amount been committed for deliveries to be made by us prior to January 1957.

DOCKET
SURNAME
Holt
Martin
Selfridge
FEJohnson

400

AUG 29 1956

Tungsten Mining Corporation
Box 81
Henderson, North Carolina

Re: Docket No. DMSA 4216 - Tungsten
Hanna Mine
Vance County, North Carolina

Gentlemen:

We have received your letter of August 15, 1956, in which you discuss the difficulties in securing consents to lien and the high cost of obtaining a performance bond in connection with a proposed contract on the above-subject property.

It would be helpful, in our consideration of your request that we waive the furnishing of consents to lien or a performance bond in this case, if, as you offered, you would submit a copy of your company's operating record and financial statement.

Your letter of August 15 also requests that the proposed contract contain an "escape clause" permitting suspension of contract exploration work if the price of tungsten falls to a level making it uneconomical for you to operate. It is not our policy to include a clause of that sort in our contracts. However, if conditions such as you mention should arise, and your company had faithfully and diligently performed the project work up to that time, we would then give consideration to your request for a recess, or suspension of the project work, and extension of the time allowed for completion of the work.

Sincerely yours,

Frank E. Johnson

ACTING Administrator

SPHOLT:foc
8/24/56
cc to: Docket
Code 400
Admr. R. File
FT. REG. V
Messrs. R. W. Holliday, USBM
T. H. Kiilsgaard, USGS

DOCKET
SURNAME
Holt
Martin
Selfridge

400

Tungsten Mining Corporation
Box 81
Henderson, North Carolina

Re: Docket No. DMEA 4216 - Tungsten
Hanna Mine
Vance County, North Carolina

Gentlemen:

We have received your letter of August 15, 1956, in which you discuss the difficulties in securing consents to lien and the high cost of obtaining a performance bond in connection with a proposed contract on the above-subject property.

It would be helpful, in our consideration of your request that we waive the furnishing of consents to lien or a performance bond in this case, if, as you offered, you would submit a copy of your company's operating record and financial statement.

Your letter of August 15 also requests that the proposed contract contain an "escape clause" permitting suspension of contract exploration work if the price of tungsten falls to a level making it uneconomical for you to operate. It is not our policy to include a clause of that sort in our contracts. However, if conditions such as you mention should arise, and your company had faithfully and diligently performed the project work up to that time, we could readily authorize a recess, or suspension of the project work, and extend the time allowed for completion of the work.

Sincerely yours,

Administrator

SPHOLT:foc
8/24/56
cc to: Docket
Code 400
Admr. Read. File
FT. REG. V
Messrs. R. W. Holliday, USBM
T. H. Kiilsgaard, USGS

TUNGSTEN MINING CORP.
BOX 81
HENDERSON, N. C.
TELEPHONE NO. 4139

RECEIVED
SEP - 4 1956

August 27, 1956

Mr. C. O. Mittendorf
Defense Minerals Exploration Administration
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-4216
Tungsten - Hamme Mine
Vance County, North Carolina

Dear Mr. Mittendorf:

With reference to the proposed captioned contract, a copy of which you forwarded to us with your letter of August 6, 1956, I have discussed with your Mr. Williams the proposed boundaries of the ground as set forth in the proposed contract that shall be subject to payment of royalties to the Government.

We advised Mr. Williams that the boundaries as proposed would include areas remote and beyond ground that would be explored by the proposed development work, mining areas in which we have developed ore and also would include areas from which we are currently extracting ore.

Mr. Williams requested that we write you explaining, (a) - where we are not in accord with the boundaries as proposed and, (b) - that we submit in quarduplicate a map and a written description of the boundaries which we would propose. These comments are respectively submitted. A map showing your proposed boundaries and the boundaries which we would suggest for your consideration, along with supplemental data, has been prepared. Four prints of this map has been mailed you under separate cover.

(a) Boundaries that we are not in accord with.

Project A. All ground east of the proposed North-South plane through coordinates N 20020, E 20580, includes ore in the Morton-45 Mine, ore in the easterly end of No. 3 Vein, as indicated by the development on the 300 Level of this vein that extends eastward from the point with coordinates N 20800 and E 20,580 and ore developed on the north end of No. 2 Vein, west of the dike, from the 1100 Level to the surface. Also, any new ore found by developing eastward on the #3 and Morton-45 veins would be included by the proposed boundaries. We believe that these areas should be excluded from the boundaries.

Also, the proposed boundary does not have any limit of the ground in its northeasterly extension from the proposed North-South plane. We believe that such a limit should be established.

We do not believe that the Walker 14, Walker 12, and other veins in this area to the northeast should be included in the boundaries of this Project-A.

Copy of letter + map sent to Bur Mines + Geol. Survey 9-6-56 ls

Project B.

In respect to the ground below the 500 Level, there should be established a boundary on the westerly side. Otherwise, the proposed boundary will most probably include the downward extension of the No. 6 and No. 7 Veins.

For the remaining ground, there should be some limit to the ground in its westward extension. The proposed eastern boundary should be changed slightly to conform with a required change in the moving of point with coordinates N-18,790 and E 19,490 to the point with coordinates N 18790, E 19405.

Project C and D.

The easterly boundary as proposed for these projects would include portions of some of our best developed ore bodies on the 300 Level, 500, 700, 900, 1100 and the 1300 Level and minor portions of other ore bodies on the 100 Level and 200 Level, ore bodies from some of which we are currently extracting ore. The colored areas on the map are these areas that fall within your proposed boundaries. We believe this condition should be corrected.

Of the remaining area, we believe that a limiting boundary should be established on the westerly side, one that would limit but include any ground in which ore may possibly be developed by both Projects, C and D.

We would draw to your attention that your proposed boundaries include ore now developed on the 900 Level, 1100, 1300 and 1500 Level of the No. 28 Vein. The No. 28 Vein is to be further prospected by Project C on the 900 Level. However, we are not requesting in our proposed boundary that this ground be excluded.

Under Annex-1, Page-2, Projects B-C-D, first paragraph, in the fifth line from the bottom and in the second line from the bottom, the word "east" should be omitted.

the words "east and" can be omitted

(b) Description of the boundaries which we propose for your consideration.

In suggesting these changes, we have undertaken to make as few changes as possible in the control points and lines of your proposed boundaries.

In general, it is our understanding that it is not the intent of the Government to require us to pay royalties on any ore extracted from now developed veins or ore bodies as may be mined by our continued development on the dip and strike of these known veins. The exception to this is the No. 28-Vein which falls within our proposed boundaries (and yours) which will be further explored by Project-C. Likewise, we understand that all ore mined from ore developed by the four Projects would be subject to payment of royalties to the Government.

Project A.

All ground in the land described above which is east of a

vertical plane extending due south from a point with coordinates 20570 N and 20580 E, through a point with coordinates 20020N and 20580E, (present drift face); east of a vertical plane extending from a point with coordinates 20,570-N and 20,580 E to a point with coordinates 22,800N and 22,040 E; and south of a vertical plane extending from point with coordinates 22,800 N and 22,040 E through a point with coordinates 22,175-N and 23,000 E, excepting ground of the north end of the No. 2 Vein located west of the dike and is east of the vertical plane extending north and south through the point with coordinates N-20,020 and E 20,580. to be included exception

Project B.

All ground in the land described above which is below the 500-foot Level of the mine; south of a vertical plane extending from a point with coordinates 20,060-N and 19,610 E to a point with coordinates 20,060-N and 19,150 E; north of a vertical plane extending from a point with coordinates 19,820-N and 19,580-E to a point with coordinates 19,820-N and 18,929-E; west of a vertical plane extending from a point with coordinates 19,820-N and 19,580-E to a point with coordinates 20,060-N and 19,610 E; and east of a vertical plane extending from a point with coordinates 19,820-N and 18,929-E to a point with coordinates 20,060-N and 19,150-E. to be included

Project B-C-D

All ground in the land described above which is south of a vertical plane extending from a point with coordinates 19,820-N and 19,580-E to a point with coordinates 19,820-N and 18,929-E; north of a vertical plane extending from a point with coordinates 18,790-N and 19,405-E to a point with coordinates 18,790-N and 17,982 E; east of a vertical plane extending from a point with coordinates 18,790-N and 17,982-E to a point with coordinates 19,820 N and 18,929 E; west of a vertical plane extending from a point with coordinates 18,790-N and 19,405 E to a point with coordinates 19,820-N and 19,580-E; south of a vertical plane extending from a point with coordinates 18,790-N and 19,405-E to a point with coordinates 18,790-N and 17,982-E; north of a vertical plane extending from a point with coordinates 16,745 N and 18,360 E to a point with coordinates 16,745 and 16,100 E; east of a vertical plane extending from a point with coordinates 16,745-N and 16,100-E to a point with coordinates 18,790-N and 17,982-E; west of a plane that is inclined to the southeast 78° - 45' from the horizontal, extending, at the surface, from the point with coordinates 18,790-N and 19,405-E to a point with coordinates 18,000-N and 19,050-E and west of a plane that is inclined to the southeast 78° - 45' from the horizontal, extending, at the surface, from the point with coordinates 18,000-N and 19,050-E to a point with coordinates 16,745-N and 18,360-E; excepting ground containing the known and developed Veins, known as the No. 20 and the No. 26 Veins as may now be included in the above boundaries, or which may extend into the above boundaries by their further development or stoping on their strike or dip. to be included exception

Additional comment in respect to the boundaries.

Project A: - Our proposed boundaries include Walker 11-Vein which is located some 600 to 700 feet north of the termination point of Project-A, but does not include Walker-14 and Walker-12 Veins, which are located respectively 1,560 feet and 3,760 feet northeast of the end of the proposed drift. The development of these two latter veins would not be conducted thru the No. 7 Shaft (Central Shaft) but from a point probably some 800 feet southeast of the #12-Vein location. The limiting boundary proposed on the west side should well care for any ore that may be developed by the exploration drift. In respect to the north end of the No. 2-Vein, which we suggest be excluded from the boundaries as defined, - this is only to take care of the presently developed ore and ore that may be developed in depth that is located west of the dike. The beginning point of the drift of this project is just at the west hanging wall side of the dike; the dike dips to the west.

Project-B: - The boundary suggested for the westerly side of this ground should well care for any ore that may be developed by the project. The easterly boundary is changed slightly to conform with a required change necessary in the easterly boundary of Project-C. Your proposed point of coordinates 18,790-N and 19,490-E, is too close to the outcrops of the main vein system. This point is moved westward 85-feet to point with coordinates, 18,790-N and 19,405-E. By doing this, it aids in establishing a better eastern boundary for Project C. Also, we do not believe the change has any material effect to the area of ground covered by Project-B.

Project C and D. - We believe that there should be a westerly limit to the ground included by Projects C and D. We have done this by extending the proposed westerly limit for Project B. to intersect your proposed southerly boundary. Since all known veins in this area have a dip to the southeast, we feel our proposed boundary will certainly include any ore that may be developed in the western section by the two proposed projects.

The southerly boundary remains the same as you proposed excepting for the proposed limit in its extension westward.

In respect to the easterly boundary, we tried various planes to properly define a boundary, including combinations of vertical with inclined planes of varying inclinations. If we use planes that would exclude all of our known ore bodies, it would be too steep and adverse to the ground covered by the boundaries of the contract. Two inclined planes with different courses and an angle of 78° - 45' from the horizontal are used and seems best in meeting the problem. Even with these planes certain stopes or lenses of ore remain within the boundaries which we have proposed and others may cross into the ground as defined. For this reason an exception is written into the description of the boundaries covering these conditions.

Currently parts of the 6-1-10 stope, 6-1-12 crosscut and the 6-2-9 stope are within the boundaries proposed by us. These three areas, are more definitely defined as follows: -

(a) 6-1-10 Stope, 100-Level, No. 6 Shaft, between coordinates 17,660-N, 18,885E and 17,710-N, 18,905-E.

(b) 6-1-12 Crosscut, 100 Level, No. 6 Shaft, originating at coordinates 17,800 N, 18,990 E and ending at coordinates 17,855 N. E 18,945.

(c) 6-2-9 Stope, 200 Level, No. 6 Shaft, between coordinates 17,170-N, 18,645-E and 17,300-N, 18,720 E.

Four different areas, (d), (e), (f) and (g), of known ore that are currently outside our proposed boundaries but with additional development work and stoping of them, may cross over and be within the boundaries, are located as follows: -

(d) Footwall ore, 900 Level, #6 Shaft located by diamond drilling and being between coordinates 17185-N, 18830-E and 17,215-N, 18853-E. This ore correlates with ore (e), 11-20-4 stope and ore (f) in 13-20-4 drift.

(e) 11-20-4 stope, 1100 Level, No. 6 Shaft, with present limits from coordinates 17,065-N, 18,815 E to coordinates 17,370-N and 19,030-E.

(f) 13-20-4 - drift, 1100 Level, No. 6 Shaft, with present south face at approximate coordinates 16,930-N, 18,775-E and present north face at coordinates 17,090 N, 18,890-E.

(g) Crosscut, 1500 Level, No. 6 Shaft, at coordinates approximately 16,696-N, 18,675-E.

The four areas, (d), (e), (f) and (g) are considered as being the same vein of ore and is known as the No. 26 Vein. The main lenses of ore found at the Sneed Shaft are known as the No. 20-Vein.

The above comment is given to explain the basis for locating the boundaries as we have, which are respectively submitted for your consideration. We will be glad to answer any questions in respect to this matter that you have.

Very truly yours,

TUNGSTEN MINING CORPORATION

J. R. Sweet

J. R. Sweet
Vice-President & General Mgr.

JRS:fnj

Docket
Holt
Martin
Selfridge
JS

SEP - 3 1956

Tungsten Mining Corporation
Box 81
Henderson, North Carolina

Re: Docket No. DMEA-4216, Tungsten
Hamme Mine
Vance County, North Carolina

Gentlemen:

This will acknowledge receipt of your letter of August 28, 1956, in which you discuss certain changes that will increase your company's ownership of lands concerned in the proposed exploration contract, and state that you can obtain from Haile Mines, Inc., your parent company, a written guarantee in lieu of the Consent to Lien required by the proposed contract.

Your same letter appears to have crossed in the mail with our letter to you dated August 29, and we would be assisted in considering the matter further if you would provide the information requested therein.

In view of the information in your letter of August 28, however, we would be willing to accept the guarantee of Haile Mines, Inc., in lieu of Consent to Lien or Performance Bond.

Sincerely yours,

Frank E. Johnson

ACTING Administrator

cc: Docket
Code 400
Adm. Read. File
R. W. Holliday, USBM
T. H. Kiilsgaard, USGS
FT, Reg. V

SPHolt/FEJohnson/ls
8/31/56

R.G.S.

TUNGSTEN MINING CORP.
BOX 81
HENDERSON, N. C.
TELEPHONE NO. 4139

4216

Aug. 28, 1956

RECEIVED
AUG 30 1956

WSM

Mr. C. O. Mittendorf
Defense Minerals Exploration Administration
Department of the Interior
Washington 25, D. C.

Dear Mr. Mittendorf:

Further to my correspondence to you dated August 15, 1956 by which we requested that you give consideration to Tungsten Mining Corporation giving a written guarantee in lieu of Consent to Lien signatures.

By that correspondence, the total amount of the Government's cost of the proposed contract subject to Consent to Lien signatures was $86,970.25 (Page-2). Project C is in the Abraham Sneed Estate and its respective amount is $2,462.79. The balance, $84,507.47 is accounted for by Projects B and D, both of which are located in the Nat Morton Land.

I now find that ownership of the Mineral rights of the Nat Morton Land by Tungsten Mining Corporation is lacking in only by payments of some $15,000/$16,000.

We are currently making payments that reduce and will liquidate this remaining balance. Using as a basis the payments that have been made over the past 12 months, the remaining balance of $15,000/$16,000 will be paid in full within the next eight months. Allowing for a reduced rate of payment, we believe that at the most the balance of payment would be fully made within the next twelve months. At that time, the owenership of the mineral rights of the Nat Morton Estate will pass to Tungsten Mining Corporation.

We felt that you should have this information at hand, in view of our request that you consider a written guarantee from us in lieu of Owner's Consent to Lien.

Also, in place of Tungsten Mining Corporation giving a written guarantee, I can obtain from Haile Mines, Inc., 500 Fifth Avenue, New York City, the parent company of this organization, to give a written guarantee to serve in lieu of the Owner's Consent to Lien.

TUNGSTEN MINING CORP.
BOX 81
HENDERSON, N. C.
TELEPHONE NO. 4139

 Aug. 28, 1956

Thanking you for your consideration of these details in our behalf,

Very truly yours,

TUNGSTEN MINING CORPORATION

J. R. Sweet

J. R. Sweet,

JRS/hs

Docket

TUNGSTEN MINING CORP.

BOX 81
HENDERSON, N. C.
TELEPHONE NO. 4139

August 15, 1956

RECEIVED
AUG 16 1956

Mr. C. O. Mittendorf
Defense Minerals Exploration Administration
Department of Interior
Washington 25, D. C.

WSM

Re: Docket No. DMEA-4216
Tungsten - Hamme Mine
Vance County, North Carolina

Dear Mr. Mittendorf:

We wish to acknowledge and thank you for your letter of August 6 and for the enclosed copy of the proposed DMEA contract.

I have discussed with your Messrs. Burmeister and Williams the boundaries of the projects as set forth in your proposed contract. Upon Mr. Williams' request, we are preparing additional data regarding the boundaries and will forward them to you. We believe that we can readily have mutual agreement upon this matter.

With reference to a Performance Bond, which seemed to be a suitable alternative to the Owner's Consent to Lien signatures, we are now advised that the Performance Bond will cost us approximately $13,000. This seems to be an undue cost to place on the proposed development work of this contract.

From advice given me, we calculate that the amount of the bond would be $86,970.25. At a premium rate of one (1%) percent per annum, this amounts to $869.70; and for 15 years $13,045.50.

The rate of one percent has been given to us by our New York Office as being what the bond would probably cost. It is not a firm figure for the Surety Company did not have available a copy of the proposed contract.

We have calculated the amount of the bond as follows:

The individual cost of the 4 projects A, B, C, and D is determined, the sum of these costs being the total contract amount. 75% of the respective costs is calculated which represents the amount of the government's contribution. Each project is then considered subject to the requirement of the Performance Bond, to the extent only that the work is within the property which would require Owner's Consent to Lien. For your convenience, the figures used in this calculation are tabulated here.

	Total Contract Amount	75% Government's Contribution
Project A	$90,656.00	$67,992.00
Project B	49,701.00	37,275.75
Project C	45,972.00	34,479.00
Project D	79,034.00	59,275.50
Total	$265,363.00	$199,022.25

Development Subject to Owner's Consent to Lien or Performance Bond

Project A:	Nil
Project B: - 420 ft. - Nil	Nil
Project B: - 880 ft. or 67.69% of $37,275.75	$25,231.96
Project C: - 1/14 of $34,479.00	2,462.79
Project D: -	59,275.50
Total Amount subject to Owner's Consent to Lien or Performance Bond	$86,970.25

In view of our difficulty in obtaining Consent to Lien signatures, and due to the apparent cost of the Performance Bond, we respectively request that you give consideration to the alternative of accepting a written guarantee from Tungsten Mining Corporation in lieu of Owner's Consent to Lien signatures. This guarantee to be based on the financial responsibility and the success of this operation. We will gladly submit to you, upon your advice, the operating record of this operation, along with the necessary financial statement.

In respect to this operation, I would briefly mention that in December, 1952, we completed an expansion of our mining and milling facilities from 300 to 900 tons per day; in March, 1955, we completed the construction of a chemical plant that produces sintered synthetic scheelite and during this past year, we have completed a construction program of service and office buildings. Substantial dividends have been continuously paid by this company since March, 1951. Our annual production amounts to 160,000 short-ton units of WO_3; last month, we produced 15,045 short-ton units. During the past 8 or 9 years, the mill has operated continuously at maximum capacity. Termination of the past tungsten program in June, 1956, has not altered our production schedule in any way and this production schedule would only be altered if the world price of tungsten dropped to the extent that would proclude our economical operation. Our ore reserves are good. Not only are we in a good operating position, but the financial position of the company is also good.

In addition to the above, we would also like you to consider writing into the contract an escape clause which would permit us, without penalty, to temporarily discontinue work on the contract, should the price of tungsten decline to the point that we could not economically operate and would be forced to close down; the incompleted work of the contract to be completed upon resumption of mining operations. This is because the cost of doing this development work would be excessive for we would have to maintain the services of two operating shafts and other mining facilities for the development work only.

We thank you for your consideration of the above matters in our behalf pertaining to this contract.

Yours very truly,

TUNGSTEN MINING CORPORATION

J. R. Sweet

J. R. Sweet
Vice-President & General Mgr.

JRS:fnj

400

DOCKET
Surname:
Holt
Martin
Lanzer
Indritz 8/3/56
Chamberlain
Nelson
Geehan
Hylman

AUG - 6 1956

Tungsten Mining Corporation
Box 81
Henderson, North Carolina

Re: Docket No. DMEA-4216, Tungsten
Hamme Mine
Vance County, North Carolina

Gentlemen:

On August 1 Mr. J. R. Sweet, Vice President and General Manager of your company, telephoned our Iron and Ferro-Alloys Division and discussed his difficulties in securing either Consents to Lien or a performance bond in connection with the proposed contract on the above-subject docket without having a copy of the proposed contract available for the information of the land owners or the bonding company.

All our contracts contain provisions relating to Consents to Lien or substitutes therefor. In this case, in order to expedite consideration thereof, we have inserted a clause in the proposed contract stating that a performance bond is attached in lieu of Consents to Lien by the owners of the leased land. This clause would be modified or deleted if you are able to secure Consents to Lien from some or all of the lessors.

Enclosed for use as explained above is an extra copy of the proposed contract. I am sure that Mr. Sweet clearly understands that in submitting a copy of the proposed contract to you, the Government makes no commitments whatever.

Sincerely yours,

C. O. Mittendorf

Administrator

cc: Docket
Code 400
Oper. Comm.
Adm. Read. File
T. Kiilsgaard, USGS
R. W. Holliday, USBM
FT, Region V
Mr. Indritz, Rm. 7343

SPHolt/ls
8/3/56

400 Docket Holt Chapman

JULY 18, 1956

MEMORANDUM

To: Associate Solicitor, Div. of Mineral Resources

From: Iron and Ferro-Alloys Division

Subject: Preparation of contract
Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hamme Mine
Vance County, North Carolina

Transmitted herewith is a draft of a proposed contract for the captioned project for your use in preparing the contract in final form.

Thos. L. Chapman, Acting Chief
Iron and Ferro-Alloys Division

Attachment

cc: Docket
Code 400

TLChapman/ls
7/18/56

D R A F T

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA-4216

EXHIBIT "A"

Description of the Work

The maps attached to and made part of the contract are as follows:

Fig. 1. Tungsten Mining Corp., Vance County, N. C., Property Map.

Fig. 4. Project A. Tungsten Mining Corporation, Henderson, N. C.

Fig. 5. Project B. Tungsten Mining Corp., Henderson, N. C.

Fig. 6. Projects C & D. Tungsten Mining Corporation, Henderson, N.C.

Proposed Work

The program consists of drifting, crosscutting, and diamond drilling, in four areas designated as Projects A, B, C, and D, all on the 900-foot level of the Hamme mine, as follows:

Project A. Starting from the north face of the 900-foot level on No. 2 vein, approximately at coordinate 20,020N, 20,580E, crosscut in the direction N. 80° E. through a diabase dike, then drift along the No. 2 vein structure to a second diabase dike, crosscut through that dike, then again drift along the No. 2 vein structure until a total of not to exceed 2,200 feet of drifting and crosscutting has been completed. One to several short crosscuts may be driven, with the prior approval of the Government, to explore the width and mineralization of the vein structure, provided that the driving of such crosscuts does not increase the approved total footage of drifting and crosscutting for this project.

Drill not to exceed 2,000 feet of exploratory diamond drill holes to locate the vein structure beyond the diabase dikes and to explore the width and mineralization of the shear zone.

Project B. Starting from the main shaft, crosscut on the 900-foot level, approximately at coordinate 20,060N, 19,610E, drift in a direction approximately S. 42° W. along the No. 3 vein structure for a total distance of not to exceed 1,300 feet, including such short crosscuts as may be needed to turn on to the vein structure at the start, and to explore the width and mineralization of the vein structure. Such crosscutting shall be held to a minimum and be subject to the prior approval of the Government.

Drill not to exceed 500 feet of diamond drill holes to explore the full width and mineralization of the shear zone.

Project C. Starting on the 900-foot level at the drift face having approximate coordinates 17,020N, 18,290E, drift northeasterly along the No. 28 vein structure for a distance not to exceed 1,200 feet. One to several short crosscuts may be driven, with the prior approval of the Government, to explore the width and mineralization of the vein structure, provided that the driving of such crosscuts does not increase the approved total footage of the project.

Drill not to exceed 500 feet of diamond drill holes to explore the full width and mineralization of the shear zone.

Project D. Starting on the 900-foot level at the point having approximate coordinates 16,995N, 18,265E, drive crosscut in a direction approximately N. 65° W. until the Morton No. 3 vein is intersected, or until 1,400 feet of crosscut has been driven, whichever occurs first. After intersecting the No. 3 vein, or completing 1,400 feet of crosscutting, whichever occurs first, the balance of 2,000 feet maximum footage of crosscutting and drifting may be used for drifting along the Morton No. 3 vein, or along other veins encountered in driving the crosscut, with prior approval by the Government of the location and extent of such drifting.

Drill not to exceed 1,000 feet of diamond drill holes to explore mineralized zones, as necessary to guide crosscutting and drifting.

General Specifications for Projects A, B, C, and D.

Drifts and crosscuts shall be not less than 7 feet wide by 7½ feet high above top of rail, in the clear, and shall be timbered as necessary. Timber sets shall consist of 8" by 8" oak posts and caps, with 2" or 3" top and side lagging as required. No sills are required.

Drift faces shall be sampled at not to exceed 10-foot intervals in mineralized zones, and the samples shall be assayed for tungsten trioxide (WO_3).

Work under projects A,B, C, and D may be carried on concurcurrently at the discretion of the Operator.

Diamond drill cores in mineralized zones shall be split, and one portion of each split shall be assayed for WO_3, the other portion of each split, with all other cores, shall be stored by the Operator until logged and released by the Government.

Size of diamond drill holes shall be at the option of the Operator. Diamond drill holes shall be reamed and cased, or cemented and re-drilled, as necessary. Footage will be paid only for completed holes, not for holes lost or abandoned before completion.

Estimated Costs of the Project

Fixed Unit Costs

Drifting and crosscutting, 6,700 feet @ $37.20/ft.	$249,240.00
Timbering, drift and crosscut, 1,415 feet @ $6.20/ft.	8,773.00
Diamond drilling, 4,000 feet @ $1.65/ft.	6,600.00
Assaying 250 samples for WO_3 @ $3.00/spl.	750.00
Total Estimated Cost of the Project	$265,363.00
Government Participation at 75%	$199,022.25

DRAFT

EXPLORATION PROJECT CONTRACT
TUNGSTEN MINING CORPORATION
DOCKET NO. DMEA-4216

ANNEX I.

The land referred to in Article 2. of the contract consists of three (3) parcels of land, located in Vance County, North Carolina, as follows:

1. Land owned in fee by Tungsten Mining Corporation, known as the Walker Land and the Peck Land, located in Townsville Township, Vance County, North Carolina, conveyed by Haile Mines, Inc., to Tungsten Mining Corporation by deed dated June 7, 1945, and recorded in Book 238, Page 602, Vance Registry.
2. Mineral rights leased of land known as the Nat Morton Land, by Tungsten Mining Corporation from Carl U. Samford and others, by Agreement dated March 11, 1946, for period of 99 years, recorded in Book 246, Vance Registry.
3. Mineral rights owned by Tungsten Mining Corporation of 13/14 of land known as the Abraham Sneed Estate. Mineral rights were conveyed by deed made January 2, 1946, by T. P. Gholson, Commissioner, to Tungsten Mining Corporation, the property being described in deed recorded in Book 58, Page 104, and the deed recorded in Book 246, Page 262, Vance Registry. And, mineral rights of one fourteenth (1/14) of the Abraham Sneed Estate conveyed to Tungsten Mining Corporation, for a period of 99 years by Agreement made January 16, 1946, by Jasper B. Hicks and recorded in Book 246, Page 264, Vance Registry.

Project Boundaries
(Areas subject to Government royalty)

The areas subject to Government royalty under the Contract are defined as follows, and marked on the accompanying maps, Figures 1, 4, 5, and 6:

Project A: All ground east of a vertical plane extending north and south through the point 20,020 N, 20,580 E (present drift face).

Project B: All ground below the 500-foot level of the mine and south of a vertical plane extending due west from the point 20,060 N, 19,610 E, and north of a vertical plane extending due west from the point 19,820 N, 19,580 E, and west of a vertical plane extending between the point 19,820 N, 19,580 E, and the point 20,060 N, 19,610 E.

Project B-C-D: All ground south of a vertical plane extending due west from the point 19,820 N, 19,580 E; west of a vertical plane extending from the point 19,820 N, 19,580 E, to the point 18,790 N, 19,490 E, and north of a vertical plane extending due west from the point 18,790 N, 19,490 E; and west of a plane that is inclined to the southeast 75° from the horizontal, extending, at the surface, from the point 18,790 N, 19,490 E, to the point 16,745 N, 18,360 E, south of a vertical plane extending due east and west from the point 18,790 N, 19,490 E, and north of a vertical plane extending due east and west from the point 16,745 N, 18,360 E.

Docket

IN REPLY REFER TO:

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

RECEIVED
JUL 17 1956

July 13, 1956

Re: DMEA 4216
Tungsten Mining Corp.,
Hamme Mine
Vance Co., N. C.
Appl. Est. $345,984.23
Rec'd Est. 265,295.35
Tungsten

Copy retained 400

Memorandum

To: W. S. Martin, Defense Minerals Exploration Administration

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of Field Team report.

The applicant requested assistance on four exploratory projects on the 900 level of the Hamme Mine. The total recorded production of the mine, through Jan. 31, 1956, has been 836,705 short ton units of WO_3 and the present yearly rate is about 160,000 units, worth at $63.00 unit, over $10,000,000. As of Aug. 31, 1955, reserves were estimated at 1,276,660 tons of 0.62% WO_3, a five year ore supply at the present production rate.

The proposed work program consists of:

Project	Item	Footage	Est. Cost	
A	Drifting and crosscutting	2,200	$78,694.00	
	Timbering	850	5,290.40	
	Diamond Drilling	2,000	3,288.00	
	Total		$87,272.40	$87,272.40
B	Drifting and crosscutting	1,300	$46,027.80	
	Timbering	60	373.44	
	Diamond Drilling	500	822.00	
	Total		$47,223.24	47,223.24
C	Drifting and crosscutting	1,200	42,534.00	
	Timbering	60	373.44	
	Diamond Drilling	500	822.00	
	Total		$43,729.44	43,729.44

Project	Item	Footage	Est. Cost	
D	Drifting and crosscutting	2,000	$70,756.00	
	Timbering	445	2,769.68	
	Diamond Drilling	1,000	1,644.00	
		Total	$75,169.68	$75,169.68
	Contingencies			11,900.59
		Grand total		$265,295.35

Project A as proposed will explore the northerly extension of the No. 2 (Walker) zone. The zone has been prospected by 21 drill holes from the surface and some mineralization was encountered, the best intersection being 2 feet of 0.42% WO_3 at an elevation 650 feet above the level of the proposed drift. The bite is a long one considering the paucity of ore indicated by the drilling.

Project B as proposed will explore the southerly projection of the No. 3 vein on the 900 level. About 400 feet of the drift will be about 400 feet below work on the 500 level, the remainder, 900 feet, will be in 'virgin territory' without known indications of a vein structure as no surface drilling has been done and the "structure cannot be traced in the outcrop" (Application, p. 4). The application says "The chance that project B will lead to ore discovery, particularly as the schist contact is approached, is regarded as very good."

Another deep prospective 'bite' is contemplated considering that the southerly part of the vein on the 500 level consists of narrow lenses and is not known to carry ore on the 900 level where it has been explored for 500 feet.

Project C as proposed will explore the northerly projection of a relatively new vein structure, the 28 vein, on the 900 level. The vein has not been positively identified above the 900 level but the Morton 1A vein which shows 1½ to 3½ feet of quartz may be its surface expression. The application says six surface holes drilled to prospect the vein (Morton 1A) "failed to penetrate ore, though all holes showed the mineralized shear zone and three holes cut mineralized quartz from 1½ to 6 feet in thickness." The 28 vein has been opened on the 900, 1,100, and 1,300 levels for short distances. The northerly faces on the 3 levels are marked "not minable" on the composite map. This proposed work savors of prospecting.

Project D, as proposed will prospect for and if found explore the downward extension of the Morton Estate No. 3 Vein, which 15 holes drilled from the surface has shown to have ore making potential over a length of 370 feet, but with both ends closed. The intersection nearest the proposed drift is 550 feet above it and consists of 3 feet of 0.32% WO_3. Nearby is 4½ feet of 0.86% and 170 feet north is 27 feet of 0.50% WO_3.

Except that a 1,100-foot crosscut is necessary to get to the projected vein, the project has more apparent merit than do the other projects in which much reliance must be placed in the chance that blind ore shoots exist in the vein structures.

Inasmuch as the royalty boundaries of the 4 projects are combined, making a unified project and the work is being done in a big mine, where the unexpected may be expected, the program outlined is warranted.

I concur with the recommendation of the examiners and the Field Team that the proposed revised work program of the examiners be approved and a contract granted.

N. E. Nelson

N. E. Nelson

Docket

RECEIVED
JUL 11 1956

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

July 10, 1956

Copy retained 400

Memorandum

To: W. S. Martin, Chief, Iron and Ferroalloys Division-DMEA
Through: Chief, Branch of Ferrous Metals and Ferroalloys

From: R. W. Holliday, Commodity Specialist, Branch of Ferrous Metals and Ferroalloys

Subject: Review of Field Examination Report
Docket DMEA-4216 (Tungsten)
Tungsten Mining Corporation, Henderson, N. C.
Hamme Mine, Vance County, North Carolina

Subject report recommends approval of the applicant's proposal.

The history of past production, competence of the operator, scale of operations, plant in operation and geological factors all appear to be favorable.

I concur in the field team recommendation of approval.

R W Holliday
R. W. Holliday

Docket

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
ROOM 1 POST OFFICE BLDG.
KNOXVILLE 2, TENN.

RECEIVED
JUL 5 - 1956

July 3, 1956

Memorandum

To: Operating Committee, DMEA - Washington

From: DMEA Field Team, Region V - Knoxville, Tenn.

Subject: Field Examination Report - DMEA-4216 (tungsten)
Tungsten Mining Corporation, Henderson, N. C.
Hamme Mine, Vance County, N. C.

Enclosed are four copies of the Field Team Report on the subject application.

We recommend approval of a contract covering the four sub-projects, as recommended by the Examiners, provided the Consents to Lien or satisfactory substitutes are submitted by the applicant.

on site exam

Reviewed by
DMEA OPERATING COMMITTEE
7-9-56
(date)

Robert A. Laurence
Robert A. Laurence
Executive Officer, DMEA
Region V

V. J. Lynch
V. J. Lynch, Member
Bureau of Mines

FIELD TEAM REPORT ON EXAMINATION OF PROPERTY

by

H. L. Burmeister and W. P. Williams[1/]

DMEA Docket No. 4216 (tungsten)
Tungsten Mining Corporation, Box 81,
Henderson, North Carolina.
Hamme mine, Vance County, North Carolina

Reviewed by
DMEA OPERATING COMMITTEE
7-9-56
(date)

Introduction and Summary

The Tungsten Mining Corporation, Box 81, Henderson, North Carolina, has applied to the Defense Minerals Exploration Administration, DMEA Docket 4216, for assistance to explore for tungsten ore.

The property involved consists of land which is owned in fee simple by Tungsten Mining Corporation, land on which the Company owns 13/14 of the mineral rights and leases the remaining 1/14, and land which is wholly leased. These lands are shown on fig. 1.

The property was examined on May 16 to 22, inclusive, 1956, by a party consisting of H. L. Burmeister, U.S.Bureau of Mines, and W.P.Williams, U.S.Geological Survey, S. C. Bergman, U.S.Geological Survey, accompanied the examiners. Valuable assistance and much data were given the examining team by personnel of the applicant company. Chief among these were Messrs. C. D.Hulin, consulting geologist, J. R. Sweet, vice president and general manager, A.M.Szynklewski, chief mining engineer, and T. A. Granger, company accountant. Mr. Hulin and Mr. Szynklewski accompanied the examiners while underground.

The proposed work consists of a total of 6,700 feet of drifting and crosscutting, 1415 feet of drift and crosscut timbering, and 4,000 feet of underground diamond drilling. All of the work, including the diamond drilling, would be done in four projects on the 900 level of the Hamme Mine.

1/ H. L. Burmeister, engineer, U. S. Bureau of Mines,
W. P. Williams, geologist, U. S. Geological Survey.

RECEIVED
JUL 5 - 1956

The total cost of the four portions of the project was submitted as $345,984.23. The engineer's estimate has reduced the total to $265,295.35, including assaying not allowed for by the operator.

Conclusions and Recommendations

The applicant presents proposals for exploration work in the Hamme tungsten mine. The proposed work is arranged in four projects with each project in a separate part of the mine and with a distinctly separate target for each project. Consequently, there is no real, or direct, element of contingency between the projects.

All four projects would explore ground which has heretofore not been penetrated or explored by any existing mine openings. Hence, none of the proposed work can be construed as consisting of mine development. There is no possibility that any of the work will "block out" ore.

After careful study of the underground mine workings and surface outcrops, we are in agreement with the applicant that the four proposed projects represent the best sites presently available for potentially successrul exploration work.

It is believed that no material advantage would accrue to either the Government or the applicant by using different costs per foot for drifting and crosscutting in the separate projects. It is recommended that the average cost per foot be used.

The four separate projects, A, B, C, and D, may be considered as only individual portions of the whole program to benefit the entire mine. In addition to this it is highly possible that discoveries may be made in all four projects. For these reasons it is believed that royalty due the Government from a discovery in any project should attach to any ore produced from the balance of the projects.

The exploration work has been well planned by the applicant. There does not appear to be any strong reason to alter the proposals by the applicant in any way except in costs. Study of the Hamme mine deposit indicates that all four projects have excellent prospects of discovering significant new tungsten ore reserves.

It is recommended that a DMEA contract be prepared to provide for exploration work as proposed by the applicant and as outlined herein. It would be well to specify total footages of drifting, crosscutting, timbering, and diamond drilling as allowable maximums. During the field examination the applicant expressed the desire to have any forthcoming DMEA contract written so as to allow transfer of drifting and diamond drilling footage from any particular project to another if desirable. Such an arrangement would be convenient and would give flexibility to the overall program. Such transfer of footages should be made subject to prior Field Team approval.

Name Location of Property

This property is known as the Hamme Mine and is located in the northern portion of Vance County, N. C. and just south of the North Carolina-Virginia border. (Fig.1)

The company offices and main shaft are most easily reached by proceeding westward for a distance of 3.4 miles on an unnumbered paved road from the circle in the village of Townsville, N.C. Townsville is about 12.6 miles north of Henderson, N.C. on State Rt. 39. Roads leading to the property are all paved, in good repair, and open in all seasons. Railway shipping points are at Henderson and Bullock, N.C. located respectively 16 miles and 5 miles from the mill and main shaft.

Competency of Applicant and of Personnel

The Tungsten Mining Corporation operates under extremely competent management. Mr. J. R. Sweet, vice president and general manager, has had a great deal of mining experience which includes the following: 5 years chief engineer, Warren Foundry and Pipe Corporation; 8 years mine superintendent, Climax Molybdenum Company; 3 years underground manager, Roan Antelope; and the past 7 years in his present position. Observation indicates the competence of Mr. A. M. Szynklewski, the company mining engineer. Operations are well planned and executed. Cost accounts on all phases of operation are kept in detail.

Company annual reports indicate financial responsibility.

Applicant's Property Rights

The "Partial Property Map", included in the application as well as Figure 1 of the report shows that all portions of this project (A, B, C, and D) are adequately protected in land either owned by or held under long-term lease by the Tungsten Mining Corporation.

Project portion "A" is on land owned in fee by the company. Portion "B" is on land which is partially owned in fee and partially under 99 year lease of mineral rights. Portion "C" is partially on ground the mineral rights of which are owned by the applicant and partially on mineral rights leased for 99 years. Portion "D" is on land on which the mineral rights are held under lease for 99 years.

It will be noted that all four application forms MF-103 express ownership of all property concerned. This was brought to the attention of Mr. Sweet who then gave the engineer the above data which is in agreement with the description of holdings as expressed on Projects "A" and "D" application forms MF-103 and on Projects "B" and "C" as stated on pages 24(a) and 27(a) of the application.

"Consent to Lien" forms have been furnished the applicant. Receipt of the executed forms will probably take some time due to the fact that the Morton lease alone requires the signatures of ten part-owners of the estate.

DESCRIPTION OF PROPERTY

Surface Facilities

Surface facilities near the main shaft (No.7) include the general and engineering offices, mill, timber framing plant, shops for repairing automotive and mining equipment, parts and supply warehouses, a new building for diamond drill core storage and a lamp charging house. There is in addition one other all-purpose shaft (No.6) and one for handling materials and supplies (No.1). Ore and waste are drawn from shaft-head bins into trucks and delivered to mill or waste dump.

The mill is operating at an average rate of 900 tons per day. Concentration is basically effected by use of jigs, tables and slime tables. Some of the scheelite is recovered by a solution and precipitation method. Flotation is used to remove sulphides and a dry magnetic separator removes magnetic material.

Mine Workings, Facilities and Development

The mine is served by three vertical shafts. The three-compartment shafts, No.7 and No. 6, are equipped for balanced hoisting of men, ore and waste in combination 9-man cages and 2-ton self-dumping skips. Hoisting is at the rate of 600 f.p.m. These shafts are in operation three shifts per day. The third shaft, No. 1, used exclusively for materials and supplies, operates two shifts per day.

Mining is done on the first two shifts, the third being reserved for hoisting only. Combined ore and waste hoisted averages 1402 tons per day and the average number of men employed underground is 425.

Existing Development

Shafts No. 6 and No. 7 are each slightly more than 1600 feet in vertical depth; No. 6 serving only No. 2 vein, while No. 3 shaft serves both No. 2 and No. 3 veins (Operator's mine plan). Of the total material hoisted, 55% to 60% is handled through shaft No. 7 and 40% to 45% through shaft No. 6.

Levels on No. 2 vein are spaced at 200-foot intervals down to the 1300 foot level on which some development has been done. A shaft station has been cut on the 1500 foot level. Levels 200 to 1100 average 5200 feet in strike length. Vein No. 3 and its branches, No. 6 and No. 7, have been developed to the 900-foot level over an average strike length of 1300 feet. Company records inspected show that from September 1955 to February 1956, exploration and development in drifts, crosscuts and raises averaged 2273 feet per month and that exploration by diamond drilling averaged 2573 feet per month. At present the major ore production comes from above the 900-foot level and below the 500-foot level.

MINING METHODS

General

All shaft stations are untimbered, large, uncluttered and cut out sufficiently high to allow landing rail and long timbers. Skip pockets are located on each second level. Ore and waste from intervening levels is dumped over 12" grizzlies into untimbered transfer raises. This practice not only decreases cost of skip pockets but affords considerable storage for continuous hoisting on the third shift.

With the exception of several compressed-air units, haulage is accomplished by the use of small battery locomotives operating on 20-pound rail laid to 24-inch gauge. Trains are made up of 6 to 8 one-ton rocker type, side dump cars. Battery charging stations are located on each level in unused crosscuts.

Good ventilation throughout the mine is maintained, largely by the natural flow of air through the one supply and the two general service shafts. A few stopes are ventilated by 24-inch electric fans at or near shaft stations. Booster fans and 16-inch metallic vent pipe are used in long exploration or development drifts, mostly to clear air quickly for the succeeding shift.

There is no water problem, the entire mine making approximately 100 g.p.m.

Over a period of eight months on a 25½ day per month basis, the total material hoisted averaged 1402 tons per day.

Drifting and Crosscutting

Drifts and crosscuts are a minimum of 8 ft. wide and 8½ ft. above rail, which allows for a 2-foot clearance of mucker blade at the top of its stroke. Eimco 12-B mucking machines are used (Fig.9).

Drilling is done with a DA30 drifter, column and arm mounted and using 1-inch hexagonal steel fitted with 1½-inch tungsten-carbide insert bits. The average round consists of 32, 5-to 5½-foot holes which pull an average of 4.39 feet. A 5-hole burn cut is in general use and an average of 230 sticks of Gelex No. 3 powder per round are electrically detonated by the use of up to 10 delays. The round cycle consists of barring down, set-up and drilling out 3¼ hrs.; loading and blasting 3/4-hour; and mucking, 2½ hrs. Track, 2-inch water pipe and 3-inch airpipe are advanced by men in those departments.

Stoping

The entire ore body consists of a number of lenses occurring irregularly in a shear zone of varying width. In some cases the entire width of the shear zone is ore and in others the ore is found in narrow widths well within the borders of the shear zone.

Stopes may vary rapidly in width from 5 to 50 feet. The usual minimum width stoped is 5 feet. In the past shrinkage stoping was used in some cases but has now been abandoned because of dilution of ore by wall sloughing. Square set stoping is now employed exclusively.

Stope development consists of widening the drift to the limits of the ore. The back is then drilled with stopers and broken to allow for one square set above the old drift back. After mucking, 8" x 8" oak square sets are installed on the drift level for the length and width of the ore shoot. These sets are tightly top-lagged with 4" oak timber which then forms the sill floor of the stope. Chutes are carried in the square sets at 15-foot intervals and manways where needed. Column and arm mounted drifters advance a single slice from the back about 6 feet high across the stope from end to end, and the ore is then slushed to the raises. When the floor is clear, square sets are placed and top-lagged as a floor for the next slice. Lagging is advanced upward from floor to floor and the stope left, timbered and not filled. It is expected that soon mill tailings will be used for filling some stopes. No pillars are left longitudinally between stopes. Twenty-foot level pillars have been left above all but two stopes. These will probably be removed after stope filling.

Sampling and Ore Cut-Off

Grab car samples and stope muck samples are used almost exclusively as a control in operations. The cut-off on ore in drifts is 0.25 percent WO_3 and in stoping is a minimum of 0.33 percent WO_3. The target for mining operations is to maintain a mill feed averaging 0.5 to 0.6 percent WO_3. The company's estimated ore reserves have repeatedly been proved by later mining to have been about 3 percent low.

GEOLOGY AND ORE RESERVES

The Hamme mine is located in the Piedmont physiographic province about 50 miles west of the Coastal Plain. The mine is in a northeast-trending belt of tungsten-bearing quartz veins. The belt is about 8 miles long and a mile wide and is known as the Hamme tungsten district. The location of the district is shown on figures 1 and 2.

In the Hamme district the country rocks are composed mainly of igneous granite and metamorphic schist. The contact between the two rock types strikes generally due north through the district and generally has a steep dip to the west. Locally the dip of the contact may be vertical or steep to the east. Granite lies east of the contact while schist lies to the west.

The metamorphic rocks are composed dominantly of chlorite and sericite phyllites and schists. The color of these rocks ranges from grayish green to very dark green and almost black. The texture may be fine grained and massive or coarser grained and schistose. In the chloritic rocks some of the harder, denser varieties contain epidote and quartz. The sericitic rocks are generally heavily speckled with martite (iron sesqui-oxide).

The age of the metamorphic rocks is thought to be pre-Cambrian or early Paleozoic.

The eastern part of the district is made up of biotite-albite granite. The age of the granite is late Paleozoic and the rocks are intrusive into the older schists and phyllites to the west.

The granite is coarse grained and is composed of albite, blue opalescent quartz, perthite, and microcline. Biotite may be nearly lacking or very abundant. Common accessory minerals are magnetite, pyrite, sphene, apatite, and zircon.

Several types of dike rocks are found in the district. An aplite granite dike cuts the granite in the vicinity of the Sneed shaft. The dike is about 500 feet thick at its thickest part, and is composed mainly of quartz and albite with some sericite and biotite. The aplite is fine grained and light gray to white. It is probably closely related to the granite but somewhat younger.

Both the schists and the granite are cut by diabase dikes of Triassic age. Dikes and sills of diabase are common throughout the district. Their thicknesses range from a few inches to as much as 200 feet, and they have been traced as much as 2 miles without reaching an end. The thinner dikes are fine grained while the thicker ones are coarser. Dark gray feldspar and black pyroxene are the main constituents, and the dikes are dark gray to black. Most of the diabase dikes have a northerly trend with steep dips.

In the mine the applicant's consulting geologist has mapped a particular type of basic dike rock as lamprophyre. This rock cuts the quartz veins and is generally of a finer granular texture, is composed of hornblende, augite, and much biotite, and is dark greenish black in color. The thickness of the lamprophyre dikes ranged from a few inches to about 10 feet.

Quartz veins are found throughout the district. They range in thickness from a fraction of an inch to 30 feet. The quartz veins cut all rock types except diabase and lemprophyre.

The quartz veins are composed of at least three main types of quartz, 1) coarse grained and glassy, 2) medium to fine grained, shattered and fractured, somewhat dull-lustered, containing tungsten mineralization, and 3) dull, fine-grained sugary-textured quartz that is usually barren of mineralization but may contain, locally, sparse huebnerite, scheelite, and metal sulphides.

The tungsten-bearing quartz veins are in a narrow northeast-trending zone that is roughly parallel to the granite-schist contact. Most of the veins are in granite but some extend into the schist.

The largest and best developed quartz veins are localized in the granite along a shear zone that extends through the district for at least $3\frac{1}{2}$ miles. The main shear zone strikes about N. 35° E. and dips about 75° southeast, fig. 3.

Within the shear zone the granite is altered variously from moderately sheared granite to sericite and chlorite schist. The altered and sheared zone reaches a maximum thickness of about 100 feet.

Some movement has taken place along the shear zone, as evidenced by slickensides in places along the shear. Displacement appears to have been only a few feet at most. The pitch of the slickensides is usually less than 5 degrees to the south. Drag folds associated with the shearing show that the southeast side moved south with relation to the west side.

Tungsten is found as huebnerite ($MnWO_4$) - and scheelite ($CaWO_4$) - bearing quartz veins. The veins are best developed and richest in the sheared granite. The next best vein locality is the granite west of the main shear

zone and east of the schist contact. Heretofore it was thought that the schists were not good host rocks for the tungsten veins, but the Tungsten Mining Corporation has been successful in developing at least two large veins within the schist in the Hamme mine. The largest of these, known in the Company as "22 vein", has been developed on the 500, 700, and 900-foot levels. As exploration progresses it is probable that other schist ore bodies will be found.

In addition to the vein system in the main, northeast-trending shear zone, there are several other subordinate veins which have been important tungsten producers. Chief among those is Walker No. 3 vein which strikes east-northeast and appears to join the main Walker No. 2 vein at about the location of Walker No. 5 vein. (Applicant's composite map.)

The quartz veins range in length from a few feet to a thousand feet, and from an inch or less in thickness to as much as 30 feet. The veins pinch and swell and in many places the quartz forms lenses. The pitch of the ore shoots in the veins is vertical in some places. In other places the pitch of ore shoots may be southwest or northeast. An intermediate southwest pitch appears to be predominant. Offshoot quartz stringers often extend from the veins into the enclosing altered wall rocks.

The principal metallic minerals in the quartz veins are huebnerite, pyrite, galena, tetrahedrite, sphalerite, chalcopyrite, and scheelite. Huebnerite is the important tungsten mineral. Scheelite practically everywhere in the veins is found as a sparse alteration product of hydrothermal alteration of huebnerite. Very little huebnerite seems to have been leached at the surface, consequently there is no significant zone of secondary enrichment at depth.

Quartz, fluorite, sericite, and rhodochrosite, in that order, are the principal gangue minerals. Huebnerite is found as long, platy, brown crystals that are arranged in irregular masses or seams that are parallel to the walls of the vein.

At least two varieties of quartz are discernible in the Hamme mine. The huebnerite-bearing variety is duller in luster and is more granular and shattered. The barren quartz is more massive and has a more vitreous luster.

The area controlled by Tungsten Mining Corporation is situated in about the center of the district. The huebnerite quartz veins exposed on the surface in outcrops and trenches on the property are richer and more stronely mineralized than any other place in the district. This fact, however, probably has little to do with the ultimate potentialities of the district as large ore bodies have been developed in the Hamme mine where the ore had little or no outcrop at surface.

The size of the ore bodies within the veins ranges within wide limits. Persistent veins may extend in length to as much as 500 feet or more. The larger lens-type bodies may be 250 feet long, average 30 feet in width, and extend to depths of 400 to 500 feet. The veins are discontinuous and may pinch down to a mere fracture between ore bodies. The largest single ore body has a short, narrow outcrop, has a length of 1,180 feet on the 900 level, and has maximum thicknesses up to 40 feet. This body is in the southern part of the main shear zone and is known as the Walker 1-1A vein.

The geology of the Hamme district has been ably described by G. H. Espenshade and J. M. Parker, III. See Appendix A for references.

PRODUCTION AND ORE RESERVES

Since the discovery of the deposit in 1942 the Hamme Mine has become the most important single tungsten producer intthe United States. The applicant states that current production is at a rate of about 160,000 short ton units of WO_3 per year. Total recorded production through January 31, 1956 was 836,705 short ton units of WO_3. About 89 percent of the total production was huebnerite, and 11 percent was scheelite.

The applicant states that ore reserves on Tungsten Mining Corporation property on August 31, 1955 were 1,276,660 tons having an average grade of 0.62 percent WO_3. At the present rate of production the present reserves represent about a five year ore supply.

EXPLORATION

The Hamme Tungsten district was the subject of much interest and investigation during the period October 6, 1947 to March 12, 1948 in connection with construction of the Buggs Island dam and reservoir on the Roanoke River. The project was constructed by the U.S.Army, Corps of Engineers. Investigation of the tungsten deposits was undertaken to determine the tungsten-producing potential of the district and to evaluate the possible loss of minable deposits through inundation by the reservoir. Field investigations were conducted for the Corps of Engineers by the U.S.Geological Survey and the U.S.Bureau of Mines. The work included geological and geophysical studies, core drilling, and trenching. Ore reserve estimates and appraisals were made as a result of the work, but those estimates are now outdated because of the large amount of mine development and exploration completed by the Tungsten Mining Corporation in the last few years.

APPENDIX A

References

1. Espenshade, G. H. Tungsten Deposits of Vance County, North Carolina and Mecklenburg County, Virginia: U.S.G.S.Bull. 948-A, 1947

2. Parker, J. M. Geology and Structure of Part of the Hamme Tungsten District, Vance County, North Carolina, and Mecklenburg County, Virginia: U.S.G.S. progress report (unpublished) in cooperation with North Carolina Department of Conservation and Development, Division of Mineral Resources, 1951.

3. Advisory Board to the District Engineer, Corps of Engineers: Report on the Investigation of the Hamme Tungsten District in its Relationship to the Buggs Island Reservoir, Roanoke River, Va.-N.C., April 28, 1948.

AVAILABILITY OF MANPOWER, MATERIAL, SUPPLIES, ETC.

Securing and retaining men is no problem at this mine. Wages are attractive, working conditions are excellent and management-employee relations are good.

Ordinary items of equipment and supplies are available at Henderson, Durham, and Raleigh, N.C. Heavy equipment and large quantities of supplies can be shipped by railroad to Bullock or Henderson, N.C. and then trucked over excellent paved roads to the mine. Water is abundant all around the property and a high voltage power line crossing the property is more than adequate for any mine and plant needs.

Wage scales are fixed by agreement between the company and the CIO affiliated union. Basic hourly wages pertaining to this exploration project range from $1.45 for a ditch and clean-up man, to $1.80 for head truckman and $1.75 for hoistman, electrician, pipeman, miner and mucking machine operator. All rates in this application were checked by the engineer.

The ultimate hourly wage of drift miners and mucking machine operators is controlled throughout the mine by a bonus agreement between management and men which has been in effect for some time.

DISCUSSION OF THE APPLICANT'S PROPOSAL

The applicant proposes to explore for new tungsten ore bodies in the Hamme mine by means of a total of 6,700 feet of drifting and cross-cutting and 4,000 feet of diamond drilling. All the work is to be done from the 900 level of the Hamme mine. Timbering was proposed only in project "A".

The applicant proposes that the work be done in four separate and distinct projects. Each project would explore and test a separate geologic structure, consequently the projects could run concurrently.

Costs as proposed were very high, totaling $345,984.23 for projects A, B, C, and D combined. The entire cost structure has been revised in this report.

Project A:

The object of Project A is to explore the northward extension of the principal shear zone (called No. 2 vein), between the present north limit of the 900 level drift and Walker No. 10 vein. On the 900 level a large persistent tungsten vein about 20 feet thick is truncated by a large diabase dike that may be as thick as 200 feet. The proposed drift would penetrate the dike in the attempt to find the cut-off ore vein. If the vein is discovered it will be followed northward in the attempt to find down-dip extensions of outcropping veins called Walker No. 5 and No. 10. Before Walker No. 10 is reached it would be necessary to penetrate a second diabase dike which also very likely cuts the vein.

In the north part of the mine the first diabase dike has been penetrated only on 700 level. Vein structure and mineralization were found but no ore. Penetrating the dike on 900 level has a much better prospect of finding a thick ore vein because, unlike 700 level, the vein south of the dike on 900 level is thick, the shear structure is much stronger, and the ore is of good grade, fig. 4.

Twenty-one inclined drill holes from surface have penetrated the shear zone at depths to 335 feet. The best mineralization, assaying 0.42 percent WO_3, was found from 188 to 195 feet in hole No. 412. Most of the other holes cut schistose vein structure, quartz, and huebnerite and sulphide mineralization. (Fig.7)

Because the grade and thickness of the No. 2 vein increases so markedly from 700 to 900 level at the north limit of the mine workings, it is inferred that the same increase in favorability might well occur farther north. It appears, therefore, that project A has an excellent chance of finding large new ore reserves.

Two thousand feet of diamond drilling to be done from the Project A drift is proposed to assist in locating and testing the No. 2 shear zone, which may be as thick as 100 feet or more in places. Such procedure is standard practice in the Company's underground exploration and should be considered as acceptable in the proposed DMEA work.

Under project "A" the application included 2200 feet of drifts and cross-cuts at $47,619 per foot, 2200 feet of timbering at $10.826 per foot, and 2000 feet of underground diamond drilling at $1.644 per foot. Total cost of "A" was $131,864.00.

Project B:

The No. 3 vein is a strong, persistent shear structure that is probably second in importance to the main No. 2 vein structure. The No. 3 vein strikes at an angle to the No. 2 vein and probably converges with and joins the No. 2 vein at about the Walker No. 5 position. From outcrop pattern and known ore bodies in the mine it appears that the strongest and best development of the No. 3 vein is north of the main shaft crosscut to the possible convergence of No. 3 vein with No. 2 vein. South of the main shaft

crosscut No. 3 vein diverges farther and farther from No. 2 vein. It is very likely that the No. 3 vein structure becomes weaker south of the main shaft crosscut and that the shearing with its quartz veins splays out in a divergent pattern giving rise to smaller, weaker, and more scattered quartz veins.

The only exploration by the Company of the southward extension of the No. 3 vein to date is a 450-foot drift on 500 level. This drift followed a thin vein of possible ore grade the full length of the drift, fig.5.

Project B is intended to explore, on 900 level, the southward extension of No. 3 vein. For the reasons outlined above we do not expect the structures in the south extension to be as large or persistent as those in the north. If so, the south extension will probably not be as productive, ultimately, as the north extension.

In discussing Project B the applicant makes a point which would seem to be true, that is, the chance of finding significant ore bodies will probably increase as the proposed drift approaches the schist-granite contact. A reason for this would be the damming or trapping effect of the relatively impervious schist upon the hydrothermal ore solutions.

Because the No. 3 vein structure is one of the main structures in the district and because it has been so productive, the south extension of No. 3 vein certainly merits exploration. The proposed 1300 feet of drifting and crosscutting and 500 feet of diamond drilling appears to have an excellent chance of finding new ore reserves.

Exploration of the south extension of No. 3 vein could be carried forward on 500 level where a 450-foot drift has already been driven on the vein. The applicant, however, points out that it would be advantageous to

have all the DMEA work on one level for several reasons. Chief among these are ease of transferring mucking machines, drills, and other equipment and supplies between projects, and location and arrangement of waste passes, make the 900 level the best level on which to do exploration work with a minimum of muck handling.

Under project B the application included 1300 feet of drift at $46.936 per foot and 500 feet of underground diamond drilling at $1.644 per foot. Total cost of B was $61,839.45.

Project C:

Project C is designed to explore the north extension of what is known as No. 28 vein. No. 28 vein was discovered below the 1300 level while sinking the Sneed shaft. The vein has since been explored to a limited extent on the 1300, 1100, and 900 levels, fig. 6.

No. 28 vein appears to be connected to a vein on surface known as Morton 1-A vein. A surface trench on the Morton 1-A vein shows a 3½-foot-wide quartz vein with abundant huebnerite. The vein as now known on 1300 and 1100 levels is too narrow to be minable at present.

Six inclined core holes have been drilled from surface through the Morton 1-A vein. None of the holes penetrated material of ore grade and thickness; however, all encountered strong vein structure and huebnerite mineralization.

The proposed exploration work in Project C. consists of drifting plus diamond drilling to test the thickness of the vein zone. All the work would be done on the 900 level of the mine. Under Project C the applicant included 1200 feet of drifting at $46.885 per foot and 4000 feet of underground diamond drilling at $1.644 per foot. Total cost of C was $57,084.59.

Since the proposed drift would start in strong but sub-ore thickness and mineralization and would have as its target the down-dip extension of the Morton 1-A vein, also strongly mineralized, it seems reasonable to predict that the proposed work would result in ore discovery.

Project D:

Project D is planned as a crosscut, 1,200 feet long, out to the west of the main ore body to seek for the down-dip extension of an outcropping ore body known as Morton Estate No. 3 vein. After the vein is discovered, 800 feet of drifting is proposed to determine the extent and degree of mineralization. One thousand feet of diamond drilling is proposed to assist in seeking for, and determining the extent of, vein structure and mineralization. Costs, submitted in the application were, $46.776 per foot of drifting and crosscutting, and $1.664 per foot of diamond drilling. Total cost of D was $95,196.19.

The Morton Estate No. 3 vein has been penetrated from surface by 15 inclined core drill holes. Eight were ore holes, and four holes penetrated material classed by the applicant as "probable" ore. Assays ranged from 0.35 to 1.79 percent WO_3. (Fig. 8.)

Project D, like Project A, will penetrate at the outset a diabase dike that may be as much as 200 feet thick, fig. 6. After penetrating the dike the crosscut would proceed entirely in schist, which need not be disconcerting since, as pointed out above, the Tungsten Mining Corporation has developed large ore bodies in schist.

The Morton Estate No. 3 vein presents in outcrop one of the best and strongest mineralized veins in the district. Diamond drilling from surface has been successful in finding tungsten ore. There seems to be an excellent chance for ore deposits to exist down-dip from the outcrop of

Morton Estate No. 3 vein. Since no exploration work has been done on the vein at depth the proposed Project D presents an excellent target for DMEA work with good chances for success.

Operator's Property Rights
Areas Subject to Government Royalty Payments

The application was originally presented with a request to provide for the work in the four projects under four separate contracts. The object of such an arrangement would be to eliminate from certification as a discovery any project which was unsuccessful in finding ore. In the description of land to be included in possible contracts the applicant includes all of the Hamme mine. No ground, such as present mine workings, is excluded. In order to define the areas that might be subject to Government royalty, the following boundaries are suggested. Coordinates refer to the east and north coordinate system on the applicant's composite mine level map, scale 1" = 100'. These boundaries are outlined in this report under "Project Boundaries" and are marked on the composite mine level map submitted with the application.

Project Boundaries
(Areas subject to Government royalty

Project A: All ground east of a vertical plane extending due north and south through 20,020N, 20,580E (present drift face).

Project B: All ground below 500 level; and south of a vertical plane extending due west from 20,060N, 19,600E (beginning of project B); and north of a vertical plane extending due west from 19,820N, 19,580E; and west of a vertical plane between 19,820N, 19,580E and 20,060N, 19,600E.

19,610E changed with approval of Wilhoite S.P.H. See p. 27

Project B-C-D:

All ground south of a vertical plane extending due west from 19,820N, 19,580E, and west of a vertical plane extending from 19,820N, 19,580E to 18,790N, 19,490E, and west of a plane that is inclined to the southeast 75 degrees from horizontal extending from 18,790N, 19,490E, to 16,745N, 18,360E; and north of a vertical plane extending due west from 16,745N, 18,360E.

Appendix B

Diamond Drill Hole Log Summary

Tungsten Mining Corp.

Hole No.	Footage	Log Summary	Assay % WO_3
164	319 - 320	quartz	
	at 330' base	4" quartz and fluorite	
	327 - 335	sericite schist	
433	149 - 168	sericite and quartz	
	at 153	1" thick huebnerite	
	213 - 215	schist and silexite	
425	164 - 210	sericite schist	
	at 180	huebnerite min.	
	194 - 200	quartz	
	255 - 263	quartz	
422	145 - 167	sericite schist	
	167 - 174	quartz and schist	
	174 - 176	sericite schist	
	176 - 177	quartz	
	177 - 178½	sericite schist	
	178½-179½	quartz	
	179½- 214	sericite schist	
365	166 - 178	sericite schist	
	178 - 179	quartz	
	179 - 180	sericite schist	
	180 - 183	tungsten mineralization	
	183 - 233	sericite schist	
	245 - 261	sericite schist plus quartz, fluorspar, pyrite, tungsten	
412	101 - 110	sericite schist	
	110 - 116	quartz and schist	
	116 - 130	sericite schist	
	157 - 158	quartz and pyrite	
	178 - 190	2' quartz with huebnerite and scheelite	
	188 - 190		0.42
416	225 - 235	quartz stringers and scheelite	
	245 - 248	mineralized quartz	
	253 - 254½	quartz and chlorite	
	306 - 311	mineralized quartz	
	307½- 310	quartz with huebnerite and scheelite	
	306½- 342½	sericite schist	

Hole No.	Footage	Log Summary	Assay % WO_3
382	91 - 114	schist	
	114 - 117	quartz, mineralized	0.11
	117 - 119	schist	
	132 - 150	schist	
	144 - 147½	quartz vein	
	177 - 184	mineralized quartz vein-scheelite	
514	48 - 49	mineralized quartz vein	
	54 - 71	quartz and pyrite, light huebnerite mineralization	
	120 - 130	quartz vein, sparsely mineralized	
516	45 - 70	quartz vein. Huebnerite at 70'	
	115 - 124	quartz and schist	
	136 - 152	silexite	
391	120 - 154	quartz with traces huebnerite	
	168 - 209	quartz stringers, barren	
	217 - 222	silexite	
451	150 - 180	sericite schist	
	180 - 215	quartz with traces huebnerite	
	250 - 253	schist with silexite	
457	114 - 240	diabase dike (vein cut out by dike)	
474	136 - 137	quartz	
	153½ - 155	quartz	
	178 - 250	diabase dike	
487	115 - 130	sericite schist	
	130 - 133	quartz	
	148 - 150	huebnerite in schist	
	160 - 183	sericite and quartz	
	184 - 208	sericite schist and sparse quartz	
497	128 - 152	sericite schist	
	144½ - 148½	quartz with huebnerite and scheelite	0.20
	179 - 198	diabase dike	
499	186 - 190	chlorite schist with about 50 percent quartz and diabase seams	
512	60 - 95	sericite schist and quartz	
	95 - 96	quartz	
	103 - 125	sericite schist and quartz	
503	188 - 191	quartz with 1-foot thick schist	
	195 - 199	sericite schist and dike seams	

Hole No.	Footage	Log Summary	Assay % WO_3
507	203 - 208	gneissic schist with quartz seams	
	208 - 210	diabase dike	
	210 - 231	see 203-208	
511	168 - 178	sericite schist	
	178 - 191	diabase dike	
	191 - 205	granite	
	205 - 218	diabase dike	
830	(hole located	on 900 level, horizontal hole)	
	209 - 214	quartz vein structure	
	210 - 213	quartz and huebnerite	
831	38 - 39	silexite	
	104 - 107	quartz, barren	
604	111 - 117	sericite schist with quartz, fluorspar and scheelite at 113'	
	125- 128	sericite schist with 3" quartz vein at 126'	
	210 - 216	sericite schist with few quartz seams, barren	
602	60 - 75	sericite schist with quartz at 68-70'	
	90 - 105	soft sericite schist. Quartz vein with 1" thick huebnerite at 97½-99	
595	57 - 66	mostly quartz, sparse huebnerite	
591	79 - 80	huebnerite plus sphalerite, galena, and pyrite	
	100 - 110	sericite schist	
	231 - 233	quartz	
	233 - 235	sericite schist	
	235 - 239	quartz	
584	90 - 100	vein structure with sparse huebnerite and scheelite at 91'	
	94 - 95	quartz	
	218 - 220	6" thick schist, 18" thick quartz	
610	107 - 109	sericite schist; 2" quartz at 108'	
	126 - 128	ser. schist plus huebnerite and scheelite	
	133 - 139	ser. schist with 1" thick quartz at 139	
	198 - 205	ser. schist with 6" thick quartz at 198, 5" thick quartz at 200'	
	243 - 244	quartz	

Hole No.	Footage	Log Summary	Assay % WO_3
811	180 - 192	quartz vein	1.79
799		scattered quartz, main structure unknown	
855		do do	
791	364 - 375	strong quartz vein structure	0.57
821	273½- 286	sericite schist with 6" thick quartz at 277½; 1½' thick quartz at 280½-282	
788	429 - 432	quartz vein with sericite schist 424-438	0.35
782	396 - 425	vein quartz. Assay 401-405½	0.86
770	350 - 369	sericite schist and vein quartz. Assay 356-362	0.60
832	180 - 181	vein structure, abundant huebnerite, some scheelite	
754	10 - 17	fair quartz, mineralized	
	30 - 40	sericite and vein quartz with huebnerite and scheelite	
	290 - 317	mineralized quartz	0.50
	317 - 319	diorite	
	319½- 323½	mineralized quartz	0.10
	323½- 326	sericite	
	326 - 330	mineralized vein	0.66
762	128 - 139	do do	0.32
	139 - 142	do do	16.20
	214 - 225	do do	1.57
706	284 - 345	mostly quartz; 4" fair scheelite and huebnerite at 304'; 6" thick scheelite and huebnerite at 308'	
719	253 - 259	mineralized vein	0.90
843		scattered veins, main structure unknown	
727	145 - 156	quartz with some sericite and traces of scheelite	
	214½- 222	quartz vein. Sparse scheelite and huebnerite	
733	245 - 250	mineralized vein, 2' thick sericite schist	0.16
741		scattered quartz veins, main structure unknown	

EXPLORATION PROJECT

The operator states in the application that operations would start within 30 days after date of a contract and be completed within 24 months. It is believed that work would start within 2 weeks after date of contract and could be completed in not to exceed 11 months.

On the basis of 25½ work days per month but making no allowance for out of ordinary delays the following schedule should quite accurately indicate time for completion of all four projects if all operate at the same time and an average advance of 4.4 feet per shift is maintained.

Project A - double shift, completion in 9.8 months 2200' drift

Project B - single shift, completion in 11.6 months 1300

Project C - single shift, completion in 10.7 months 1200

Project D - double shift, completion in 8.9 months. 2000

A short period of double shifts in B and C would insure the estimated 11 month completion.

DESCRIPTION OF PROJECT

The specifications relating to direction, location and extent of the drifts and crosscuts as submitted by the applicant are well drawn up and are satisfactory to the examiners. Following is an outline of these specifications.

Project A - Starting from the north face of the 900 level on No. 2 vein, a crosscut shall be driven on a N.80°E. bearing through the diabase dike and 40 or 50 feet beyond, to reach and intersect the full No. 2 vein structure. Drifting approximately N.35°E. on the vein structure will follow for 900 to 1000 feet to where the second diabase dike should be encountered. This second dike will be crosscut on a bearing of N.70°E., the far wall of the dike being

reached at about 120 feet; the crosscut to be continued until No. 2 vein is intersected which may be 40 or 50 feet beyond the dike. Thereafter drifting will continue on No. 2 vein for a distance of approximately 925 feet or until a total of 2200 feet of drifting and crosscutting shall have been accomplished.

To fully explore the width and mineralization of the vein zone it may be advisable to drive one or several short crosscuts from the drift. This may be done only after obtaining Government approval. Such crosscuts shall not increase the approved total footage of the project.

Provision has been made for 850 feet of timbering in crosscuts through the dikes and for use in the drift. It is probable that most of the timbering will occur in the dikes but timber is to be used only where necessary to maintain safe working conditions.

Provision has been made for installation of a ventilating fan and vent pipe as well as for a locomotive battery charging station which will be shared by project B.

Provision also has been made for 2000 feet of exploratory diamond drilling for possible use in locating the vein structure beyond the dike and also to explore the width of the shear zone. Drilling should be done at either the discretion of the operator or the Government representatives.

Project B - This project is to consist of a total of 1300 feet of drifting and crosscutting on the No. 3 vein structure on the 900 level. Only a very small amount of crosscutting is anticipated and shall be held to the minimum necessary to fully explore the structure and mineralization anticipated.

The project will start from the main shaft crosscut on the 900 level approximately at coordinate 20,060N. and 19,610E. After getting into the No. 3 vein zone by means of a long radius curve, the drift will follow

See p. 21

this zone on a bearing of approximately S.42°W. A total of 60 feet of timbering is provided for this project in the cost estimate. Fan ventilation and locomotive charging facilities shall be installed and maintained in conjunction with project A as provided in the cost estimate.

Provision has been made for 500 feet of diamond drilling to explore the full width of the shear zone.

Project C - This project provides for 1200 feet of drifting on the 900 level on the northward extension of No. 28 vein. Drifting will start approximately at coordinate 17,020N., 18,290E. and will follow 28 vein to the northeast for 1200 feet. The vein as now exposed has a mean strike of N.45°E. but probably will assume a more northerly strike. With Government approval a small amount of crosscutting may be done if necessary. Any crosscutting will not increase the total approved footage of the project.

A total of 60 feet of timbering is provided for in the cost estimate. Timber is to be used only where necessary to insure safe working conditions. A locomotive battery charging station shall be installed and operated in conjunction with project D as provided for in the cost estimate. Ventilation shall be provided by use of the fan and vent pipe in conjunction with Project D as provided for in the estimate of costs. Provision has been made for 500 feet of diamond drilling to test the width of the vein zone as considered advisable.

Project D - This project is to explore the Morton Estate No. 3 vein by crosscutting and drifting for a total of not to exceed 2000 feet. The project will be on the 900 level and crosscutting will start from the drift on 28 vein, more or less opposite the main crosscut and approximately at coordinate 16,995N., 18,265E. The crosscut will be on a bearing of N.65°W. The crosscut shall be driven to a maximum of 1400 feet or to the intersection of the crosscut with Morton Estate No.3 vein whichever occurs first. Other veins

may be found in crosscutting. After intersecting the No. 3 vein or having completed 1400 feet of crosscut, whichever occurs first, the balance of the 2000 foot maximum footage may be used for drifting on the No. 3 vein or on other veins encountered by the crosscut after obtaining consent of the Government regarding location and extent of drifting.

Provision has been made for 445 feet of timbering to be used only where necessary to insure safe working conditions. It is probable that most of the timber used will be in crosscutting the dike.

Ventilation is to be insured by installing and operating the fan and vent pipe as provided in the cost structure in conjunction with project C. The locomotive charging station shall be installed and operated in conjunction with project C as provided for.

Provision has been made for 1000 feet of diamond drilling to be used as necessary in guiding and controlling the tunnel work.

General Specifications for Projects A,B,C & D

Drifts and crosscuts shall have the minimum dimensions of 7 feet wide and $7\frac{1}{2}$ feet above top of rail. The 7-foot width is shown by measurement to be necessary to meet the $2\frac{1}{2}$-foot clearance required by North Carolina law as expressed in "Rules and Regulations Governing the Mining Industry," (North Carolina Dept. of Labor, June 23, 1942). The height is made necessary by the fact that the shovel lip of the Eimco 12B mucking machine at its maximum elevation is $6\frac{1}{2}$ feet above top of rail. A minimum of 1 foot clearance is allowed, making the $7\frac{1}{2}$-foot minimum above top of rail (Fig.9).

Timber sets shall consist of 8"x8" oak posts and caps and 2" or 3" top and side lagging as required. No sills are required. Timber sets will be spaced on 5-foot centers.

Turnouts for cars are included in cost per foot of tunnel. Turnouts shall provide for not less than 6 cars and shall be spaced at intervals of not to exceed 300 feet. ?

Provision has been made in costs for chip face samples to be taken across the mineralized width at intervals in the drift not to exceed 10', and to be assayed. If no mineral is present or the width is such that it is not minable, that interval will be marked appropriately on the monthly report map, regarding width and visual content of minerals. All samples are to be assayed in the company laboratory and the results reported on the monthly report map.

Diamond drill cores will be stored in the concrete company core storage building until they have been logged and released by the Government. Mineralized sections of core are to be split for assay, one half being retained in the core box and one half used for assay.

ALLOWABLE COSTS OF PROJECT

All revisions of costs were made in the presence of Mr. Sweet and the company cost accountant. Detail cost account sheets were available which in some way involved nearly each separate item included in the estimated costs submitted by the applicant. Detail items not applicable to this particular work were eliminated or given less weight. Mr. Sweet agreed that each revision of costs was equitable and that the work could be done under the costs developed.

The examiners are convinced that labor unit costs cannot be reduced. ? Review of the management-labor union agreement verifies the unit labor costs used by the applicant. Man-hours employed were reduced in a number of cases.

The company has a long-used bonus agreement with all drift miners and mucking machine operators which is a large factor in ultimate pay. This bonus system is involved and is considered important enough to warrant explanation and an example of its operation for one man. A number of individual pay sheets were examined to verify the general use and operation of this bonus system. Following are the factors controling the example:

(a) The entire mine works 6 days per week, the sixth day being overtime at $1\frac{1}{2}$ times regular rate

(b) The six-month average advance in drifts and crosscuts is 4.39 feet per ~~shirt~~ shift

(c) Regular pay is at the rate of $1.75 per hour

(d) The bonus is at the rate of $9.50 per foot advance (total for the team of 2 men).

He works a 48-hour week. 8 ÷ 4.39 = 1.822 man-hours per ft.

48 x $1.75 = $84.00 straight time

4.39' per shift x 6 = 26.34' advance in 6 shifts

$9.50 x 26.34' = $250.230 total at bonus for 2 men

$250.230 ÷ 2 = $125.115 " " " " 1 man

$125.115 ÷ 48 = $2.606 per hr. for first 40 hrs.

40 x $2.606 = $104.240 for 40 hrs.

$1\frac{1}{2}$ x $2.606 = $3.909 per hr. overtime

8 x $3.909 = $31.272 8 hrs. "

$104.240 + $31.272 = $135.512 total pay

$125.115 - $84.00 = $41.115 total bonus

$41.115 ÷ 26.34 = $1.561 bonus per ft.

$1.561 x 4.39 = $6.853 per shift bonus

15.167 per shift straight & overtime

$22.020 total per shift

$22.020 ÷ 4.39 = $ 5.015 total cost per ft. per man

All equipment cost was calculated as use cost on depreciation value of company-owned equipment.

The applicant will have to purchase rail, ties, water and air pipe but these costs have been calculated on depreciation value use basis.

Ventilation fans and battery charging stations will now be shared by two projects each. Ventilation pipe and blasting line are considered expendable.

Costs are based on man-hours, average total tons per day hoisted from the entire mine over a three-year period or average footage advanced per shift in drifts and crosscuts over the last six month period.

Timbering has been calculated on a basis of cost per drift foot where timbered.

After review of diamond drilling costs as submitted, the examiners have accepted those costs as being justified and reasonable.

For clarity and ease of comparison the examiner's estimate of costs is being submitted in the same form as they were compiled by the applicant. The recapitulation also follows the same form and is so arranged that each project may operate under its own costs or all four projects may operate under the average costs established and appearing at the right side of the sheet.

Contingencies have been calculated at 5 percent of the entire combined costs of the project, minus timbering and diamond drilling.

Estimate of Costs
PROJECTS A, B, C, and D

Recapitulation

TUNGSTEN MINING CORPORATION

	PROJECT - A			PROJECT - B			PROJECT - C			PROJECT - D			TOTAL		
	Feet	Per Ft. $	Amount $	Feet	Per Ft. $	Amount $	Feet	Per Ft. $	Amount $	Feet	Per Ft. $	Amount $	Feet	Avg.Per Ft. $	Amount $
DRIFTS and CROSSCUTS	2200			1300			1200			2000			6700		
(a) Independent Contracts		None	None		None	None		None	None		None	None		None	None
(b) Labor, Supervision, Consultants		15.763	34,678.60		15.763	20,491.90		15.763	18,915.60		15.763	31,526.00		15.763	105,612.10
(c) Operating Materials and Supplies		12.483	27,462.60		12.483	16,227.90		12.483	14,979.60		12.483	24,966.00		12.483	83,636.10
(d) Operating Equipment		2.676	5,887.20		2.676	3,478.80		2.676	3,211.20		2.676	5,352.00		2.676	17,929.20
(e) Rehabilitation and Repairs		None	None		None	None		None	None		None	None		None	None
(f) Installations		0.532	1,170.40		0.168	218.40		0.207	248.40		0.140	280.00		0.286	1,917.20
(g) Miscellaneous		4.316	9,495.20		4.316	5,610.80		4.316	5,179.20		4.316	8,632.00		4.316	28,917.20
TOTAL DRIFTS and CROSSCUTS	2200	35.770	78,694.00	1300	35.406	46,027.80	1200	35.445	42,534.00	2000	35.378	70,756.00	6700	35.524	$238,011.80
TIMBERING	850	$6.224	$5,290.40	60	$6.224	$373.44	60	$6.224	$373.44	445	$6.224	$2,769.68	1415	$6.224	$ 8,806.96
DIAMOND DRILLING	2000	$1.644	$3,288.00	500	$1.644	$822.00	500	$1.644	$822.00	1000	$1.644	$1,644.00	4000	$1.644	$6,576.00
TOTAL COST less Contingencies			$87,272.40			$47,223.24			$43,729.44			$75,169.68			$253,394.76
CONTINGENCIES @ 5% on $238,011.80															$ 11,900.59
TOTAL PROJECT															$265,295.35

Tungsten Mining Corporation
Henderson, N. C.

PROJECT - A

Drifting - - - - - - -	2200 Feet
Diamond Drilling - - - -	2000 Feet

Estimate of costs
DRIFTING (Timbering not included)

	Cost per foot $
(a) Independent contracts	None
(b) Labor, supervision, consultants	$15.763
(c) Operating materials and supplies	$12.483
(d) Operating equipment	$ 2.676
(f) Installations	$ 0.532
(g) Miscellaneous	$ 4.316
ESTIMATED TOTAL COST PER FOOT - Excluding Timber - PROJECT A	$35.770
2200 ft. @ $35.770	$78,694.00

Estimate of costs
TIMBERING DRIFT

	Cost Per Foot $
(b) Labor, supervision, consultants	$ 3.444
(c) Materials and supplies	$ 2.230
(g) Miscellaneous	$ 0.550
ESTIMATED TOTAL COST PER FOOT - TIMBERING DRIFT - PROJECT A	$ 6.224
850 ft. @ $6.224	$ 5,290.40

Tungsten Mining Corporation
Henderson, N.C.

PROJECT - A

Estimate of costs
DIAMOND DRILLING

	Cost per foot $	
(b) Labor, supervision consultants	$0.535	
(c) Operating, materials and supplies	$0.938	
(d) Operating equipment	$0.051	
(g) Miscellaneous	$0.120	
ESTIMATED TOTAL COST PER FOOT - DIAMOND DRILLING	$1.644	
2,000 ft. @ $1.644		$3,288.00

Note:

(1) Excavations for diamond drill stations as required and car switching track included in the 2200 feet of drifting.

(2) It is estimated that the drift and diamond drill stations will require timber, however, they will be timbered only as needed.

(3) Diamond drill footage of 2000 feet is the estimated maximum required. The actual footage drilled would be governed by the requirements as developed by the exploration work but not to exceed 2000 feet.

Tungsten Mining Corporation
Henderson, N.C.

PROJECT - A

Estimate of costs
DRIFTING

(a) Independent contracts - None

However, the costs include an estimated bonus of $1.561 per foot to be earned by both the miner and the muck machine operator.

(b) Labor, supervision, consultants.

	Salaries Rate/hr.	No.of Men	Man.Hr. per foot	Cost per foot $	Cost per foot $
Consultant	$100/day	1		.500	
Engineer	$447/mo.	4	part time	.703	
Supervision-Senior	$761/mo.	2	part time	.109	
Supervision-Shift Boss	$2.000/hr.	1	.266	.576	$1.888

LABOR	Basic rate per hr.	No.of Men	Man.Hr. per ft.	Bonus per ft.	Cost/ ft. $	Cost/ ft. $
Head track man	$1.80	1	.013		.025	
Miner	1.75	1	1.822	1.561	5.015	
Muck Mach.Oper.	1.75	1	1.822	1.561	5.015	
Pipeman-Air & Water	1.75	1	.073		.138	
Timberman-Ventilation	1.75	1	.080		.152	
Electrician	1.75	1	.004		.007	
Hoistman	1.75	1			.300	
Skiptender	1.75	1			.300	
Motorman	1.525	1	1.225		2.025	
Truck Driver	1.525	1	.108		.179	
Bulldozer Oper. Waste Dump	1.525	1	.019		.032	
Track Helper	1.525	1	.013		.022	
Elec. Helper	1.525	1	.004		.006	
Clean-up & Ditch Man	1.45	1			.200	$13,416
Allowance for side switches (3% x 15.304)						$ 0.459
Total - Labor, Supervision, Consultants						$15.763

Tungsten Mining Corporation
Henderson, N. C.

PROJECT - A

Estimate of costs (Cont'd)

(c) Operating Materials and Supplies - Purchased and expendable unless otherwise noted

	Cost per ft. $	Cost per ft. $
Powder - 52.3 sticks per ft.	3.256	
Caps - 5.3 per ft.	1.239	
Connecting wire - .07 roll per ft.	.065	
Bits and regrinds	3.276	
Drill steel	.359	
Oil and Lubrication	.036	
Small tools	.130	
Compressed Air	.891	
Water and air hose	.174	
Power, battery charger	.050	
Track, ties, switch, etc. Use cost	.212	
* 2" and 3" pipe with victaulic couplings-Use cost	.212	
* 16" vent pipe	1.700	
Power, ventilation fan	.305	
* Blasting line @ .035 per ft.	.035	
Power, hoisting	.121	
Gas, and oil, truck	.095	
Oil and fuel, bulldozer	.020	$12.176
Allowance for side switches .3% x($12.176 - *$1.947)		.307
Total Operating Materials and Supplies		$12.483

* These items deductible in calculation of side switches.

(d) Operating equipment - On depreciation basis

	Value $	Depreciation Cost per ft. $	
Drill DA-30 Rock Drill	1400.00	0.261	
Drill accessories	164.00	0.016	
Compressors 1-500 cfm-$4500, 1-315 cfm-$3500	8000.00	0.199	
Oiler, galvanometer	49.25	0.012	
Mine Lamps (3) MSA Rate		0.017	
Mucking Machine	3000.00	1.117	
Locomotive, charger and 2 batteries	7626.00	0.473	
Mine Cars (6) @ $510.50	3063.00	0.456	
Coffin Hoist	47.20	0.011	
TM 8 Fan (1)	615.00	0.114	$2.676

TOTAL, Operating Equipment - Depreciation Cost/ft. $2.676

PROJECT A

Estimate of Costs (Cont'd)

(2) Installation of booster fan and installing cable to fan.

Due to the distance that Project A will be driven from the nearest fresh air supply, a booster fan will be necessary. The first fan will be located at the crosscut to the shaft and the booster fan 1500 feet from that point.

(a) Independent contracts, None

(b) Labor, supervision, consultants

	Basic Rate $ hr. $	No. of Men	Man Hrs.	Cost $	Cost $
Timberman	1.75	1	4	7.57	
Timberman Helper	1.525	1	4	6.61	
Electrician	1.75	1	24	45.39	
Electrician Helper	1.525	1	24	39.63	$99.20

(c) Operating materials and supplies

Timber				2.40	
Switches, Electric				33.00	
Nails, Bolts, etc.				2.50	
Power, Cable, 3 ph., 60 V @ $1.29/ft.			1500'	967.50	$1005.40

(d) Operating equipment None - -
(e) Rehabilitation and repairs None - -
(f) New buildings, improvements, installations none - -
(g) Miscellaneous

		Accounting:			
		Purch.Agent, Warehouseman, Clerks	1.31		
		Stationery & Supplies	.27		
		Telephone and telegraph	.34	1.92	
7.81%/$100	Underground	Workmen's Compensation	1.67	1.67	
0.13%/$100	"	Liability Insurance	.05	0.05	
Company's 50%	"	Group Insurance	1.22	1.22	
Underground or Surface	--	Taxes, Payroll	3.79	3.79	
O.A.Benefit 2.0%		General Expenses:			
Fed.Excise Tax 0.3%		Foreman, Service Depts.	1.21		
N.C.Unemploy 1.7%		Service Maintenance	1.63		
Total 4.0%		Other-Shop, Freight & Safety	.59		
		Vacation and holiday pay	2.28	5.71	$14.36

(h) Contingencies - None -
Total Cost - Installation of booster fan $1,118.96

Total Cost per foot for Project A - 2200' $ 0.509
(less 37.14% of charging station (A and B)

TOTAL:-

(1) Installation of charging station in shaft area	$ 128.14
(2) Installation of booster fan,	1,118.96
Total - Project A	$1,247.10
Total Cost per Foot ($0.509 + $0.023)	$ 0.532

Tungsten Mining Corporation
Henderson, N. C.

Estimate of Costs (Cont'd)

(f) Installations

(1) Installation of locomotive battery charging station in shaft area. Shared in footage proportion with B.

(b) Labor:

	Basic Rate @ Hour $	No. of Men	Man-Hours	Cost $	Cost $
Timberman	1.75	1	16	30.26	
Timberman Helper	1.525	1	16	26.42	
Electrician	1.75	1	4	7.56	
Electrician Helper	1.525	1	4	6.60	$70.84

(c) Supplies:

Rail for coffin hoist	12.80	
Timber	20.00	
Switch, Electric	9.00	
Nails, bolts, etc.	2.50	$44.30

(g) Miscellaneous:

Accounting:			
Purch.Agent, Warehouseman, Clerks	.93		
Stationery and supplies	.19		
Telephone & telegraph	.24	1.36	
Undergr.Workmen's Comp.	4.02	4.02	
" Liability Insurance	.07	0.07	
" Group Insurance	.76	0.76	
Taxes, Payroll	2.70	2.70	
General Expenses:			
Foreman, Service Depts.	.87		
Service Maintenance	1.17		
Other-Shop, freight and safety	.42		
Vacation and holiday pay	1.63	4.09	$13.00

(h) Contingencies - None -

Total Cost - Insallation of charging station $128.14

Cost per foot for A and B $ 0.037

2200' is 62.86% of A + B

62.86% of 0.037 = 0.023 Cost for A

PROJECT A

Estimate of Costs (Cont'd)

(g) Miscellaneous	Cost per ft. $	Cost per ft. $
Repair to operating equipment		
Drill	.312	
Compressor	.023	
Mucking Machine	.088	
Mine Cars and Locomotive	.022	
Bulldozer	.030	$ .475
Maintenance of Operating Equipment		
Compressor	.080	
Mine cars & Locomotive	.022	
Hoist, cable, skips, etc.	.258	
Truck tires	.225	
Tractor operation (Bulldozer)	.020	$ .605
Assay - Drill Core	.030	$ .030
Assay - Drifts (minimum of every 10' where required)	.096	$ .096
Accounting		
Purch.Agent, Warehouseman, Clerks	.247	
Stationery & supplies	.049	
Telephone and telegraph	.061	$ .357
Workmen's Compensation	1.140	$ 1.140
Liability Insurance for entire Project A, outside of Fan & Charging Sta.Installations	.010	$ .010
Group Insurance	.123	$ .123
Taxes, Payroll	.613	$ .613
General Expenses		
Foremen, Surface Service Facilities	0.145	
Service Maintenance	0.179	
Shop, freight and safety	0.112	
Vacation and holiday pay	0.431	$ .867
Total		$ 4.316
Total Miscellaneous		$ 4.316

PROJECTS A-B-C-D

Timbering of Drifts, Crosscuts, and Diamond Drill Stations

Estimate of Costs

It is not known how much drift timbering will be required by the four Projects.

It is estimated that the cost of drift timbering in any of the four Projects or any part of them will be nearly constant and that the estimated cost per foot of timbering can be applied to all drift timbering.

The estimated cost of drift or crosscut timbering per lineal foot to be applied to all timbering as required and installed is as follows:

Cost Per Lineal Foot of Timbering

(a) Independent Contracts - None
(b) Labor, supervision, consultants

	Basic Rate Per Hr. $	No. of Men	Man-Hrs. Per Ft.	Cost per Ft. $	Cost per Ft. $
Timberman	1.75	1	0.796	1.509	
Timber Helper	1.525	1	0.796	1.320	
Timber Haul, Surf.	1.525	1	.095	0.157	
Timber Rustling, U.G.	1.45	1		0.314	
Timber Frame	1.325	1	.105	.144	$3.444

(c)	Materials and Supplies	2.230	$2.230
(d)	Operating equipment - None		-
(e)	Rehabilitation and repairs - None		-
(f)	New buildings, improvements, installations - None		

(g) Miscellaneous

Accounting			
Purch.Agent, Warehouseman, Clerks	0.052		
Stationery & Supplies	.010		
Telephone and telegraph	.013	.075	
Workmen's Compensation	.245	.245	
Liability Insurance	.005	.005	
Group Insurance	.032	.032	
Taxes, payroll	.012	.012	
General Expenses			
Foreman, Service Depts.	.030		
Service Maintenance	.037		
Other, Shop, freight & safety	.024		
Vacation and holiday pay	.090	.181	$0.550
Total cost - Timbering per lineal foot			$6.224

PROJECTS A-B-C-D

DIAMOND DRILLING

A cost for a possible maximum of diamond drill footage of 4,000 feet is included under Project A, B, C, and D. The 4,000 feet is the estimated maximum footage required and is included in the respective four Projects as follows:

	Feet	Cost $
Project A	2,000	$3,242.00
Project B	500	810.50
Project C	500	810.50
Project D	1,000	1,621.00
Total	4,000	$6,484.00

The Cost per foot for Diamond Drilling is as follows:

Estimate of Costs.

(a) Independent contracts - None

(b) Labor, supervision, consultants

	Basic rate per Hr. $	No. of Men	Man-Hrs. per ft.	Cost/ ft. $	Cost per ft. $
Diamond Driller	1.75	1	.249	.477	
Engineers				.058	$0.535

(c) Operating materials and supplies:

Bits - Reset				.464	
Bits - New				.263	
Drill Rods - Core lifters				.049	
Rod Grease- lubrication				.012	
Compressed Air				.115	
Core boxes				.035	$ .938

(d) Operating Equipment

Diamond Drill and Rod Puller - $1077					
8% x $1077 ÷ 1680 ft.				.051	$ .051

(e) Rehabilitation and repairs - None -

(f) New buildings, improvements, installations - None -

(g) Miscellaneous

Repair Labor	.009	.009	
Repair Parts	.017	.017	
Accounting:			
Purch.Agent,Clerk,Warehouseman	.007		
Stationery and supplies	.001		
Telephone and telegraph	.002	.010	
Workmen's Compensation	.031	.031	
Liability Insurance	.001	.001	
Group Insurance	.004	.004	
Taxes - payroll	.018	.018	$ .090
Foreman, Service Depts.	.007		
Service Maintenance	.008		
Other, Shop, Freight & Safety	.003		
Vacation and holiday pay	.012		$ .120

(h) Contingencies - None -

Total Diamond Drill Cost per foot $1.644

Tungsten Mining Corporation
Henderson, N. C.

PROJECT - A

Drifting - 2200 feet

Diamond Drilling - 2000 feet

Estimate of Costs

Summary of Costs

Drifting	2200' @ $35.770	$78,694.00
Timbering	850' @ 6.224	5,290.40
Diamond Drilling	2000' @ 1.644	3,288.00
	Total Cost - Project A	$ 87,272.40

PROJECT - B

Drifting - - 1300 feet

Diamond Drilling 500 feet

Estimate of Costs

Summary of Costs

Drifting	1,300' @ $35.406	$46,027.80
Diamond Drilling	500' @ 1.644	822.00
Timbering	60' @ 6.224	373.44
	Total Cost - Project B	$47,223.24

Drifting cost per foot - same as for Project A, excepting cost of item 6(f) Installations, for which detailed costs are given below.

Diamond drilling cost per foot - same as for Project - A

6(f) Installations Charging Station for Project A will also serve for Project B and costs have been allocated to A & B separately : 37.14% of 0.037 = Cost of B installations, per ft. - - $0.014

PROJECT - B

(2) Installation of ventilation fan TM-8

(a) Independent contracts - None

(b) Labor, supervision, consultants

	Basic Rate @ Hr. $	No. of Men	Man-hrs.	Cost $	Cost $
Timberman	1.75	1	4	7.56	
Timberman Helper	1.525	1	4	6.60	
Electrician	1.75	1	4	7.56	
Electrician Helper	1.525	1	4	6.60	$28.32

(c) Supplies

Timber				2.40	
Switches, Electric				33.00	
Nails, bolts, etc.				2.50	
Power cable #4, 3-ph.,600 V.@ $1.25/ft.,100'				129.00	$166.90

(d) Operating equipment - None -

(e) Rehabilitation and repairs - None -

(f) New buildings, improvements, installations - None -

(g) Miscellaneous

Accounting			
Purch.Agent,Warehouseman,Clerks	0.39		
Stationery & Supplies	0.08		
Telephone and Telegraph	0.10	0.57	
Workmen's Compensation	1.14	1.14	
Liability Insurance	0.02	0.02	
Group Insurance	0.30	0.30	
Taxes - payroll	1.08	1.08	
General Expenses			
Foreman, Service Depts.	0.37		
Service Maintenance	0.49		
Other - Shop, Freight & Safety	0.18		
Vacation and holiday pay	0.68	1.72	4.83

(h) Contingencies - None - -

Total cost - Install TM-8 Fan - $200.05

Total cost per foot - Project B, 1300 ft. $ 0.154

6 (f) Total: -

Installation of ventilation fan TM-8		$200.05
Ventilation fan, cost per foot	$0.154	
Cost per foot, portion of Charging Station listed under A	0.014	
Total Installations B	$0.168	

PROJECT - C

Drifting - - 1,200 Feet

Diamond Drilling - 500 Feet

Estimate of Costs

Summary of Costs:

Drifting	1200 ft. @ $35.445	$42,534.00
Diamond Drilling	500 ft. @ 1.644	822.00
Timbering, 60 ft. @ $6.224		373.44
Total cost Project C		$43,729.44

Drifting cost per foot - same as for Project A, excepting cost for item 6(f) Installations.

Diamond drilling cost per foot - same as for Project A.

6(f) Installations

(1) Installation of battery charging station at shaft area. Distributed to C & D as indicated below on footage basis, 6(f) (1), Project A.

Cost - - - - - - - - - - - - - - - - - - $48.05

(2) Installation of ventilation fan, TM-8
Same cost as for 6 (f) (2), Project B,

Cost - - - - - - - - - - - - - - - - - - $200.05

6(f) Total

(1) Installation of battery charging station at shaft area	$48.05
(2) Installation of ventilation fan, TM-8	200.05
Total Cost 6(f), Project C plus D	$248.10
Cost per foot, 1200 feet, Project C	$ 0.207

Cost of Charging Station, prorated to C & D by footage C = 37½%, D = 62½%

Tungsten Mining Corporation
Henderson, N. C.

DMEA-4216

PROJECT - D

Drifting, Crosscutting - - 2,000 Feet

Diamond Drilling - - 1,000 Feet

- - - - - - - -

Estimate of costs

Summary of Costs:

Drifting, crosscutting	2,000 ft. @	$35.378	$70,756.00
Timbering	445 ft. @	6.224	2,769.68
Diamond Drilling	1,000 ft. @	1.644	1,644.00
Total Cost - Project D			$75,169.68

Drifting cost per foot - same as for Project A, excepting cost for Item 6(f) Installations.
Diamond drilling cost per foot - same as for Project A.

Timbering cost per foot - would be the same as for Project A.

6(f) Installations

(1) Installation of battery charging station at shaft area
Proportionate part of C and D.

Cost - - - - - - - - - - - - - - - $80.09

(2) Installation of ventilation fan, TM-8
Same cost for 6(f) (2) Project B

Cost - - - - - - - - - - - - - - - $200.05

6 (f) Total:

(1) Installation of battery charging station at shaft area	$ 80.09
(2) Installation of ventilation fan, TM-8	200.05
Total Cost 6(f) Project D	$280.14
Cost per foot, 2000 feet	$ 0.140

Cost of charging station prorated to C & D by footage C = 37½%, D = 62½%.

W. P. Williams
W. P. Williams,
Geological Survey

H. L. Burmeister
H. L. Burmeister,
U. S. Bureau of Mines

June 19, 1956

DOCKET
SURNAME
Holt
400 Martin

JUN 25 1956

Tungsten Mining Corporation
Box 81
Henderson, North Carolina

Re: Docket No. RMSA 4216 - Tungsten
Hamme Mine
Vance County, North Carolina

Gentlemen:

This will acknowledge receipt of your letter of June 18, 1956, concerning "Consent to Lien" forms required in connection with the above-subject application.

We note the difficulty you anticipate in securing signatures to such forms. Therefore, if a contract should be approved, we would accept, in lieu of our usual requirement of Consents to Lien, a Performance Bond, on Standard Form 25 (as prescribed by General Services Administration Regulation No. 5), which form may be secured from any surety company. The amount of the bond cannot be stated exactly in advance of preparation of a contract, but it would closely approximate the Government's share of the cost of work to be done in that portion of the leased lands on which Consents to Lien are not provided.

We cannot advise you as to the cost thereof, since costs vary with different companies, and for each company may vary between different applicants, depending on their financial standing.

Sincerely yours,

C. O. Mittendorf

Administrator

SPHOLT/foc 6/25/56
cc to: Docket
Code 400
Admr. Read. File
Operating Comm.
FT. REG. V
Messrs. R. W. Holliday, USBM
T. H. Kiilsgaard, USGS

RSS

SPH

Pls see me

WSM

6/19/56

Richards says send it up with a request for legal to prepare answer.

He says if we are satisfied as to the reliability of the company owners amount of dues could be waived.

Docket.

TUNGSTEN MINING CORP.

BOX 81
HENDERSON, N. C.
TELEPHONE NO. 4139

June 18, 1956

RECEIVED
JUN 19 1956

Mr. C. O. Mittendorf, Administrator
Defense Minerals Exploration Administration
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-4216
Tungsten - Hamme Mine
Vance County, North Carolina

WSM

Dear Mr. Mittendorf:

This is written in respect to the "Consent to Lien", Forms MF-203, required to be filed with our application as covered by the captioned subject.

We anticipate some difficulty in obtaining the necessary signatures to this form from the thirteen different owners of the two concerned properties. Of even date, I discussed this matter by phone with your Mr. H. L. Burmeister and Mr. W. S. Martin as to a possible alternative for us in lieu of the requirement of obtaining the signatures of the owners of these two properties. Mr. Martin suggested that I submit the details of this matter in writing for your consideration.

Two of the proposed projects are within the Morton property on which this company has a 99-year lease to the mineral rights and a third project is within the Sneed property on which this company owns 13/14ths of the mineral rights and has a 99-year lease on the remaining 1/14th of the mineral rights.

The owners of the Morton property number ten and of the Sneed property three. These thirteen owners are residents in three different states and to obtain their necessary signatures would require considerable time. Also, we believe that we may encounter difficulty, in any case a considerable delay, in obtaining some of the signatures.

In view of these conditions, we will appreciate receiving your advice and opinion as to an alternative procedure that we may follow in lieu of obtaining the signatures of the owners. Also, we would appreciate your advice, if available, what the cost would be to us of your recommended alternative procedure.

Thanking you for your consideration of this matter in our behalf and for your early advice, I am

Very truly yours,

TUNGSTEN MINING CORPORATION

J. R. Sweet

J. R. Sweet
Vice-President & General Mgr.

JRS:fnj

DOCKET
SURNAME
400 Chapman
Martin
Nelson
Selfridge
Fleming

APR 5 1956

Mr. Robert A. Laurence, Executive Officer
DMEA Field Team, Region V
Room 13, Post Office Building
Knoxville 2, Tennessee

Re: Docket No. DMEA 4216 - Tungsten
Tungsten Mining Corporation
Hanson Mine
Vance County, North Carolina

Dear Mr. Laurence:

The above-docketed application for exploration assistance is being referred to your office for a field examination of the property.

The application is well presented, but it appears to us that the drifting costs are high and should be carefully investigated. Also instead of 4 projects we believe that the operation should be carried on as one project.

Copies of memoranda dated March 20 and 22, 1956, by N. E. Nelson, Geological Survey, and R. W. Holliday, Bureau of Mines, respectively, relating to the project are enclosed.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee GCS

Enclosure

APPROVED:

/s/ Robert W. Geehan
Member, Bureau of Mines GCS

N. E. Nelson
Member, Geological Survey GCS

TLChapman:foc 4/4/56
cc to: Docket
Code 400
Admr. Read. File
Operating Comm.
PT. REG. V
N. E. Nelson, USGS
R. W. Holliday, ~~USGS~~ USBM

R.C.B.

DOCKET
SURNAME
400 Chapman
Martin
Gechen
Nelson
Selfridge
Hyman

APR 5 1956

Mr. J. R. Sweet, Vice-President
and General Manager
Tungsten Mining Corporation
Box 81,
Henderson, North Carolina

Re: Docket No. DMEA 4216 - Tungsten
Hamme Mine
Vance County, North Carolina

Dear Mr. Sweet:

The above-docketed application for exploration assistance for tungsten ores has been reviewed by the Iron and Ferro-Alloys Division of the Defense Minerals Exploration Administration and is being referred to Mr. Robert A. Laurence, Executive Officer, DMEA Field Team, Region V, Room 13, Post Office Building, Knoxville 2, Tennessee, for a field examination of the property.

Any assistance that you may give the members of the Field Team will be appreciated.

Sincerely yours,

C. O. Mittendorf

Administrator

TLChapman:fec
404-56
cc to: Docket
Code 400
Admr. Read. File
Operating Comm.
FT. REG. 5
N. E. Nelson, USGS
R. W. Holliday, USBM

R.C.L.

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

March 22, 1956

Copy retained 400

WBM

Memorandum

To: Chief, Iron and Ferroalloys Division - DMEA
Through: Chief, Branch of Ferrous Metals & Ferroalloys

From: Commodity Specialist - Tungsten

Subject: Application
Docket No. DMEA 4216
Hamme Mine
Vance County, North Carolina
Tungsten Mining Corporation
Box 81, Henderson, North Carolina
$345,984.23-Tungsten

Subject application proposes 6,700 feet of drifts and cross cuts and 4,000 feet of diamond drilling, divided among projects A, B, C and D all on the 900 foot level.

The application is carefully prepared and it seems unlikely that any question will be found regarding feasability or geological evidence.

If funds are available the amount of expenditure proposed should not be an adverse factor. Work will be more efficient and the findings better correlated as a result of conducting the four projects concurrently. At the present rate of production, and present price gross income from the Hamme mine is on the order of 9 to 10 million dollars per year.

It should be determined whether the cost of drifting and cross cutting is too high and what maximum size should be financed by DMEA funds.

The application states that present ore reserves are in the range of 1,276,660 tons. At the rate of mining, 1,000 tons per day,

this would be about four years of reserves without any additional development. There is then, a question as to whether new ore could reasonably be expected to be mined within the ten year period of Government liens.

It is recommended that subject application be referred to the field team.

R W Holliday

R. W. Holliday

Docket

IN REPLY REFER TO:

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

RECEIVED
MAR 20 1956

March 20, 1956

Re: DMEA 4216
Tungsten Mining Corp.
Hamme Mine
Vance Co., N. C.
$345,984.23 - Tungsten

Copy retained 400

Copy retained 400

WSM

Memorandum

To: W. S. Martin, Defense Minerals Exploration Administration

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of application.

The applicant requests assistance on four exploration projects on the 900-foot level of a mine from which a large production is now being obtained. The projects are:--

Project	Item	Feet	Cost/ft.	Est. Cost	
A	Drifting	2200	$47.61~~8~~ ?	$104,761.00	
	Timbering	2200	10.825	23,815.00	
	Diamond drilling	2000	1.644	3,288.00	
					$131,864.00
B	Drifting	1300	$46.936	$ 61,017.45	
	Timbering	--	--	--	
	Diamond drilling	500	1.644	822.00	
					$ 61,839.45
C	Drifting	1200	$46.885	$ 56,262.59	
	Timbering	--	--	--	
	Diamond drilling	500	1.644	822.00	
					$ 57,084.59
D	Drifting	2000	$46.776	$ 93,552.19	
	Timbering	--	--	--	
	Diamond drilling	1000	1.644	1,644.00	
					$ 95,196.19
				Grand Total	$345,984.23

Project A work as proposed will explore the northerly continuation of the southeasterly dipping No. 2 vein shear zone. Outcrops suggest the zone is continuous. The proposed work is

probably 400 feet, perhaps more, below diamond drill intersections of which no detailed information is given. The outcrops and drill hole intersections furnish a reason and a definite target for the proposed work.

Project B, unlike A, as proposed will explore 'virgin territory' in search for a possible southwesterly extension of the No. 3 vein shear zone. The target is general.

Project C will explore at an intermediate elevation the upward extension of a newly discovered high grade vein zone, No. 28 vein. The vein is in the footwall of the No. 2 vein zone, and is tentatively correlated with the Morton 1A vein which shows in outcrops and probably in diamond drill holes.

Project D will explore a vertical to steeply northwesterly dipping structure, known in outcrops and drill holes. The project work will be from 550 to 750 feet below drill hole intersections.

Referral to the Field Team is recommended.

N. E. Nelson

N. E. Nelson

March 15, 1956

Tungsten Mining Corporation
Box 81,
Henderson, North Carolina

Subject: DMEA-4216
Re: Exploration Assistance
Hamme Mine

Gentlemen:

The receipt of your application dated March 14, 1956 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-4216 and referred to the Iron & Ferro Alloys Division.

Kindly identify all future correspondence relating to your application by this docket number.

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

60932

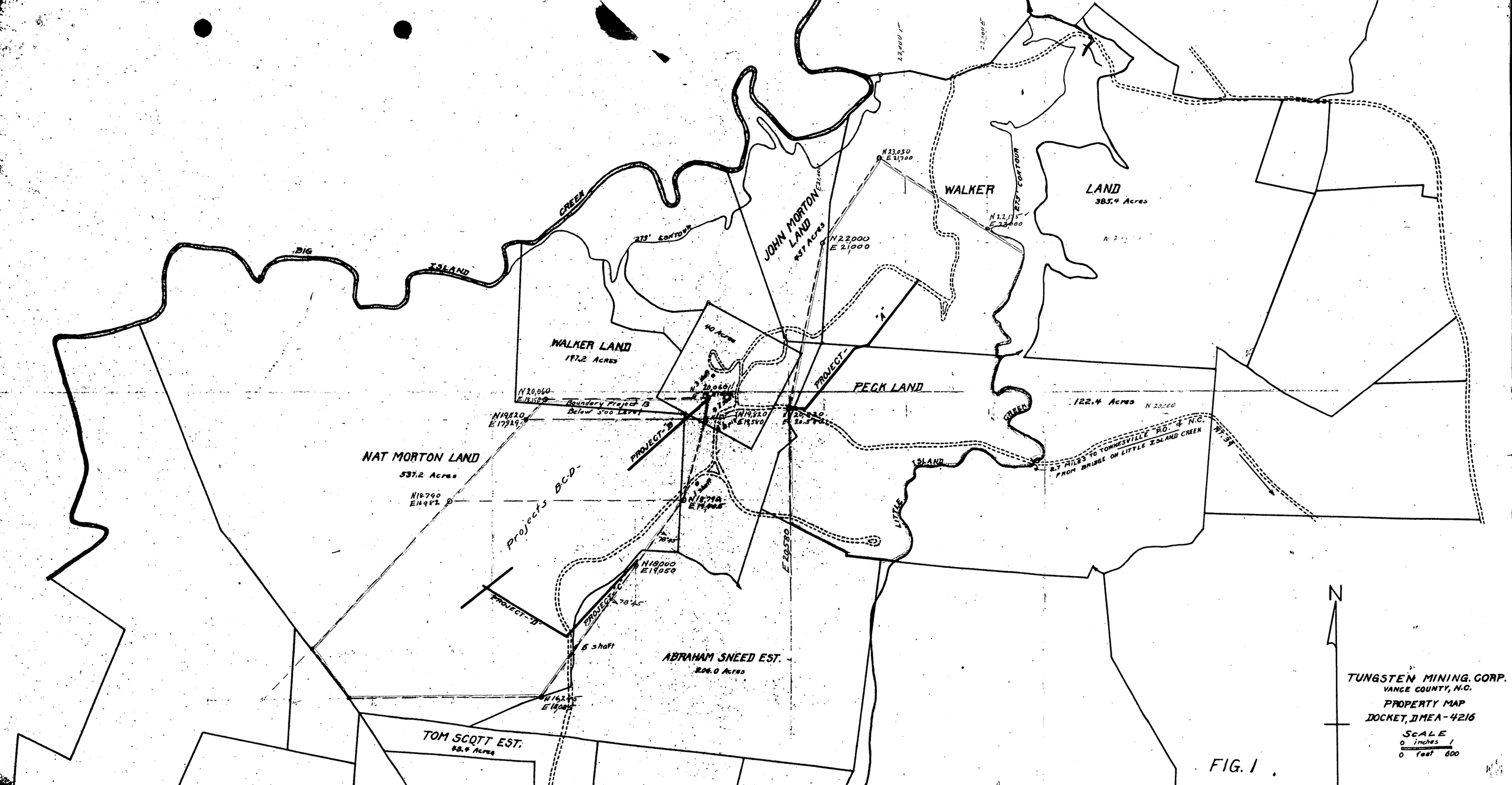
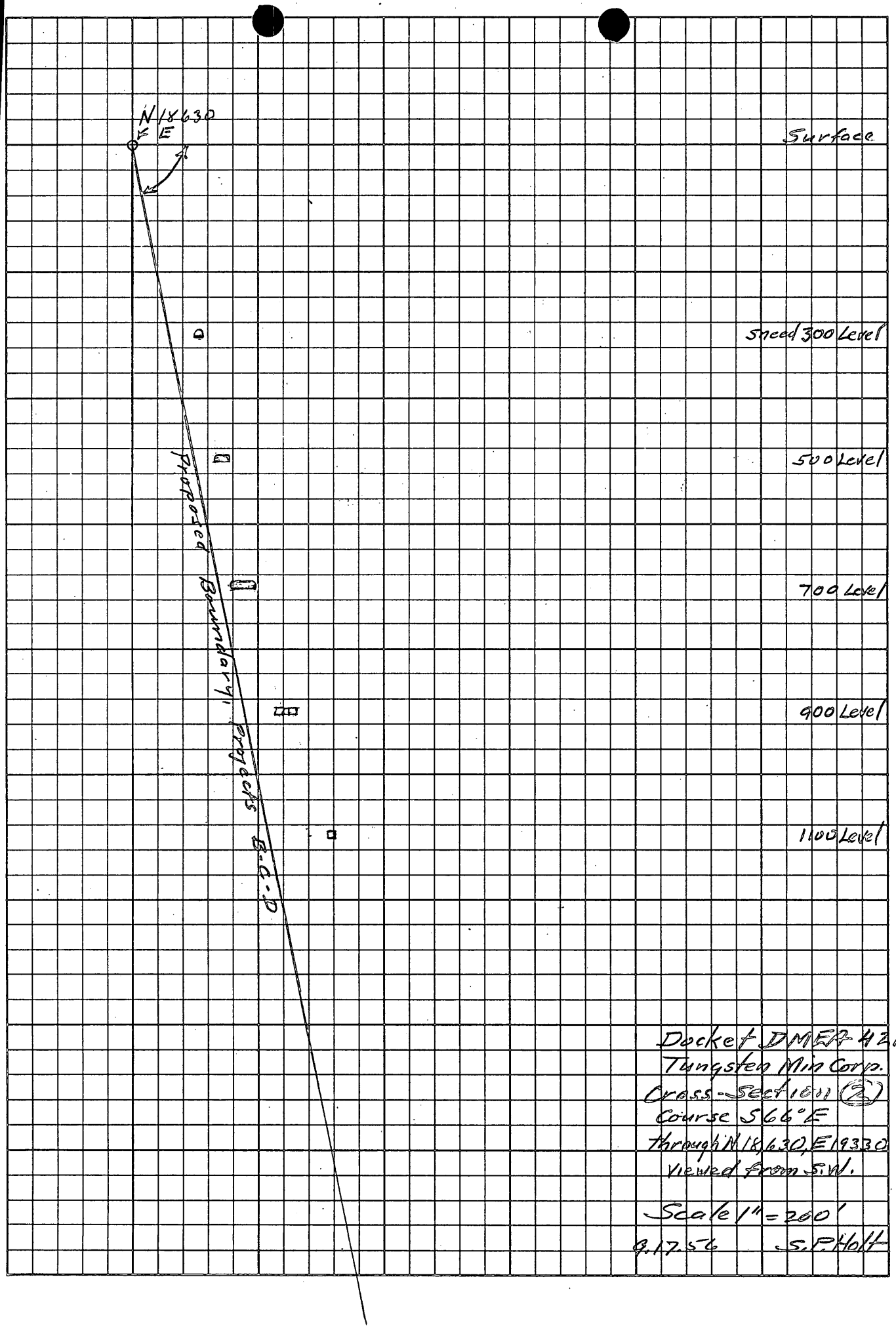
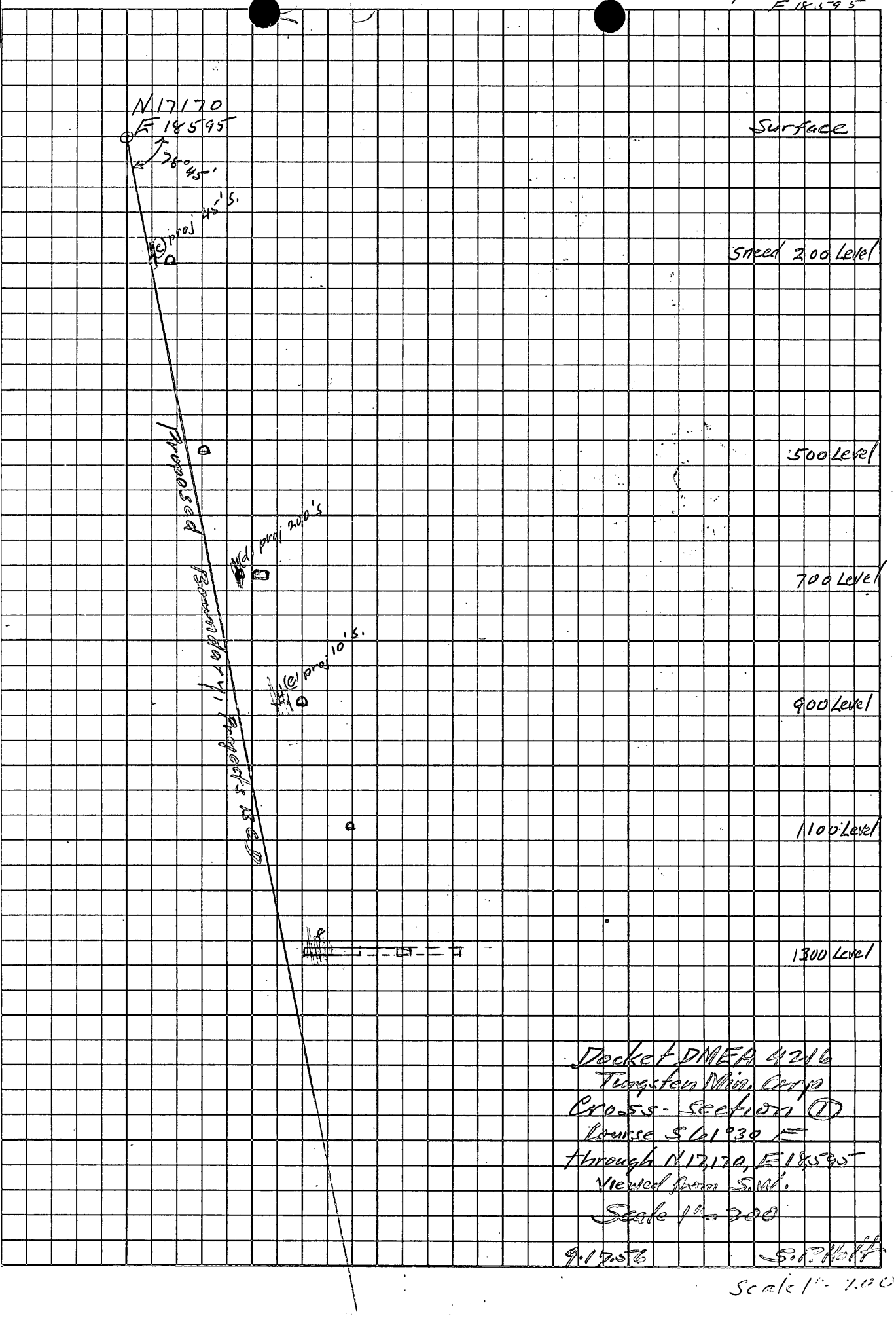

BIG ISLAND CREEK
WALKER LAND
197.2 Acres
JOHN MORTON LAND
457 Acres
WALKER LAND
385.4 Acres
PECK LAND
122.4 Acres
NAT MORTON LAND
537.2 Acres
ABRAHAM SNEED EST.
206.0 Acres
TOM SCOTT EST.
48.4 Acres
Projects B.C.D.
PROJECT "B"
PROJECT "C"
PROJECT "D"
PROJECT "A"
Boundary Project B Below 500 Level
40 Acres
275' CONTOUR
EAST CONTOUR
LITTLE ISLAND CREEK
2.7 MILES TO TOWNESVILLE P.O. & N.C. HWY. 34 FROM BRIDGE ON LITTLE ISLAND CREEK
N 23,050 E 21,700
N 22,000 E 21,000
N 20,060 E 18,150
N 19,820 E 17,929
N 19,820 E 19,560
N 18,790 E 16,982
N 18,000 E 19,050
N 16,245 E 18,085
E 20,580
78°45'
6 shaft
N
TUNGSTEN MINING CORP.
VANCE COUNTY, N.C.
PROPERTY MAP
DOCKET, DMEA-4216
SCALE
0 inches 1
0 feet 600

FIG. 1.


N 18630
E
Surface
Sneed 300 Level
500 Level
700 Level
900 Level
1100 Level
Proposed Boundary Projects B-C-D
Docket DMEP-4216
Tungsten Min Corp.
Cross-Section (2)
Course S66°E
through N18,630, E19330
Viewed from S.W.
Scale 1" = 200'
9.17.56
S.P. Holt

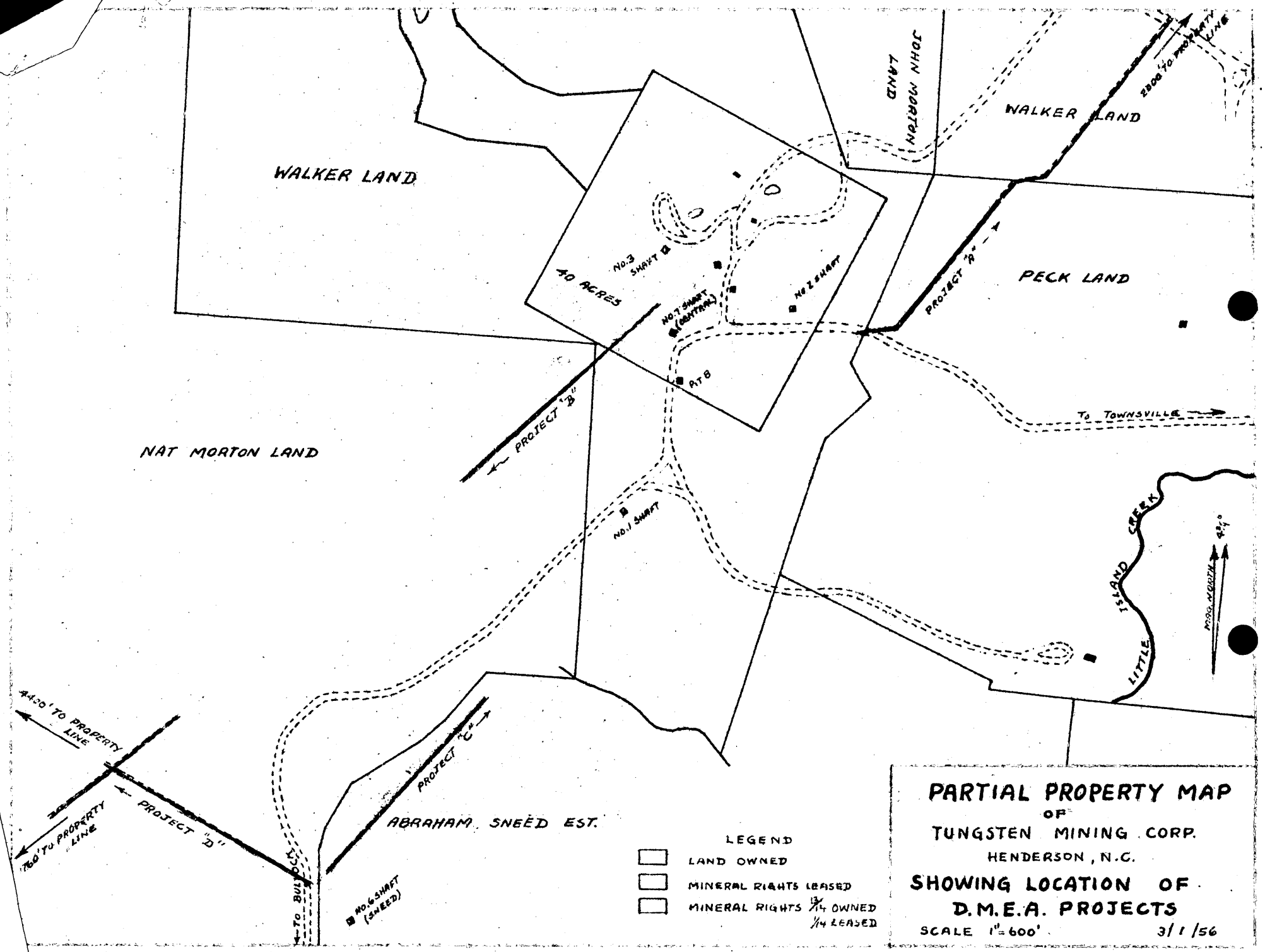
Course S61°00'E
through N17170
E18595

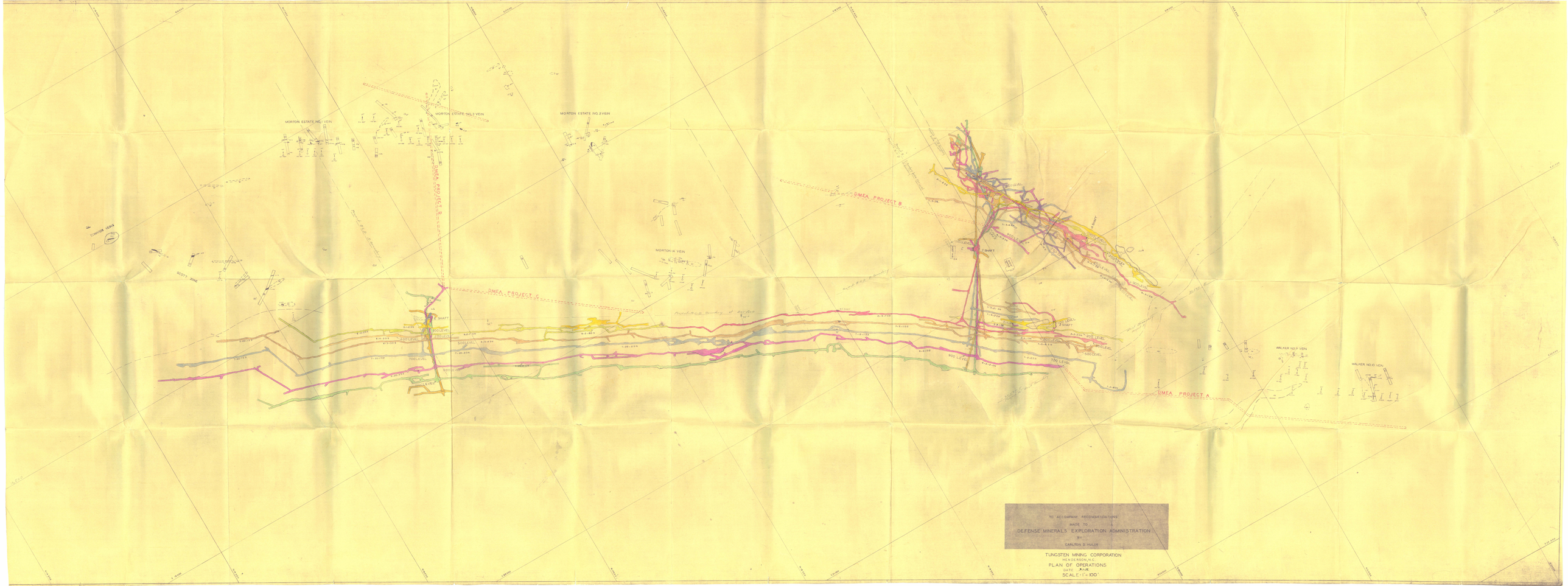


Docket DMEA 4216
Tungsten Min. Corp
Cross-Section ①
Course S61°30 E
through N17170, E18595
Viewed from S.W.
Scale 1" = 300

9.17.56 S.D. Pfaff

Scale 1" = 100


WALKER LAND
WALKER LAND
JOHN MORTON LAND
2800' TO PROPERTY LINE
PECK LAND
PROJECT "A"
40 ACRES
No.3 SHAFT
No.2 SHAFT
No.7 SHAFT (CRITTAN)
PIT 8
PROJECT "B"
NAT MORTON LAND
To TOWNSVILLE
No.1 SHAFT
ISLAND CREEK
LITTLE
MAGN. NORTH
4400' TO PROPERTY LINE
760' TO PROPERTY LINE
PROJECT "D"
PROJECT "C"
ABRAHAM SNEED EST.
To BUILDING
No.6 SHAFT (SNEED)
LEGEND
LAND OWNED
MINERAL RIGHTS LEASED
MINERAL RIGHTS 3/4 OWNED 1/4 LEASED
PARTIAL PROPERTY MAP
OF
TUNGSTEN MINING CORP.
HENDERSON, N.C.
SHOWING LOCATION OF
D.M.E.A. PROJECTS
SCALE 1"=600'
3/1/56


MORTON ESTATE NO. 1 VEIN
MORTON ESTATE NO. 3 VEIN
MORTON ESTATE NO. 2 VEIN
MORTON 1A VEIN
DMEA PROJECT D
DMEA PROJECT C
DMEA PROJECT B
DMEA PROJECT A
WALKER NO. 9 VEIN
WALKER NO. 10 VEIN
1 SHAFT
2 SHAFT
3 SHAFT
100 LEVEL
200 LEVEL
300 LEVEL
400 LEVEL
500 LEVEL
600 LEVEL
700 LEVEL
800 LEVEL
900 LEVEL
TO ACCOMPANY RECOMMENDATIONS
MADE TO
DEFENSE MINERALS EXPLORATION ADMINISTRATION
BY
CARLTON D. HULLIN
TUNGSTEN MINING CORPORATION
HENDERSON, N.C.
PLAN OF OPERATIONS
DATE
SCALE: 1" = 100'