340

FILE COPY
SURNAME:

Holderer

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

G.E.C.

AUG 22 1951

Mr. H. A. Ingraham
14300 Vandelia Street
Dallas
Texas

In reply please refer to
DMA-1404X

Dear Mr. Ingraham:

In answer to your letter of August 14, 1951, we wish to inform you that once an application is filed with the Government it becomes the property of the Government.

Therefore, we regret we must deny your request.

Very truly yours,

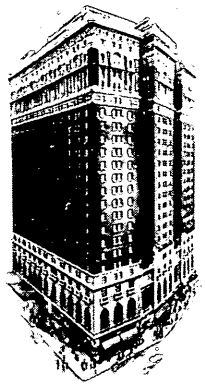
BJ
8/22

George B. Holderer

George B. Holderer
Chief, Tungsten Branch

CHJacoby:ec
August 21, 1951

CC: Adm. Reading File
Reports & Records Unit
Mr. Holderer
Files



HOTEL McALPIN

A KNOTT HOTEL

BROADWAY AT 34TH STREET · NEW YORK I·N·Y·

ONE BLOCK FROM PENNSYLVANIA STATION

CABLE ADDRESS
HOTALPIN NEW YORK

Aug.,14,1951

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 14 1951

Mr.George B.Holderer,Chief,
Tungsten Branch,
Defense Minerals Administration,
Washington,D.C.,

Dear Mr.Holderer, RE- DMA 1404 X

Your letter of the 6th.,has been forwarded to me here and I appreciate your frank statements.

We will pass up the Boericke or "Primos" option.

As to the placer,we will carry on with that in any event,but the amount involved is small to start with. The funds required will be determined as we progress,and of course will only be in proportion to what we can actually prove is recoverable.

Therefore,will you please withdraw and return to me here,all four copies of our application.

Many thanks for your very kind and courteous treatment.

Yours truly,

H.A.Ingraham

HAI.Tg

H.A.Ingraham

Hotel McAlpin

New York City,N.Y.

FILE COPY
SURNAME:

340 Holdsm

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

August 6, 1951

Mr. H. A. Ingraham
Stevens, Pendergast & Ingraham
4300 Vandelia Street
Dallas, Texas

In reply please refer to
DMA-1404-X — Tungsten

Dear Mr. Ingraham:

Thank you for the production figures that you obtained from Primos Chemical Company showing output from their properties in the Little Dragoon district, Cochise County, Arizona.

The total output shown from June 1915 to April 1951 amounts to 10,545 to 12,346 units of WO_3, calculated from the extremities of the grade range shown in the Company's figures. Examination of the Bluebird Hill workings by the Geological Survey in 1943 indicated that about 7,000 tons had been stoped, and that of this only 10 to 15 per cent was vein matter, for the veins only averaged about 6 inches thick. Assuming the content of WO_3 in the vein quartz at 2.0 per cent, a generous figure, the total production might have been 2,000 units from 1,505 tons of quartz. The balance of the output from the property must have come from the placer workings.

We have considered your proposal to drive an adit 800 feet long beneath the Bluebird workings at a cost of $16,000 (probably a low figure at current costs), and are of the opinion that the work proposed is not justified by the expectable target. You have not presented any survey demonstrating the feasibility of the adit in relation to topography and have not taken into account the substantial amount of underground work done on the property since the date of Mr. Hershey's report in 1915. The claim is now opened by about 1,300 feet of drifts, 350 feet of crosscuts, four 30-foot winzes, one 40-foot raise, and some small stopes. Therefore, we believe that you should reconsider your proposal unless you can present a stronger justification for the adit, we shall deny the request.

The information we have is insufficient to permit evaluation of the placer proposal. It will be necessary for you to supply us with more information showing results of preliminary sampling by yourself or others. These results should, of course, be expressed in pounds of WO_3 rather than in dollars. Then we should have a map showing precisely what work you propose to do toward evaluating the placer. Your statement in answer to question 21 of the application is not specific enough.

It appears to us that small-scale operations on the placer might be profitable, but that discovery of sufficient material to warrant bringing water 10 miles from Wilcox playa is not likely.

Very truly yours,

George B. Holderer

George B. Holderer
Chief, Tungsten Branch

GBHolderer:awj

cc:File
Adm. Reading File
Reports & Records Unit
Mr. Holderer
Field Team IV

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

340

August 6, 1951

Mr. H. A. Ingraham
Stevens, Pendergast & Ingraham
4300 Vandelia Street
Dallas, Texas

In reply please refer to
DMA-1404-X — Tungsten

Dear Mr. Ingraham:

Thank you for the production figures that you obtained from Primos Chemical Company showing output from their properties in the Little Dragoon district, Cochise County, Arizona.

The total output shown from June 1915 to April 1951 amounts to 10,545 to 12,348 units of WO_3, calculated from the extremities of the grade range shown in the Company's figures. Examination of the Bluebird Hill workings by the Geological Survey in 1943 indicated that about 7,000 tons had been stoped, and that of this only 10 to 15 per cent was vein matter, for the veins only averaged about 6 inches thick. Assuming the content of WO_3 in the vein quartz at 2.0 per cent, a generous figure, the total production might have been 2,000 units from 1,[illegible] tons of quartz. The balance of the output from the property must have come from the placer workings.

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It appears to us that small-scale operations on the placer might be profitable, but that discovery of sufficient material to warrant bringing water 10 miles from Wilcox playa is not likely.

Very truly yours,

George B. Holderer

George B. Holderer
Chief, Tungsten Branch

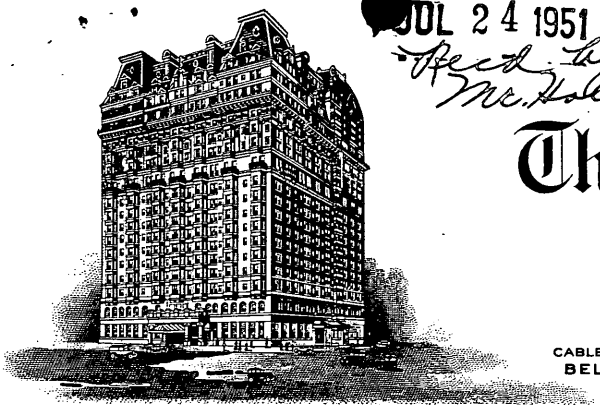
GPHolderer:awj

cc:File
Adm. Reading File
Reports & Records Unit
Mr. Holderer
Field Team IV

Mr. Holderer.

JUL 24 1951

Recd by Mr. Holderer



The Bellevue-Stratford

Philadelphia 2, Pa.

CABLE ADDRESS
BELLSTRAT

BENNETT E. TOUSLEY
VICE PRESIDENT AND GENERAL MANAGER

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration

July 18, 1951

JUL 20 1951
LANDON F. SINGEL
Executive Secretary

Defense Minerals Administration,

Washington,D.C.,

Gentlemen,

Attention Mr.Holderer---- Re DMA 1404 X

On my return here I was able to get the enclosed information regarding the Promos Chemical Co.,claims.

Will you please add one copy to each of the 4 files you now have ?

Many thanks,

Yours truly,

H. A. Ingraham

H A Ingraham

HAI.Tg

4 enc.

FILE COPY
SURNAME:

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

June 15, 1951

Mr. H. A. Ingraham
4300 Vandelia Street
Dallas, Texas

Subject: DMA-1404X
Re: Exploration Loan

My dear Mr. Ingraham:

Receipt is acknowledged of your application and attachments of May 25, 1951 for an exploration loan under the Defense Production Act of 1950.

The application was assigned Docket Number DMA-1404X and referred to Mr. P. R. Bradley, Chief, Tungsten Branch on June 4, 1951.

In any future correspondence relating to your application, kindly refer to DMA-1404X.

Sincerely yours,

LANDON F. STROBEL

Landon F. Strobel
Executive Secretary

L. F. Strobel:jc
cc: Strobel
✓File
Bradley
Lyon

Form MF-103
April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. DMA-1404X

Date received 5/31/51

Participation

Ingraham, A. A.

Name and address of applicant

Date

FILL IN THIS BLOCK

Date of application MAY 25-1951

Estimated cost

Mineral or metal TUNGSTEN

Percentage of Government participation

Location of mine COCHISE Co. ARIZONA

Date of filing MF-100

DMA Docket Number, if available DMA-1404X

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

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

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

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

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.
*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.
*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.
*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.
15. State in detail how the ore could be shipped and how and where milled.
*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.
*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.
19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?
21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.
22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.
24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

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

H. A. INGRAHAM
(Name ~~of company~~)

By H. A. Ingraham
(Signature of authorized official)

May 25-1951
(Date)

4300 Vandelia St. Dallas, Texas
(~~Title~~)

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.

Temporary address
c/o Ben Franklin Hotel
Philadelphia Pa

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

Form MF-103
(April 1951)

DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. dma 1404 X

Date received 7-18-51

Participation

INGRAHAM, H. A.
4300 VANDELIA ST.
DALLAS, TEXAS

Name and address of applicant

Date

FILL IN THIS BLOCK

Date of application May 25 1951

Estimated cost $ 30,000.00

Mineral or metal TUNGSTEN

Percentage of Government participation 75%

Location of mine Cochise County, Arizona.

Date of filing MF-100

DMA Docket Number, if available DMA 1404X

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.

All questions answered on the attached sheets.

*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

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16—64067-1

THE PROPERTY

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*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.
*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.
15. State in detail how the ore could be shipped and how and where milled.
*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.
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    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
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(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
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THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?
21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.
22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
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    (*i*) Cost of power, water, utilities, and any other items not provided for above.
24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

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

Stevens, Pendergast & Ingraham (Name of company) By Harry A. Ingraham (Signature of authorized official)

Supplementing application dated May 25 '51 (Date) July 14 '51 Partner. (Title)

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

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

Washington, D. C.
July 14, 1951

Defense Minerals Administration
Department of the Interior
Washington 25, D. C.

Gentlemen:

RE - TUNGSTEN DMA - 1404 X

Enclosed please find four copies of details supplementing my application dated May 25, 1951 requesting aid in an exploration program for Tungsten.

The operation is to be carried on in the name of the partnership, Stevens, Pendergast and Ingraham, the principals being -

Col. Eugene Stevens, 3016 Clarendon Drive, Dallas, Texas
J. B. Pendergast, Cornwall, Ontario, Canada
H. A. Ingraham, 4300 Vandelia Street, Dallas, Texas

The property to be examined is in Cochise County, Arizona.

We propose a thorough and careful exploration of the flanks of certain valleys to determine whether or not a placer operation is justified. We also propose to drive an exploratory drift on the Bluebird claim, as recommended in the Hershey report, and conduct further examinations of outcrops, under competent engineering supervision, to determine whether or not a hardrock operation is justified.

PLACER

Dr. J. C. Karcher, Continental Building, Dallas, a well known oil geologist interested in mining, made an examination in 1949 of the placer possibilities in the area we propose working. He advised us through Col. Stevens of the possibilities of this area. With the exception of Dr. Karcher's testing in 1949, wherein some stripping was done with a tractor bulldozer, we consider that no carefully engineered testing of the placer ground has ever been done by anyone.

It is our intention to plot the ground, have representative samples assayed, and also haul a considerable tonnage to the nearest mill, Tucson, Hereford, or Hillside. (In our cost estimate we have used Tucson as an illustration). If justified, a representative 200# sample would be sent to Denver, for mill run test.

Should our results justify a mill, we are prepared to install a pumping plant at Dry Lakes, and supply sufficient water through a pipe line to mill site (either on or near the property), similar to that now operating for the Coronado Mine (formerly called the Republic), about two miles N.E. of our property. We propose, if justified, to erect a mill capable of handling 500 tons/24 hrs., of placer millfeed, or the same equipment to handle 100 tons hardrock per 24 hours. The estimated cost of this mill, plus placer and hardrock mining equipment,

approximately $275,000.00.

Our estimated cost of placer examination is approximately $10,000.00.

HARDROCK

The "Boericke" or Primos Chemical Co.'s claims, 23 in number, have in the past produced considerable tungsten, always by the most crude, inefficient methods. The mine was shut down in 1916 upon instructions from Primos head office in Primos, Pennsylvania, because of heavy purchases of tungsten by this company from other sources (amounting to approximately $400,000.00), and because of the apparent declining market in tungsten. Primos Company records show that thirty days was spent by their employees at the mine, stripping all showings of highgrade in every part of the mine, to prevent stealing. Therefore, when the U.S. Bureau of Mines, Geological Survey, mapped this property in 1943, no tungsten was in evidence in the old workings. However, we propose to disregard the old workings for the present and drift on the Bluebird claim, as suggested in the report of the late Oscar Hershey, in the belief that we can probably locate an ore body.

Primos Chemical Company's records show that in one period of 14 months 255,000 pounds of tungsten concentrate was mined. This averaged very close to 60% WO_3, and at 60%, on today's market, would have a value of over $450,000.00. All this was produced by the most crude methods, hand-steeling, instead of using air tools, etc.

Our estimated cost of entire hardrock examination on the Bluebird and other outcroppings, is approximately $20,000.00.

We have decided to enter into this exploration program for the following reasons --- Col. Stevens and the writer examined the property in April, 1951, and found ample evidence of tungsten, enough, in our opinion, to justify further exploration of the ground. The records of the Primos Chemical Company definitely show that thousands of pounds of tungsten have been mined on their claims, with no conclusive evidence that all tungsten has been exhausted.

We believe that the necessary manpower and equipment can be obtained for this exploration program.

We are prepared to supply funds in the amount of $7,500.00, as our 25% of the cost of the program, and if you approve of our application, respectfully request that you make available the balance of funds required. If approved, we will supply you with all subordination agreements, etc., that you may require.

STEVENS, PENDERGAST & INGRAHAM

By Harry A. Ingraham

Harry A. Ingraham

Supplementing FORM MF-103 DMA 1404 X

1. Partnership.

2. Col. Eugene Stevens, 3016 Clarendon Drive, Dallas, Texas.

J. B. Pendergast, Cornwall, Ontario, Canada.

H. A. Ingraham, 4300 Vandelia Street, Dallas, Texas.

3. Not incorporated.

4. Col. Eugene Stevens will be in responsible charge, having associated with him a competent engineer experienced in the mining of tungsten, who will direct field work and supervise sampling. Col. Stevens, who during the last war was Commanding Officer of the Edmonton Air Base, in Edmonton, Alberta, has had considerable experience in mining, particularly in the handling of placer in Montana. His references are the Republic National Bank of Dallas, and Dr. Karcher, of Dallas. Vice President James Aston, of the Republic Bank, is familiar with Col. Stevens' experience.

Mr. J. B. Pendergast, of Cornwall, Ontario, except for the years spent with financial institutions, such as the Merchants Bank of Canada, the Federal Reserve Bank of Cleveland, Ohio, and others, has been active in the mining industry all his life. His experience has included prospecting and development work in every Province in Canada, but more particularly in the Province of Ontario. Of late years he has been more active in an executive capacity connected with financing. His references are - Hon. Lional Cheverier, Minister of Transport, Dominion Government, Ottawa; Judge Brennan, Cornwall, Ontario; Hon. George Dunbar, Ontario Provincial Government, Toronto, Ontario, and Justice Ferguson, Toronto, Ontario.

Mr. H. A. Ingraham is an engineer, member of the Engineering Institute of Canada, and a registered professional engineer in the Province of Alberta. Although an American citizen, he has done considerable engineering within the Dominion of Canada, connected with the mining industry, particularly within the Northwest Territory where he was in responsible charge of the first hydroelectric development in the territory. This development served four mines in the Yellowknife area, NWT. His references are - R. E. Towle, until recently manager of the Federal Reserve Bank at Helena, Montana, now residing in Helena, and Mr. Reg Halladay, of Halladay & Co., 14 Wall Street, New York City, N.Y., W. P. Merritt, of Merritt Road, Farmingdale, Long Island, N. Y.

5. Lessee of part, namely the Walker property. Also eight claims filed in the name of Eugene Stevens, and purchase agreement on Primos Chemical Company property, wherein we would be owners. Proper evidence of title and subordination agreements from all parties will be supplied.

6. Abstracts will be supplied if application is approved. All necessary subordination agreements,properly executed,will be furnished.

7. Existing lease,in good standing.Copy enclosed.

8. Current financial statement of this partnership—— Assets—$15,000.00 Liabilities,none.

9. $7500.00 This amount being 25% of the estimated cost of program.

10. 10-a and 10-b,same area. This area is limited to the 23 claims shown on the attached map as Primos Chemical Co.,patented ground, identified as follows,Owl,Boulder,Yellow Jacket,Juniper,Warrior, Bluebird,Redbird,Wedge,Gray,Black Beauty,Oregon,Dividend,Cracker Jack,Hidden Treasure,Surprise,Last Chance,May Flower,King, Wolfram Queen,Aetna,Yankee Pride,Little Jessie,Ada,also the area included in the Walker lease datedApril 9,1951 covering Blue Bell claim number 171939,survey number 2596,a portion of sections 2 and 3 in Township 16 S.Range 22 E.of Gila and Salt River Meridian in the Cochise Mining District,Cochise County,Arizona and recorded in Book 26,Page ~~96~~ 76,et.seq.,deeds of mines. Also Mariposa Lily No.1 and Mariposa No.8 in sections 2 and 3 as above,containing 60 acres more or less,it being specifically provided that there shall be exempted therefrom ten acres surrounding the present Walker residence. Also 5 mining claimslocated by Elmer C.Walker in sections 27,35 and 36,T-15 S.,Range 22 E,as above. Also 8 mining claims staked by Eugene Stevens stak in section 2,T-16 S,R22 E, and in sections 35 and 36,T-15 S,Range 22 E,as above. (Note:- detailed maps showing exact locations of claims and limiting boundries of all areas will be supplied)

11. Primos Chemical Co.property was at one time known as the Stein & Boericke and also as the Boericke property.The Walker property insofar as we have any knowledge was either in the hands of the present Walker family,or a brother of the present owner Elmer C. Walker,or a Mr.Rich. Proper abstracts will be supplied if application is approved.

12. Location of Property. Cochise County,Arizona. Dragoon is the nearest shipping point,on S.P.Ry.,about 5 miles South of the property on a good allweather road. It is about 1½ miles to the paved highway leading to Benson,Tuscon etc.,Benson being about 17 miles S.W.,of the property. Road from property to the paved highway is an allweather road.

13. No local water supply available,other than enough for testing purposes and driving exploratory drift. In the event a mill is justified,a pumping plant would be installed at Dry Lakes near Wilcox,and a pipe line laid to mill site,similar to that now in use by the Coronado Mine,about 2 miles N.E.of our property. Testing equipment self powered,gas & diesel.(Mill power-diesel)

14. No facilities on property at present.

15. If justified a complete new milling plant will be erected on or near the property.

16. a.Placer.Various operators have attempted placer operations on a small scale,some with dry separators,but to our knowledge no one with the exception of Dr.Karcher has made any attempt to give the placer ground a careful and thoro examination. Dr.Karcher's assistant.Mr.W.F.Elgin,in a letter to a Mr.Christie made certain observations regarding thier findings.A copy of Mr.Elgin's letter is attached. Dr.Karcher has expressed his willingness to discuss the results of his tests with any interested parties,by 'phone or letter,but declines to make a written report of his findings.
Hardrock. Primos Chemical Co.,closed down operations on their property in 1916,but prior to closing had recovered more than $1,000,000 worth of tungsten. Their reported reason for stopping work at the mine was the fact that the head office of the company at Primos,Pa., had made acommitment for the purchase of tungsten concentrate from other sources involving some $400,000.00,and in their opinion,on a sliding market. Operations were never resumed after shutdown in 1916,except in a small way by leasers who apparently gopherholed surface outcrops,or highgraded any spots where tungsten could be found with a minimum of work.

b.We have no knowledge of adjoining or neighboring properties, except that a small mill was erected in about 1914 or 15,on what is known as the "Gija" claims in Sec.2 adjoining the Walker property. This mill was erected by a Mr.Banks,but to our knowledge never operated,due we are told to the price of tungsten at the time the mill was ready to operate.

c.Reports attached. Copy of report from Oscar M.Hershey dated Feb.23,1915 regarding Primos claims. Letter from W.F.Elgin, dated June 5 1949.

17. Not in production.

18. a.On the Primos property (which has been operating,years ago) the chief tungsten bearing veins are quartz,carrying some hubnerite and traces of scheelite. The quartz veins are in semi-porphyritic granite.
b.Neither ourselves nor the PrimosChemical Company have maps of the old workings on Primos claims. However,the U.S.Geological Survey mapped this mine in 1943,for their own information.
c.None possible at this time.

19. Tungsten has been produced in this area.The amount recovered inplacer operations is not determinable as most attempts have been on a very small scale with no permanent records kept.The executor of the Boericke estate is perfectly willing to show to any DMA representative,whatever records he may have of the Primos operations. We know definately that this company has recovered many thousands of pounds of tungsten,in spite of the crude methods employed. Therefore it seems reasonable to suppose that investigation should be made to determine whether or not sufficiant tungsten still exists on the property to make further mining worthwhile.

20. Tungsten. Hubnerite and scheelite.

21. PLACER. Mapping of area,spotting of test holes and/or trenches special attention being given to the flanks of the valleys. Either a gasoline plugger with suitable tools will be used to recover samples or equipment similar to the Empire tester will be used. Each representative sample will be handled by the field engineer in charge and sent to the assay office,probably at Douglas Arizona. A mill run test sample will be sent to Denver Colorado,if results from assays justify this expense. A tractor with overhead loader will fill dump trucks for mill tests at nearest mill.(Tucson,Hereford or Hillside) We estimate that the placer examination could be completed in 60 days.

HARDROCK. Our proposal is to follow the recommendations of Mr. Oscar M.Hershey,in his report to Mr.Boericks dated Feb.23,1915, wherein he suggests a tunnel approx.,700 or 800 feet in length, driven from grade on the Warrier claim,which in his opinion would cut the vein system 300 feet below the outcrop. This, together with a systematic and careful examination of surface outcrops,should determine whether or not further mining on this Primos property is justified. Estimated time required--90 days.

22. Hardrock."This is a large area of semi-porphyritic granite, consisting of freequartz,white feldspar,and a little brown biotite with scatteredphenocrysts of white feldspar up to 3" in length. The granite is cut by dykes and small irregular bodies of pale pink aplite.The tungsten bearing veins occur in three irregular zones of sheeting that have a general n.e. course and S.E.dip. The veins are of quartz,with considerable white mica along the walls,hubnerite,a little scheelite.traces of fluorite and locally iron,copper and lead sulphides."

Placer. Sufficient evidence has already beenobtained to show presence of float on both sides of the ridge of hills on the Primos property,and on the Walker lease as well. Whether or not it would be a paying proposition to attempt to "turn over" this ground,can only be determined bycarefully planned and executed field tests.

SUPPLEMENTING FORM MF 103 BMA 1404 X

PLACER

23.	a.	2 laborers @ 10 $20 1 laborer 7.50 7.50 60 days @ 27.50	$ 1,650.00
	b.	Engineer for 60 days, salary and expense appx	1,000.00
		Supervisor for 60 days @ $15 per day	900.00
	c.	None	
	d.	Tool and record shed, only	50.00
	e.	None	
	f.	Rental of asgoline plugger 60 days	250.00
		Rental of D-6 Cat tractor, with overhead loader, fueled and driven @ 7.00 per hour, 25-8 hr. days	1,400.00
		Rental of trucks, basis 5¢ ton mile, 37½ tons, 66 miles, 25 days	3,093.75
	g.	None	
	h.	Gas, oil, small tools, locks, sample bags, pans, scales, lumber, nails, sheet metal, water containers, records, etc.	500.00 (Estimate
	i.	Assays, mill run tests (Denver)	300.00
		Emp. Liability ins., First aid, legal exp., etc.	300.00
		Unforseen emergencies	500.00
			$9,943.75

APPX $10,000.00

HARDROCK

Exploratory drift on the Bluebird claim.

We believe it possible to contract 800 feet of 5 x 7 at a price of $20 per foot advance, contractor to furnish all labor and materials, we to furnish engineering. If not, we propose to rent the necessary equipment and supply our own labor and materials. In this case we would submit a detailed budget for your approval.

Estimate -

800 feet @ $20	16,000.00
Engineer 90 days, salary and expenses	1,500.00
Assays and transportation, est.	500.00
Examination of other outcrops,	
1 man @ $15 60 days	900.00
1 man @ $10 60 days	600.00
Powder, fuse, caps, small tools, shed, etc.	200.00
Emp. Liability Ins., legal, first aid, etc.	300.00
	$20,000.00

24. Placer - 60 days Hardrock - 90 days

C O P Y

San Francisco, California.
Feb. 23rd, 1915.

Mr. Gideon Boericke,
Primos, Pennsylvania.

Dear Sir:

In accordance with your letter of Jan. 13th, I have made a brief examination of your tungsten deposits near Dragoon, Cochise County, Arizona, occupying 1½ days. I was guided over the property by Mr. O. T. Smith and as many of the cuts have caved and some underground workings were under water, I was dependent on him for certain information about thickness of veins, etc. Probably I can best lay the foundation for my conclusions by comments on the claims in the order visited. They are included in a large area of semi-porphyritic granite, consisting of free quartz, white feldspar and a little brown biotite, with scattered phenocrysts of white feldspar up to 3 inches in length. Some scattered muscovite may be largely secondary. The granite is cut by dikes and small irregular bodies of pale pink aplite. The tungsten-bearing veins occur in three irregular zones of sheeting that have a general northeast course and southeast dip. The veins are of quartz, with considerable white mica along the walls, hubnerite a little scheelite, traces of fluorite and locally iron, copper and lead sulphides. They were produced by emanations from the granite magma after the upper portion had crystallized, the sheeting permitting the egress of the magmatic water.

On the Ada claim, owned by Stein & Boericke, the sheeted zone strikes N. 60° E. and dips S. 30° E. 45° to 60°. This has many small seams of quartz. The first important opening going southwest on the claim is a cut 60 feet long on a quartz vein which strikes No. 80° E. and dips S. 10° E. 30°, and hence intersecting the sheeting. Quartz up to several feet thick yielded ore. There was another small lens about 120 feet farther west, production unknown. On top of the ridge a vein striking N. 80° W. and dipping S. 10° W. 50°, intersected the small veins in the sheeted zone and formed a series of small bunches of ore that were worked in shallow cuts, production unknown. The best showing is on the southwest portion of the claim where there is a cut about 180 feet long on a vein striking N. 60° E. and dipping S. 30° E., 45° and thence a series of cuts on the vein, or a set of stringers in a narrow zone, extends 180 feet southwest. This vein is parallel to the sheeting. The cuts are partly caved. Smith says there are two shafts, about 45 and 50 feet deep respectively. In the cut there was a fine body of ore 75 feet long and 2 feet wide, about 75% hubnerite. This gradually pinched to a depth of 30 feet and then the vein was cut off. Smith says this was the best bunch of ore on the property and that if similar bunches recurred at frequent intervals with depth, the mine would pay well at $6 per unit of tungstic acid. However, from the description, I fear that the vein, though in places 3 to 4 feet thick, may have ended against a cross fracture and not necessarily extend deeper. For this reason I do not recommend further work here.

The Little Jessie claim, owned by Stein & Boericke and the Chrome Steel Company, has a network of small quartz veins with an occasional

blade of hubnerite, nowhere forming commercial bunches. The best bunch observed is at a small cut probably near the southwest end of the claim. It is over 2 feet in greatest thickness and has enough hubnerite and scheelite to make something less than 1% ore.

Across the Yankee Pride claim (same owners as preceding) there are many small seams of quartz with an occasional blade of hubnerite and at wide intervals a few pounds of fair ore, but no commercial bunches, distributed through a rather definite sheeted zone, several hundred feet wide and bordered by massive granite. There never was much float on this hillside.

On the Aetna claim (same owners as preceding) the vein system shows a tendency to form lenses of quartz up to 3 feet thick. The larger lenses are almost barren except for an occasional large blade of hubnerite and there is nothing commercial on the claim. Smith says the short gulch on the northwest side of the southwest half of the claim yielded "quite a little float ore."

The above four claims cover the best portion of the middle zone of sheeting. On the southeast of the last three, there is a zone of narrow stringers that were examined on my 1906 visit, not on this. It is not of a promising nature. The claims now to be described are on the northwest and strongest zone of sheeting and veining.

The Juniper claim, owned by Stein & Boericke, has practically no veins, but has been extensively worked as a hillside placer. Patches of debris from 6 inches to 4 feet deep are rich in quartz that has slidden down from the Yellow Jacket veins. This was worked originally for the surface float and may have yielded 75 tons of first-class ore (Smith). It is now being turned over down to the decomposed granite by seven Mexicans who get 10¢ per lb. from P. M. Sebring who receives 12¢ per lb. from the Primos Chemical Co. The ground appears to be pretty well worked out. The Red Bird claim, (same owners as preceding), has but little float and the Boulder claim was not visited as Smith said there was little to see on it.

Near the center of the Yellow Jacket claim, owned by the Chrome Steel Company, there is a group of quartz stringers and one vein which, so far as can be seen now, was from 1 to 3 feet thick for a distance of probably 200 feet. This group has been worked in large open cuts, now partly caved. Thence N. 60° E. along the ridge there is a network of stringers in an irregular zone. In places the quartz bunchesto several feet thick. Near the northeast end of the claim there is a cut 30 feet long and 10 to 15 feet deep, (with a shaft below), on a vein of ribbon quartz, containing pyrite and a little sphalerite, with enough hubnerite to make it low grade milling ore. Several tunnels have been driven through the hill. The quartz in these tunnels and that remaining at the surface contains so little hubnerite that I am confident that this claim could not be profitably worked underground.

On the Blue Bird claim, owned by Stein & Boericke, the vein system spreads out to a width of hundreds of feet and besides the many small stringers, it has a series of stronger and more regular veins which, near the southwest end, strike northeast and dip southeast 70° and less. One at the 50-foot shaft has been stoped for over 150 feet to depths of 2 to 12 feet and in a stope described as 30 feet long and 15 feet high, above a drift from the shaft. The vein varies from 6 inches to 3 feet in thickness. The hubnerite is in bunches of coarse crystals scattered through much barren quartz. A 110-foot tunnel apparently follows this vein, but in it the quartz is very narrow and not commercial.

The shaft has water in it, but Mr. Smith says that at the bottom there is a 100-foot cross-cut. At 50 feet a drift runs 40 feet on a vein 8 inches thick, of ribbon quartz, rather uniform ore, probably 2%. At 100 feet, the cross-cut cut a 3-foot vein with coarse hubnerite. The vein at 50 feet is exposed at the surface, has been more or less stoped along the outcrop for about 200 feet, averaged 8 inches, about 2% ore per Smith. I may say that Mr. Smith has no records of production and apparently never knew definitely the content of the ore at any of the cuts on the property, so that the figures that I give, based on his guesses aremerely approximate, but all that seem available at present. This vein comes free from the granite and has a structure and type of mineralization that suggest persistence with depth. It may be followed 300 feet farther to a short distance in the Yellow Jacket claim. It is the longest vein I saw in the district. Probably it will average 8 inches thick for 500 feet.

What is supposed to be the vein at the end of the cross-cut was trenched for about 250 feet. Mr. Smith says from this was mined ore continuous except for one short barren section, 4 inches to 3 feet thick, probably 10 inches that, if mined without sorting, would not exceed 2% ore. Above this there are several cuts on small veins and at the top of the ridge many small quartz stringers of no value. Farther northeast a cut 50 feet long yielded ore from a vein 3 feet thick, but very short. Smith thinks the veins on the Blue Bird claim have yielded more ore than all the other veins in the district together, though the float diggings he thinks have yielded ten times as much as the veins. He is doubtful that these veins could be profitably worked underground at a price of $6 per unit.

The Warrior claim (same owners as preceding) had one vein that was stoped about 75 feet long, to a maximum depth of 30 feet, with 12 to 18 inches of good grade ore, coarse type. Smith thinks the vein at the bottom has 18 inches of fair ore. He thinks this work more than paid for itself. He says this is also a good float claim, but Sebring says not much remains on it. The Red Bird claim has but little float per Smith. The Trench was a good float claim but is worked out. The Oregon claim, also owned by Stein & Beericke, is a float claim now being worked by Sebring, his son and Mexicans. Seven men in 26 days secured 3035 lbs. for which Sebring will get 12¢ per lb. One man may work over in 3-foot ground 75 cu. ft. The ground has been pretty well worked out on the Oregon claims down to where the pay stratum becomes buried under 3 to 6 feet of granite debris and the present workers are inclined to quit.

On the Gray, Black Beauty and Dividend claims, owned by Stein & Beericke and the Chrome Steel Co., the stringer zone is very wide and strong. The best veins seen on the Gray are about a foot thick, not commercial. The foot of the hill on this claim probably would make good float diggings. On the Black Beauty and Dividend claims, when any seam makes a bunch a foot or more thick it is short, rarely more than 30 to 40 feet long and very low in grade. Smith regards these three claims as among the best in the district and they have undoubtedly given rise to much float ore, but I am certain they cannot be worked profitably underground.

At about the northeast end of the Dividend claim, the stringer system weakens and across the Cracker Jack claim (same owners as last), it is not of much account, though 18 inches of quartz with large hubnerite blades may be seen in a small cut and several hundred pounds of ore may have been removed. There is not much float ore on this claim.

Across the Hidden Treasure and most of the Surprise claim (same owners as preceding) the stringer system is weak, the seams being widely separated and bunches few and small. However, on the northeast quarter of the Hidden Treasure and southwest quarter of the Surprise, seams are abundant and rich enough to have given rise to an area that may pay to "turn over" for float as is being done beyond the claim lines.

Near the northeast end of the Surprise claim, the vein system becomes stronger and spreads out. Veins 6 inches to a foot thick appear and may be traced for several hundred feet.

On the Last Chance claim, owned by Stein & Boericke, some milling ore was taken from several cuts near the southwest end. The ground in the head of a draw below this section would probably pay to turn over for float. Shallow cuts that have yielded a little ore are scattered through the claim to the principal workings near the northeast end. Here there is a shallow cut about 300 feet long on a vein from 5 to 30 inches thick, averaging about 18 inches, Smith says, striking N. 20° W. and dipping N. 70° E. 45°. There is a shaft 50 feet deep on the vein and connecting with it Smith says there is a stope 30 feet long and 25 feet high. He says the vein yielded, by sorting, quite a good many tons of better than 2% milling ore. Mined as a whole it would not average 1%. The ore at depth will have a sprinkling of galena, chalcopyrite and pyrite. On both sides are smaller veins.

Near the northeast corner of the claim there is a nearly continuour cut about 200 feet long on a vein striking N. 30° W. and dipping N. 60° E. 35° to 50°, averaging 8 inches thick, 2% ore (Smith). There is an incline down 100 feet and a stope about 30 feet long and to about 20 feet from the surface (Smith).

On the Mayflower claim, (same owners as preceding) a vein 12 inches thick, of 2% ore, dipping 35° was mined 50 feet long and 15 feet deep. There are copper carbonates with the hubnerite which, I understand, made the ore undesirable. Some ore was taken from cuts farther north on the claim. There may be here a very persistent vein, but as the ore averaged 6 to 8 or at most 12 inches thick, I doubt that it could be worked profitably at depth.

On the Wolfram Queen claim (same owners as preceding) a shallow cut exposes for 150 feet a 6 to 10 inch vein striking north and dipping east 65°, of low-grade ore, not commercial at depth. Farther north there is another shallow cut. The presence of copper minerals at this end of the belt seems objectionable.

The system of small veins extends over on to the King claim, also owned by Stein & Boericke, but there is little ore in it on that claim. Not far beyond the north end of the claim the tungsten belt ends through the granite contacting with the Pinal schist.

I was impressed by the fact that far the best showings in the district are on those claims that are owned by Stein & Boericke alone. Mr. Smith insisted that this is partly due to the fact that these claims have been extensively dug upon, whereas on most of the claims that Stein & Boericke own in conjunction with the Chrome Steel Company, little more than the location and patent work have been done. Part of the apparent contrast may be due to this, but I remain convinced that the Stein & Boericke claims as a whole are far more promising than those owned by the two companies jointly. Hence, if an effort were made to work the latter group, they could not be expected to yield as much ore as did the first group. The one claim owned by the Chrome Steel Company alone, the Yellow

Jacket, has been developed on a scale comparable with the Blue Bird yet it appears to me very much less promising than the latter.

The recognized float diggins are largely exhausted on the Stein & Boericke claims. On the claims owned by the two companies jointly, the surface float has been picked up, but the ground has not been "turned over". Sebring intimated to me that he very much desired a lease on that group. Not knowing exactly what amount of float ore has been produced by the district I cannot make an estimate of how much would probably be yielded by these jointly owned claims, but I believe it would be considerably less than the Stein & Boericke claims have produced.

In the basins and broader gulches of the district, there must be considerable float under the coarse granite sand that fills these depressions. This is particularly true of the shallow basin between the Ada-Aetna group and the Blue Bird-Dividend group. In these basins would lie the largest opportunity in the district if it were a humid country, but there is no water available to hydraulic these deep deposits and I do not recommend you to acquire property on this basis.

It is safe to say that there are in the Dragoon district, several thousand small veins of tungsten-bearing quartz. The total amount of tungsten mineral is large. After going over the field I selectedthree localities as deserving further consideration. All other portions I was quite certain could not be worked at a profit at depth. The first was the rich bunch on the Ada claim. This I rejected because ore pockets on that claim show a strong tendency to form at the intersection of veins, and the evidence as well that there is little likelihood that another valuable bunch might be found at depth.

The second vein considered is the principal one of the Last Chance claim described by Mr. Smith as 18 inches of not to exceed 1% ore. Based on his opinion as to costs in the Dragoon district, I made a little calculation on the basis of developing a vein 300 feet long, 300 feet deep, 1 foot wide and mining from it 2% ore at $6 per unit, 80% saving and got a profit of $2.46 per ton. On that basis a vein 18 inches wide of 1% ore would not pay its way. The vein 8 inches thick, supposed to have 2% ore would not pay. Hence, I cannot recommend any work on the Last Chance claim until the price of hubnerite ore is very much higher than $6 a unit.

The third place considered is on the Blue Bird claim. The best vein of the group is described by Mr. Smith as 10 inches of possible 2% ore which, according to my method of figuring above mentioned, would pay a small profit per ton. The ribbon quartz vein is too narrow to be profitably worked at present. Hence, I must discourage further development of the property at this point with the price at $6 per unit, or not much over, for hubnerite concentrate. It must be remembered that I have been figuring rather close and that in actual working at the present time, it is hardly safe to count on mining a less than 3% ore one foot thick at a profit allowing for shaft sinking and other relatively heavy development expense. Besides, the working profit in sight must be great enough to pay for a mill and other equipment. It is unnecessary to go into this matter any deeper at present, but I suggest that if the market price of tungsten ore at any time in the future persistently holds at a figure very much in ad-

vance of recent prices, you consider the proposition of driving a tunnel beginning on the Warrior claim and extend it across the vein system in the Blue Bird claim. Without an accurate survey, I estimate that a tunnel 700 or 800 feet long might cut the vein system near the shaft 300 feet deeper than the outcrop. It would cut many seams besides the definite vein system. The cost might be $7 per foot, say $5600. This is the best place on the property to make a trial of the possibility of making mining pay at depth, but, as stated above, I do not recommend it under present conditions as the margin of possible success is too narrow for safety.

Respectfully submitted,

(signed) OSCAR M. HERSHEY.

Tuscon, Arizona
June 5, 1949

Mr. J. J. Christie
Dragoon, Arizona

Dear Sir: (TEXAS CANYON TUNGSTEN PROPERTIES)
(Basis $26.00 per unit)

LOCATION: The properties examined are about 17 miles from Benson and 19 miles southwest of Willcox, Arizona. More specifically, they are on the north side of Texas Canyon. They are approximately 10 miles from the nearest large water supply and about 3 miles to the mine of Mrs. Landfair, where there is considerable water.

THE PROPERTY: The Boericke patented claims form a horseshoe and rise about 200 feet above the valley. These claims are under Bond and Lease to Ray Fernstrom and there are some 20 odd of them. They are lode claims and at present Jess Wien has a lease from Fernstrom on a few of them. He is mining highgrade tungsten from the highest point on the claims and is making a good profit on his small operation. In the valley to the east and within the horseshoe is your property, 2 claims belonging to Mr. Rich and better than 500 acres of State land, on which we have an option for lease. To the southwest is the Canyon property belonging to the Adams heirs. This is by far the richest of all of the properties, but is almost beyond economical recovery on account of the topography.

GENERAL HISTORY: The tungsten placer was formed by erosion of the granite rock on the hills surrounding your property. These hills or mountains were evidently of considerable height and were cracked in many places when cooling, leaving small slashes in which the tungsten was formed. Since tungsten is almost as heavy as gold, the placer was laid down in a similar manner and the tungsten has worked its way to the bedrock. For many years the various properties have been high-graded by Mexicans and the unemployed. No serious placer mining has been done, even during the first world war, when the property was worked to the utmost without the aid of pumped water. We know that the Primos Chemical Company mined several million dollars worth of tungsten from the lode claims and also took out perhaps a million from the placer, by just screening out the nuggets.

OUR SAMPLING: When we first considered sampling your property, we specifically told you we would not be interested unless the whole valley would sample as placer fines high enough for us to operate a plant of from 1,000 to 2,000 tons per 24 hours. We have explained the setup many times and I am sure that you agree with us on our stand. However, I want to go on record as recommending these properties very highly for a smaller operation. We have made a very thorough sampling of your property and a casual sampling of the other properties. As you know all nuggets were screened out of all samples, as we were sampling for placer fines only. In other words, we were sampling for a very large low grade placer operation and were not interested in the high grade that is very much in evidence in the edges of your property and in the other properties. It was agreed by all parties that we would concede $1.00 per yard for the nuggets that were to be found in the lower three feet and in the hillside area of your claims. We felt

very safe in making this concession as we found nuggets in almost all holes that we sunk to bedrock. The largest nugget found in any of the one cubic foot cuts weighed 12 pounds and contained at least 65% WO_3, the largest amount came from number two sample where we recovered a large pan, about 30 pounds. Many four to five pound nuggets were recovered and the one fourth inch to one inch nuggets were in abundant evidence to justify us conceding the $1.00 per yard for the lower three feet. Yet from this same cut from number two sample, after screening, our sample only assayed two cents per ton. We cut another sample and it assayed $5.35 per ton. We checked these samples many times by panning and all varied just about this amount.

All of our second sampling was screened through a one fourth inch mesh screen and then crushed down to 50 mesh, carefully weighed on assay balances, panned, and the concentrate weighed on assay balances after drying with acetone. This concentrate was bottled, sealed, labeled and taken to the assay office in Douglas, Arizona. On your property the second sampling showed 64.5 cents per ton as against 38.8 cents per ton on the first sampling. We considered that the first method of concentration was wrong and that we were losing at least 40% more of the tungsten than we did when we carefully panned the samples.

We also had in mind that at least 25% of the values were lost in using the longtom or in the hand panning method. However, while our second samples were many times smaller than the original samples, we must admit that the accuracy was far greater. Even the assayer was prepared and knew that we were checking, that we had done everything possible to make the given sample as nearly accurate as humanly possible.

The hillside will assay $3.00 to $4.00 per ton but as the material is (@ 26--) very shallow we did not assay, but confined our testing to panning. On most of your property the overburden is shallow and will not average over three to four feet in depth. On the hillside areas in the edge of the valley, the overburden has been washed away and all material is workable and can be handled with small equipment at a very good profit.

In our plans we were to drill a well either in the Dry Lake or at Benson and pump the water through a six inch line. We were to install dragline shovels and build a mill large enough to handle 2,000 tons per day when not mining the mud and at least 1,000 tons per day when handling the mud. Our mapping showed between ten and twelve million tons in your valley, with about five million tons being on your property and in the edge of the school lane.

I suggest you try to interest someone to install a small operation and clean up the edges where the material is shallow. I would haul the water for this operation and make the operation in such a manner that they would be making a storage basin for water. Dams should be installed to catch as much rain water as is possible. Even a small operation will require considerable expenditure but will show a very high profit per ton.

I am not satisfied with our sampling as the values are too erratic for the amount of tungsten that can be seen. After much study of the sampling, I am sure that the only way to sample the shallow ground is to run five to ten ton lots through a mill and use the actual recovered amounts as the yardstick. Our number one, number two and number ten samples are typical of the variations.

It seems very likely that there is more tungsten available on these properties than has been mined in the whole state in the past and that a very large portion of it can be recovered in a simple operation.

Very truly yours,

W. F. Elgin

MINING AND MINERAL LEASE

AGREEMENT, Made and entered into the 9th day of April 1951, by and between Elmer C. Walker Katharine Penrose Walker (wife) of Dragoon, Arizona hereinafter called lessor (whether one or more), and Eugene Stevens, 3016 Clarendon Drive, Dallas, Texas, hereafter called lessee:

WITNESSETH: That the said lessor, for and in consideration of Ten Dollars, cash in hand paid, the receipt of which is hereby acknowledged, and of the covenants and agreements hereinafter contained on the part of the lessee to be paid, kept and performed, has granted, demised, leased and let, and by these presents does grant, lease and let unto the said lessee for the sole and only purpose of exploring for and mining of ores of value commercially and the laying of pipe lines, building of power stations, structures necessary for mining and milling, and installation of mining and milling machinery thereon to produce, save and take care of said ores, all that certain tract of land situated in the County of Cochise, State of Arizona, described as follows, to wit: **Blue Bell Claim number 171939, survey number 2596, a portion of Sections 2 and 3 in a ~~Tonsh~~ Township 16 South of Range 22 East of Gila and Salt River Meridian in the Cochise Mining District, Cochise County, and recorded in Book 26, Page 76, Et Seq., Deeds of Mines. Also Mining Claims Mariposa Lily No. 1 and Mariposa No. 8 in Sections 2 and 3 as above, Containing 60 acres, more or less, it being specifically provided that there shall be exempted herefrom ten acres surrounding the present Elmer C. Walker residence, also 5 mining claims and 1 water claim located in Sections 27, 35, and 36, Township 15 South, Range 22 East, as above.**

~~and containing xxxxxxxxxx acres, more or less,~~ it being the intention to include all land owned or claimed by lessor in said section or sections, **except the ten acres specifically exempted herefrom.**

It is agreed that this lease shall remain in force for a term of two years from this date, and as long thereafter as ores of value commercially are produced from said land by the lessee.

In consideration of the premises the said lessee covenants and agrees to pay to the lessor five per cent of the value of the ores recovered at the mill. The lessee further agrees to pay for damages caused by his operations to growing crops on said land.

Lessee shall have the right at any time to remove all machinery, fixtures, buildings, pipe lines and all other things of value, placed or caused to be placed by him, on said land.

If the estate of either party hereto is assigned--and the privilege of assigning in whole or in part is expressly allowed--the covenants hereof shall extend to their heirs, executors, administrators, successors, or assigns, but no change in the ownership of the land or assignment of interest shall be binding on the lessee until after the lessee has been furnished with a written transfer or assignment, or a copy thereof.

Lessor hereby warrants and agrees to defend the title to the land herein described and agrees that the lessee shall have the right at any time to redeem for lessor, by payment, any mortgages, taxes, or other leins on the above described lands, in the event of default of payment by lessor, and be subrogated to the rights of the holder thereof.

IN TESTIMONY WHEREOF, we sign, this the 9th day of April 1951

[illegible] witness Elmer C. Walker

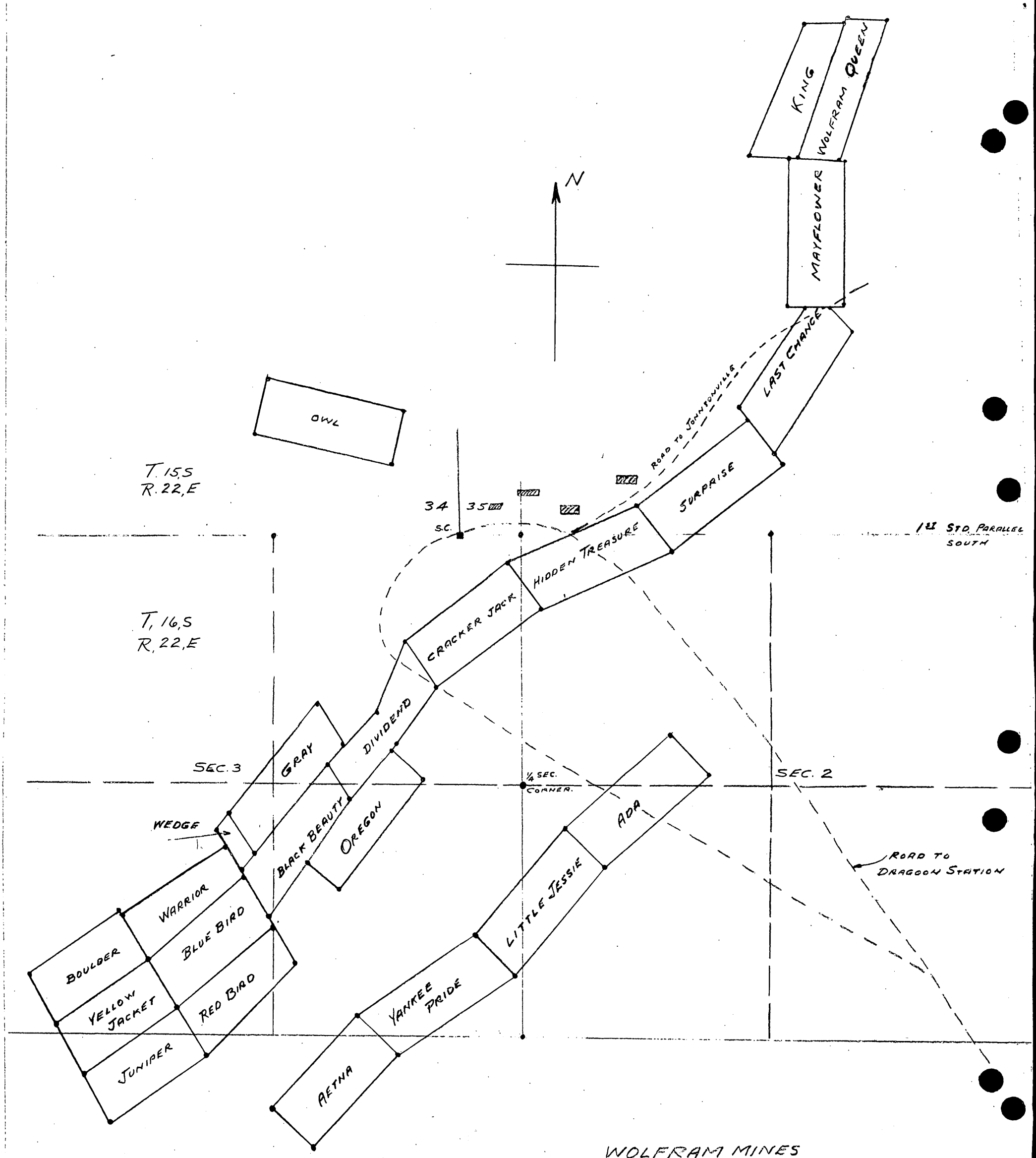
M. H. Lynch witness Katharine Penrose Walker

April 9, 1951

Amy Lowery, Notary

MY COMMISSION EXPIRES OCT 25, 1953

Eugene Stevens



WOLFRAM MINES

COCHISE COUNTY, ARIZ.

W-38

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. dma 1404X

Date received 7-18-51

Participation

Name and address of applicant

Date

FILL IN THIS BLOCK

Date of application May 25 1951

Estimated cost $ 30,000.00

Mineral or metal TUNGSTEN

Percentage of Government participation 75%

Location of mine Cochise County, Arizona.

Date of filing MF-100

DMA Docket Number, if available DMA 1404X

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

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

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

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

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.

*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.

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

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

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

*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

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

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.

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

THE EXPLORATION

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

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

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.

24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

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

Stevens, Pendergast & Ingraham
(Name of company)

By Harry A. Ingraham
(Signature of authorized official)

Supplementing application dated May 25 '51
(Date)

Partner.
(Title)

July 14 '51.

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

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

Washington, D. C.
July 14, 1951

Defense Minerals Administration
Department of the Interior
Washington 25, D. C.

Gentlemen:

RE - TUNGSTEN DMA - 1404 X

Enclosed please find four copies of details supplementing my application dated May 25, 1951 requesting aid in an exploration program for Tungsten.

The operation is to be carried on in the name of the partnership, Stevens, Pendergast and Ingraham, the principals being -

Col. Eugene Stevens, 3016 Clarendon Drive, Dallas, Texas
J. B. Pendergast, Cornwall, Ontario, Canada
H. A. Ingraham, 4300 Vandelia Street, Dallas, Texas

The property to be examined is in Cochise County, Arizona.

We propose a thorough and careful exploration of the flanks of certain valleys to determine whether or not a placer operation is justified. We also propose to drive an exploratory drift on the Bluebird claim, as recommended in the Hershey report, and conduct further examinations of outcrops, under competent engineering supervision, to determine whether or not a hardrock operation is justified.

PLACER

Dr. J. C. Karcher, Continental Building, Dallas, a well known oil geologist interested in mining, made an examination in 1949 of the placer possibilities in the area we propose working. He advised us through Col. Stevens of the possibilities of this area. With the exception of Dr. Karcher's testing in 1949, wherein some stripping was done with a tractor bulldozer, we consider that no carefully engineered testing of the placer ground has ever been done by anyone.

It is our intention to plot the ground, have representative samples assayed, and also haul a considerable tonnage to the nearest mill, Tucson, Hereford, or Hillside. (In our cost estimate we have used Tucson as an illustration). If justified, a representative 200# sample would be sent to Denver, for mill run test.

Should our results justify a mill, we are prepared to install a pumping plant at Dry Lakes, and supply sufficient water through a pipe line to mill site (either on or near the property), similar to that now operating for the Coronado Mine (formerly called the Republic), about two miles N.E. of our property. We propose, if justified, to erect a mill capable of handling 500 tons/24 hrs., of placer millfeed, or the same equipment to handle 100 tons hardrock per 24 hours. The estimated cost of this mill, plus placer and hardrock mining equipment,

approximately $275,000.00.

Our estimated cost of placer examination is approximately $10,000.00.

HARDROCK

The "Boericke" or Primos Chemical Co.'s claims, 23 in number, have in the past produced considerable tungsten, always by the most crude, inefficient methods. The mine was shut down in 1916 upon instructions from Primos head office in Primos, Pennsylvania, because of heavy purchases of tungsten by this company from other sources (amounting to approximately $400,000.00), and because of the apparent declining market in tungsten. Primos Company records show that thirty days was spent by their employees at the mine, stripping all showings of highgrade in every part of the mine, to prevent stealing. Therefore, when the U.S. Bureau of Mines, Geological Survey, mapped this property in 1943, no tungsten was in evidence in the old workings. However, we propose to disregard the old workings for the present and drift on the Bluebird claim, as suggested in the report of the late Oscar Hershey, in the belief that we can probably locate an ore body.

Primos Chemical Company's records show that in one period of 14 months 255,000 pounds of tungsten concentrate was mined. This averaged very close to 60% WO_3, and at 60%, on today's market, would have a value of over $450,000.00. All this was produced by the most crude methods, hand-steeling, instead of using air tools, etc.

Our estimated cost of entire hardrock examination on the Bluebird and other outcroppings, is approximately $20,000.00.

We have decided to enter into this exploration program for the following reasons --- Col. Stevens and the writer examined the property in April, 1951, and found ample evidence of tungsten, enough, in our opinion, to justify further exploration of the ground. The records of the Primos Chemical Company definitely show that thousands of pounds of tungsten have been mined on their claims, with no conclusive evidence that all tungsten has been exhausted.

We believe that the necessary manpower and equipment can be obtained for this exploration program.

We are prepared to supply funds in the amount of $7,500.00, as our 25% of the cost of the program, and if you approve of our application, respectfully request that you make available the balance of funds required. If approved, we will supply you with all subordination agreements, etc., that you may require.

STEVENS, PENDERGAST & INGRAHAM

By Harry A. Ingraham

Harry A. Ingraham

approximately $275,000.00.

The estimated cost of closer examination is approximately $50,000.00.

DISCUSSION

The "ore lodes" of Primos Chemical Co.'s claims, 23 in number, have in the past produced considerable tungsten, always by the most crude, inefficient methods. The mine was shut down in 1918 upon instructions from Primos Head Office in Primos, Pennsylvania, because of heavy purchases of tungsten by this company from other sources (amounting to approximately $400,000.00), and because of the apparent declining market in Washington. Primos Company records show that thirty days was spent by their employees at the mine, stripping all showings of mineralization in every part of the mine, to prevent stealing. Therefore, when the U.S. Bureau of Mines, Geological Survey, mapped this property in 1943, no tungsten was in evidence in the old workings. However, we propose to disregard the old workings for the present and defer on the Diamond drill, as suggested in the report of the Iowa Case Company, in the belief that we can probably locate an ore body.

Primos Chemical Company's records show that in one period of 14 months 275,000 pounds of tungsten concentrate was mined. This averaged very close to 60% WO3, and at 60%, on today's market, would have a value of over $450,000.00. All this was produced by the most crude methods, hand-sledding, instead of using air tools, etc.

Our estimated cost of entire bedrock examination on the claims and other outcroppings, is approximately $50,000.00.

We have decided to enter into this exploration program for the following reasons --- Col. Stevens and the writer examined the property in April, 1943, and found ample evidence of tungsten, enough in our opinion, to justify further exploration of the ground. The records of the Primos Chemical Company definitely show that thousands of pounds of tungsten have been mined on their claims, with no conclusive evidence that all tungsten has been extracted.

We believe that the necessary manpower and equipment can be obtained for this exploration program.

We are prepared to supply funds in the amount of $7,500.00, as our 15% of the cost of the program, and if you approve of our application, respectfully request that you make available the balance of funds required. As required, we will supply you with all information and arrangements, etc., that you may require.

PRIMOS, INCORPORATED - IOWA

By

Harry A. Hopkins

Supplementing FORM MF-103 DMA 1404 X

1. Partnership.

2. Col. Eugene Stevens, 3016 Clarendon Drive, Dallas, Texas.

   J. B. Pendergast, Cornwall, Ontario, Canada.

   H. A. Ingraham, 4300 Vandelia Street, Dallas, Texas.

3. Not incorporated.

4. Col. Eugene Stevens will be in responsible charge, having associated with him a competent engineer experienced in the mining of tungsten, who will direct field work and supervise sampling. Col. Stevens, who during the last war was Commanding Officer of the Edmonton Air Base, in Edmonton, Alberta, has had considerable experience in mining, particularly in the handling of placer in Montana. His references are the Republic National Bank of Dallas, and Dr. Karcher, of Dallas. Vice President James Aston, of the Republic Bank, is familiar with Col. Stevens' experience.

   Mr. J. B. Pendergast, of Cornwall, Ontario, except for the years spent with financial institutions, such as the Merchants Bank of Canada, the Federal Reserve Bank of Cleveland, Ohio, and others, has been active in the mining industry all his life. His experience has included prospecting and development work in every Province in Canada, but more particularly in the Province of Ontario. Of late years he has been more active in an executive capacity connected with financing. His references are - Hon. Lional Cheverier, Minister of Transport, Dominion Government, Ottawa; Judge Brennan, Cornwall, Ontario; Hon. George Dunbar, Ontario Provincial Government, Toronto, Ontario, and Justice Ferguson, Toronto, Ontario.

   Mr. H. A. Ingraham is an engineer, member of the Engineering Institute of Canada, and a registered professional engineer in the Province of Alberta. Although an American citizen, he has done considerable engineering within the Dominion of Canada, connected with the mining industry, particularly within the Northwest Territory where he was in responsible charge of the first hydroelectric development in the territory. This development served four mines in the Yellowknife area, NWT. His references are - R. E. Towle, until recently manager of the Federal Reserve Bank at Helena, Montana, now residing in Helena, and Mr. Reg Halladay, of Halladay & Co., 14 Wall Street, New York City, N.Y., W. P. Merritt, of Merritt Road, Farmingdale, Long Island, N. Y.

5. Lessee of part, namely the Walker property. Also eight claims filed in the name of Eugene Stevens, and purchase agreement on Primos Chemical Company property, wherein we would be owners. Proper evidence of title and subordination agreements from all parties will be supplied.

[illegible] Corporation.

[illegible] Col. Eugene Stevens, 4010 Glenwood Drive, Dallas, Texas.

[illegible] E. Pendergast, Cornwall, Ontario, Canada.

[illegible] A. Ingraham, 4900 Vanderbilt Street, Dallas, Texas.

[illegible] Inc. Incorporated.

[illegible] Col. Eugene Stevens will be in responsible charge, having associated with him a competent engineer experienced in the drilling of tunnels, who will direct field work and supervise sampling. Col. Stevens, who during the last war was Commanding Officer of the Edmonton Air Base, in Edmonton, Alberta, has had considerable experience in mining, particularly in the building of plants in Mexico. His references are the Imperial Bank of Dallas, and Mr. Fraser, of Dallas. Vice President Gerse Eaton, of the Republic Bank, is familiar with Col. Stevens' experience.

[illegible] A. [illegible] Lindstedt, of Cornwall, Ontario, enough for the years spent with financial institutions, such as the Dominion Bank of Canada, the Federal Reserve Bank of Cleveland, Ohio, and others, has been active in the mining industry all his life. His experience has included prospecting and development work in every province in Canada, but more particularly in the Province of Ontario. For [illegible] years he has been active in an executive capacity connected with financing. His references are [illegible] Lion, Colonial Investor, Minister of Transport, Dominion Government, Ottawa; Toronto Exchange, Commercial, Toronto, Ont. George Tanner, Toronto, Pro Radial Corporation, Toronto, Ontario, and Dominion Securities, Toronto, Ontario.

Mr. A. A. Ingraham is an engineer, member of the American Institute of Mining and Metallurgical Engineers, and a recognized professional engineer in the provinces of Alberta. Although an American citizen, he has been successfully engineering within the Dominion of Canada. [illegible] with the mining industry, particularly within the Dominion Territory, more he was in responsible charge of the [illegible] hydroelectric development in the territory. [illegible] served four years in the Yellowknife area, NWT. [illegible] E. [illegible] well recently managed on the [illegible] Lake [illegible], Alberta, Canada, [illegible] in mining, and [illegible] of [illegible] of [illegible] [illegible], Canada, [illegible].

[illegible] of part, merely the buffer property. [illegible] right claims in the area of Longer [illegible], and [illegible] [illegible] Central Europe [illegible], which we could be [illegible] [illegible] of [illegible] and [illegible] [illegible] [illegible] [illegible] will be appreciated.

6. Abstracts will be supplied if application is approved. All necessary subordination agreements,properly executed,will be furnished.

7. Existing lease,in good standing.Copy enclosed.

8. Current financial statement of this partnership---
Assets--$15,000.00 Liabilities,none.

9. $7500.00 This amount being 25% of the estimated cost of program.

10. 10-a and 10-b,same area. This area is limited to the 23 claims shown on the attached map as Primos Chemical Co.,patented ground, identified as follows,Owl,Boulder,Yellow Jacket,Juniper,Warrior, Bluebird,Redbird,Wedge,Gray,Black Beauty,Oregon,Dividend,Cracker Jack,Hidden Treasure,Surprise,Last Chance,May Flower,King, Wolfram Queen,Aetna,Yankee Pride,Little Jessie,Ada,also the area included in the Walker lease datedApril 9,1951 covering Blue Bell claim number 171939,survey number 2596,a portion of sections 2 and 3 in Township 16 S.Range 22 E.of Gila and Salt River Meridian in the Cochise Mining District,Cochise County,Arizona and recorded in Book 26,Page ~~96~~ 76,et.seq.,deeds of mines. Also Mariposa Lily No.1 and Mariposa No.8 in sections 2 and 3 as above,containing 60 acres more or less,it being specifically provided that there shall be exempted therefrom ten acres surrounding the present Walker residence. Also 5 mining claimslocated by Elmer C.Walker in sections 27,35 and 36,T-15 S.,Range 22 E,as above. Also 8 mining calims staked by Eugene Stevens ~~stak~~ in section 2,T-16 S,R22 E, and in sections 35 and 36,T-15 S,Range 22 E,as above. (Note:- detailed maps showing exact locations of claims and limiting boundries of all areas will be supplied)

11. Primos Chemical Co.property was at one time known as the Stein & Boericke and also as the Boericke property.The Walker property insofar as we have any knowledge was either in the hands of the present Walker family,or a brother of the present owner Elmer C. Walker,or a Mr.Rich. Proper abstracts will be supplied if application is approved.

12. Location of Property. Cochise County,Arizona. Dragoon is the nearest shipping point,on S.P.Ry.,about 5 miles South of the property on a good allweather road. It is about 1½ miles to the paved highway leading to Benson,Tucson etc.,Benson being abput 17 miles S.W.,of the property. Road from property to the paved highway is an allweather road.

13. No local water supply available,other than enough for testing purposes and driving exploratory drift. In the event a mill is justified,a pumping plant would be installed at Dry Lakes near Wilcox,and a pipe line laid to mill site,similar to that now in use by the Coronado Mine,abput 2 miles N.E.of our property. Testing equipment self powered,gas & diesel.(Mill power-diesel)

14. No facilities on property at present.

15. If justified a complete new milling plant will be erected on or near the property.

16. a.Placer.Various operators have attempted placer operations on a small scale,some with dry separators,but to our knowledge no one with the exception of Dr.Karcher has made any attempt to give the placer ground a careful and thoro examination. Dr.Karcher's assistant.Mr.W.F.Elgin,in a letter to a Mr.Christie made certain observations regarding their findings.A copy of Mr.Elgin's letter is attached. Dr.Karcher has expressed his willingness to discuss the results of his tests with any interested parties,by 'phone or letter,but declines to make a written report of his findings.
Hardrock. Primos Chemical Co.,closed down operations on their property in 1916,but prior to closing had recovered more than $1,000,000 worth of tungsten. Their reported reason for stopping work at the mine was the fact that the head office of the company at Primos,Pa., had made acommitment for the purchase of tungsten concentrate from other sources involving some $400,000.00,and in their opinion,on a sliding market. Operations were never resumed after shutdown in 1916,except in a small way by leasers who apparently gopherholed surface outcrops,or highgraded any spots where tungsten could be found with a minimum of work.

b.We have no knowledge of adjoining or neighboring properties, except that a small mill was erected in about 1914 or 15,on what is known as the "Gija" claims in Sec.2 adjoining the Walker property. This mill was erected by a Mr.Banks,but to our knowledge never operated,due we are told to the price of tungsten at the time the mill was ready to operate.

c.Reports attached. Copy of report from Oscar M.Hershey dated Feb.23,1915 regarding Primos claims. Letter from W.F.Elgin, dated June 5 1949.

17. Not in production.

18. a.On the Primos property (which has been operating,years ago) the chief tungsten bearing veins are quartz,carrying some hubnerite and traces of scheelite. The quartz veins are in semi-porphyritic granite.
b.Neither ourselves nor the PrimosChemical Company have maps of the old workings on Primos claims. However,the U.S.Geological Survey mapped this mine in 1943,for their own information.
c.None possible at this time.

19. Tungsten has been produced in this area.The amount recovered inplacer operations is not determinable as most attempts have been on a very small scale with no permanent records kept.The executor of the Boericke estate is perfectly willing to show to any DMA representative,whatever records he may have of the Primos operations. We know definately that this company has recovered many thousands of pounds of tungsten,in spite of the crude methods employed. Therefore it seems reasonable to suppose that investigation should be made to determine whether or not sufficient tungsten still exists on the property to make further mining worthwhile.

20. Tungsten. Hubnerite and scheelite.

21. PLACER. Mapping of area,spotting of test holes and/or trenches special attention being given to the flanks of the valleys. Either a gasoline plugger with suitable tools will be used to recover samples or equipment similar to the Empire tester will be used. Each representative sample will be handled by the field engineer in charge and sent to the assay office,probably at Douglas Arizona. A mill run test sample will be sent to Denver Colorado,if results from assays justify this expense. A tractor with overhead loader will fill dump trucks for mill tests at nearest mill.(Tucson,Hereford or Hillside) We estimate that the placer examination could be completed in 60 days.

HARDROCK. Our proposal is to follow the recommendations of Mr. Oscar M.Hershey,in his report to Mr.Boericks dated Feb.23,1915, wherein he suggests a tunnel approx.,700 or 800 feet in length, driven from grade on the Warrier claim,which in his opinion would cut the vein system 300 feet below the outcrop. This, together with a systematic and careful examination of surface outcrops,should determine whether or not further mining on this Primos property is justified. Estimated time required--90 days.

22. Hardrock."This is a large area of semi-porphyritic granite, consisting of freequartz,white feldspar,and a little brown biotite, with scatteredphenocrysts of white feldspar up to 3" in length. The granite is cut by dykes and small irregular bodies of pale pink aplite.The tungsten bearing veins occur in three irregular zones of sheeting that have a general n.e. course and S.E.dip. The veins are of quartz,with considerable white mica along the walls,hubnerite,a little scheelite.traces of fluerite and locally iron,copper and lead sulphides."

Placer. Sufficient evidence has already beenobtained to show presence of float on both sides of the ridge of hills on the Primos property,and on the Walker lease as well. Whether or not it would be a paying proposition to attempt to "turn over" this ground,can only be determined bycarefully planned and executed field tests.

SUPPLEMENTING FORM MF 103 DMA 1404 X

PLACER

23.	a.	2 laborers @ 10 $20 1 laborer 7.50 7.50 60 days @ 27.50	$ 1,650.00
	b.	Engineer for 60 days, salary and expense appx	1,000.00
		Supervisor for 60 days @ $15 per day	900.00
	c.	None	
	d.	Tool and record shed, only	50.00
	e.	None	
	f.	Rental of gasoline plugger 60 days	250.00
		Rental of D-6 Cat tractor, with overhead loader, fueled and driven @ 7.00 per hour, 25-8 hr. days	1,400.00
		Rental of trucks, basis 5¢ ton mile, 37½ tons, 66 miles, 25 days	3,093.75
	g.	None	
	h.	Gas, oil, small tools, locks, sample bags, pans, scales, lumber, nails, sheet metal, water containers, records, etc.	500.00 (Estimated)
	i.	Assays, mill run tests (Denver)	300.00
		Emp. Liability ins., First aid, legal exp., etc.	300.00
		Unforseen emergencies	500.00
			$9,943.75

APPX $10,000.00

HARDROCK

Exploratory drift on the Bluebird claim.

We believe it possible to contract 800 feet of 5 x 7 at a price of $20 per foot advance, contractor to furnish all labor and materials, we to furnish engineering. If not, we propose to rent the necessary equipment and supply our own labor and materials. In this case we would submit a detailed budget for your approval.

Estimate -

800 feet @ $20	16,000.00
Engineer 90 days, salary and expenses	1,500.00
Assays and transportation, est.	500.00
Examination of other outcrops,	
1 man @ $15 60 days	900.00
1 man @ $10 60 days	600.00
Powder, fuse, caps, small tools, shed, etc.	200.00
Emp. Liability Ins., legal, first aid, etc.	300.00
	$20,000.00

24. Placer - 60 days Hardrock - 90 days

Air Mail

THE BENJAMIN FRANKLIN

A GREAT NAME A GREAT HOTEL

TELEPHONE
WALNUT 2-8600

CHESTNUT STREET AT NINTH · PHILADELPHIA 5

BELL TELETYPE SYSTEM
TWX PH 645

JOSEPH E. MEARS Vice-President and General Manager

May 25/'51

Defense Minerals.
Administration,
Washington D.C.,
Gentlemen —

I am enclosing application on your MF-103 for assistance in exploration for Tungsten in Arizona. The application is incomplete as yet — because I am now negotiating for additional ground to be added to my present lease. The area obtained will govern program planned.

Will supply you with all the additional data you require, when available.

Yours truly
H. A. Ingraham
c/o Ben Franklin Hotel Phil. Pa.

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. DMA-1404 X

Date received 5/31/51

Participation

Name and address of applicant

Date

FILL IN THIS BLOCK

Date of application MAY 25-1951

Estimated cost

Mineral or metal TUNGSTEN

Percentage of Government participation

Location of mine COCHISE CO. ARIZONA

Date of filing MF-100

DMA Docket Number, if available DMA-1404 X

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

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

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8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

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16—64067-1

THE PROPERTY

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State amount of power to be used, rate per hour or other cost, and source.
*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.
15. State in detail how the ore could be shipped and how and where milled.
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    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
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    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
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(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
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24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

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

H. A. INGRAHAM
(Name of company)

By H. A. Ingraham
(~~Signature of authorized official~~)

May 25-1951
(Date)

4300 Vandelia St Dallas, Texas.
(~~Title~~)

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

*Same as footnote on page 1.

Temporary address c/o B. Franklin Hotel Philadelphia Pa.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. DMA-1404X

Date received 5/31/51

Participation

Name and address of applicant

Date

FILL IN THIS BLOCK

Date of application MAY 25 1951

Estimated cost

Mineral or metal TUNGSTEN

Percentage of Government participation

Location of mine COCHISE CO. ARIZONA

Date of filing MF-100

DMA Docket Number, if available DMA-1404X

INSTRUCTIONS

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16—64067-1

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H. A. INGRAHAM
(Name of company)

By H. A. Ingraham
(Signature of authorized official)

MAY 25-1951
(Date)

4300 Vandelia St. Dallas Texas
(Title)

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Temporary address
c/o Ben Franklin Hotel
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16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. DMA-1404X

Date received 5/31/51

Participation

Name and address of applicant

Date

FILL IN THIS BLOCK

Date of application MAY 25-1951

Estimated cost

Mineral or metal TUNGSTEN

Percentage of Government participation

Location of mine COCHISE Co. ARIZONA

Date of filing MF-100

DMA Docket Number, if available DMA-1404X

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Philadelphia Pa.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

H. A. Ingraham,
c/o Ben Franklin Hotel,
Philadelphia Pa.

AIR MAIL
6¢
U.S. POSTAGE

PHILADELPHIA
MAY 27
1950
PM
WILLIAM PENN ANN.

Defense Minerals Administration,
U. S. Dept of the Interior,
Washington 25,
D.C.

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. dma 1404X

Date received 7-18-51

Participation

Name and address of applicant

Date

FILL IN THIS BLOCK

Date of application May 25 1951

Estimated cost $ 30,000.00

Mineral or metal TUNGSTEN

Percentage of Government participation 75%

Location of mine Cochise County, Arizona.

Date of filing MF-100

DMA Docket Number, if available DMA 1404X

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

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All questions answered on the attached sheets.

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16—64067-1

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*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.
*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.
19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?
21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.
22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.
24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

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

Stevens, Pendergast & Ingraham (Name of company) By Harry A. Ingraham (Signature of authorized official)

Supplementing application dated May 25 '51 (Date) Partner. (Title)

July 14 '51

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

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. dma 1404 X

Date received 7-18-51

Participation

Name and address of applicant

Date

FILL IN THIS BLOCK

Date of application May 25 1951

Estimated cost $ 30,000.00

Mineral or metal TUNGSTEN

Percentage of Government participation 75%

Location of mine Cochise County, Arizona.

Date of filing MF-100

DMA Docket Number, if available DMA 1404X

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.

All questions answered on the attached sheets.

*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

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

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.

*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.

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

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

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

*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

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

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
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    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.

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

THE EXPLORATION

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

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

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.

24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

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

Stevens, Pendergast & Ingraham (Name of company) By Henry A. Ingraham (Signature of authorized official)

Supplementing application dated May 25 '51 (Date) Partner. (Title)

July 14 '51

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

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

Washington, D. C.
July 14, 1951

Defense Minerals Administration
Department of the Interior
Washington 25, D. C.

Gentlemen:

RE - TUNGSTEN DMA - 1404 X

Enclosed please find four copies of details supplementing my application dated May 25, 1951 requesting aid in an exploration program for Tungsten.

The operation is to be carried on in the name of the partnership, Stevens, Pendergast and Ingraham, the principals being -

Col. Eugene Stevens, 3016 Clarendon Drive, Dallas, Texas
J. B. Pendergast, Cornwall, Ontario, Canada
H. A. Ingraham, 4300 Vandelia Street, Dallas, Texas

The property to be examined is in Cochise County, Arizona.

We propose a thorough and careful exploration of the flanks of certain valleys to determine whether or not a placer operation is justified. We also propose to drive an exploratory drift on the Bluebird claim, as recommended in the Hershey report, and conduct further examinations of outcrops, under competent engineering supervision, to determine whether or not a hardrock operation is justified.

PLACER

Dr. J. C. Karcher, Continental Building, Dallas, a well known oil geologist interested in mining, made an examination in 1949 of the placer possibilities in the area we propose working. He advised us through Col. Stevens of the possibilities of this area. With the exception of Dr. Karcher's testing in 1949, wherein some stripping was done with a tractor bulldozer, we consider that no carefully engineered testing of the placer ground has ever been done by anyone.

It is our intention to plot the ground, have representative samples assayed, and also haul a considerable tonnage to the nearest mill, Tucson, Hereford, or Hillside. (In our cost estimate we have used Tucson as an illustration). If justified, a representative 200# sample would be sent to Denver, for mill run test.

Should our results justify a mill, we are prepared to install a pumping plant at Dry Lakes, and supply sufficient water through a pipe line to mill site (either on or near the property), similar to that now operating for the Coronado Mine (formerly called the Republic), about two miles N.E. of our property. We propose, if justified, to erect a mill capable of handling 500 tons/24 hrs., of placer millfeed, or the same equipment to handle 100 tons hardrock per 24 hours. The estimated cost of this mill, plus placer and hardrock mining equipment,

approximately $275,000.00.

Our estimated cost of placer examination is approximately $10,000.00.

HARDROCK

The "Boericke" or Primos Chemical Co.'s claims, 23 in number, have in the past produced considerable tungsten, always by the most crude, inefficient methods. The mine was shut down in 1916 upon instructions from Primos head office in Primos, Pennsylvania, because of heavy purchases of tungsten by this company from other sources (amounting to approximately $400,000.00), and because of the apparent declining market in tungsten. Primos Company records show that thirty days was spent by their employees at the mine, stripping all showings of highgrade in every part of the mine, to prevent stealing. Therefore, when the U.S. Bureau of Mines, Geological Survey, mapped this property in 1943, no tungsten was in evidence in the old workings. However, we propose to disregard the old workings for the present and drift on the Bluebird claim, as suggested in the report of the late Oscar Hershey, in the belief that we can probably locate an ore body.

Primos Chemical Company's records show that in one period of 14 months 255,000 pounds of tungsten concentrate was mined. This averaged very close to 60% WO_3, and at 60%, on today's market, would have a value of over $450,000.00. All this was produced by the most crude methods, hand-steeling, instead of using air tools, etc.

Our estimated cost of entire hardrock examination on the Bluebird and other outcroppings, is approximately $20,000.00.

We have decided to enter into this exploration program for the following reasons --- Col. Stevens and the writer examined the property in April, 1951, and found ample evidence of tungsten, enough, in our opinion, to justify further exploration of the ground. The records of the Primos Chemical Company definitely show that thousands of pounds of tungsten have been mined on their claims, with no conclusive evidence that all tungsten has been exhausted.

We believe that the necessary manpower and equipment can be obtained for this exploration program.

We are prepared to supply funds in the amount of $7,500.00, as our 25% of the cost of the program, and if you approve of our application, respectfully request that you make available the balance of funds required. If approved, we will supply you with all subordination agreements, etc., that you may require.

STEVENS, PENDERGAST & INGRAHAM

By Harry A. Ingraham

Harry A. Ingraham

Supplementing FORM MF-103 DMA 1404 X

1. Partnership.

2. Col. Eugene Stevens, 3016 Clarendon Drive, Dallas, Texas.

J. B. Pendergast, Cornwall, Ontario, Canada.

H. A. Ingraham, 4300 Vandelia Street, Dallas, Texas.

3. Not incorporated.

4. Col. Eugene Stevens will be in responsible charge, having associated with him a competent engineer experienced in the mining of tungsten, who will direct field work and supervise sampling. Col. Stevens, who during the last warwas Commanding Officer of the Edmonton Air Base, in Edmonton, Alberta, has had considerable experience in mining, particularly in the handling of placer in Montana. His references are the Republic National Bank of Dallas, and Dr. Karcher, of Dallas. Vice President James Aston, of the Republic Bank, is familiar with Col. Stevens' experience.

Mr. J. B. Pendergast, of Cornwall, Ontario, except for the years spent with financial institutions, such as the Merchants Bank of Canada, the Federal Reserve Bank of Cleveland, Ohio, and others, has been active in the mining industry all his life. His experience has included prospecting and development work in every Province in Canada, but more particularly in the Province of Ontario. Of late years he has been more active in an executive capacity connected with financing. His references are - Hon. Lional Cheverier, Minister of Transport, Dominion Government, Ottawa; Judge Brennan, Cornwall, Ontario; Hon. George Dunbar, Ontario Provincial Government, Toronto, Ontario, and Justice Ferguson, Toronto, Ontario.

Mr. H. A. Ingraham is an engineer, member of the Engineering Institute of Canada, and a registered professional engineer in the Province of Alberta. Although an American citizen, he has done considerable engineering within the Dominion of Canada, connected with the mining industry, particularly within the Northwest Territory where he was in responsible charge of the first hydroelectric development in the territory. This development served four mines in the Yellowknife area, NWT. His references are - R. E. Towle, until recently manager of the Federal Reserve Bank at Helena, Montana, now residing in Helena, and Mr. Reg Halladay, of Halladay & Co., 14 Wall Street, New York City, N.Y., W. P. Merritt, of Merritt Road, Farmingdale, Long Island, N. Y.

5. Lessee of part, namely the Walker property. Also eight claims filed in the name of Eugene Stevens, and purchase agreement on Primos Chemical Company property, wherein we would be owners. Proper evidence of title and subordination agreements from all parties will be supplied.

6. Abstracts will be supplied if application is approved. All necessary subordination agreements,properly executed,will be furnished.

7. Existing lease,in good standing.Copy enclosed.

8. Current financial statement of this partnership——
Assets—$15,000.00 Liabilities,none.

9. $7500.00 This amount being 25% of the estimated cost of program.

10. 10-a and 10-b,same area. This area is limited to the 23 claims shown on the attached map as Primos Chemical Co.,patented ground, identified as follows,Owl,Boulder,Yellow Jacket,Juniper,Warrior, Bluebird,Redbird,Wedge,Gray,Black Beauty,Oregon,Dividend,Cracker Jack,Hidden Treasure,Surprise,Last Chance,May Flower,King, Wolfram Queen,Aetna,Yankee Pride,Little Jessie,Ada,also the area included in the Walker lease datedApril 9,1951 covering Blue Bell claim number 171939,survey number 2596,a portion of sections 2 and 3 in Township 16 S.Range 22 E.of Gila and Salt River Meridian in the Cochise Mining District,Cochise County,Arizona and recorded in Book 26,Page ~~96~~ 76,et.seq.,deeds of mines. Also Mariposa Lily No.1 and Mariposa No.8 in sections 2 and 3 as above,containing 60 acres more or less,it being specifically provided that there shall be exempted therefrom ten acres surrounding the present Walker residence. Also 5 mining claimslocated by Elmer C.Walker in sections 27,35 and 36,T-15 S.,Range 22 E,as above. Also 8 mining claims staked by Eugene Stevens ~~stak~~ in section 2,T-16 S,R22 E, and in sections 35 and 36,T-15 S,Range 22 E,as above. (Note:- detailed maps showing exact locations of claims and limiting boundries of all areas will be supplied)

11. Primos Chemical Co.property was at one time known as the Stein & Boericke and also as the Boericke property.The Walker property insofar as we have any knowledge was either in the hands of the present Walker family,or a brother of the present owner Elmer C. Walker,or a Mr.Rich. Proper abstracts will be supplied if application is approved.

12. Location of Property. Cochise County,Arizona. Dragoon is the nearest shipping point,on S.P.Ry.,about 5 miles South of the property on a good allweather road. It is about 1½ miles to the paved highway leading to Benson,Tucson etc.,Benson being about 17 miles S.W.,of the property. Road from property to the paved highway is an allweather road.

13. No local water supply available,other than enough for testing purposes and driving exploratory drift. In the event a mill is justified,a pumping plant would be installed at Dry Lakes near Wilcox,and a pipe line laid to mill site,similar to that now in use by the Coronado Mine,about 2 miles N.E.of our property.
Testing equipment self powered,gas & diesel.(Mill power-diesel)

14. No facilities on property at present.

15. If justified a complete new milling plant will be erected on or near the property.

16. a.Placer.Various operators have attempted placer operations on a small scale,some with dry separators,but to our knowledge no one with the exception of Dr.Karcher has made any attempt to give the placer ground a careful and thoro examination. Dr.Karcher's assistant.Mr.W.F.Elgin,in a letter to a Mr.Christie made certain observations regarding thier findings.A copy of Mr.Elgin's letter is attached. Mr.Karcher has expressed his willingness to discuss the results of his tests with any interested parties,by 'phone or letter,but declines to make a written report of his findings.
Hardrock. Primos Chemical Co.,closed down operations on their property in 1916,but prior to closing had recovered more than $1,000,000 worth of tungsten. Their reported reason for stopping work at the mine was the fact that the head office of the company at Primos,Pa., had made acommitment for the purchase of tungsten concentrate from other sources involving some $400,000.00,and in their opinion,on a sliding market. Operations were never resumed after shutdown in 1916,except in a small way by leasers who apparently gopherholed surface outcrops,or highgraded any spots where tungsten could be found with a minimum of work.

b.We have no knowledge of adjoining or neighboring properties, except that a small mill was erected in about 1914 or 15,on what is known as the "Eija" claims in Sec.2 adjoining the Walker property. This mill was erected by a Mr.Banks,but to our knowledge never operated,due we are told to the price of tungsten at the time the mill was ready to operate.

c.Reports attached. Copy of report from Oscar M.Hershey dated Feb.23,1915 regarding Primos claims. Letter from W.F.Elgin, dated June 5 1949.

17. Not in production.

18. a.On the Primos property (which has been operating,years ago) the chief tungsten bearing veins are quartz,carrying some hubnerite and traces of scheelite. The quartz veins are in semi-porphyritic granite.
b.Neither ourselves nor the PrimosChemical Company have maps of the old workings on Primos claims. However,the U.S.Geological Survey mapped this mine in 1943,for their own information.
c.None possible at this time.

19. Tungsten has been produced in this area.The amount recovered inplacer operations is not determinable as most attempts have been on a very small scale with no permanent records kept.The executor of the Boericke estate is perfectly willing to show to any DMA representative,whatever records he may have of the Primos operations. We know definately that this company has recovered many thousands of pounds of tungsten,in spite of the crude methods employed. Therefore it seems reasonable to suppose that investigation should be made to determine whether or not sufficiamt tungsten still exists on the property to make further mining worthwhile.

20. Tungsten. Hubnerite and scheelite.

21. PLACER. Mapping of area,spotting of test holes and/or trenches special attention being given to the flanks of the valleys. Either a gasoline plugger with suitable tools will be used to recover samples or equipment similar to the Empire tester will be used. Each representative sample will be handled by the field engineer in charge and sent to the assay office,probably at Douglas Arizona. A mill run test sample will be sent to Denver Colorado,if results from assays justify this expense. A tractor with overhead loader will fill dump trucks for mill tests at nearest mill.(Tucson,Hereford or Hillside) We estimate that the placer examination could be completed in 60 days.

HARDROCK. Our proposal is to follow the recommendations of Mr. Oscar M.Hershey,in his report to Mr.Boericks dated Feb.23,1915, wherein he suggests a tunnel approx.,700 or 800 feet in length, driven from grade on the Warrior claim,which in his opinion would cut the vein system 300 feet below the outcrop. This, together with a systematic and careful examination of surface outcrops,should determine whether or not further mining on this Primos property is justified. Estimated time required--90 days.

22. Hardrock."This is a large area of semi-porphyritic granite, consisting of freequartz,white feldspar,and a little brown biotite with scatteredphenocrysts of white feldspar up to 3" in length. The granite is cut by dykes and small irregular bodies of pale pink aplite.The tungsten bearing veins occur in three irregular zones of shearing that have a general n.e. course and S.E.dip. The veins are of quartz,with considerable white mica along the walls,hubnerite,a little scheelite.traces of fluorite and locally iron,copper and lead sulphides."

Placer. Sufficient evidence has already beenobtained to show presence of float on both sides of the ridge of hills on the Primos property,and on the Walker lease as well. Whether or not it would be a paying proposition to attempt to "turn over" this ground,can only be determined bycarefully planned and executed field tests.

SUPPLEMENTING FORM MF 103 DMA 1404 X

PLACER

23. a.	2 laborers @ 10 $20 1 laborer 7.50 7.50 60 days @ 27.50	$ 1,650.00
b.	Engineer for 60 days, salary and expense appx	1,000.00
	Superviser for 60 days @ $15 per day	900.00
c.	None	
d.	Tool and record shed, only	50.00
e.	None	
f.	Rental of gasoline plugger 60 days	250.00
	Rental of D-6 Cat tractor, with overhead loader, fueled and driven @ 7.00 per hour, 25-8 hr. days	1,400.00
	Rental of trucks, basis 5¢ ton mile, 37½ tons, 66 miles, 25 days	3,093.75
g.	None	
h.	Gas, oil, small tools, locks, sample bags, pans, scales, lumber, nails, sheet metal, water containers, records, etc.	500.00 (Estimated)
i.	Assays, mill run tests (Denver)	300.00
	Emp. Liability ins., First aid, legal exp., etc.	300.00
	Unforseen emergencies	500.00
		$9,943.75

APPX $10,000.00

HARDROCK

Exploratory drift on the Bluebird claim.

We believe it possible to contract 800 feet of 5 x 7 at a price of $20 per foot advance, contractor to furnish all labor and materials, we to furnish engineering. If not, we propose to rent the necessary equipment and supply our own labor and materials. In this case we would submit a detailed budget for your approval.

Estimate -

800 feet @ $20	16,000.00
Engineer 90 days, salary and expenses	1,500.00
Assays and transportation, est.	500.00
Examination of other outcrops,	
1 man @ $15 60 days	900.00
1 man @ $10 60 days	600.00
Powder, fuse, caps, small tools, shed, etc.	200.00
Emp. Liability Ins., legal, first aid, etc.	300.00
	$20,000.00

24. Placer - 60 days Hardrock - 90 days

Supplementing FORM MF-103 DMA 1404 X

1. Partnership.

2. Col. Eugene Stevens, 3016 Clarendon Drive, Dallas, Texas.

J. B. Pendergast, Cornwall, Ontario, Canada.

H. A. Ingraham, 4300 Vandelia Street, Dallas, Texas.

3. Not incorporated.

4. Col. Eugene Stevens will be in responsible charge, having associated with him a competent engineer experienced in the mining of tungsten, who will direct field work and supervise sampling. Col. Stevens, who during the last war was Commanding Officer of the Edmonton Air Base, in Edmonton, Alberta, has had considerable experience in mining, particularly in the handling of placer in Montana. His references are the Republic National Bank of Dallas, and Dr. Karcher, of Dallas. Vice President James Aston, of the Republic Bank, is familiar with Col. Stevens' experience.

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Mr. H. A. Ingraham is an engineer, member of the Engineering Institute of Canada, and a registered professional engineer in the Province of Alberta. Although an American citizen, he has done considerable engineering within the Dominion of Canada, connected with the mining industry, particularly within the Northwest Territory where he was in responsible charge of the first hydroelectric development in the territory. This development served four mines in the Yellowknife area, NWT. His references are - R. E. Towle, until recently manager of the Federal Reserve Bank at Helena, Montana, now residing in Helena, and Mr. Reg Halladay, of Halladay & Co., 14 Wall Street, New York City, N.Y., W. P. Merritt, of Merritt Road, Farmingdale, Long Island, N. Y.

5. Lessee of part, namely the Walker property. Also eight claims filed in the name of Eugene Stevens, and purchase agreement on Primos Chemical Company property, wherein we would be owners. Proper evidence of title and subordination agreements from all parties will be supplied.

6. Abstracts will be supplied if application is approved. All necessary subordination agreements, properly executed, will be furnished.

7. Existing lease, in good standing. Copy enclosed.

8. Current financial statement of this partnership—
Assets—$15,000.00 Liabilities, none.

9. $7500.00 This amount being 25% of the estimated cost of program.

10. 10-a and 10-b, same area. This area is limited to the 23 claims shown on the attached map as Primos Chemical Co., patented ground, identified as follows, Owl, Boulder, Yellow Jacket, Juniper, Warrior, Bluebird, Redbird, Wedge, Gray, Black Beauty, Oregon, Dividend, Crawhar Jack, Hidden Treasure, Surprise, Last Chance, May Flower, King, Wolfram Queen, Aetna, Yankee Pride, Little Jessie, Ada, also the area included in the Walker lease dated April 9, 1951 covering Blue Bell claim number 171939, survey number 2596, a portion of sections 2 and 3 in Township 16 S, Range 22 E. of Gila and Salt River Meridian in the Cochise Mining District, Cochise County, Arizona and recorded in Book 26, Page 76, et. seq., deeds of mines. Also Mariposa Lily No. 1 and Mariposa No. 8 in sections 2 and 3 as above, containing 60 acres more or less, it being specifically provided that there shall be excepted therefrom ten acres surrounding the present Walker residence. Also 5 mining claims located by Elmer C. Walker in sections 27, 35 and 36, T-15 S., Range 22 E, as above. Also 8 mining claims staked by Eugene Stevens ~~stak~~ in section 2, T-16 S, R22 E, and in sections 35 and 36, T-15 S, Range 22 E, as above. (Note:- detailed maps showing exact locations of claims and limiting boundries of all areas will be supplied)

11. Primos Chemical Co. property was at one time known as the Stein & Boericke and also as the Boericks property. The Walker property insofar as we have any knowledge was either in the hands of the present Walker family, or a brother of the present owner Elmer C. Walker, or a Mr. Rich. Proper abstracts will be supplied if application is approved.

12. Location of Property. Cochise County, Arizona. Dragoon is the nearest shipping point, on S.P.Ry., about 5 miles South of the property on a good allweather road. It is about 1½ miles to the paved highway leading to Benson, Tuscon etc., Benson being about 17 miles S.W., of the property. Road from property to the paved highway is an allweather road.

13. No local water supply available, other than enough for testing purposes and driving exploratory drift. In the event a mill is justified, a pumping plant would be installed at Dry Lakes near Wilcox, and a pipe line laid to mill site, similar to that now in use by the Coronado Mine, about 2 miles N.E. of our property.

14. Testing equipment self powered, gas & diesel. (Mill power-diesel) No facilities on property at present.

15. If justified a complete new milling plant will be erected on or near the property.

16. a.Placer.Various operators have attempted placer operations on a small scale,some with dry separators,but to our knowledge no one with the exception of Dr.Karcher has made any attempt to give the placer ground a careful and thoro examination. Dr.Karcher's assistant.Mr.W.F.Elgin,in a letter to a Mr.Christie made certain observations regarding thier findings.A copy of Mr.Elgin's letter is attached. Dr.Karcher has expressed his willingness to discuss the results of his tests with any interested parties,by 'phone or letter,but declines to make a written report of his findings.
Hardrock. Primos Chemical Co.,closed down operations on their property in 1916,but prior to closing had recovered more than $1,000,000 worth of tungsten. Their reported reason for stopping work at the mine was the fact that the head office of the company at Primos,Pa., had made acommitment for the purchase of tungsten concentrate from other sources involving some $400,000.00,and in their opinion,on a sliding market. Operations were never resumed after shutdown in 1916,except in a small way by leasers who apparently gopherholed surface outcrops,or highgraded any spots where tungsten could be found with a minimum of work.

b.We have no knowledge of adjoining or neighboring properties, except that a small mill was erected in about 1914 or 15,on what is known as the "Gija" claims in Sec.2 adjoining the Walker property. This mill was erected by a Mr.Banks,but to our knowledge never operated,due we are told to the price of tungsten at the time the mill was ready to operate.

c.Reports attached. Copy of report from Oscar M.Hershey dated Feb.23,1915 regarding Primos claims. Letter from W.F.Elgin, dated June 5 1949.

17. Not in production.

18. a.On the Primos property (which has been operating,years ago) the chief tungsten bearing veins are quartz,carrying some hubnerite and traces of scheelite. The quartz veins are in semi-porphyritic granite.
b.Neither ourselves nor the PrimosChemical Company have maps of the old workings on Primos claims. However,the U.S.Geological Survey mapped this mine in 1943,for their own information.
c.None possible at this time.

19. Tungsten has been produced in this area.The amount recovered inplacer operations is not determinable as most attempts have been on a very small scale with no permanent records kept.The executor of the Boericke estate is perfectly willing to show to any DMA representative,whatever records he may have of the Primos operations. We know definately that this company has recovered many thousands of pounds of tungsten,in spite of the crude methods employed. Therefore it seems reasonable to suppose that investigation should be made to determine whether or not sufficiamt tungsten still exists on the property to make further mining worthwhile.

20. Tungsten. Hubnerite and scheelite.

1. PLACER. Mapping of area,spotting of test holes and/or trenches special attention being given to the flanks of the valleys. Either a gasoline plugger with suitable tools will be used to recover samples or equipment similar to the Empire tester will be used. Each representative sample will be handled by the field engineer in charge and sent to the assay office,probably at Douglas Arizona. A mill run test sample will be sent to Denver Colorado,if results from assays justify this expense. A tractor with overhead loader will fill dump trucks for mill tests at nearest mill.(Tucson,Hereford or Hillside) We estimate that the placer examination could be completed in 60 days.

HARDROCK. Our proposal is to follow the recommendations of Mr. Oscar M.Hershey,in his report to Mr.Boerieks dated Feb.23,1915, wherein he suggests a tunnel approx.,700 or 800 feet in length, driven from grade on the Warrior claim,which in his opinion would cut the vein system 300 feet below the outcrop. This, together with a systematic and careful examination of surface outcrops,should determine whether or not further mining on this Primos property is justified. Estimated time required--90 days.

22. Hardrock."This is a large area of semi-porphyritic granite, consisting of freequartz,white feldspar,and a little brown biotite, with scatteredphenocrysts of white feldspar up to 3" in length. The granite is cut by dykes and small irregular bodies of pale pink aplite.The tungsten bearing veins occur in three irregular zones of sheeting that have a general n.e. course and S.E.dip. The veins are of quartz,with considerable white mica along the walls,hubnerite,a little scheelite.traces of fluorite and locally iron,copper and lead sulphides."

Placer. Sufficient evidence has already beenobtained to show presence of float on both sides of the ridge of hills on the Primos property,and on the Walker lease as well. Whether or not it would be a paying proposition to attempt to "turn over" this ground,can only be determined bycarefully planned and executed field tests.

SUPPLEMENTING FORM MF 103 DMA 1404 X

PLACER

23.	a.	2 laborers @ 10 $20 1 laborer 7.50 7.50 60 days @ 27.50	$ 1,650.00
	b.	Engineer for 60 days, salary and expense appx	1,000.00
		Supervisor for 60 days @ $15 per day	900.00
	c.	None	
	d.	Tool and record shed, only	50.00
	e.	None	
	f.	Rental of gasoline plugger 60 days	250.00
		Rental of D-6 Cat tractor, with overhead loader, fueled and driven @ 7.00 per hour, 25-8 hr. days	1,400.00
		Rental of trucks, basis 5¢ ton mile, 37½ tons, 66 miles, 25 days	3,093.75
	g.	None	
	h.	Gas, oil, small tools, locks, sample bags, pans, scales, lumber, nails, sheet metal, water containers, records, etc.	500.00 (Estimated)
	i.	Assays, mill run tests (Denver)	300.00
		Emp. Liability ins., First aid, legal exp., etc.	300.00
		Unforseen emergencies	500.00
			$9,943.75

APPX $10,000.00

HARDROCK

Exploratory drift on the Bluebird claim.

We believe it possible to contract 800 feet of 5 x 7 at a price of $20 per foot advance, contractor to furnish all labor and materials, we to furnish engineering. If not, we propose to rent the necessary equipment and supply our own labor and materials. In this case we would submit a detailed budget for your approval.

Estimate -

800 feet @ $20	16,000.00
Engineer 90 days, salary and expenses	1,500.00
Assays and transportation, est.	500.00
Examination of other outcrops,	
1 man @ $15 60 days	900.00
1 man @ $10 60 days	600.00
Powder, fuse, caps, small tools, shed, etc.	200.00
Emp. Liability Ins., legal, first aid, etc.	300.00
	$20,000.00

24. Placer - 60 days Hardrock - 90 days

Tuscon, Arizona
June 5, 1949

Mr. J. J. Christie
Dragoon, Arizona

Dear Sir: (TEXAS CANYON TUNGSTEN PROPERTIES)
(Basis $26.00 per unit)

LOCATION: The properties examined are about 17 miles from Benson and 19 miles southwest of Willcox, Arizona. More specifically, they are on the north side of Texas Canyon. They are approximately 10 miles from the nearest large water supply and about 3 miles to the mine of Mrs. Landfair, where there is considerable water.

THE PROPERTY: The Boericke patented claims form a horseshoe and rise about 200 feet above the valley. These claims are under Bond and Lease to Ray Fernstrom and there are some 20 odd of them. They are lode claims and at present Jess Wien has a lease from Fernstrom on a few of them. He is mining highgrade tungsten from the highest point on the claims and is making a good profit on his small operation. In the valley to the east and within the horseshoe is your property, 2 claims belonging to Mr. Rich and better than 500 acres of State land, on which we have an option for lease. To the southwest is the Canyon property belonging to the Adams heirs. This is by far the richest of all of the properties, but is almost beyond economical recovery on account of the topography.

GENERAL HISTORY: The tungsten placer was formed by erosion of the granite rock on the hills surrounding your property. These hills or mountains were evidently of considerable height and were cracked in many places when cooling, leaving small slashes in which the tungsten was formed. Since tungsten is almost as heavy as gold, the placer was laid down in a similar manner and the tungsten has worked its way to the bedrock. For many years the various properties have been high-graded by Mexicans and the unemployed. No serious placer mining has been done, even during the first world war, when the property was worked to the utmost without the aid of pumped water. We know that the Primos Chemical Company mined several million dollars worth of tungsten from the lode claims and also took out perhaps a million from the placer, by just screening out the nuggets.

OUR SAMPLING: When we first considered sampling your property, we specifically told you we would not be interested unless the whole valley would sample as placer fines high enough for us to operate a plant of from 1,000 to 2,000 tons per 24 hours. We have explained the setup many times and I am sure that you agree with us on our stand. However, I want to go on record as recommending these properties very highly for a smaller operation. We have made a very thorough sampling of your property and a casual sampling of the other properties. As you know all nuggets were screened out of all samples, as we were sampling for placer fines only. In other words, we were sampling for a very large low grade placer operation and were not interested in the high grade that is very much in evidence in the edges of your property and in the other properties. It was agreed by all parties that we would concede $1.00 per yard for the nuggets that were to be found in the lower three feet and in the hillside area of your claims. We felt

very safe in making this concession as we found nuggets in almost all holes that we sunk to bedrock. The largest nugget found in any of the one cubic foot cuts weighed 12 pounds and contained at least 65% WO_3, the largest amount came from number two sample where we recovered a large pan, about 30 pounds. Many four to five pound nuggets were recovered and the one fourth inch to one inch nuggets were in abundant evidence to justify us conceding the $1.00 per yard for the lower three feet. Yet from this same cut from number two sample, after screening, our sample only assayed two cents per ton. We cut another sample and it assayed $5.35 per ton. We checked these samples many times by panning and all varied just about this amount.

All of our second sampling was screened through a one fourth inch mesh screen and then crushed down to 50 mesh, carefully weighed on assay balances, panned, and the concentrate weighed on assay balances after drying with acetone. This concentrate was bottled, sealed, labeled and taken to the assay office in Douglas, Arizona. On your property the second sampling showed 64.5 cents per ton as against 38.8 cents per ton on the first sampling. We considered that the first method of concentration was wrong and that we were losing at least 40% more of the tungsten than we did when we carefully panned the samples.

We also had in mind that at least 25% of the values were lost in using the longtom or in the hand panning method. However, while our second samples were many times smaller than the original samples, we must admit that the accuracy was far greater. Even the assayer was prepared and knew that we were checking, that we had done everything possible to make the given sample as nearly accurate as humanly possible.

The hillside will assay $3.00 to $4.00 per ton but as the material is (@ 26") very shallow we did not assay, but confined our testing to panning. On most of your property the overburden is shallow and will not average over three to four feet in depth. On the hillside areas in the edge of the valley, the overburden has been washed away and all material is workable and can be handled with small equipment at a very good profit.

In our plans we were to drill a well either in the Dry Lake or at Benson and pump the water through a six inch line. We were to install dragline shovels and build a mill large enough to handle 2,000 tons per day when not mining the mud and at least 1,000 tons per day when handling the mud. Our mapping showed between ten and twelve million tons in your valley, with about five million tons being on your property and in the edge of the school lane.

I suggest you try to interest someone to install a small operation and clean up the edges where the material is shallow. I would haul the water for this operation and make the operation in such a manner that they would be making a storage basin for water. Dams should be installed to catch as much rain water as is possible. Even a small operation will require considerable expenditure but will show a very high profit per ton.

I am not satisfied with our sampling as the values are too erratic for the amount of tungsten that can be seen. After much study of the sampling, I am sure that the only way to sample the shallow ground is to run five to ten ton lots through a mill and use the actual recovered amounts as the yardstick. Our number one, number two and number ten samples are typical of the variations.

It seems very likely that there is more tungsten available on these properties than has been mined in the whole state in the past and that a very large portion of it can be recovered in a simple operation.

Very truly yours,

W. F. Elgin

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June 5, 1949

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(Basis $26.00 per unit)

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very safe in making this concession as we found nuggets in almost all holes that we sunk to bedrock. The largest nugget found in any of the one cubic foot cuts weighed 12 pounds and contained at least 65% WO_3, the largest amount came from number two sample where we recovered a large pan, about 30 pounds. Many four to five pound nuggets were recovered and the one fourth inch to one inch nuggets were in abundant evidence to justify us conceding the $1.00 per yard for the lower three feet. Yet from this same cut from number two sample, after screening, our sample only assayed two cents per ton. We cut another sample and it assayed $5.35 per ton. We checked these samples many times by panning and all varied just about this amount.

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It seems very likely that there is more tungsten available on these properties than has been mined in the whole state in the past and that a very large portion of it can be recovered in a simple operation.

Very truly yours,

W. F. Elgin

COPY

San Francisco, California.
Feb. 23rd, 1915.

Mr. Gideon Boericke,
Primos, Pennsylvania.

Dear Sir:

In accordance with your letter of Jan. 13th, I have made a brief examination of your tungsten deposits near Dragoon, Cochise County, Arizona, occupying 1½ days. I was guided over the property by Mr. O. T. Smith and as many of the cuts have caved and some underground workings were under water, I was dependent on him for certain information about thickness of veins, etc. Probably I can best lay the foundation for my conclusions by comments on the claims in the order visited. They are included in a large area of semi-porphyritic granite, consisting of free quartz, white feldspar and a little brown biotite, with scattered phenocrysts of white feldspar up to 3 inches in length. Some scattered muscovite may be largely secondary. The granite is cut by dikes and small irregular bodies of pale pink aplite. The tungsten-bearing veins occur in three irregular zones of sheeting that have a general northeast course and southeast dip. The veins are of quartz, with considerable white mica along the walls, hubnerite a little scheelite, traces of fluorite and locally iron, copper and lead sulphides. They were produced by emanations from the granite magma after the upper portion had crystallized, the sheeting permitting the egress of the magmatic water.

On the Ada claim, owned by Stein & Boericke, the sheeted zone strikes N. 60° E. and dips S. 30° E. 45° to 60°. This has many small seams of quartz. The first important opening going southwest on the claim is a cut 60 feet long on a quartz vein which strikes No. 80° E. and dips S. 10° E. 30°, and hence intersecting the sheeting. Quartz up to several feet thick yielded ore. There was another small lens about 120 feet farther west, production unknown. On top of the ridge a vein striking N. 80° W. and dipping S. 10° W. 50°, intersected the small veins in the sheeted zone and formed a series of small bunches of ore that were worked in shallow cuts, production unknown. The best showing is on the southwest portion of the claim where there is a cut about 180 feet long on a vein striking N. 60° E. and dipping S. 30° E., 45° and thence a series of cuts on the vein, or a set of stringers in a narrow zone, extends 180 feet southwest. This vein is parallel to the sheeting. The cuts are partly caved. Smith says there are two shafts, about 45 and 50 feet deep respectively. In the cut there was a fine body of ore 75 feet long and 2 feet wide, about 75% hubnerite. This gradually pinched to a depth of 30 feet and then the vein was cut off. Smith says this was the best bunch of ore on the property and that if similar bunches recurred at frequent intervals with depth, the mine would pay well at $6 per unit of tungstic acid. However, from the description, I fear that the vein, though in places 3 to 4 feet thick, may have ended against a cross fracture and not necessarily extend deeper. For this reason I do not recommend further work here.

The Little Jessie claim, owned by Stein & Boericke and the Chrome Steel Company, has a network of small quartz veins with an occasional

blade of hubnerite, nowhere forming commercial bunches. The best bunch observed is at a small cut probably near the southwest end of the claim. It is over 2 feet in greatest thickness and has enough hubnerite and scheelite to make something less than 1% ore.

Across the Yankee Pride claim (same owners as preceding) there are many small seams of quartz with an occasional blade of hubnerite and at wide intervals a few pounds of fair ore, but no commercial bunches, distributed through a rather definite sheeted zone, several hundred feet wide and bordered by massive granite. There never was much float on this hillside.

On the Aetna claim (same owners as preceding) the vein system shows a tendency to form lenses of quartz up to 3 feet thick. The larger lenses are almost barren except for an occasional large blade of hubnerite and there is nothing commercial on the claim. Smith says the short gulch on the northwest side of the southwest half of the claim yielded "quite a little float ore."

The above four claims cover the best portion of the middle zone of sheeting. On the southeast of the last three, there is a zone of narrow stringers that were examined on my 1906 visit, not on this. It is not of a promising nature. The claims now to be described are on the northwest and strongest zone of sheeting and veining.

The Juniper claim, owned by Stein & Boericke, has practically no veins, but has been extensively worked as a hillside placer. Patches of debris from 6 inches to 4 feet deep are rich in quartz that has slidden down from the Yellow Jacket veins. This was worked originally for the surface float and may have yielded 75 tons of first-class ore (Smith). It is now being turned over down to the decomposed granite by seven Mexicans who get 10¢ per lb. from P. M. Sebring who receives 12¢ per lb. from the Primos Chemical Co. The ground appears to be pretty well worked out. The Red Bird claim, (same owners as preceding), has but little float and the Boulder claim was not visited as Smith said there was little to see on it.

Near the center of the Yellow Jacket claim, owned by the Chrome Steel Company, there is a group of quartz stringers and one vein which, so far as can be seen now, was from 1 to 3 feet thick for a distance of probably 200 feet. This group has been worked in large open cuts, now partly caved. Thence N. 60° E. along the ridge there is a network of stringers in an irregular zone. In places the quartz bunches to several feet thick. Near the northeast end of the claim there is a cut 30 feet long and 10 to 15 feet deep, (with a shaft below), on a vein of ribbon quartz, containing pyrite and a little sphalerite, with enough hubnerite to make it low grade milling ore. Several tunnels have been driven through the hill. The quartz in these tunnels and that remaining at the surface contains so little hubnerite that I am confident that this claim could not be profitably worked underground.

On the Blue Bird claim, owned by Stein & Boericke, the vein system spreads out to a width of hundreds of feet and besides the many small stringers, it has a series of stronger and more regular veins which, near the southwest end, strike northeast and dip southeast 70° and less. One at the 50-foot shaft has been stoped for over 150 feet to depths of 2 to 12 feet and in a stope described as 30 feet long and 15 feet high, above a drift from the shaft. The vein varies from 6 inches to 3 feet in thickness. The hubnerite is in bunches of coarse crystals scattered through much barren quartz. A 110-foot tunnel apparently follows this vein, but in it the quartz is very narrow and not commercial.

The shaft has water in it, but Mr. Smith says that at the bottom there is a 100-foot cross-cut. At 50 feet a drift runs 40 feet on a vein 8 inches thick, of ribbon quartz, rather uniform ore, probably 2%. At 100 feet, the cross-cut cut a 3-foot vein with coarse hubnerite. The vein at 50 feet is exposed at the surface, has been more or less stoped along the outcrop for about 200 feet, averaged 8 inches, about 2% ore per Smith. I may say that Mr. Smith has no records of production and apparently never knew definitely the content of the ore at any of the cuts on the property, so that the figures that I give, based on his guesses aremerely approximate, but all that seem available at present. This vein comes free from the granite and has a structure and type of mineralization that suggest persistence with depth. It may be followed 300 feet farther to a short distance in the Yellow Jacket claim. It is the longest vein I saw in the district. Probably it will average 8 inches thick for 500 feet.

What is supposed to be the vein at the end of the cross-cut was trenched for about 250 feet. Mr. Smith says from this was mined ore continuous except for one short barren section, 4 inches to 3 feet thick, probably 10 inches that, if mined without sorting, would not exceed 2% ore. Above this there are several cuts on small veins and at the top of the ridge many small quartz stringers of no value. Farther northeast a cut 50 feet long yielded ore from a vein 3 feet thick, but very short. Smith thinks the veins on the Blue Bird claim have yielded more ore than all the other veins in the district together, though the float diggings he thinks have yielded ten times as much as the veins. He is doubtful that these veins could be profitably worked underground at a price of $6 per unit.

The Warrior claim (same owners as preceding) had one vein that was stoped about 75 feet long, to a maximum depth of 30 feet, with 12 to 18 inches of good grade ore, coarse type. Smith thinks the vein at the bottom has 18 inches of fair ore. He thinks this work more than paid for itself. He says this is also a good float claim, but Sebring says not much remains on it. The Red Bird claim has but little float per Smith. The Trench was a good float claim but is worked out. The Oregon claim, also owned by Stein & Beericke, is a float claim now being worked by Sebring, his son and Mexicans. Seven men in 26 days secured 3035 lbs. for which Sebring will get 12¢ per lb. One man may work over in 3-foot ground 75 cu. ft. The ground has been pretty well worked out on the Oregon claims down to where the pay stratum becomes buried under 3 to 6 feet of granite debris and the present workers are inclined to quit.

On the Gray, Black Beauty and Dividend claims, owned by Stein & Beericke and the Chrome Steel Co., the stringer zone is very wide and strong. The best veins seen on the Gray are about a feet thick, not commercial. The foot of the hill on this claim probably would make good float diggings. On the Black Beauty and Dividend claims, when any seam makes a bunch a foot or more thick it is short, rarely more than 30 to 40 feet long and very low in grade. Smith regards these three claims as among the best in the district and they have undeoubtedly given rise to much float ore, but I am certain they cannot be worked profitably underground.

At about the northeast end of the Dividend claim, the stringer system weakens and across the Cracker Jack claim (same owners as last), it is not of much account, though 18 inches of quartz with large hubnerite blades may be seen in a small cut and several hundred pounds of ore may have been removed. There is not much float ore on this claim.

Across the Hidden Treasure and most of the Surprise claim (same owners as preceding) the stringer system is weak, the seams being widely separated and bunches few and small. However, on the northeast quarter of the Hidden Treasure and southwest quarter of the Surprise, seams are abundant and rich enough to have given rise to an area that may pay to "turn over" for float as is being done beyond the claim lines.

Near the northeast end of the Surprise claim, the vein system becomes stronger and spreads out. Veins 6 inches to a foot thick appear and may be traced for several hundred feet.

On the Last Chance claim, owned by Stein & Boericke, some milling ore was taken from several cuts near the southwest end. The ground in the head of a draw below this section would probably pay to turn over for float. Shallow cuts that have yielded a little ore are scattered through the claim to the principal workings near the northeast end. Here there is a shallow cut about 300 feet long on a vein from 5 to 30 inches thick, averaging about 18 inches, Smith says, striking N. 20° W. and dipping N. 70° E. 45°. There is a shaft 50 feet deep on the vein and connecting with it Smith says there is a stope 30 feet long and 25 feet high. He says the vein yielded, by sorting, quite a good many tons of better than 2% milling ore. Mined as a whole it would not average 1%. The ore at depth will have a sprinkling of galena, chalcopyrite and pyrite. On both sides are smaller veins.

Near the northeast corner of the claim there is a nearly continuour cut about 200 feet long on a vein striking N. 30° W. and dipping N. 60° E. 35° to 50°, averaging 8 inches thick, 2% ore (Smith). There is an incline down 100 feet and a stope about 30 feet long and to about 20 feet from the surface (Smith).

On the Mayflower claim, (same owners as preceding) a vein 12 inches thick, of 2% ore, dipping 35° was mined 50 feet long and 15 feet deep. There are copper carbonates with the hubnerite which, I understand, made the ore undesirable. Some ore was taken from cuts farther north on the claim. There may be here a very persistent vein, but as the ore averaged 6 to 8 or at most 12 inches thick, I doubt that it could be worked profitably at depth.

On the Wolfram Queen claim (same owners as preceding) a shallow cut exposes for 150 feet a 6 to 10 inch vein striking north and dipping east 65°, of low-grade ore, not commercial at depth. Farther north there is another shallow cut. The presence of copper minerals at this end of the belt seems objectionable.

The system of small veins extends over on to the King claim, also owned by Stein & Boericke, but there is little ore in it on that claim. Not far beyond the north end of the claim the tungsten belt ends through the granite contacting with the Pinal schist.

I was impressed by the fact that far the best showings in the district are on those claims that are owned by Stein & Boericke alone. Mr. Smith insisted that this is partly due to the fact that these claims have been extensively dug upon, whereas on most of the claims that Stein & Boericke own in conjunction with the Chrome Steel Company, little more than the location and patent work have been done. Part of the apparent contrast may be due to this, but I remain convinced that the Stein & Boericke claims as a whole are far more promising than those owned by the two companies jointly. Hence, if an effort were made to work the latter group, they could not be expected to yield as much ore as did the first group. The one claim owned by the Chrome Steel Company alone, the Yellow

Jacket, has been developed on a scale comparable with the Blue Bird yet it appears to me very much less promising than the latter.

The recognized float diggins are largely exhausted on the Stein & Boericke claims. On the claims owned by the two companies jointly, the surface float has been picked up, but the ground has not been "turned over". Sebring intimated to me that he very much desired a lease on that group. Not knowing exactly what amount of float ore has been produced by the district I cannot make an estimate of how much would probably be yielded by these jointly owned claims, but I believe it would be considerably less than the Stein & Boericke claims have produced.

In the basins and broader gulches of the district, there must be considerable float under the coarse granite sand that fills these depressions. This is particularly true of the shallow basin between the Ada-Aetna group and the Blue Bird-Dividend group. In these basins would lie the largest opportunity in the district if it were a humid country, but there is no water available to hydraulic these deep deposits and I do not recommend you to acquire property on this basis.

It is safe to say that there are in the Dragoon district, several thousand small veins of tungsten-bearing quartz. The total amount of tungsten mineral is large. After going over the field I selectedthree localities as deserving further consideration. All other portions I was quite certain could not be worked at a profit at depth. The first was the rich bunch on the Ada claim. This I rejected because ore pockets on that claim show a strong tendency to form at the intersection of veins, and the evidence as well that there is little likelihood that another valuable bunch might be found at depth.

The second vein considered is the principal one of the Last Chance claim described by Mr. Smith as 18 inches of not to exceed 1% ore. Based on his opinion as to costs in the Dragoon district, I made a little calculation on the basis of developing a vein 300 feet long, 300 feet deep, 1 foot wide and mining from it 2% ore at $6 per unit, 80% saving and got a profit of $2.46 per ton. On that basis a vein 18 inches wide of 1% ore would not pay its way. The vein 8 inches thick, supposed to have 2% ore would not pay. Hence, I cannot recommend any work on the Last Chance claim until the price of hubnerite ore is very much higher than $6 a unit.

The third place considered is on the Blue Bird claim. The best vein of the group is described by Mr. Smith as 10 inches of possible 2% ore which, according to my method of figuring above mentioned, would pay a small profit per ton. The ribbon quartz vein is too narrow to be profitably worked at present. Hence, I must discourage further development of the property at this point with the price at $6 per unit, or not much over, for hubnerite concentrate. It must be remembered that I have been figuring rather close and that in actual working at the present time, it is hardly safe to count on mining a less than 3% ore one foot thick at a profit allowing for shaft sinking and other relatively heavy development expense. Besides, the working profit in sight must be great enough to pay for a mill and other equipment. It is unnecessary to go into this matter any deeper at present, but I suggest that if the market price of tungsten ore at any time in the future persistently holds at a figure very much in ad-

vance of recent prices, you consider the proposition of driving a tunnel beginning on the Warrior claim and extend it across the vein system in the Blue Bird claim. Without an accurate survey, I estimate that a tunnel 700 or 800 feet long might cut the vein system near the shaft 300 feet deeper than the outcrop. It would cut many seams besides the definite vein system. The cost might be $7 per foot, say $5600. This is the best place on the property to make a trial of the possibility of making mining pay at depth, but, as stated above, I do not recommend it under present conditions as the margin of possible success is too narrow for safety.

Respectfully submitted,

(signed) OSCAR H. HERSHEY.

DMA - 1404 X

MIN[illegible] AND MINERAL LEASE

AGREEMENT, Made and entered into the 9th day of April 1951, by and between Elmer C. Walker Katharine Penrose Walker (wife) of Dragoon, Arizona hereinafter called lessor (whether one or more), and Eugene Stevens, 3016 Clarendon Drive, Dallas, Texas, hereafter called lessee:

WITNESSETH: That the said lessor, for and in consideration of Ten Dollars, cash in hand paid, the receipt of which is hereby acknowledged, and of the covenants and agreements hereinafter contained on the part of the lessee to be paid, kept and performed, has granted, demised, leased and let, and by these presents does grant, lease and let unto the said lessee for the sole and only purpose of exploring for and mining of ores of value commercially and the laying of pipe lines, building of power stations, structures necessary for mining and milling, and installation of mining and milling machinery thereon to produce, save and take care of said ores, all that certain tract of land situated in the County of Cochise, State of Arizona, described as follows, to wit:
Blue Bell Claim number 171939, survey number 2596, a portion of Sections 2 and 3 in a Township 16 South of Range 22 East of Gila and Salt River Meridian in the Cochise Mining District, Cochise County, and recorded in Book 26, Page 76, Et Seq., Deeds of Mines. Also Mining Claims Mariposa Lily No. 1 and Mariposa No. 8 in Sections 2 and 3 as above, Containing 60 acres, more or less, it being specifically provided that there shall be exempted herefrom ten acres surrounding the present Elmer C. Walker residence, also 5 mining claims and 1 water claim located in Sections 27, 35, and 36, Township 15 South, Range 22 East, as above.

~~and containing ..... acres, more or less,~~ it being the intention to include all land owned or claimed by lessor in said section or sections, **except the ten acres specifically exempted herefrom.**

It is agreed that this lease shall remain in force for a term of two years from this date, and as long thereafter as ores of value commercially are produced from said land by the lessee.

In consideration of the premises the said lessee covenants and agrees to pay to the lessor five per cent of the value of the ores recovered at the mill. The lessee further agrees to pay for damages caused by his operations to growing crops on said land.

Lessee shall have the right at any time to remove all machinery, fixtures, buildings, pipe lines and all other things of value, placed or caused to be placed by him, on said land.

If the estate of either party hereto is assigned--and the privilege of assigning in whole or in part is expressly allowed--the covenants hereof shall extend to their heirs, executors, administrators, successors, or assigns, but no change in the ownership of the land or assignment of interest shall be binding on the lessee until after the lessee has been furnished with a written transfer or assignment, or a copy thereof.

Lessor hereby warrants and agrees to defend the title to the land herein described and agrees that the lessee shall have the right at any time to redeem for lessor, by payment, any mortgages, taxes, or other leins on the above described lands, in the event of default of payment by lessor, and be subrogated to the rights of the holder thereof.

IN TESTIMONY WHEREOF, we sign, this the 9th day of April 1951

[illegible] witness Elmer C. Walker

M. H. [illegible] witness Katharine Penrose Walker

April 9, 1951

Amy Lowery, Notary

MY COMMISSION EXPIRES OCT 25, 1953

Eugene Stevens

DMA - 1404 X

COPY

San Francisco, California.
Feb. 23rd, 1915.

Mr. Gideon Boericke,
Primos, Pennsylvania.

Dear Sir:

In accordance with your letter of Jan. 13th, I have made a brief examination of your tungsten deposits near Dragoon, Cochise County, Arizona, occupying 1½ days. I was guided over the property by Mr. O. T. Smith and as many of the cuts have caved and some underground workings were under water, I was dependent on him for certain information about thickness of veins, etc. Probably I can best lay the foundation for my conclusions by comments on the claims in the order visited. They are included in a large area of semi-porphyritic granite, consisting of free quartz, white feldspar and a little brown biotite, with scattered phenocrysts of white feldspar up to 3 inches in length. Some scattered muscovite may be largely secondary. The granite is cut by dikes and small irregular bodies of pale pink aplite. The tungsten-bearing veins occur in three irregular zones of sheeting that have a general northeast course and southeast dip. The veins are of quartz, with considerable white mica along the walls, hubnerite a little scheelite, traces of fluorite and locally iron, copper and lead sulphides. They were produced by emanations from the granite magma after the upper portion had crystallized, the sheeting permitting the egress of the magmatic water.

On the Ada claim, owned by Stein & Boericke, the sheeted zone strikes N. 60° E. and dips S. 30° E. 45° to 60°. This has many small seams of quartz. The first important opening going southwest on the claim is a cut 60 feet long on a quartz vein which strikes No. 80° E. and dips S. 10° E. 30°, and hence intersecting the sheeting. Quartz up to several feet thick yielded ore. There was another small lens about 120 feet farther west, production unknown. On top of the ridge a vein striking N. 80° W. and dipping S. 10° W. 50°, intersected the small veins in the sheeted zone and formed a series of small bunches of ore that were worked in shallow cuts, production unknown. The best showing is on the southwest portion of the claim where there is a cut about 180 feet long on a vein striking N. 60° E. and dipping S. 30° E., 45° and thence a series of cuts on the vein, or a set of stringers in a narrow zone, extends 180 feet southwest. This vein is parallel to the sheeting. The cuts are partly caved. Smith says there are two shafts, about 45 and 50 feet deep respectively. In the cut there was a fine body of ore 75 feet long and 2 feet wide, about 75% hubnerite. This gradually pinched to a depth of 30 feet and then the vein was cut off. Smith says this was the best bunch of ore on the property and that if similar bunches recurred at frequent intervals with depth, the mine would pay well at $6 per unit of tungstic acid. However, from the description, I fear that the vein, though in places 3 to 4 feet thick, may have ended against a cross fracture and not necessarily extend deeper. For this reason I do not recommend further work here.

The Little Jessie claim, owned by Stein & Boericke and the Chrome Steel Company, has a network of small quartz veins with an occasional

blade of hubnerite, nowhere forming commercial bunches. The best bunch observed is at a small cut probably near the southwest end of the claim. It is over 2 feet in greatest thickness and has enough hubnerite and scheelite to make something less than 1% ore.

Across the Yankee Pride claim (same owners as preceding) there are many small seams of quartz with an occasional blade of hubnerite and at wide intervals a few pounds of fair ore, but no commercial bunches, distributed through a rather definite sheeted zone, several hundred feet wide and bordered by massive granite. There never was much float on this hillside.

On the Aetna claim (same owners as preceding) the vein system shows a tendency to form lenses of quartz up to 3 feet thick. The larger lenses are almost barren except for an occasional large blade of hubnerite and there is nothing commercial on the claim. Smith says the short gulch on the northwest side of the southwest half of the claim yielded "quite a little float ore."

The above four claims cover the best portion of the middle zone of sheeting. On the southeast of the last three, there is a zone of narrow stringers that were examined on my 1906 visit, not on this. It is not of a promising nature. The claims now to be described are on the northwest and strongest zone of sheeting and veining.

The Juniper claim, owned by Stein & Beericke, has practically no veins, but has been extensively worked as a hillside placer. Patches of debris from 6 inches to 4 feet deep are rich in quartz that has slidden down from the Yellow Jacket veins. This was worked originally for the surface float and may have yielded 75 tons of first-class ore (Smith). It is now being turned over down to the decomposed granite by seven Mexicans who get 10¢ per lb. from P. M. Sebring who receives 12¢ per lb. from the Primos Chemical Co. The ground appears to be pretty well worked out. The Red Bird claim, (same owners as preceding), has but little float and the Boulder claim was not visited as Smith said there was little to see on it.

Near the center of the Yellow Jacket claim, owned by the Chrome Steel Company, there is a group of quartz stringers and one vein which, so far as can be seen now, was from 1 to 3 feet thick for a distance of probably 200 feet. This group has been worked in large open cuts, now partly caved. Thence N. 60° E. along the ridge there is a network of stringers in an irregular zone. In places the quartz bunches to several feet thick. Near the northeast end of the claim there is a cut 30 feet long and 10 to 15 feet deep, (with a shaft below), on a vein of ribbon quartz, containing pyrite and a little sphalerite, with enough hubnerite to make it low grade milling ore. Several tunnels have been driven through the hill. The quartz in these tunnels and that remaining at the surface contains so little hubnerite that I am confident that this claim could not be profitably worked underground.

On the Blue Bird claim, owned by Stein & Beericke, the vein system spreads out to a width of hundreds of feet and besides the many small stringers, it has a series of stronger and more regular veins which, near the southwest end, strike northeast and dip southeast 70° and less. One at the 50-foot shaft has been stoped for over 150 feet to depths of 2 to 12 feet and in a stope described as 30 feet long and 15 feet high, above a drift from the shaft. The vein varies from 6 inches to 3 feet in thickness. The hubnerite is in bunches of coarse crystals scattered through much barren quartz. A 110-foot tunnel apparently follows this vein, but in it the quartz is very narrow and not commercial.

The shaft has water in it, but Mr. Smith says that at the bottom there is a 100-foot cross-cut. At 50 feet a drift runs 40 feet on a vein 8 inches thick, of ribbon quartz, rather uniform ore, probably 2%. At 100 feet, the cross-cut cut a 3-foot vein with coarse hubnerite. The vein at 50 feet is exposed at the surface, has been more or less stoped along the outcrop for about 200 feet, averaged 8 inches, about 2% ore per Smith. I may say that Mr. Smith has no records of production and apparently never knew definitely the content of the ore at any of the cuts on the property, so that the figures that I give, based on his guesses aremerely approximate, but all that seem available at present. This vein comes free from the granite and has a structure and type of mineralization that suggest persistence with depth. It may be followed 300 feet farther to a short distance in the Yellow Jacket claim. It is the longest vein I saw in the district. Probably it will average 8 inches thick for 500 feet.

What is supposed to be the vein at the end of the cross-cut was trenched for about 250 feet. Mr. Smith says from this was mined ore continuous except for one short barren section, 4 inches to 3 feet thick, probably 10 inches that, if mined without sorting, would not exceed 2% ore. Above this there are several cuts on small veins and at the top of the ridge many small quartz stringers of no value. Farther northeast a cut 50 feet long yielded ore from a vein 3 feet thick, but very short. Smith thinks the veins on the Blue Bird claim have yielded more ore than all the other veins in the district together, though the float diggings he thinks have yielded ten times as much as the veins. He is doubtful that these veins could be profitably worked underground at a price of $6 per unit.

The Warrior claim (same owners as preceding) had one vein that was stoped about 75 feet long, to a maximum depth of 30 feet, with 12 to 18 inches of good grade ore, coarse type. Smith thinks the vein at the bottom has 18 inches of fair ore. He thinks this work more than paid for itself. He says this is also a good float claim, but Sebring says not much remains on it. The Red Bird claim has but little float per Smith. The Trench was a good float claim but is worked out. The Oregon claim, also owned by Stein & Boericke, is a float claim now being worked by Sebring, his son and Mexicans. Seven men in 26 days secured 3035 lbs. for which Sebring will get 12¢ per lb. One man may work over in 3-foot ground 75 cu. ft. The ground has been pretty well worked out on the Oregon claims down to where the pay stratum becomes buried under 3 to 6 feet of granite debris and the present workers are inclined to quit.

On the Gray, Black Beauty and Dividend claims, owned by Stein & Boericke and the Chrome Steel Co., the stringer zone is very wide and strong. The best veins seen on the Gray are about a foot thick, not commercial. The foot of the hill on this claim probably would make good float diggings. On the Black Beauty and Dividend claims, when any seam makes a bunch a foot or more thick it is short, rarely more than 30 to 40 feet long and very low in grade. Smith regards these three claims as among the best in the district and they have undeoubtedly given rise to much float ore, but I am certain they cannot be worked profitably underground.

At about the northeast end of the Dividend claim, the stringer system weakens and across the Cracker Jack claim (same owners as last), it is not of much account, though 18 inches of quartz with large hubnerite blades may be seen in a small cut and several hundred pounds of ore may have been removed. There is not much float ore on this claim.

Across the Hidden Treasure and most of the Surprise claim (same owners as preceding) the stringer system is weak, the seams being widely separated and bunches few and small. However, on the northeast quarter of the Hidden Treasure and southwest quarter of the Surprise, seams are abundant and rich enough to have given rise to an area that may pay to "turn over" for float as is being done beyond the claim lines.

Near the northeast end of the Surprise claim, the vein system becomes stronger and spreads out. Veins 6 inches to a foot thick appear and may be traced for several hundred feet.

On the Last Chance claim, owned by Stein & Boericke, some milling ore was taken from several cuts near the southwest end. The ground in the head of a draw below this section would probably pay to turn over for float. Shallow cuts that have yielded a little ore are scattered through the claim to the principal workings near the northeast end. Here there is a shallow cut about 300 feet long on a vein from 5 to 30 inches thick, averaging about 18 inches, Smith says, striking N. 20° W. and dipping N. 70° E. 45°. There is a shaft 50 feet deep on the vein and connecting with it Smith says there is a stope 30 feet long and 25 feet high. He says the vein yielded, by sorting, quite a good many tons of better than 2% milling ore. Mined as a whole it would not average 1%. The ore at depth will have a sprinkling of galena, chalcopyrite and pyrite. On both sides are smaller veins.

Near the northeast corner of the claim there is a nearly continuous cut about 200 feet long on a vein striking N. 30° W. and dipping N. 60° E. 35° to 50°, averaging 8 inches thick, 2% ore (Smith). There is an incline down 100 feet and a stope about 30 feet long and to about 20 feet from the surface (Smith).

On the Mayflower claim, (same owners as preceding) a vein 12 inches thick, of 2% ore, dipping 35° was mined 50 feet long and 15 feet deep. There are copper carbonates with the hubnerite which, I understand, made the ore undesirable. Some ore was taken from cuts farther north on the claim. There may be here a very persistent vein, but as the ore averaged 6 to 8 or at most 12 inches thick, I doubt that it could be worked profitably at depth.

On the Wolfram Queen claim (same owners as preceding) a shallow cut exposes for 150 feet a 6 to 10 inch vein striking north and dipping east 65°, of low-grade ore, not commercial at depth. Farther north there is another shallow cut. The presence of copper minerals at this end of the belt seems objectionable.

The system of small veins extends over on to the King claim, also owned by Stein & Boericke, but there is little ore in it on that claim. Not far beyond the north end of the claim the tungsten belt ends through the granite contacting with the Pinal schist.

I was impressed by the fact that far the best showings in the district are on those claims that are owned by Stein & Boericke alone. Mr. Smith insisted that this is partly due to the fact that these claims have been extensively dug upon, whereas on most of the claims that Stein & Boericke own in conjunction with the Chrome Steel Company, little more than the location and patent work have been done. Part of the apparent contrast may be due to this, but I remain convinced that the Stein & Boericke claims as a whole are far more promising than those owned by the two companies jointly. Hence, if an effort were made to work the latter group, they could not be expected to yield as much ore as did the first group. The one claim owned by the Chrome Steel Company alone, the Yellow

Jacket, has been developed on a scale comparable with the Blue Bird yet it appears to me very much less promising than the latter.

The recognized float diggins are largely exhausted on the Stein & Boericke claims. On the claims owned by the two companies jointly, the surface float has been picked up, but the ground has not been "turned over". Sebring intimated to me that he very much desired a lease on that group. Not knowing exactly what amount of float ore has been produced by the district I cannot make an estimate of how much would probably be yielded by these jointly owned claims, but I believe it would be considerably less than the Stein & Boericke claims have produced.

In the basins and broader gulches of the district, there must be considerable float under the coarse granite sand that fills these depressions. This is particularly true of the shallow basin between the Ada-Aetna group and the Blue Bird-Dividend group. In these basins would lie the largest opportunity in the district if it were a humid country, but there is no water available to hydraulic these deep deposits and I do not recommend you to acquire property on this basis.

It is safe to say that there are in the Dragoon district, several thousand small veins of tungsten-bearing quartz. The total amount of tungsten mineral is large. After going over the field I selectedthree localities as deserving further consideration. All other portions I was quite certain could not be worked at a profit at depth. The first was the rich bunch on the Ada claim. This I rejected because ore pockets on that claim show a strong tendency to form at the intersection of veins, and the evidence as well that there is little likelihood that another valuable bunch might be found at depth.

The second vein considered is the principal one of the Last Chance claim described by Mr. Smith as 18 inches of not to exceed 1% ore. Based on his opinion as to costs in the Dragoon district, I made a little calculation on the basis of developing a vein 300 feet long, 300 feet deep, 1 foot wide and mining from it 2% ore at $6 per unit, 80% saving and got a profit of $2.46 per ton. On that basis a vein 18 inches wide of 1% ore would not pay its way. The vein 8 inches thick, supposed to have 2% ore would not pay. Hence, I cannot recommend any work on the Last Chance claim until the price of hubnerite ore is very much higher than $6 a unit.

The third place considered is on the Blue Bird claim. The best vein of the group is described by Mr. Smith as 10 inches of possible 2% ore which, according to my method of figuring above mentioned, would pay a small profit per ton. The ribbon quartz vein is too narrow to be profitably worked at present. Hence, I must discourage further development of the property at this point with the price at $6 per unit, or not much over, for hubnerite concentrate. It must be remembered that I have been figuring rather close and that in actual working at the present time, it is hardly safe to count on mining a less than 3% ore one foot thick at a profit allowing for shaft sinking and other relatively heavy development expense. Besides, the working profit in sight must be great enough to pay for a mill and other equipment. It is unnecessary to go into this matter any deeper at present, but I suggest that if the market price of tungsten ore at any time in the future persistently holds at a figure very much in ad-

vance of recent prices, you consider the proposition of driving a tunnel beginning on the Warrior claim and extend it across the vein system in the Blue Bird claim. Without an accurate survey, I estimate that a tunnel 700 or 800 feet long might cut the vein system near the shaft 300 feet deeper than the outcrop. It would cut many seams besides the definite vein system. The cost might be $7 per foot, say $5600. This is the best place on the property to make a trial of the possibility of making mining pay at depth, but, as stated above, I do not recommend it under present conditions as the margin of possible success is too narrow for safety.

Respectfully submitted,

(signed) OSCAR M. MERSHEY.

DMA 1404X

PRODUCTION FROM PRIMOS PATENTED TUNGSTEN CLAIMS, DRAGOON, ARIZONA, 1915 to 1951

DATE	Lbs. Concentrates	% WO_3	Price per unit	Remarks
14 Mos. prior to 8/5/16	133,634 # 55,034 28,919 37,985 255,572 lbs.	60.28% - 72.18% 51.20 - 63.40 36.00 - 49.70 No record of anal.	Prevailing prices	Betw. 50 & 130 men Hand steel Prob. incl. some placer
8/6/16 to 1919	(No record - - probably no production)			
1919 to 8/20/36 (All in '35 & '36)	9,166¾ #	60.1 to 67.6% (Except 2764 # @ 51.5 - 59.0%)		
9/1/36 to 3/31/38	16,193¾ #	Ave. abt. 60%	$12 to $18.25	
4/12/38 to 12/31/42	82,178½ #	60.05% to 70.7%	$18 to $22.50	
Year - 1943	904 #	67.8%	$23.00	
1/1/44 to 2/16/48	No production (?)			
2/16/48 to 4/1/51	6,141 #	65.4%	$50.00	Fernstrom lease

NOTE: Mines were operated during World War I by Primos, under the direction of O.T. Smith, were shut down probably in Aug., 1916, on account of falling market and no demand. Primos Chemical Company took entire production during this period.

Since 1916, any production was made by leasers, with no active development work being done.

Production shown was from placer and hard rock.

FROM PRIMOS CHEMICAL CO. FILES.

PRIMOS, PA.

DMA 1404 X

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FROM PRIMOS CHEMICAL CO. FILES.

PRIMOS, PA.

DMA 1404 X

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Production shown was from placer and hard rock.

H. A. Ingraham

FROM PRIMOS CHEMICAL CO. FILES.

PRIMOS, PA.

DRAFT

Memorandum

To: Tungsten Branch, DMA

From: D. M. Lemmon, U. S. G. S.

Subject: Application of Stevens, Pendergast & Ingraham
c/o Harry A. Ingraham
4300 Vandelia Street
Dallas, Texas

DMA 1404-X
Tungsten

Proposal:

The applicants are lessees of ~~of~~ the Walker ~~Wikar~~ and Stevens properties and hold the Primos Chemical Co. property on purchase agreement, in the Little Dragoon district, Cochise County, Arizona. They propose to spend $10,000 investigating tungsten placer deposits and $20,000 driving an 800-foot adit beneath the Bluebird Hill workings to search for tungsten ore at depth.

History

Tungsten mineralization was first discovered in the district in 1898. The deposits have been worked sporadically for 50 years with a modest output of not more than 20,000 units of WO_3. Records of Primos Chemical Co., submitted by the applicant, show output of 10,545 to 12,348 units from June 1915 to ~~xxxxxxx~~ April 1951. No records have been kept of vein versus placer output. Examination of the workings suggests a total vein production of about 2,000 units, with the balance coming from placer.

Geology

Huebnerite and scheelite, with a ratio of about 10 to 1, occur in quartz veins in porphyritic granite. Accessory minerals are mica, fluorite, and minor amounts of pyrite, chalcopyrite, galena, and sphalerite. The majority of the veins are less than 6 inches thick and none are thicker than 3 feet.

The veins occur in two parallel zones 600 feet wide and 2,000 feet apart. They have been opened by numerous pits and cuts at various places on the properties, but the only extensive underground workings are on the Bluebird claim which has been opened by about 1,300 feet of drifts, 350 feet of crosscuts, four 30-foot winzes, one 40-foot raise, and some small stopes from which about 7,000 tons of material was removed. The veins stoped were probably only about 6 inches wide, and only about 10 to 15 percent of the material mined, or about 1,000 tons, was quartz. Assuming the content of WO_3 at 2.0 percent, a generous figure, the total production would be about 2,000 units. Huebnerite is scarce in parts of the veins now visible. A few pillars in stopes may contain 0.5% of WO_3.

The placer deposits were worked extensively by hand methods, using Mexican labor. No information is available as to amount or grade of material remaining. It is ~~xxxxxxxxxxx~~ believed that most of the placer ground has been worked. The absence of water makes recovery difficult.

Recommendations:

Veins. The information in the possession of the Geological Survey, gained from mapping workings on the Bluebird claim, indicates that the quantity of tungsten ore that might be developed by the proposed adit is not sufficient to warrant the expenditure of $20,000. Considerable work has apparently been done on the property since Hershey made a reconnaissance report in 1915. The applicant has made no survey to demonstrate the feasibility of the proposed adit, and has presented no evidence that demonstrates merit in the proposal.

Placer. No evidence has been presented that supports the applicant's contention that there is a good possibility of discovering extensive placer deposits that would warrant large-scale operation with development of water supply from a distant source. On the other hand, we do not have proof that workable placers do not exist. Therefore, it is recommended that the applicant be informed that DMA will consider his placer application when he presents maps showing in detail what is planned, along with a definite statement of sampling procedure.

The attached letter to the applicant has been drafted denying the proposed underground work and requesting more information about the placer proposal.

Dwight M. Lemmon

DML July 30, 1951

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

DRAFT

Memorandum

To: Tungsten Branch, DMA

From: D. M. Lemmon, U. S. G. S.

Subject: Application of Stevens, Pendergast & Ingraham
c/o Harry A. Ingraham
4300 Vandelia Street
Dallas, Texas

DMA 1404-X
Tungsten

Proposal:

The applicants are lessees of ~~of~~ the Walker ~~Kikar~~ and Stevens properties and hold the Primos Chemical Co. property on purchase agreement, in the Little Dragoon district, Cochise County, Arizona. They propose to spend $10,000 investigating tungsten placer deposits and $20,000 driving an 800-foot adit beneath the Bluebird Hill workings to search for tungsten ore at depth.

History

Tungsten mineralization was first discovered in the district in 1898. The deposits have been worked sporadically for 50 years with a modest output of not more than 20,000 units of WO_3. Records of Primos Chemical Co., submitted by the applicant, show output of 10,545 to 12,348 units from June 1915 to ~~xxxxxxx~~ April 1951. No records have been kept of vein versus placer output. Examination of the workings suggests a total vein production of about 2,000 units, with the balance coming from placer.

Geology

Huebnerite and scheelite, with a ratio of about 10 to 1, occur in quartz veins in porphyritic granite. Accessory minerals are mica, fluorite, and minor amounts of pyrite, chalcopyrite, galena, and sphalerite. The majority of the veins are less than 6 inches thick and none are thicker than 3 feet.

The veins occur in two parallel zones 600 feet wide and 2,000 feet apart. They have been opened by numerous pits and cuts at various places on the properties, but the only extensive underground workings are on the Bluebird claim which has been opened by about 1,300 feet of drifts, 350 feet of crosscuts, four 30-foot winzes, one 40-foot raise, and some small stopes from which about 7,000 tons of material was removed. The veins stoped were probably only about 6 inches wide, and only about 10 to 15 percent of the material mined, or about 1,000 tons, was quartz. Assuming the content of WO_3 at 2.0 percent, a generous figure, the total production would be about 2,000 units. Huebnerite is scarce in parts of the veins now visible. A few pillars in stopes may contain 0.5% of WO_3.

The placer deposits were worked extensively by hand methods, using Mexican labor. No information is available as to amount or grade of material remaining. It is ~~xxxxxxxxxxx~~ believed that most of the placer ground has been worked. The absence of water makes recovery difficult.

Recommendations:

Veins. The information in the possession of the Geological Survey, gained from mapping workings on the Bluebird claim, indicates that the quantity of tungsten ore that might be developed by the proposed adit is not sufficient to warrant the expenditure of $20,000. Considerable work has apparently been done on the property since Hershey made a reconnaissance report in 1915. The applicant has made no survey to demonstrate the feasibility of the proposed adit, and has presented no evidence that demonstrates merit in the proposal.

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The attached letter to the applicant has been drafted denying the proposed underground work and requesting more information about the placer proposal.

Dwight M. Lemmon

DML July 30, 1951

DMA-1404x

The Dallas Morning News · Part V—3

DR. J. C. KARCHER

Society to Honor Dallas Scientist

Honorary membership in the Society of Exploration Geophysicists will be conferred on Dr. J. C. Karcher, Dallas, pioneer in seismic operations in the United States, during the society's Chicago meeting April 24-26.

The citation will be presented Dr. Karcher for his contribution to the development of reflection seismograph. The Dallasite is a former president of the society.

Another Dallasite, Fred J. Agnich, supervisor for Geophysical Service, Inc., also will be honored in Chicago. He will receive honorable mention for a technical paper on geophysical exploration for limestone reefs published in the society's journal.

MI[illegible]G AND MINERAL LEASE

AGREEMENT, Made and entered into the 9th day of April 1951, by and between Elmer C. Walker Katharine Penrose Walker (wife) of Dragoon, Arizona hereinafter called lessor (whether one or more), and Eugene Stevens, 3016 Clarendon Drive, Dallas, Texas, hereafter called lessee:

WITNESSETH: That the said lessor, for and in consideration of Ten Dollars, cash in hand paid, the receipt of which is hereby acknowledged, and of the covenants and agreements hereinafter contained on the part of the lessee to be paid, kept and performed, has granted, demised, leased and let, and by these presents does grant, lease and let unto the said lessee for the sole and only purpose of exploring for and mining of ores of value commercially and the laying of pipe lines, building of power stations, structures necessary for mining and milling, and installation of mining and milling machinery thereon to produce, save and take care of said ores, all that certain tract of land situated in the County of Cochise, State of Arizona, described as follows, to wit: **Blue Bell Claim number 171939, survey number 2596, a portion of Sections 2 and 3 in a ~~Tomsk~~ Township 16 South of Range 22 East of Gila and Salt River Meridian in the Cochise Mining District, Cochise County, and recorded in Book 26, Page 76, Et Seq., Deeds of Mines. Also Mining Claims Mariposa Lily No. 1 and Mariposa No. 8 in Sections 2 and 3 as above, Containing 60 acres, more or less, it being specifically provided that there shall be exempted herefrom ten acres surrounding the present Elmer C. Walker residence, also 5 mining claims and 1 water claim located in Sections 27, 35, and 36, Township 15 South, Range 22 East, as above.**

~~and containing xxxxxxxxxx acres, more or less~~ it being the intention to include all land owned or claimed by lessor in said section or sections, **except the ten acres specifically exempted herefrom.**

It is agreed that this lease shall remain in force for a term of two years from this date, and as long thereafter as ores of value commercially are produced from said land by the lessee.

In consideration of the premises the said lessee covenants and agrees to pay to the lessor five per cent of the value of the ores recovered at the mill. The lessee further agrees to pay for damages caused by his operations to growing crops on said land.

Lessee shall have the right at any time to remove all machinery, fixtures, buildings, pipe lines and all other things of value, placed or caused to be placed by him, on said land.

If the estate of either party hereto is assigned--and the privilege of assigning in whole or in part is expressly allowed--the covenants hereof shall extend to their heirs, executors, administrators, successors, or assigns, but no change in the ownership of the land or assignment of interest shall be binding on the lessee until after the lessee has been furnished with a written transfer or assignment, or a copy thereof.

Lessor hereby warrants and agrees to defend the title to the land herein described and agrees that the lessee shall have the right at any time to redeem for lessor, by payment, any mortgages, taxes, or other leins on the above described lands, in the event of default of payment by lessor, and be subrogated to the rights of the holder thereof.

IN TESTIMONY WHEREOF, we sign, this the 9th day of April 1951

[illegible] witness Elmer C. Walker

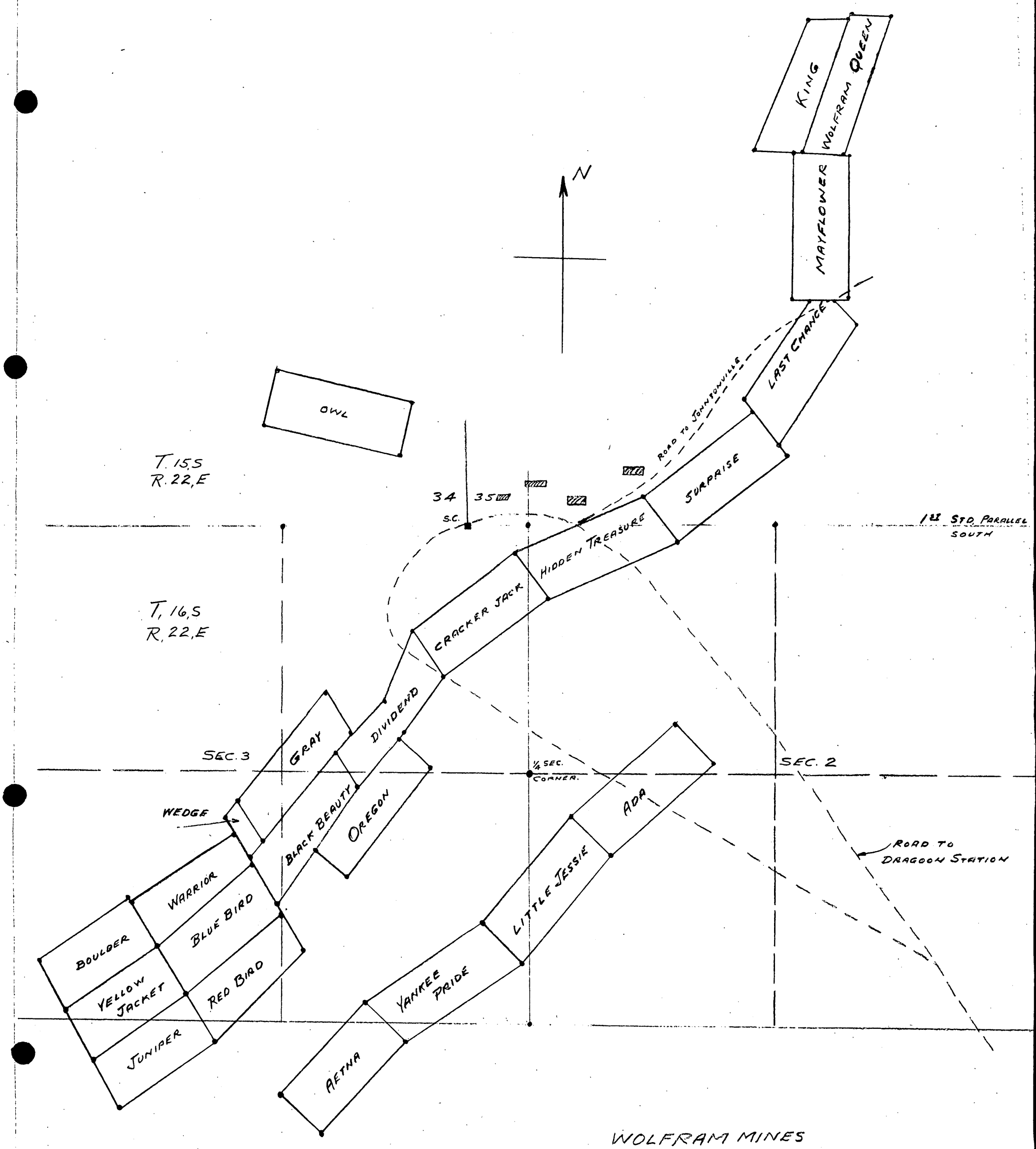
[illegible] witness Katharine Penrose Walker

April 9, 1951

Amy Lowery, Notary

Eugene Stevens

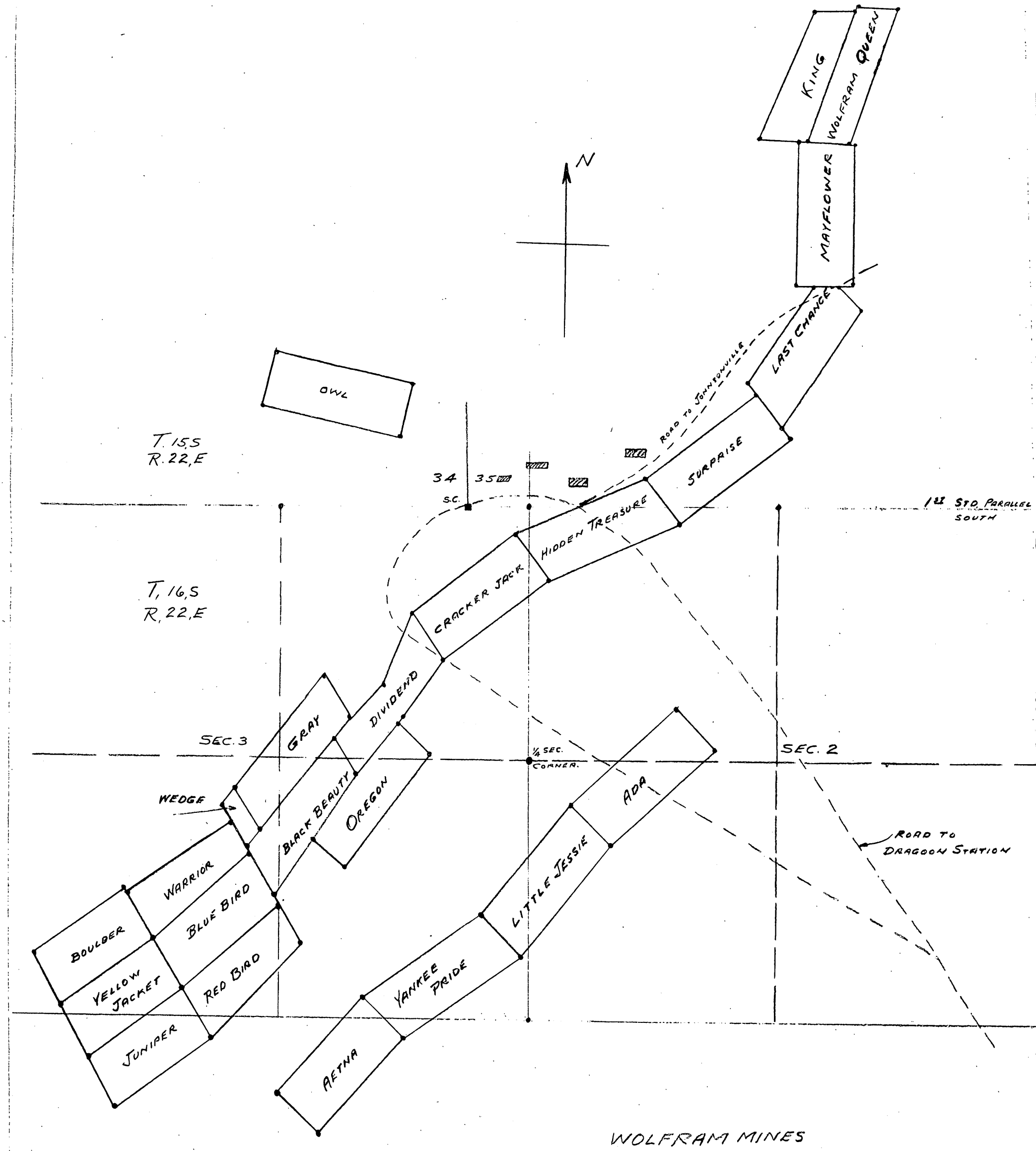
MY COMMISSION EXPIRES OCT 25, 1953



WOLFRAM MINES

COCHISE COUNTY, ARIZ.

W-38



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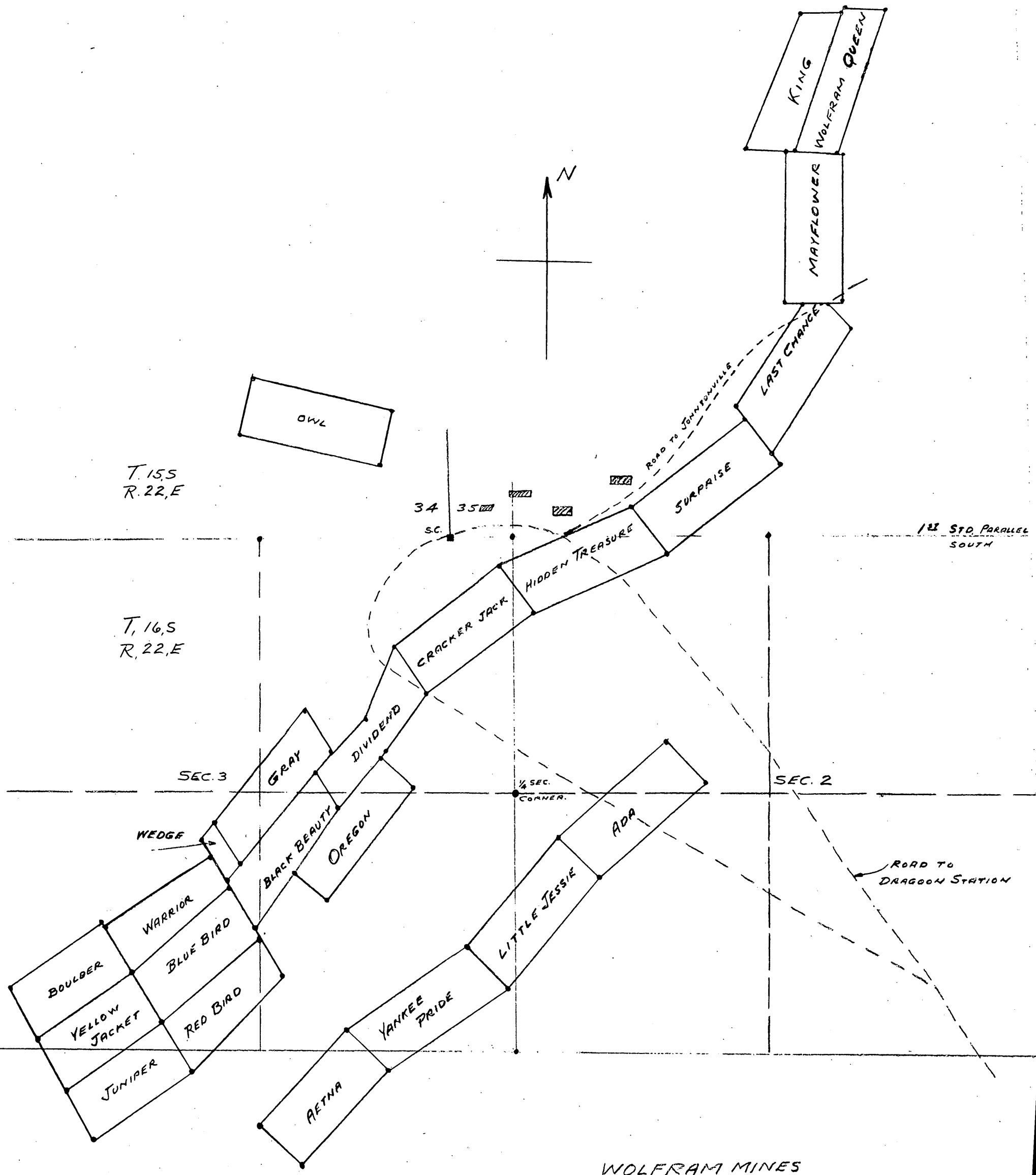

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