Form 3811
Rev. 1-4-40

RETURN RECEIPT

Received from the Postmaster the Registered or Insured Article, the original number of which appears on the face of this Card.

1 E. A. Scholz
(Signature or name of addressee)

2 X I. R. Scholz (Mrs. E.A.)
(Signature of addressee's agent—Agent should enter addressee's name on line ONE above)

Date of delivery MAY 17 1952, 194__

U. S. GOVERNMENT PRINTING OFFICE 16—12421

1506

Post Office Department

OFFICIAL BUSINESS

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

POSTMARK OF DELIVERING OFFICE

Return to Defense Minerals Admin

(NAME OF SENDER)

Street and Number, or Post Office Box, Dept. of Interior

REGISTERED ARTICLE

No. 61220 Post Office Wash 25

INSURED PARCEL

No. 16—12421 State D. C.

Form 3811
Rev. 1-4-40

RETURN RECEIPT

Received from the Postmaster the Registered or Insured Article, the original number of which appears on the face of this Card.

1 [illegible] .....
(Signature or name of addressee)

2 .....
(Signature of addressee's agent—Agent should enter addressee's name on line ONE above)

Date of delivery ..... MAY 1 1952 194...

U. S. GOVERNMENT PRINTING OFFICE 16—12421

1506 Dma

Post Office Department

OFFICIAL BUSINESS

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

POSTMARK OF DELIVERING OFFICE

MAY 17 1952

Return to Defense Minerals Admin

(NAME OF SENDER)

Street and Number, or Post Office Box, Dept. of Interior

REGISTERED ARTICLE

No. 61221 Post Office Wash 25

INSURED PARCEL

No. State D. C.

16—12421

dma 1506

/C
O
P
Y
/

400

SCHOLZ AND CAZIER
Mining
Bagdad, Arizona

June 13, 1952

Mr. J. H. East, Jr., Executive Officer
Field Team, Region IV
Defense Minerals Administration
Denver, Colorado

Re: DMA Docket 1506X

Dear Mr. East:

We have again contacted the one owner of the Black Pearl Mine who had previously refused to sign the Landlord Subordination Agreement and have again received a negative answer. We doubt that anything will happen to change her attitude in the near future and can therefore see no hope for our obtaining the Subordination and qualifying for the Exploration Project Contract.

The failure to obtain the Subordination has been a disappointment to us since at the time of making application for the Project we had been assured that we would be able to obtain all the signatures. In the one case the owner is quite definately against having any obligations against the property and certain that we can make a go of it without help. We feel that way too, of course, but our success would have been much quicker and better assured if the Exploration Project Money had been available to us.

We have appreciated the many courtesies shown us by the officials of the Defense Minerals Administration and regret that we have been unable to qualify for the Project.

Very truly yours,

/s/ J. H. Cazier

J. H. Cazier

/C
O
P
Y
/

400

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

224 New Customhouse
Denver 2, Colorado

June 23, 1952

Memorandum

To: Frank E. Johnson, Chairman, Operating Committee
Defense Minerals Exploration Administration

From: Executive Officer, Field Team, Region IV

Subject: Docket DMA 1506X, (Tungsten) Cazier & Scholtz, Black Pearl Mine

Enclosed are the original and five copies of the unsigned exploration project contract as requested in your letter dated June 18, 1952.

Also enclosed is a copy of a letter from J. H. Cazier.

W. H. King
W. H. King

Enclosures

JFS:ld

cc: Docket, orig.
Reichmann
Storms

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 27 1951

Copy retained 400

EXPLORATION

JUN 18 1952

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

Re: Docket No. DMA 1506X - Tungsten
Gazier and Scholz
The Black Pearl Mine
Yavapai County, Arizona

Dear Mr. King:

On May 7, 1952, you were authorized to inform the applicants that if the subordination agreement was not obtained and forwarded to you by June 15, 1952, the Washington Office would consider the subject application withdrawn.

The file contains the return receipts dated May 17, 1952, for the letters sent by your office to Messrs. Gazier and Scholz. Since we have had no word from them, will you please return the unsigned exploration contract to this office for cancellation.

Sincerely yours,

(Signed) FRANK E. JOHNSON

Chairman, Operating Committee
Defense Minerals Exploration
Administration

Approved:

C. W. Johnson
Member, Bureau of Mines

D. M. Lemmon
Member, Geological Survey

GCSelfridge:ls 6/17/52

CC: Docket
Admn. Reading File
Field Team, Reg. 4
G. C. Selfridge
Operating Committee
D. M. Lemmon, USGS
R. W. Geehan, USBM

MAY 7 1952

Mr. J. H. Hoot, Jr.
Bureau of Mines
[illegible] Customhouse Building
Denver 2, Colorado

Re: Docket No. [illegible] - Tungsten
Gaxiola and Nichols
The Black Pearl Mine
Yavapai County, Arizona

Dear Mr. Hoot:

We note that several more months have passed since your letter of January 3, 1952, to us, in which you had advised that the subject docket had been placed in your inactive files.

[illegible] subject docket was given up for this particular property in July 1951. We have been waiting for the nine months for the applicant to obtain a subordination agreement. It is apparent that the applicant's interest is not forthcoming and never will be. We wish to close the docket and remove it from our active files. We are, therefore, authorized to inform the applicant that if the subordination agreement is not obtained and provided to us by June 15, 1952, that we will consider the application withdrawn.

Sincerely yours,

(signed) FRANK R. JOHNSON

Chairman, Operating Committee
Defense Minerals Exploration
Administration

CCSelfridge:ls
5/5/52

APPROVED:

J. H. Hodges
MEMBER, Bureau of Mines

D. M. Lemmon
Member, Geological Survey

cc: Admn. Reading File
Docket
Field Team, Region IV
C. C. Selfridge
D. M. Lemmon, USGS
E. M. Geehan, USGS

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

224 New Customhouse
Denver 2, Colorado

January 23, 1952

Memorandum

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

From: Executive Officer, Field Team, Region IV

Subject: Docket 1506X, Cozier & Scholz, Black Pearl Mine (Tungsten) Yavapai County, Arizona. Your memorandum January 21, 1952

The subject docket was placed in our inactive files until such time as the necessary subordination agreements can be obtained.

J. H. East, Jr.

WHK:ld

cc: Docket, chron.
Koschmann
Storms

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 2 1952

Mr. J. L. Kent, Jr.
Executive Officer, Region IV
[illegible] Kear Contractors Building
Denver 2, Colorado

Re: Docket No. DMA 1906X - Tungsten
Cassier & [illegible]
Black Pearl Mine
Bagdad, Yavapai County, Arizona

Dear Mr. Kent:

Our files on the subject application note that on July 18, 1951, six copies of a contract, with attached memorandum, were sent you for completion by your office. Later correspondence by Mr. Hoffland is also noted.

Please inform us of the present status of your activity in this regard, so that we may bring our files up to date.

Sincerely yours,

C. O. Mittendorf

Acting Administrator
Defense Minerals Exploration
Administration

CLBrewer'lm
1/17/52

cc: Admn. Reading File
Docket
R. W. Goehan, USGS
D. M. Lemmon, USGS
Field Team Reg. IV
G. O. Selfridge
C. L. Brewer

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

400 140

August 29, 1951

1506

Mr. J. H. Fast, Jr., Executive Officer
DMA Field Team, Region IV
224 New Customhouse
Denver 2, Colorado

Dear Mr. Fast:

Mr. Mittendorf has asked us to reply to your memorandum of August 17, 1951 on the subject of DMA Docket No. 1506X and to your telephone request for a guide as to the form to be used in the preparation of amendments to exploration contracts.

In this case, since the instrument has not been signed, there is no question of the amendment of a contract. All that is involved is a minor change in an instrument as presented for signature. The starting date of the work can be set back to meet the wishes of the prospective operator so long as the date for completion is not thereby extended beyond two years from the date of the contract. You may make the necessary change, either by crossing out the present start-up period and substituting the new period, or by preparing a new set of instruments with the new period substituted for the old. You should then have the prospective operator sign the instruments, initialling the change if the former alternative in effecting the change has been used. The instruments should then be sent to Washington for signature by the Government.

Quite a different situation is presented when a change is necessary in a contract which has been signed by both parties. In that case a formal amendment must be drawn and executed. A sample form of amendment is set forth on page 5 of Circular Letter No. 8 of August 13, 1951. Your authority to enter into amendments is, of course, limited to instances involving the subjects enumerated in Order 2653.

If you have any further questions we shall be glad to have you write to us.

J. L. Hofflund

J. L. Hofflund
General Counsel

RRGuthrie/bjl

Copy to: Administrator's Reading File
R. R. Guthrie
J. L. Hofflund
C. O. Mittendorf
Chron.
Reports & Records

400

August 21, 1951

Memorandum

TO: Mr. J. L. Hoffiund, General Counsel

FROM: Mr. C. O. Mittendorf, Director
Production Expansion Division

SUBJECT: Revision of Exploration Contract
Docket DMA-1506X
Tungsten, Black Pearl Mine

Please prepare an appropriate answer to the attached letter from Executive Officer, Region IV, Field Team of August 17, 1951 copy of which is attached.

C. O. Mittendorf

PBBlakemore/jem
8-21-51

cc to: Adm. Reading File
Reports & Records
Mr. Mittendorf-Mr. Olund
Mr. Blakemore
Docket

400

JUL 18 1951

Mr. J. H. East, Jr.
Executive Officer
Region IV
222 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMA 1506X
The Black Pearl Mine
Scholz, A. A. & Lasier, J. H.

Dear Mr. East:

We are forwarding to you six copies of an exploration project contract with captioned applicant for your completion in conformity with items #3 and #4 of the memorandum, copy of which is attached, from our legal department.

In an attempt to expedite this contract, because it is tungsten, we telephoned the applicant and in reply received a letter on June 29, 1951 from Mr. J. H. Lasier, copy of which is enclosed. The exhibits attached to the contract form M-20X were worked out after receipt of the above mentioned letter.

In addition to the above, it will be necessary to provide three additional copies of the map and lease and option to purchase.

When the contract is signed please return to the Washington office for the Administrator's signature and final distribution.

Very truly yours,

C. O. Mittendorf

C. O. Mittendorf, Director
Production Expansion Division

Enclosures-6

Approved:

Chairman, Coordinating Committee

Member, Bureau of Mines

Member, Geological Survey

SPWarren/mch
cc to: Messrs. Mittendorf, Olund
Adm. Reading File
Mr. Noon
Mr. Warren
Mr. Thayer
Mr. Holderer
Region IV (2)
FILES

F-500

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

REFERENCE SLIP

DATE 6-27-52

REFERRED TO:

1. ~~Mrs. Berry, Rm. 4624~~
3. ~~Mr. Adams, Room 4070~~
4. ~~Susie Albert, Rm. 4539~~
3. ~~Mr. Johnson, Rm. 4624~~
2. ~~Mr. Alfred R. 7538~~

FOR:

..... Action	..... Recommendation
..... Approval	..... Record
..... Comment	of .....
..... Conference	..... Referring
..... Consideration	to .....
..... Filing	..... Reply for signa-
..... Instructions	ture of .....
..... Investigation	..... Rewriting
..... Initials	..... Signature
..... Mailing	..... Suggestions
..... Previous correspondence	..... Your information

REMARKS:

Hazel:

Mr. A. told me to send the memo to Mr. Johnson.

Susie

See note on back

Check (X) before the items needing attention.

R. E. ADAMS

Initials of sender.

GPO 16—63815-1

Inasmuch as Mr. Selfridge wrote the ltr. to the Field asking for return of the unexecuted contract, has he been advised of its return and has he seen the letter mentioned in the Field memo—from J. H. Cazier.

Hazel

7/2/52

Mr. Adams:

DMA 1506 withdrawn from active pending cases of Division as of today, per advice rec'd in attachment.

GCSelfridge

DEFENSE MINERALS ADMINISTRATION
Status Change Notice

DMA Docket No. 1506X

To: Reports and Records Branch

From: Tungsten Branch DMA

Date: August 8, 1951

The following action has been taken this date on the above Controlled Document.

Forwarded to Director, Supply Division

Type of request changed to:

Denied ☐ Withdrawn ☐

Approved in amount of $

Other action, specify:

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

224 New Customhouse
Denver 2, Colorado

June 23, 1952

Memorandum

To: Frank E. Johnson, Chairman, Operating Committee
Defense Minerals Exploration Administration

From: Executive Officer, Field Team, Region IV

Subject: Docket DMA 1506X, (Tungsten) Cazier & Scholtz, Black Pearl Mine

Enclosed are the original and five copies of the unsigned exploration project contract as requested in your letter dated June 18, 1952.

Also enclosed is a copy of a letter from J. H. Cazier.

W. H. King

W. H. King

Enclosures

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 27 1951

Copies of contract are in docket file

6-27-52

Copy retained 200

/ C O P Y /

SCHOLZ AND CAZIER
Mining
Bagdad, Arizona

June 13, 1952

Mr. J. H. East, Jr., Executive Officer
Field Team, Region IV
Defense Minerals Administration
Denver, Colorado

Re: DMA Docket 1506X

Dear Mr. East:

We have again contacted the one owner of the Black Pearl Mine who had previously refused to sign the Landlord Subordination Agreement and have again received a negative answer. We doubt that anything will happen to change her attitude in the near future and can therefore see no hope for our obtaining the Subordination and qualifying for the Exploration Project Contract.

The failure to obtain the Subordination has been a disappointment to us since at the time of making application for the Project we had been assured that we would be able to obtain all the signatures. In the one case the owner is quite definately against having any obligations against the property and certain that we can make a go of it without help. We feel that way too, of course, but our success would have been much quicker and better assured if the Exploration Project Money had been available to us.

We have appreciated the many courtesies shown us by the officials of the Defense Minerals Administration and regret that we have been unable to qualify for the Project.

Very truly yours,

/s/ J. H. Cazier

J. H. Cazier

/ C O P Y /

MF-200
(April 1951)

Docket No. DMA 1506-X
Commodity Tungsten

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

EXPLORATION PROJECT CONTRACT [1]

It is agreed this _____ day of _____, 195__, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration, hereinafter called the "Government," and [2] J. H. Cazier and Dorothy L. Cazier, his wife
E. A. Scholtz and Irma R. Scholtz, his wife

hereinafter called the "Operator," as follows:

1. *Authority for contract.* This agreement is entered into under the authority of the Defense Production Act of 1950, pursuant to Mineral Order 5, entitled "Regulations Governing Government Aid in Defense Exploration Projects."

2. *Operator's property rights.* The exploration project shall be conducted on that certain property situated in the State of Arizona, County of Yavapai described as follows: [3] The Black Pearl Mine in the Eureka Mining District; Sections 7 and 18, Township 15, North, Range 7 West. "As more fully described in the lease and option to purchase dated April 30, 1951, a copy of which is attached hereto."
with respect to which the Operator represents and undertakes: [4]

(*a*) ~~That he is the sole owner, in possession and entitled to possession, and that the property is subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder is attached:~~

(*b*) That he is a lessee, in possession and entitled to possession, and the subordination agreement of the lessor is attached.

3. *Exploration project.* The Operator, within 30 days from the date of this contract shall commence work on a project of exploration for [5] tungsten; shall prosecute the work efficiently, expertly, in a workmanlike manner, in accordance with good mining standards, with suitable and adequate equipment, materials, and labor, all properly designed to bring the project to completion within a period of [6] two years from the date of this contract. The exploration project and the work to be performed are more fully described on Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, is made a part of this contract.

4. *Performance of the work.* The work shall be performed by the Operator, under his sole direction and control: *Provided,* That with the consent of the Government and its written approval of the contract or contracts, all or any part of the work may be performed by the Operator through contract or contracts with independent contractors. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

5. *Fixtures and improvements.* The Operator shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of the exploration project without any allowance for the use, rental value, depreciation, depletion, or other cost of acquiring, owning, or holding possession thereof. Attached hereto, marked "Exhibit 'B'," is a detailed list of additional facilities, buildings, and fixtures, to be purchased, installed, or erected by the Operator, with the estimated cost of each, to which the Government will contribute its agreed pro-rata share of the cost. The difference between the cost of such additional facilities, buildings, or fixtures, and the salvage value thereof at the conclusion of the work, shall be charged as a cost of the project to which the Government has contributed its pro-rata share.

6. *Operating equipment.* Attached hereto, marked "Exhibit 'C'," is a detailed list of operating equipment divided into categories of items to be rented, purchased, or furnished by the Operator, with the allowable rental, purchase price, or rental value, as the case may be, annexed to each. As to equipment purchased for the project, the Government will contribute its agreed pro-rata share of the cost thereof, and the difference between the cost and the salvage value at the conclusion of the work shall be charged as a cost of the project to which the Government has contributed its pro-rata share.

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] State name, address, and nature of organization if any.
[3] Give legal description or enough to identify the property.
[4] Strike out the provision not applicable.

7. *Title to and disposition of property.* All facilities, buildings, fixtures, equipment, or other items costing more than $50 each, paid for or purchased with funds contributed jointly by the Operator and the Government, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the termination of the contract, if they have any salvage value, shall be disposed of for their joint account unless the Government, in writing, waives its interest in any such items. The Government may require the dismantling, severance from land, and removal of any such items in order to realize its interest in the salvage value thereof, and the cost of any such removal and of the disposal of the items shall be for the joint account of the parties in proportion to their respective interests.

8. *Labor and supervision.* Attached hereto, marked "Exhibit 'D'," is an itemized schedule of labor, by numbers and classes (miners, muckers, millmen, etc.), and of supervisors, by numbers and positions, with the maximum wages or salaries that may be paid to each as an allowable cost of the project.

9. *Rehabilitation and repairs.* Attached hereto, marked "Exhibit 'E'," is a detailed schedule of existing facilities, buildings, installations, and fixtures, with a statement of the cost of any necessary rehabilitation or repairs to put into useful and operable condition, which cost shall be allowed as a cost of the project.

10. *Allowable costs of the project.* The allowable costs of the project in which the Government will participate are limited to the necessary, reasonable, direct costs of performing the exploration work, including the costs of materials, supplies, engineering, power, water, and utilities, including items of equipment costing less than $50 each; and the costs referred to in Articles 5, 6, 8, and 9, and the exhibits annexed to and referred to in the contract. Although the Government may pay part of the cost of new or additional facilities, structures, buildings, and equipment, only the depreciation on such items, computed as indicated in Articles 5 and 6, will be charged as a cost of the project. No items of general overhead, corporate management, interest, or any other indirect costs not expressly allowed by these regulations, or work performed or costs incurred before the date of this contract, shall be allowed as costs of the project in which the Government will participate.

11. *Participation by the Government.* At the end of the first full calendar month after the Operator has commenced work under the project, and at the end of each succeeding calendar month, the Operator shall submit to the Government a voucher for payment with a detailed statement of work done and allowable costs (as defined in Article 10 of this agreement) incurred, in a form and with supporting data acceptable to the Government. After approving the voucher, the Government shall pay to the Operator 75 percent of the sum of such costs incurred; *Provided,* That the aggregate total of all sums paid by the Government under this agreement shall not exceed $105,900, which is 75 percent of the agreed estimated total cost of this project, $141,200.

12. *Accounts and audits.* The Operator shall keep suitable records and accounts of operations, which the Government may inspect and audit at any time. The Government may at any time require an audit of the Operator's records and accounts by a certified public accountant, the cost thereof to be treated as a cost of the project. The Operator shall keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract.

13. *Progress reports.* The Operator shall provide the Government with monthly reports of progress in form and content satisfactory to the Government, and upon the completion of the project or termination of the contract shall provide the Government with a comprehensive geologic and engineering report, including an estimate of ore reserves, to the best of his ability. Four copies of all reports shall be furnished to the Government.

14. *Repayment by Operator.* If, upon the completion of the exploration project or termination of the contract, the Government considers that a discovery or development has resulted from the work from which commercial production of ore may be made, the Government, within 6 months thereafter shall so certify to the Operator, particularly describing and delimiting its estimate of the discovery or the development. Thereafter, if and as ore is produced as a result of such discovery or development, the Operator and his successor in interest shall be and become obligated to pay to the Government a percentage royalty on the net smelter returns or other net proceeds realized from such ore, concentrates, or metal produced within ten (10) years from the date of this contract, until the total amount contributed by the Government, without interest, is fully repaid or said 10 years have elapsed, whichever occurs first, as follows:

Of net smelter returns or other net proceeds not in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent.

Of net smelter returns or other net proceeds in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent, plus one-half (½) percent additional for each full fifty cents ($0.50) in excess of eight dollars ($8.00) per ton of ore, but not in excess of a maximum of five (5) percent.

This obligation to repay from net returns or proceeds shall be and remain a claim and lien upon the property which is the subject of the exploration project and upon any production resulting from such discovery or development, in favor of the Government, until fully paid, or until said 10-year period has elapsed; and this claim and lien and the Government's right to repayment shall survive any termination of the contract, whether by completion of the exploration project or otherwise. This article is not to be construed as imposing any obligation on the Operator or his successor in interest to produce ore from any such discovery or development.

15. *No assignment of contract.* Without the written consent of the Government, the Operator shall not assign or otherwise transfer or hypothecate this contract or any rights thereunder.

16. *Termination and completion.* The Government may, at any time, by written notice to the Operator, terminate this contract: (*a*) If the Operator fails to provide his share of the money necessary to prosecute operations pursuant to the terms of the contract; (*b*) if the Operator, in the opinion of the Government, fails to prosecute operations pursuant to the terms of the contract; or (*c*) if in the opinion of the Government, operations up to the time of the notice have not indicated the probability of making any worthwhile discovery and in the opinion of the Government further operations are not justified. Upon the completion of the project or any termination of the contract the Operator shall render to the Government a full and final accounting of his operations under the contract and his expenditures of money; shall dispose of any unused materials, supplies, and equipment for the joint account of the Operator and the Government in the proportion of their respective interests; and shall pay to the Government its pro-rata share of any money remaining.

Executed in ~~triplicate~~ sextuplet the day and year first above written.

THE UNITED STATES OF AMERICA

(Operator)

By ---

By ---
Administrator, Defense Minerals Administration

U. S. GOVERNMENT PRINTING OFFICE 16—64066-1

EXHIBIT A

The proposal is to be considered in two sections. The second section to be started only after approval of the Defense Minerals Administration. The sections can be designated as follows:

First Phase

Shaft sinking and crosscutting to vein and some drifting on vein to determine presence of mineralization at 100' and 200' below present ore showing in upper tunnel.

Second Phase

Drifting and raising on vein opened up by the first part of this project.

FIRST PHASE OPERATIONS

Shaft Sinking 220 feet, cutting two stations:

Labor @ $50.00	$11000
Timber @ $23.00	5000
Supplies, Powder, Caps, Steel,etc. @ $21.00	4620
Power @ $4.50	990
	$21610

Crosscutting 160 feet:

Labor @ $12.50 per foot	$2000	
Timber @ $1.00 per foot	170	→ 160
Powder, Caps, Bits, Steel, etc. @ $5.25 per foot	840	
Power @ $1.25 per foot	200	
	$3210	3200

Drifting 400 feet:

Labor @ $12.50	$5000
Timber @ $1.00	400
Powder, Caps, Bits, Fuse, etc. @ $5.25	2100
Power @ $1.25 per foot	500
	$8000

SECOND PHASE OPERATIONS

Drifting 1600 feet:

Labor @ $14.00	$22400
Timber @ $1.00	1600
Powder, Caps, Bits, Fuse, etc. @ $2.75	4400
Power @ $1.50	2400
	$30800

Raising 800 feet:

Labor @ $10.00	$ 8000
Timber @ $4.00	3200
Powder, Caps, Bits, Fuse, etc. @ $2.50	2000
Power @ $1.35 per foot	1080
	$14280

Total Operation Costs:

Labor	$48400
Power	5170
Supplies	24380
	$77950

EXHIBIT B (First Phase)

1 - 35 ft. Headframe and Hoist House	$ 5000
1 - 18' x 24' Change Room and Equipment	2000
1 - 5000 Gallon Water Storage and Lines at Mine	500
Camp Water Supply Improvement	500
1 - 12' x 16' Shop Building	500
1 - 16' x 24' Storage Building	1000
5 - Cabins for Men 12' x 16'	3500
1 - 16' x 30' Boarding House & Equipment	2000
	$15000

EXHIBIT C (First Phase)

Equipment to be rented:

Pickup Truck $50.00 per month, 12 months	$ 600
1½ Ton Truck and Water Tank $100.00 per month, 12 months	1200
	$1800

Equipment to be purchased:

1 - 315 cu.ft. Compressor	$ 8000
2 - 55 lb. Jackhammers and hoses	700
1 - Air Driven Sump Pump	300
1 - Drifter with Hoses	800
1 - 5000 lb. Pull Hoist	6000
2 - Sinking Buckets	500
1 - Cage	500
1 - Pneumatic Drill	400
1 - Pneumatic Saw	400
6 - Mine Cars	1500
1 - Gasoline Engine Blower	300
	$19400

EXHIBIT C (Second Phase)

Equipment to be rented:

Pickup Truck $50.00 per month for 10 months	$ 500
1½ Ton Truck & Water Tank $100.00 per month for 10 months	1000
	$1500

Equipment to be purchased:

2 - Stopers, hoses and oilers	$ 1400
6 - Mine Cars	1500
1 - Drill Jumbo or special column	1500
1 - Mucking Machine	2700
1 - Mancha Trammer and Battery Charger	7500
	$14600

EXHIBIT D Labor Rates

Miners; shaft men	$15.00 per day
Miners; not shaft men	12.00 " "
Muckers & Trammers	11.00 " "
Carpenters	13.00 " "
Carpenter Helper	11.00 " "
Hoistman	13.00 " "
Truck Driver	12.00 " "
Timber Framer	15.00 " "
Supervision	500.00 per month

EXHIBIT E

No rehabilitation work contemplated because applicant is occupying all available facilities.

Recapitulation

Labor	$ 48400
Supervision 22 months @ $500.00 per month	11000
Power	5170
Supplies	24330
Facilities Constructed	15000
Equipment Rented	3300
Equipment Purchased	34000
	$141200

MF-103 E.A. Scholz - J.H. Cazier Black Pearl Mine

Copy

DMA 1-06

LEASE AND OPTION TO PURCHASE

THIS AGREEMENT made and entered into this 30th day of April, 1951 by and between John Lawler, as single man, MARY LAWLER, a single woman, JAMES E. HARRINGTON and KATHRYN I HARRINGTON, his wife, F.H. LYONS and MARY LYONS, his wife, JOSEPH W. WALTON and FLORENCE E. WALTON, his wife, hereinafter termed " First Parties", and E.A. SCHOLZ and IRMA R. SCHOLZ, his wife, and J.H. CAZIER and DOROTHY L. CAZIER, his wife, hereinafter termed "Second Parties", for and in consideration of One and NO/100 DOLLARS ($1.00), and other good and valuable consideration, the receipt whereof is hereby acknowledged, by each party to the other in hand paid, and in consideration of the performance of the covenants and agreements hereinafter set forth, the parties hereto do hereby agree as follows, to-wit:

I

First Parties do hereby grant unto Second Parties the exclusive right and option to purchase and operate the following described patented and unpatented lode mining claims situate in the EUREKA MINING DISTRICT, county of Yavapai, State of Arizona, the names of which, together with the book and page of the records in the office of the County Recorder of Yavapai County, Arizona, where the United States Patents therefor are of record, or where the mining location notices therefor are of record and are as follows, to wit:

Name of Claim	Book	Page
Patented Mining Claims		
Black Pearl Patented Lode Mining Claims numbered 1,2,3,4,6,7 and 8 (mineral Survey 4186)(U.S. Patent No. 1102913)	All recorded in Book 181 of Deeds at pages 551-554	
North Side Patented Lode Mining Claims numbered 1, 2, 3 and 5(Mineral Survey 4186)	All recorded in Book 181 of Deeds at pages 551-554	
Unpatented Mining Claims		
Black Pearl Unpatented Lode Mining Claims numbered 9, 10, 11 and 12	All recorded consecutively as numbered in Book 143 of Mines at pages 148-152	
North Side Unpatented Lode Mining Claim numbered 4		

Together with all improvements situate thereon, water and water rights appurtenant thereto and any other rights and privileges appurtenant thereto.

"The immediately afore-described group of patented and unpatented lode mining claims constitutes and is locally known as the "Black Pearl Group" or Black Pearl Mine" and is, for the purposes of brevity, hereinafter referred to in this Contract, wherever mentioned, as the "Black Pearl Mine,")

for a total purchase price of ONE HUNDRED SEVENTY-FIVE THOUSAND DOLLARS ($175,000.00), bearing no interest, and payable by Second Parties to First Parties on or before May 4, 1959, in the manner and at such times as follows:

Twelve and one-half persent (12½%) royalty payments of the net mint, net smelter, net mill or other returns from all ores, concentrates, bullion , or other products removed and disposed of from the above described "Black Pearl Mine"; which royalty payments shall be paid by Second Parties to First Parties in the manner and at the times hereinafter set forth and when so paid shall be credited against the aforesaid purchase price.

The term "net mint returns", "net smelter returns" "net mill returns" and "other returns" as used herein shall be construed to mean the net values found and accounted for by the smelter, mint, mill or other phase of treatment or sale, less the reasonable cost of truck or rail transportation, smelter charges, penalties and deductions made by said smelter, mill or other place of treatment or sale.

Such royalty payments shall be made directly to THE BANK OF ARIZONA, and Arizona banking corporation, Prescott, Arizona, the Escrow Agent hereinafter names, and said The Bank of Arizona, shall either deposit said royalty payments to the credit of First Parties in the proportions as hereinafter set forth, or shall forward the same to the person entitled thereto in accordance with any instructions delivered by such person to said bank. All royalty payments shall be made to said Escrow Agent within thirty (30) days of the settlement date for each load of ore, concentrate or tother material sold or shipped and such payment shall be accompanied by a true copy of the smelter, mint, mill or other return for delivery to First Parties.

The Royalty payments, when made hereunder, shall be divided and credited by the Escrow Agent, The Bank of Arizona, as below set forth, which proportions represent the aliquot un-divided ownership of First Parties in said "Black Pearl Mine":

JOHN LAWLER, a one-fourth(¼)share(said said one-fourth share representing the sum of FORTY-THREE THOUSAND SEVEN HUNDRED FIFTY AND NO/100 DOLLARS ($43,750.00) out of the total rental or purchase price herein contained);

JAMES E. HARRINGTON and KATHRYN I. HARRINGTON, his wifre, and F. H. Lyons and MARY LYONS, his wife, a two-sixths (2/6) share (said two-sixths share representing the sum of FIFTY EIGHT THOUSAND THREE HUNDRED THIRTY THREE AND 34/100 DOLLARS ($58,333.34) out of the total rental or purchase price herein contained;

[illegible]

[illegible]

[illegible]

JOSEPH W. WALTON and FLORENCE E WALTON, his fife, ax one -sixth 1/6) shafe (said one-sixth share representing the sum of TWENTY-NINE THOUSAND ONE HUNDRED SIXTY SIX AND 66/100 DOLLARS ($29,166.66) out of the total rental or purchase price herein contained):

MARY LAWLER, a one-fourth (1/4) share (said one-fourth share representing the sum of FORTY-THREE THOUSAND SEVEN HUNDRED FIFTY AND NO/100 DOLLARS ($43,750.00) out of the total rental or purchase price herein contained)?

PROVIDED, HOWEVER, that in no event shall the royalty payments to be made and credited to Mary Lawler be less than the following amounts paid on or before the dates set forth opposite said amounts:

FIVE THOUSAND AND NO/100 DOLLARS ($5,000.00) on or before May 4, 1952:

TEN THOUSAND AND NO/100 DOLLARS ($10,000.00) on or before May 4, 1953:

TEN THOUSAND AND NO/100 DOLLARS($10,000.00) on or before May 4, 1954:

EIGHTEEN THOUSAND SEVEN HUNDRED FIFTY AND NO/100 DOLLARS ($18,750.00) on or before May 4, 1959,

The intent of theis provision being that Second Parties agree to and must pay the above amounts to Mary Lawer, through the Escrow Agent, whether or not said payments are made from the twelve and one-half per cent (12½%) royalty payments herein provided or must necessarily be made by additional cash payments by Second Parties, to be treated as advance royalty payments. Failure of Second Parties to make the payments to Mary Lawler as above required shall constitute a default as to the entire lease and option agreement, PROVIDED, HOWEVER, THAT the said Mary Lawler may, in writing, agree to alter or amend said payments or extend said payment dates. Nothing herein contained shall be construed as impairing the right of Second Parties to abandon this agreement without liability to make the payments aforesaid, shoul they so elect.

III

Upon execution and delivery of this Agreement, Second Paries shall be entitled to the possession of the foregoing described patented and unpatented lode mining claims, and every part thereof, and they shall have the right to work, operate and devalop the same in any manner and by such means as they may deem fit and proper and to extract, mine, mill and ship for treatment or other disposition, the ores and minerals therefrom. Second Parties agree that all such work shall be done in a good and minerlike manner.

It is agreed that beginning immediately after execution of this agreement, and during each and every month thereafter, during the therm of this agreement, Second Parties shall do and perform not less than sixty (60) eight-hour shifts of work per month on said "Black Pearl Mine" afore-described, weather permitting and if not prevented by acts of God,

strikes, insurrections, rebellions, governmental restriction or other conditions beyond the control of Second Parties. The monthly shift obligations contained herein shall be cumulative.

IV

First Parties shall promptly pay all taxes which may be assessed on or levied against the foregoing described mining property for all years prior to the second installation of taxes due and payable for the year 1950. Taxes beginning with the second installment for the year 1950 and for all succeeding time there after, provided that Second Parties have not abandoned their interest hereunder, shall be paid by Second Parties. Failure tp pay said taxes shall be considered a default hereunder.

First Parties agree to convey the afore-described patented lode mining claimes to Second Parties free and clear of all liens and encumbrances and with Warranty Deed and warranty of title. First Parties agree to quit claim to Second Parties all of their right, title and interest in and to the afore-described unpatented lode mining claimes.

V

Second Parties shall promptly pay all debts and obligations incurred or created or on account of any of their obligations hereunder, and shall keep said property and mining claims clear and free of any and all liens and charges of every character, including all damage claims for injuries to employees as well as claims for labor materials, supplies, equipment and other charges: and in this connection, Second Parties shall record, post and keep posted, pursuant to the provisions of Section 62-210 of the Arizona Code Annotated, 1939, Notices of Non-Liability on the part of First Parties, First Parties to execute and furnishe such Notices of Non-Liability: PROVIDED, HOWEVER, that nothing herein contained shall prevent Second Parties from borrowing money and pledging or otherwise encumbering their rights hereunder as security for such borrowing: PROVIDED FURTHER, HOWEVER, that Second Parties agree that during the period hereof they will not mortgage, sell or otherwise encumber, or dispose of said property without first giving First Parties notice of therir intention to do do, and further that any such encumbrance or disposition of the property, or any part thereof, shall be made expressly subject to the rights of the First

Parties herunder.

VI.

Second Parties shall do and perform within the time required by law the annual labor or assessment work on or for the benefit of the unpatented mining claims hereinbefore described as are necessary to comply with the laws of the United States and the State of Arizona, and upon completion of the annual labor for any particular year the Second Parties shall furnishe the First Parties, for recording, on or before June 15th of each year, and affidavit showing said work to have been performed: PROVIDED,HOWEVER, that if this Lease and Option is terminated and canceled at any time during the first six(6) months of any annual labor year, that is, at any time between July 1, at noon, and the following January 1, at noon, the Second Parties shall be relieved from doing the assessment work for that annual labor year.

VII

Simultaneously with the execution and delivery of this Agreement the parties shall execute and deposit in escrow with the Bank of Arizona, an Arizona banking corporation, with its principal office and place of business in Prescott, Yavapai County, Arizona, with escrow filing fees to be equally shared between the First Parties and Second Parties, the fol lowing instruments, together with proper escrow instruction to said Escrow Agent;

A. Executed copy of this Agreement;
B. Warranty Mining Deed of First Parties covering patented lode mining claims, title to such property to be in First Parties, free and clear of all liens and encumbrances:
C. Qit Claim Deed of First Parties covering the unpatented Lode Mining Claims.
D. Quit Claim Deed of Second Parties quit-claiming to First Parties all interest of Second Parties in and to the "Black Pearl Mine" hereinbefore described.

As and when the said purchase price hereinabove set forth shall have been fully paid by Second Parties to First Parties and Second Parties shall not be in default in the performance of any of their agreements and covernants herin, said escrow Agent shall deliver to Second Parties, or their assigns, all of the foregoing described instruements, and First Parties, shall thereafter have no further right, title or interest in and to the property, and said intruments above-described, and this Agreement shall forthwith terminate. In any other event, said Escrow Agent shall deliver the said instruments to First Parties.

Second Parties may, at any time, abandon this Agreement upon thirty(30) days' written notice therof, delivered to First Parties at the

banking office of said Escrow Agent, Prescott, Arizona, and all parties hereto shall thereupon be relieved of all further obligations hereunder. In the event of such abandonment or forfeiture as hereinafter provided, Second Parties hall have the right to remove from said "Black Pearl Mine" property, all machiner, tools, and equipment of every kind and character that they have placed thereon, with the exception of timbering, rails, ladders and pipe placed underground. Said removal shall be made withing ninety(90) days after the effective dat of any such abandonment or forfeiture. It not so removed, title thereto shall vest in First Parties. In the event of forfeiture or abandonment of this Agreement, and and all monetys which have been paid to the First Parties as royalty payments, or otherwise, shall belong to First Parties and shall be retained by First Parties as rent of said premised and as liquidated damages, or either.

In the event that Second Parties are, in the opinion of First Parties, failing to perform the mining work in a good and minerlike manner, or failing to perform in accordance with the requirements of this Contract, or in any particular, except the making of money payments, unless the amount due First Parties from Second Parties is in dispute, First Parties shall give Second Parties written notice of the condition or conditions which First Parties consider are not being fulfilled. If Second Parties fail to make good such definiency, provided the objection is proper and within the terms of this Agreement, before the expiration of ninety (90) days fro the date of delivery or mailing of said notice, or fail to make the payments as provided herein, unless the mount due is in dispute, then this agreement shall, at the option of First Parties, terminate and First Parties shall have the right to re-enter and to take possession of said mining claims and Second Parties agree to give u p, relinquish and give over the said mining property to First Parties, in which event Second Partie shall have thirty (30) days in which to remove the personal property as herinbefore provided for and under the same conditions as hereinabove set forth.

VIII

Second Parties agree to keep a true and correct record of the production, reduction and disposition of all ores or other materials mine, milled or otherwise handled by them uner this Agreement, which records shall be opern to the inspection of First Parties, or their representatives,

at all reasonable times. First Parties, or their representatives, reserve the right to go upon the mining claimes and property herin described for the purpose of reasonable inspection.

IX

Time is of the essence of this Agreement, It is understood and agreed, however that Second Parties , at all times mentioned during the period of this Lease, and exclusive Option, shall have the right to pay said rental or purchase price on a royalty payment basis, in the manner and and at such times, as hereinabove set forth. And it is further specifically agreed that Second Parties at all times during the period of this Lease and exclusive Option shall have an option to pay said rental or purchase price on or before the expiration period of this Lease and Option, and the option to pay said rental or purchase price out of moneys apparate, distinct and apart from said royalty income payments.

X

It is understood and agreed that this is an option to purchase coupled with the right to operate and that Second Parties may at their pleasure surrender said properties back to First Parties upon giving the notice herienfefore provided for without further obligation hereunder, subject to the requirement that they shall perform all obligations which have matured and are owing to First Parties prior to the giving of such notice of termination.

XI

The delivery of any notices or papers required or permitted under this Agreement to any one person being a member of either First or Second Parties hereto shall constiture delivery and notice to all members of either First or Second Parties.

Delivery or notices, unless otherwise provided, may be made or given by registered mail, addressed as follows:

First Parties:
John Lawler
Prescott, Arizona
or
J. E. Harrington
Phoenix, Arizona

Second Parties:
E.A. Scholz
Bagdad, Arizona
Or
J. H. Cahier
Bagdad, Arizona

XII

The parties hereto agree to make, execute and deliver, or cause

to be made, executed and delivered, and to mutually assist each other in the execution and delivery of all papers, deeds, assignments, releases, waivers, notices or any other instruments that may be necessary or required to carry out th terms and conditions of this Agreement.

XIII

The provisions of this Agreement shall extend to and be binding upon and inure to the benefit of the heirs, executors, administrators and assigns of the parties hereto. In this connection, First Parties specifically agree to recognize an assignment of this mining Lease and Option Agreement by Second Parties to any corporation of Second Parties's choosing, whether said corporation be now in existence or be chartered in the future.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first hereinabove written, in quntiuplicate, each to be considered an original.

John Lawler

Mary Lawler

James E Harrington

Kathryn I Harrington

First Parties

FH. Lyons

Mary Lyons

Joseph W. Walton

Florence E Walton

E. A. Scholz

Second Parties

Irma R. Scholz

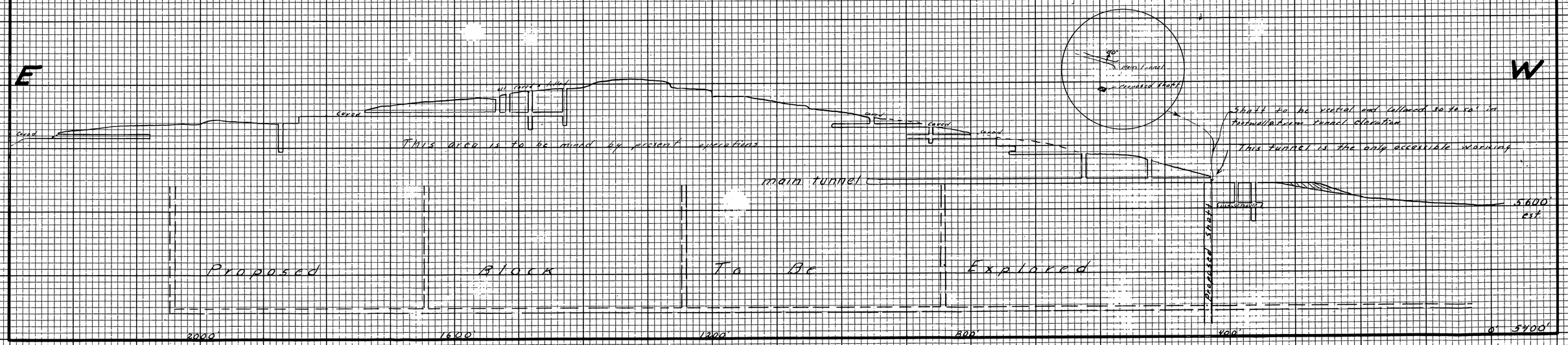
J. H. Cazier

Dorothy L. Cazier

BLACK PEARL MINE
YAVAPAI COUNTY ARIZONA

1" = 100'

Sketch Section on Vein taken from
Section Made by Homer R Wood
Cazier June 1951



MF-200
(April 1951)

Docket No. DMA 1506-X
Commodity Tungsten

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

EXPLORATION PROJECT CONTRACT [1]

It is agreed this _____ day of _____, 195__, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration, hereinafter called the "Government," and [2] J. H. Cazier and Dorothy L. Cazier, his wife
E. A. Scholtz and Irma R. Scholtz, his wife

hereinafter called the "Operator," as follows:

1. *Authority for contract.* This agreement is entered into under the authority of the Defense Production Act of 1950, pursuant to Mineral Order 5, entitled "Regulations Governing Government Aid in Defense Exploration Projects."

2. *Operator's property rights.* The exploration project shall be conducted on that certain property situated in the State of Arizona, County of Yavapai described as follows: [3] The Black Pearl Mine in the Eureka Mining District; Sections 7 and 18, Township 15, North, Range 7 West. "As more fully described in the lease and option to purchase dated April 30, 1951, a copy of which is attached hereto."
with respect to which the Operator represents and undertakes: [4]

(*a*) ~~That he is the sole owner, in possession and entitled to possession, and that the property is subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder is attached:~~

(*b*) That he is a lessee, in possession and entitled to possession, and the subordination agreement of the lessor is attached.

3. *Exploration project.* The Operator, within 30 days from the date of this contract shall commence work on a project of exploration for [5] tungsten; shall prosecute the work efficiently, expertly, in a workmanlike manner, in accordance with good mining standards, with suitable and adequate equipment, materials, and labor, all properly designed to bring the project to completion within a period of [6] two years from the date of this contract. The exploration project and the work to be performed are more fully described on Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, is made a part of this contract.

4. *Performance of the work.* The work shall be performed by the Operator, under his sole direction and control: *Provided,* That with the consent of the Government and its written approval of the contract or contracts, all or any part of the work may be performed by the Operator through contract or contracts with independent contractors. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

5. *Fixtures and improvements.* The Operator shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of the exploration project without any allowance for the use, rental value, depreciation, depletion, or other cost of acquiring, owning, or holding possession thereof. Attached hereto, marked "Exhibit 'B'," is a detailed list of additional facilities, buildings, and fixtures, to be purchased, installed, or erected by the Operator, with the estimated cost of each, to which the Government will contribute its agreed pro-rata share of the cost. The difference between the cost of such additional facilities, buildings, or fixtures, and the salvage value thereof at the conclusion of the work, shall be charged as a cost of the project to which the Government has contributed its pro-rata share.

6. *Operating equipment.* Attached hereto, marked "Exhibit 'C'," is a detailed list of operating equipment divided into categories of items to be rented, purchased, or furnished by the Operator, with the allowable rental, purchase price, or rental value, as the case may be, annexed to each. As to equipment purchased for the project, the Government will contribute its agreed pro-rata share of the cost thereof, and the difference between the cost and the salvage value at the conclusion of the work shall be charged as a cost of the project to which the Government has contributed its pro-rata share.

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] State name, address, and nature of organization if any.
[3] Give legal description or enough to identify the property.
[4] Strike out the provision not applicable.
[5] Name of mineral.
[6] Not in excess of 2 years.

7. *Title to and disposition of property.* All facilities, buildings, fixtures, equipment, or other items costing more than $50 each, paid for or purchased with funds contributed jointly by the Operator and the Government, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the termination of the contract, if they have any salvage value, shall be disposed of for their joint account unless the Government, in writing, waives its interest in any such items. The Government may require the dismantling, severance from land, and removal of any such items in order to realize its interest in the salvage value thereof, and the cost of any such removal and of the disposal of the items shall be for the joint account of the parties in proportion to their respective interests.

8. *Labor and supervision.* Attached hereto, marked "Exhibit 'D'," is an itemized schedule of labor, by numbers and classes (miners, muckers, millmen, etc.), and of supervisors, by numbers and positions, with the maximum wages or salaries that may be paid to each as an allowable cost of the project.

9. *Rehabilitation and repairs.* Attached hereto, marked "Exhibit 'E'," is a detailed schedule of existing facilities, buildings, installations, and fixtures, with a statement of the cost of any necessary rehabilitation or repairs to put into useful and operable condition, which cost shall be allowed as a cost of the project.

10. *Allowable costs of the project.* The allowable costs of the project in which the Government will participate are limited to the necessary, reasonable, direct costs of performing the exploration work, including the costs of materials, supplies, engineering, power, water, and utilities, including items of equipment costing less than $50 each; and the costs referred to in Articles 5, 6, 8, and 9, and the exhibits annexed to and referred to in the contract. Although the Government may pay part of the cost of new or additional facilities, structures, buildings, and equipment, only the depreciation on such items, computed as indicated in Articles 5 and 6, will be charged as a cost of the project. No items of general overhead, corporate management, interest, or any other indirect costs not expressly allowed by these regulations, or work performed or costs incurred before the date of this contract, shall be allowed as costs of the project in which the Government will participate.

11. *Participation by the Government.* At the end of the first full calendar month after the Operator has commenced work under the project, and at the end of each succeeding calendar month, the Operator shall submit to the Government a voucher for payment with a detailed statement of work done and allowable costs (as defined in Article 10 of this agreement) incurred, in a form and with supporting data acceptable to the Government. After approving the voucher, the Government shall pay to the Operator 75 percent of the sum of such costs incurred; *Provided,* That the aggregate total of all sums paid by the Government under this agreement shall not exceed $105,900, which is 75 percent of the agreed estimated total cost of this project, $141,200.

12. *Accounts and audits.* The Operator shall keep suitable records and accounts of operations, which the Government may inspect and audit at any time. The Government may at any time require an audit of the Operator's records and accounts by a certified public accountant, the cost thereof to be treated as a cost of the project. The Operator shall keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract.

13. *Progress reports.* The Operator shall provide the Government with monthly reports of progress in form and content satisfactory to the Government, and upon the completion of the project or termination of the contract shall provide the Government with a comprehensive geologic and engineering report, including an estimate of ore reserves, to the best of his ability. Four copies of all reports shall be furnished to the Government.

14. *Repayment by Operator.* If, upon the completion of the exploration project or termination of the contract, the Government considers that a discovery or development has resulted from the work from which commercial production of ore may be made, the Government, within 6 months thereafter shall so certify to the Operator, particularly describing and delimiting its estimate of the discovery or the development. Thereafter, if and as ore is produced as a result of such discovery or development, the Operator and his successor in interest shall be and become obligated to pay to the Government a percentage royalty on the net smelter returns or other net proceeds realized from such ore, concentrates, or metal produced within ten (10) years from the date of this contract, until the total amount contributed by the Government, without interest, is fully repaid or said 10 years have elapsed, whichever occurs first, as follows:

Of net smelter returns or other net proceeds not in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent.

Of net smelter returns or other net proceeds in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent, plus one-half (½) percent additional for each full fifty cents ($0.50) in excess of eight dollars ($8.00) per ton of ore, but not in excess of a maximum of five (5) percent.

This obligation to repay from net returns or proceeds shall be and remain a claim and lien upon the property which is the subject of the exploration project and upon any production resulting from such discovery or development, in favor of the Government, until fully paid, or until said 10-year period has elapsed; and this claim and lien and the Government's right to repayment shall survive any termination of the contract, whether by completion of the exploration project or otherwise. This article is not to be construed as imposing any obligation on the Operator or his successor in interest to produce ore from any such discovery or development.

15. *No assignment of contract.* Without the written consent of the Government, the Operator shall not assign or otherwise transfer or hypothecate this contract or any rights thereunder.

16. *Termination and completion.* The Government may, at any time, by written notice to the Operator, terminate this contract: (*a*) If the Operator fails to provide his share of the money necessary to prosecute operations pursuant to the terms of the contract; (*b*) if the Operator, in the opinion of the Government, fails to prosecute operations pursuant to the terms of the contract; or (*c*) if in the opinion of the Government, operations up to the time of the notice have not indicated the probability of making any worthwhile discovery and in the opinion of the Government further operations are not justified. Upon the completion of the project or any termination of the contract the Operator shall render to the Government a full and final accounting of his operations under the contract and his expenditures of money; shall dispose of any unused materials, supplies, and equipment for the joint account of the Operator and the Government in the proportion of their respective interests; and shall pay to the Government its pro-rata share of any money remaining.

Executed in ~~triplicate~~ sextuplet the day and year first above written.

THE UNITED STATES OF AMERICA

By _____
Administrator, Defense Minerals Administration

(Operator)

By _____

U. S. GOVERNMENT PRINTING OFFICE 16—64066-1

EXHIBIT A

The proposal is to be considered in two sections. The second section to be started only after approval of the Defense Minerals Administration. The sections can be designated as follows:

First Phase

Shaft sinking and crosscutting to vein and some drifting on vein to determine presence of mineralization at 100' and 200' below present ore showing in upper tunnel.

Second Phase

Drifting and raising on vein opened up by the first part of this project.

FIRST PHASE OPERATIONS

Shaft Sinking 220 feet, cutting two stations:

Labor @ $50.00	$11000
Timber @ $23.00	5000
Supplies, Powder, Caps, Steel, etc. @ $21.00	4620
Power @ $4.50	990
	$21610

Crosscutting 160 feet:

Labor @ $12.50 per foot	$2000
Timber @ $1.00 per foot	170
Powder, Caps, Bits, Steel, etc. @ $5.25 per foot	840
Power @ $1.25 per foot	200
	$3210

Drifting 400 feet:

Labor @ $12.50	$5000
Timber @ $1.00	400
Powder, Caps, Bits, Fuse, etc. @ $5.25	2100
Power @ $1.25 per foot	500
	$8000

SECOND PHASE OPERATIONS

Drifting 1600 feet:

Labor @ $14.00	$22400
Timber @ $1.00	1600
Powder, Caps, Bits, Fuse, etc. @ $2.75	4400
Power @ $1.50	2400
	$30800

Raising 800 feet:

Labor @ $10.00	$ 8000
Timber @ $4.00	3200
Powder, Caps, Bits, Fuse, etc. @ $2.50	2000
Power @ $1.35 per foot	1080
	$14280

Total Operation Costs:

Labor	$48400
Power	5170
Supplies	24380
	$77950

EXHIBIT B (First Phase)

1 - 35 ft. Headframe and Hoist House	$ 5000
1 - 18' x 24' Change Room and Equipment	2000
1 - 5000 Gallon Water Storage and Lines at Mine	500
Camp Water Supply Improvement	500
1 - 12' x 16' Shop Building	500
1 - 16' x 24' Storage Building	1000
5 - Cabins for Men 12' x 16'	3500
1 - 16' x 30' Boarding House & Equipment	2000
	$15000

EXHIBIT C (First Phase)

Equipment to be rented:

Pickup Truck $50.00 per month, 12 months	$ 600
1½ Ton Truck and Water Tank $100.00 per month, 12 months	1200
	$1800

Equipment to be purchased:

1 - 315 cu.ft. Compressor	$ 8000
2 - 55 lb. Jackhammers and hoses	700
1 - Air Driven Sump Pump	300
1 - Drifter with Hoses	800
1 - 5000 lb. Pull Hoist	6000
2 - Sinking Buckets	500
1 - Cage	500
1 - Pneumatic Drill	400
1 - Pneumatic Saw	400
6 - Mine Cars	1500
1 - Gasoline Engine Blower	300
	$19400

EXHIBIT C (Second Phase)

Equipment to be rented:

Pickup Truck $50.00 per month for 10 months	$ 500
1½ Ton Truck & Water Tank $100.00 per month for 10 months	1000
	$1500

Equipment to be purchased:

2 - Stopers, hoses and oilers	$ 1400
6 - Mine Cars	1500
1 - Drill Jumbo or special column	1500
1 - Mucking Machine	2700
1 - Mancha Tramer and Battery Charger	7500
	$14600

EXHIBIT D Labor Rates

Miners; shaft men	$15.00 per day
Miners; not shaft men	12.00 " "
Muckers & Tramers	11.00 " "
Carpenters	13.00 " "
Carpenter Helper	11.00 " "
Hoistman	13.00 " "
Truck Driver	12.00 " "
Timber Framer	15.00 " "
Supervision	500.00 per month

EXHIBIT E

No rehabilitation work contemplated because applicant is occupying all available facilities.

Recapitulation

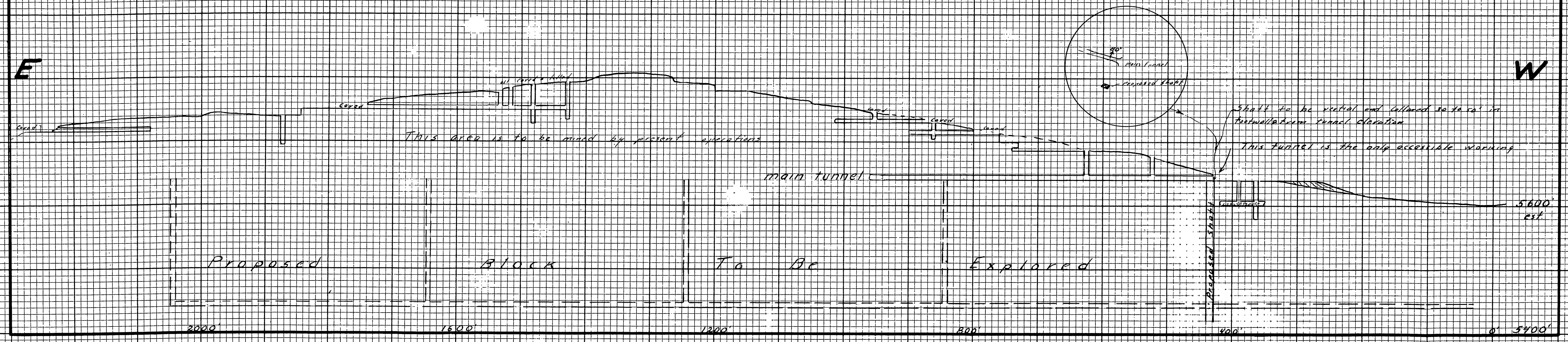
Labor	$ 48400
Supervision 22 months @ $500.00 per month	11000
Power	5170
Supplies	24330
Facilities Constructed	15000
Equipment Rented	3300
Equipment Purchased	34000
	$141200

BLACK PEARL MINE
YAVAPAI COUNTY ARIZONA

1" = 100'

Sketch Section on Vein taken from Section Made by Homer R Wood

Cazier June 1951



MF-103 E.A. Scholz - J.H. Cozier Black Pearl Mine

DMA 1506X

Copy

LEASE AND OPTION TO PURCHASE

THIS AGREEMENT made and entered into this 30th day of April, 1951 by and between John Lawler, as single man, MARY LAWLER, a single woman, JAMES E. HARRINGTON and KATHRYN I HARRINGTON, his wife, F.H. LYONS and MARY LYONS, his wife, JOSEPH W. WALTON and FLORENCE E. WALTON, his wife, hereinafter termed " First Parties", and E.A. SCHOLZ and IRMA R. SCHOLZ, his wife, and J.H. CAZIER and DOROTHY L. CAZIER, his wife, hereinafter termed "Second Parties", for and in consideration of One and NO/100 DOLLARS ($1.00), and other good and valuable consideration, the receipt whereof is hereby acknowledged, by each party to the other in hand paid, and in consideration of the performance of the covenants and agreements hereinafter set forth, the parties hereto do hereby agree as follows, to-wit:

I

First Parties do hereby grant unto Second Parties the exclusive right and option to purchase and operate the following described patented and unpatented lode mining claims situate in the EUREKA MINING DISTRICT, county of Yavapai, State of Arizona, the names of which, together with the book and page of the records in the office of the County Recorder of Yavapai County, Arizona, where the United States Patents therefor are of record, or where the mining location notices therefor are of record and are as follows, to wit:

Name of Claim	Book	Page
Patented Mining Claims		
Black Pearl Patented Lode Mining Claims numbered 1,2,3,4,6,7 and 8 (mineral Survey 4186)(U.S. Patent No. 1102913)	All recorded in Book 181 of Deeds at pages 551-554	
North Side Patented Lode Mining Claims numbered 1, 2, 3 and 5(Mineral Survey 4186)	All recorded in Book 181 of Deeds at pages 551-554	
Unpatented Mining Claims		
Black Pearl Unpatented Lode Mining Claims numbered 9, 10, 11 and 12	All recorded consecutively as numbered in Book 143 of Mines at pages 148-152	
North Side Unpatented Lode Mining Claim numbered 4		

Together with all improvements situate thereon, timber and water rights appurtenant thereto and any other rights and privileges appurtenant thereto.

"The immediately afore-described group of patented and unpatented lode mining claims constitutes and is locally known as the "Black Pearl Group" or Black Pearl Mine" and is, for the purposes of brevity, hereinafter referred to in this Contract, wherever mentioned, as the "Black Pearl Mine,")

for a total purchase price of ONE HUNDRED SEVENTY-FIVE THOUSAND DOLLARS $175,000.00), bearing no interest, and payable by Second Parties ~~by~~ to First Parties on or before May 4, 1959, in the manner and at such times as follows:

Twelve and one-half percent (12½%) royalty payments of the net mint, net smelter, net mill or other returns from all ores, concentrates, bullion , or other products removed and disposed of from the above described "Black Pearl Mine"; which royalty payments shall be paid by Second Parties to First Parties in the manner and at the times hereinafter set forth and when so paid shall be credited against the aforesaid purchase price.

The term "net mint return", "net smelter returns" "net mill returns" and "other returns" as used herein shall be construed to mean the net values found and accounted for by the smelter, mint, mill or other place of treatment or sale, less the reasonable cost of truck or rail transportation, smelter charges, penalties and deductions made by said smelter, mill or other place of treatment or sale.

Such royalty payments shall be made directly to THE BANK OF ARIZONA, and Arizona banking corporation, Prescott, Arizona, the Escrow Agent hereinafter named, and ~~then~~ said The Bank of Arizona, shall either deposit said royalty payments to the credit of First Parties in the proportions as hereinafter set forth, or shall forward the same to the person entitled thereto in accordance with any instructions delivered by such person to said bank. All royalty payments shall be made to said Escrow Agent within thirty (30) days of the settlement date for each load of ore, concentrate or tother material sold or shipped and such payment shall be accompanied by a true copy of the smelter, mint, mi l or other return for delivery to First Parties.

The Royalty payments, when made hereunder, shall be divided and credited by the Escrow Agent, The Bank of Arizona, as below set forth, which proportions represent the aliquot un-divided ownership of First Parties in said "Black Pearl Mine":

JOHN LAWLER, a one-fourth(¼)share(~~xxx~~ said one-fourth share representing the sum of FORTY-THREE THOUSAND SEVEN HUNDRED FIFTY AND NO/100 DOLLARS ($43,750.00) out of the total rental or purchase price herein contained);

JAMES E. HARRINGTON and KATHRYN I. HARRINGTON, his wifre, and F. H. Lyons and MARY LYONS, his wife, a two-sixths (2/6) share (said two-sixths share representing the sum of FIFTY EIGHT THOUSAND THREE HUNDRED THIRTY THREE AND 34/100 DOLLARS ($58,333.34) out of the total rental or purchase price herein contained:

JOSEPH W. WALTON and FLORENCE E WALTON, his fife, as one -sixth 1/6) shafe (said one-sixth share representing the sum of TWENTY-NINE THOUSAND ONE HUNDRED SIXTY SIX AND 66/100 DOLLARS ($29,166.66) out of the total rental or purchase price herein contained);

MARY LAWLER, a one-fourth (1/4) share (said one-fourth share representing the sum of FORTY-THREE THOUSAND SEVEN HUNDRED FIFTY AND NO/100 DOLLARS ($43,750.00) out of the total rental or purchase price herein contained);

PROVIDED, HOWEVER, that in no event shall the royalty payments to be made and vredited to Mary Lawler be less than the following amounts paid on or before the dates set forth opposite said amounts:

FIVE THOUSAND AND NO/100 DOLLARS ($5,000.00) on or before May 4, 1952;

TEN THOUSAND AND NO/100 DOLLARS ($10,000.00) on or before May 4, 1953;

TEN THOUSAND AND NO/100 DOLLARS($10,000.00) on or before May 4, 1954;

EIGHTEEN THOUSAND SEVEN HUNDRED FIFTY AND NO/100 DOLLARS ($18,750.00) on or before May 4, 1959,

The intent of thein provision being that Second Parties agree to and must pay the above amounts to Mary Lawer, through the Escrow Agent, whether or not said payments are made from the twelve and one-half per cent (12½%) royalty payments herein provided or must necessarily be made by additional cash payments by Second Parties, to be treated as advance royalty payments. Failure of Second Parties to make the payments to Mary Lawler as above required shall constitute a default as to the entire lease and option agreement, PROVIDED, HOWEVER, THAT the said Mary Lawler may, in writing, agree to alter or amend said payments or extend said payment dates. Nothing herein contained shall be construed as impairing the right of Second Parties to abandon this agreement without liability to make the payments aforesaid, shoul they so elect.

III

Upon execution and delivery of this Agreement, Second Paries shall be entitled to the possession of the foregoing described patented and unpatented lode mining claims, and every part thereof, and they shall have the right to work, operate and develop the same in any manner and by such means as they may deem fit and proper and to extract, mine, mill and ship for treatment or other disposition, the ores and minerals therefrom. Second Parties agree that all such work shall be done in a good and minerlike manner.

It is agreed that beginning immediately after execution of this agreement, and during each and every month thereafter, during the therm of this agreement, Second Parties shall do and perform not less than sixty (60) eight-hour shifts of work per month on said "Black Pearl Mine" afore-described, weather permitting and if not prevented by acts of God,

strikes, insurrections, rebellions, governmental restriction or other conditions beyond the control of Second Parties. The monthly shift obligations contained herein shall be cumulative.

IV

First Parties shall promptly pay all taxes which may be assessed on or levied against the foregoing described mining property for all years prior to the second installation of taxes due and payable for the year 1950. Taxes beginning with the second installment for the year 1950 and for all succeeding time there after, provided that Second Parties have not abandoned their interest hereunder, shall be paid by Second Parties. Failure to pay said taxes shall be considered a default hereunder.

First Parties agree to convey the afore-described patented lode mining claims to Second Parties free and clear of all liens and encumbrances and with Warranty Deed and warranty of title. First Parties agree to quit claim to Second Parties all of their right, title and interest in and to the afore-described unpatented lode mining claims.

V

Second Parties shall promptly pay all debts and obligations incurred or created or on account of any of their obligations hereunder, and shall keep said property and mining claims clear and free of any and all liens and charges of every character, including all damage claims for injuries to employees as well as claims for labor materials, supplies, equipment and other charges: and in this connection, Second Parties shall record, post and keep posted, pursuant to the provisions of Section 62-210 of the Arizona Code Annotated, 1939, Notices of Non-Liability on the part of First Parties, First Parties to execute and furnishe such Notices of Non-Liability: PROVIDED, HOWEVER, that nothing herein contained shall prevent Second Parties from borrowing money and pledging or otherwise encumbering their rights hereunder as security for such borrowing: PROVIDED FURTHER, HOWEVER, that Second Parties agree that during the period hereof they will not mortgage, sell or otherwise encumber, or dispose of said property without first giving First Parties notice of their intention to do so, and further that any such encumbrance or disposition of the property, or any part thereof, shall be made expressly subject to the rights of the First

Parties hereunder.

VI.

Second Parties shall do and perform within the time required by law the annual labor or assessment work on or for the benefit of the unpatented mining claims hereinbefore described as are necessary to comply with the laws of the United States and the State of Arizona, and upon completion of the annual labor for any particular year the Second Parties shall furnishe the First Parties, for recording, on or before June 15th of each year, and affidavit showing said work to have been performed: PROVIDED,HOWEVER, that if this Lease and Option is terminated and canceled at any time during the first six(6) months of any annual labor year, that is, at any time between July 1, at noon, and the following January 1, at noon, the Second Parties shall be relieved from doing the assessment work for that annual labor year.

VII

Simultaneously with the execution and delivery of this Agreement the parties shall execute and deposit in escrow with the Bank of Arizona, an Arizona banking corporation, with its principal office and place of business in Prescott, Yavapai County, Arizona, with escrow filing fees to be equally shared between the First Parties and Second Parties, the fol lowing instruments, together with proper escrow instruction to said Escrow Agent;

A. Executed copy of this Agreement:
B. Warranty Mining Deed of First Parties covering patented Lode mining claims, title to such property to be in First Parties, free and clear of all liens and encumbrances:
C. Qit Claim Deed of First Parties covering the unpatented Lode Mining Claims.
D. Quit Claim Deed of Second Parties quit-claiming to First Parties all interest of Second Parties in and to the "Black Pearl Mine" hereinbefore described.

As and when the said purchase price hereinabove set forth shall have been fully paid by Second Parties to First Parties and Second Parties shall not be in default in the performance of any of their agreements and covenants herin, said escrow Agent shall deliver to Second Parties, or therir assigns, all of the foregoing described instruments, and First Parties, shall thereafter have no further right, title or interest in and to the property, and said intruments above-described, and this Agreement shall forthwith terminate. In any other event, said Escrow Agent shall deliver the said instruments to First Parties.

Second Parties may, at any time, abandon this Agreement upon thirty(30) days' written notice theref, delivered to First Parties at the

banking office of said Escrow Agent, Prescott, Arizona, and all parties hereto shall thereupon be relieved of all further obligations hereunder. In the event of such abandonment or forfeiture as hereinafter provided, Second Parties hall have the right to remove from said "Black Pearl Mine" property, all machiner, tools, and equipment of every kind and character that they have placed thereon, with the exception of timbering, rails, ladders and pipe placed underground. Said removal shall be made withing ninety(90) days after the effective dat of any such abandonment or forfeiture. If not so removed, title thereto shall vest in First Parties. In the event of forfeiture or abandonment of this Agreement, and and all monies which have been paid to the First Parties as royalty payments, or otherwise, shall belong to First Parties and shall be retained by First Parties as rent of said premised and as liquidated damages, or either.

In the event that Second Parties are, in the opinion of First Parties, failing to perform the mining work in a good and minelike manner, or failing to perform in accordance with the requirements of this Contract, or in any particular, except the making of money payments, unless the amount due First Parties from Second Parties is in dispute, First Parties shall give Second Parties written notice of the condition or conditions which First Parties consider are not being fulfilled. If Second Parties fail to make good such deficiency, provided the objection is proper and within the terms of this Agreement, before the expiration of ninety (90) days fro the date of delivery or mailing of said notice, or fail to make the payments as provided herein, unless the mount due is in dispute, then this agreement shall, at the option of First Parties, terminate and First Parties shall have the right to re-enter and to take possession of said mining claims and Second Parties agree to give up, relinquish and give over the said mining property to First Parties, in which event Second Partie shall have thirty (30) days in which to remove the personal property as hereinbefore provided for and under the same conditions as hereinabove set forth.

VIII

Second Parties agree to keep a true and correct record of the production, reduction and disposition of all ores or other materials mine, milled or otherwise handled by them unay this Agreement, which records shall be open to the inspection of First Parties, or their representatives,

at all reasonable times. First Parties, or their representatives, reserve the right to go upon the mining claims and property herin described for the purpose of reasonable inspection.

IX

Time is of the essence of this Agreement, It is understood and agreed, however that Second Parties , at all times mentioned during the period of this Lease, and exclusive Option, shall have the right to pay said rental or purchase price on a royalty payment basis, in the manner and and at such times, as hereinabove set forth. And it is further specifically agreed that Second Parties at all times during the period of this Lease and exclusive Option shall have an option to pay said rental or purchase price on or before the expiration period of this Lease and Option, and the option to pay said rental or purchase price out of mineys opperate, distinct and apart from said royalty income payments.

X

It is understood and agreed that this is an option to purchase coupled with the right to operate and that Second Parties may at their pleasure surrender said properties back to First Parties upon giving the notice hereinafore provided for without further obligation hereunder, subject to the requirement that they shall perform all obligations which have matured and are owing to First Parties prior to the giving of such notice of termination.

XI

The delivery of any notices or papers required or permitted under this Agreement to any one person being a member of either First or Second Parties hereto shall constiture delivery and notice to all members of either First or Second Parties.

Delivery or notices, unless otherwise provided, may be made or given by registered mail, addressed as follows:

First Parties:
John Lawler
Prescott, Arizona
or
J. E. Harrington
Phoenix, Arizona

Second Parties:
E.A. Schels
Bagdad, Arizona
Or
J. H. Cadier
Bagdad, Arizona

XII

The parties hereto agree to make, execute and deliver, or cause

to be made, executed and delivered, and to mutually assist each other in the execution and delivery of all papers, deeds, assignments, releases, waivers, notices or any other intruments that may be necessary or required to carry out th terms and conditions of this Agreement.

XIII

The provisions of this Agreement shall extend to and be binding upon and inure to the benefit of the heirs, executors, administrators and assigns of the parties hereto. In this connection, First Parties specifically agree to recognize an assignment of this mining Lease and Option Agreement by Second Parties to any corporation of Second Parties's choosing, whether said corporation be now in existence or be chartered in the future.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first hereinabove written, in quntiplicate, each to be considered an original.

John Lawler

Mary Lawler

James E Harrington

Kathryn I Harrington

FH. Lyons

Mary Lyons

Joseph W. Walton

Florence E Walton

First Parties

E. A. Scholz

Irma R. Scholz

J. H. Cazier

Dorothy L. Cazier

Second Parties

MF-200
(April 1951)

Docket No. DMA 1506-I
Commodity Tungsten

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

EXPLORATION PROJECT CONTRACT [1]

It is agreed this _____ day of _____, 195__, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration, hereinafter called the "Government," and [2] J. H. Cazier and Dorothy L. Cazier, his wife
E. A. Scholtz and Irma R. Scholtz, his wife

hereinafter called the "Operator," as follows:

1. *Authority for contract.* This agreement is entered into under the authority of the Defense Production Act of 1950, pursuant to Mineral Order 5, entitled "Regulations Governing Government Aid in Defense Exploration Projects."

2. *Operator's property rights.* The exploration project shall be conducted on that certain property situated in the State of Arizona, County of Yavapai described as follows: [3] The Black Pearl Mine in the Eureka Mining District; Sections 7 and 18, Township 15, North, Range 7 West. "As more fully described in the lease and option to purchase dated April 30, 1951, a copy of which is attached hereto."
with respect to which the Operator represents and undertakes: [4]

(*a*) ~~That he is the sole owner, in possession and entitled to possession, and that the property is subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder is attached:~~

(*b*) That he is a lessee, in possession and entitled to possession, and the subordination agreement of the lessor is attached.

3. *Exploration project.* The Operator, within 30 days from the date of this contract shall commence work on a project of exploration for [5] tungsten; shall prosecute the work efficiently, expertly, in a workmanlike manner, in accordance with good mining standards, with suitable and adequate equipment, materials, and labor, all properly designed to bring the project to completion within a period of [6] two years from the date of this contract. The exploration project and the work to be performed are more fully described on Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, is made a part of this contract.

4. *Performance of the work.* The work shall be performed by the Operator, under his sole direction and control: *Provided,* That with the consent of the Government and its written approval of the contract or contracts, all or any part of the work may be performed by the Operator through contract or contracts with independent contractors. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

5. *Fixtures and improvements.* The Operator shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of the exploration project without any allowance for the use, rental value, depreciation, depletion, or other cost of acquiring, owning, or holding possession thereof. Attached hereto, marked "Exhibit 'B'," is a detailed list of additional facilities, buildings, and fixtures, to be purchased, installed, or erected by the Operator, with the estimated cost of each, to which the Government will contribute its agreed pro-rata share of the cost. The difference between the cost of such additional facilities, buildings, or fixtures, and the salvage value thereof at the conclusion of the work, shall be charged as a cost of the project to which the Government has contributed its pro-rata share.

6. *Operating equipment.* Attached hereto, marked "Exhibit 'C'," is a detailed list of operating equipment divided into categories of items to be rented, purchased, or furnished by the Operator, with the allowable rental, purchase price, or rental value, as the case may be, annexed to each. As to equipment purchased for the project, the Government will contribute its agreed pro-rata share of the cost thereof, and the difference between the cost and the salvage value at the conclusion of the work shall be charged as a cost of the project to which the Government has contributed its pro-rata share.

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] State name, address, and nature of organization if any.
[3] Give legal description or enough to identify the property.
[4] Strike out the provision not applicable.
[5] Name of mineral.
[6] Not in excess of 2 years.

7. *Title to and disposition of property.* All facilities, buildings, fixtures, equipment, or other items costing more than $50 each, paid for or purchased with funds contributed jointly by the Operator and the Government, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the termination of the contract, if they have any salvage value, shall be disposed of for their joint account unless the Government, in writing, waives its interest in any such items. The Government may require the dismantling, severance from land, and removal of any such items in order to realize its interest in the salvage value thereof, and the cost of any such removal and of the disposal of the items shall be for the joint account of the parties in proportion to their respective interests.

8. *Labor and supervision.* Attached hereto, marked "Exhibit 'D'," is an itemized schedule of labor, by numbers and classes (miners, muckers, millmen, etc.), and of supervisors, by numbers and positions, with the maximum wages or salaries that may be paid to each as an allowable cost of the project.

9. *Rehabilitation and repairs.* Attached hereto, marked "Exhibit 'E'," is a detailed schedule of existing facilities, buildings, installations, and fixtures, with a statement of the cost of any necessary rehabilitation or repairs to put into useful and operable condition, which cost shall be allowed as a cost of the project.

10. *Allowable costs of the project.* The allowable costs of the project in which the Government will participate are limited to the necessary, reasonable, direct costs of performing the exploration work, including the costs of materials, supplies, engineering, power, water, and utilities, including items of equipment costing less than $50 each; and the costs referred to in Articles 5, 6, 8, and 9, and the exhibits annexed to and referred to in the contract. Although the Government may pay part of the cost of new or additional facilities, structures, buildings, and equipment, only the depreciation on such items, computed as indicated in Articles 5 and 6, will be charged as a cost of the project. No items of general overhead, corporate management, interest, or any other indirect costs not expressly allowed by these regulations, or work performed or costs incurred before the date of this contract, shall be allowed as costs of the project in which the Government will participate.

11. *Participation by the Government.* At the end of the first full calendar month after the Operator has commenced work under the project, and at the end of each succeeding calendar month, the Operator shall submit to the Government a voucher for payment with a detailed statement of work done and allowable costs (as defined in Article 10 of this agreement) incurred, in a form and with supporting data acceptable to the Government. After approving the voucher, the Government shall pay to the Operator 75 percent of the sum of such costs incurred; *Provided,* That the aggregate total of all sums paid by the Government under this agreement shall not exceed $105,900, which is 75 percent of the agreed estimated total cost of this project, $141,200.

12. *Accounts and audits.* The Operator shall keep suitable records and accounts of operations, which the Government may inspect and audit at any time. The Government may at any time require an audit of the Operator's records and accounts by a certified public accountant, the cost thereof to be treated as a cost of the project. The Operator shall keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract.

13. *Progress reports.* The Operator shall provide the Government with monthly reports of progress in form and content satisfactory to the Government, and upon the completion of the project or termination of the contract shall provide the Government with a comprehensive geologic and engineering report, including an estimate of ore reserves, to the best of his ability. Four copies of all reports shall be furnished to the Government.

14. *Repayment by Operator.* If, upon the completion of the exploration project or termination of the contract, the Government considers that a discovery or development has resulted from the work from which commercial production of ore may be made, the Government, within 6 months thereafter shall so certify to the Operator, particularly describing and delimiting its estimate of the discovery or the development. Thereafter, if and as ore is produced as a result of such discovery or development, the Operator and his successor in interest shall be and become obligated to pay to the Government a percentage royalty on the net smelter returns or other net proceeds realized from such ore, concentrates, or metal produced within ten (10) years from the date of this contract, until the total amount contributed by the Government, without interest, is fully repaid or said 10 years have elapsed, whichever occurs first, as follows:

Of net smelter returns or other net proceeds not in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent.

Of net smelter returns or other net proceeds in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent, plus one-half (½) percent additional for each full fifty cents ($0.50) in excess of eight dollars ($8.00) per ton of ore, but not in excess of a maximum of five (5) percent.

This obligation to repay from net returns or proceeds shall be and remain a claim and lien upon the property which is the subject of the exploration project and upon any production resulting from such discovery or development, in favor of the Government, until fully paid, or until said 10-year period has elapsed; and this claim and lien and the Government's right to repayment shall survive any termination of the contract, whether by completion of the exploration project or otherwise. This article is not to be construed as imposing any obligation on the Operator or his successor in interest to produce ore from any such discovery or development.

15. *No assignment of contract.* Without the written consent of the Government, the Operator shall not assign or otherwise transfer or hypothecate this contract or any rights thereunder.

16. *Termination and completion.* The Government may, at any time, by written notice to the Operator, terminate this contract: (*a*) If the Operator fails to provide his share of the money necessary to prosecute operations pursuant to the terms of the contract; (*b*) if the Operator, in the opinion of the Government, fails to prosecute operations pursuant to the terms of the contract; or (*c*) if in the opinion of the Government, operations up to the time of the notice have not indicated the probability of making any worthwhile discovery and in the opinion of the Government further operations are not justified. Upon the completion of the project or any termination of the contract the Operator shall render to the Government a full and final accounting of his operations under the contract and his expenditures of money; shall dispose of any unused materials, supplies, and equipment for the joint account of the Operator and the Government in the proportion of their respective interests; and shall pay to the Government its pro-rata share of any money remaining.

Executed in triplicate the day and year first above written.

sextuplet

(Operator)

By

THE UNITED STATES OF AMERICA

By

Administrator, Defense Minerals Administration

U. S. GOVERNMENT PRINTING OFFICE 16—64066-1

EXHIBIT A

The proposal is to be considered in two sections. The second section to be started only after approval of the Defense Minerals Administration. The sections can be designated as follows:

First Phase

Shaft sinking and crosscutting to vein and some drifting on vein to determine presence of mineralization at 100' and 200' below present ore showing in upper tunnel.

Second Phase

Drifting and raising on vein opened up by the first part of this project.

FIRST PHASE OPERATIONS

Shaft Sinking 220 feet, cutting two stations:

Labor @ $50.00	$11000
Timber @ $23.00	5000
Supplies, Powder, Caps, Steel, etc. @ $21.00	4620
Power @ $4.50	990
	$21610

Crosscutting 160 feet:

Labor @ $12.50 per foot	$2000
Timber @ $1.00 per foot	170
Powder, Caps, Bits, Steel, etc. @ $5.25 per foot	840
Power @ $1.25 per foot	200
	$3210

Drifting 400 feet:

Labor @ $12.50	$5000
Timber @ $1.00	400
Powder, Caps, Bits, Fuse, etc. @ $5.25	2100
Power @ $1.25 per foot	500
	$8000

SECOND PHASE OPERATIONS

Drifting 1600 feet:

Labor @ $14.00	$22400
Timber @ $1.00	1600
Powder, Caps, Bits, Fuse, etc. @ $2.75	4400
Power @ $1.50	2400
	$30800

Raising 800 feet:

Labor @ $10.00	$ 8000
Timber @ $4.00	3200
Powder, Caps, Bits, Fuse, etc. @ $2.50	2000
Power @ $1.35 per foot	1080
	$14280

Total Operation Costs:

Labor	$48400
Power	5170
Supplies	24380
	$77950

EXHIBIT B (First Phase)

1 - 35 ft. Headframe and Hoist House	$ 5000
1 - 18' x 24' Change Room and Equipment	2000
1 - 5000 Gallon Water Storage and Lines at Mine	500
Camp Water Supply Improvement	500
1 - 12' x 16' Shop Building	500
1 - 16' x 24' Storage Building	1000
5 - Cabins for Men 12' x 16'	3500
1 - 16' x 30' Boarding House & Equipment	2000
	$15000

EXHIBIT C (First Phase)

Equipment to be rented:

Pickup Truck $50.00 per month, 12 months	$ 600
1½ Ton Truck and Water Tank $100.00 per month, 12 months	1200
	$1800

Equipment to be purchased:

1 - 315 cu.ft. Compressor	$ 8000
2 - 55 lb. Jackhammers and hoses	700
1 - Air Driven Sump Pump	300
1 - Drifter with Hoses	800
1 - 5000 lb. Pull Hoist	6000
2 - Sinking Buckets	500
1 - Cage	500
1 - Pneumatic Drill	400
1 - Pneumatic Saw	400
6 - Mine Cars	1500
1 - Gasoline Engine Blower	300
	$19400

EXHIBIT C (Second Phase)

Equipment to be rented:

Pickup Truck $50.00 per month for 10 months	$ 500
1½ Ton Truck & Water Tank $100.00 per month for 10 months	1000
	$1500

Equipment to be purchased:

2 - Stopers, hoses and oilers	$ 1400
6 - Mine Cars	1500
1 - Drill Jumbo or special column	1500
1 - Mucking Machine	2700
1 - Mancha Trammer and Battery Charger	7500
	$14600

EXHIBIT D Labor Rates

Miners; shaft men	$15.00 per day
Miners; not shaft men	12.00 " "
Muckers & Trammers	11.00 " "
Carpenters	13.00 " "
Carpenter Helper	11.00 " "
Hoistman	13.00 " "
Truck Driver	12.00 " "
Timber Framer	15.00 " "
Supervision	500.00 per month

EXHIBIT E

No rehabilitation work contemplated because applicant is occupying all available facilities.

Recapitulation

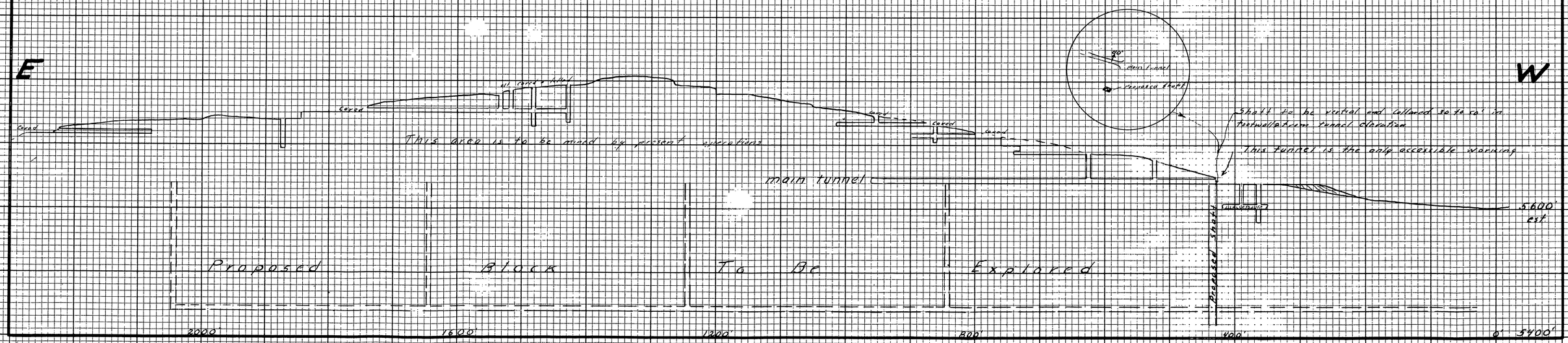
Labor	$ 48400
Supervision 22 months @ $500.00 per month	11000
Power	5170
Supplies	24330
Facilities Constructed	15000
Equipment Rented	3300
Equipment Purchased	34000
	$141200

BLACK PEARL MINE
YAVAPAI COUNTY ARIZONA

1" = 100'

Sketch Section on Vein taken from
Section Made by Homer R Wood

Cazier June 1951



MF-103 E.A. Scholz = J.H. Cazier Black Pearl Mine

Copy

Dm A 1506 X

LEASE AND OPTION TO PURCHASE

THIS AGREEMENT made and entered into this 30th day of April, 1951 by and between John Lawler, as single man, MARY LAWLER, a single woman, JAMES E. HARRINGTON and KATHRYN I HARRINGTON, his wife, F.H. LYONS and MARY LYONS, his wife, JOSEPH W. WALTON and FLORENCE E. WALTON, his wife, hereinafter termed " First Parties", and E.A. SCHOLZ and IRMA R. SCHOLZ, his wife, and J.H. CAZIER and DOROTHY L. CAZIER, his wife, hereinafter termed "Second Parties", for and in consideration of One and 00/100 DOLLARS ($1.00), and other good and valuable consideration, the receipt whereof is hereby acknowledged, by each party to the other in hand paid, and in consideration of the performance of the covenants and agreements hereinafter set forth, the parties hereto do hereby agree as follows, to-wit:

I

First Parties do hereby grant unto Second Parties the exclusive right and option to purchase and operate the following described patented and unpatented lode mining claims situate in the EUREKA MINING DISTRICT, county of Yavapai, State of Arizona, the names of which, together with the book and page of the records in the office of the County Recorder of Yavapai County, Arizona, where the United States Patents therefor are of record, or where the mining location notices therefor are of record and are as follows, to wit:

Name of Claim	Book	Page
Patented Mining Claims		
Black Pearl Patented Lode Mining Claims numbered 1,2,3,4,6,7 and 8 (mineral Survey 4186)(U.S. Patent No. 1102913)	All recorded in Book 181 of Deeds at pages 551-554	
North Side Patented Lode Mining Claims numbered 1, 2, 3 and 5(Mineral Survey 4186)	All recorded in Book 181 of Deeds at pages 551-554	
Unpatented Mining Claims		
Black Pearl Unpatented Lode Mining Claims numbered 9, 10, 11 and 12	All recorded consecutively as numbered in Book 143 of Mines at pages 148-149	
North Side Unpatented Lode Mining Claim numbered 4		

Together with all improvements situate thereon, water and water rights appurtenant thereto and any other rights and privileges appurtenant thereto.

"The immediately afore-described group of patented and unpatented lode mining claims constitutes and is legally known as the "Black Pearl Group" or Black Pearl Mine" and is, for the purposes of brevity, hereinafter referred to in this Contract, wherever mentioned, as the "Black Pearl Mine,")

for a total purchase price of ONE HUNDRED SEVENTY-FIVE THOUSAND DOLLARS $175,000.00), bearing no interest, and payable by Second Parties to First Parties on or before May 4, 1959, in the manner and at such times as follows:

Twelve and one-half percent (12½%) royalty payments of the net mint, net smelter, net mill or other returns from all ores, concentrates, bullion , or other products removed and disposed of from the above described "Black Pearl Mine"; which royalty payments shall be paid by Second Parties to First Parties in the manner and at the times hereinafter set forth and when so paid shall be credited against the aforesaid purchase price.

The term "net mint return", "net smelter returns" "net mill returns" and "other returns" as used herein shall be construed to mean the net values found and accounted for by the smelter, mint, mill or other phase of treatment or sale, less the reasonable cost of truck or rail transportation, smelter charges, penalties and deductions made by said smelter, mill or other place of treatment or sale.

Such royalty payments shall be made directly to THE BANK OF ARIZONA, and Arizona banking corporation, Prescott, Arizona, the Escrow Agent hereinafter named, and that said The Bank of Arizona, shall either deposit said royalty payments to the credit of First Parties in the proportions as hereinafter set forth, or shall forward the same to the person entitled thereto in accordance with any instructions delivered by such person to said bank. All royalty payments shall be made to said Escrow Agent within thirty (30) days of the settlement date for each lead of ore, concentrate or other material sold or shipped and such payment shall be accompanied by a true copy of the smelter, mint, mill or other return for delivery to First Parties.

The Royalty payments, when made hereunder, shall be divided and credited by the Escrow Agent, The Bank of Arizona, as below set forth, which proportions represent the aliquot un-divided ownership of First Parties in said "Black Pearl Mine":

JOHN LAWLER, a one-fourth(¼)share(said said one-fourth share representing the sum of FORTY-THREE THOUSAND SEVEN HUNDRED FIFTY AND NO/100 DOLLARS ($43,750.00) out of the total rental or purchase price herein contained);

JAMES E. HARRINGTON and KATHRYN I. HARRINGTON, his wifre, and F. H. Lyons and MARY LYONS, his wife, a two-sixths (2/6) share (said two-sixths share representing the sum of FIFTY EIGHT THOUSAND THREE HUNDRED THIRTY THREE AND 34/100 DOLLARS ($58,333.34) out of the total rental or purchase price herein contained;

[illegible]

for a total purchase price of [illegible] ($5,000.00), [illegible] payable by [illegible] first [illegible] on or before [illegible], 19[illegible], [illegible] as follows:

Twelve and one-half percent [illegible] of the net smelter returns [illegible] or other purchaser [illegible] shall be [illegible] First Parties [illegible] shall be [illegible] against the aforesaid purchase price.

The term "net smelter returns", [illegible] of breakdown or sale.

Such royalty payments shall be made [illegible] and Ajaxson [illegible] corporation, [illegible] names, [illegible]. The said [illegible] payment [illegible] of First Parties in the proportions [illegible] set forth, [illegible] accordance [illegible].

All royalty payments shall be made [illegible] within thirty (30) days of the [illegible] for each [illegible] smelter [illegible] each payment [illegible] copy of the smelter [illegible] sheet [illegible].

The royalty payments [illegible] shall [illegible] which [illegible].

[illegible]

[illegible]

JOSEPH W. WALTON and FLORENCE E WALTON, his fife, an one -sixth 1/6) shafe (said one-sixth share representing the sum of TWENTY-NINE THOUSAND ONE HUNDRED SIXTY SIX AND 66/100 DOLLARS ($29,166.66) out of the total rental or purchase price herein contained):

MARY LANLER, a one-fourth (¼) share (said one-fourth share representing the sum of FORTY-THREE THOUSAND SEVEN HUNDRED FIFTY AND NO/100 DOLLARS ($43,750.00) out of the total rental or purchase price herein contained);

PROVIDED, HOWEVER, that in no event shall the royalty payments to be made and vredited to Mary Lanler be less than the following amounts paid on or before the dates set forth opposite said amounts:

FIVE THOUSAND AND NO/100 DOLLARS ($5,000.00) on or before May 4, 1952:

TEN THOUSAND AND NO/100 DOLLARS ($10,000.00) on or before May 4, 1953:

TEN THOUSAND AND NO/100 DOLLARS($10,000.00) on or before May 4, 1954:

EIGHTEEN THOUSAND SEVEN HUNDRED FIFTY AND NO/100 DOLLARS ($18,750.00) on or before May 4, 1959,

The intent of theis provision being that Second Parties agree to and must pay the above amounts to Mary Lanar, through the Escrow Agent, whether or not said payments are made from the twelve and one-half per cent (12½) royalty payments herein provided or must necessarily be made by additional cash payments by Second Parties, to be treated as advance royalty payments. Failure of Second Parties to make the payments to Mary Lanler as above required shall constitute a default as to the entire lease and option agreement, PROVIDED, HOWEVER, THAT the said Mary Lanler may, in writing, agree to alter or amend said payments or extend said payment dates. Nothing herein contained shall be construed as impairing the right of Second Parties to abandon this agreement without liability to make the payments aforesaid, shoul they so elect.

III

Upon execution and delivery of this Agreement, Second Paries shall be entitled to the possession of the foregoing described patented and unpatented lode mining claims, and every part thereof, and they shall have the right to work, operate and develop the same in any manner and by such means as they may deem fit and proper and to extract, mine, mill and ship for treatment or other disposition, the ores and minerals therefrom. Second Parties agree that all such work shall be done in a good and minerlike manner.

It is agreed that beginning immediately after execution of this agreement, and during each and every month thereafter, during the therm of this agreement, Second Parties shall do and perform not less than sixty (60) eight-hour shifts of work per month on said "Black Pearl Mine" afore-described, weather permitting and if not prevented by acts of God,

strikes, insurrections, rebellions, governmental restriction or other conditions beyond the control of Second Parties. The monthly shift obligations contained herein shall be cumulative.

IV

First Parties shall promptly pay all taxes which may be assessed on or levied against the foregoing described mining property for all years prior to the second installation of taxes due and payable for the year 1958. Taxes beginning with the second installment for the year 1950 and for all succeeding time there after, provided that Second Parties have not abandoned their interest hereunder, shall be paid by Second Parties. Failure to pay said taxes shall be considered a default hereunder.

First Parties agree to convey the afore-described patented lode mining claims to Second Parties free and clear of all liens and encumbrances and with Warranty Deed and warranty of title. First Parties agree to quit claim to Second Parties all of their right, title and interest in and to the afore-described unpatented lode mining claims.

V

Second Parties shall promptly pay all debts and obligations incurred or created or on account of any of their obligations hereunder, and shall keep said property and mining claims clear and free of any and all liens and charges of every character, including all damage claims for injuries to employees as well as claims for labor materials, supplies, equipment and other charges: and in this connection, Second Parties shall record, post and keep posted, pursuant to the provisions of Section 62-210 of the Arizona Code Annotated, 1939, Notices of Non-Liability on the part of First Parties, First Parties to execute and furnish such Notices of Non-Liability: PROVIDED, HOWEVER, that nothing herein contained shall prevent Second Parties from borrowing money and pledging or otherwise encumbering their rights hereunder as security for such borrowing: PROVIDED FURTHER, HOWEVER, that Second Parties agree that during the period hereof they will not mortgage, sell or otherwise encumber, or dispose of said property without first giving First Parties notice of their intention to do so, and further that any such encumbrance or disposition of the property, or any part thereof, shall be made expressly subject to the rights of the First

Parties hereunder.

VI.

Second Parties shall do and perform within the time required by law the annual labor or assessment work on or for the benefit of the unpatented mining claims hereinbefore described as are necessary to comply with the laws of the United States and the State of Arizona, and upon completion of the annual labor for any particular year the Second Parties shall furnishe the First Parties, for recording, on or before June 15th of each year, and affidavit showing said work to have been performed: PROVIDED,HOWEVER, that if this Lease and Option is terminated and canceled at any time during the first six(6) months of any annual labor year, that is, at any time between July 1, at noon, and the following January 1, at noon, the Second Parties shall be relieved from doing the assessment work for that annual labor year.

VII

Simultaneously with the execution and delivery of this Agreement the parties shall execute and deposit in escrow with the Bank of Arizona, an Arizona banking corporation, with its principal office and place of business in Prescott, Yavapai County, Arizona, with escrow filing fees to be equally shared between the First Parties and Second Parties, the fol lowing instruments, together with proper escrow instruction to said Escrow Agent;

A. Executed copy of this Agreement;
B. Warranty Mining Deed of First Parties covering patented lode mining claims, title to such property to be in First Parties, free and clear of all liens and encumbrances;
C. Qit Claim Deed of First Parties covering the unpatented Lode Mining Claims.
D. Quit Claim Deed of Second Parties quit-claiming to First Parties all interest of Second Parties in and to the "Black Pearl Mine" hereinbefore described.

As and when the said purchase price hereinabove set forth shall have been fully paid by Second Parties to First Parties and Second Parties shall not be in default in the performance of any of their agreements and covenants herin, said escrow Agent shall deliver to Second Parties, or therir assigns, all of the foregoing described instruments, and First Parties, shall thereafter have no further right, title or interest in and to the property, and said intruments above-described, and this Agreement shall forthwith terminate. In any other event, said Escrow Agent shall deliver the said instruments to First Parties.

Second Parties may, at any time, abandon this Agreement upon thirty(30) days' written notice therof, delivered to First Parties at the

banking office of said Escrow Agent, Prescott, Arizona, and all parties hereto shall thereupon be relieved of all further obligations hereunder. In the event of such abandonment or forfeiture as hereinafter provided, Second Parties hall have the right to remove from said "Black Pearl Mine" property, all machiner, tools, and equipment of every kind and character that they have placed thereon, with the exception of timbering, rails, ladders and pipe placed underground. Said removal shall be made withing ninety(90) days after the effective dat of any such abandonment or forfeiture. It not so removed, title thereto shall vest in First Parties. In the event of forfeiture or abandonment of this Agreement, and and all moneys which have been paid to the First Parties as royalty payments, or otherwise, shall belong to First Parties and shall be retained by First Parties as rent of said premised and as liquidated damages, or either.

In the event that Second Parties are, in the opinion of First Parties, failing to perform the mining work in a good and minerlike manner, or failing to perform in accordance with the requirements of this Contract, or in any particular, except the making of money payments, unless the amount due First Parties from Second Parties is in dispute, First Parties shall give Second Parties written notice of the condition or conditions which First Paries consider are not being fulfilled. If Second Parties fail to make good such deficiency, provided the objection is proper and within the terms of this Agreement, before the expiration of ninety (90) days fro the date of delivery or mailing of said notice, or fail to make the payments as provided herein, unless the mount due is in dispute, then this agreement shall, at the option of First Parties, terminate and First Parties shall have the right to re-enter and to take possession of said mining claims and Second Parties agree to give up, relinquish and give over the said mining property to First Parties, in which event Second Partie shall have thirty (30) days in which to remove the personal property as herinbefore provided for and under the same conditions as hereinabove set forth.

VIII

Second Parties agree to keep a true and correct record of the production, reduction and disposition of all ores or other materials mine, milled or otherwise handled by them uner this Agreement, which records shall be opern to the inspection of First Parties, or their representatives,

at all reasonable times. First Parties, or their representatives, reserve the right to go upon the mining claims and property herin described for the purpose of reasonable inspection.

IX

Time is of the essence of this Agreement, It is understood and agreed, however that Second Parties , at all times mentioned during the period of this Lease, and exclusive Option, shall have the right to pay said rental or purchase price on a royalty payment basis, in the manner and and at such times, as hereinabove set forth. And it is further specifically agreed that Second Parties at all times during the period of this Lease and exclusive Option shall have an option to pay said rental or purchase price on or before the expiration period of this Lease and Option, and the option to pay said rental or purchase price out of mineral apparate, distinct and apart from said royalty income payments.

X

It is understood and agreed that this is an option to purchase coupled with the right to operate and that Second Parties may at their pleasure surrender said properties back to First Parties upon giving the notice hereinfefore provided for without further obligation hereunder, subject to the requirement that they shall perform all obligations which have matured and are owing to First Parties prior to the giving of such notice of termination.

XI

The delivery of any notices or papers required or permitted under this Agreement to any one person being a member of either First or Second Parties hereto shall constitute delivery and notice to all members of either First or Second Parties.

Delivery or notices, unless otherwise provided, may be made or given by registered mail, addressed as follows:

First Parties:
John Lesler
Prescott, Arizona
or
J. E. Harrington
Phoenix, Arizona

Second Parties:
E.A. Schelz
Bagdad, Arizona
Or
J. H. Gadier
Bagdad, Arizona

XII

The parties hereto agree to make, execute and deliver, or cause

to be made, executed and delivered, and to mutually assist each other in the execution and delivery of all papers, deeds, assignments, releases, waivers, notices or any other intruments that may be necessary or required to carry out th terms and conditions of this Agreement.

XIII

The provisions of this Agreement shall extend to and be binding upon and inure to the benefit of the heirs, executors, administrators and assigns of the parties hereto. In this connection, First Parties specifically agree to recognize an assignment of this mining Lease and Option Agreement by Second Parties to any corporation of Second Parties's choosing, whether said corporation be now in existence or be chartered in the future.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first hereinabove written, in quntiplicate, each to be considered as original.

John Lawler

Mary Lawler

James E Harrington

Kathryn I Harrington

First Parties

FM. Lyons

Mary Lyons

Joseph W. Walton

Florence E Walton

E. A. Schels

Irma R. Schels

J. H. Cazier

Dorothy L. Cazier

Second Parties

MF-200
(April 1951)

Docket No. DMA [illegible]
Commodity [illegible]

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

EXPLORATION PROJECT CONTRACT [1]

It is agreed this _____ day of _____, 195__, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration, hereinafter called the "Government," and [2] _____

_____

_____

_____

hereinafter called the "Operator," as follows:

1. *Authority for contract.* This agreement is entered into under the authority of the Defense Production Act of 1950, pursuant to Mineral Order 5, entitled "Regulations Governing Government Aid in Defense Exploration Projects."

2. *Operator's property rights.* The exploration project shall be conducted on that certain property situated in the State of _____, County of _____ described as follows: [3] _____

_____

_____

with respect to which the Operator represents and undertakes: [4]

(*a*) That he is the sole owner, in possession and entitled to possession, and that the property is subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder is attached: _____

_____

_____

_____

(*b*) That he is a lessee, in possession and entitled to possession, and the subordination agreement of the lessor is attached.

3. *Exploration project.* The Operator, within _____ days from the date of this contract shall commence work on a project of exploration for [5] _____; shall prosecute the work efficiently, expertly, in a workmanlike manner, in accordance with good mining standards, with suitable and adequate equipment, materials, and labor, all properly designed to bring the project to completion within a period of [6] _____ from the date of this contract. The exploration project and the work to be performed are more fully described on Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, is made a part of this contract.

4. *Performance of the work.* The work shall be performed by the Operator, under his sole direction and control: *Provided,* That with the consent of the Government and its written approval of the contract or contracts, all or any part of the work may be performed by the Operator through contract or contracts with independent contractors. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

5. *Fixtures and improvements.* The Operator shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of the exploration project without any allowance for the use, rental value, depreciation, depletion, or other cost of acquiring, owning, or holding possession thereof. Attached hereto, marked "Exhibit 'B'," is a detailed list of additional facilities, buildings, and fixtures, to be purchased, installed, or erected by the Operator, with the estimated cost of each, to which the Government will contribute its agreed pro-rata share of the cost. The difference between the cost of such additional facilities, buildings, or fixtures, and the salvage value thereof at the conclusion of the work, shall be charged as a cost of the project to which the Government has contributed its pro-rata share.

6. *Operating equipment.* Attached hereto, marked "Exhibit 'C'," is a detailed list of operating equipment divided into categories of items to be rented, purchased, or furnished by the Operator, with the allowable rental, purchase price, or rental value, as the case may be, annexed to each. As to equipment purchased for the project, the Government will contribute its agreed pro-rata share of the cost thereof, and the difference between the cost and the salvage value at the conclusion of the work shall be charged as a cost of the project to which the Government has contributed its pro-rata share.

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] State name, address, and nature of organization if any.
[3] Give legal description or enough to identify the property.
[4] Strike out the provision not applicable.
[5] Name of mineral.
[6] Not in excess of 2 years.

7. *Title to and disposition of property.* All facilities, buildings, fixtures, equipment, or other items costing more than $50 each, paid for or purchased with funds contributed jointly by the Operator and the Government, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the termination of the contract, if they have any salvage value, shall be disposed of for their joint account unless the Government, in writing, waives its interest in any such items. The Government may require the dismantling, severance from land, and removal of any such items in order to realize its interest in the salvage value thereof, and the cost of any such removal and of the disposal of the items shall be for the joint account of the parties in proportion to their respective interests.

8. *Labor and supervision.* Attached hereto, marked "Exhibit 'D'," is an itemized schedule of labor, by numbers and classes (miners, muckers, millmen, etc.), and of supervisors, by numbers and positions, with the maximum wages or salaries that may be paid to each as an allowable cost of the project.

9. *Rehabilitation and repairs.* Attached hereto, marked "Exhibit 'E'," is a detailed schedule of existing facilities, buildings, installations, and fixtures, with a statement of the cost of any necessary rehabilitation or repairs to put into useful and operable condition, which cost shall be allowed as a cost of the project.

10. *Allowable costs of the project.* The allowable costs of the project in which the Government will participate are limited to the necessary, reasonable, direct costs of performing the exploration work, including the costs of materials, supplies, engineering, power, water, and utilities, including items of equipment costing less than $50 each; and the costs referred to in Articles 5, 6, 8, and 9, and the exhibits annexed to and referred to in the contract. Although the Government may pay part of the cost of new or additional facilities, structures, buildings, and equipment, only the depreciation on such items, computed as indicated in Articles 5 and 6, will be charged as a cost of the project. No items of general overhead, corporate management, interest, or any other indirect costs not expressly allowed by these regulations, or work performed or costs incurred before the date of this contract, shall be allowed as costs of the project in which the Government will participate.

11. *Participation by the Government.* At the end of the first full calendar month after the Operator has commenced work under the project, and at the end of each succeeding calendar month, the Operator shall submit to the Government a voucher for payment with a detailed statement of work done and allowable costs (as defined in Article 10 of this agreement) incurred, in a form and with supporting data acceptable to the Government. After approving the voucher, the Government shall pay to the Operator ----------- percent of the sum of such costs incurred; *Provided,* That the aggregate total of all sums paid by the Government under this agreement shall not exceed $----------, which is ---------- percent of the agreed estimated total cost of this project, $----------.

12. *Accounts and audits.* The Operator shall keep suitable records and accounts of operations, which the Government may inspect and audit at any time. The Government may at any time require an audit of the Operator's records and accounts by a certified public accountant, the cost thereof to be treated as a cost of the project. The Operator shall keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract.

13. *Progress reports.* The Operator shall provide the Government with monthly reports of progress in form and content satisfactory to the Government, and upon the completion of the project or termination of the contract shall provide the Government with a comprehensive geologic and engineering report, including an estimate of ore reserves, to the best of his ability. Four copies of all reports shall be furnished to the Government.

14. *Repayment by Operator.* If, upon the completion of the exploration project or termination of the contract, the Government considers that a discovery or development has resulted from the work from which commercial production of ore may be made, the Government, within 6 months thereafter shall so certify to the Operator, particularly describing and delimiting its estimate of the discovery or the development. Thereafter, if and as ore is produced as a result of such discovery or development, the Operator and his successor in interest shall be and become obligated to pay to the Government a percentage royalty on the net smelter returns or other net proceeds realized from such ore, concentrates, or metal produced within ten (10) years from the date of this contract, until the total amount contributed by the Government, without interest, is fully repaid or said 10 years have elapsed, whichever occurs first, as follows:

Of net smelter returns or other net proceeds not in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent.

Of net smelter returns or other net proceeds in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent, plus one-half (½) percent additional for each full fifty cents ($0.50) in excess of eight dollars ($8.00) per ton of ore, but not in excess of a maximum of five (5) percent.

This obligation to repay from net returns or proceeds shall be and remain a claim and lien upon the property which is the subject of the exploration project and upon any production resulting from such discovery or development, in favor of the Government, until fully paid, or until said 10-year period has elapsed; and this claim and lien and the Government's right to repayment shall survive any termination of the contract, whether by completion of the exploration project or otherwise. This article is not to be construed as imposing any obligation on the Operator or his successor in interest to produce ore from any such discovery or development.

15. *No assignment of contract.* Without the written consent of the Government, the Operator shall not assign or otherwise transfer or hypothecate this contract or any rights thereunder.

16. *Termination and completion.* The Government may, at any time, by written notice to the Operator, terminate this contract: (*a*) If the Operator fails to provide his share of the money necessary to prosecute operations pursuant to the terms of the contract; (*b*) if the Operator, in the opinion of the Government, fails to prosecute operations pursuant to the terms of the contract; or (*c*) if in the opinion of the Government, operations up to the time of the notice have not indicated the probability of making any worthwhile discovery and in the opinion of the Government further operations are not justified. Upon the completion of the project or any termination of the contract the Operator shall render to the Government a full and final accounting of his operations under the contract and his expenditures of money; shall dispose of any unused materials, supplies, and equipment for the joint account of the Operator and the Government in the proportion of their respective interests; and shall pay to the Government its pro-rata share of any money remaining.

Executed in triplicate the day and year first above written.

THE UNITED STATES OF AMERICA

(Operator)

By ----------

By ----------

U. S. GOVERNMENT PRINTING OFFICE 16—64066-1

EXHIBIT A

The proposal is to be considered in two sections. The second section to be started only after approval of the Defense Minerals Administration. The sections can be designated as follows:

First Phase

Shaft sinking and crosscutting to vein and some drifting on vein to determine presence of mineralization at 100' and 200' below present ore showing in upper tunnel.

Second Phase

Drifting and raising on vein opened up by the first part of this project.

FIRST PHASE OPERATIONS

Shaft Sinking 220 feet, cutting two stations:

Labor @ $50.00	$11000
Timber @ $23.00	5000
Supplies, Powder, Caps, Steel, etc. @ $21.00	4620
Power @ $4.50	990
	$21610

Crosscutting 160 feet:

Labor @ $12.50 per foot	$2000
Timber @ $1.00 per foot	170
Powder, Caps, Bits, Steel, etc. @ $5.25 per foot	840
Power @ $1.25 per foot	200
	$3210

Drifting 400 feet:

Labor @ $12.50	$5000
Timber @ $1.00	400
Powder, Caps, Bits, Fuse, etc. @ $5.25	2100
Power @ $1.25 per foot	500
	$8000

SECOND PHASE OPERATIONS

Drifting 1600 feet:

Labor @ $14.00	$22400
Timber @ $1.00	1600
Powder, Caps, Bits, Fuse, etc. @ $2.75	4400
Power @ $1.50	2400
	$30800

Raising 800 feet:

Labor @ $10.00	$ 8000
Timber @ $4.00	3200
Powder, Caps, Bits, Fuse, etc. @ $[illegible].50	[illegible]000
Power @ $1.35 per foot	1080
	$1[illegible]280

Total Operation Costs:

Labor	$48400
Power	5170
Supplies	[illegible]4380
	$77[illegible]50

EXHIBIT B (First Phase)

1 - 35 ft. Headframe and Hoist House	$ 5000
1 - 18' x [illegible]4' Change Room and Equipment	[illegible]000
1 - 5000 Gallon Water Storage and Lines at Mine	500
Camp Water Supply Improvement	500
1 - 1[illegible]' x 16' Shop Building	500
1 - 16' x [illegible]4' Storage Building	1000
5 - Cabins for Men 1[illegible]' x 16'	3500
1 - 16' x 30' Boarding House & Equipment	2000
	$15000

EXHIBIT C (First Phase)

Equipment to be rented:

Pickup Truck $50.00 per month, 1[illegible] months	$ 600
1½ Ton Truck and Water Tank $100.00 per month, 1[illegible] months	1[illegible]00
	$1800

Equipment to be purchased:

1 - 315 cu.ft. Compressor	$ [illegible]000
2 - 55 lb. Jackhammers and Hoses	700
1 - Air Driven Sump Pump	300
1 - Drifter with Hoses	800
1 - 5000 lb. Pull Hoist	6000
2 - Sinking Buckets	500
1 - Cage	500
1 - Pneumatic Drill	400
1 - Pneumatic Saw	400
6 - Mine Cars	1500
1 - Gasoline Engine Blower	300
	$19400

EXHIBIT C (Second Phase)

Equipment to be rented:

Pickup Truck $50.00 per month for 10 months	$ 500
1½ Ton Truck & Water Tank $100.00 per month for 10 months	1000
	$1500

Equipment to be purchased:

2 - Stopers, hoses and oilers	$ 1400
6 - Mine Cars	1500
1 - Drill Jumbo or special column	1500
1 - Mucking Machine	2700
1 - Mancha Tramer and Battery Charger	7500
	$14600

EXHIBIT D Labor Rates

Miners; shaft men	$15.00 per day
Miners; not shaft men	12.00 " "
Muckers & Tramers	11.00 " "
Carpenters	13.00 " "
Carpenter Helper	11.00 " "
Hoistman	13.00 " "
Truck Driver	12.00 " "
Timber Framer	15.00 " "
Supervision	500.00 per month

EXHIBIT E

No rehabilitation work contemplated because applicant is occupying all available facilities.

Recapitulation

Labor	$ 45400
Supervision 22 months @ $500.00 per month	11000
Power	5170
Supplies	4330
Facilities Constructed	15000
Equipment Rented	3300
Equipment Purchased	14600
	$1[illegible]1500

MT-200
(April 1951)

Docket No. DMA 150[illegible]
Commodity Tungsten

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

EXPLORATION PROJECT CONTRACT [1]

It is agreed this _____ day of _____, 195__, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration, hereinafter called the "Government," and [2] _____
J. B. Carter and Dorothy B. Carter, his wife
W. R. Cholta and Ann B. Cholta, his wife

hereinafter called the "Operator," as follows:

1. *Authority for contract.* This agreement is entered into under the authority of the Defense Production Act of 1950, pursuant to Mineral Order 5, entitled "Regulations Governing Government Aid in Defense Exploration Projects."

2. *Operator's property rights.* The exploration project shall be conducted on that certain property situated in the State of Arizona, County of Pinal described as follows: [3] The Red Pearl Mine in the Gila Valley Mining District, Sections 7 and 18, Township 15, North, Range 7 East. The more fully described in the lease and option to purchase dated April 30, 1951, a copy of which is attached hereto.
with respect to which the Operator represents and undertakes: [4]

(*a*) ~~That he is the sole owner, in possession and entitled to possession, and that the property is subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder is attached:~~ _____

(*b*) That he is a lessee, in possession and entitled to possession, and the subordination agreement of the lessor is attached.

3. *Exploration project.* The Operator, within 30 days from the date of this contract shall commence work on a project of exploration for [5] tungsten; shall prosecute the work efficiently, expertly, in a workmanlike manner, in accordance with good mining standards, with suitable and adequate equipment, materials, and labor, all properly designed to bring the project to completion within a period of [6] two years from the date of this contract. The exploration project and the work to be performed are more fully described on Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, is made a part of this contract.

4. *Performance of the work.* The work shall be performed by the Operator, under his sole direction and control: *Provided,* That with the consent of the Government and its written approval of the contract or contracts, all or any part of the work may be performed by the Operator through contract or contracts with independent contractors. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

5. *Fixtures and improvements.* The Operator shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of the exploration project without any allowance for the use, rental value, depreciation, depletion, or other cost of acquiring, owning, or holding possession thereof. Attached hereto, marked "Exhibit 'B'," is a detailed list of additional facilities, buildings, and fixtures, to be purchased, installed, or erected by the Operator, with the estimated cost of each, to which the Government will contribute its agreed pro-rata share of the cost. The difference between the cost of such additional facilities, buildings, or fixtures, and the salvage value thereof at the conclusion of the work, shall be charged as a cost of the project to which the Government has contributed its pro-rata share.

6. *Operating equipment.* Attached hereto, marked "Exhibit 'C'," is a detailed list of operating equipment divided into categories of items to be rented, purchased, or furnished by the Operator, with the allowable rental, purchase price, or rental value, as the case may be, annexed to each. As to equipment purchased for the project, the Government will contribute its agreed pro-rata share of the cost thereof, and the difference between the cost and the salvage value at the conclusion of the work shall be charged as a cost of the project to which the Government has contributed its pro-rata share.

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] State name, address, and nature of organization if any.
[3] Give legal description or enough to identify the property.
[4] Strike out the provision not applicable.
[5] Name of mineral.
[6] Not in excess of 2 years.

7. *Title to and disposition of property.* All facilities, buildings, fixtures, equipment, or other items costing more than $50 each, paid for or purchased with funds contributed jointly by the Operator and the Government, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the termination of the contract, if they have any salvage value, shall be disposed of for their joint account unless the Government, in writing, waives its interest in any such items. The Government may require the dismantling, severance from land, and removal of any such items in order to realize its interest in the salvage value thereof, and the cost of any such removal and of the disposal of the items shall be for the joint account of the parties in proportion to their respective interests.

8. *Labor and supervision.* Attached hereto, marked "Exhibit 'D'," is an itemized schedule of labor, by numbers and classes (miners, muckers, millmen, etc.), and of supervisors, by numbers and positions, with the maximum wages or salaries that may be paid to each as an allowable cost of the project.

9. *Rehabilitation and repairs.* Attached hereto, marked "Exhibit 'E'," is a detailed schedule of existing facilities, buildings, installations, and fixtures, with a statement of the cost of any necessary rehabilitation or repairs to put into useful and operable condition, which cost shall be allowed as a cost of the project.

10. *Allowable costs of the project.* The allowable costs of the project in which the Government will participate are limited to the necessary, reasonable, direct costs of performing the exploration work, including the costs of materials, supplies, engineering, power, water, and utilities, including items of equipment costing less than $50 each; and the costs referred to in Articles 5, 6, 8, and 9, and the exhibits annexed to and referred to in the contract. Although the Government may pay part of the cost of new or additional facilities, structures, buildings, and equipment, only the depreciation on such items, computed as indicated in Articles 5 and 6, will be charged as a cost of the project. No items of general overhead, corporate management, interest, or any other indirect costs not expressly allowed by these regulations, or work performed or costs incurred before the date of this contract, shall be allowed as costs of the project in which the Government will participate.

11. *Participation by the Government.* At the end of the first full calendar month after the Operator has commenced work under the project, and at the end of each succeeding calendar month, the Operator shall submit to the Government a voucher for payment with a detailed statement of work done and allowable costs (as defined in Article 10 of this agreement) incurred, in a form and with supporting data acceptable to the Government. After approving the voucher, the Government shall pay to the Operator ---75--- percent of the sum of such costs incurred; *Provided,* That the aggregate total of all sums paid by the Government under this agreement shall not exceed $-135,000---------, which is ---75--------- percent of the agreed estimated total cost of this project, $-180,000--------.

12. *Accounts and audits.* The Operator shall keep suitable records and accounts of operations, which the Government may inspect and audit at any time. The Government may at any time require an audit of the Operator's records and accounts by a certified public accountant, the cost thereof to be treated as a cost of the project. The Operator shall keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract.

13. *Progress reports.* The Operator shall provide the Government with monthly reports of progress in form and content satisfactory to the Government, and upon the completion of the project or termination of the contract shall provide the Government with a comprehensive geologic and engineering report, including an estimate of ore reserves, to the best of his ability. Four copies of all reports shall be furnished to the Government.

14. *Repayment by Operator.* If, upon the completion of the exploration project or termination of the contract, the Government considers that a discovery or development has resulted from the work from which commercial production of ore may be made, the Government, within 6 months thereafter shall so certify to the Operator, particularly describing and delimiting its estimate of the discovery or the development. Thereafter, if and as ore is produced as a result of such discovery or development, the Operator and his successor in interest shall be and become obligated to pay to the Government a percentage royalty on the net smelter returns or other net proceeds realized from such ore, concentrates, or metal produced within ten (10) years from the date of this contract, until the total amount contributed by the Government, without interest, is fully repaid or said 10 years have elapsed, whichever occurs first, as follows:

Of net smelter returns or other net proceeds not in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent.

Of net smelter returns or other net proceeds in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent, plus one-half (½) percent additional for each full fifty cents ($0.50) in excess of eight dollars ($8.00) per ton of ore, but not in excess of a maximum of five (5) percent.

This obligation to repay from net returns or proceeds shall be and remain a claim and lien upon the property which is the subject of the exploration project and upon any production resulting from such discovery or development, in favor of the Government, until fully paid, or until said 10-year period has elapsed; and this claim and lien and the Government's right to repayment shall survive any termination of the contract, whether by completion of the exploration project or otherwise. This article is not to be construed as imposing any obligation on the Operator or his successor in interest to produce ore from any such discovery or development.

15. *No assignment of contract.* Without the written consent of the Government, the Operator shall not assign or otherwise transfer or hypothecate this contract or any rights thereunder.

16. *Termination and completion.* The Government may, at any time, by written notice to the Operator, terminate this contract: (*a*) If the Operator fails to provide his share of the money necessary to prosecute operations pursuant to the terms of the contract; (*b*) if the Operator, in the opinion of the Government, fails to prosecute operations pursuant to the terms of the contract; or (*c*) if in the opinion of the Government, operations up to the time of the notice have not indicated the probability of making any worthwhile discovery and in the opinion of the Government further operations are not justified. Upon the completion of the project or any termination of the contract the Operator shall render to the Government a full and final accounting of his operations under the contract and his expenditures of money; shall dispose of any unused materials, supplies, and equipment for the joint account of the Operator and the Government in the proportion of their respective interests; and shall pay to the Government its pro-rata share of any money remaining.

Executed in ~~triplicate~~ the day and year first above written.

[illegible]

THE UNITED STATES OF AMERICA

(Operator)

By ---

By [illegible]

U. S. GOVERNMENT PRINTING OFFICE 16—64066-1

EXHIBIT A

The proposal is to be considered in two sections. The second section to be started only after approval of the Defense Minerals Administration. The sections can be designated as follows:

First Phase

Shaft sinking and crosscutting to vein and some drifting on vein to determine presence of mineralization at 100' and 200' below present ore showing in upper tunnel.

Second Phase

Drifting and raising on vein opened up by the first part of this project.

FIRST PHASE OPERATIONS

Shaft Sinking 220 feet, cutting two stations:

Labor @ $50.00	$11000
Timber @ $23.00	5000
Supplies, Powder, Caps, Steel, etc. @ $21.00	4620
Power @ $4.50	990
	$21610

Crosscutting 160 feet:

Labor @ $12.50 per foot	$2000
Timber @ $1.00 per foot	170
Powder, Caps, Bits, Steel, etc. @ $5.25 per foot	840
Power @ $1.25 per foot	200
	$3210

Drifting 400 feet:

Labor @ $12.50	$5000
Timber @ $1.00	400
Powder, Caps, Bits, Fuse, etc. @ $5.25	2100
Power @ $1.25 per foot	500
	$8000

SECOND PHASE OPERATIONS

Drifting 1600 feet:

Labor @ $14.00	$22400
Timber @ $1.00	1600
Powder, Caps, Bits, Fuse, etc. @ $2.75	4400
Power @ $1.50	2400
	$30800

Raising 800 feet:

Labor @ $10.00	$ 8000
Timber @ $4.00	3200
Powder, Caps, Bits, Fuse, etc. @ $2.50	2000
Power @ $1.35 per foot	1080
	$14280

Total Operation Costs:

Labor	$48400
Power	5170
Supplies	24380
	$77950

EXHIBIT B (First Phase)

1 - 35 ft. Headframe and Hoist House	$ 5000
1 - 18' x 24' Change Room and Equipment	2000
1 - 5000 Gallon Water Storage and Lines at Mine	500
Camp Water Supply Improvement	500
1 - 12' x 16' Shop Building	500
1 - 16' x 24' Storage Building	1000
5 - Cabins for Men 12' x 16'	3500
1 - 16' x 30' Boarding House & Equipment	2000
	$15000

EXHIBIT C (First Phase)

Equipment to be rented:

Pickup Truck $50.00 per month, 12 months	$ 600
1½ Ton Truck and Water Tank $100.00 per month, 12 months	1200
	$1800

Equipment to be purchased:

1 - 315 cu.ft. Compressor	$ 8[illegible]00
2 - 55 lb. Jackhammers and hoses	700
1 - Air Driven Sump Pump	300
1 - Drifter with Hoses	800
1 - 5000 lb. Bull Hoist	6000
2 - Sinking Buckets	500
1 - Cage	500
1 - Pneumatic Drill	400
1 - Pneumatic Saw	400
6 - Mine Cars	1500
1 - Gasoline Engine Blower	300
	$19[illegible]00

EXHIBIT C (Second Phase)

Equipment to be rented:

Pickup Truck $50.00 per month for 10 months	$ 500
1½ Ton Truck & Water Tank $100.00 per month for 10 months	1000
	$1500

Equipment to be purchased:

2 - Stopers, hoses and oilers	$ 1400
6 - Mine Cars	1500
1 - Drill Jumbo or special column	1500
1 - Mucking Machine	2700
1 - Hancha Tramer and Battery Charger	7500
	$14600

EXHIBIT D Labor Rates

Miners; shaft men	$15.00	per	day
Miners; not shaft men	12.00	"	"
Muckers & Tramers	11.00	"	"
Carpenters	13.00	"	"
Carpenter Helper	11.00	"	"
Hoistman	13.00	"	"
Truck Driver	12.00	"	"
Timber Framer	15.00	"	"
Supervision	500.00 per month		

EXHIBIT E

No rehabilitation work contemplated because applicant is occupying all available facilities.

Recapitulation

Labor	$ 48400
Supervision 22 months @ $500.00 per month	11000
Power	5170
Supplies	24390
Facilities Constructed	15000
Equipment Rented	3300
Equipment Purchased	34000
	$141200

MF-200
(April 1951)

Docket No. DMA 1506-X
Commodity Tungsten

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

EXPLORATION PROJECT CONTRACT[1]

It is agreed this _____ day of _____, 195__, between the United States of America, acting through the Department of the Interior, Defense Minerals Administration, hereinafter called the "Government," and[2] J. H. Cocier and Dorothy S. Cocier, his wife
L. A. Scholts and Irma D. Scholts, his wife

hereinafter called the "Operator," as follows:

1. *Authority for contract.* This agreement is entered into under the authority of the Defense Production Act of 1950, pursuant to Mineral Order 5, entitled "Regulations Governing Government Aid in Defense Exploration Projects."

2. *Operator's property rights.* The exploration project shall be conducted on that certain property situated in the State of Arizona, County of Yavapai described as follows:[3] The Black Pearl Mine in the Eureka Mining District; Sections 7 and 18, Township 15, North, Range 7 West. "As more fully described in the lease and option to purchase dated April 30, 1951, a copy of which is attached hereto."

with respect to which the Operator represents and undertakes:[4]

(*a*) ~~That he is the sole owner, in possession and entitled to possession, and that the property is subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder is attached:~~

(*b*) That he is a lessee, in possession and entitled to possession, and the subordination agreement of the lessor is attached.

3. *Exploration project.* The Operator, within 30 days from the date of this contract shall commence work on a project of exploration for[5] tungsten; shall prosecute the work efficiently, expertly, in a workmanlike manner, in accordance with good mining standards, with suitable and adequate equipment, materials, and labor, all properly designed to bring the project to completion within a period of[6] two years from the date of this contract. The exploration project and the work to be performed are more fully described on Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, is made a part of this contract.

4. *Performance of the work.* The work shall be performed by the Operator, under his sole direction and control: *Provided,* That with the consent of the Government and its written approval of the contract or contracts, all or any part of the work may be performed by the Operator through contract or contracts with independent contractors. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

5. *Fixtures and improvements.* The Operator shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of the exploration project without any allowance for the use, rental value, depreciation, depletion, or other cost of acquiring, owning, or holding possession thereof. Attached hereto, marked "Exhibit 'B'," is a detailed list of additional facilities, buildings, and fixtures, to be purchased, installed, or erected by the Operator, with the estimated cost of each, to which the Government will contribute its agreed pro-rata share of the cost. The difference between the cost of such additional facilities, buildings, or fixtures, and the salvage value thereof at the conclusion of the work, shall be charged as a cost of the project to which the Government has contributed its pro-rata share.

6. *Operating equipment.* Attached hereto, marked "Exhibit 'C'," is a detailed list of operating equipment divided into categories of items to be rented, purchased, or furnished by the Operator, with the allowable rental, purchase price, or rental value, as the case may be, annexed to each. As to equipment purchased for the project, the Government will contribute its agreed pro-rata share of the cost thereof, and the difference between the cost and the salvage value at the conclusion of the work shall be charged as a cost of the project to which the Government has contributed its pro-rata share.

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] State name, address, and nature of organization if any.
[3] Give legal description or enough to identify the property.
[4] Strike out the provision not applicable.
[5] Name of mineral.
[6] Not in excess of 2 years.

7. *Title to and disposition of property.* All facilities, buildings, fixtures, equipment, and other items costing more than $50 each, paid for or purchased with funds contributed jointly by the Operator and the Government, shall belong to the Operator and the Government jointly, in proportion to their respective contributions, and upon the termination of the contract, if they have any salvage value, shall be disposed of for their joint account unless the Government, in writing, waives its interest in any such items. The Government may require the dismantling, severance from land, and removal of any such items in order to realize its interest in the salvage value thereof, and the cost of any such removal and of the disposal of the items shall be for the joint account of the parties in proportion to their respective interests.

8. *Labor and supervision.* Attached hereto, marked "Exhibit 'D'," is an itemized schedule of labor, by numbers and classes (miners, muckers, millmen, etc.), and of supervisors, by numbers and positions, with the maximum wages or salaries that may be paid to each as an allowable cost of the project.

9. *Rehabilitation and repairs.* Attached hereto, marked "Exhibit 'E'," is a detailed schedule of existing facilities, buildings, installations, and fixtures, with a statement of the cost of any necessary rehabilitation or repairs to put into useful and operable condition, which cost shall be allowed as a cost of the project.

10. *Allowable costs of the project.* The allowable costs of the project in which the Government will participate are limited to the necessary, reasonable, direct costs of performing the exploration work, including the costs of materials, supplies, engineering, power, water, and utilities, including items of equipment costing less than $50 each; and the costs referred to in Articles 5, 6, 8, and 9, and the exhibits annexed to and referred to in the contract. Although the Government may pay part of the cost of new or additional facilities, structures, buildings, and equipment, only the depreciation on such items, computed as indicated in Articles 5 and 6, will be charged as a cost of the project. No items of general overhead, corporate management, interest, or any other indirect costs not expressly allowed by these regulations, or work performed or costs incurred before the date of this contract, shall be allowed as costs of the project in which the Government will participate.

11. *Participation by the Government.* At the end of the first full calendar month after the Operator has commenced work under the project, and at the end of each succeeding calendar month, the Operator shall submit to the Government a voucher for payment with a detailed statement of work done and allowable costs (as defined in Article 10 of this agreement) incurred, in a form and with supporting data acceptable to the Government. After approving the voucher, the Government shall pay to the Operator 75 percent of the sum of such costs incurred; *Provided,* That the aggregate total of all sums paid by the Government under this agreement shall not exceed $105,900, which is 75 percent of the agreed estimated total cost of this project, $141,200.

12. *Accounts and audits.* The Operator shall keep suitable records and accounts of operations, which the Government may inspect and audit at any time. The Government may at any time require an audit of the Operator's records and accounts by a certified public accountant, the cost thereof to be treated as a cost of the project. The Operator shall keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract.

13. *Progress reports.* The Operator shall provide the Government with monthly reports of progress in form and content satisfactory to the Government, and upon the completion of the project or termination of the contract shall provide the Government with a comprehensive geologic and engineering report, including an estimate of ore reserves, to the best of his ability. Four copies of all reports shall be furnished to the Government.

14. *Repayment by Operator.* If, upon the completion of the exploration project or termination of the contract, the Government considers that a discovery or development has resulted from the work from which commercial production of ore may be made, the Government, within 6 months thereafter shall so certify to the Operator, particularly describing and delimiting its estimate of the discovery or the development. Thereafter, if and as ore is produced as a result of such discovery or development, the Operator and his successor in interest shall be and become obligated to pay to the Government a percentage royalty on the net smelter returns or other net proceeds realized from such ore, concentrates, or metal produced within ten (10) years from the date of this contract, until the total amount contributed by the Government, without interest, is fully repaid or said 10 years have elapsed, whichever occurs first, as follows:

Of net smelter returns or other net proceeds not in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent.

Of net smelter returns or other net proceeds in excess of eight dollars ($8.00) per ton of ore: One and one-half (1½) percent, plus one-half (½) percent additional for each full fifty cents ($0.50) in excess of eight dollars ($8.00) per ton of ore, but not in excess of a maximum of five (5) percent.

This obligation to repay from net returns or proceeds shall be and remain a claim and lien upon the property which is the subject of the exploration project and upon any production resulting from such discovery or development, in favor of the Government, until fully paid, or until said 10-year period has elapsed; and this claim and lien and the Government's right to repayment shall survive any termination of the contract, whether by completion of the exploration project or otherwise. This article is not to be construed as imposing any obligation on the Operator or his successor in interest to produce ore from any such discovery or development.

15. *No assignment of contract.* Without the written consent of the Government, the Operator shall not assign or otherwise transfer or hypothecate this contract or any rights thereunder.

16. *Termination and completion.* The Government may, at any time, by written notice to the Operator, terminate this contract: (*a*) If the Operator fails to provide his share of the money necessary to prosecute operations pursuant to the terms of the contract; (*b*) if the Operator, in the opinion of the Government, fails to prosecute operations pursuant to the terms of the contract; or (*c*) if in the opinion of the Government, operations up to the time of the notice have not indicated the probability of making any worthwhile discovery and in the opinion of the Government further operations are not justified. Upon the completion of the project or any termination of the contract the Operator shall render to the Government a full and final accounting of his operations under the contract and his expenditures of money; shall dispose of any unused materials, supplies, and equipment for the joint account of the Operator and the Government in the proportion of their respective interests; and shall pay to the Government its pro-rata share of any money remaining.

Executed in ~~triplicate~~ sextuplet the day and year first above written.

THE UNITED STATES OF AMERICA

(Operator)

By _____

By _____

Administrator, Defense Minerals Administration

U. S. GOVERNMENT PRINTING OFFICE 16—64066-1

EXHIBIT A

The proposal is to be considered in two sections. The second section to be started only after approval of the Defense Minerals Administration. The sections can be designated as follows:

First Phase

Shaft sinking and crosscutting to vein and some drifting on vein to determine presence of mineralization at 100' and 200' below present ore showing in upper tunnel.

Second Phase

Drifting and raising on vein opened up by the first part of this project.

FIRST PHASE OPERATIONS

Shaft Sinking 220 feet, cutting two stations:

Labor @ $50.00	$11000
Timber @ $23.00	5000
Supplies, Powder, Caps, Steel, etc. @ $21.00	4620
Power @ $4.50	990
	$21610

Crosscutting 160 feet:

Labor @ $12.50 per foot	$2000
Timber @ $1.00 per foot	170
Powder, Caps, Bits, Steel, etc. @ $5.25 per foot	840
Power @ $1.25 per foot	200
	$3210

Drifting 400 feet:

Labor @ $12.50	$5000
Timber @ $1.00	400
Powder, Caps, Bits, Fuse, etc. @ $5.25	2100
Power @ $1.25 per foot	500
	$8000

SECOND PHASE OPERATIONS

Drifting 1600 feet:

Labor @ $14.00	$22400
Timber @ $1.00	1600
Powder, Caps, Bits, Fuse, etc. @ $2.75	4400
Power @ $1.50	2400
	$30800

Raising 800 feet:

Labor @ $10.00	$ 8000
Timber @ $4.00	3200
Powder, Caps, Bits, Fuse, etc. @ $2.50	2000
Power @ $1.35 per foot	1080
	$14280

Total Operation Costs:

Labor	$48400
Power	5170
Supplies	24380
	$77950

EXHIBIT B (First Phase)

1 - 35 ft. Headframe and Hoist House	$ 5000
1 - 18' x 24' Change Room and Equipment	2000
1 - 5000 Gallon Water Storage and Lines at Mine	500
Camp Water Supply Improvement	500
1 - 12' x 16' Shop Building	500
1 - 16' x 24' Storage Building	1000
5 - Cabins for Men 12' x 16'	3500
1 - 16' x 30' Boarding House & Equipment	2000
	$15000

EXHIBIT C (First Phase)

Equipment to be rented:

Pickup Truck $50.00 per month, 12 months	$ 600
1½ Ton Truck and Water Tank $100.00 per month, 12 months	1200
	$1800

Equipment to be purchased:

1 - 315 cu.ft. Compressor	$ 8000
2 - 55 lb. Jackhammers and hoses	700
1 - Air Driven Sump Pump	300
1 - Drifter with Hoses	800
1 - 5000 lb. Pull Hoist	6000
2 - Sinking Buckets	500
1 - Cage	500
1 - Pneumatic Drill	400
1 - Pneumatic Saw	400
6 - Mine Cars	1500
1 - Gasoline Engine Blower	300
	$19400

EXHIBIT C (Second Phase)

Equipment to be rented:

Pickup Truck $50.00 per month for 10 months	$ 500
1½ Ton Truck & Water Tank $100.00 per month for 10 months	1000
	$1500

Equipment to be purchased:

2 - Stopers, hoses and oilers	$ 1400
6 - Mine Cars	1500
1 - Drill Jumbo or special column	1500
1 - Mucking Machine	2700
1 - Mancha Tramer and Battery Charger	7500
	$14600

EXHIBIT D Labor Rates

Miners; shaft men	$15.00	per	day
Miners; not shaft men	12.00	"	"
Muckers & Tramers	11.00	"	"
Carpenters	13.00	"	"
Carpenter Helper	11.00	"	"
Hoistman	13.00	"	"
Truck Driver	12.00	"	"
Timber Framer	15.00	"	"
Supervision	500.00	per	month

EXHIBIT E

No rehabilitation work contemplated because applicant is occupying all available facilities.

Recapitulation

Labor	$ 48400
Supervision 22 months @ $500.00 per month	11000
Power	5170
Supplies	24330
Facilities Constructed	15000
Equipment Rented	3300
Equipment Purchased	34000
	$141200

400

52

FILE COPY
SURNAME:

Selfridge.

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

JUN 18 1952

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

Re: Docket No. DMA 1506X - Tungsten
Cazier and Scholz
The Black Pearl Mine
Yavapai County, Arizona

Dear Mr. King:

On May 7, 1952, you were authorized to inform the applicants that if the subordination agreement was not obtained and forwarded to you by June 15, 1952, the Washington Office would consider the subject application withdrawn.

The file contains the return receipts dated May 17, 1952, for the letters sent by your office to Messrs. Cazier and Scholz. Since we have had no word from them, will you please return the unsigned exploration contract to this office for cancellation.

Sincerely yours,

(Signed) FRANK M. JOHNSON
(FMJ)

Chairman, Operating Committee
Defense Minerals Exploration
Administration

P.N.
6-18-52

Approved:

C. N. Johnson
Member, Bureau of Mines (FMJ)

D. M. Lemmon
Member, Geological Survey
(FMJ)

GCSelfridge:ls 6/17/52

CC: Docket
Admn. Reading File
Field Team, Reg. 4
G. C. Selfridge
Operating Committee
D. M. Lemmon, USGS
R. W. Geehan, USBM

400

FILE COPY
SURNAME:

Selfridge.

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

MAY 7 1952

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

Re: Docket No. DMA 1506X - Tungsten
Cazier and Scholz
The Black Pearl Mine
Yavapai County, Arizona

Dear Mr. West:

We note that several more months have passed since your letter of January 3, 1952, to us, in which you had advised that the subject docket had been placed in your inactive files.

An exploration project contract was drawn up for this particular property in July 1951. We have been waiting more than nine months for the applicants to secure a subordination agreement. It would appear that the subordination agreement is not forthcoming and never will be. We wish to close the docket and remove it from our active file. You are, therefore, authorized to inform the applicant that if the subordination agreement is not obtained and forwarded to you by June 15, 1952, that we will consider the application withdrawn.

Sincerely yours,

(signed) FRANK E. JOHNSON

(FHB)

Chairman, Operating Committee
Defense Minerals Exploration
Administration

F.H. 5-7-52

GCSelfridge:ls
5/5/52

APPROVED:

J. H. Hedges (FHB)
MEMBER, Bureau of Mines

D. M. Lemmon (FHB)
Member, Geological Survey

cc: Admn. Reading File
Docket
Field Team, Region IV
G. C. Selfridge
D. M. Lemmon, USGS
R. W. Geehan, USGS
Operating Committee

5/1/52

Mr. Selfridge:

Re: 1506

This docket has been carried on our monthly report heretofore as "pending information from applicant."

Mr. East by letter of 1/23/52 said he was placing case in the "inactive" files until such time as applicant furnishes LL forms.

Now that 3 months have passed and the subordination forms not submitted, can't we get rid of the docket by a memo to Adams, sending it to him on basis of East's action of 1/23/52?

ls

OFFICE OF THE ADMINISTRATOR

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

224 New Customhouse
Denver 2, Colorado

January 23, 1952

Memorandum

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

From: Executive Officer, Field Team, Region IV

Subject: Docket 1506X, Cozier & Scholz, Black Pearl Mine (Tungsten) Yavapai County, Arizona. Your memorandum January 21, 1952

The subject docket was placed in our inactive files until such time as the necessary subordination agreements can be obtained.

J. H. East, Jr.

J. H. East, Jr.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 28 1952

1-29-52. The above notation entered in Docket Book, (WOS, Page 9) by G.G.

400

FILE COPY
SURNAME:

Brewer
Selfridge

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

JAN 2 1 1952

Mr. J. H. East, Jr.
Executive Officer, Region IV
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMA 1506X - Tungsten
Casier & Sebelz
Black Pearl Mine
Bagdad, Yavapai County, Arizona

Dear Mr. East:

Our files on the subject application note that on July 18, 1951, six copies of a contract, with attached memorandum, were sent you for completion by your office. Later correspondence by Mr. Hoffland is also noted.

Please inform us of the present status of your activity in this regard, so that we may bring our files up to date.

Sincerely yours,

C. O. Mittendorf

1-21-52

Acting Administrator
Defense Minerals Exploration
Administration

QLBrewer'lm
1/17/52

cc: Admn. Reading File
Docket
R. W. Geehan, USBM
D. M. Lemmon, USGS
Field Team Reg. IV
G. C. Selfridge
Q. L. Brewer

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

Guthrie

140

Copies to Fahrly

August 29, 1951

a. E. C.

Mr. J. H. East, Jr., Executive Officer
DMA Field Team, Region IV
224 New Customhouse
Denver 2, Colorado

Dear Mr. East:

Mr. Mittendorf has asked us to reply to your memorandum of August 17, 1951 on the subject of DMA Docket No. 1506I and to your telephone request for a guide as to the form to be used in the preparation of amendments to exploration contracts.

In this case, since the instrument has not been signed, there is no question of the amendment of a contract. All that is involved is a minor change in an instrument as presented for signature. The starting date of the work can be set back to meet the wishes of the prospective operator so long as the date for completion is not thereby extended beyond two years from the date of the contract. You may make the necessary change, either by crossing out the present start-up period and substituting the new period, or by preparing a new set of instruments with the new period substituted for the old. You should then have the prospective operator sign the instruments, initialling the change if the former alternative in effecting the change has been used. The instruments should then be sent to Washington for signature by the Government.

Quite a different situation is presented when a change is necessary in a contract which has been signed by both parties. In that case a formal amendment must be drawn and executed. A sample form of amendment is set forth on page 5 of Circular Letter No. 8 of August 13, 1951. Your authority to enter into amendments is, of course, limited to instances involving the subjects enumerated in Order 2653.

If you have any further questions we shall be glad to have you write to us.

J. L. Hofflund
J. L. Hofflund
General Counsel

RRGuthrie/bjl

Copy to: Administrator's Reading File
R. R. Guthrie
J. L. Hofflund
C. O. Mittendorf
Chron.
Reports & Records

FILE COPY
SURNAME:

Blakemore
Mittendorf

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

gust 21, 1951

emorandum

TO: Mr. J. L. Hofflund, General Counsel

a.E.C.

FROM: Mr. C. O. Mittendorf, Director
Production Expansion Division

SUBJECT: Revision of Exploration Contract
Docket DMA-1506X
Tungsten, Black Pearl Mine

Please prepare an appropriate answer to the attached letter from Executive Officer, Region IV, Field Team of August 17, 1951 copy of which is attached.

C. O. Mittendorf (J. Ni)

PBBlakemore/jem
8-21-51

cc to: Adm. Reading File
Reports & Records
Mr. Mittendorf-Mr. Olund
Mr. Blakemore
Docket

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

REGION IV

OFFICE OF
REGIONAL DIRECTOR

224 NEW CUSTOMHOUSE
DENVER 2, COLORADO

August 17, 1951

Memorandum

To: C. O. Mittendorf, Director, Production Expansion Division
Defense Minerals Administration

From: Executive Officer, DMA Field Team, Region IV

Subject: DMA Docket 1506X, Black Pearl Mine, Yavapai County, Arizona (tungsten), Exploration Contract and Access Road

The contract was delivered to the officials of the above company for signature. However, because of the requirement that they start work within 30 days after date of the contract, they have not signed. The reason being that although the access road needed to get equipment to the property and already approved by Defense Minerals Administration and Bureau of Public Roads, has not started because of lack of funds.

Scholz and Cazier have started a semi-road on their own in order to get equipment to the property. However, it may be 6 to 8 weeks before it is completed.

Can the 30 day limit be waived or postponement obtained? Please advise.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 21 1951

J. H. East, Jr.

340

FILE COPY
SURNAME:

Holden

a.E.C

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

Memorandum

To: Francis B. Speaker
Chief, MMO Branch, Requirements Division

Through: Director, Supply Division

From: George B. Holderer Chief, Tungsten Branch

Subject: DMA-1506X Tungsten
E. A. Scholz and J. H. Cazier
Bagdad, Arizona
Black Pearl Mine

The following are enclosed:

1- letter Cazier to DMA not dated
1- bound copy with following:
1- typed copy of MF-100
1- report on Black Pearl by Harlow D. Phelps
1- report on Black Pearl by J. F. Frost
2- prints of sections
1- print of estimates on section paper

not stripped here

George B. Holderer

George B. Holderer
Chief, Tungsten Branch

TJBallard:11 Aug, 16 1951
EC:Adm. Reading File
Reports & Records Unit
Prod. Exp. Div.
Mr. Holderer
Files

Attachments

Approved:

Tom Lyon

Director, Supply Division

FILE COPY
SURNAME:

SPWarren
Mittendorf

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

JUL 18 1951

Mr. J. H. East, Jr.
Executive Officer
Region IV
224 New Customhouse Building
Denver 2, Colorado

Re: Docket No. DMA 1506A
The Black Pearl Mine
Scholz, E. A. & Casier, J. H.

Dear Mr. East:

We are forwarding to you six copies of an exploration project contract with captioned applicant for your completion in conformity with items #3 and #4 of the memorandum, copy of which is attached, from our legal department.

In an attempt to expedite this contract, because it is tungsten, we telephoned the applicant and in reply received a letter on June 29, 1951 from Mr. J. H. Casier, copy of which is enclosed. The exhibits attached to the contract form MF-200 were worked out after receipt of the above mentioned letter.

In addition to the above, it will be necessary to provide three additional copies of the map and Lease and Option to purchase.

When the contract is signed please return to the Washington Office for the Administrator's signature and final distribution.

Sincerely yours,

C. O. Mittendorf

C. O. Mittendorf, Director
Production Expansion Division

Enclosures-6

SPWarren/meh
cc to: Messrs. Mittendorf, Olund
Adm. Reading File
Mr. Moon
Mr. Warren
Mr. Thayer
Mr. Holderer
Region IV (2)
FILES

APPROVED:
Tom Lyon
Tom Lyon
Chairman, Coordinating Committee

Lowell B. Moon
Member, Bureau of Mines

Olaf N. Rove
Member, Geological Survey

Defense Minerals Administration

Review of Application for Exploration Assistance

Docket No. ~~1288~~ 1506-x

FOR APPROVAL

Commodity Tungsten

Total Amount ~~$210,138.00~~ $120,000.00

Govt. Participation $90,000

1. Name and Address of Applicant E.A.Scholz and J. H. Cazier

Bagdad, Arizona

2. Location of Property Black Pearl mine, T. 15 N., R. 7 W., Eureka Mining district, Yavapai County, Arizona.

3. Mineral or metal Tungsten Is it listed in Section 9 of MO-5?

If not, application will be rejected.

4. Geologic probability of discovery -- based on data in application (question #16, 17, 18, 20 and 22).*

Mines or Survey reports, etc., do you rate chances:

a) Good Yes

b) Poor

c) None

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

e) Is there an alternative and favorable project? No
(If so, attach an explanation)

5. Is the applicant's right to the property clearly stated? Yes
(question 5, 6, 7)

6. If applicant is a lessee, is a copy of the lease attached? Yes

Does the lease have sufficient time to run to cover a future productive period? Yes

*Question numbers are those of MF-103

7. Are subordination agreements necessary? Yes

a) MF-201? No

b) MF-202 Yes (from Lessor)

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

a) Available manpower Yes

b) Equipment and supplies Yes
(question 14 plus general knowledge of availability)

c) Accessibility (question 12) Yes, with access road to be provided.

d) Water (question 13) Yes

e) Power (question 13) Yes (to be generated).

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

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

Is a field check needed on this point? No

10. Exhibit A. (questions 21 and 22)

a) Is the project adequately described? Yes

If not, are there sufficient data given so that you can describe the project? _____ If so, attach a draft.

b) Is there an adequate map or sketch of the proposed work?

No adequate map; not absolutely essential.

c) Is the proposed work "exploration" under the definition of Section 8, MO-5? Yes

If not, what part of it is? all

Is this part a worthwhile exploration project? Yes

d) Are the cost estimates detailed? Yes

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

e) Are the cost estimates reasonable? Yes

f) Should more information be requested from applicant? No

g) Is a field examination necessary to complete Exhibit A? No

11. Exhibit B (question 23-d)

a) Is it applicable? Yes

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

c) Is a field check needed? No

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

a) Is it applicable? Yes

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

c) Are rents and charges reasonable? Yes

d) Is a field check needed? No

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

a) Are there sufficient data? No

b) Is the schedule adequate for the work proposed? No schedule

c) Is the schedule excessive for the work proposed?

d) Are the proposed wages and salaries reasonable?

e) Is a field check needed? Requires information from applicant.

14. Exhibit E (question 23-e)

a) Is it applicable? No. No facilities on property.

b) Sufficient data? ______

c) Reasonable? ______

d) Field check needed? ______

15. In your judgment, can the proposed work be done in the proposed time? No time specified, but work could be done in 2 years.

(All exploration must be completed within two years.)

16. If field examination is not needed, attach your recommendation.

Not needed. See below.

17. xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

xxxxxxxxxx It is recommended that this exploration project be approved subject to the provision by the applicant of the following information, promised on June 12 in telephone conversation with the Tungsten Branch: Subordination agreement from lessor; exhibit Ex D (labor price schedules); exhibit A (a diagram showing precisely the work proposed); exhibit C (explanation of rental charges on equipment furnished by applicant). The applicant agreed orally over the telephone to pay royalty on all ore tributary to the shaft.

The opening of this mine ix will add substantially to the tungsten supply, and is approved by the Tungsten Branch of the Supply Division.

Reviewed by: Dwight M. Lemmon

Dwight M. Lemmon

George B. Holderer

Date June 12, 1951

6/5/51

Defense Minerals Administration

Review of Application for Exploration Assistance

FOR APPROVAL

Docket No. ~~1288~~ 1506-x

Commodity Tungsten

Total Amount ~~$[illegible]~~ $120,000.00

Govt. Participation $90,000

1. Name and Address of Applicant E.A.Scholz and J. H. Cazier

Bagdad, Arizona

2. Location of Property Black Pearl mine, T. 15 N., R. 7 W., Eureka Mining district, Yavapai County, Arizona.

3. Mineral or metal Tungsten Is it listed in Section 9 of MO-5?

If not, application will be rejected.

4. Geologic probability of discovery -- based on data in application (question #16, 17, 18, 20 and 22).*

Mines or Survey reports, etc., do you rate chances: ?

a) Good Yes

b) Poor

c) None

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

e) Is there an alternative and favorable project? No
(If so, attach an explanation)

5. Is the applicant's right to the property clearly stated? Yes
(question 5, 6, 7)

6. If applicant is a lessee, is a copy of the lease attached? Yes

Does the lease have sufficient time to run to cover a future productive period? Yes

*Question numbers are those of MF-103

7. Are subordination agreements necessary? **Yes**

a) MF-201? **No**

b) MF-202 **Yes (from Lessor)**

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

a) Available manpower **Yes**

b) Equipment and supplies **Yes**
(question 14 plus general knowledge of availability)

c) Accessibility (question 12) **Yes, with access road to be provided.**

d) Water (question 13) **Yes**

e) Power (question 13) **Yes (to be generated).**

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

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

Is a field check needed on this point? **No**

10. Exhibit A. (questions 21 and 22)

a) Is the project adequately described? **Yes**

If not, are there sufficient data given so that you can describe the project? _____ If so, attach a draft.

b) Is there an adequate map or sketch of the proposed work? _____

No adequate map; not absolutely essential.

c) Is the proposed work "exploration" under the definition of Section 8, MO-5? **Yes**

If not, what part of it is? **all**

Is this part a worthwhile exploration project? Yes

d) Are the cost estimates detailed? Yes

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

e) Are the cost estimates reasonable? Yes

f) Should more information be requested from applicant? No

g) Is a field examination necessary to complete Exhibit A? No

11. Exhibit B (question 23-d)

a) Is it applicable? Yes

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

c) Is a field check needed? No

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

a) Is it applicable? Yes

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

c) Are rents and charges reasonable? Yes

d) Is a field check needed? No

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

a) Are there sufficient data? No

b) Is the schedule adequate for the work proposed? No schedule

c) Is the schedule excessive for the work proposed?

d) Are the proposed wages and salaries reasonable?

e) Is a field check needed? Requires information from applicant.

14. Exhibit E (question 23-c)

a) Is it applicable? No. No facilities on property.

b) Sufficient data?

c) Reasonable?

d) Field check needed?

15. In your judgment, can the proposed work be done in the proposed time? No time specified, but work could be done in 2 years.

(All exploration must be completed within two years.)

16. If field examination is not needed, attach your recommendation.

Not needed. See below.

17. ~~[illegible]~~

~~[illegible]~~ It is recommended that this exploration project be approved subject to the provision by the applicant of the following information, promised on June 12 in telephone conversation with the Tungsten Branch: Subordination agreement from lessor; exhibit ~~Ex~~ D (labor price schedules); exhibit A (a diagram showing precisely the work proposed); exhibit C (explanation of rental charges on equipment furnished by applicant). The applicant agreed orally over the telephone to pay royalty on all ore tributary to the shaft.

The opening of this mine ~~ix~~ will add substantially to the tungsten supply, and is approved by the Tungsten Branch of the Supply Division.

Reviewed by:

Dwight M. Lemmon

George B. Holderer

Date June 12, 1951

PRBon

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

July 11, 1951

Memorandum

To: C. O. Mittendorf

From: J. L. Hofflund

Subject: Scholz, E. A. and Cazier, J. H., proposed exploration project contract, The Black Pearl Mine — Docket Number DMA-1506X

I am unable to approve the subject contract in its present form because of the following defects:

1. The lease and option to purchase which is attached to the contract reveals that E. A. Scholz and J. H. Cazier are not the proper parties. The parties should be those named in the agreement, to wit: J. H. Cazier and Dorothy L. Cazier, his wife, and E. A. Scholz and Irma R. Scholz, his wife.

2. To the description in Article 2 of the contract form should be added the following: "As more fully described in the lease and option to purchase dated April 30, 1951, a copy of which is attached hereto."

3. The subordination agreement of all of the "first parties" named in the lease and option to purchase, must be procured and annexed to the contract.

4. The contract should be signed in behalf of the applicants by all four of them and the date of the contract inserted in the contract form and in the subordination agreement form.

The file in this case is returned herewith.

J. L. Hofflund

J. L. Hofflund
General Counsel

Attachment

FILE COPY
SURNAME:

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

July 11, 1951

Memorandum

To: G. O. Mittendorf

From: J. L. Hofflund

Subject: Scholz, E. A. and Cazier, J. H., proposed exploration project contract, The Black Pearl Mine — Docket Number DMA-1506X

I am unable to approve the subject contract in its present form because of the following defects:

1. The lease and option to purchase which is attached to the contract reveals that E. A. Scholz and J. H. Cazier are not the proper parties. The parties should be those named in the agreement, to wit: J. H. Cazier and Dorothy L. Cazier, his wife, and E. A. Scholz and Irma R. Scholz, his wife.

2. To the description in Article 2 of the contract form should be added the following: "As more fully described in the lease and option to purchase dated April 30, 1951, a copy of which is attached hereto."

3. The subordination agreement of all of the "first parties" named in the lease and option to purchase, must be procured and annexed to the contract.

4. The contract should be signed in behalf of the applicants by all four of them and the date of the contract inserted in the contract form and in the subordination agreement form.

The file in this case is returned herewith.

J. L. Hofflund
J. L. Hofflund
General Counsel

Attachment
JLHofflund/bjl

Copy to: L. F. Strobel
J. L. Hofflund
Chron.
Files

DMA 1506

Box 248
Bagdad, Arizona
June 29, 1951

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUL 3 - 1951
LANDON F. STROBEL
Executive Secretary

Mr. George Holderer
U.S. Department of the Interior
Defense Minerals Administration
Washington 25 D.C.

Re: DMA-1506X
Exploration Loan Application
Black Pearl Mine

Dear Mr. Holderer:

As a result of suggestions made by Mr. S. Power Warren during a telephone conversation June 27th. we are writing you to give additional details regarding our application for an exploration loan and an alternate proposal to break our program into two steps. Unfortunately our telephone connection was very poor and while I believe Mr. Warren could hear me I could hardly hear and understand him. I assure you that Mr. Scholz and I greatly appreciate the assistance both you and Mr. Warren have given us in preparing our application.

In order to clarify our intentions regarding working the portion of the mine above the adit level elevation the following points are brought out:

1. While an application for an Access Road has been made we are currently planning to build a pioneer road to the property pending receipt of information regarding the access road. This would later be improved with the help of access road funds to make a suitable permanent road or by us if our access road application is not approved.
2. We now have and have had for several months two men on the property and have rehabilitated the main adit and driven a raise to 80 feet above the track level approximately 60 feet from the face.
3. Whether the exploration project is approved or not it is our intention to drive the main adit ahead and stope ore from above the adit. This expansion of our mining program will be undertaken as soon as the pioneer road is completed to the property. If the project is approved this work would be done at the same time as the exploration but with a different crew and using tools and equipment furnished by us. In this regard we have ordered and expect delivery any day of a new 315 cubic foot compressor to be used on our work, have a pickup truck, water truck and most of the necessary machines, bars, arms, cars etc. available for that work and intend to purchase any further required equipment or tools. There are two cabins at the property, one of which is being used now and the second would be required when the crew is increased.
4. The work to be done on the proposed exploration program would probably be done as a part of normal exploration of the mine in the course of our operations, however, being able to perform this work at this time would make possible a substantially greater production from the mine, probably twice as large a monthly production attained one year sooner.
5. While the facilities and equipment we own or intend to acquire are sufficient for our proposed rate of work they would be insufficient for our program and the exploration program being performed simultaneously. Our Application for an Exploration Loan lists additional facilities and equipment that may be required to assure a successful completion of the project. It is our intention, however, to build only such additional facilities and make only those equipment purchases that are necessary

to the success of the project. A boardinghouse if required by the project, would be provided but not run as an expense to the project.

In his report Mr. J. F. Frost proposed a 1255 foot crosscut tunnel to give the same amount of backs as will be possible by sinking a shaft. We decided in favor of sinking a shaft for the following reasons:

1. The shaft could be sunk further to continue exploration of the property later while from the tunnel to gain additional depth it would be necessary to sink an underground winze or shaft.
2. It would require only a comparitively small amount of crosscutting to explore the vein at the 100 level before sinking further and mining could be started at any level from the shaft.
3. For the first stage of operations all work would be in the adit and shaft and could be more easily supervised and would make use of the same ore bins.

It is believed that the rental rates listed for equipment, while they are the current local rates, are in excess of those considered allowable under exploration programs. It is therefore, requested that our application be amended to provide for purchase of the equipment listed as needed for the proposed exploration program.

Our proposed program can be broken down into two parts, the performance of the second part being contingent upon the finding by Officials of the Defense Minerals Administration that the results of the first portion of the program indicate that the second part will be successful in the finding of commercial mineralization. The first portion of the program would consist of sinking 220 feet of shaft, crosscutting to the vein on the 100 and 200 ft. levels and performing 400 feet of drifting on one of the levels, preferrably the 200 ft. level if the mineralization there justified doing so. This portion of the program would require approximately 12 months to complete and would require the following estimated expenditures:

1. For Facilities

35 ft. headframe and hoist house
18' by 24' change room and equipment
5000 gallon water storage tank and lines at the mine
Camp water supply improvement
12' by 16' shop building
16' by 24' storage and timber framing building
Five 12' by 16' cabins for men.
16' by 30' boardinghouse

Cost of labor including taxes and insurance	$8,000.00
Cost of Change Room & Boardinghouse equipment	800.00
Pipe and water tanks	400.00
Timber & supplies for headframe	1,300.00
Building material and supplies	4,500.00
	$15,000.00

2. For Shaft Sinking and Two Stations

Cost of labor including taxes and insurance	$10,400.00
Timber	5,300.00
Supplies, powder, steel bits etc.	5,000.00
Power	1,000.00
	$21,700.00

3. For a 60 ft. and a 100ft. crosscut and 400 feet of drifting.

Labor including taxes and insurance	$7,000.00
Timber	500.00
Supplies, powder, steel bits etc.	2,900.00
Power	700.00
	$11,100.00

4. Equipment purchases.

1	315 cu. ft. compressor	8,000.00
2	55 lb. jackhammers and hoses	700.00
1	Air driven sump pump	300.00
1	Drifter with equipment	800.00
1	5000 lb. rope pull hoist	6,000.00
2	Sinking buckets	500.00
1	Cage	500.00
1	Pneumatic drill	400.00
1	Pneumatic saw	400.00
6	Mine cars	1,500.00
1	Gasoline engine blower	300.00
		$19,400.00

5. Pickup truck and water truck to be supplied by the operator at a rental value of $150.00 per month

12 months at $150.00	$1,800.00

6. Supervision

12 months at $500.00	$6,000.00

Total estimated money requirement for this portion of the program $75,000.00

The second portion of the program consisting of 1600 feet of drifting and 800 feet of raising to be undertaken after examination and determination of the probability of it's success by officials of Defense Minerals Administration would take 10 months to complete and would require the following estimated expenditures.

1. No additional facilities would be required.

2.

Labor including taxes, insurance etc.	$30,600.00
Timber	5,000.00
Supplies, powder, steel, bits etc.	6,500.00
Power	3,000.00
	$45,100.00

3. Equipment purchases

2	stopers, hoses and oilers	1,400.00
6	Mine cars	1,500.00
1	Drill Jumbor or special column	1,500.00
1	Mucking machine	2,700.00
1	Mancha trammer and battery charger	7,500.00
		$14,600.00

4. Pickup and water truck rental value.

10 months at $150.00 per month	$1,500.00

5. Supervision.
10 months at $500.00 $5,000.00

Total money required for second period	$66,200.00
Money required for the complete project	$141,200.00
Less estimated salvage at end of project	21,200.00
Estimated cost of project	$120,000.00

The above figures include some increases in the cost of supplies particularly timber for raises, a decrease in the amount and cost of equipment purchases and a relative increase in the estimated salvage at the end of the project.

At the beginning of the second portion of the program it might be necessary to revise the list of equipment purchases since the operator might have at that time a mucking machine and trammer to be used at a rental value on the project on a full or part time basis.

The first portion of the program is designed to establish the presence or lack of mineable grade ore 200 feet below the lowest present workings. The second portion of the program is designed to extend by exploration the indicated ore zone sufficiently to establish the general magnitude of the possible tungsten reserves available at the property.

We hope that this letter has given sufficient additional information to assist in further consideration of our application. Please do not hesitate to request any additional information we may be able to supply.

Very truly yours,

E.A. Scholz and J. H. Cazier

By. J. H. Cazier
J. H. Cazier

J. H. Cazier
Box 248
Bagdad, Arizona
June 27, 1951

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

Dear Sirs:

Kindly send me three copies of your "Bulletin on Minerals Exploration Program"

Very truly yours

J H Cazier

3 MO-5's mailed
7-3-51: ja

DMA 1506 x - E. A. Scholz and J. H. Cazier
Bagdad, Ariz. - Black Pearl Mine

Let. 6-18-51 to Mr. Holderer from E. A. Scholz and J. H. Cazier enclosing pages numbered 2 to 6 inclusive and requesting pages 2 and 3 be removed. Enclosed map to be attached to and become a part of applidation.

Above letter sent to Mr. Warren 6-25-51 (PED)

FILE COPY
SURNAME:

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

June 18, 1951

Mr. J. H. Cazier
Box 248
Bagdad, Arizona

Subject: DMA-1506X
Re: Exploration Loan
Black Pearl Mine

My dear Mr. Cazier:

Receipt is acknowledged of your application and attachments of May 30, 1951 for an exploration loan under the Defense Production Act of 1950.

The application was assigned Docket Number DMA-1506X and was referred to Mr. P. R. Bradley, Chief, Tungsten Branch on June 7, 1951.

In any future correspondence relating to your application, kindly refer to DMA-1506X.

Sincerely yours,

LANDON F. STROBEL

Landon F. Strobel
Executive Secretary

LFSTROBEL:js
cc: Strobel-2
>Files
Bradley
Lyon

Box 248
Bagdad, Arizona

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

Dear Sirs:

Enclosed please find completed form MF-100 as our application for Serial Number for the Black Pearl mine together with completed form MF-103 covering a proposed exploration project for the property.

We have made application to the General Service Administration to participate in the program guaranteeing a floor of $63.00 per contained unit of tungsten trioxide in concentrate. Please consider this letter our application to you for any certification that may be necessary to participate in that program.

Very truly yours,

E.A. Scholz and J. H. Cazier

By. J. H. Cazier

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JUN 1 - 1951
LANDON F. STROBEL
Executive Secretary

Box 248
Bagdad, Arizona
May 30, 1951

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

Re: MF-103 E.A. Scholz & J.H.Cazier
Black Pearl Mine
Application for Exploration
project.

Dear Sirs:

Enclosed please find four copies of our lease to be attached to and considered a part of the above application.

These were overlooked in assembling the application for forwarding to you a few days ago.

Very truly yours,

J. H. Cazier

Form MF-103

U.S DEPARTMENT OF THE INTERIOR
Defense Minerals Administration

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950	DMA Docket No. 1506 X Date Received 6-1-51 Participation

6

E. A. Scholz & J.H. Cazier

Bagdad, Arizona

May 28, 1951

Date of Application; May 28, 1951

Estimated Cost $120,000.00

Metal or Mineral: Tungsten

Percentage of Government Participation 75%

Location of Mine: Township 15 North Range 7 West, Eureka Mining District, Yavapai County, Arizona

Date of filing MF-100 filed herewith

DMA Docket Number 1506 X

THE APPLICANT

1 to 5. See MF-100

6. Lessee

7. A copy of our lease which is in good standing is enclosed.

8. Not applicable. There has been no operation of the property by the applicants other than current development work

9. Applicant is prepared to invest sufficient funds from operation of the property and private funds to complete the project.

10. Proposed Project;

It is proposed to sink a 220 foot vertical two compartment shaft from the elevation of and near the portal of the present tunnel. The surface installation and bins could then be used for both the tunnel and shaft. This shaft would provide a means of continuing development of additional lower levels. 60 feet of croescutting to the vein at the 100 level and 100 feet of crosscutting to the vein at the 200 level with 1600 feet of drifting easterly and 400 feet of drifting westerly at that level is proposed. It is further proposed that four raises be driven, as a part of the program, from the 200 level to the tunnel

level. The proposed program and estimated cost is summarized therefore as follows:

Shaft sinking 220 feet	$29,000.00
60 ft. crosscut and station at 100 level	2,000.00
100 ft. crosscut and station at 200 level	3,000.00
2000 ft. of drifting on 200 level	50,000.00
Four raises from the 200 level-800'	16,000.00
Contingencies	5,000.00
Total	$105,000.00

11. Fixtures and Improvements:

It is proposed that the following fixtures and improvements be installed as a part of the program.

35 ft. wooden headframe and hoist house	$5,000.00
18' by 24' change room and equipment	2,000.00
1500 gal water storage tank	500.00
Camp water supply improvement	500.00
Shop building 12' by 16'	500.00
Storage building 16' by 24'	1,000.00
Five 12' by 16' cabins	3,500.00
16' by 30' boardinghouse with equipment	2,000.00
Total	$15,000.00

12. Equipment

The applicant now owns or agrees to furnish as needed the following equipment to be used under the proposed project on a rental basis:

Item		Monthly rental per unit
1	315 cubic ft. compressor	$450.00
2	55 pound jackhammers with hoses and oilers	45.00
1	air driven sump pump	50.00
2	drifters with bar, arm, clamp, hose and oilers	65.00
1	5000 lb. rope pull hoist & rope	300.00
2	sinking buckets	10.00
1	Cage	60.00
1	Pneumatic drill	15.00
1	Pneumatic saw	20.00
12	mine cars	15.00
1	drill jumbo	120.00
1	mucking machine & hose	170.00
1	gasoline engine driven blower	20.00
1	Pickup truck	105.00
1	1½ tons truck & water tank	160.00
1	20 k.w. generating plant	125.00
1	Mancha trammer with battery charging equipment	250.00
	Miscellaneous wrenches bars, and other small tools	100.00

It is proposed that necessary steel, bits, shovels, axes, picks, pipe, rail, timber, spikes, hanging rods, nails, ventilation tubing, and other items not listed above be purchased as operating supplies required for the project.

12: Area to be Developed:

The applicants expect through their operations simultaneously with the proposed project to drive the tunnel nearly to the east limit of the best mineralization and to mine the first 100 feet below the tunnel level as far east as the face of the present tunnel. The block of ore to be developed by the project would then be between the present east face of the tunnel and the vertical upward projection of the east end of the proposed 200 level drift face and between the tunnel elevation and the elevation of the tunnel level. This block would be 1040 feet long and 200 feet high. The second area to be considered as developed by the project would be between the 100 and 200 levels and bounded on the east by the vertical downward projection of the tunnel face and on the west by the upward projection of the face of the proposed west drift This block would be 960 feet long and 100 feet high. The ore to be developed at an estimated average mining width of 3½ feet would be 85,000 tons.

13; Financial Requirements:

Cost of development(including equipment rental)		$105,000.00
Fixtures and improvements		15,000.00
	Total	$120,000.00

Estimated royalty return:

.78% ore at 85% recovery and at $60.00/unit	W03	$39.78
Less hauling & milling		9.00
		$30.78

5% of above X 85,000 tons $130,900.00

J H Cazier

DMA-1506X

Box 248
Bagdad, Arizona
June 18, 1951

Mr. George Holder
U.S. Department of the Interior
Defense Minerals Administration
Washington 25 D.C.

Re: MF-103 E.A. Scholz and J. H. Cazier
Bagdad, Arizona: Application for an
Exploration Project on Black Pearl Mine

Dear Mr. Holder:

Kindly insert the enclosed pages numbered two to six inclusive in our application and remove pages two and three as submitted. The enclosed map is to be attached to and become a part of our application.

We regret that the application as submitted was incomplete even though we attempted to give more information than was shown on the form MF-103 from which we worked. We have just obtained a correct form from which the enclosed corrected sheets of our application were prepared. We originally had a form saying MF-103 on the first page, form MF-200 on the second page and MO-5 describing the program on the third and fourth pages.

At the time of obtaining our lease and in consideration of some concessions on our part we were assured by the representatives of the owners of the property that they would assist us to obtain Government help in financing the development of the property. No mention was made then as to the necessity of obtaining a subordination agreement which we think can be obtained since the project would greatly benefit the property at no cost to them during the term of our lease.

We hope we have now given you sufficient information to allow consideration of our application. We certainly regret that the original application was not prepared from the correct form and can readily see how much inconvenience it has caused you.

Very truly yours,

E. A. Scholz and J. H. Cazier

By.
J. H. Cazier

Form MF-109

U.S DEPARTMENT OF THE INTERIOR
Defense Minerals Administration

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950	Docket No. DMA 1506X Date Received 6-1-51 Participation

E. A. Schols & J.H. Casier

Bagdad, Arizona

May 28, 1951

Date of Application; May 28, 1951

Estimated Cost $120,000.00

Metal or Mineral: Tungsten

Percentage of Government Participation 75%

Location of Mine: Township 15 North Range 7 West, Eureka Mining District, Yavapai County, Arizona

Date of filing MF-100 filed herewith

DMA Docket Number 1506X

THE APPLICANT

1 to 5. See MF-100

6. Lessee

7. A copy of our lease which is in good standing is enclosed.

8. Not applicable. There has been no operation of the property by the applicants other than current development work

9. Applicant is prepared to invest sufficient funds from operation of the property and private funds to complete the project.

10. Proposed Project;

It is proposed to sink a 220 foot vertical two compartment shaft from the elevation of an near the portal of the present tunnel. The surface installation and bins could then be used for both the tunnel and shaft. This shaft would provide a means of continuing development of additional lower levels. 60 feet of crosscutting to the vein at the 100 level and 100 feet of crosscutting to the vein at the 200 level with 1600 feet of drifting easterly and 400 feet of drifting westerly at that level is proposed. It is further proposed that four raises be driven, as a part of the program, from the 20 level to the tunnel

level. The proposed program and estimated cost is summarized therefore as follows:

Shaft sinking 220 feet	$29,000.00
60 ft. crosscut and station at 100 level	2,000.00
100 ft. crosscut and station at 200 level	3,000.00
2000 ft. of drifting on 200 level	50,000.00
Four raises from the 200 level-800'	16,000.00
Contingencies	5,000.00
Total	$105,000.00

11. Fixtures and Improvements:

It is proposed that the following fixtures and improvements be installed as a part of the program.

35 ft. wooden headframe and hoist house	$5,000.00
18' by 24' change room and equipment	2,000.00
1500 gal water storage tank	500.00
Camp water supply improvement	500.00
Shop building 12' by 16'	500.00
Storage building 16' by 24'	1,000.00
Five 12' by 16' cabins	3,500.00
16' by 30' boardinghouse with equipment	2,000.00
Total	$15,000.00

12. Equipment

The applicant now owns or agrees to furnish as needed the following equipment to be used under the proposed project on a rental basis:

Item		Monthly rental per unit
1	315 cubic ft. compressor	$450.00
2	55 pound jackhammers with hoses and oilers	45.00
1	air driven sump pump	50.00
2	drifters with bar, arm, clamp, hose and oilers	65.00
1	5000 lb. rope pull hoist & rope	300.00
2	sinking buckets	10.00
1	Cage	60.00
1	Pneumatic drill	15.00
1	Pneumatic saw	20.00
12	mine cars	15.00
1	drill jumbo	120.00
1	mucking machine & hose	170.00
1	gasoline engine driven blower	20.00
1	Pickup truck	125.00
1	1½ tons truck & water tank	160.00
1	20 k.w. generating plant	125.00
1	Mancha trammer with battery charging equipment	250.00
	Miscellaneous wrenches bars, and other small tools	100.00

It is proposed that necessary steel, bits, shovels, axes, picks, pipe, rail, timber, spikes, hanging rods, nails, ventilation tubing, and other items not listed above be purchased as operating supplies required for the project.

12: Area to be Developed:

The applicants expect through their operations simultaneously with the proposed project to drive the tunnel nearly to the east limit of the best mineralization and to mine the first 100 feet below the tunnel level as far east as the face of the present tunnel. The block of ore to be developed by the project would then be between the present east face of the tunnel and the vertical upward projection of the east end of the proposed 200 level drift face and between the tunnel elevation and the elevation of the tunnel level. This block would be 1040 feet long and 200 feet high. The second area to be considered as developed by the project would be between the 100 and 200 levels and bounded on the east by the vertical downward projection of the tunnel face and on the west by the upward projection of the face of the proposed west drift This block would be 960 feet long and 100 feet high. The ore to be developed at an estimated average mining width of 3½ feet would be 85,000 tons.

13; Financial Requirements:

Cost of development(including equipment rental)		$105,000.00
Fixtures and improvements		15,000.00
	Total	$120,000.00

Estimated royalty return:

.78% ore at 85% recovery and at $60.00/unit	W03	$39.78
Less hauling & milling		9.00
		$30.78

5% of above X 85,000 tons $130,900.00

J H Cazier

level.

THE PROPERTY

10. (a) The proposed work will be performed on the Black Pearl No. 1 and Black Pearl No. 2 Patented Lode Mining Claims(Miner al Survey 4186) (U.S. Patent No. 1102913), Eureka Mining District, Yavapai County, Arizona. Section 18, Township 15 North Range 7 West.

(b) It is proposed to explore by shaft sinking, drifting and raising the following area, described with reference to the attached sketch section prepared by Cazier in June 1951: " That area on the course of the Black Pearl Vein between 30 and 2050 East and between the 200 level of the proposed shaft at elevation 5440 and the elevation of the floor of the present adit at elevation 5640.

15. Application has been made to build a 7 mile access road so that the ore can be hauled 17 miles to the Hillside Mining and Milling Co. Mill near Bagdad, Arizona for custom milling. E.J. Dickie has trucks in the area hauling ore to the mill from other properties and would haul the Black Pearl ore. If the Access Road is not approved the applicants intend to build the necessary road themselves.

19. See MF-100 for reports etc.
The applicants plan to develop and mine ore from above the main adit level while carrying out the proposed exploration program. Production of ore from the block to be explored will begin as soon as mining can be done without interfering with the exploration program, which would probably be about the end of the first year of that program.

It is believed that there will be sufficient labor available locally to complete the project particularly if draft exemptions are available.

THE EXPLORATION

20. A vein deposit of Wolframite(tungsten) is to be explored

21. It is proposed that a 220 foot vertical two compartment shaft be sunk and that the following development work be performed from that shaft;

1. Cutting a station at the 100 ft. level and crosscutting 60 feet to the vein at that level.
2. Cutting a station at the 200 level and crosscutting 100 feet to the vein at that level.
3. Performing 400 feet of drifting westerly and 1600 feet of drifting easterly on the vein on the 200 level.
4. Driving four 200 foot raises on the vein from the 200 level to the elevation of and probable extension of the present main adit.

It is estimated that the above project will be completed within two years from the date of the contract.

22. The tungsten bearing vein has been worked at the surface and by shallow surface workings for a distance of 2000 feet. It can be followed for a much greater distance with some showing of tungsten minteralization. The amounts of wolframite extracted from the surface workings were carefully recorded by Mr. Homer Wood and are shown on his section as a part of MF-100 while the grade of the ore in the amin adit was established and discussed by reports by Frost and Phelps attached to form MF-100. The western 300 feet of the area to be explored is covered by dumps and wash to such a depth as to make present surface exploration there impractical. One surface pit indicates the persistance of tungsten mineralization on the surface to the west at

least as far as the end of the proposed exploration. The grade of the tungsten mineralization established by the reports attached to form MF-100 is commercial at the present or considerably lower tungsten prices.

The persistance of the commercial tungsten mineralization and it's strength as indicated by the surface and presently accessible underground workings indicates that a downward extenstion of at least several hundred feet can be reasonably be expected. A vertical range of over 200 feet is represented by present workings with no apparent change in primary tungsten content as discussed in the report by Mr. Frost attached to MF-100.

THE REQUIREMENTS AND COSTS

23. The estimated requirements and costs of the project are as follows:

(a) Labor

1. During preliminary period of headframe erection, construction of facilities and collaring the shaft.

2	Carpenters	at	$13.00 per day
3	Helpers	at	$11.00 per day
1	Truck Driver	"	$12.00 per day
2	Miners	"	$12.00 per day

2. During shaft sinking and station cutting.

1	truck driver & Misc.	$12.00 per day
2	Hoistmen	$13.00 " "
4	Shaft Miners	$15.00 " "
1	Timber Framer	$15.00 " "

3. Average daily crew during drifting and raising

1	Truck driver & Misc	$12.00 per day
2	Hoistmen	$13.00 " "
3	Miners	$12.00 " "
3	Muckers	$11.00 " "
1	Trammer	$11.00 " "

(b) Supervision of the project would be by the Manager and Superintendent of the entire operation. Cost to the project estimated as $500.00 per month.

(c) There are no existing facilities to be used by the project.

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

35 ft. Headframe and hoist house	$5,000.00
18' by 24' Change room & equipment	2,000.00
5000 gallon water storage & lines at mine	500.00
Camp water supply improvement	500.00
12 X 16 shop building	500.00
16' by 24' storage building	1,000.00
Five 12' by 16' cabins for men	3,500.00
16' by 30' boardinghouse & equip ent	2,000.00
Total	$15,000.00

(e) The operator has no equipment available for the project and proposes that the necessary equipment be either bought as a part of the project or as an alternative purchased by the applicant to be used on the project at the local rental rates to be outlined under (g)

The following equipment will be required;

Item

Item	Estimated Cost
1. 315 Cu. ft. Compressor	$8,000
2 55 lb. jackhammers with hoses & oilers	700
1 Air driven sump pump	300
2 Drifters with bars, arms, columns, clamps & hoses	1,600
1 5000 lb. rope pull hoist	6,000
2 Sinking buckets	500
1 Cage	500
1 Pneumatic drill	400
1 Pneumatic saw	400
12 Mine cars	3,000
1 Drill jumbo	1,500
1 Mucking Machine	2,700
1 Gasoline engine driven blower	300
1 Pickup truck	1,800
1 1½ ton truck and water tank	4,000
1 20 Kw. generating plant	4,000
1 Mancha trammer with battery charging equi't	8,000
Total	$43,700

(f) No direct rental of equipment from a third party is proposed.

(g) As an alternative to (e) above the operator proposed to purchase with his own funds and to when needed furnish the project the following items at the local rental rates listed

Item	Monthly rental
1 315 cu. ft. compressor	$450.
2 55 lb. jackhammers & hoses	90
1 Air driven sump pump	50
2 drifters, bars, arms, clamps, hoses & oilers	130
1 5000 lb. rope pull hoist & rope	300
2 sinking buckets	20
1 Cage	60
1 Pneumatic drill	15
1 Pneumatic saw	20
12 Mine cars	180
1 Drill jumbo	120
1 Mucking Machine & hose	170
1 Gasoline engine blower	20
1 Pickup truck	105
1 1½ton truck and water tank	160
1 20 Kw. generating plant	125
1 Mancha trammer & battery charging equipment	250

(h) Cost of materials and Supplies

1. Cost of materials and supplies to be used under (d) above for facilities and structures	$8,000.00
2. Shaft and station timber, hanging rods, wedges, etc.	5,300.00
3. Steel, tools, bits carbide etc.	10,000.00
4. Powder fuse and caps	7,200.00
Total	$30,500.00

(i) There are no known items not provided for above.

23.. Summary:

The following would be the estimated cost of the project if all equipment is bought as a part of the project:

(a)	Labor	$58,000.00
(b)	Supervision	9,000.00
(c)	None	
(d)	Labor included in (a) & supplies in (H)	
(e)	Equipment	43,700.00
(f)	Not applicable	
(g)	Not applicable	
(h)	Cost of Materials and supplies	30,500.00
	Total	$141,200.00
	Less estimated salvage at conclusion of work	$21,200.00
	Estimated cost of project	$120,000.00

The following would be the estimated cost of the project if the operator furnishes to it all the equipment listed abovewhen needed at the rental rates listed:

(a)	Labor	$58,000.00
(b)	Supervision	9,000.00
(c)	None	
(d)	Included in (a) and (h)	
(e)	Equipment rented	
(f)	Not applicable	
(g)	Rental of equipment to be purchased and used at rental rates by the project	26,500.00
(h)	Materials and Supplies	30,500.00
	Total	$124,000.00
	Less estimated salvage of building and structures	4,000.00
	Estimated cost of project	$120,000.00

24. Time Sechedule:

The following is the estimated time schedule and money requirements for the project.

1. First five months to obtain equipment, complete facilities, erect headframe and start sinking.

Cost of headframe & facilities(including $8,000.00 labor	$15,000.00
equipment purchases	23,100.00
Supervision	2,000.00
Steel, Bits, tools, etc.	4,000.00
Total	$44,100.00

2. Next 3 months to complete shaft sinking and cut stations at the 100 and 200 ft. levels

Labor	$10,400.00
Timber	5,300.00
Supplies and powder	4,000.00
Equipment	20,600.00
Supervision	1,500.00
Total	$41,800.00

3. Next 3 months to complete 700 feet of drifting and 100 feet of raising

Labor	$10,000.00
Supplies & Powder	3,500.00
Supervision	1,500.00
Total	$15,000.00

4. Next 3 months to complete 600 feet of drifting and 200 feet of raising

Labor	$10,000.00
Supplies and Powder	3,500.00
Supervision	1,500.00
Total	$15,000.00

5. Next 3 months to complete 600 feet of drifting and 200 feet of raising

	Labor	$10,000.00
	Supplies and Powder	3,500.00
	Supervision	1,500.00
	Total	$15,000.00
6.	Next 3 months to complete the project	
	Labor	$6,100.00
	Supplies and Powder	2,700.00
	Supervision	1,500.00
	Total	$10,300.00
	Estimated salvage at end of project	($21,200.00) (credit)

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.

E.A. Scholz and J. H. Cazier

by. J. H. Cazier
Partner

June 18, 1951

DMA-1506X

Box 248
Bagdad, Arizona
June 18, 1951

Cazier, J. H. & E. R. Scholz

Mr. George Holder
U.S. Department of the Interior
Defense Minerals Administration
Washington 25 D.C.

Re: MF-103 E.A. Scholz and J. H. Cazier
Bagdad, Arizona: Application for an
Exploration Project on Black Pearl Mine

Dear Mr. Holder:

Kindly insert the enclosed pages numbered two to six inclusive in our application and remove pages two and three as submitted. The enclosed map is to be attached to and become a part of our application.

We regret that the application as submitted was incomplete even though we attempted to give more information than was shown on the form MF-103 from which we worked. We have just obtained a correct form from which the enclosed corrected sheets of our application were prepared. We originally had a form saying MF-103 on the first page, form MF-200 on the second page and MC-5 describing the program on the third and fourth pages.

At the time of obtaining our lease and in consideration of some concessions on our part we were assured by the representatives of the owners of the property that they would assist us to obtain Government help in financing the development of the property. No mention was made then as to the necessity of obtaining a subordination agreement which we think can be obtained since the project would greatly benefit the property at no cost to them during the term of our lease.

We hope we have now given you sufficient information to allow consideration of our application. We certainly regret that the original application was not prepared from the correct form and can readily see how much inconvenience it has caused you.

Very truly yours,

E. A. Scholz and J. H. Cazier

By.
J. H. Cazier

level.

THE PROPERTY

10. (a) The proposed work will be performed on the Black Pearl No. 1 and Black Pearl No. 2 Patented Lode Mining Claims(Mineral Survey 4186) (U.S. Patent No. 1102913), Eureka Mining District, Yavapai County, Arizona. Section 18, Township 15 North Range 7 West.

(b) It is proposed to explore by shaft sinking, drifting and raising the following area, described with reference to the attached sketch section prepared by Cazier in June 1951: " That area on the course of the Black Pearl Vein between 30 and 2050 East and between the 200 level of the proposed shaft at elevation 5440 and the elevation of the floor of the present adit at elevation 5640.

15. Application has been made to build a 7 mile access road so that the ore can be hauled 17 miles to the Hillside Mining and Milling Co. Mill near Bagdad, Arizona for custom milling. E.J. Diekie has trucks in the area hauling ore to the mill from other properties and would haul the Black Pearl ore. If the Access Road is not approved the applicants intend to build the necessary road themselves.

19. See MF-100 for reports etc.
The applicants plan to develop and mine ore from above the main adit level while carrying out the proposed exploration program. Production of ore from the block to be explored will begin as soon as mining can be done without interfering with the exploration program, which would probably be about the end of the first year of that program.

It is believed that there will be sufficient labor available locally to complete the project particularly if draft exemptions are available.

THE EXPLORATION

20. A vein deposit of Wolframite(tungsten) is to be explored

21. It is proposed that a 220 foot vertical two compartment shaft be sunk and that the following development work be performed from that shaft;

1. Cutting a station at the 100 ft. level and crosscutting 60 feet to the vein at that level.
2. Cutting a station at the 200 level and crosscutting 100 feet to the vein at that level.
3. Performing 400 feet of drifting westerly and 1600 feet of drifting easterly on the vein on the 200 level.
4. Driving four 200 foot raises on the vein from the 200 level to the elevation of and probable extension of the present main adit.

It is estimated that the above project will be completed within two years from the date of the contract.

22. The tungsten bearing vein has been worked at the surface and by shallow surface workings for a distance of 2000 feet. It can be followed for a much greater distance with some showing of tungsten minteralization. The amounts of wolframite extracted from the surface workings were carefully recorded by Mr. Homer Wood and are shown on his section as a part of MF-100 while the grade of the ore in the amin adit was established and discussed by reports by Frost and Phelps attached to form MF-100. The western 300 feet of the area to be explored is covered by dumps and wash to such a depth as to make present surface exploration there impractical. One surface pit indicates the persistance of tungsten mineralization on the surface to the west at

least as far as the end of the proposed exploration. The grade of the tungsten mineralization established by the reports attached to form MF-100 is commercial at the present or considerably lower tungsten prices.

The persistance of the commercial tungsten mineralization and it's strength as indicated by the surface and presently accessible underground workings indicates that a downward extenstion of at least several hundred feet can be reasonably be expected. A vertical range of over 200 feet is represented by present workings with no apparent change in primary tungsten content as discussed in the report by Mr. Frost attached to MF-100.

THE REQUIREMENTS AND COSTS

23. The estimated requirements and costs of the project are as follows:

(a) Labor

1. During preliminary period of headframe erection, construction of facilities and collaring the shaft.

2	Carpenters	at	$13.00 per day
3	Helpers	at	$11.00 per day
1	Truck Driver	"	$12.00 per day
2	Miners	"	$12.00 per day

2. During shaft sinking and station cutting.

1	truck driver & Misc.	$12.00 per day
2	Hoistmen	$13.00 " "
4	Shaft Miners	$15.00 " "
1	Timber Framer	$15.00 " "

3. Average daily crew during drifting and raising

1	Truck driver & Misc	$12.00 per day
2	Hoistmen	$13.00 " "
3	Miners	$12.00 " "
3	Muckers	$11.00 " "
1	Trammer	$11.00 " "

(b) Supervision of the project would be by the Manager and Superintendent of the entire operation. Cost to the project estimated as $500.00 per month.

(c) There are no existing facilities to be used by the project.

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

35 ft. Headframe and hoist house	$5,000.00
18' by 24' Change room & equipment	2,000.00
5000 gallon water storage & lines at mine	500.00
Camp water supply improvement	500.00
12 X 16 shop building	500.00
16' by 24' storage building	1,000.00
Five 12' by 16' cabins for men	3,500.00
16' by 30' boardinghouse & equipment	2,000.00
Total	$15,000.00

(e) The operator has no equipment available for the project and proposes that the necessary equipment be either bought as a part of the project or as an alternative purchased by the applicant to be used on the project at the local rental rates to be outlined under (g)

The following equipment will be required;

Item

Item	Estimated Cost
1. 315 Cu. ft. Compressor	$8,000
2 55 lb. jackhammers with hoses & oilers	700
1 Air driven sump pump	300
2 Drifters with bars, arms, columns, clamps & hoses	1,600
1 5000 lb. rope pull hoist	6,000
2 Sinking buckets	500
1 Cage	500
1 Pneumatic drill	400
1 Pneumatic saw	400
12 Mine cars	3,000
1 Drill jumbo	1,500
1 Mucking Machine	2,700
1 Gasoline engine driven blower	300
1 Pickup truck	1,800
1 1½ ton truck and water tank	4,000
1 20 Kw. generating plant	4,000
1 Mancha trammer with battery charging equi't	8,000
Total	$43,700

(f) No direct rental of equipment from a third party is proposed.

(g) As an alternative to (e) above the operator proposed to purchase with his own funds and to when needed furnish the project the following items at the local rental rates listed

Item	Monthly rental
1 315 cu. ft. compressor	$450.
2 55 lb. jackhammers & hoses	90
1 Air driven sump pump	50
2 drifters, bars, arms, clamps, hoses & oilers	130
1 5000 lb. rope pull hoist & rope	300
2 sinking buckets	20
1 Cage	60
1 Pneumatic drill	15
1 Pneumatic saw	20
12 Mine cars	180
1 Drill jumbo	120
1 Mucking Machine & hose	170
1 Gasoline Engine blower	20
1 Pickup truck	105
1 1½ton truck and water tank	160
1 20 Kw. generating plant	125
1 Mancha trammer & battery charging equipment	250

(h) Cost of materials and Supplies

1. Cost of materials and supplies to be used under (d) above for facilities and structures	$8,000.00
2. Shaft and station timber, hanging rods, wedges, etc.	5,300.00
3. Steel, tools, bits carbide etc.	10,000.00
4. Powder fuse and caps	7,200.00
Total	$30,500.00

(i) There are no known items not provided for above.

23.. Summary:

The following would be the estimated cost of the project if all equipment is bought as a part of the project:

(a)	Labor	$58,000.00
(b)	Supervision	9,000.00
(c)	None	
(d)	Labor included in (a) & supplies in (H)	
(e)	Equipment	43,700.00
(f)	Not applicable	
(g)	Not applicable	
(h)	Cost of Materials and supplies	30,500.00
	Total	$141,200.00
	Less estimated salvage at conclusion of work	$21,200.00
	Estimated cost of project	$120,000.00

The following would be the estimated cost of the project if the operator furnishes to it all the equipment listed abovewhen needed at the rental rates listed:

(a)	Labor	$58,000.00
(b)	Supervision	9,000.00
(c)	None	
(d)	Included in (a) and (h)	
(e)	equipment rented	
(f)	Not applicable	
(g)	Rental of equipment to be purchased and used at rental rates by the project	26,500.00
(h)	Materials and Supplies	30,500.00
	Total	$124,000.00
	Less estimated salvage of building and structures	4,000.00
	Estimated cost of project	$120,000.00

24. Time Sechedule:

The following is the estimated time schedule and money requirements for the project.

1. First five months to obtain equipment, complete facilities, erect headframe and start sinking.

Cost of headframe & facilities(including $8,000.00 labor	$15,000.00
equipment purchases	23,100.00
Supervision	2,000.00
Steel, Bits, tools, etc.	4,000.00
Total	$44,100.00

2. Next 3 months to complete shaft sinking and cut stations at the 100 and 200 ft. levels

Labor	$10,400.00
Timber	5,300.00
Supplies and powder	4,000.00
Equipment	20,600.00
Supervision	1,500.00
Total	$41,800.00

3. Next 3 months to complete 700 feet of drifting and 100 feet of raising

Labor	$10,000.00
Supplies & Powder	3,500.00
Supervision	1,500.00
Total	$15,000.00

4. Next 3 months to complete 600 feet of drifting and 200 feet of raising

Labor	$10,000.00
Supplies and Powder	3,500.00
Supervision	1,500.00
Total	$15,000.00

5. Next 3 months to complete 600 feet of drifting and 200 feet of raising

	Labor	$10,000.00
	Supplies and Powder	3,500.00
	Supervision	1,500.00
	Total	$15,000.00
6.	Next 3 months to complete the project	
	Labor	$6,100.00
	Supplies and Powder	2,700.00
	Supervision	1,500.00
	Total	$10,300.00
	Estimated salvage at end of project	($21,200.00) (credit)

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.

E.A. Scholz and J. H. Cazier

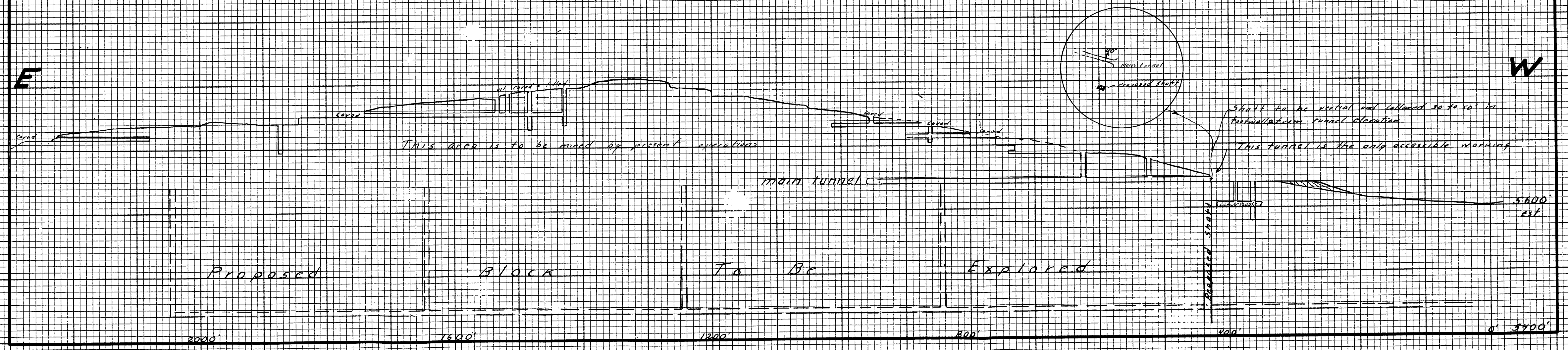
by. J. H. Cazier
Partner

June 18, 1951

BLACK PEARL MINE
YAVAPAI COUNTY ARIZONA

1" = 100'

Sketch Section on Vein taken from
Section Made by Homer R Wood
Cazier June 1951



Form MF-109

UNITED STATES DEPARTMENT OF THE INTERIOR
Defense Minerals Administration

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950	Docket No. DMA 1506 X Date Received 6-1-51 Participation

B. A. Scholz & J.H. Casier

Bagdad, Arizona — May 28, 1951

Date of Application: May 28, 1951 — Estimated Cost $120,000.00

Metal or Mineral: Tungsten — Percentage of Government Participation 75%

Location of Mine: Township 15 North Range 7 West, Eureka Mining District, Yavapai County, Arizona

Date of filing MF-100 filed herewith — DMA Docket Number 1506 +

THE APPLICANT

1 to 5. See MF-100

6. Lessee

7. A copy of our lease which is in good standing is enclosed.

8. Not applicable. There has been no operation of the property by the applicants other than current development work

9. Applicant is prepared to invest sufficient funds from operation of the property and private funds to complete the project.

10. Proposed Project:

It is proposed to sink a 220 foot vertical two compartment shaft from the elevation of an near the portal of the present tunnel. The surface installation and bins could then be used for both the tunnel and shaft. This shaft would provide a means of continuing development of additional lower levels. 60 feet of crosscutting to the vein at the 100 level and 100 feet of crosscutting to the vein at the 200 level with 1600 feet of drifting easterly and 400 feet of drifting westerly at that level is proposed. It is further proposed that four raises be driven, as a part of the program, from the 20 level to the tunnel

level. The proposed program and estimated cost is summarized therefore as follows:

Shaft sinking 220 feet	$29,000.00
60 ft. crosscut and station at 100 level	2,000.00
100 ft. crosscut and station at 200 level	3,000.00
2000 ft. of drifting on 200 level	50,000.00
Four raises from the 200 level-800'	16,000.00
Contingencies	5,000.00
Total	$105,000.00

11. Fixtures and Improvements:

It is proposed that the following fixtures and improvements be installed as a part of the program.

35 ft. wooden headframe and hoist house	$5,000.00
1[illegible]' by 24' change room and equipment	2,000.00
1500 gal water storage tank	500.00
Camp water supply improvement	500.00
Shop building 12' by 16'	500.00
Storage building 16' by 24'	1,000.00
Five 12' by 16' cabins	3,500.00
16' by 30' boardinghouse with equipment	2,000.00
Total	$15,000.00

12. Equipment

The applicant now owns or agrees to furnish as needed the following equipment to be used under the proposed project on a rental basis:

Item		Monthly rental per unit
1	315 cubic ft. compressor	$450.00
2	55 pound jackhammers with hoses and oilers	45.00
1	air driven sump pump	50.00
2	drifters with bar, arm, clamp, hose and oilers	65.00
1	5000 lb. rope pull hoist & rope	300.00
2	sinking buckets	10.00
1	Cage	60.00
1	Pneumatic drill	15.00
1	Pneumatic saw	20.00
12	mine cars	15.00
1	drill jumbo	120.00
1	mucking machine & hose	170.00
1	gasoline engine driven blower	20.00
1	Pickup truck	195.00
1	1½ tons truck & water tank	160.00
1	20 k.w. generating plant	125.00
1	Mancha trammer with battery charging equipment	250.00
	Miscellaneous wrenches bars, and other small tools	100.00

It is proposed that necessary steel, bits, shovels, axes, picks, pipe, rail, timber, spikes, hanging rods, nails, ventilation tubing, and other items not listed above be purchased as operating supplies required for the project.

12: Area to be Developed:

The applicants expect through their operations simultaneously with the proposed project to drive the tunnel nearly to the east limit of the best mineralization and to mine the first 100 feet below the tunnel level as far east as the face of the present tunnel. The block of ore to be developed by the project would then be between the present east face of the tunnel and the vertical upward projection of the east end of the proposed 200 level drift face and between the tunnel elevation and the elevation of the tunnel level. This block would be 1048 feet long and 200 feet high. The second area to be considered as developed by the project would be between the 100 and 200 levels and bounded on the east by the vertical downward projection of the tunnel face and on the west by the upward projection of the face of the proposed west drift This block would be 960 feet long and 100 feet high. The ore to be developed at an estimated average mining width of 3½ feet would be 85,000 tons.

13; Financial Requirements:

Cost of development(including equipment rental)		$105,000.00
Fixtures and improvements		15,000.00
	Total	$120,000.00

Estimated royalty return:

.78% ore at 85% recovery and at $60.00/unit	W03	$39.78
Less hauling & milling		9.00
		$30.78

5% of above X 85,000 tons $130,900.00

J P Cazier

DMB - 1506X

Box 248
Bagdad, Arizona
June 18, 1951

Mr. George Holder
U.S. Department of the Interior
Defense Minerals Administration
Washington 25 D.C.

Re: MF-103 E.A. Scholz and J. H. Cazier
Bagdad, Arizona: Application for an
Exploration Project on Black Pearl Mine

Dear Mr. Holder:

Kindly insert the enclosed pages numbered two to six inclusive in our application and remove pages two and three as submitted. The enclosed map is to be attached to and become a part of our application.

We regret that the application as submitted was incomplete even though we attempted to give more information than was shown on the form MF-103 from which we worked. We have just obtained a correct form from which the enclosed corrected sheets of our application were prepared. We originally had a form saying MF-103 on the first page, form MF-200 on the second page and MO-5 describing the program on the third and fourth pages.

At the time of obtaining our lease and in consideration of some concessions on our part we were assured by the representatives of the owners of the property that they would assist us to obtain Government help in financing the development of the property. No mention was made then as to the necessity of obtaining a subordination agreement which we think can be obtained since the project would greatly benefit the property at no cost to them during the term of our lease.

We hope we have now given you sufficient information to allow consideration of our application. We certainly regret that the original application was not prepared from the correct form and can readily see how much inconvenience it has caused you.

Very truly yours,

E. A. Scholz and J. H. Cazier

By. J. H. Cazier

Form MF-109

U.S DEPARTMENT OF THE INTERIOR
Defense Minerals Administration

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950	Docket No. DMA 1506 X Date Received 6-1-51 Participation

E. A. Scholz & J.H. Cazier

Bagdad, Arizona — May 28, 1951

Date of Application; May 28, 1951 — Estimated Cost $120,000.00

Metal or Mineral: Tungsten — Percentage of Government Participation 75%

Location of Mine: Township 15 North Range 7 West, Eureka Mining District, Yavapai County, Arizona

Date of filing MF-100 filed herewith — DMA Docket Number 1506X

THE APPLICANT

1 to 5. See MF-100

6. Lessee

7. A copy of our lease which is in good standing is enclosed.

8. Not applicable. There has been no operation of the property by the applicants other than current development work

9. Applicant is prepared to invest sufficient funds from operation of the property and private funds to complete the project.

10. Proposed Project;

It is proposed to sink a 220 foot vertical two compartment shaft from the elevation of an near the portal of the present tunnel. The surface installation and bins could then be used for both the tunnel and shaft. This shaft would provide a means of continuing development of additional lower levels. 60 feet of crosscutting to the vein at the 100 level and 100 feet of crosscutting to the vein at the 200 level with 1600 feet of drifting easterly and 400 feet of drifting westerly at that level is proposed. It is further proposed that four raises be driven, as a part of the program, from the 200 level to the tunnel

level.

THE PROPERTY

10. (a) The proposed work will be performed on the Black Pearl No. 1 and Black Pearl No. 2 Patented Lode Mining Claims(Miner al Survey 4186) (U.S. Patent No. 1102913), Eureka Mining District, Yavapai County, Arizona. Section 18, Township 15 North Range 7 West.

(b) It is proposed to explore by shaft sinking, drifting and raising the following area, described with reference to the attached sketch section prepared by Cazier in June 1951: " That area on the course of the Black Pearl Vein between 30 and 2050 East and between the 200 level of the proposed shaft at elevation 5440 and the elevation of the floor of the present adit at elevation 5640.

15. Application has been made to build a 7 mile access road so that the ore can be hauled 17 miles to the Hillside Mining and Milling Co. Mill near Bagdad, Arizona for custom milling. E.J. Diskie has trucks in the area hauling ore to the mill from other properties and would haul the Black Pearl ore. If the Access Road is not approved the applicants intend to build the necessary road themselves.

19. See MF-100 for reports etc.
The applicants plan to develop and mine ore from above the main adit level while carrying out the proposed exploration program. Production of ore from the block to be explored will begin as soon as mining can be done without interfering with the exploration program, which would probably be about the end of the first year of that program.

It is believed that there will be sufficient labor available locally to complete the project particularly if draft exemptions are available.

THE EXPLORATION

20. A vein deposit of Wolframite(tungsten) is to be explored

21. It is proposed that a 220 foot vertical two compartment shaft be sunk and that the following development work be performed from that shaft;

1. Cutting a station at the 100 ft. level and crosscutting 60 feet to the vein at that level.
2. Cutting a station at the 200 level and crosscutting 100 feet to the vein at that level.
3. Performing 400 feet of drifting westerly and 1600 feet of drifting easterly on the vein on the 200 level.
4. Driving four 200 foot raises on the vein from the 200 level to the elevation of and probable extension of the present main adit.

It is estimated that the above project will be completed within two years from the date of the contract.

22. The tungsten bearing vein has been worked at the surface and by shallow surface workings for a distance of 2000 feet. It can be followed for a much greater distance with some showing of tungsten mineralization. The amounts of wolframite extracted from the surface workings were carefully recorded by Mr. Homer Wood and are shown on his section as a part of MF-100 while the grade of the ore in the main adit was established and discussed by reports by Frost and Phelps attached to form MF-100. The western 300 feet of the area to be explored is covered by dumps and wash to such a depth as to make present surface exploration there impractical. One surface pit indicates the persistance of tungsten mineralization on the surface to the west at

least as far as the end of the proposed exploration. The grade of the tungsten mineralization established by the reports attached to form MF-100 is commercial at the present or considerably lower tungsten prices.

The persistance of the commercial tungsten mineralization and it's strength as indicated by the surface and presently accessible underground workings indicates that a downward extenstion of at least several hundred feet can be reasonably be expected. A vertical range of over 200 feet is represented by present workings with no apparent change in primary tungsten content as discussed in the report by Mr. Frost attached to MF-100.

THE REQUIREMENTS AND COSTS

23. The estimated requirements and costs of the project are as follows:

(a) Labor

1. During preliminary period of headframe erection, construction of facilities and collaring the shaft.

2	Carpenters	at	$13.00 per day
3	Helpers	at	$11.00 per day
1	Truck Driver	"	$12.00 per day
2	Miners	"	$12.00 per day

2. During shaft sinking and station cutting.

1	truck driver & Misc.	$12.00 per day
2	Hoistmen	$13.00 " "
4	Shaft Miners	$15.00 " "
1	Timber Framer	$15.00 " "

3. Average daily crew during drifting and raising

1	Truck driver & Misc	$12.00 per day
2	Hoistmen	$13.00 " "
3	Miners	$12.00 " "
3	Muckers	$11.00 " "
1	Trammer	$11.00 " "

(b) Supervision of the project would be by the Manager and Superintendent of the entire operation. Cost to the project estimated as $500.00 per month.

(c) There are no existing facilities to be used by the project.

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

35 ft. Headframe and hoist house	$5,000.00
18' by 24' Change room & equipment	2,000.00
5000 gallon water storage & lines at mine	500.00
Camp water supply improvement	500.00
12 X 16 shop building	500.00
16' by 24' storage building	1,000.00
Five 12' by 16' cabins for men	3,500.00
16' by 30' boardinghouse & equipment	2,000.00
Total	$15,000.00

(e) The operator has no equipment available for the project and proposes that the necessary equipment be either bought as a part of the project or as an alternative purchased by the applicant to be used on the project at the local rental rates to be outlined under (g)

The following equipment will be required;

Item	Item	Estimated Cost
1.	315 Cu. ft. Compressor	$8,000
2	55 lb. jackhammers with hoses & oilers	700
1	Air driven sump pump	300
2	Drifters with bars, arms, columns, clamps & hoses	1,600
1	5000 lb. rope pull hoist	6,000
2	Sinking buckets	500
1	Cage	500
1	Pneumatic drill	400
1	Pneumatic saw	400
12	Mine cars	3,000
1	Drill jumbo	1,500
1	Mucking Machine	2,700
1	Gasoline engine driven blower	300
1	Pickup truck	1,800
1	1½ ton truck and water tank	4,000
1	20 Kw. generating plant	4,000
1	Mancha trammer with battery charging equi't	8,000
	Total	$43,700

(f) No direct rental of equipment from a third party is proposed.

(g) As an alternative to (e) above the operator proposed to purchase with his own funds and to when needed furnish the project the following items at the local rental rates listed

Item		Monthly rental
1	315 cu. ft. compressor	$450.
2	55 lb. jackhammers & hoses	90
1	Air driven sump pump	50
2	drifters, bars, arms, clamps, hoses & oilers	130
1	5000 lb. rope pull hoist & rope	300
2	sinking buckets	20
1	Cage	60
1	Pneumatic drill	15
1	Pneumatic saw	20
12	Mine cars	180
1	Drill jumbo	120
1	Mucking Machine & hose	170
1	Gasoline engine blower	20
1	Pickup truck	105
1	1½ton truck and water tank	160
1	20 Kw. generating plant	125
1	Mancha trammer & battery charging equipment	250

(h) Cost of materials and Supplies

1. Cost of materials and supplies to be used under (d) above for facilities and structures	$8,000.00
2. Shaft and station timber, hanging rods, wedges, etc.	5,300.00
3. Steel, tools, bits carbide etc.	10,000.00
4. Powder fuse and caps	7,200.00
Total	$30,500.00

(i) There are no known items not provided for above.

23.. Summary:

The following would be the estimated cost of the project if all equipment is bought as a part of the project:

(a)	Labor	$58,000.00
(b)	Supervision	9,000.00
(c)	None	
(d)	Labor included in (a) & supplies in (H)	
(e)	Equipment	43,700.00
(f)	Not applicable	
(g)	Not applicable	
(h)	Cost of Materials and supplies	30,500.00
	Total	$141,200.00
	Less estimated salvage at conclusion of work	$21,200.00
	Estimated cost of project	$120,000.00

The following would be the estimated cost of the project if the operator furnishes to it all the equipment listed abovewhen needed at the rental rates listed:

(a)	Labor	$58,000.00
(b)	Supervision	9,000.00
(c)	None	
(d)	Included in (a) and (h)	
(e)	Equipment rented	
(f)	Not applicable	
(g)	Rental of equipment to be purchased and used at rental rates by the project	26,500.00
(h)	Materials and Supplies	30,500.00
	Total	$124,000.00
	Less estimated salvage of building and structures	4,000.00
	Estimated cost of project	$120,000.00

24. Time Sechedule:

The following is the estimated time schedule and money requirements for the project.

1. First five months to obtain equipment, complete facilities, erect headframe and start sinking.

Cost of headframe & facilities(including $8,000.00 labor	$15,000.00
equipment purchases	23,100.00
Supervision	2,000.00
Steel, Bits, tools, etc.	4,000.00
Total	$44,100.00

2. Next 3 months to complete shaft sinking and cut stations at the 100 and 200 ft. levels

Labor	$10,400.00
Timber	5,300.00
Supplies and powder	4,000.00
Equipment	20,600.00
Supervision	1,500.00
Total	$41,800.00

3. Next 3 months to complete 700 feet of drifting and 100 feet of raising

Labor	$10,000.00
Supplies & Powder	3,500.00
Supervision	1,500.00
Total	$15,000.00

4. Next 3 months to complete 600 feet of drifting and 200 feet of raising

Labor	$10,000.00
Supplies and Powder	3,500.00
Supervision	1,500.00
Total	$15,000.00

5. Next 3 months to complete 600 feet of drifting and 200 feet of raising

	Labor	$10,000.00
	Supplies and Powder	3,500.00
	Supervision	1,500.00
	Total	$15,000.00
6.	Next 3 months to complete the project	
	Labor	$6,100.00
	Supplies and Powder	2,700.00
	Supervision	1,500.00
	Total	$10,300.00
	Estimated salvage at end of project	($21,200.00) (credit)

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.

E.A. Scholz and J. H. Cazier

by. J. H. Cazier
Partner

June 18, 1951

Box 248
Bagdad, Arizona
April 30, 1951

Dr. James Boyd
Defense Minerals Administrator
Department of the Interior
Washington 25 D.C.

Dear Doctor Boyd:

We are enclosing an application for an Access Road to the Black Pearl Mine in Yavapai County Arizona. As supporting data you will also find copies of reports on the property by Mr. Darlow W. Phelps and Mr. J.E. Frost and a print of a map by Mr. Lorer Wood.

We are of the opinion that the United States Geological Survey, also has a file on this property which should substantiate the enclosed reports as to the ore now blocked out and its excellent development possibilities. Mr. J. E. Frost, the author of one of the enclosed reports, was for several years the Engineer in Charge of the Reconstruction Finance Corporation Mining Section office in El Paso, Texas.

We have completed rehabilitation of the main tunnel on the property and are now driving a raise preparatory to mining. The Hillside Mining and Milling Co. is rapidly preparing to handle tungsten ores and will be ready to accept shipments by the first of June. Provided the road is completed the Black Pearl dump ores are scheduled to be the first tungsten ore treated by them. By the time the dump ore run is completed a substantial production from the mine should be available to assure a continued and regular production from the property. However without the proposed road no tungsten production or extensive development of the property can be expected.

Mr. E. A. Scholz, one of the applicants was employed by the U.S. Geological Survey, Geologic Branch from 1942 to 1945 inclusive, and at present is Manager of the Copper King Lease being operated by the applicants. Mr. J. M. Cazier was employed by the Mining Section of the Reconstruction Finance Corporation for several years and is now General Superintendent of Bagdad Copper Corporation. Both are in their late thirties and have had substantial responsibilities and operating experience and are financially able to bring the property into production providing an access road is built to the property.

With the amount of information given regarding the property and applicants, and your probably quite adequate sources of additional information it is our hope that this application for an access road can be approved without undue delay.

We will most assuredly appreciate your careful and prompt consideration of this application.

Very truly yours,

E.A. Scholz

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Administration

Form MP 105 Docket No. AR 18

APPLICATION FOR ACCESS ROAD

1. Location of Project: State Arizona County Yavapai Mining District Eureka, Nearest Town Bagdad- the mine is now accessible only by way of Prescott and Camp Wood the last 8 miles of that road is very poor and impassable when wet.

2. Name of Mine: The Black Pearl Mine approximately midway on an air line between Bagdad and Camp Wood, Arizona

3. Principal Metal or Minerals Produced: Tungsten as Wolframite

4. Subordinate metals or Minerals: Pyrite

5. Present average daily production: Rehabilitation and development only. A road is necessary for larger scale development or economic production.

6. Estimated future average daily production: 100 tons of ore per day from which an estimated 60 units of WO3 would be recovered.

7. Estimated ore reserves or life of the mine:

Available dumps	6,000 tons at	.44%WO3
Measured ore	7,000 tons at	.78%WO3
Indicated ore	70,000 tons at	.78%WO3
Inferred ore	500,000 tons at	.78%WO3

The life of the mine is conservatively estimated at 10 years with a good possibility of a life of 20 years.

8. Access Road Requested: Approximately 7 miles of new road from the Boulder Creek crossing at Wild Horse Basin in Section 33 Township 15 North Range 8 West to the Black Pearl Mine in Section 18 Township 15 North Range 7 West. Due to the amount of work required to build a direct road from Wild Horse Basin to the mine, it is believed that the route shown on the enclosed map of the Bagdad Quadrangle affords the cheapest and most practical haulage road to the mine since very little rock in place would be encountered. Some improvement of several short sections of the four miles of road(CCC constructed) from Bridle Creek to Wild Horse Basin would be advisable.

Black Pearl ore would then be hauled approximately 19 miles to the Hillside Mining and Milling Co. mill at the Hillside Mine for custom milling. This is the only available custom mill and logical market for this ore. Hillside Arizona would be the closest rail shipping point approximately 35 miles from the mine.

9. Number and Type of Trucks: Hauling would be by a contract carrier now operating in the Bagdad District. Five-twenty ton loads per day would be hauled. The mine crews would commute between the mine and Bagdad and supplies would be transported over this road.

10. The proposed road is completely new and through a presently inaccessible area and is not under the jurisdiction of any Federal, State or County Agency.

11. No application has been made for a loan on this mining operation.

12. Hillside Mining and Milling Co. has applied for and we understand is being made a purchase depot for tungsten ores from this district with a five year guaranteed floor on the price and the provision that this guarantee be passed on to the various producers of the district.

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

E. A. Scholz and J. H. Cazier (a partnership)

By_____
E.A. Scholz

_____
J. H. Cazier

Bagdad, Arizona

April 30, 1951

Box 248
Bagdad, Arizona
April 30, 1951

Dr. James Boyd
Defense Minerals Administrator
Department of the Interior
Washington 25 D.C.

Dear Doctor Boyd:

We are enclosing an application for an Access Road to the Black Pearl Mine in Yavapai County Arizona. As supporting data you will also find copies of reports on the property by Mr. Harlow A. Phelps and Mr. J.P. Frost and a print of a map by Mr. Robert Wood.

We are of the opinion that the United States Geological Survey also has a file on this property which should substantiate the enclosed reports as to the ore now blocked out and its excellent development possibilities. Mr. J. P. Frost, the author of one of the enclosed reports, was for several years the Engineer in Charge of the Reconstruction Finance Corporation Mining Section office in El Paso, Texas.

We have completed rehabilitation of the main tunnel on the property and are now driving a raise preparatory to mining. The Hillside Mining and Milling Co. is rapidly preparing to handle tungsten ores and will be ready to accept shipments by the First of June. Provided the road is completed the Black Pearl dump ores are scheduled to be the first tungsten ore treated by them. By the time the dump ore run is completed a substantial production from the mine should be available to assure a continued and regular production from the property. However without the proposed road no tungsten production or extensive development of the property can be expected.

Mr. E. A. Scholz, one of the applicants was employed by the U.S. Geological Survey, Geologic Branch from 1942 to 1945 inclusive, and at present is Manager of the Copper King Lease being operated by the applicants. Mr. J. L. Cazier was employed by the Mining Section of the Reconstruction Finance Corporation for several years and is now General Superintendent of Bagdad Copper Corporation. Both are in their late thirties and have had substantial responsibilities and operating experience and are financially able to bring the property into production providing an access road is built to the property.

With the amount of information given regarding the property and applicants, and your probably quite adequate sources of additional information it is our hope that this application for an access road can be approved without undue delay.

We will most assuredly appreciate your careful and prompt consideration of this application.

Very truly yours,

E.A. Scholz

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Administration

Form MP 105 Docket No. AR 18

APPLICATION FOR ACCESS ROAD

1. Location of Project: State Arizona County Yavapai Mining District Eureka, Nearest Town Bagdad- the mine is now accessible only by way of Prescott and Camp Wood the last 8 miles of that road is very poor and impassable when wet.

2. Name of Mine: The Black Pearl Mine approximately midway on an air line between Bagdad and Camp Wood, Arizona

3. Principal Metal or Minerals Produced: Tungsten as Wolframite

4. Subordinate metals or Minerals: Pyrite

5. Present average daily production: Rehabilitation and development only. A road is necessary for larger scale development or economic production.

6. Estimated future average daily production: 100 tons of ore per day from which an estimated 60 units of WO3 would be recovered.

7. Estimated ore reserves or life of the mine:

Available dumps	6,000 tons at	.44%WO3
Measured ore	7,000 tons at	.78%WO3
Indicated ore	70,000 tons at	.78%WO3
Inferred ore	500,000 tons at	.78%WO3

The life of the mine is conservatively estimated at 10 years with a good possibility of a life of 20 years.

8. Access Road Requested: Approximately 7 miles of new road from the Boulder Creek crossing at Wild Horse Basin in Section 33 Township 15 North Range 8 West to the Black Pearl Mine in Section 18 Township 15 North Range 7 West. Due to the amount of work required to build a direct road from Wild Horse Basin to the mine, it is believed that the route shown on the enclosed map of the Bagdad Quadrangle affords the cheapest and most practical haulage road to the mine since very little rock in place would be encountered. Some improvement of several short sections of the four miles of road(CCC constructed) from Bridle Creek to Wild Horse Basin would be advisable.

Black Pearl ore would then be hauled approximately 19 miles to the Hillside Mining and Milling Co. mill at the Hillside Mine for custom milling. This is the only available custom mill and logical market for this ore. Hillside Arizona would be the closest rail shipping point approximately 35 miles from the mine.

9. Number and Type of Trucks: Hauling would be by a contract carrier now operating in the Bagdad District. Five-twenty ton loads per day would be hauled. The mine crews would commute between the mine and Bagdad and supplies would be transported over this road.

10. The proposed road is completely new and through a presently inaccessible area and is not under the jurisdiction of any Federal, State or County Agency.

11. No application has been made for a loan on this mining operation.

12. Hillside Mining and Milling Co. has applied for and we understand is being made a purchase depot for tungsten ores from this district with a five year guaranteed floor on the price and the provision that this guarantee be passed on to the various producers of the district.

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

E. A. Scholz and J. H. Cazier (a partnership)

By_____
E.A. Scholz

_____
J. H. Cazier

Bagdad, Arizona

April 30, 1951

level.

THE PROPERTY

10. (a) The proposed work will be performed on the Blakk Pearl No. 1 and Black Pearl No. 2 Patented Lode Mining Claims(Miner al Survey 4186) (U.S. Patent No. 1102913), Eureka Mining District, Yavapai County, Arizona. Section 18, Township 15 North Range 7 West.

(b) It is proposed to explore by shaft sinking, drifting and raising the following area, described with reference to the attached sketch section prepared by Casier in June 1951: " That area on the course of the Black Pearl Vein between 30 and 2050 East and between the 200 level of the proposed shaft at elevation 5440 and the elevation of the floor of the present adit at elevation 5640.

15. Application has been made to build a 7 mile access road so that the ore can be hauled 17 miles to the Hillside Mining and Milling Co. Mill near Bagdad, Arizona for custom milling. E.J. Diekie has trucks in the area hauling ore to the mill from other properties and would haul the Black Pearl ore. If the Access Road is not approved the applicants intend to build the necessary road themselves.

19. See MF-100 for reports etc.
The applicants plan to develop and mine ore from above the main adit level while carrying out the proposed exploration program. Production of ore from the block to be explored will begin as soon as mining can be done without interfering with the exploration program, which would probably be about the end of the first year of that program.

It is believed that there will be sufficient labor available locally to complete the project particularly if draft exemptions are available.

THE EXPLORATION

20. A vein deposit of Wolframite(tungsten) is to be explored

21. It is proposed that a 220 foot vertical two compartment shaft be sunk and that the following development work be performed from that shaft;

1. Cutting a station at the 100 ft. level and crosscutting 60 feet to the vein at that level.
2. Cutting a station at the 200 level and crosscutting 100 feet to the vein at that level.
3. Performing 400 feet of drifting westerly and 1600 feet of drifting easterly on the vein on the 200 level.
4. Driving four 200 foot raises on the vein from the 200 level to the elevation of and probable extension of the present main adit.

It is estimated that the above project will be completed within two years from the date of the contract.

22. The tungsten bearing vein has been worked at the surface and by shallow surface workings for a distance of 2000 feet. It can be followed for a much greater distance with some showing of tungsten minteralization. The amounts of wolframite extracted from the surface workings were carefully recorded by Mr. Homer Wood and are shown on his section as a part of MF-100 while the grade of the ore in the main adit was established and discussed by reports by Frost and Phelps attached to form MF-100. The western 300 feet of the area to be explored is covered by dumps and wash to such a depth as to make present surface exploration there impractical. One surface pit indicates the persistance of tungsten mineralization on the surface to the west at

least as far as the end of the proposed exploration. The grade of the tungsten mineralization established by the reports attached to form MF-100 is commercial at the present or considerably lower tungsten prices.

The persistance of the commercial tungsten mineralization and it's strength as indicated by the surface and presently accessible underground workings indicates that a downward extenstion of at least several hundred feet can be reasonably be expected. A vertical range of over 200 feet is represented by present workings with no apparent change in primary tungsten content as discussed in the report by Mr. Frost attached to MF-100.

THE REQUIREMENTS AND COSTS

23. The estimated requirements and costs of the project are as follows:

(a) Labor

1. During preliminary period of headframe erection, construction of facilities and collaring the shaft.

2	Carpenters	at	$13.00 per day
3	Helpers	at	$11.00 per day
1	Truck Driver	"	$12.00 per day
2	Miners	"	$12.00 per day

2. During shaft sinking and station cutting.

1	truck driver & Misc.	$12.00 per day
2	Hoistmen	$13.00 " "
4	Shaft Miners	$15.00 " "
1	Timber Framer	$15.00 " "

3. Average daily crew during drifting and raising

1	Truck driver & Misc	$12.00 per day
2	Hoistmen	$13.00 " "
3	Miners	$12.00 " "
3	Muckers	$11.00 " "
1	Trammer	$11.00 " "

(b) Supervision of the project would be by the Manager and Superintendent of the entire operation. Cost to the project estimated as $500.00 per month.

(c) There are no existing facilities to be used by the project.

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

35 ft. Headframe and hoist house	$5,000.00
18' by 24' Change room & equipment	2,000.00
5000 gallon water storage & lines at mine	500.00
Camp water supply improvement	500.00
12 X 16 shop building	500.00
16' by 24' storage building	1,000.00
Five 12' by 16' cabins for men	3,500.00
16' by 30' boardinghouse & equip ent	2,000.00
Total	$15,000.00

(e) The operator has no equipment available for the project and proposes that the necessary equipment be either bought as a part of the project or as an alternative purchased by the applicant to be used on the project at the local rental rates to be outlined under (g)

The following equipment will be required;

Item

Item	Estimated Cost
1. 315 Cu. ft. Compressor	$8,000
2 55 lb. jackhammers with hoses & oilers	700
1 Air driven sump pump	300
2 Drifters with bars, arms, columns, clamps & hoses	1,600
1 5000 lb. rope pull hoist	6,000
2 Sinking buckets	500
1 Cage	500
1 Pneumatic drill	400
1 Pneumatic saw	400
12 Mine cars	3,000
1 Drill jumbo	1,500
1 Mucking Machine	2,700
1 Gasoline engine driven blower	300
1 Pickup truck	1,800
1 1½ ton truck and water tank	4,000
1 20 Kw. generating plant	4,000
1 Mancha trammer with battery charging equi't	8,000
Total	$43,700

(f) No direct rental of equipment from a third party is proposed.

(g) As an alternative to (e) above the operator proposed to purchase with his own funds and to when needed furnish the project the following items at the local rental rates listed

Item	Monthly rental
1 315 cu. ft. compressor	$450.
2 55 lb. jackhammers & hoses	90
1 Air driven sump pump	50
2 drifters, bars, arms, clamps, hoses & oilers	130
1 5000 lb. rope pull hoist & rope	300
2 sinking buckets	20
1 Cage	60
1 Pneumatic drill	15
1 Pneumatic saw	20
12 Mine cars	180
1 Drill jumbo	120
1 Mucking Machine & hose	170
1 Gasoline engine blower	20
1 Pickup truck	105
1 1½ton truck and water tank	160
1 20 Kw. generating plant	125
1 Mancha trammer & battery charging equipment	250

(h) Cost of materials and Supplies

1. Cost of materials and supplies to be used under (d) above for facilities and structures	$8,000.00
2. Shaft and station timber, hanging rods, wedges, etc.	5,300.00
3. Steel, tools, bits carbide etc.	10,000.00
4. Powder fuse and caps	7,200.00
Total	$30,500.00

(i) There are no known items not provided for above.

23.. Summary:

The following would be the estimated cost of the project if all equipment is bought as a part of the project:

(a)	Labor	$58,000.00
(b)	Supervision	9,000.00
(c)	None	
(d)	Labor included in (a) & supplies in (H)	
(e)	Equipment	43,700.00
(f)	Not applicable	
(g)	Not applicable	
(h)	Cost of Materials and supplies	30,500.00
	Total	$141,200.00
	Less estimated salvage at conclusion of work	$21,200.00
	Estimated cost of project	$120,000.00

The following would be the estimated cost of the project if the operator furnishes to it all the equipment listed abovewhen needed at the rental rates listed:

(a)	Labor	$58,000.00
(b)	Supervision	9,000.00
(c)	None	
(d)	Included in (a) and (h)	
(e)	Equipment rented	
(f)	Not applicable	
(g)	Rental of equipment to be purchased and used at rental rates by the project	26,500.00
(h)	Materials and Supplies	30,500.00
	Total	$124,000.00
	Less estimated salvage of building and structures	4,000.00
	Estimated cost of project	$120,000.00

24. Time Schedule:

The following is the estimated time schedule and money requirements for the project.

1. First five months to obtain equipment, complete facilities, erect headframe and start sinking.

Cost of headframe & facilities(including $8,000.00 labor	$15,000.00
equipment purchases	23,100.00
Supervision	2,000.00
Steel, Bits, tools, etc.	4,000.00
Total	$44,100.00

2. Next 3 months to complete shaft sinking and cut stations at the 100 and 200 ft. levels

Labor	$10,400.00
Timber	5,300.00
Supplies and powder	4,000.00
Equipment	20,600.00
Supervision	1,500.00
Total	$41,800.00

3. Next 3 months to complete 700 feet of drifting and 100 feet of raising

Labor	$10,000.00
Supplies & Powder	3,500.00
Supervision	1,500.00
Total	$15,000.00

4. Next 3 months to complete 600 feet of drifting and 200 feet of raising

Labor	$10,000.00
Supplies and Powder	3,500.00
Supervision	1,500.00
Total	$15,000.00

5. Next 3 months to complete 600 feet of drifting and 200 feet of raising

	Labor	$10,000.00
	Supplies and Powder	3,500.00
	Supervision	1,500.00
	Total	$15,000.00
6.	Next 3 months to complete the project	
	Labor	$6,100.00
	Supplies and Powder	2,700.00
	Supervision	1,500.00
	Total	$10,300.00
	Estimated salvage at end of project	($21,200.00) (credit)

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.

E.A. Scholz and J. H. Cazier

by. J. H. Cazier
Partner

June 18, 1951

level. The proposed program and estimated cost is summarized therefore as follows:

Shaft sinking 220 feet	$29,000.00	$132.00
60 ft. crosscut and station at 100 level	2,000.00	33.00
100 ft. crosscut and station at 200 level	3,000.00	30.00
2000 ft. of drifting on 200 level	50,000.00	25.00
Four raises from the 200 level-800'	16,000.00	20.00
Contingencies	5,000.00	
Total	$105,000.00	

11. Fixtures and Improvements:

It is proposed that the following fixtures and improvements be installed as a part of the program.

35 ft. wooden headframe and hoist house	$5,000.00
18' by 24' change room and equipment	2,000.00
1500 gal water storage tank	500.00
Camp water supply improvement	500.00
Shop building 12' by 16'	500.00
Storage building 16' by 24'	1,000.00
Five 12' by 16' cabins	3,500.00
16' by 30' boardinghouse with equipment	2,000.00
Total	$15,000.00

12. Equipment

The applicant now owns or agrees to furnish as needed the following equipment to be used under the proposed project on a rental basis:

Item		Monthly rental per unit
1	315 cubic ft. compressor	$450.00
2	55 pound jackhammers with hoses and oilers	45.00
1	air driven sump pump	50.00
2	drifters with bar, arm, clamp, hose and oilers	65.00
1	5000 lb. rope pull hoist & rope	300.00
2	sinking buckets	10.00
1	Cage	60.00
1	Pneumatic drill	15.00
1	Pneumatic saw	20.00
12	mine cars	15.00
1	drill jumbo	120.00
1	mucking machine & hose	170.00
1	gasoline engine driven blower	20.00
1	Pickup truck	185.00
1	1½ tons truck & water tank	160.00
1	20 k.w. generating plant	125.00
1	Ranchs trammer with battery charging equipment	250.00
	Miscellaneous wrenches bars, and other small tools	100.00

It is proposed that necessary steel, bits, shovels, axes, picks, pipe, rail, timber, spikes, hanging rods, nails, ventilation tubing, and other items not listed above be purchased as operating supplies required for the project.

12: Area to be Developed:

The applicants expect through their operations simultaneously with the proposed project to drive the tunnel nearly to the east limit of the best mineralization and to mine the first 100 feet below the tunnel level as far east as the face of the present tunnel. The block of ore to be developed by the project would then be between the present east face of the tunnel and the vertical upward projection of the east end of the proposed 200 level drift face and between the tunnel elevation and the elevation of the tunnel level. This block would be 1040 feet long and 200 feet high. The second area to be considered as developed by the project would be between the 100 and 200 levels and bounded on the east by the vertical downward projection of the tunnel face and on the west by the upward projection of the face of the proposed west drift This block would be 960 feet long and 100 feet high. The ore to be developed at an estimated average mining width of 3½ feet would be 85,000 tons.

13; Financial Requirements:

Cost of development(including equipment rental)		$105,000.00
Fixtures and improvements		15,000.00
	Total	$120,000.00

Estimated royalty return:

.78% ore at 85% recovery and at $60.00/unit W03	$39.78	
Less hauling & milling	9.00	
	$30.78	
5% of above X 85,000 tons		$130,900.00

J A Cazier

Form MF-100

M7100

U.S. DEPARTMENT OF THE INTERIOR
Defense Minerals Administration

General technical data for use under the Defense Production Act of 1950	Docket No_____ Date Received_____

E.A. Scholz and J. H. Cazier (a partnership)
Bagdad, Arizona

Black Pearl Mine

May 27, 1951

GENERAL TECHNICAL DATA

1. Materials Produced
   (a) Tungsten as Wolframite
   (b) No important byproducts. Pyrite might be produced. Traces of beryl, bismuth, tin and molybdenum are found.

2. Name and Description of Property:
   (a) The Blakk Pearl Mine
   Approximately 200 ft. of prospect shafts were sunk on the property however none are presently accessible.
   (b) Approximately 950 feet of drifts and crosscuts were driven. most of this represents numerous surface drifts now caved.
   (c) One 580 ft. tunnel is now accessible for examination.

3. Location:

   (a) The mine is 60 miles from Prescott the nearest town and shipping point. The last 14 miles of road between Camp Wood and the mine needs considerable improvements before trucks of any sizecould haul ore and supplies. Present plans call for the building of 6½ miles of new road south from the minemaking the Hillside Mining and Milling Co. mill available for concentration of the ore. The haulage road distance between the mine and mill would be sixteen or seventeen miles and would be over an all weather road as compared to the Camp Wood road that is impassible when wet or in case of snow. The distance from the mine to Hillside Arizona the nearest rail point would then be 36 miles. The community of Bagdad would then be about 12 miles from the mine.
   (b) Eureka Mining District
   (c) Sections 7 and 18 Township 15 North Range 7 West.
   (d) Yavapai County, Arizona

4. Operation
   (a) The property is now being developed by us
   (b) Operating under a Lease and Option to Purchase which expires in May 1959.

5. The earliest production credited to the property was in 1916. Only intermittant production from the property has been possible in the past due to its inaccessibility and lack of sufficient water close to the ore deposit to encourage a mill installation.
Present plans for development of the property will make it possible to begin ore production as soon as the road(see 3(a)) can be constructed.

6. Operators.

E. A. Scholz:
B.S. In Geological Engineering, Montana School of Mines
Geologist, Glacier Production Co. Cut Bank Montana 1941-1942
Geologist, U.S. Geological Survey, Washington D.C. 1942-1945
Geologist in Charge of exploration & development, Martin Brothers Inc. Butte Montana 1945-1946
General Manager, Ruby Gulch Mining Co. Zortman, Mont. 1946-1948
General Supt. Hillside Mining and Milling Co. Bagdad Ariz. 1948-1950
Partner in Charge, Copper King Lease, Bagdad, Ariz. 1950 to date.

J. H. Casier:
B.S. In Mining Engineering, University of Nevada
Various positions in Exploration and Operation Dept. International Smelting and Refining Co. Salt Lake City, Utah 1935-1940
Asst. General Supt. Lexington Mining Co. Neihart Mont. 1941
General Supt. Callahan Consolidated Mines Inc. Wallace Ida. 1942
Supervising Engineer RFC Salt Lake and Phoenix 1943-1948
Military Leave, Lieut(jg) and Lieut. U.S.N.R. 1944-1946
General Supt. Goodwin Mining Co., Bagdad, Arizona 1949
General Supt. Bagdad Copper Corp. Bagdad, Arizona Aug. 1949 to date.

7. History:

(a) Tungsten and silver mineralization were discovered at the Black Pearl property in 1914. No shipping grade silver ore was discovered but high prices for tungsten during World War I spurred search for this mineral and an appreciable quantity of acceptable grade wolframite was produced by hand sorting, residual placers and ore from shallow workings and the vein outcrop. All work done at the property was with the intent of finding a few more wolframite crystals with the exception of a sampling program carried out by Mr. Harlow D. Phelps in 1936.

The property has been essentially inactive since 1936. The present operators began work on the property in March 1951.

Total production from the property has been 65,000 pounds of wolframite concentrate averaging 70% WO_3. No penalties were charged against shipments.

The remote location, inaccessability by road, lack of water, lack of an assured market, lack of adequate financing and cost of placing the property in production have all been contributing factors in retarding development of a successful mining venture at the property.

(b) There are a number of other tungsten claims in the area although none of them have been as extensively developed as the Black Pearl mine and are not reported to be of as great merit. The factors listed above that have deterred development of the Pearl have had a similar effect on the other properties.

(c) Enclosed herewith are reports by Harlow D. Phelps and J.F. Frost.

8. Officers:

S. A. Scholz, Box 186 Bagdad, Arizona
J. H. Cazier, Box 248 Bagdad, Arizona
A partnership

9. Not applicable:

10. Production

Total production from 1916 to date has been approximately 65,000 pounds of sorted ore and concentrate assaying 70% WO3. There was undoubtably some unreported production in addition to this. There was no production from the property in 1948, 1949 or 1950

11. Expected Production:

2500 tons of ore per month which would yield 1500 units of WO3

12. Ore or Mineral Reserves

(a) The Black Pearl Tungsten deposit is in an area of coarse grained granite abounding in pegmatitic phases. The vein is a strong quartz vein averaging between three and four feet in width over an outcrop length of more than 2000 feet. With the exception of one short section this entire length has been mined to shallow depths. The vein dips between 70 and 80 degrees to the South and trends North 76° West. The ore mineral is wolframite while the principal gangue minerals are quartz and pyrite. Traces of tin, molybdenite, beryl, bismuth and silver have been found. See the enclosed reports for additional data.

(b) Estimated ore reserves

Available dumps	6,000 tons at	.44% WO3
Measured ore	7,000 tons at	.78% WO3
Indicated ore	70,000 tons at	.78% WO3
Inferred ore	500,000 tons at	.78% WO3

13. Access Roads:

Application has been made for an access road. The necessity for this road is covered more adequately in that application and in 3(a) above. Mine crews would live in Bagdad the nearest supply point.

14. Water Supply:

Sufficient water for mining is available at Bear Flat from wells. Additional water could be obtained from Boulder Creek one mile from the mine.

15. Power:

Internal combustion engines will be used.

16. Labor:

Two miners are at present employed. Present production plans call for a crew of thirty men for a daily output of 100 tons of ore.

17. Equipment and Facilities:

The present facilities are inadequate for the full scale mining operation. No important equipment is available for this operation.

18. The construction of six to eight miles of road will make the mine accessible to Bagdad as a residence and supply center and to the Hillside custom mill. A minimum of new equipment and limited amount

of capital investment can make the Black Pearl a substantial producer from the start and should result in a continuing successful operation.

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.

E.A. Scholz and J.H.Cazier

By E.A. Scholz
E.A. Scholz

May 27, 1951

Partner

REPORT OF THE BLACK PEARL
TUNGSTEN MINE
YAVAPAI COUNTY, ARIZONA

Foreword:

The purpose of this report is to present as briefly as possible, the information and data I have acquired as the result of my study and examination of the Black Pearl property which with the tunnel sampling extended over a period of several months; included are the results and deductions therefrom.

The sampling was partly under my direction. The surveying done for the map of the tunnel and profile was done by me as was the patent survey. In fact, it was while making the patent survey that I first became interested in the property, and thought of its possibilities.

I have not, in this report undertaken to recommend or to outline a method of mining and development or to estimate what this cost might be. There are many factors entering into these questions and entail more study and investigation than I felt like giving the matter at this time.

There are difficulties to be overcome and problems to work out, particularly in regard to the method of mining and the development of water. But they are not beyond the ability of good miners and engineers to solve.

Summary and Conclusion:

The main vein of the Black Pearl is an unusual and promising occurrence of Wolframite (Tungsten) having a strong and well defined outcrop, averaging 3 feet wide and 2000 feet long. A 560 foot tunnel with an estimated 8000 tons of ore developed has an average assay of from 0.7 to 0.9 WO_3 with an approximate net value of $56,000.

Probable ore, - ore indicated between the outcrop and a level 40' below the present tunnel level has approximately 72,000 tons with a net value of approximately half a million dollars.

The owners and lessors from 1915 to 1933 have mined and shipped 62,000 pounds of tungsten having the remarkable average of 70% WO_3 by hand sorting. Most of this came from shallow workings all along the outcrop. This ore was mined and sorted by hand and packed down the mountain.

It is an interesting fact that no capital has ever been put into the property. Roads, trail, buildings, tunnels etc. have all been financed from the sale of Tungsten; with, I understand, a good profit left for the owners.

The market for Tungsten has been steadily increasing for the past 4 years to the present price of $20.00 per unit. A unit being 20 pounds or 1/100 of a ton for a standard content of Tungstic acid--60% WO_3. If the supply from China should be cut off Tungsten would command a high price in this country. While considerable Molybdenum is being used as alloy in the manufacture of steel it does not take the place of Tungsten for high speed tool steel.

Because of the purety of its wolframite the Black Pearl product, I understand, can be sold at a premium direct to steel companies, under contract, rather than to ore buyers.

The bein shows not only unusual length but a remarkable persistence in width throughout its entire length. The geological indications and mineral associations are favorable as are in the physical indications.

The mystery is that the property has not been snapped up before now. The answer to that is--1/2 of the ownership has repeatedly refused to sign up with anyone under any conditions.

I believe the Black Pearl property os one of unusual merit with real possibilities

and that it may develop into one of the greatest tungsten mines of this county if it is properly handled.

General Information:

The Black Pearl property consists of 11 patented and 5 unpatented lode claims,--Mineral Survey No. 4186--located in the Eureka Mining District, covering parts of Section 7, 8, 12, 13 & 18, T 15 N R 7 & 8 W, Yavapai County, Arizona. It consists of the Black Pearl and North Side groups as shown on the claim map included with this report.

The mine is located 57 miles via the Williamson Valley and Camp Wood road, in a northwesterly direction from Prescott. At 25 miles from Prescott the road turns left and westerly onto the Camp Wood Road and in 15 miles is within the pine forest of the Camp Wood country. At mile 46.5 the Tungsten Mine road leads southerly from the Camp Wood Road. Thus far the road is very good, negotiable easily in two hours. The road from here on is over a winding ungraded and unsurfaced road over a "malapai" Mesa of varying grades. At mile 54 the road reaches the rim of the Mesa. Below and to the south lies Bear Flat and the head waters of Loco Creek. Farther south stands Tungsten Mountain like a sentinel rising above the surrounding country.

The present road down from the Mesa rim is very steep for a short distance, having a grade in places as high as 23%; but when the road is in good repair can be negotiated with a good car or light truck. This road could easily be carried more gradually down the side of the Mesa. It is two miles from the top of the rim to the mine camp at Bear Flat; from here it is one mile by a good trail to the main tunnel on the west slope of Tungsten Mountain. This route is generally closed by snow during a part of the winter months.

The CCC or some other alphabetical agency of the government has started a road, which if completed will come within a mile or so of the property and would join the road to Camp Wood and a saw mill. This would connect the mine with Hillside, the nearest railroad point; and is a part of the Hillside Mine road. The total distance to Hillside would probably be about 35 miles and the road would be open the year around. I understand the road has been constructed as far as Wild Horse Basin on Boulder Creek within about six miles of the mine. This, I understand would not be a difficult road to build into the property. Included with this report is a map showing the location of the mine with reference to Prescott and Hillside.

The elevation at Bear Flat is approximately the same as Prescott, one mile above sea level. The portal of the main tunnel is about 520 feet above Bear Flat or 5,8000 feet elevation. The top of the mountain is 165 feet above the portal of the tunnel or approximately 6000 feet elevation.

The regional topography is that of the irregular high mesa plateau of Basalt or "Malapai" flows, broken and distorted by earth movements and intrusions of granites, pegmatite, and other chrystalline rocks, presumably of pre-cambrain origin.

The property is located over the major part of Tungsten Mountain, which rises above the surrounding mesas. The drainage is to Boulder Creek and Loco Creek at the base of the mountain. Both creeks flow to the Santa Maria River but by quite different routes.

Mine timbers can be obtained from a saw mill off the Camp Wood road about 20 miles from the mine. Tungsten Mountain has a scanty growth of cedar and pinon.

Water for domestic use is obtained from a spring at the camp on Bear Flat. Boulder Creek has water all year, although very low during dry seasons; showing only in places as running water. There is probably a fair underground flow even during dry seasons, and I believe sufficient water can be developed for milling purposes from Boulder Creek. If it was found advisable to build the mill at the mine workings the lift would be about 650 feet; the length for a pipe line approximately 4,000 feet.

Power would have to be developed as there is no transmission line within reach of the prope rty.

The surface equipment consists of a blacksmith shop, mine track, rail and cars at the tunnel portal, two bunk houses, and a warehouse at Bear Flat.

There are no mines operating close to this property. Some work has been done on a Tungsten showing south and adjoining the Black Pearl.

The largest mines in this district are the Hillside and Bagdad, 10 to 15 miles southwest; shown on the location map included as a part of this report. The Hillside Mine, a gold mine, has been a big producer. The Bagdad is a large low grade copper deposit in the development stages. There are many other smaller properties in this section of the Eureka Mining District.

History and Ownership:

The property was located in 1914 by William Conners. Mr. Homer R. Wood and William Lawler acquired a half interest at that time. Mr. Lawler died leaving his interest to his widow and son. The present owners are : H. L. William, Joseph P. Walton, and William Stephenson, a total of ½ interest; Mary Lawler and John William Lawler, the remaining ½ interest.

The title of the property is in good shape. The government passed on that before recently issuing patent to the property.

The property has a unique history in that all expenditures have come out of the profits. No capital has ever been put into the property. The road, trail, building, small tunnel and shafts have all been financed from the sale of Tungsten, which was mined almost from the grass roots, hand drilled, sorted and shipped by pack burro down the mountain and by truck 57 miles to Prescott. Thence by rail to eastern buyers.

Mineralization and Geology:

The main vein has a length of almost 6,000 feet with Tungsten showing on the outcrop for a distance of 2,000 feet. Beginning at the shaft and the portal of the main tunnel on the west slope of the mountain, the outcrop has been opened up at intervals along its entire length, extending over the top of the mountain and down the east slope.

The profile map made by Homer R. Wood, part owner at that time, and a mining engineer of excellent reputation, gives a very graphic picture of the actual development and production from this vein. Apparently, only the surface of this remarkable deposit has been scratched. Mr. Wood's map shows a total of 62,100 pounds of Tungsten mined and shipped from 1915 to 1935, having a most unusual high content of over 70% WO3. This work was all done by hand drilling and rather crude timbering. Most of the old workings are badly caved.

The work done by the lessors is included in the profile map by Mr. Wood. Their method was to shoot very light and sort out the coarse Tungsten underground. The balance went to a sorting platform where it was cobbed and sorted.

Mr. Wood's map shows that 300 pounds of Tungsten was mined from the shaft on the north side No. 4 claim. See my claim map for location.

"1,185 pounds of Tungsten from placer" see map, came from the side slope of Tungsten Mountain as a result of erosion from the ledges.

The direction or strike of the main vein is S74° E. The dip almost vertical in places and varying from 75 to 85° S. W.

The width of the main vein varies from 1.7 to 6 feet. The measurements taken by me at accessible cuts and in the main tunnel are shown in the small profile map accompanying this report. It is not possible to give a definite average from these measurements as they could not be equally spaced. I believe that 3 feet is a conservative and fair average for the width of the main vein for a distance of 2,000 ft.

The deepest shaft according to Mr. Wood was about 65 feet. The main tunnel is now in 560 feet from the present portal; at the face it is 120 feet vertical below the surface outcrop. Ore was found 40 feet below the main tunnel in the stope off the shaft near the portal and according to Mr. Wood's profile map produced 900 pounds of Tungsten. This is therefore a depth to which ore is indicated below the present level.

Other veins found are indicated on the claim map in color, showing Tungsten at a number of other workings on the property. There is Tungsten float over a considerable area of the North slope of Tungsten Mountain. The vein system has not been fully worked out but a series of parallel veins is indicate. A half mile tunnel from the base of the mountain would cut the main vein at a depth of 500 feet below the present tunnel and would intersect other beins at lesser depth. This possibility is worth investigating more fully.

The Tungsten occurs in the form of wolframite, a tungstate of iron and manganese, black in color with a metallic luster. Hence the name Black Pearl.

The Gangue material, that is the material associated with the tungsten in the vein is largely quartz, mica, and pyrite. Veins of this type are classed as high temperature deposits, resulting from the metamorphism of the granitite and pegmatite. "Such metamorphic products when essentially consisting of quartz and mica are called "greisen"—Kemp.

Apegmatite is essentially a coarse grained granite in which the constituents have crystallized into large crystals, due to slow cooling under great heat and pressure. Associated are many rare minerals. Cassiterite or tinis mined in Goffney, South Carolina in Pegmatite; also in New South Wales, greisen in Pegmatite contains cassiterite associated with wolframite (tungsten) and molybdenite. Lindgren "Mineral Deposit," page 769.

Because of the fact that woldramite and cassiterite are commonly associated in pegmatite dykes of this character and formation, see Lindgren, (page 621-764) there is at least a possibility that cassiterite will be encountered with further development at depth.

Molybdenite is present and shows in many of the specimen samples taken. It may be practicable to recover it in the milling process.

~~Another~~ rare mineral found at one of the cuts on the outcrop was bismuthinite. As stated, a sample I took here assayed 245 oz. of silver per ton. This was at the cut shown on the claim map at the intersection with the Hematite vein.

Because of the manner in which deposits of this character were formed it is not unreasonable to assume that the veins will have considerable depth. Especially so considering the length of the outcrop and width of the bein.

<u>Sampling</u>:

The results of the sampling undertaken under the direction of Mr. Sayre and myself in 1936 are fully shown on the assay map of the main tunnel.

The tunnel had caved in places and it was necessary first to clean it out and retimber to the face—381 ft.

It was decided that the best way to sample would be to advance the tunnel a definite distance and get a uniform cut from each car. It was decided to shoot rather heavy to break any large chunks by hand while loading the car. The car was dumped into a chute with a slot in it about 3 inches wide, for the sample. This was dropped onto a sheet iron covered platform where the sample was broken to about 1 inch by hand, coned and quartered to approximately a 90 pound sample.

These "head" samples were taken to the sampling works at Prescott where they were ground to ¼ - ⅛ inches size.

At the sampler they were first ground to ¼ - ⅛ inch. Mixed by a large Jones splitter 3 times. Then cut once. Reject saved; other ½ ground in a cone pulverizer to a sand fineness. Again mixed in a Jones sampler and cut by a smaller cone sampler to about a 3 to 4 lb. sample.

The reject for the chute (that which did not drop through the slot for the samples) passed to a sorting platform where the Tungsten was cobbed and sorted. The reject from this or "tailing" was sampled by taking every 20th shovel full and this sample coned and quartered to about 90 pounds for the "tail" samples, which was sacked and run through the Prescott sampler as described for the "Head."

Lots 1 and 2 were handled this way, while lots 3 to 6 inclusive were shipped by freight direct to the assayer rather than have the expense and time of running through the Prescott sampler.

By more careful coning and quartering, the size of the samples was reduced to approximately 50 pounds each.

There were two miners and one sorter doing all the work, hand drilling, mucking, packing, and trucking to Prescott. It had taken 2½ months to sample 54 feet of tunnel—represented by 53 head samples and 24 tail samples.

It was decided to get in a portable compressor. In order to speed up the work to see more of the vein, and to get more samples, we changed the method as follows: Installed the compressor and a mounted jack hammer, increased the force to four men and a packer, changed the slot to a horizontal position in the shute, installed a small crusher to reduce the entire slot-sample to ¼ inch, mixing and cutting through a Jones sampler, or splitter.

This did not leave time for sorting. However, about 100 pounds of Tungsten was recovered from the side of the dump by the top man, when he was not busy cutting samples.

Samples of four lots, shipments Nos. 6 to 10 inclusive as shown on the tunnel sample map, were taken in this way. It represents a distance of 126 feet of the tunnel.

A copy of the assay return for all the samples included in lots 1 to 10 inclusive are a part of this report. A total of 126 samples from 180 feet of tunnel.

The sampling and work done in the tunnel showed that the walls, foot wall in particular, is soft and caved badly in places. This resulted in badly diluting the sample with waste material as is shown by the variable "numbers of cars" for the "foot advance" in the table results, on the tunnel sample map.

To correct this I measured the tunnel at regular intervals and calculated as follows: The average of all the samples, that is the foot assay value divided by the foot advance, equals 0.504% WO_3. The factor of 1.4 is the ratio of the sample width to the actual width of the vein. Which, multiplied by the average of 0.504 equals 0.705% WO_3 as the value of the vein. See tunnel assay map.

I carried this a little further with respect to the last four samples. I measured the area mined and determined the volume by using the prismoidal formula. See table at upper right hand part of tunnel sample map. This gave a result of 0.72 % WO_3.

Mr. Sayre and I arrived at a result of 0.78% WO_3 on the first eight samples as follows: See following page 12-A.

Mr. Wood calculated the total tons of ore mined to 1935 and determined the average as 0.922% WO_3. This was largely from ore closer to the surface where the iron was oxidized and little or no sulphides showing, which would give a higher per cent of WO_3 and check fairly close to the 0.784% WO_3 average of the sulphides ore in the tunnel.

The sampling indicated that the wolframite is disseminated all through the vein but that it is more highly concentrated in lense or shoots throughout the vein, and intimately associated with the quartz, pyrite and mica. Many large solid pieces of pure wolframite showing crystal faces were recovered. I have a specimen in my office which weighs 4 3/4 pounds. A large specimen was given away. Mr. Wood reports a specimen which weighed approximately 80 pounds, found wholly encased within about 8 inches of mica on one of the walls.

The sampling also shows that it is impossible to make much of a recovery by hand sorted, but that the entire vein can be mined and milled with average heads of not less than 0.7% WO_3. Many tail samples, after the Tungsten had been sorted out by hand, ran high in comparison with the corresponding head samples.

<u>Ore Deposits</u>: $\frac{560 \times 120 \times 3}{2 \times 12} = 8000$ —

The ore developed by the main tunnel 560 feet with a vertical height of 120 feet from the face of the tunnel to the surface outcrop, and width of approximately four feet would indicate at least 8,000 tons of ore partly blocked out after making an allowance for the ore already stoped out.

For the "Probable Ore," or the ore partly blocked out, I have assumed ore to

a depth of 40 feet below the present main tunnel level. The horizontal length of which is 2,000 feet and the average width as stated, I have estimated to be three feet (assuming 12 cubic feet per ton of ore in place) the total ore above a level 40 feet below the present tunnel level would be 3 x 289,000 12 = 72,250 tons. ?

The "Probable Ore" is dependent on the depth of the vein. As previously discussed under geology, indications for considerable depth are good. If the depth and lenght are equal to the showing of the outcrop, which is entirely within the realms of possibility, there is indicated an ore body of 2,000 feet long, 2,000 feet deep, and three feet wide ore the equivalent of one million tons of ore. Even with tungsten at the present price this would be a first class bonanza.

Tonnage and Value of Ore:

Ore developed--8,000 tons. Ore partly blocked out, or probable ore 72,250 tons. Possible ore, indicated by the length and width of the outcrop and the geology, 1,000,000 tons.

Using the conservative figure of 0.7% WO3 and the present quotation of tungsten of $20 a unit for 60% WO3. This is equal to $14 a ton ore. Assuming $7 as the total cost for mining, milling, development and transportation, there would be a net profit of $7 or a value as follows: Ore developed 7 x 8,000 = $56,000. Probable ore, 7 x 72,250 = $505,750. Possible ore, 7 x 1,000,000 = $7,000,000. Assuming the production of 1,000 tons a month to start, with a 50 ton mill, the ore developed would be recovered in about 8 months.

Mining:

As stated in my introduction I will not attempt to outline the method of mining. It is a matter to be worked out in a practical manner by experienced miners.

The walls caved quite badly in places in the present workings, apparently the result of surface waters and oxidation. However, I do not consider it bad enough to be a serious obstacle or an expensive one, and may correct itself entirely with greater depth below the surface. It may be found advisable to leave pillars of low grade ore for support in the stopes and these "pulled" later.

I do not anticipate any trouble from underground waters. The mountain is drained to the level of Boulder Creek, a vertical distance of 650 feet, to the indicated ground water level. In the spring there will be some surface water to take care of but this will be of little consequence as the mine is almost at the top of the mountain.

Milling:

The milling would be comparatively simple. A combination of quartz, mica, pyrite, and wolframite can be easily separated by a simple process of concentration. Coarse grinding followed by jigs, classification finer grinding, followed by tables, I think will give a very good recovery. Perhaps some provision made for molybdenum, if found in paying quantities. However, it would be advisable to have a test run by a competent metallurgist before designing a mill.

In the milling operation, I believe it will be found advisable to sort out the coarse tungsten from a short sorting belt located between the bin and the crusher. Probably the man at the bin and crusher could do this.

It may also be practical to sort out some of the large high grade pieces underground as was done by the leasers.

Market for Tungsten:

Tungsten is used largely in the steel industry and molybdenum has taken its place as an alloy in certain steels. I saw a letter from the president of one of our large steel companies stating that in his opinion nothing at present took the place of tungsten as an alloy for high speed tool steel.

The largest supply of Tungsten comes from China where it is cheaply mined by Chinese Coolies for export. If Japan should cut off this supply or if and when the source is exhausted, tungsten will command a high price in this country. During the World War it reached a little over $100 a unit or $5 a pound.

Capital Requirements:

The initial development would consist chiefly of roads, water development, a mill, power, and quarters for the men. As stated I am not prepared to make an estimate of these costs which of course, would depend on the scale of operations and development decided upon.

I would consider a 50 ton unit for a mill built so that its capacity could be doubled. Water must be developed to meet the size of the mill and other needs.

A road must be built into the property. The best route and cost is a matter of further investigation.

As there is no transmission line close enough, a power plant of some kind must be installed for pumping, mining, and milling on perhaps separate units for each.

Prescott, Arizona
February 11, 1939

Respectfully submitted,
(Signed) Harlow D. Phelps, E. M.
(Registered Professional Engineer Seal Arizona U.S.A.)

This report included the following maps and copies of assay certificates:

Maps:

The maps included with this report are as follows:

1. Location map, showing roads, etc. copied in part, from the Yavapa County Engineer's map.

2. My claim map, showing claims, tunnels, etc. with the outcrops of beins shown in color.

3. Homer Wood's profile map of the main tunnel and production from 1915 to 1935.

4. My profile map showing area from which the "Probable ore" was determined.

5. My assay map of the main tunnel.

Copy of Assay Certificate:

Included herewith is a copy made from the assay returns of all samples taken from the main tunnel car samples as described under "Sampling."

Hillside, Arizona
% Hillside Mines, Inc.,
April 30, 1938

Mr. H. L. Williams,
Present.

Dear Sir:

Given below is a preliminary report on the Black Pearl Group of Tungsten Mining Claims in Yavapai County, Arizona. The inspection of the property was made April 12 to 23 (incl.) 1938 by Mr. W. W. Stephenson and myself. Assay results and other data are not yet available, hence this "preliminary report".

Every detail (except one plat of claims that has since been amended) which has been possible to check of the work of Mr. H. H. Wood has pointed to its accuracy and correctness. Details will be given below of additional checks to be made. Consequently, data given on his drawing "Section of workings on Black Pearl Group" will be used in various calculations made herein. Only in case of marked discrepancy in average assay results (which I believe highly improbable) will the final report differ in substance from this preliminary report.

SUMMARY:

1. One very strong vein has been superficially developed on the property.
2. The shallow workings (at no point more than 70 ft. below the surface and mainly much nearer the surface) from 1900 feet of length of this one vein have produced a recorded 59 615 lb. of wolframite which contained 70% WO_3.
3. Total recorded production is 62 100 pounds.
4. Various other strong veins outcrop on the property. Wolframite can be found in several of these outcrops. None of these other veins have been developed sufficiently to determine their value.
5. Since the above recorded production, 180 ft. of drifting has been done. This drift was mainly in sulphide (FeS_2) ore and showed an average of 0.[illegible]% WO_3 and average width of 4.2 ft. The maximum depth below the outcrop was 106 ft. It is noteworthy that the average WO_3 content of the oxide ore checks very closely with the reported average WO_3 content of the sulphide ore after correcting for enrichment by subtraction of FeS_2.
6. There are no serious natural obstacles to the successful exploration, development, and exploitation of the property.
7. There is a reported possibility of finding good silver ore at some place on the property.
8. Present reserves are calculated at $67,000 net operating profit.

CONCLUSIONS:

1. The future price and market for tungsten is the greatest factor of uncertainty in my mind. If a satisfactory market at near present quotations can be expected, then:
2. The program for development which is outlined near the end of this report is strongly recommended.
3. A total capital expenditure of $200,000. will be required. Only a few thousand will be required for initial exploration. Additional amounts will be required only upon satisfactory results from the completion of each step until the entire amount will be required to place the property in satisfactory operation.
4. Based on assumptions given herein, an exceptionally profitable operation is indicated.

Drawing No. 2 shows the general location of the property. Drawing No. 1 gives the exact location and ties to legal subdivisions of land. It will be noted that there are 11 patented claims and 5 unpatented claims. Each claim is of the full size of 20.66 acres. The vein, from which practically all production to date has been obtained, is covered for a length of 6000 feet by patented claims. There are also certain showings of wolframite to the north and west of the Black Pearl Group which are not covered by the Group.

The question of title, ownership, and terms for operation and or purchase was not studied in this examination.

According to a report by Mr. Wood, the claims were located in 1914 by Mr. William Commers. It is evident from the present condition of the mine workings that operation was under the "lessee system" — whether by the owner or by actual lessees. By that is meant that the mine was not developed nor operated systematically but rather with a view of obtaining a little more tungsten with the minimum outlay of effort. If waste from sorting operation was in the way, it was thrown to the bottom of the shaft instead of hoisting it by hand. Inadequate timber was used; and so on. Such a method had one distinct advantage and one distinct disadvantage from the viewpoint of future large scale operation. The advantage is that by the nature of operation, the workings were shallow. Hence the vein was explored over a greater length than perhaps would have been the case by other methods. The disadvantage is that the value of the bein at considerable depth has never been proven, nor is there much available ore blocked out (except by drifting in 1936 and dumps).

The past production of the property is shown in detail on the attached "Section of Workings on Black Pearl Group" by H. R. Wood. At present quotations, the value would be slightly in excess of $40,000.

The Black Pearl Group is in a granite formation. Various large granite pegmatite dikes cut the granite. The veins are largely quartz with muscovite in almost pure veinlets in places. The vein material can well be designated, greisen. Numerous large vugs from which pyrite has been weathered are to be found in the oxidized zone. A carefully cut sample from an oxide dump contained 5.7% Fe: that from one sulphide dump 10.9% Fe and another sulphide dump 15.0% Fe (average sulphide 12.9% Fe). This would mean a reduction of at least 15.5% in weight by weathering of FeS2. The average of 180 feet of drift in sulphide is given as 0.784% WO3. Calculating this to the oxidized material would give 0.9[illegible]% WO3, which checks remarkably well with the 0.922 % reported by Mr. Wood. Two important conclusions can be drawn from the above:

1. Reported assays of WO3 agree exceptionally well with themselves.
2. The greatest depth yet obtained(though still very shallow) shows no trend toward a decreasing WO3 content of the original vein material.

Very few specimens were found wherein the wolframite occurred as small(10 mesh) particles in a mass of pyrite. The common mode was as pieces of wolframite in quartz or muscovite from 1/4" or 3/8" to 1 1/2". Much larger pieces are reported and I found several larger pieces in recently cased vein material.

In addition to the massive minerals mentioned above, namely: quartz, muscovite, pyrite, wolframite, numerous other minerals were found in lesser amounts. Flourite apparently worked into the joints of the granite. A few large crystals of microcline were found. A few specimens of bismuthinite(carrying 30 oz. ag.) were found in the sulphide dump. Numerous small aggregates of molybdenite were found in the sulphide dump (assays for Mo are being made). Silver assays of several hundred ounces per ton are reported but I do not know from whence they came. Gold and silver assays were made on all samples taken by myself but no commercial amounts were found in those samples.

The elevation is guessed as near 6000 feet. This indicates a more agreeable summer temperature than in the lower regions of Arizona. Also considerable snowfall is reported for some winters. Scrub oak and similar brush, pinion, juniper, and cedars cover the property. Large pines are in the vicinity of Camp Wood some 8 miles north. A sawmill is said to be operating in the pine timber. Lumber and mine timber should be readily and cheaply obtainable.

The property is connected by road with Prescott Arizona(see drawing 2). Unfortunately, there is about 3/8 of a mile of road going down into Lone Creek which has been constructed entirely too steeply—grades as steep as 11°-50'. Using a tractor it would be possible to get equipment for exploration to the property. But for satisfactory construction and operation some two miles of road would have to be built into the property. Also the road across the malpais mesas(lava flats) from the rim above Lone Creek to near Camp Wood would need to be surfaced with decomposed granite for satisfactory wet weather travel. In places the road across the mesa should be straightened and changed to the tops of the low ridges. The mesa road is probably six miles in length. In no place are exceptionally difficult mountain road building problems encountered. It is no known just how much of this road Yavapai County would construct should it be demonstrated that work on a large scale is to be done on the property.

There are three possible sources of water for milling:

1. Possibility of developing water in mine workings.
2. Loco Creek-- shown on drawing 1.--quantity doubtful
3. Boulder Creek-- some 600 feet West of Black Pearl Claim No. 8. and probably will be sufficient at all times.

The lower tunnel was caved about 100 feet from the mouth and was filled with water behind the cave. It is very desirable to have this ground timbered and the debris removed so that the 180 feet nearest the face can be sampled accurately. Sampling this 180 feet should give a valuable check on reported results and, as it is the deepest point now accessible, should give the best indicator we now have as to the prospects with depth.

As no mine workings were open for a sufficient distance to warrant systematic sampling, the program consisted of dampling some dumps, a cut across both walls of a shaft and samples from various outlying shallow workings to determine the extent of thed distribution of the tungsten. Because of teh very spotty nature of the deposit, i.e. large pieces of barren quartz and large pieces of wolframite, it was necessary to cut samples weighing from 50 lbs. to 175 lbs. then carefully break all material down to 1/8" or less before reducing the quantity of sample with a riffle. Assays have not been received to date. A further description of each sample will be made when the assays are reported.

No metallurgical tests have been made. The character of the ore would indicate that recovery on jigs should start at a rather coarse size (say 3/8"). It is quite probable that a considerable quantity of clean tailing can be discharged at such a coarse size. Middling products will have to be ground finer in stops (say to 10 or 20 mesh). The recovery methods will be jigs and tables. Flotation will probably be useful in removing pyrite from the wolframite concentrate. Should the molybdenite prove to be in paying quantities, the tails from the tungsten mill should be regrouned and floated to recover the molybdenum.

As stated in preceding paragraphs, operations at this property have not been of such a nature that an ore reserve would be created. The work done in 1936 was an exception.

The following figures are made from the data on "Section of Workings on Black Pearl Group" by H. H. Wood. Vein areas marked in green have been selected as being reasonable to assume as ore reserve of the average width and analysis, viz., 4.2 ft. wide containing 0.[illegible]% WO3. Each square on the section is 10 ft. by 20 ft. = 200 sq.ft.

106 x 200 = 21200 sq. ft.
21200 x 4.2 = 89040 cu. ft.
89040 x 12 = 7420 tons @ 0.[illegible]% WO3.

The data given on the same drawing indicate 6475 tons of dump material containing 0.4425% WO3 (0.33% recoverable at 75% recovery).

The greatest uncertainty in calculating the value of these reserves as well as calculating the possible outcome of operation of the Black Pearl Group lies in the future price of tungsten. No doubt each reader of this report will have his own ideas as to the future price of tungsten. In which case the financial outcome figures will be changed accordingly. A figure of $20.00 net per unit of WO3 is herein used. Only on theing can be said in defense of that particular figure, viz., it is slightly below present published quotations at a time when steel operations are at a low ebb and other metals are exceptionally low in price.

The question of costs is also a factor in the equation from which net profits are derived. Taking into consideration that the vein is fairly wide, dips steeply, has granite walls, and would not be certed underground, it is hoped that a fairly cheap shrinkage stope mining method can be used. Also it seems probable that considerable coarse quartz can be discarded as a clean final tailing early in the milling process, thereby making low milling costs per ton. Construction costs are assumed which will put the property into proper shape for efficient operation. The assumed basis is 100 tons per day.

Mining and development	$4.00 per ton
Milling	1.00 per ton
Overhead and taxes	2.00 " "
Total operating cost	$7.00 " "

The dump material is calculated at:

Cost to place in mill bins	$0.50 per ton
Milling	1.00 " "
Overhead	1.00 " "
Total cost dumps	$2.50 per tons

The recovery on newly mined ore is assumed to be 80%: on dumps 75%. At $20.00 net received per unit of WO3 present reserves would show the following operating profit per ton:

Present ore block 742 tons at $5.50	$40,810 Total operating profit
Dumps 6475 tons at $4.10	$26,540 " "
Total operating profit on present res.	$67,350.

Conservative business calls for sufficient ore reserves to be blocked out to refund the total capital expenditure. The following program is outlined to provide 75,000 tons of ore reserve (assuming 75% of the vein material encountered will be ore of 0.784% WO3 and with of 4.2 feet). 75,000 tons will provide slightly more than two years operation at 100 tons per day. Drawing 4 shows a proposed plan of accomplishing this development. It will be noted that this proposal leaves untouched a lot of ground to the east which can very reasonably be expected to yield ore. All ore found in this area, that below the tunnel level, and other favorable places will add to the estimated net profit from the operation. The expenditure, not including cost of equipment for this proposal would be:

Crosscut (see drawing 7) 1255 feet @$10.00	$12,500.
Drifts (see drawing 4) 1700 ft. @ $10	17,000.
Raises (see drawing 4) 700 feet @ $7.50	5,250.
Total	$34,750

Given below is a very rough estimate of total capital required to place the property on an operating basis. It should be noted that the $35,000 for development is a prepaid development charge which is included in operating costs but for which funds must be provided before operation starts. The refund of that amount is inclued in assumed "Mining and development" costs.

Power	$35,000.
Mine Development	35,000
Mill	75,000
Mining Machinery and Shop	22,500
Road (mine proportion)	10,000
Offices, bldgs., water supply	7,500
Misc1 not inclued above	15,000
Total capital necessary	$200,000
Deduct prepaid development a	35,000
Amount which net operating profit must refund	$165,000

All of the assumptions made above show a net operating profit of $412,500.00 for 75000 tons of ore. Also the purchase price of the property must come out of this amount.

The logical steps in the development and exploitation of the Black Pearl Group seem to me to be the following (see drawing 4)

A. Open the lower tunnel and carefully check the figures on the last 180 feet of drift. If these check, then proceed with:

B. Without spending any money on roads, take a portable compressor and supplies to the property with a Caterpillar tractor. Continue driving the present lower tunnel for another 600 feet (cost $6000. plus equipment). Provide sample crushing equipment to sample very carefully all material obtained from drifting operation. If the results from this work hold up to expectations, then:

C. Remove compressor and equipment also additional equipment to the crosscut tunnel site (see drawing 7), and drive the 1255 ft. crosscut tunnel. Then drive lower drifts and raises (see drawing 4). During this period run metallurgical tests, design mill, make road survey and have all details ready to go into execution as soon as "C" is completed satisfactorily.

D. Construct roads, mill, shops, power plant and other surface work necessary. prepare shutes and stopes underground.
E. Start operation and continue drifting east.

Various alternatives to the above plan have been studied. Drawing 5 offers a slightly more conservative policy but will cost more in the end.

Additional data will be given as soon as obtainable.

Respectfully submitted,

(signed)
J.F. Frost,
Engineer of Mines

Hillside, Arizona
% Hillside Mines, Inc.,
May 25, 1938

Mr. H. L. Williams,
Present

Dear Sir: Assays- Black Pearl

We have the following assay report from Chas. O. Parker & Co. of Denver, Colorado.

	WO3	MoS2
Sample No. 1	0.60%	
2	0.12%	trace
3.	0.44%	trace
4	trace	
5	trace	
6	0.80%	
7	2.54%	
8	trace	
9	trace	

Determination for molybdenum was requested on only two samples.
The descriptions of the above samples and comments follow:
No. 1. This is a sample of an oxidized ore dump at the blacksmith shop level. several cuts were taken from the sides and face of the dump after local surface concentration effects had been removed. Also several shallow pits were sunk on top. There were not many large boulders in this dump. A sample of about 175 lb. was taken and broken down to about 3/4 inch before reducing by means of a riffle. This dump is only one of many included in Mr. Wood's average of 0.44% WO3. The above assay of 0.60% WO3 merely indicates the average of 0.44% WO3. used in the calculations sounds reasonable. This is material which is the reject from hand sorting.
No. 2 This is a sample of a small sulphide ore dump. The figure of 0.12% WO3 is somewhat lower than was expected. Two possible reasons stand out:
A. It is reported that the tunnel was driven some distance in 1936 before good ore was encountered(see sample 3).
B. It is known that considerable hand sorting from these dumps has taken place, and it is reported that this particular dump was also sorted as it was made.
Nos. 3. This is a sample of the larger sulphide dump just below No. 2. It has also been sorted somewhat.).44% WO3 remaining from a reported original vein content of 0.784% WO3 is only slightly lower than should be expected. (see note at end of this report).

No. 4. This is a sample from the discovery pit on Black Pearl Claim No. 8. (see map No. 1). An inspection indicated that very little wolframite could be seen in the material now accessible. Sample No. 4 was taken to prove or disprove this point. Result was " trace"/

No. 5. This is a sample from the discovery pit on Black Pearl Claim No. 9. (See map No. 1). It was taken for the same reason that sample No. 4 was taken. It should be noted however that sufficient work was not done at the time of the examination to expose the vein properly. It is entirely possible that, were the solid vein expose properly, results higher than the reported "trace" would be obtained.

No. 6. This is a sample of some 50 lb. cut from channels of 5.9 ft. on each side of the shaft "c" (See Section of Workings on Black Pearl Group). It was taken 14 ft. below the collar of the shaft which is the lowest point now accessible. This particular spot evidently was not what the old operators considered good ore because it was left in place while the bein below and to the sides had been thoroughly "gouged out". In spite of this , however, it should be noted that 0.80% WO_3 compares well with previously reported averages.

No. 7. This is a collection of various pieces of float and old dump from North Side Claim No. 3, approximately 150 ft. north east of the 44 ft. tunnel (See map No. 1). Apparently there is another bein or possibly two veins which have not been explored. This can be considered a collection of specimens at this point which show the presence of tungsten and not as a true sample. The assay was 2.54% WO_3.

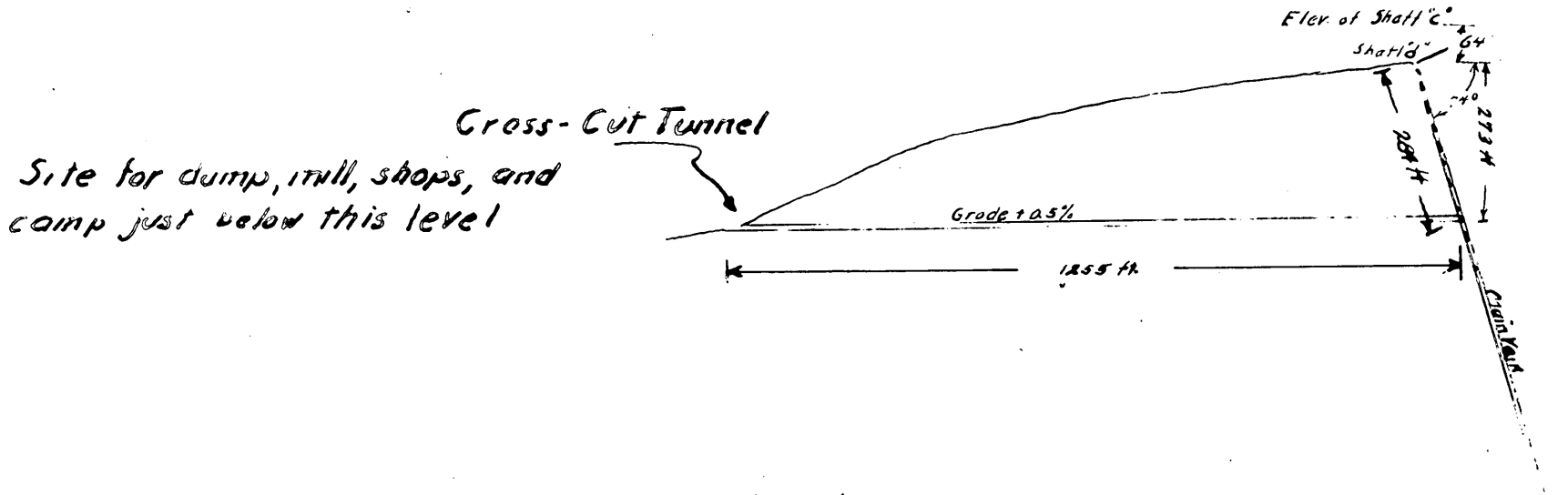
No. 8. This is a sample of 3.1 ft. of the face of the 80-ft. tunnel on North Side Claim No. 3 shown on map No. 1. The assay of "trace" probably explains why the tunnel was stopped at this point. However, wolframite can be found on the dump, so possibly this was a barren spot in a vein which had been carrying tungsten.

No. 9. This is a sample of 0.4 ft. of the face of the 44-ft. tunnel on North Side Claim No. 3. The assay was "trace". The notes regarding sample No. 8 apply to this sample also.

In conclusion I may state that these preliminary results add strength to the assumptions made in the preliminary report of April 30, 1938. Samples 1, 2, 3, and 6 are especially indicative. Step A. in the recommendations of April 30th, namely, the accurate sampling of 180 feet nearest the face of the lower tunnel is the next job to be done in the exploration of the Black Pearl Group. The vein being naturally spotty, as formerly explained, will require a quite short sampling interval to give accurate results.

Respectfully submitted,

J. F. Frost



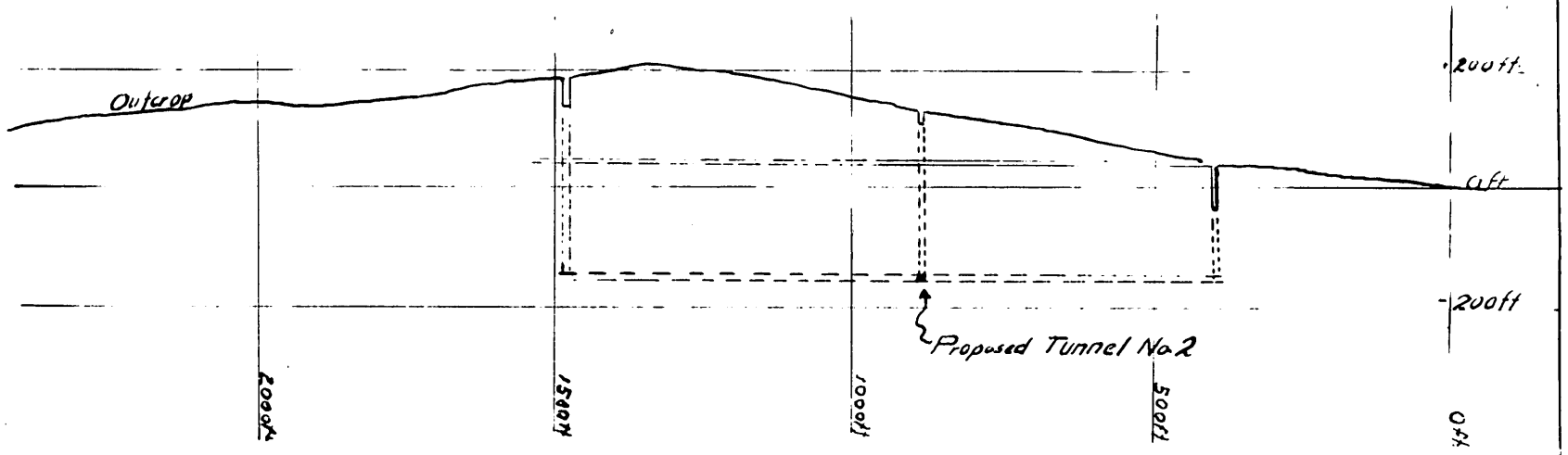
BLACK PEARL GROUP

Longitudinal Section
Proposed Tunnel No. 2.

Rough Brunton survey

Scale 1"=300' April 1938 J.F. Frost

Traced: Copied May 1951 J.H. Cazier



BLACK PEARL GROUP

Proposed Development (See Report) I

Section in Plane & Vein

= Now driven

:::: Proposed

For present details: see Sections by H. R. Wood

Scale 1" = 300' April 1938 J.F. Frost

Traced - Copied May 1951 - J.H. Cozier

Form MF-100

U.S. DEPARTMENT OF THE INTERIOR
Defense Minerals Administration

M7100

General technical data for use under the Defense Production Act of 1950	Docket No_____ Date Received_____

E.A. Scholz and J. H. Cazier (a partnership)
Bagdad, Arizona

Black Pearl Mine

May 27, 1951

GENERAL TECHNICAL DATA

1. Materials Produced
   (a) Tungsten as Wolframite
   (b) No important byproducts. Pyrite might be produced. Traces of beryl, bismuth, tin and molybdenum are found.

2. Name and Description of Property:
   (a) The Black Pearl Mine
   Approximately 200 ft. of prospect shafts were sunk on the property however none are presently accessible.
   (b) Approximately 950 feet of drifts and crosscuts were driven. most of this represents numerous surface drifts now caved.
   (c) One 580 ft. tunnel is now accessible for examination.

3. Location:

   (a) The mine is 60 miles from Prescott the nearest town and shipping point. The last 14 miles of road between Camp Wood and the mine needs considerable improvements before trucks of any sizecould haul ore and supplies. Present plans call for the building of 6½ miles of new road south from the minemaking the Hillside Mining and Milling Co. mill available for concentration of the ore. The haulage road distance between the mine and mill would be sixteen or seventeen miles and would be over an all weather road as compared to the Camp Wood road that is impassible when wet or in case of snow. The distance from the mine to Hillside Arizona the nearest rail point would then be 36 miles. The community of Bagdad would then be about 12 miles from the mine.
   (b) Eureka Mining District
   (c) Sections 7 and 18 Township 15 North Range 7 West.
   (d) Yavapai County, Arizona

4. Operation
   (a) The property is now being developed by us
   (b) Operating under a Lease and Option to Purchase which expires in May 1959.

5. The earliest production credited to the property was in 1916. Only intermittant production from the property has been possible in the past due to its inaccessibility and lack of sufficient water close to the ore deposit to encourage a mill installation.
Present plans for development of the property will make it possible to begin ore production as soon as the road(see 3(a)) can be constructed.

6. Operators.

E. A. Scholz:
B.S. In Geological Engineering, Montana School of Mines
Geologist, Glacier Production Co. Cut Bank Montana 1941-1942
Geologist, U.S. Geological Survey, Washington D.C. 1942-1945
Geologist in Charge of exploration & development, Martin Brothers Inc. Butte Montana 1945-1946
General Manager, Ruby Gulch Mining Co. Zortman, Mont. 1946-1948
General Supt. Hillside Mining and Milling Co. Bagdad Ariz. 1948-1950
Partner in Charge, Copper King Lease, Bagdad, Ariz. 1950 to date.

J. H. Cazier:
B.S. In Mining Engineering, University of Nevada
Various positions in Exploration and Operation Dept. International Smelting and Refining Co. Salt Lake City, Utah 1935-1940
Asst. General Supt. Lexington Mining Co. Neihart Mont. 1941
General Supt. Callahan Consolidated Mines Inc. Wallace Ida. 1942
Supervising Engineer RFC Salt Lake and Phoenix 1943-1948
Military Leave, Lieut(jg) and Lieut. U.S.N.R. 1944-1946
General Supt. Goodwin Mining Co., Bagdad, Arizona 1949
General Supt. Bagdad Copper Corp. Bagdad, Arizona Aug. 1949 to date.

7. History:
(a) Tungsten and silver mineralization were discovered at the Black Pearl property in 1914. No shipping grade silver ore was discovered but high prices for tungsten during World War I spurred search for this mineral and an appreciable quantity of acceptable grade wolframite was produced by hand sorting, residual placers and ore from shallow workings and the vein outcrop. All work done at the property was with the intent of finding a few more wolframite crystals with the exception of a sampling program carried out by Mr. Harlow D. Phelps in 1936.

The property has been essentially inactive since 1936. The present operators began work on the property in March 1951.

Total production from the property has been 65,000 pounds of wolframite concentrate averaging 70% WO3. No penalties were charged against shipments.

The remote location, inaccessability by road, lack of water, lack of an assured market, lack of adequate financing and cost of placing the property in production have all been contributing factors in retarding development of a successful mining venture at the property.

(b) There are a number of other tungsten claims in the area although none of them have been as extensively developed as the Black Pearl mine and are not reported to be of as great merit. The factors listed above that have deterred development of the Pearl have had a similar effect on the other properties.

(c) Enclosed herewith are reports by Harlow D. Phelps and J.F. Frost.

8. Officers:

E. A. Scholz, Box 106 Bagdad, Arizona
J. H. Cazier, Box 248 Bagdad, Arizona
A partnership

9. Not applicable:

10. Production

Total production from 1916 to date has been approximately 65,000 pounds of sorted ore and concentrate assaying 70% WO3. There was undoubtably some unreported production in addition to this. There was no production from the property in 1948, 1949 or 1950

11. Expected Production:

2500 tons of ore per month which would yield 1500 units of WO3

12. Ore or Mineral Reserves

(a) The Black Pearl Tungsten deposit is in an area of coarse grained granite abounding in pegmatitic phases. The vein is a strong quartz vein averaging between three and four feet in width over an outcrop length of more than 2000 feet. With the exception of one short section this entire length has been mined to shallow depths. The vein dips between 70 and 80 degrees to the South and trends North 76° West. The ore mineral is wolframite while the principal gangue minerals are quartz and pyrite. Traces of tin, molybdenite, beryl, bismuth and silver have been found. See the enclosed reports for additional data.

(b) Estimated ore reserves

Available dumps	6,000 tons at	.44% WO3
Measured ore	7,000 tons at	.78% WO3
Indicated ore	70,000 tons at	.78% WO3
Inferred ore	500,000 tons at	.78% WO3

13. Access Roads:

Application has been made for an access road. The necessity for this road is covered more adequately in that application and in 3(a) above. Mine crews would live in Bagdad the nearest supply point.

14. Water Supply:

Sufficient water for mining is available at Bear Flat from wells. Additional water could be obtained from Boulder Creek one mile from the mine.

15. Power:

Internal combustion engines will be used.

16. Labor:

Two miners are at present employed. Present production plans call for a crew of thirty ment for a daily output of 100 tons of ore.

17. Equipment and Facilities:

The present facilities are inadequate for the full scale mining operation. No important equipment is available for this operation.

18. The construction of six to eight miles of road will make the mine accessible to Bagdad as a residence and supply center and to the Hillside custom mill. A minimum of new equipment and limited amount

of capital investment can make the Black Pearl a substantial producer from the start and should result in a continuing successful operation.

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.

E.A. Scholz and J.H.Cazier

By E.A. Scholz
E.A. Scholz

May 27, 1951

Partner

REPORT OF THE BLACK PEARL
TUNGSTEN MINE
YAVAPAI COUNTY, ARIZONA

Foreword:

The purpose of this report is to present as briefly as possible, the information and data I have acquired as the result of my study and examination of the Black Pearl property which with the tunnel sampling extended over a period of several months;included are the results and deductions therefrom.

The sampling was partly under my direction. The surveying done for the map of the tunnel and profile was done by me as was the patent survey. In fact, it was while making the patent survey that I first became interested in the property, and thought of its possibilities.

I have not, in this report undertaken to recommend or to outline a method of mining and development or to estimate what this cost might be. There are many factors entering into these questions and entail more study and investigation than I felt like giving the matter at this time.

There are difficulties to be overcome and problems to work out, particularly in regard to the method of mining and the development of water. But they are not beyond the ability of good miners and engineers to solve.

Summary and Conclusion:

The main vein of the Black Pearl is an unusual and promising occurrence of Wolframite (Tungsten) having a strong and well defined outcrop, averaging 3 feet wide and 2000 feet long. A 560 feet tunnel with an estimated 8000 tons of ore developed has an average assay of from 0.7 to 0.9 WO_3 with an approximate net value of $56,000.

Probable ore, - ore indicated between the outcrop and a level 40' below the present tunnel level has approximately 72,000 tons with a net value of approximately half a million dollars.

The owners and lessors from 1915 to 1933 have mined and shipped 62,000 pounds of tungsten having the remarkable average of 70% WO_3 by hand sorting. Most of this came from shallow workings all along the outcrop. This ore was mined and sorted by hand and packed down the mountain.

It is an interesting fact that no capital has ever been put into the property. Roads, trail, buildings, tunnels etc. have all been financed from the sale of Tungsten; with, I understand, a good profit left for the owners.

The market for Tungsten has been steadily increasing for the past 4 years to the present price of $20.00 per unit. A unit being 20 pounds or 1/100 of a ton for a standard content of Tungstic acid--60% WO_3. If the supply from China should be cut off Tungsten would command a high price in this country. While considerable Molybdenum is being used as alloy in the manufacture of steel it does not take the place of Tungsten for high speed tool steel.

Because of the purety of its wolframite the Black Pearl product, I understand, can be sold at a premium direct to steel companies, under contract, rather than to ore buyers.

The bein shows not only unusual length but a remarkable persistence in width throughout its entire length. The geological indications and mineral associations are favorable as are in the physical indications.

The mystery is that the property has not been snapped up before now. The answer to that is--1/2 of the ownership has repeatedly refused to sign up with anyone under any conditions.

I believe the Black Pearl property os one of unusual merit with real possibilities

and that it may develop into one of the greatest tungsten mines of this county if it is properly handled.

General Information:

The Black Pearl property consists of 11 patented and 5 unpatented lode claims,--Mineral Survey No. 4186--located in the Eureka Mining District, covering parts of Section 7, 8, 12, 13 & 18, T 15 N R 7 & 8 W, Yavapai County, Arizona. It consists of the Black Pearl and North Side groups as shown on the claim map included with this report.

The mine is located 57 miles via the Williamson Valley and Camp Wood road, in a northwesterly direction from Prescott. At 25 miles from Prescott the road turns left and westerly onto the Camp Wood Road and in 15 miles is within the pine forest of the Camp Wood country. At mile 46.5 the Tungsten Mine road leads southerly from the Camp Wood Road. Thus far the road is very good, negotiable easily in two hours. The road from here on is over a winding ungraded and unsurfaced road over a "malapai" Mesa of varying grades. At mile 54 the road reaches the rim of the Mesa. Below and to the south lies Bear Flat and the head waters of Loco Creek. Farther south stands Tungsten Mountain like a sentinel rising above the surrounding country.

The present road down from the Mesa rim is very steep for a short distance, having a grade in places as high as 23%; but when the road is in good repair can be negotiated with a good car or light truck. This road could easily be carried more gradually down the side of the Mesa. It is two miles from the top of the rim to the mine camp at Bear Flat; from here it is one mile by a good trail to the main tunnel on the west slope of Tungsten Mountain. This route is generally closed by snow during a part of the winter months.

The CCC or some other alphabetical agency of the government has started a road, which if completed will come within a mile or so of the property and would join the road to Camp Wood and a saw mill. This would connect the mine with Hillside, the nearest railroad point; and is a part of the Hillside Mine road. The total distance to Hillside would probably be about 35 miles and the road would be open the year around. I understand the road has been constructed as far as Wild Horse Basin on Boulder Creek within about six miles of the mine. This, I understand would not be a difficult road to build into the property. Included with this report is a map showing the location of the mine with reference to Prescott and Hillside.

The elevation at Bear Flat is approximately the same as Prescott, one mile above sea level. The portal of the main tunnel is about 520 feet above Bear Flat or 5,8000 feet elevation. The top of the mountain is 165 feet above the portal of the tunnel or approximately 6000 feet elevation.

The regional topography is that of the irregular high mesa plateau of Basalt or "Malapai" flows, broken and distorted by earth movements and intrusions of granites, pegmatite, and other chrystalline rocks, presumably of pre-cambrain origin.

The property is located over the major part of Tungsten Mountain, which rises above the surrounding mesas. The drainage is to Boulder Creek and Loco Creek at the base of the mountain. Both creeks flow to the Santa Maria River but by quite different routes.

Mine timbers can be obtained from a saw mill off the Camp Wood road about 20 miles from the mine. Tungsten Mountain has a scanty growth of cedar and pinon.

Water for domestic use is obtained from a spring at the camp on Bear Flat. Boulder Creek has water all year, although very low during dry seasons; showing only in places as running water. There is probably a fair underground flow even during dry seasons, and I believe sufficient water can be developed for milling purposes from Boulder Creek. If it was found advisable to build the mill at the mine workings the lift would be about 650 feet; the length for a pipe line approximately 4,000 feet.

Power would have to be developed as there is no transmission line within reach of the prope rty.

The surface equipment consists of a blacksmith shop, mine track, rail and cars at the tunnel portal, two bunk houses, and a warehouse at Bear Flat.

There are no mines operating close to this property. Some work has been done on a Tungsten showing south and adjoining the Black Pearl.

The largest mines in this district are the Hillside and Bagdad, 10 to 15 miles southwest; shown on the location map included as a part of this report. The Hillside Mine, a gold mine, has been a big producer. The Bagdad is a large low grade copper deposit in the development stages. There are many other smaller properties in this section of the Eureka Mining District.

History and Ownership:

The property was located in 1914 by William Germers. Mr. Homer R. Wood and William Lawler acquired a half interest at that time. Mr. Lawler died leaving his interest to his widow and son. The present owners are : H. L. William, Joseph P. Walton, and William Stephenson, a total of ½ interest; Mary Lawler and John William Lawler, the remaining ½ interest.

The title of the property is in good shape. The government passed on that before recently issuing patent to the property.

The property has a unique history in that all expenditures have come out of the profits. No capital has ever been put into the property. The road, trail, building, small tunnel and shafts have all been financed from the sale of Tungsten, which was mined almost from the grass roots, hand drilled, sorted and shipped by pack burro down the mountain and by truck 57 miles to Prescott. Thence by rail to eastern buyers.

Mineralization and Geology:

The main vein has a length of almost 6,000 feet with Tungsten showing on the outcrop for a distance of 2,000 feet. Beginning at the shaft and the portal of the main tunnel on the west slope of the mountain, the outcrop has been opened up at intervals along its entire length, extending over the top of the mountain and down the east slope.

The profile map made by Homer R. Wood, part owner at that time, and a mining engineer of excellent reputation, gives a very graphic picture of the actual development and production from this vein. Apparently, only the surface of this remarkable deposit has been scratched. Mr. Wood's map shows a total of 62,100 pounds of Tungsten mined and shipped from 1915 to 1935, having a most unusual high content of over 70% WO3. This work was all done by hand drilling and rather crude timbering. Most of the old workings are badly caved.

The work done by the lessors is included in the profile map by Mr. Wood. Their method was to shoot very light and sort out the coarse Tungsten underground. The balance went to a sorting platform where it was cobbed and sorted.

Mr. Wood's map shows that 300 pounds of Tungsten was mined from the shaft on the north side No. 4 claim. See my claim map for location.

"1,185 pounds of Tungsten from placer" see map, came from the side slope of Tungsten Mountain as a result of erosion from the ledges.

The direction or strike of the main vein is S74° E. The dip almost vertical in places and varying from 75 to 85° S. W.

The width of the main vein varies from 1.7 to 6 feet. The measurements taken by me at accessible cuts and in the main tunnel are shown in the small profile map accompanying this report. It is not possible to give a definite average from these measurements as they could not be equally spaced. I believe that 3 feet is a conservative and fair average for the width of the main vein for a distance of 2,000 ft.

The deepest shaft according to Mr. Wood was about 65 feet. The main tunnel is now in 560 feet from the present portal; at the face it is 120 feet vertical below the surface outcrop. Ore was found 40 feet below the main tunnel in the stope off the shaft near the portal and according to Mr. Wood's profile map produced 900 pounds of Tungsten. This is therefore a depth to which ore is indicated below the present level.

Other veins found are indicated on the claim map in color, showing Tungsten at a number of other workings on the property. There is Tungsten float over a considerable area of the North slope of Tungsten Mountain. The vein system has not been fully worked out but a series of parallel veins is indicate. A half mile tunnel from the base of the mountain would cut the main vein at a depth of 500 feet below the present tunnel and would intersect other beins at lesser depth. This possibility is worth investigating more fully.

The Tungsten occurs in the form of wolframite, a tungstate of iron and manganese, black in color with a metallic luster. Hence the name Black Pearl.

The Gangue material, that is the material associated with the tungsten in the vein is largely quartz, mica, and pyrite. Veins of this type are classed as high temperature deposits, resulting from the metamorphism of the granitite and pegmatite. "Such metamorphic products when essentially consisting of quartz and mica are called "greisen"—Kemp.

Apegmatite is essentially a coarse grained granite in which the constituents have crystallized into large crystals, due to slow cooling under great heat and pressure. Associated are many rare minerals. Cassiterite or tinis mined in Goffney, South Carolina in Pegmatite; also in New South Wales, greisen in Pegmatite contains cassiterite associated with wolframite (tungsten) and molybdenite. Lindgren "Mineral Deposit," page 769.

Because of the fact that wolframite and cassiterite are commonly associated in pegmatite dykes of this character and formation, see Lindgren, (page 621-764) there is at least a possibility that cassiterite will be encountered with further development at depth.

Molybdenite is present and shows in many of the specimen samples taken. It may be practicable to recover it in the milling process.

Another rare mineral found at one of the cuts on the outcrop was bismuthinite. As stated, a sample I took here assayed 245 oz. of silver per ton. This was at the cut shown on the claim map at the intersection with the Hematite vein.

Because of the manner in which deposits of this character were formed it is not unreasonable to assume that the veins will have considerable depth. Especially so considering the length of the outcrop and width of the bein.

Sampling:

The results of the sampling undertaken under the direction of Mr. Sayre and myself in 1936 are fully shown on the assay map of the main tunnel.

The tunnel had caved in places and it was necessary first to clean it out and retimber to the face—381 ft.

It was decided that the best way to sample would be to advance the tunnel a definite distance and get a uniform cut from each car. It was decided to shoot rather heavy to break any large chunks by hand while loading the car. The car was dumped into a chute with a slot in it about 3 inches wide, for the sample. This was dropped onto a sheet iron covered platform where the sample was broken to about 1 inch by hand, cored and quartered to approximately a 90 pound sample.

These "head" samples were taken to the sampling works at Prescott where they were ground to ¼ - ⅜ inches size.

At the sampler they were first ground to ¼ - ⅜ inch. Mixed by a large Jones splitter 3 times. Then cut once. Reject saved; other ½ ground in a cone pulverizer to a sand fineness. Again mixed in a Jones sampler and cut by a smaller cone sampler to about a 3 to 4 lb. sample.

The reject for the chute (that which did not drop through the slot for the samples) passed to a sorting platform where the Tungsten was cobbed and sorted. The reject from this or "tailing" was sampled by taking every 20th shovel full and this sample coned and quartered to about 90 pounds for the "tail" samples, which was sacked and run through the Prescott sampler as described for the "Head."

Lots 1 and 2 were handled this way, while lots 3 to 6 inclusive were shipped by freight direct to the assayer rather than have the expense and time of running through the Prescott sampler.

By more careful coning and quartering, the size of the samples was reduced to approximately 50 pounds each.

There were two miners and one sorter doing all the work, hand drilling, mucking, packing, and trucking to Prescott. It had taken 2½ months to sample 54 feet of tunnel—represented by 53 head samples and 24 tail samples.

It was decided to get in a portable compressor. In order to speed up the work to see more of the bein, and to get more samples, we changed the method as follows: Installed the compressor and a mounted jack hammer, increased the force to four men and a packer, changed the slot to a horizontal position in the chute, installed a small crusher to reduce the entire slot-sample to ¼ inch, mixing and cutting through a Jones sampler, or splitter.

This did not leave time for sorting. However, about 100 pounds of Tungsten was recovered from the side of the dump by the top man, when he was not busy cutting samples.

Samples of four lots, shipments Nos. 6 to 10 inclusive as shown on the tunnel sample map, were taken in this way. It represents a distance of 126 feet of the tunnel.

A copy of the assay return for all the samples included in Lots 1 to 10 inclusive are a part of this report. A total of 126 samples from 180 feet of tunnel.

The sampling and work done in the tunnel showed that the walls, foot wall in particular, is soft and caved badly in places. This resulted in badly diluting the sample with waste material as is shown by the variable "numbers of cars" for the "foot advance" in the table results, on the tunnel sample map.

To correct this I measured the tunnel at regular intervals and calculated as follows: The average of all the samples, that is the foot assay value divided by the foot advance, equals 0.504% WO_3. The factor of 1.4 is the ratio of the sample width to the actual width of the vein. Which, multiplied by the average of 0.504 equals 0.705% WO_3 as the value of the bein. See tunnel assay map.

I carried this a little further with respect to the last four samples. I measured the area mined and determined the volume by using the prismoidal formula. See table at upper right hand part of tunnel sample map. This gave a result of 0.72 % WO_3.

Mr. Sayre and I arrived at a result of 0.78% WO_3 on the first eight samples as follows: See following page 12-A.

Mr. Wood calculated the total tons of ore mined to 1935 and determined the average as 0.922% WO_3. This was largely from ore closer to the surface where the iron was oxidized and little or no sulphides showing, which would give a higher per cent of WO_3 and check fairly close to the 0.784% WO_3 average of the sulphides ore in the tunnel.

The sampling indicated that the wolframite is disseminated all through the bein but that it is more highly concentrated in lense or shoots throughout the bein, and intimately associated with the quartz, pyrite and mica. Many large solid pieces of pure wolframite showing crystal faces were recovered. I have a specimen in my office which weighs 4 3/4 pounds. A large specimen was given away. Mr. Wood reports a specimen which weighed approximately 80 pounds, found wholly encased within about 8 inches of mica on one of the walls.

The sampling also shows that it is impossible to make much of a recovery by hand sorted, but that the entire vein can be mined and milled with average heads of not less than 0.7% WO_3. Many tail samples, after the Tungsten had been sorted out by hand, ran high in comparison with the corresponding head samples.

Ore Deposits:

The ore developed by the main tunnel 560 feet with a vertical height of 120 feet from the face of the tunnel to the surface outcrop, and width of approximately four feet would indicate at least 8,000 tons of ore partly blocked out after making an allowance for the ore already stoped out.

For the "Probable Ore," or the ore partly blocked out, I have assumed ore to

a depth of 40 feet below the present main tunnel level. The horizontal length of which is 2,000 feet and the average width as stated, I have estimated to be three feet (assuming 12 cubid feet per ton of ore in place) the total ore above a level 40 feet below the present tunnel level would be 3 x 289,000 12 = 72,250 tons.

The "Probable Ore" is dependent on the depth of the bein. As previously discussed under geology, indications for considerable depth are good. If the depth and lenght are equal to the showing of the outcrop, which is entirely within the realms of possibility, there is indicated an ore body of 2,000 feet long, 2,000 feet deep, and three feet wide ore the equivalent of one million tons of ore. Even with tungsten at the present price this would be a first class bonanza.

Tonnage and Value of Ore:

Ore developed--8,000 tons. Ore partly blocked out, or probable ore 72,250 tons. Possible ore, indicated by the length and width of the outcrop and the geology, 1,000,000 tons.

Using the conservative figure of 0.7% WO3 and the present quotation of tungsten of $20 a unit for 60% WO3. This is equal to $14 a ton ore. Assuming $7 as the total cost for mining, milling, development and transportation, there would be a net profit of $7 or a value as follows: Ore developed 7 x 8,000 = $56,000. Probable ore, 7 x 72,250 = $505,750. Possible ore, 7 x 1,000,000 = $7,000,000. Assuming the production of 1,000 tons a month to start, with a 50 ton mill, the ore developed would be recovered in about 8 months.

Mining:

As stated in my introduction I will not attempt to outline the method of mining. It is a matter to be worked out in a practical manner by experienced miners.

The walls caved quite badly in places in the present workings, apparently the result of surface waters and oxidation. However, I do not consider it bad enough to be a serious obstacle or an expensive one, and may correct itself entirely with greater depth below the surface. It may be found advisable to leave pillars of low grade ore for support in the stopes and these "pulled" later.

I do not anticipate any trouble from underground waters. The mountain is drained to the level of Boulder Creek, a vertical distance of 650 feet, to the indicated ground water level. In the spring there will be some surface water to take care of but this will be of little consequence as the mine is almost at the top of the mountain.

Milling:

The milling would be comparatively simple. A combination of quartz, mica, pyrite, and wolframite can be easily separated by a simple process of concentration. Coarse grinding followed by jigs, classification finer grinding, followed by tables, I think will give a very good recovery. Perhaps some provision made for molybdenum, if found in paying quantities. However, it would be advisable to have a test run by a competent metallurgist before designing a mill.

In the milling operation, I believe it will be found advisable to sort out the coarse tungsten from a short sorting belt located between the bin and the crusher. Probably the man at the bin and crusher could do this.

It may also be practical to sort out some of the large high grade pieces underground as was done by the leasers.

Market for Tungsten:

Tungsten is used largely in the steel industry and molybdenum has taken its place as an alloy in certain steels. I saw a letter from the president of one of our large steel companies stating that in his opinion nothing at present took the place of tungsten as an alloy for high speed tool steel.

The largest supply of Tungsten comes from China where it is cheaply mined by Chinese Coolies for export. If Japan should cut off this supply or if and when the source is exhausted, tungsten will command a high price in this country. During the World War it reached a little over $100 a unit or $5 a pound.

Capital Requirements:

The initial development would consist chiefly of roads, water development, a mill, power, and quarters for the men. As stated I am not prepared to make an estimate of these costs which of course, would depend on the scale of operations and development decided upon.

I would consider a 50 ton unit for a mill built so that its capacity could be doubled. Water must be developed to meet the size of the mill and other needs.

A road must be built into the property. The best route and cost is a matter of further investigation.

As there is no transmission line close enough, a power plant of some kind must be installed for pumping, mining, and milling on perhaps separate units for each.

Prescott, Arizona
February 11, 1939

Respectfully submitted,
(Signed) Marlow D. Phelps, E. M.
(Registered)
(Professional)
(Engineer)
(Seal)
(Arizona U.S.A.)

This report included the following maps and copies of assay certificates:

Maps:

The maps included with this report are as follows:

1. Location map, showing roads, etc. copied in part, from the Yavapa County Engineer's map.

2. My claim map, showing claims, tunnels, etc. with the outcrops of beins shown in color.

3. Homer Wood's profile map of the main tunnel and production from 1915 to 1935.

4. My profile map showing area from which the "Probable ore" was determined.

5. My assay map of the main tunnel.

Copy of Assay Certificate:

Included herewith is a copy made from the assay returns of all samples taken from the main tunnel car samples as described under "Sampling."

Hillside, Arizona
% Hillside Mines, Inc.,
April 30, 1938

Mr. H. L. Williams,
Present.

Dear Sir:

Given below is a preliminary report on the Black Pearl Group of Tungsten Mining Claims in Yavapai County, Arizona. The inspection of the property was made April 12 to 23 (incl.) 1938 by Mr. W. W. Stephenson and myself. Assay results and other data are not yet available, hence this "preliminary report".

Every detail (except one plot of claims that has since been amended) which has been possible to check of the work of Mr. H. R. Wood has pointed to its accuracy and correctness. Details will be given below of additional checks to be made. Consequently, data given on his drawing "Section of workings on Black Pearl Group" will be used in various calculations made herein. Only in case of marked discrepancy in average assay results (which I believe highly improbable) will the final report differ in substance from this preliminary report.

SUMMARY:

1. One very strong vein has been superficially developed on the property.
2. The shallow workings (at no point more than 70 ft. below the surface and mainly much nearer the surface) from 1900 feet of length of this one vein have produced a recorded 59 615 lb. of wolframite which contained 70% WO_3.
3. Total recorded production is 62 100 pounds.
4. Various other strong veins outcrop on the property. Wolframite can be found in several of these outcrops. None of these other veins have been developed sufficiently to determine their value.
5. Since the above recorded production, 180 ft. of drifting has been done. This drift was mainly in sulphide (FeS_2) ore and showed an average of 0.784% WO_3 and average width of 4.2 ft. The maximum depth below the outcrop was 106 ft. It is noteworthy that the average WO_3 content of the oxide ore checks very closely with the reported average WO_3 content of the sulphide ore after correcting for enrichment by subtraction of FeS_2.
6. There are no serious natural obstacles to the successful exploration, development, and exploitation of the property.
7. There is a reported possibility of finding good silver ore at some place on the property.
8. Present reserves are calculated at $67,000 net operating profit.

CONCLUSIONS:

1. The future price and market for tungsten is the greatest factor of uncertainty in my mind. If a satisfactory market at near present quotations can be expected, then:
2. The program for development which is outlined near the end of this report is strongly recommended.
3. A total capital expenditure of $200,000. will be required. Only a few thousand will be required for initial exploration. Additional amounts will be required only upon satisfactory results from the completion of each step until the entire amount will be required to place the property in satisfactory operation.
4. Based on assumptions given herein, an exceptionally profitable operation is indicated.

Drawing No. 2 shows the general location of the property. Drawing No. 1 gives the exact location and ties to legal subdivisions of land. It will be noted that there are 11 patented claims and 5 unpatented claims. Each claim is of the full size of 20.66 acres. The vein, from which practically all production to date has been obtained, is covered for a length of 6000 feet by patented claims. There are also certain showings of wolframite to the north and west of the Black Pearl Group which are not covered by the Group.

The question of title, ownership, and terms for operation and or purchase was not studied in this examination.

According to a report by Mr. Wood, the claims were located in 1914 by Mr. William Conners. It is evident from the present condition of the mine workings that operation was under the "lessee system" -- whether by the owner or by actual lessees. By that is meant that the mine was not developed nor operated systematically but rather with a view of obtaining a little more tungsten with the minimum outlay of effort. If waste from sorting operation was in the way, it was thrown to the bottom of the shaft instead of hoisting it by hand. Inadequate timber was used; and so on. Such a nethod had one distinct advantage and one distinct disadvantage from the viewpoint of future large scale operation. The advantage is that by the nature of operation, the workings were shallow. Hence the vein was explored over a greater length than perhaps would have been the case by other methods. The disadvantage is that the value of the bein at considerable depth has never been proven, nor is there much available ore blocked out (except by drifting in 1936 and dumps).

The past production of the property is shown in detail on the attached "Section of Workings on Black Pearl Group" by H. R. Wood. At present quotations, the value would be slightly in excess of $40,000.

The Black Pearl Group is in a granite formation. Various large granite pegmatite dikes cut the granite. The veins are largely quartz with muscovite in almost pure veinlets in places. The vein material can well be designated, greisen. Numerous large vugs from which pyrite has been weathered are to be found in the oxidized zone. A carefully cut sample from an oxide dump contained 5.7% Fe: that from one sulphide dump 10.9% Fe and another sulphide dump 15.0% Fe (average sulphide 12.9% Fe). This would mean a reduction of at least 15.5% in weight by weathering of FeS2. The average of 180 feet of drift in sulphide is given as 0.784% WO3. Calculating this to the oxidized material would give 0.928% WO3, which checks remarkably well with the 0.922 % reported by Mr. Wood. Two important conclusions can be drawn from the above:

1. Reported assays of WO3 agree exceptionally well with themselves.
2. The greatest depth yet obtained(though still very shallow) shows no trend toward a decreasing WO3 content of the original vein material.

Very few specimens were found wherein the wolframite occurred as small(10 mesth) particles in a mass of pyrite. The co mon mode was as pieces of wolframite in quartz or muscovite from 1/4" br 3/8" to 1 1/2". Much larger pieces are reported and I found several larger pieces in recently caved vein material.

In addition to the massive minerals mentioned above, namely: quartz, muscovite, pyrite,wolframite, numerous other mineals were found in lesser amounts. Flourite apparently worked into the joints of the granite. A few large crystals of microcline were found. A few specimens of bismuthinite(carrying 30 ox. ag.) were found in the sulphide dump. Numerous small aggregates of molybdenite were found in the sulphide dump (assays for Mo are being made). Silver assays of several hundred ounces per ton are reported but I do not know from whence they came. Gold and silver assays were made on all samples taken by myself but no commercial amounts were found in those samples.

The elevation is guessed as near 6000 feet. This indicates a more agreeable summer temperature than in the lower regions of Arizona. Also considerable snowfall is reported for some winters. Scrub oak and similar brush, pinion, juniper, and cedars cover the property. Large pines are in the vicinity of Camp Wood some 8 miles north. A sawmill is said to be operatin in the pine timber. Lumber and mine timber should be readily and cheaply obtainable.

The property is connected by road with Prescott Arizona(see drawing 2). Unfortunately, there is about 3/8 of a mile of road going down into Loco Creek which has been constructed entirely too steeply--grades as steep as 11°-50'. Using a tractor it would be possible to get equipment for exploration to the property. But for satisfactory construction and operation some two miles of road would have to be built into the property. Also the road across the malpais mesas(lava flats) from the rim above Loco Creek to near Camp Wood would need to be surfaced with decomposed granite for satisfactory wet weather travel. In places the road across the mesa should be straightened and changed to the tops of the low ridges. The mesa road is probably six miles in length. In no place are exceptionally difficult mountain road building problems encountered. It is no known just how much of this road Yavapai County would construct should it be demonstrated that work on a large scale is to be done on the property.

There are three possible sources of water for milling:

1. Possibility of developing water in mine workings.
2. Loco Creek-- shown on drawing 1.--quantity doubtful
3. Boulder Creek-- some 600 feet West of Black Pearl Claim No. 8. and probably will be sufficient at all times.

The lower tunnel was caved about 100 feet from the mouth and was filled with water behind the cave. It is very desirable to have this ground timbered and the debris removed so that the 180 feet nearest the face can be sampled accurately. Sampling this 180 feet should give a valuable check on reported results and, as it is the deepest point now accessible, should give the best indicator we now hase as to the prospects with depth.

As no mine workings were open for a sufficient distance to warrant systematic sampling, the program consisted of dampling some dumps, a cut across both walls of a shaft and samples from various outlying shallow workings to determine the extent of thed distribution of the tungsten. Because of teh very spotty nature of the deposit, i.e. large pieces of barren quartz and large pieces of wolframite, it was necessary to cut samples weighing from 50 lbs. to 175 lbs., then carefully break all material down to 3/8" or less before reducing the quantity of ample with a riffle. Assays have not been received to date. A further description of each sample will be made when the assays are reported.

No metallurgical tests have been made. The character of the ore would indicate that recovery on jigs should start at a rather coarse size (say 3/8"). It is quite probable that a considerable quantity of clean tailing can be discharged at such a coarse size. Middling products will have to be ground finer in steps (say to 10 or 20 mesh). The recovery methods will be jigs and tables. Flotation will probably be useful in removing pyrite from the wolframite concentrate. Should the molybdenite prove to be in paying quantities, the tails from the tungsten mill should be reground and floated to recover the molybdenum.

As stated in preceeding paragraphs, operations at this property have not been of such a nature that an ore reserve would be created. The work done in 1936 was an exception.

The following figures are made from the data on "Section of Workings on Black Pearl Group" by H. R. Wood. Vein areas marked in green have been selected as being reasonable to assume as ore reserve of the average width and analysis, viz., 4.2 ft. wide containing 0.884% WO3. Each square on the section is 10 ft. by 20 ft. = 200 sq.ft.

106 x 200 = 21200 sq. ft.
21200 x 4.2 = 89040 cu. ft.
89040 x 12 = 7420 tons @ 0.884% WO3.

The data given on the same drawing indicate 6475 tons of dump material containing 0.4425% WO3 (0.33% recoverable at 75% recovery).

The greatest uncertainty in calculating the value of these reserves as well as calculating the possible outcome of operation of the Black Pearl Group lies in the future price of tungsten. No doubt each reader of this report will have his own ideas as to the future price of tungsten. In which case the financial outcome figures will be changed accordingly. A figure of $20.00 net per unit of WO3 is herein used. Only on theing can be said in defense of that particular figure, viz., it is slightly below present published quotations at a time when steel operations are at a low ebb and other metals are exceptionally low in price.

The question of costs is also a factor in the equation from whcih net profits are derived. Taking into consideration that the vein is fairly wide, dips steeply, has granite walls, and would not be sorted underground, it is hoped that a fairly cheap shrinkage stope mining method can be used. Also it seems probable that considerable coarse quartz can be discarded as a clean final tailing early in the milling process, thereby making low milling costs per ton. Construction costs are assumed which will put the property into proper shape for efficient operation. The assumed basis is 100 tons per day.

Mining and development	$4.00 per ton
Milling	1.00 per ton
Overhead and taxes	2.00 " "
Total operating cost	$7.00 " "

The dump material is calculated at:

Cost to place in mill bins	$0.50 per ton
Milling	1.00 " "
Overhead	1.00 " "
Total cost dumps	$2.50 per tons

The recovery on newly mined ore is assumed to be 80%: on dumps 75%. At $20.00 net received per unit of WO3 present reserves would show the following operating profit per ton:

Present ore block 742 tons at $5.50	$40,810 Total operating profit
Dumps 6475 tons at $4.10	$26,540 " "
Total operating profit on present res.	$67,350.

Conservative business calls for sufficient ore reserves to be blocked out to refund the total capital expenditure. The following program is outlined to provide 75,000 tons of ore reserve (assuming 75% of the vein material encountered will be ore of 0.784% WO3 and with of 4.2 feet). 75,000 tons will provide slightly more than two years operation at 100 tons per day. Drawing 4 shows a proposed plan of accomplishing this development. It will be noted that this proposal leaves untouched a lot of ground to the east which can very reasonably be expected to yield ore. All ore found in this area, that below the tunnel level, and other favorable places will add to the estimated net profit from the operation. The expenditure, not including cost of equipment for this proposal would be:

Crosscut(see drawing 7) 1255 feet @ $10.00	$12,500.
Drifts (see drawing 4) 1700 ft. @ $10	17,000.
Raises (see drawing 4) 700 feet @ $7.50	5,250.
Total	$34, 750

Given below is a very rough estimate of total capital required to place the property on an operating basis. It should be noted that the $35,000 for development is a prepaid development charge which is included in operating costs but for which funds must be provided before operation starts. The refund of that amount is inclued in assumed "Mining and development" costs.

Power	$35,000.
Mine Development	35,000
Mill	75,000
Mining Machinery and Shop	22,500
Road(mine proportion)	10,000
Offices, bldgs., water supply	7,500
Miscl not inclued above	15,000
Total capital necessary	$200,000
Deduct prepaid development a	35,000
Amount which net operating profit must refund	$165,000

All of the assumptions made above show a net operatiog proft of $412,500.00 for 75000 tons of ore. Also the purchase price of the property must come out of this amount.

The logical steps in the development and exploitation of the Black Pearl Group seem to me to be the following (see drawing 4)

A. Open the lower tunnel and carefully chedk the figures on the last 180 feet of drift. If these check, then proceed with:

B. Without spending any money on roads, take a portable compressor and supplies to the property with a Caterpillar tractor. Continue driving the present lower tunnel for another 600 feet (cost $6000. plus equipment). Provide sample crushing equipment to sample very carefully all material obtained from drifting operation. If the results from this work hold up to expectations, then:

C. Remove compressor and equipment also additional equipment to the crosscut tunnel site(see drawing 7), and drive the 1255 ft. crosscut tunnel. Then drive lower drifts and raises(see drawing 4). During thsi period run metallurgical tests, design mill, make road survey and have all details ready to go into execution as soon as "C" is completed satisfactorily.

D. Construct roads, mill, shops, power plant and other surface work necessary. prepare chutes and stopes underground.
E. Start operation and continue drifting east.

Various alternatives to the above plan have been studied. Drawing 5 offers a slightly more conservative policy but will cost more in the end.

Additional data will be given as soon as obtainable.

Respectfully submitted,

(signed)
J.F. Frost,
Engineer of Mines

Hillside, Arizona
% Hillside Mines, Inc.,
May 25, 1938

Mr. H. L. Williams,
Present

Dear Sir: Assays- Black Pearl

We have the following assay report from Chas. O. Parker & Co. of Denver, Colorado.

	WO3	MoS2
Sample No. 1	0.60%	
2	0.12%	trace
3.	0.44%	trace
4	trace	
5	trace	
6	0.80%	
7	2.54%	
8	trace	
9	trace	

Determination for molybdenum was requested on only two samples.
The descriptions of the above samples and comments follow:
No. 1. This is a sample of an oxidized ore dump at the blacksmith shop level. several cuts were taken from the sides and face of the dump after local surface concentration effects had been removed. Also several shallow pits were sunk on top. There were not many large boulders in this dump. A sample of about 175 lb. was taken and broken down to about 1/4 inch before reducing by means of a riffle. This dump is only one of many included in Mr. Wood's average of 0.44% WO3. The above assay of 0.60% WO3 merely indicates the average of 0.44% WO3. used in the calculations sounds reasonable. This is material which is the reject from hand sorting.
No. 2 This is a sample of a small sulphide ore dump. The figure of 0.12% WO3 is somewhat lower than was expected. Two possible reasons stand out:
A. It is reported that the tunnel was driven some distance in 1936 before good ore was encountered(see sample 3).
B. It is known that considerable hand sorting from these dumps has taken place, and it is reported that this particular dump was also sorted as it was made.
Noe. 3. This is a sample of the larger sulphide dump just below No. 2. It has also been sorted somewhat.).44% WO3 remaining from a reported original vein content of 0.784% WO3 is only slightly lower than should be expected. (see note at end of this report).

No. 4. This is a sample from the discovery pit on Black Pearl Claim No. 8. (see map No. 1). An inspection indicated that very little wolframite could be seen in the material now accessible. Sample No. 4 was taken to prove or disprove this point. Result was " trace"/

No. 5. This is a sample from the discovery pit on Black Pearl Claim No. 7. (See map No. 1). It was taken for the same reason that sample No. 4 was taken. It should be noted however that sufficient work was not done at the time of the examination to expose the vein properly. It is entirely possible that, were the solid vein expose properly, results higher than the reported "trace" would be obtained.

No. 6. This is a sample of some 50 lb. cut from channels of 5.9 ft. on each side of the shaft "c" (See Section of Workings on Black Pearl Group). It was taken 14 ft. below the collar of the shaft which is the lowest point now accessible. This particular spot evidently was not what the old operators considered good ore because it was left in place while the bein below and to the sides had been thoroughly "gouged out". In spite of this , however, it should be noted that 0.80% WO3 compares well with previously reported averages.

No. 7. This is a collection of various pieces of float and old dump from North Side Claim No. 3, approximately 150 ft. north east of the 44 ft. tunnel (See map No. 1). Apparently there is another bein or possibly two veins which have not been explored. This can be considered a collection of specimens at this point which show the presence of tungsten and not as a true sample. The assay was 2.54% WO3.

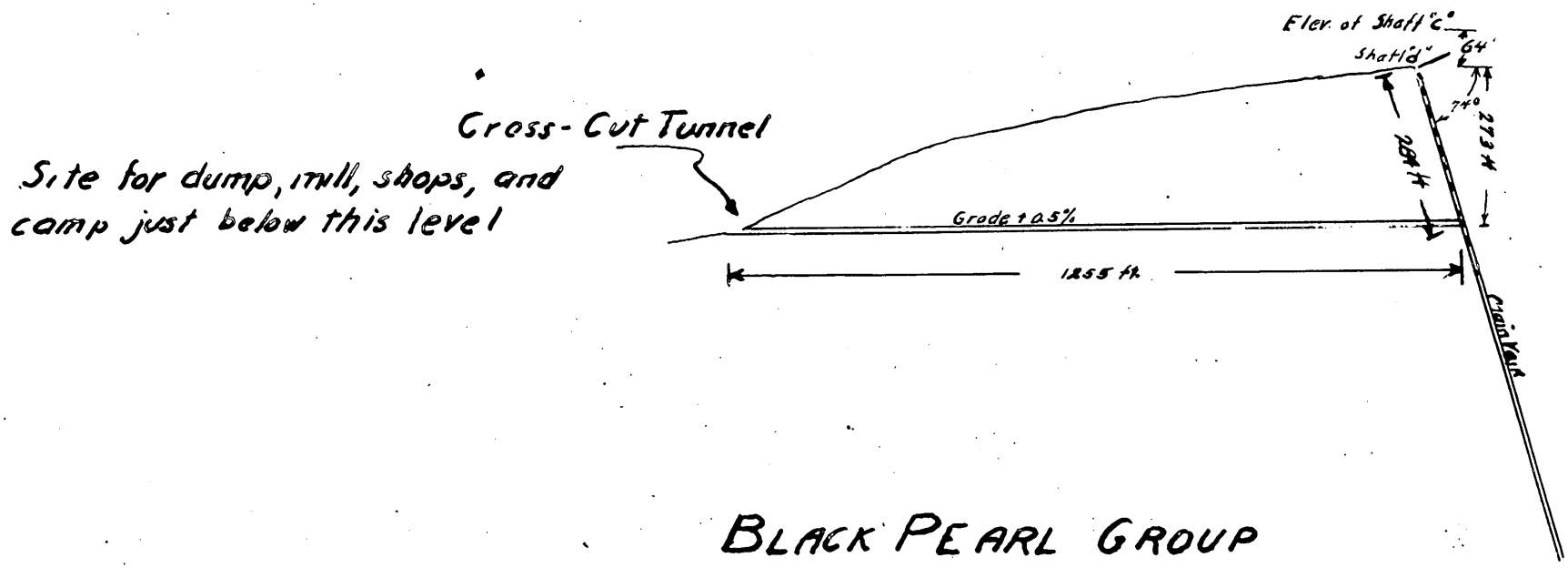
No. 8. This is a sample of 3.1 ft. of the face of the 80-ft. tunnel on North Side Claim No. 3 shown on map No. 1. The assay of "trace" probably explains why the tunnel was stopped at this point. However, wolframite can be found on the dump, so possibly this was a barren spot in a vein which had been carrying tungsten.

No. 9. This is a sample of 0.4 ft. of the face of the 44-ft. tunnel on North Side Claim No. 3. The assay was "trace". The notes regarding sample No. 8 apply to this sample also.

In conclusion I may state that these preliminary results add strength to the assumptions made in the preliminary report of April 30, 1938. Samples 1, 2, 3, and 6 are especially indicative. Step A. in the recommendations of April 30th, namely, the accurate sampling of 180 feet nearest the face of the lower tunnel is the next job to be done in the exploration of the Black Pearl Group. The vein being naturally spotty, as formerly explained, will require a quite short sampling interval to give accurate results.

Respectfully submitted,

J. F. Frost



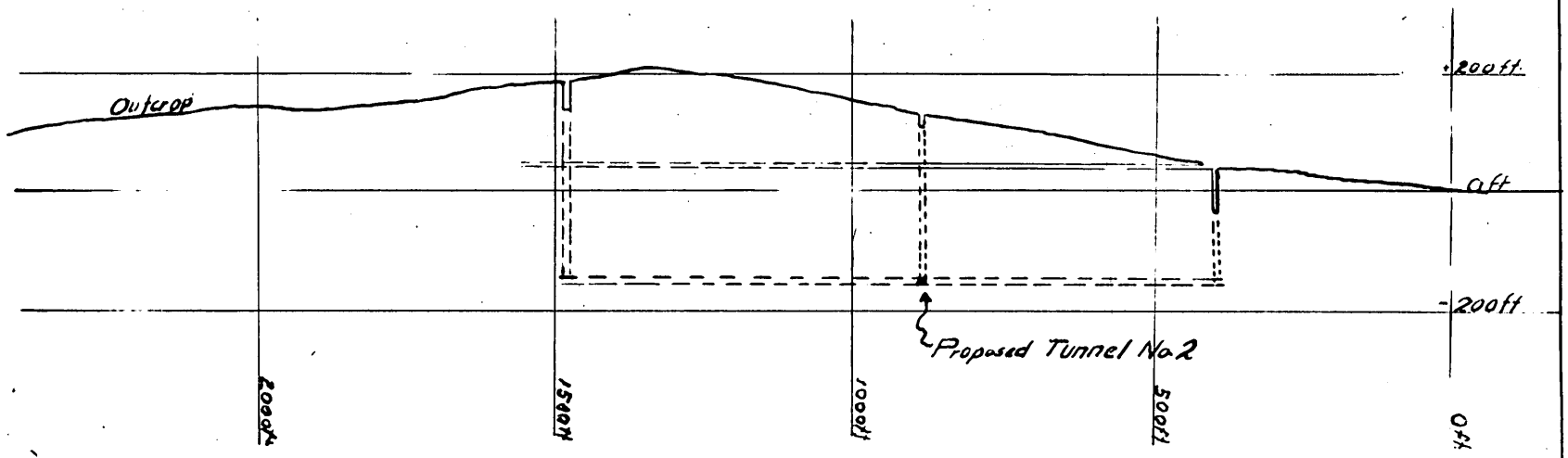
BLACK PEARL GROUP

Longitudinal Section
Proposed Tunnel No. 2.

Rough Brunton survey

Scale 1"=300' April 1938 J.F. Frost

Traced & Copied May 1951 J.H. Cazier



BLACK PEARL GROUP

Proposed Development (See Report) I

Section in Plane & Vein

= Now driven

:::: Proposed

For present details: see Sections by H. R. Wood

Scale 1" = 300' April 1938 J.F. Frost

Traced & Copied May 1951 - J.H. Cozier

WB 18

REPORT OF THE BLACK PEARL
TUNGSTEN MINE
YAVAPAI COUNTY, ARIZONA

Foreword:

The purpose of this report is to present as briefly as possible, the information and data I have acquired as the result of my study and examination of the Black Pearl property which with the tunnel sampling extended over a period of several months; included are the results and deductions therefrom.

The sampling was partly under my direction. The surveying done for the map of the tunnel and profile was done by me as was the patent survey. In fact, it was while making the patent survey that I first became interested in the property, and thought of its possibilities.

I have not, in this report undertaken to recommend or to outline a method of mining and development or to estimate what this cost might be. There are many factors entering into these questions and entail more study and investigation than I felt like giving the matter at this time.

There are difficulties to be overcome and problems to work out, particularly in regard to the method of mining and the development of water. But they are not beyond the ability of good miners and engineers to solve.

Summary and Conclusion:

The main vein of the Black Pearl is an unusual and promising occurrence of Wolframite (Tungsten) having a strong and well defined outcrop, averaging 3 feet wide and 2000 feet long. A 560 foot tunnel with an estimated 8000 tons of ore developed has an average assay of from 0.7 to 0.9 WO_3 with an approximate net value of $56,000.

Probable ore, - ore indicated between the outcrop and a level 40' below the present tunnel level has approximately 72,000 tons with a net value of approximately half a million dollars.

The owners and lessors from 1915 to 1933 have mined and shipped 62,000 pounds of tungsten having the remarkable average of 70% WO_3 by hand sorting. Most of this came from shallow workings all along the outcrop. This ore was mined and sorted by hand and packed down the mountain.

It is an interesting fact that no capital has ever been put into the property. Roads, trail, buildings, tunnels etc. have all been financed from the sale of Tungsten; with, I understand, a good profit left for the owners.

The market for Tungsten has been steadily increasing for the past 4 years to the present price of $20.00 per unit. A unit being 20 pounds or 1/100 of a ton for a standard content of Tungstic acid--60% WO_3. If the supply from China should be cut off Tungsten would command a high price in this country. While considerable Molybdenum is being used as alloy in the manufacture of steel it does not take the place of Tungsten for high speed tool steel.

Because of the purety of its wolframite the Black Pearl product, I understand, can be sold at a premium direct to steel companies, under contract, rather than to ore buyers.

The bein shows not only unusual length but a remarkable persistence in width throughout its entire length. The geological indications and mineral associations are favorable as are in the physical indications.

The mystery is that the property has not been snapped up before now. The answer to that is--1/2 of the ownership has repeatedly refused to sign up with anyone under any conditions.

I believe the Black Pearl property os one of unusual merit with real possibilities

and that it may develop into one of the greatest tungsten mines of this county if it is properly handled.

General Information:

The Black Pearl property consists of 11 patented and 5 unpatented lode claims,—Mineral Survey No. 4186—located in the Eureka Mining District, covering parts of Section 7, 8, 12, 13 & 18, T 15 N R 7 & 8 W, Yavapai County, Arizona. It consists of the Black Pearl and North Side groups as shown on the claim map included with this report.

The mine is located 57 miles via the Williamson Valley and Camp Wood road, in a northwesterly direction from Prescott. At 25 miles from Prescott the road turns left and westerly onto the Camp Wood Road and in 15 miles is within the pine forest of the Camp Wood country. At mile 46.5 the Tungsten Mine road leads southerly from the Camp Wood Road. Thus far the road is very good, negotiable easily in two hours. The road from here on is over a winding ungraded and unsurfaced road over a "malapai" Mesa of varying grades. At mile 54 the road reaches the rim of the Mesa. Below and to the south lies Bear Flat and the head waters of Loco Creek. Farther south stands Tungsten Mountaim like a sentinel rising above the surrounding country.

The present road down from the Mesa rim is very steep for a short distance, having a grade in places as high as 23%; but when the road is in good repair can be negotiated with a good car or light truck. This road could easily be carried more gradually down the side of the Mesa. It is two miles from the top of the rim to the mine camp at Bear Flat; from here it is one mile by a good trail to the main tunnel on the west slope of Tungsten Mountain. This route is generally closed by snow during a part of the winter months.

The CCC or some other alphabetical agency of the government has started a road, which if completed will come within a mile or so of the property and would join the road to Camp Wood and a saw mill. This would connect the mine with Hillside, the nearest railroad point; and is a part of the Hillside Mine road. The total distance to Hillside would probably be about 35 miles and the road would be open the year around. I understand the road has been constructed as far as Wild Horse Basin on Boulder Creek within about six miles of the mine. This, I understand would not be a difficult road to build into the property. Included with this report is a map showing the location of the mine with reference to Prescott and Hillside.

The elevation at Bear Flat is approximately the same as Prescott, one mils above sea level. The portal of the main tunnel is about 520 feet above Bear Flat or 5,8000 fedt elevation. The top of the mountain is 165 feet above the portal of the tunnel or approximately 6000 feet elevation.

The regional topography is that of the irregular high mesa plateau of Basalt or "Malapai" flows, broken and distorted by earth movements and intrusions of granites, pagmatite, and other chrystalline rocks, presumably of pre-cambrain origin.

The property is located over the major part of Tungsten Mountain, which rises above the surrounding mesas. The drainage is to Boulder Creek and Loco Creek at the base of the mountain. Both creeks flow to the Santa Maria River buty by quite different routes.

Mine timbers can be obtained from a saw mill off the Camp Wood road about 20 miles from the mine. Tungsten Mountain has a scanty growth of cedar and pinon.

Water for domestic use is obtained from a spring at the camp on Bear Flat. Boulder Creek has water all year, although very low during dry seasons; showing only in places as running water. There is probably a fair underground flow even during dry seasons, and I believe sufficient water can be developed for milling purposes from Boulder Creek. If it was found advisable to build the mill at the mine workings the lift would be about 650 feet; the length for a pipe line approximately 4,000 feet.

Power would have to be developed as there is no transmission line within reach of the prope rty.

The surface equipment consists of a blacksmith shop, mine track, rail and cars at the tunnel portal, two bunk houses, and a warehouse at Bear Flat.

There are no mines operating close to this property. Some work has been done on a Tungsten showing south and adjoining the Black Pearl.

The largest mines in this district are the Hillside and Bagdad, 10 to 15 miles southwest; shown on the location map included as a part of this report. The Hillside Mine, a gold mine, has been a big producer. The Bagdad is a large low grade copper deposit in the development stages. There are many other smaller properties in this section of the Eureka Mining District.

History and Ownership:

The property was located in 1914 by William Germers. Mr. Homer R. Wood and William Lawler acquired a half interest at that time. Mr. Lawler died leaving his interest to his widow and son. The present owners are : H. L. William, Joseph P. Walton, and William Stephenson, a total of ½ interest; Mary Lawler and John William Lawler, the remaining ½ interest.

The title of the property is in good shape. The government passed on that before recently issuing patent to the property.

The property has a unique history in that all expenditures have come out of the profits. No capital has ever been put into the property. The road, trail, building, small tunnel and shafts have all been financed from the sale of Tungsten, which was mined almost from the grass roots, hand drilled, sorted and shipped by pack burro down the mountain and by truck 57 miles to Prescott. Thence by rail to eastern buyers.

Mineralization and Geology:

The main vein has a length of almost 6,000 feet with Tungsten showing on the outcrop for a distance of 2,000 feet. Beginning at the shaft and the portal of the main tunnel on the west slope of the mountain, the outcrop has been opened up at intervals along its entire length, extending over the top of the mountain and down the east slope.

The profile map made by Homer R. Wood, part owner at that time, and a mining engineer of excellent reputation, gives a very graphic picture of the actual development and production from this vein. Apparently, only the surface of this remarkable deposit has been scratched. Mr. Wood's map shows a total of 62,100 pounds of Tungsten mined and shipped from 1915 to 1935, having a most unusual high content of over 70% WO3. This work was all done by hand drilling and rather crude timbering. Most of the old workings are badly caved.

The work done by the lessors is included in the profile map by Mr. Wood. Their method was to shoot very light and sort out the coarse Tungsten underground. The balance went to a sorting platform where it was cobbed and sorted.

Mr. Wood's map shows that 300 pounds of Tungsten was mined from the shaft on the north side No. 4 claim. See my claim map for location.

"1,185 pounds of Tungsten from placer" see map, came from the side slope of Tungsten Mountain as a result of erosion from the ledges.

The direction or strike of the main vein is S74° E. The dip almost vertical in places and varying from 75 to 85° S. W.

The width of the main vein varies from 1.7 to 6 feet. The measurements taken by me at accessible cuts and in the main tunnel are shown in the small profile map accompanying this report. It is not possible to give a definite average from these measurements as they could not be equally spaced. I believe that 3 feet is a conservative and fair average for the width of the main vein for a distance of 2,000 ft.

The deepest shaft according to Mr. Wood was about 65 feet. The main tunnel is now in 540 feet from the present portal; at the face it is 120 feet vertical below the surface outcrop. Ore was found 40 feet below the main tunnel in the steps off the shaft near the portal and according to Mr. Wood's profile map produced 900 pounds of Tungsten. This is therefore a depth to which ore is indicated below the present level.

Other veins found are indicated on the claim map in color, showing Tungsten at a number of other workings on the property. There is Tungsten float over a considerable area of the North slope of Tungsten Mountain. The vein system has not been fully worked out but a series of parallel veins is indicate. A half mile tunnel from the base of the mountain would cut the main vein at a depth of 500 feet below the present tunnel and would intersect other beins at lesser depth. This possibility is worth investigating more fully.

The Tungsten occurs in the form of wolframite, a tungstate of iron and manganese, black in color with a metallic luster. Hence the name Black Pearl.

The Gangue material, that is the material associated with the tungsten in the vein is largely quartz, mica, and pyrite. Veins of this type are classed as high temperature deposits, resulting from the metamorphism of the granitite and pegmatite. "Such metamorphic products when essentially sonsisting of quartz and mica are called "greisen"—Kemp.

Apegmatite is essentially a coarse grained granite in which the constituents have crystallised into large crystals, due to slow cooling under great heat and pressure. Associated are many rare minerals. Cassiterite or tinis mined in Geffney, South Carolina in Pegmatite; also in New South Wales, greisen in Pegmatite contains casseterite associated with wolframite (tungsten) and molybdenite. Lindgren "Mineral Deposit," page 769.

Because of the fact that woldramite and casseterite are commonly associated in pegmatite dykes of this character and formation, see Lindgren, (page 621-764) there is at least a possibility that casseterite will be encountered with further development at depth.

Molybdenite is present and shows in many of the specimen samples taken. It may be practicable to recover it in the milling process.

Another rare mineral found at one of the cuts on the outcrop was bismuthinite. As stated, a sample I took here assayed 245 oz. of silver per ton. This was at the cut shown on the claim map at the intersection with the Hematite vein.

Because of the manner in which deposits of this character were formed it is not unreasonable to assume that the veins will have considerable depth. Especially so considering the length of the outcrop and width of the bein.

Sampling:

The results of the sampling undertaken under the direction of Mr. Sayre and myself in 1936 are fully shown on the assay map of the main tunnel.

The tunnel had caved in places and it was necessary first to clean it out and retimber to the face—381 ft.

It was decided that the best way to sample would be to advance the tunnel a definite distance and get a uniform cut from each car. It was decided to shoot rather heavy to break any large chunks by hand while loading the car. The car was dumped into a chute with a slot in it about 3 inches wide, for the sample. This was dropped onto a sheet iron covered platform where the sample was broken to about 1 inch by hand, cored and quartered to approximately a 90 pound sample.

These "head" samples were taken to the sampling works at Prescott where they were ground to ¼ - ⅛ inches size.

At the sampler they were first ground to ¼ - ⅛ inch. Mixed by a large Jones splitter 3 times. Then cut once. Reject saved; other ½ ground in a cone pulverizer to a sand fineness. Again mixed in a Jones sampler and cut by a smaller cone sampler to about a 3 to 4 lb. sample.

The reject for the shute (that which did not drop through the slot for the ssamples) passed to a sorting platform where the Tungsten was cobbed and sorted. The reject from this or "tailing" was sampled by taking every 20th shovel full and this sample coned and quartered to about 90 pounds for the "tail" samples, which was sacked and run through the Prescott sampler as described for the "Head."

Lots 1 and 2 were handled this way, while lots 3 to 6 inclusive were shipped by freight direct to the assayer rather than have the expense and time of running through the Prescott sampler.

By more careful coning and quartering, the size of the samples was reduced to approximately 50 pounds each.

There were two miners and one sorter doing all the work, hand drilling, mucking, packing, and trucking to Prescott. It had taken 2½ months to sample 54 feet of tunnel—represented by 53 head samples and 24 tail samples.

It was decided to get in a portable compressor. In order to speed up the work to see more of the bein, and to get more samples, we changed the method as follows: Installed the compressor and a mounted jack hammer, increased the force to four men and a packer, changed the slot to a horizontal position in the shute, installed a small crusher to reduce the entire slot-sample to ¼ inch, mixing and cutting through a Jones sampler, or splitter.

This did not leave time for sorting. However, about 100 pounds of Tungsten was recovered from the side of the dump by the top man, when he was not busy cutting samples.

Samples of four lots, shipments Nos. 6 to 10 inclusive as shown on the tunnel sample map, were taken in this way. It represents a distance of 126 feet of the tunnel.

A copy of the assay return for all the samples included in lots 1 to 10 inclusive are a part of this report. A total of 126 samples from 180 feet of tunnel.

The sampling and work done in the tunnel showed that the walls, foot wall in particular, is soft and caved badly in places. This resulted in badly diluting the sample with waste material as is shown by the variable "numbers of cars" for the "foot advance" in the table results, on the tunnel sample map.

To correct this I measured the tunnel at regular intervals and calculated as follows: The average of all the samples, that is the foot assay value divided by the foot advance, equals 0.504% WO3. The factor of 1.4 is the ratio of the sample width to the actual width of the vein. Which, multiplied by the average of 0.504 equals 0.705% WO3 as the value of the bein. See tunnel assay map.

I carried this a little further with respect to the last four samples. I measured the area mined and determined the volume by using the prismoidal formula. See table at upper right hand part of tunnel sample map. This gave a result of 0.72 % WO3.

Mr. Sayre and I arrived at a result of 0.78% WO# on the first eight samples as follows: See following page 12-A.

Mr. Wood calculated the total tons of ore mined to 1935 and determined the average as 0.922% WO3. This was largely from ore closer to the surface where the iron was oxidized and little or no sulphides showing, which would give a higher per cent of WO3 and check fairly close to the 0.784% WO3 average of the sulphides ore in the tunnel.

The sampling indicated that the wolframite is desseminated all through the bein but that it is more highly concentrated in lense or shoots throughout the bein, and intimately associated with the quartz, pyrite and mica. Many large solid pieces of pure wolframite showing crystal faces were recovered. I have a specimen in my office which weighs 4 3/4 pounds. A large specimen was given away. Mr. Wood reports a specimen which weighed approximately 80 pounds, found wholly encased within about 8 inches of mica on one of the walls.

The sampling also shows that it is impossible to make much of a recovery by hand sorted, but that the entire vein can be mined and milled with average heads of not less than 0.7% WO3. Many tail samples, after the Tungsten had been sorted out by hand, ran high in comparison with the corresponding head sample.

Ore Deposits:

The ore developed by the main tunnel 560 feet with a vertical height of 120 feet from the face of the tunnel to the surface outcrop, and width of approximately four feet would indicate at least 8,000 tons of ore partly blocked out after making an allowance for the ore already stoped out.

For the "Probable Ore," or the ore partly blocked out, I have assumed ore to

a depth of 40 feet below the present main tunnel level. The horizontal length of which is 2,000 feet and the average width as stated, I have estimated to be three feet (assuming 12 cubid feet per ton of ore in place) the total ore above a level 40 feet below the present tunnel level would be 3 x 289,000 12 = 72,250 tons.

The "Probable Ore" is dependent on the depth of the bein. As previously discussed under geology, indications for considerable depth are good. If the depth and lenght are equal to the showing of the outcrop, which is entirely within the realms of possibility, there is indicated an ore body of 2,000 feet long, 2,000 feet deep, and three feet wide ore the equivalent of one million tons of ore. Even with tungsten at the present price this would be a first class bonanza.

Tonnage and Value of Ore:

Ore developed--8,000 tons. Ore partly blocked out, or probable ore 72,250 tons. Possible ore, indicated by the length and width of the outcrop and the geology, 1,000,000 tons.

Using the conservative figure of 0.7% WO_3 and the present quotation of tungsten of $20 a unit for 60% WO_3. This is equal to $14 a ton ore. Assuming $7 as the total cost for mining, milling, development and transportation, there would be a net profit of $7 or a value as follows: Ore developed 7 x 8,000 = $56,000. Probable ore, 7 x 72,250 = $505,750. Possible ore, 7 x 1,000,000 = $7,000,000. Assuming the production of 1,000 tons a month to start, with a 50 ton mill, the ore developed would be recovered in about 8 months.

Mining:

As stated in my introduction I will not attempt to outline the method of mining. It is a matter to be worked out in a practical manner by experienced miners.

The walls caved quite badly in places in the present workings, apparently the result of surface waters and oxidation. However, I do not consider it bad enough to be a serious obstacle or an expensive one, and may correct itself entirely with greater depth below the surface. It may be found advisable to leave pillars of low grade ore for support in the stopes and these "pulled" later.

I do not anticipate any trouble from underground waters. The mountain is drained to the level of Boulder Creek, a vertical distance of 650 feet, to the indicated ground water level. In the spring there will be some surface water to take care of but this will be of little consequence as the mine is almost at the top of the mountain.

Milling:

The milling would be comparatively simple. A combination of quartz, mica, pyrite, and wolframite can be easily separated by a simple process of concentration. Coarse grinding followed by jigs, classification finer grinding, followed by tables, I think will give a very good recovery. Perhaps some provision made for molybdenum, if found in paying quantities. However, it would be advisable to have a test run by a competent metallurgist before designing a mill.

In the milling operation, I believe it will be found advisable to sort out the coarse tungsten from a short sorting belt located between the bin and the crusher. Probably the man at the bin and crusher could do this.

It may also be practical to sort out some of the large high grade pieces underground as was done by the leasers.

Market for Tungsten:

Tungsten is used largely in the steel industry and molybdenum has taken its place as an alloy in certain steels. I saw a letter from the president of one of our large steel companies stating that in his opinion nothing at present took the place of tungsten as an alloy for high speed tool steel.

The largest supply of Tungsten comes from China where it is cheaply mined by Chinese Coolies for export. If Japan should cut off this supply or if and when the source is exhausted, tungsten will command a high price in this country. During the World War it reached a little over $100 a unit or $5 a pound.

Capital Requirements:

The initial development would consist chiefly of roads, water development, a mill, power, and quarters for the men. As stated I am not prepared to make an estimate of these costs which of course, would depend on the scale of operations and development decided upon.

I would consider a 50 ton unit for a mill built so that its capacity could be doubled. Water must be developed to meet the size of the mill and other needs.

A road must be built into the property. The best route and cost is a matter of further investigation.

As there is no transmission line close enough, a power plant of some kind must be installed for pumping, mining, and milling on perhaps separate units for each.

Prescott, Arizona
February 11, 1939

Respectfully submitted,
(Signed) Harlow D. Phelps, E. M.
(Registered)
(Professional)
(Engineer)
(Seal)
(Arizona U.S.A.)

This report included the following maps and copies of assay certificates:

Maps:

The maps included with this report are as follows:

1. Location map, showing roads, etc. copied in part, from the Yavapa County Engineer's map.

2. My claim map, showing claims, tunnels, etc. with the outcrops of beins shown in color.

3. Homer Wood's profile map of the main tunnel and production from 1915 to 1935.

4. My profile map showing area from which the "Probable ore" was determined.

5. My assay map of the main tunnel.

Copy of Assay Certificate:

Included herewith is a copy made from the assay returns of all samples taken from the main tunnel car samples as described under "Sampling."

Hillside, Arizona
% Hillside Mines, Inc.,
April 30, 1938

Mr. H. L. Williams,
Present.

Dear Sir:

Given below is a preliminary report on the Black Pearl Group of Tungsten Mining Claims in Yavapai County, Arizona. The inspection of the property was made April 12 to 23 (incl.) 1938 by Mr. W. W. Stephenson and myself. Assay results and other data are not yet available, hence this "preliminary report".

Every detail (except one plot of claims that has since been amended) which has been possible to check of the work of Mr. H. R. Wood has pointed to its accuracy and correctness. Details will be given below of additional checks to be made. Consequently, data given on his drawing "Section of workings on Black Pearl Group" will be used in various calculations made herein. Only in case of marked discrepancy in average assay results (which I believe highly improbable) will the final report differ in substance from this preliminary report.

SUMMARY:

1. One very strong vein has been superficially developed on the property.
2. The shallow workings (at no point more than 70 ft. below the surface and mainly much nearer the surface) from 1900 feet of length of this one vein have produced a recorded 59 615 lb. of wolframite which contained 70% WO_3.
3. Total recorded production is 62 100 pounds.
4. Various other strong veins outcrop on the property. Wolframite can be found in several of these outcrops. None of these other veins have been developed sufficiently to determine their value.
5. Since the above recorded production, 180 ft. of drifting has been done. This drift was mainly in sulphide (FeS_2) ore and showed an average of 0.784% WO_3 and average width of 4.2 ft. The maximum depth below the outcrop was 106 ft. It is noteworthy that the average WO_3 content of the oxide ore checks very closely with the reported average WO_3 content of the sulphide ore after correcting for enrichment by subtraction of FeS_2.
6. There are no serious natural obstacles to the successful exploration, development, and exploitation of the property.
7. There is a reported possibility of finding good silver ore at some place on the property.
8. Present reserves are calculated at $67,000 net operating profit.

CONCLUSIONS:

1. The future price and market for tungsten is the greatest factor of uncertainty in my mind. If a satisfactory market at near present quotations can be expected, then:
2. The program for development which is outlined near the end of this report is strongly recommended.
3. A total capital expenditure of $200,000. will be required. Only a few thousand will be required for initial exploration. Additional amounts will be required only upon satisfactory results from the completion of each step until the entire amount will be required to place the property in satisfactory operation.
4. Based on assumptions given herein, an exceptionally profitable operation is indicated.

Drawing No. 2 shows the general location of the property. Drawing No. 1 gives the exact location and ties to legal subdivisions of land. It will be noted that there are 11 patented claims and 5 unpatented claims. Each claim is of the full size of 20.66 acres. The vein, from which practically all production to date has been obtained, is covered for a length of 6000 feet by patented claims. There are also certain showings of wolframite to the north and west of the Black Pearl Group which are not covered by the Group.

The question of title, ownership, and terms for operation and or purchase was not studied in this examination.

According to a report by Mr. Wood, the claims were located in 1914 by Mr. William Gommers. It is evident from the present condition of the mine workings that operation was under the "lessee system" -- whether by the owner or by actual lessees. By that is meant that the mine was not developed nor operated systematically but rather with a view of obtaining a little more tungsten with the minimum outlay of effort. If waste from sorting operation was in the way, it was thrown to the bottom of the shaft instead of hoisting it by hand. Inadequate timber was used; and so on. Such a method had one distinct advantage and one distinct disadvantage from the viewpoint of future large scale operation. The advantage is that by the nature of operation, the workings were shallow. Hence the vein was explored over a greater length than perhaps would have been the case by other methods. The disadvantage is that the value of the bein at considerable depth has never been proven, nor is there much available ore blocked out (except by drifting in 1936 and dumps).

The past production of the property is shown in detail on the attached "Section of Workings on Black Pearl Group" by H. R. Wood. At present quotations, the value would be slightly in excess of $40,000.

The Black Pearl Group is in a granite formation. Various large granite pegmatite dikes cut the granite. The veins are largely quartz with muscovite in almost pure veinlets in places. The vein material can well be designated, greisen. Numerous large vugs from which pyrite has been weathered are to be found in the oxidized zone. A carefully cut sample from an oxide dump contained 5.7% Fe: that from one sulphide dump 10.9% Fe and another sulphide dump 15.0% Fe (average sulphide 12.9% Fe). This would mean a reduction of at least 15.5% in weight by weathering of FeS2. The average of 180 feet of drift in sulphide is given as 0.784% WO3. Calculating this to the oxidized material would give 0.986% WO3, which checks remarkably well with the 0.922 % reported by Mr. Wood. Two important conclusions can be drawn from the above:

1. Reported assays of WO3 agree exceptionally well with themselves.
2. The greatest depth yet obtained(though still very shallow) shows no trend toward a decreasing WO3 content of the original vein material.

Very few specimens were found wherein the wolframite occurred as small(10 mesh) particles in a mass of pyrite. The common mode was as pieces of wolframite in quartz or muscovite from 1/4" or 3/8" to 1 1/2". Much larger pieces are reported and I found several larger pieces in recently cased vein material.

In addition to the massive minerals mentioned above, namely: quartz, muscovite, pyrite, wolframite, numerous other minerals were found in lesser amounts. Fluorite apparently worked into the joints of the granite. A few large crystals of microcline were found. A few specimens of bismuthinite(carrying 30 oz. ag.) were found in the sulphide dump. Numerous small aggregates of molybdenite were found in the sulphide dump (assays for Mo are being made). Silver assays of several hundred ounces per ton are reported but I do not know from whence they came. Gold and silver assays were made on all samples taken by myself but no commercial amounts were found in those samples.

The elevation is guessed as near 6000 feet. This indicates a more agreeable summer temperature than in the lower regions of Arizona. Also considerable snowfall is reported for some winters. Scrub oak and similar brush, pinion, juniper, and cedars cover the property. Large pines are in the vicinity of Camp Wood some 8 miles north. A sawmill is said to be operatin in the pine timber. Lumber and mine timber should be readily and cheaply obtainable.

The property is connected by road with Prescott Arizona(see drawing 2). Unfortunately, there is about 3/8 of a mile of road going down into Loco Creek which has been constructed entirely too steeply--grades as steep as 11°-50'. Using a tractor it would be possible to get equipment for exploration to the property. But for satisfactory construction and operation some two miles of road would have to be built into the property. Also the road across the malpais mesas(lava flats) from the rim above Loco Creek to near Camp Wood would need to be surfaced with decomposed granite for satisfactory wet weather travel. In places the road across the mesa should be straightened and changed to the tops of the low ridges. The mesa road is probably six miles in length. In no place are exceptionally difficult mountain road building problems encountered. It is no known just how much of this road Yavapai County would construct should it be demonstrated that work on a large scale is to be done on the property.

There are three possible sources of water for milling:

1. Possibility of developing water in mine workings.
2. Loss Creek-- shown on drawing 1.--quantity doubtful
3. Boulder Creek-- some 600 feet West of Black Pearl Claim No. 8. and probably will be sufficient at all times.

The lower tunnel was caved about 100 feet from the mouth and was filled with water behind the cave. It is very desirable to have this ground timbered and the debris removed so that the 180 feet nearest the face can be sampled accurately. Sampling this 180 feet should give a valuable check on reported results and, as it is the deepest point now accessible, should give the best indicator we now hase as to the prospects with depth.

As no mine workings were open for a sufficient distance to warrant systematic sampling, the program consisted of dampling some dumps, a cut across both walls of a shaft and samples from various outlying shallow workings to determine the extent of thed distribution of the tungsten. Because of teh very spotty nature of the deposit, i.e. large pieces of barren quarts and large pieces of wolframite, it was necessary to cut samples weighing from 50 lbs. to 175 lbs., then carefully break all material down to 3/8" or less before reducing the quantity of ample with a riffle. Assays have not been received to date. A further description of each sample will be made when the assays are reported.

No metallurgical tests have been made. The character of the ore would indicate that recovery on jigs should start at a rather coarse size (say 3/8"). It is quite probable that a considerable quantity of clean tailing can be discharged at such a coarse size. Middling products will have to be ground finer in steps (say to 10 or 20 mesh). The recovery methods will be jigs and tables. Flotation will probably be useful in removing pyrite from the wolframite concentrate. Should the molybdenite prove to be in paying quantities, the tails from the tungsten mill should be reground and floated to recover the molybdenum.

As stated in preceeding paragraphs, operations at this property have not been of such a nature that an ore reserve would be created. The work done in 1936 was an exception.

The following figures are made from the data on "Section of Workings on Black Pearl Group" by H. R. Wood. Vein areas marked in green have been selected as being reasonable to assume as ore reserve of the average width and analysis, viz., 4.2 ft. wide containing 0.884% WO_3. Each square on the section is 10 ft. by 20 ft. = 200 sq.ft.

106 x 200 = 21200 sq. ft.
21200 x 4.2 = 89040 cu. ft.
89040 x 12 = 7420 tons @ 0.884% WO_3.

The data given on the same drawing indicate 6475 tons of dump material containing 0.442% WO_3 (0.33% recoverable at 75% recovery).

The greatest uncertainty in calculating the value of these reserves as well as calculating the possible outcome of operation of the Black Pearl Group lies in the future price of tungsten. No doubt each reader of this report will have his own ideas as to the future price of tungsten. In which case the financial outcome figures will be changed accordingly. A figure of $20.00 net per unit of WO_3 is herein used. Only on theing can be said in defense of that particular figure, viz., it is slightly below present published quotations at a time when steel operations are at a low ebb and other metals are exceptionally low in price.

The question of costs is also a factor in the equation from wheih net profits are derived. Taking into consideration that the vein is fairly wide, dips steeply, has granite walls, and would not be sorted underground, it is hoped that a fairly cheap shrinkage stope mining method can be used. Also it seems probable that considerable coarse quartz can be discarded as a clean final tailing early in the milling process, thereby making low milling costs per ton. Construction costs are assumed which will put the property into proper shape for efficient operation. The assumed basis is 100 tons per day.

Mining and development	$4.00 per ton
Milling	1.00 per ton
Overhead and taxes	2.00 " "
Total operating cost	$7.00 " "

The dump material is calculated at:

Cost to place in mill bins	$0.50 per ton
Milling	1.00 " "
Overhead	1.00 " "
Total cost dumps	$2.50 per tons

The recovery on newly mined ore is assumed to be 80%: on dumps 75%. At $20.00 net received per unit of WO3 present reserves would show the following operating profit per ton:

Present ore block 742 tons at $5.50	$40,810 Total operating profit
Dumps 6475 tons at $4.10	$26,540 " "
Total operating profit on present res.	$67,350.

Conservative business calls for suffisient ore reserves to be blocked out to refund the total capital expenditure. The following program is outlined to provide 75,000 tons of ore reserve (assuming 75% of the vein material encountered will be ore of 0.784% WO3 and with of 4.2 feet). 75,000 tons will provide slightly more than two years operation at 100 tons per day. Drawing 4 shows a proposed plan of accomplishing this development. It will be noted that this proposal leaves untouched a lot of ground to the east which san very reasonably be expected to yield ore. All ore found in this area, that below the tunnel level, and other favorable places will add to the estimated net profit from the operation. The expenditure, not including cost of equipment for this proposal would be:

Crosscut(see drawing 7) 1255 feet @$10.00	$12,500.
Drifts (see drawing 4) 1700 ft. @ $10	17,000.
Raises (see drawing 4) 700 feet @ $7.50	5,250.
Total	$34, 750

Given below is a very rough estimate of total capital required to place the property on an operating basis. It should be noted that the $35,000 for development is a prepaid development charge which is included in operating costs but for which funds must be provided before operation starts. The refund of that amount is inclued in assumed "Mining and development" costs.

Power	$35,000.
Mine Development	35,000
Mill	75,000
Mining Machinery and Shop	22,500
Road(mine proportion)	10,000
Offices, bldgs., water supply	7,500
Misel not inclued above	15,000
Total capital necessary	$200,000
Deduct prepaid development a	35,000
Amount which net operating profit must refund	$165,000

All of the assumptions made above show a net operatiog proft of $412,500.00 for 75000 tons of ore. Also the purchase price of the property must come out of this amount.

The logical steps in the development and exploitation of the Black Pearl Group seem to me to be the following (see drawing 4)

A. Open the lower tunnel and carefully check the figures on the last 180 feet of drift. If these check, then proceed with:

B. Without spending any money on roads, take a portable compressor and supplies to the property with a Caterpillar tractor. Continue driving the present lower tunnel for another 600 feet (cost $6000. plus equipment). Provide sample crushing equipment to sample very carefully all material obtained from drifting operation. If the results from this work hold up to expectations, then:

C. Remove compressor and equipment also additional equipment to the crosscut tunnel site(see drawing 7), and drive the 1255 ft. crosscut tunnel. Then drive lower drifts and raises(see drawing 4). During thsi period run metallurgical tests, design mill, make road survey and have all details ready to go into execution as soon as "C" is completed satisfactorily.

D. Construct roads, mill, shops, power plant and other surface work necessary. prepare shutes and stopes underground.
E. Start operation and continue drifting east.

Various alternatives to the above plan have been studied. Drawing 5 offers a slightly more conservative policy but will cost more in the end.

Additional data will be given as soon as obtainable.

Respectfully submitted,

(signed)
J.F. Frost,
Engineer of Mines

Hillside, Arizona
% Hillside Mines, Inc.,
May 25, 1938

Mr. H. L. Williams,
Present

Dear Sir: Assays- Black Pearl

We have the following assay report from Chas. O. Parker & Co. of Denver, Colorado.

	WO3	MoS2
Sample No. 1	0.60%	
2	0.12%	trace
3.	0.44%	trace
4	trace	
5	trace	
6	0.80%	
7	2.54%	
8	trace	
9	trace	

Determination for molybdenum was requested on only two samples.
The descriptions of the above samples and comments follow:
No. 1. This is a sample of an oxidized ore dump at the blacksmith shop level. several cuts were taken from the sides and face of the dump after local surface concentration effects had been removed. Also several shallow pits were sunk on top. There were not many large boulders in this dump. A sample of about 175 lb. was taken and broken down to about 1/4 inch before reducing by means of a riffle. This dump is only one of many included in Mr. Wood's average of 0.44% WO3. The above assay of 0.60% WO3 merely indicates the average of 0.44% WO3. used in the calculations sounds reasonable. This is material which is the reject from hand sorting.
No. 2 This is a sample of a small sulphide ore dump. The figure of 0.12% WO3 is somewhat lower than was expected. Two possible reasons stand out:
A. It is reported that the tunnel was driven some distance in 1936 before good ore was encountered(see sample 3).
B. It is known that considerable hand sorting from these dumps has taken place, and it is reported that this particular dump was also sorted as it was made.
Noe. 3. This is a sample of the larger sulphide dump just below No. 2. It has also been sorted somewhat.).44% WO3 remaining from a reported original vein content of 0.784% WO3 is only slightly lower than should be expected. (see note at end of this report).

No. 4. This is a sample from the discovery pit on Black Pearl Claim No. 8. (see map No. 1). An inspection indicated that very little wolframite could be seen in the material now accessible. Sample No. 4 was taken to prove or disprove this point. Result was " trace"/

No. 5. This is a sample from the discovery pit on Black Pearl Claim No. 7. (See map No. 1). It was taken for the same reason that sample No. 4 was taken. It should be noted however that sufficient work was not done at the time of the examination to expose the vein properly. It is entirely possible that, were the solid vein expose properly, results higher than the reported "trace" would be obtained.

No. 6. This is a sample of some 50 lb. cut from channels of 5.9 ft. on each side of the shaft "c" (See Section of Workings on Black Pearl Group). It was taken 14 ft. below the collar of the shaft which is the lowest point now accessible. This particular spot evidently was not what the old operators considered good ore because it was left in place while the bein below and to the sides had been thoroughly "gouged out". In spite of this , however, it should be noted that 0.80% WO3 compares well with previously reported averages.

No. 7. This is a collection of various pieces of float and old dump from North Side Claim No. 3, approximately 150 ft. north east of the 44 ft. tunnel (See map No. 1). Apparently there is another bein or possibly two veins which have not been explored. This can be considered a collection of specimens at this point which show the presence of tungsten and not as a true sample. The assay was 2.54% WO3.

No. 8. This is a sample of 3.1 ft. of the face of the 80-ft. tunnel on North Side Claim No. 3 shown on map No. 1. The assay of "trace" probably explains why the tunnel was stopped at this point. However, wolframite can be found on the dump, so possibly this was a barren spot in a vein which had been carrying tungsten.

No. 9. This is a sample of 0.4 ft. of the face of the 44-ft. tunnel on North Side Claim No. 3. The assay was "trace". The notes regarding sample No. 8 apply to this sample also.

In conclusion I may state that these preliminary results add strength to the assumptions made in the preliminary report of April 30, 1938. Samples 1, 2, 3, and 6 are especially indicative. Step A. in the recommendations of April 30th, namely, the accurate sampling of 180 feet nearest the face of the lower tunnel is the next job to be done in the exploration of the Black Pearl Group. The vein being naturally spotty, as formerly explained, will require a quite short sampling interval to give accurate results.

Respectfully submitted,

J. F. Frost

REPORT OF THE BLACK PEARL
TUNGSTEN MINE
YAVAPAI COUNTY, ARIZONA

Foreword:

The purpose of this report is to present as briefly as possible, the information and data I have acquired as the result of my study and examination of the Black Pearl property which with the tunnel sampling extended over a period of several months;included are the results and deductions therefrom.

The sampling was partly under my direction. The surveying done for the map of the tunnel and profile was done by me as was the patent survey. In fact, it was while making the patent survey that I first became interested in the property, and thought of its possibilities.

I have not, in this report undertaken to recommend or to outline a method of mining and development or to estimate what this cost might be. There are many factors entering into these questions and entail more study and investigation than I felt like giving the matter at this time.

There are difficulties to be overcome and problems to work out, particularly in regard to the method of mining and the development of water. But they are not beyond the ability of good miners and engineers to solve.

Summary and Conclusion:

The main vein of the Black Pearl is an unusual and promising occurrence of Wolframite (Tungsten) having a strong and well defined outcrop, averaging 3 feet wide and 2000 feet long. A 560 foot tunnel with an estimated 8000 tons of ore developed has an average assay of from 0.7 to 0.9 WO_3 with an approximate net value of $56,000.

Probable ore, - ore indicated between the outcrop and a level 40' below the present tunnel level has approximately 72,000 tons with a net value of approximately half a million dollars.

The owners and lessers from 1915 to 1933 have mined and shipped 62,000 pounds of tungsten having the remarkable average of 70% WO_3 by hand sorting. Most of this came from shallow workings all along the outcrop. This ore was mined and sorted by hand and packed down the mountain.

It is an interesting fact that no capital has ever been put into the property. Roads, trail, buildings, tunnels etc. have all been financed from the sale of Tungsten; with, I understand, a good profit left for the owners.

The market for Tungsten has been steadily increasing for the past 4 years to the present price of $20.00 per unit. A unit being 20 pounds or 1/100 of a ton for a standard content of Tungstic acid--60% WO_3. If the supply from China should be cut off Tungsten would command a high price in this country. While considerable Molybdenum is being used as alloy in the manufacture of steel it does not take the place of Tungsten for high speed tool steel.

Because of the purety of its wolframite the Black Pearl product, I understand, can be sold at a premium direct to steel companies, under contract, rather than to ore buyers.

The bein shows not only unusual length but a remarkable persistence in width throughout its entire length. The geological indications and mineral associations are favorable as are in the physical indications.

The mystery is that the property has not been snapped up before now. The answer to that is--1/2 of the ownership has repeatedly refused to sign up with anyone under any conditions.

I believe the Black Pearl property os one of unusual merit with real possibilities

and that it may develop into one of the greatest tungsten mines of this county if it is properly handled.

General Information:

The Black Pearl property consists of 11 patented and 5 unpatented lode claims,--Mineral Survey No. 1186--located in the Eureka Mining District, covering parts of Section 7, 8, 12, 13 & 18, T 15 N R 7 & 8 W, Yavapai County, Arizona. It consists of the Black Pearl and North Side groups as shown on the claim map included with this report.

The mine is located 57 miles via the Williamson Valley and Camp Wood road, in a northwesterly direction from Prescott. At 25 miles from Prescott the road turns left and westerly onto the Camp Wood Road and in 15 miles is within the pine forest of the Camp Wood country. At mile 46.5 the Tungsten Mine road leads southerly from the Camp Wood Road. Thus far the road is very good, negotiable easily in two hours. The road from here on is over a winding ungraded and unsurfaced road over a "malapai" Mesa of varying grades. At mile 54 the road reaches the rim of the Mesa. Below and to the south lies Bear Flat and the head waters of Loco Creek. Farther south stands Tungsten Mountain like a sentinel rising above the surrounding country.

The present road down from the Mesa rim is very steep for a short distance, having a grade in places as high as 23%; but when the road is in good repair can be negotiated with a good car or light truck. This road could easily be carried more gradually down the side of the Mesa. It is two miles from the top of the rim to the mine camp at Bear Flat; from here it is one mile by a good trail to the main tunnel on the west slope of Tungsten Mountain. This route is generally closed by snow during a part of the winter months.

The CCC or some other alphabetical agency of the government has started a road, which if completed will come within a mile or so of the property and would join the road to Camp Wood and a saw mill. This would connect the mine with Hillside, the nearest railroad point; and is a part of the Hillside Mine road. The total distance to Hillside would probably be about 35 miles and the road would be open the year around. I understand the road has been constructed as far as Wild Horse Basin on Boulder Creek within about six miles of the mine. This, I understand would not be a difficult road to build into the property. Included with this report is a map showing the location of the mine with reference to Prescott and Hillside.

The elevation at Bear Flat is approximately the same as Prescott, one mile above sea level. The portal of the main tunnel is about 520 feet above Bear Flat or 5,8000 feet elevation. The top of the mountain is 165 feet above the portal of the tunnel or approximately 6000 feet elevation.

The regional topography is that of the irregular high mesa plateau of Basalt or "Malapai" flows, broken and distorted by earth movements and intrusions of granites, pagmatite, and other chrystalline rocks, presumably of pre-cambrain origin.

The property is located over the major part of Tungsten Mountain, which rises above the surrounding mesas. The drainage is to Boulder Creek and Loco Creek at the base of the mountain. Both creeks flow to the Santa Maria River buty by quite different routes.

Mine timbers can be obtained from a saw mill off the Camp Wood road about 20 miles from the mine. Tungsten Mountain has a scanty growth of cedar and pinon.

Water for domestic use is obtained from a spring at the camp on Bear Flat. Boulder Creek has water all year, although very low during dry seasons; showing only in places as running water. There is probably a fair underground flow even during dry seasons, and I believe sufficient water can be developed for milling purposes from Boulder Creek. If it was found advisable to build the mill at the mine workings the lift would be about 650 feet; the length for a pipe line approximately 4,000 feet.

Power would have to be developed as there is no transmission line within reach of the prope rty.

The surface equipment consists of a blacksmith shop, mine track, rail and cars at the tunnel portal, two bunk houses, and a warehouse at Bear Flat.

There are no mines operating close to this property. Some work has been done on a Tungsten showing south and adjoining the Black Pearl.

The largest mines in this district are the Hillside and Bagdad, 10 to 15 miles southwest; shown on the location map included as a part of this report. The Hillside Mine, a gold mine, has been a big producer. The Bagdad is a large low grade copper deposit in the development stages. There are many other smaller properties in this section of the Eureka Mining District.

History and Ownership:

The property was located in 1914 by William Conners. Mr. Homer R. Wood and William Lawler acquired a half interest at that time. Mr. Lawler died leaving his interest to his widow and son. The present owners are : H. L. William, Joseph P. Walton, and William Stephenson, a total of ½ interest; Mary Lawler and John William Lawler, the remaining ½ interest.

The title of the property is in good shape. The government passed on that before recently issuing patent to the property.

The property has a unique history in that all expenditures have come out of the profits. No capital has ever been put into the property. The road, trail, building, small tunnel and shafts have all been financed from the sale of Tungsten, which was mined almost from the grass roots, hand drilled, sorted and shipped by pack burro down the mountain and by truck 57 miles to Prescott. Thence by rail to eastern buyers.

Mineralization and Geology:

The main vein has a length of almost 6,000 feet with Tungsten showing on the outcrop for a distance of 2,000 feet. Beginning at the shaft and the portal of the main tunnel on the west slope of the mountain, the outcrop has been opened up at intervals along its entire length, extending over the top of the mountain and down the east slope.

The profile map made by Homer R. Wood, part owner at that time, and a mining engineer of excellent reputation, gives a very graphic picture of the actual development and production from this vein. Apparently, only the surface of this remarkable deposit has been scratched. Mr. Wood's map shows a total of 62,100 pounds of Tungsten mined and shipped from 1915 to 1935, having a most unusual high content of over 70% WO_3. This work was all done by hand drilling and rather crude timbering. Most of the old workings are badly caved.

The work done by the lessors is included in the profile map by Mr. Wood. Their method was to shoot very light and sort out the coarse Tungsten underground. The balance went to a sorting platform where it was cobbed and sorted.

Mr. Wood's map shows that 300 pounds of Tungsten was mined from the shaft on the north side No. 4 claim. See my claim map for location.

"1,185 pounds of Tungsten from placer" see map, came from the side slope of Tungsten Mountain as a result of erosion from the ledges.

The direction or strike of the main vein is S74° E. The dip almost vertical in places and varying from 75 to 85° S. W.

The width of the main vein varies from 1.7 to 6 feet. The measurements taken by me at accessible cuts and in the main tunnel are shown in the small profile map accompanying this report. It is not possible to give a definite average from these measurements as they could not be equally spaced. I believe that 3 feet is a conservative and fair average for the width of the main vein for a distance of 2,000 ft.

The deepest shaft according to Mr. Wood was about 65 feet. The main tunnel is now in 560 feet from the present portal; at the face it is 120 feet vertical below the surface outcrop. Ore was found 40 feet below the main tunnel in the stope off the shaft near the portal and according to Mr. Wood's profile map produced 900 pounds of Tungsten. This is therefore a depth to which ore is indicated below the present level.

Other veins found are indicated on the claim map in color, showing Tungsten at a number of other workings on the property. There is Tungsten float over a considerable area of the North slope of Tungsten Mountain. The vein system has not been fully worked out but a series of parallel veins is indicate. A half mile tunnel from the base of the mountain would cut the main vein at a depth of 500 feet below the present tunnel and would intersect other beins at lesser depth. This possibility is worth investigating more fully.

The Tungsten occurs in the form of wolframite, a tungstate of iron and manganese, black in color with a metallic luster. Hence the name Black Pearl.

The Gangue material, that is the material associated with the tungsten in the vein is largely quarts, mica, and pyrite. Veins of this type are classed as high temperature deposits, resulting from the metamorphism of the granitite and pegmatite. "Such metamorphic products when essentially consisting of quarts and mica are called "greisen"--Kemp.

Apegmatite is essentially a coarse grained granite in which the constituents have crystallized into large crystals, due to slow cooling under great heat and pressure. Associated are many rare minerals. Cassiterite or tinis mined in Geffney, South Carolina in Pegmatite; also in New South Wales, greisen in Pegmatite contains cassterite associated with wolframite (tungsten) and molybdenite. Lindgren "Mineral Deposit," page 769.

Because of the fact that woldramite and cassterite are commonly associated in pegmatite dykes of this character and formation, see Lindgren, (page 621-764) there is at least a possibility that cassterite will be encountered with further development at depth.

Molybdenite is present and shows in many of the specimen samples taken. It may be practicable to recover it in the milling process.

Another rare mineral found at one of the cuts on the outcrop was bismuthinite. As stated, a sample I took here assayed 245 oz. of silver per ton. This was at the cut shown on the claim map at the intersection with the Hematite vein.

Because of the manner in which deposits of this character were formed it is not unreasonable to assume that the veins will have considerable depth. Especially so considering the length of the outcrop and width of the bein.

Sampling:

The results of the sampling undertaken under the direction of Mr. Sayre and myself in 1936 are fully shown on the assay map of the main tunnel.

The tunnel had caved in places and it was necessary first to clean it out and retimber to the face--381 ft.

It was decided that the best way to sample would be to advance the tunnel a definite distance and get a uniform cut from each car. It was decided to shoot rather heavy to break any large chunks by hand while loading the car. The car was dumped into a chute with a slot in it about 3 inches wide, for the sample. This was dropped onto a sheet iron covered platform where the sample was broken to about 1 inch by hand, cored and quartered to approximately a 90 pound sample.

These "head" samples were taken to the sampling works at Prescott where they were ground to ¼ - ½ inches size.

At the sampler they were first ground to ¼ - ½ inch. Mixed by a large Jones splitter 3 times. Then cut once. Reject saved; other ½ ground in a cone pulverizer to a sand fineness. Again mixed in a Jones sampler and cut by a smaller cone sampler to about a 3 to 4 lb. sample.

The reject for the shute (that which did not drop through the slot for the samples) passed to a sorting platform where the Tungsten was cobbed and sorted. The reject from this or "tailing" was sampled by taking every 20th shovel full and this sample coned and quartered to about 90 pounds for the "tail" samples, which was sacked and run through the Prescott sampler as described for the "Head."

Lots 1 and 2 were handled this way, while lots 3 to 6 inclusive were shipped by freight direct to the assayer rather than have the expense and time of running through the Prescott sampler.

By more careful coning and quartering, the size of the samples was reduced to approximately 50 pounds each.

There were two miners and one sorter doing all the work, hand drilling, mucking, packing, and trucking to Prescott. It had taken 2½ months to sample 54 feet of tunnel-- represented by 53 head samples and 24 tail samples.

It was decided to get in a portable compresser. In order to speed up the work to see more of the bein, and to get more samples, we changed the method as follows: Installed the compresser and a mounted jack hammer, increased the force to four men and a packer, changed the slot to a horizontal position in the shute, installed a small crusher to reduce the entire slot-sample to ¼ inch, mixing and cutting through a Jones sampler, or splitter.

This did not leave time for sorting. However, about 100 pounds of Tungsten was recovered from the side of the dump by the top man, when he was not busy cutting samples.

Samples of four lots, shipments Nos. 6 to 10 inclusive as shown on the tunnel sample map, were taken in this way. It represents a distance of 126 feet of the tunnel.

A copy of the assay return for all the samples included in lots 1 to 10 inclusive are a part of this report. A total of 126 samples from 180 feet of tunnel.

The sampling and work done in the tunnel showed that the walls, foot wall in particular, is soft and caved badly in places. This resulted in badly diluting the sample with waste material as is shown by the variable "numbers of cars" for the "foot advance" in the table results, on the tunnel sample map.

To correct this I measured the tunnel at regular intervals and calculated as follows: The average of all the samples, that is the foot assay value divided by the foot advance, equals 0.504% WO_3. The factor of 1.4 is the ratio of the sample width to the actual width of the vein. Which, multiplied by the average of 0.504 equals 0.705% WO_3 as the value of the bein. See tunnel assay map.

I carried this a little further with respect to the last four samples. I measured the area mined and determined the volume by using the prismoidal formula. See table at upper right hand part of tunnel sample map. This gave a result of 0.72 % WO_3.

Mr. Sayre and I arrived at a result of 0.78% WO_3 on the first eight samples as follows: See following page 12-A.

Mr. Wood calculated the total tons of ore mined to 1935 and determined the average as 0.922% WO_3. This was largely from ore closer to the surface where the iron was oxidized and little or no sulphides showing, which would give a higher per cent of WO_3 and check fairly close to the 0.784% WO_3 average of the sulphides ore in the tunnel.

The sampling indicated that the wolframite is desseminated all through the bein but that it is more highly concentrated in lense or shoots throughout the bein, and intimately associated with the quartz, pyrite and mica. Many large solid pieces of pure wolframite showing crystal faces were recovered. I have a specimen in my office which weighs 4 3/4 pounds. A large specimen was given away. Mr. Wood reports a specimen which weighed approximately 80 pounds, found wholly encased within about 8 inches of mica on one of the walls.

The sampling also shows that it is impossible to make much of a recovery by hand sorted, but that the entire vein can be mined and milled with average heads of not less than 0.7% WO_3. Many tail samples, after the Tungsten had been sorted out by hand, ran high in comparison with the corresponding head samples.

Ore Deposits:

The ore developed by the main tunnel 560 feet with a vertical height of 120 feet from the face of the tunnel to the surface outcrop, and width of approximately four feet would indicate at least 8,000 tons of ore partly blocked out after making an allowance for the ore already stoped out.

For the "Probable Ore," or the ore partly blocked out, I have assumed ore to

a depth of 40 feet below the present main tunnel level. The horizontal length of which is 2,000 feet and the average width as stated, I have estimated to be three feet (assuming 12 cubic feet per ton of ore in place) the total ore above a level 40 feet below the present tunnel level would be 3 x 289,000 12 = 72,250 tons.

The "Probable Ore" is dependent on the depth of the bein. As previously discussed under geology, indications for considerable depth are good. If the depth and lenght are equal to the showing of the outcrop, which is entirely within the realms of possibility, there is indicated an ore body of 2,000 feet long, 2,000 feet deep, and three feet wide ore the equivalent of one million tons of ore. Even with tungsten at the present price this would be a first class bonanza.

Tonnage and Value of Ore:

Ore developed--8,000 tons. Ore partly blocked out, or probable ore 72,250 tons. Possible ore, indicated by the length and width of the outcrop and the geology, 1,000,000 tons.

Using the conservative figure of 0.7% WO_3 and the present quotation of tungsten of $20 a unit for 60% WO_3. This is equal to $14 a ton ore. Assuming $7 as the total cost for mining, milling, development and transportation, there would be a net profit of $7 or a value as follows: Ore developed 7 x 8,000 = $56,000. Probable ore, 7 x 72,250 = $505,750. Possible ore, 7 x 1,000,000 = $7,000,000. Assuming the production of 1,000 tons a month to start, with a 50 ton mill, the ore developed would be recovered in about 8 months.

Mining:

As stated in my introduction I will not attempt to outline the method of mining. It is a matter to be worked out in a practical manner by experienced miners.

The walls caved quite badly in places in the present workings, apparently the result of surface waters and oxidation. However, I do not consider it bad enough to be a serious obstacle or an expensive one, and may correct itself entirely with greater depth below the surface. It may be found advisable to leave pillars of low grade ore for support in the stopes and these "pulled" later.

I do not anticipate any trouble from underground waters. The mountain is drained to the level of Boulder Creek, a vertical distance of 650 feet, to the indicated ground water level. In the spring there will be some surface water to take care of but this will be of little consequence as the mine is almost at the top of the mountain.

Milling:

The milling would be comparatively simple. A combination of quartz, mica, pyrite, and wolframite can be easily separated by a simple process of concentration. Coarse grinding followed by jigs, classification finer grinding, followed by tables, I think will give a very good recovery. Perhaps some provision made for molybdenum, if found in paying quantities. However, it would be advisable to have a test run by a competent metallurgist before designing a mill.

In the milling operation, I believe it will be found advisable to sort out the coarse tungsten from a short sorting belt located between the bin and the crusher. Probably the man at the bin and crusher could do this.

It may also be practical to sort out some of the large high grade pieces underground as was done by the leasers.

Market for Tungsten:

Tungsten is used largely in the steel industry and molybdenum has taken its place as an alloy in certain steels. I saw a letter from the president of one of our large steel companies stating that in his opinion nothing at present took the place of tungsten as an alloy for high speed tool steel.

The largest supply of Tungsten comes from China where it is cheaply mined by Chinese Coolies for export. If Japan should cut off this supply or if and when the source is exhausted, tungsten will command a high price in this country. During the World War it reached a little over $100 a unit or $5 a pound.

Capital Requirements:

The initial development would consist chiefly of roads, water development, a mill, power, and quarters for the men. As stated I am not prepared to make an estimate of these costs which of course, would depend on the scale of operations and development decided upon.

I would consider a 50 ton unit for a mill built so that its capacity could be doubled. Water must be developed to meet the size of the mill and other needs.

A road must be built into the property. The best route and cost is a matter of further investigation.

As there is no transmission line close enough, a power plant of some kind must be installed for pumping, mining, and milling on perhaps separate units for each.

Prescott, Arizona
February 11, 1939

Respectfully submitted,
(Signed) Harlow D. Phelps, E. M.
(Registered Professional Engineer Seal Arizona U.S.A.)

This report included the following maps and copies of assay certificates:

Maps:

The maps included with this report are as follows:

1. Location map, showing roads, etc. copied in part, from the Yavapa County Engineer's map.

2. My claim map, showing claims, tunnels, etc. with the outcrops of beins shown in color.

3. Homer Wood's profile map of the main tunnel and production from 1915 to 1935.

4. My profile map showing area from which the "Probable ore" was determined.

5. My assay map of the main tunnel.

Copy of Assay Certificate:

Included herewith is a copy made from the assay returns of all samples taken from the main tunnel car samples as described under "Sampling."

Hillside, Arizona
% Hillside Mines, Inc.,
April 30, 1938

Mr. H. L. Williams,
President.

Dear Sir:

Given below is a preliminary report on the Black Pearl Group of Tungsten Mining Claims in Yavapai County, Arizona. The inspection of the property was made April 12 to 23 (incl.) 1938 by Mr. W. W. Stephenson and myself. Assay results and other data are not yet available, hence this "preliminary report".

Every detail (except one plat of claims that has since been amended) which has been possible to check of the work of Mr. H. R. Wood has pointed to its accuracy and correctness. Details will be given below of additional checks to be made. Consequently, data given on his drawing "Section of workings on Black Pearl Group" will be used in various calculations made herein. Only in case of marked discrepancy in average assay results (which I believe highly improbable) will the final report differ in substance from this preliminary report.

SUMMARY:

1. One very strong vein has been superficially developed on the property.
2. The shallow workings (at no point more than 70 ft. below the surface and mainly much nearer the surface) from 1900 feet of length of this one vein have produced a recorded 59 615 lb. of wolframite which contained 70% WO_3.
3. Total recorded production is 62 100 pounds.
4. Various other strong veins outcrop on the property. Wolframite can be found in several of these outcrops. Some of these other veins have been developed sufficiently to determine their value.
5. Since the above recorded production, 180 ft. of drifting has been done. This drift was mainly in sulphide (FeS_2) ore and showed an average of 0.[illegible]% WO_3 and average width of 4.2 ft. The maximum depth below the outcrop was 106 ft. It is noteworthy that the average WO_3 content of the oxide ore checks very closely with the reported average WO_3 content of the sulphide ore after correcting for enrichment by subtraction of FeS_2.
6. There are no serious natural obstacles to the successful exploration, development, and exploitation of the property.
7. There is a reported possibility of finding good silver ore at some place on the property.
8. Present reserves are calculated at $67,000 net operating profit.

CONCLUSIONS:

1. The future price and market for tungsten is the greatest factor of uncertainty in my mind. If a satisfactory market at near present quotations can be expected, then:
2. The program for development which is outlined near the end of this report is strongly recommended.
3. A total capital expenditure of $200,000. will be required. Only a few thousand will be required for initial exploration. Additional amounts will be required only upon satisfactory results from the completion of each step until the entire amount will be required to place the property in satisfactory operation.
4. Based on assumptions given herein, an exceptionally profitable operation is indicated.

Drawing No. 2 shows the general location of the property. Drawing No. 1 gives the exact location and ties to legal subdivisions of land. It will be noted that there are 11 patented claims and 5 unpatented claims. Each claim is of the full size of 20.66 acres. The vein, from which practically all production to date has been obtained, is covered for a length of 6000 feet by patented claims. There are also certain showings of wolframite to the north and west of the Black Pearl Group which are not covered by the Group.

The question of title, ownership, and terms for operation and or purchase was not studied in this examination.

According to a report by Mr. Wood, the claims were located in 1914 by Mr. William Conners. It is evident from the present condition of the mine workings that operation was under the "leases system" — whether by the owner or by actual lessees. By that is meant that the mine was not developed nor operated systematically but rather with a view of obtaining a little more tungsten with the minimum outlay of effort. If waste from sorting operation was in the way, it was thrown to the bottom of the shaft instead of hoisting it by hand. Inadequate timber was used; and so on. Such a method had one distinct advantage and one distinct disadvantage from the viewpoint of future large scale operation. The advantage is that by the nature of operation, the workings were shallow. Hence the vein was explored over a greater length than perhaps would have been the case by other methods. The disadvantage is that the value of the vein at considerable depth has never been proven, nor is there much available ore blocked out (except by drifting in 1936 and dumps).

The past production of the property is shown in detail on the attached "Section of Workings on Black Pearl Group" by H. R. Wood. At present quotations, the value would be slightly in excess of $40,000. (1938)

The Black Pearl Group is in a granite formation. Various large granite pegmatite dikes cut the granite. The veins are largely quartz with muscovite in almost pure veinlets in places. The vein material can well be designated, greisen. Numerous large vugs from which pyrite has been weathered are to be found in the oxidized zone. A carefully cut sample from an oxide dump contained 5.7% Fe; that from one sulphide dump 10.9% Fe and another sulphide dump 15.0% Fe (average sulphide 12.9% Fe). This would mean a reduction of at least 15.5% in weight by weathering of FeS2. The average of 180 feet of drift in sulphide is given as 0.784% WO3. Calculating this to the oxidized material would give 0.928% WO3, which checks remarkably well with the 0.922 % reported by Mr. Wood. Two important conclusions can be drawn from the above:

1. Reported assays of WO3 agree exceptionally well with themselves.
2. The greatest depth yet obtained(though still very shallow) shows no trend toward a decreasing WO3 content of the original vein material.

Very few specimens were found wherein the wolframite occurred as small(10 mesh) particles in a mass of pyrite. The common mode was as pieces of wolframite in quartz or muscovite from 1/4" or 3/8" to 1 1/2". Much larger pieces are reported and I found several larger pieces in recently cased vein material.

In addition to the massive minerals mentioned above, namely: quartz, muscovite, pyrite, wolframite, numerous other minerals were found in lesser amounts. Fluorite apparently worked into the joints of the granite. A few large crystals of microcline were found. A few specimens of bismuthinite(carrying 30 oz. ag.) were found in the sulphide dump. Numerous small aggregates of molybdenite were found in the sulphide dump (assays for Mo are being made). Silver assays of several hundred ounces per ton are reported but I do not know from whence they came. Gold and silver assays were made on all samples taken by myself but no commercial amounts were found in those samples.

The elevation is guessed as near 6000 feet. This indicates a more agreeable summer temperature than in the lower regions of Arizona. Also considerable snowfall is reported for some winters. Scrub oak and similar brush, pinion, juniper, and cedars cover the property. Large pines are in the vicinity of Camp Wood some 8 miles north. A sawmill is said to be operatin in the pine timber. Lumber and mine timber should be readily and cheaply obtainable.

The property is connected by road with Prescott Arizona(see drawing 2). Unfortunately, there is about 3/8 of a mile of road going down into Loco Creek which has been constructed entirely too steeply—grades as steep as 11°-50'. Using a tractor it would be possible to get equipment for exploration to the property. But for satisfactory construction and operation some two miles of road would have to be built into the property. Also the road across the malpais mesas(lava flats) from the rim above Loco Creek to near Camp Wood would need to be surfaced with decomposed granite for satisfactory wet weather travel. In places the road across the mesa should be straightened and changed to the tops of the low ridges. The mesa road is probably six miles in length. In no place are exceptionally difficult mountain road building problems encountered. It is no known just how much of this road Yavapai County would construct should it be demonstrated that work on a large scale is to be done on the property.

There are three possible sources of water for milling:

1. Possibility of developing water in mine workings.
2. Lone Creek-- shown on drawing 1.--quantity doubtful
3. Boulder Creek-- some 600 feet West of Black Pearl Claim No. 6. and probably will be sufficient at all times.

The lower tunnel was caved about 100 feet from the mouth and was filled with water behind the cave. It is very desirable to have this ground timbered and the debris removed so that the 180 feet nearest the face can be sampled accurately. Sampling this 180 feet should give a valuable check on reported results and, as it is the deepest point now accessible, should give the best indicator we now have as to the prospects with depth.

As no mine workings were open for a sufficient distance to warrant systematic sampling, the program consisted of sampling some dumps, a cut across both walls of a shaft and samples from various outlying shallow workings to determine the extent of thed distribution of the tungsten. Because of teh very spotty nature of the deposit, i.e. large pieces of barren quartz and large pieces of wolframite, it was necessary to cut samples weighing from 50 lbs. to 175 lbs, then carefully break all material down to 3/8" or less before reducing the quantity of sample with a riffle. Assays have not been received to date. A further description of each sample will be made when the assays are reported.

No metallurgical tests have been made. The character of the ore would indicate that recovery on jigs should start at a rather coarse size (say 3/8"). It is quite probable that a considerable quantity of clean tailing can be discharged at such a coarse size. Middling products will have to be ground finer in steps (say to 10 or 20 mesh). The recovery methods will be jigs and tables. Flotation will probably be useful in removing pyrite from the wolframite concentrate. Should the molybdenite prove to be in paying quantities, the tails from the tungsten mill should be reground and floated to recover the molybdenum.

As stated in preceeding paragraphs, operations at this property have not been of such a nature that an ore reserve would be created. The work done in 1936 was an exception.

The following figures are made from the data on "Section of Workings on Black Pearl Group" by H. R. Wood. Vein areas marked in green have been selected as being reasonable to assume as ore reserve of the average width and analysis, viz., 4.2 ft. wide containing 0.8845 WO_3. Each square on the section is 10 ft. by 20 ft. = 200 sq.ft.

106 x 200 = 21200 sq. ft.
21200 x 4.2 = 89040 cu. ft.
89040 x 12 = 7420 tons @ 0.8845 WO_3.

The data given on the same drawing indicate 6475 tons of dump material containing 0.4425% WO_3 (0.33% recoverable at 75% recovery).

The greatest uncertainty in calculating the value of these reserves as well as calculating the possible outcome of operation of the Black Pearl Group lies in the future price of tungsten. No doubt each reader of this report will have his own ideas as to the future price of tungsten. In which case the financial outcome figures will be changed accordingly. A figure of $20.00 net per unit of WO_3 is herein used. Only on theing can be said in defense of that particular figure, viz., it is slightly below present published quotations at a time when steel operations are at a low ebb and other metals are exceptionally low in price.

The question of costs is also a factor in the equation from which net profits are derived. Taking into consideration that the vein is fairly wide, dips steeply, has granite walls, and would not be sorted underground, it is hoped that a fairly cheap shrinkage stope mining method can be used. Also it seems probable that considerable coarse quartz can be discarded as a clean final tailing early in the milling process, thereby making low milling costs per ton. Construction costs are assumed which will put the property into proper shape for efficient operation. The assumed basis is 100 tons per day.

Mining and development	$4.00 per ton
Milling	1.00 per ton
Overhead and taxes	2.00 " "
Total operating cost	$7.00 " "

The dump material is calculated at:

Cost to place in mill bins	$0.50 per ton
Milling	1.00 " "
Overhead	1.00 " "
Total cost dumps	$2.50 per tons

The recovery on newly mined ore is assumed to be 80%: on dumps 75%. At $20.00 net received per unit of WO3 present reserves would show the following operating profit per ton:

Present ore block 742 tons at $5.50	$40,810 Total operating profit
Dumps 6475 tons at $4.10	$26,540 " "
Total operating profit on present res.	$67,350.

Conservative business calls for sufficient ore reserves to be blocked out to refund the total capital expenditure. The following program is outlined to provide 75,000 tons of ore reserve (assuming 75% of the vein material encountered will be ore of 0.784% WO3 and with of 4.2 feet). 75,000 tons will provide slightly more than two years operation at 100 tons per day. Drawing 4 shows a proposed plan of accomplishing this development. It will be noted that this proposal leaves untouched a lot of ground to the east which can very reasonably be expected to yield ore. All ore found in this area, that below the tunnel level, and other favorable places will add to the estimated net profit from the operation. The expenditure, not including cost of equipment for this proposal would be:

Crosscut(see drawing 7) 1255 feet @	$10.00	$12,500.
Drifts (see drawing 4) 1700 ft. @	$10	17,000.
Raises (see drawing 4) 700 feet @	$7.50	5,250.
	Total	$34, 750

Given below is a very rough estimate of total capital required to place the property on an operating basis. It should be noted that the $35,000 for development is a prepaid development charge which is included in operating costs but for which funds must be provided before operation starts. The refund of that amount is inclued in assumed "Mining and development" costs.

Power	$35,000.
Mine Development	35,000
Mill	75,000
Mining Machinery and Shop	22,500
Road(mine proportion)	10,000
Offices, bldgs., water supply	7,500
Misel not inclued above	15,000
Total capital necessary	$200,000
Deduct prepaid development a	35,000
Amount which net operating profit must refund	$165,000

All of the assumptions made above show a net operatiog proft of $412,500.00 for 75000 tons of ore. Also the purchase price of the property must come out of this amount.

The logical steps in the development and exploitation of the Black Pearl Group seem to me to be the following (see drawing 4)

A. Open the lower tunnel and carefully check the figures on the last 180 feet of drift. If these check, then proceed with:

B. Without spending any money on roads, take a portable compressor and supplies to the property with a Caterpillar tractor. Continue driving the present lower tunnel for another 600 feet (cost $6000. plus equipment). Provide sample crushing equipment to sample very carefully all material obtained from drifting operation. If the results from this work hold up to expectations, then:

C. Remove compressor and equipment also additional equipment to the crosscut tunnel site(see drawing 7), and drive the 1255 ft. crosscut tunnel. Then drive lower drifts and raises(see drawing 4). During thsi period run metallurgical tests, design mill, make road survey and have all details ready to go into execution as soon as "C" is completed satisfactorily.

D. Construct roads, mill, shops, power plant and other surface work necessary. prepare chutes and stopes underground.
E. Start operation and continue drifting east.

Various alternatives to the above plan have been studied. Drawing 5 offers a slightly more conservative policy but will cost more in the end.

Additional data will be given as soon as obtainable.

Respectfully submitted,

(signed)
J.F. Frost,
Engineer of Mines

Hillside, Arizona
% Hillside Mines, Inc.,
May 25, 1938

Mr. H. L. Williams,
Present

Dear Sir: Assays- Black Pearl

We have the following assay report from Chas. C. Parker & Co. of Denver, Colorado.

	WO3	MoS2
Sample No. 1	0.60%	
2	0.12%	trace
3.	0.44%	trace
4	trace	
5	trace	
6	0.80%	
7	2.54%	
8	trace	
9	trace	

Determination for molybdenum was requested on only two samples.
The descriptions of the above samples and comments follow:
No. 1. This is a sample of an oxidized ore dump at the blacksmith shop level. several cuts were taken from the sides and face of the dump after local surface concentration effects had been removed. Also several shallow pits were sunk on top. There were not many large boulders in this dump. A sample of about 175 lb. was taken and broken down to about 3/4 inch before reducing by means of a riffle. This dump is only one of many included in Mr. Wood's average of 0.44% WO3. The above assay of 0.60% WO3 merely indicates the average of 0.44% WO3. used in the calculations sounds reasonable. This is material which is the reject from hand sorting.
No. 2 This is a sample of a small sulphide ore dump. The figure of 0.12% WO3 is somewhat lower than was expected. Two possible reasons stand out:
A. It is reported that the tunnel was driven some distance in 1936 before good ore was encountered(see sample 3).
B. It is known that considerable hand sorting from these dumps has taken place, and it is reported that this particular dump was also sorted as it was made.
Noe. 3. This is a sample of the larger sulphide dump just below No. 2. It has also been sorted somewhat.).44% WO3 remaining from a reported original vein content of 0.784% WO3 is only slightly lower than should be expected. (see note at end of this report).

No. 4. This is a sample from the discovery pit on Black Pearl Claim No. 8. (see map No. 1). An inspection indicated that very little wolframite could be seen in the material now accessible. Sample No. 4 was taken to prove or disprove this point. Result was " trace"/

No. 5. This is a sample from the discovery pit on Black Pearl Claim No. 7. (See map No. 1). It was taken for the same reason that sample No. 4 was taken. It should be noted however that sufficient work was not done at the time of the examination to expose the vein properly. It is entirely possible that, were the solid vein expose properly, results higher than the reported "trace" would be obtained.

No. 6. This is a sample of some 50 lb. cut from channels of 5.9 ft. on each side of the shaft "c" (See Section of Workings on Black Pearl Group). It was taken 14 ft. below the collar of the shaft which is the lowest point now accessible. This particular spot evidently was not what the old operators considered good ore because it was left in place while the bein below and to the sides had been thoroughly "gouged out". In spite of this , however, it should be noted that 0.80% WO3 compares well with previously reported averages.

No. 7. This is a collection of various pieces of float and old dump from North Side Claim No. 3, approximately 190 ft. north east of the 44 ft. tunnel (See map No. 10. Apparently there is another bein or possibly two veins which have not been explored. This can be considered a collection of specimens at this point which show the presence of tungsten and not as a true sample. The assay was 2.54% WO3.

No. 8. This is a sample of 3.1 ft. of the face of the 80-ft. tunnel on North Side Claim No. 3 shown on map No. 1. The assay of "trace" probably explains why the tunnel was stopped at this point. However, wolframite can be found on the dump, so possibly this was a barren spot in a vein which had been carrying tungsten.

No. 9. This is a sample of 0.4 ft. of the face of the 44-ft. tunnel on North Side Claim No. 3. The assay was "trace". The notes regarding sample No. 8 apply to this sample also.

In conclusion I may state that these preliminary results add strength to the assumptions made in the preliminary report of April 30, 1938. Samples 1, 2, 3, and 6 are especially indicative. Step A. in the recommendations of April 30th, namely, the accurate sampling of 180 feet nearest the face of the lower tunnel is the next job to be done in the exploration of the Black Pearl Group. The vein being naturally spotty, as formerly explained, will require a quite short sampling interval to give accurate results.

Respectfully submitted,

J. F. Frost

MF-103 E.A. Scholz - J.H. Cazier - Black Pearl Mine

DMA 1506

Copy.

LEASE AND OPTION TO PURCHASE

THIS AGREEMENT made and entered into this 30th day of April, 1951 by and between John Lawler, as single man, MARY LAWLER, a single woman, JAMES E. HARRINGTON and KATHRYN I HARRINGTON, his wife, F.H. LYONS and MARY LYONS, his wife, JOSEPH W. WALTON and FLORENCE E. WALTON, his wife, hereinafter termed " First Parties", and E.A. SCHOLZ and IRMA K. SCHOLZ, his wife, and J.H. CAZIER and DOROTHY L. CAZIER, his wife, hereinafter termed "Second Parties", for and in consideration of One and NO/100 DOLLARS ($1.00), and other good and valuable consideration, the receipt whereof is hereby acknowledged, by each party to the other in hand paid, and in consideration of the performance of the covenants and agreements hereinafter set forth, the parties hereto do hereby agree as follows, to-wit:

I

First Parties do hereby grant unto Second Parties the exclusive right and option to purchase and operate the following described patented and unpatented lode mining claims situate in the EUREKA MINING DISTRICT, county of Yavapai, State of Arizona, the names of which, together with the book and page of the records in the office of the County Recorder of Yavapai County, Arizona, where the United States Patents therefor are of record, or where the mining location notices therefor are of record and are as follows, to wit:

Name of Claim	Book	Page
Patented Mining Claims		
Black Pearl Patented Lode Mining Claims numbered 1,2,3,4,6,7 and 8 (mineral Survey 4186)(U.S. Patent No. 1102913)	All recorded in Book 181 of Deeds at pages 551-554	
North Side Patented Lode Mining Claims numbered 1, 2, 3 and 5(Mineral Survey 4186)	All recorded in Book 181 of Deeds at pages 551-554	
Unpatented Mining Claims		
Black Pearl Unpatented Lode Mining Claims numbered 9, 10, 11 and 12	All recorded consecutively as numbered in Book 143 of Mines at pages 148-152	
North Side Unpatented Lode Mining Claim numbered 4		

Together with all improvements situate thereon, water and water rights appurtenant thereto and any other rights and privileges appurtenant thereto.

"The immediately afore-described group of patented and unpatented lode mining claims constitutes and is locally known as the "Black Pearl Group" or Black Pearl Mine" and is, for the purposes of brevity, hereinafter referred to in this Contract, wherever mentioned, as the "Black Pearl Mine,")

for a total purchase price of ONE HUNDRED SEVENTY-FIVE THOUSAND DOLLARS ($175,000.00), bearing no interest, and payable by Second Parties to First Parties on or before May 4, 1959, in the manner and at such times as follows:

Twelve and one-half percent (12½%) royalty payments of the net mint, net smelter, net mill or other returns from all ores, concentrates, bullion , or other products removed and disposed of from the above described "Black Pearl Mine"; which royalty payments shall be paid by Second Parties to First Parties in the manner and at the times hereinafter set forth and when so paid shall be credited against the aforesaid purchase price.

The term "net mint returns", "net smelter returns" "net mill returns" and "other returns" as used herein shall be construed to mean the net values found and accounted for by the smelter, mint, mill or other phase of treatment or sale, less the reasonable cost of truck or rail transportation, smelter charges, penalties and deductions made by said smelter, mill or other place of treatment or sale.

Such royalty payments shall be made directly to THE BANK OF ARIZONA, and Arizona banking corporation, Prescott, Arizona, the Escrow Agent hereinafter names, and then said The Bank of Arizona, shall either deposit said royalty payments to the credit of First Parties in the proportions as hereinafter set forth, or shall forward the same to the person entitled thereto in accordance with any instructions delivered by such person to said bank. All royalty payments shall be made to said Escrow Agent within thirty (30) days of the settlement date for each load of ore, concentrate or tether material sold or shipped and such payment shall be accompanied by a true copy of the smelter, mint, mi l or other return for delivery to First Parties.

The Royalty payments, when made hereunder, shall be divided and credited by the Escrow Agent, The Bank of Arizona, as below set forth, which proportions represent the aliquot un-divided ownership of First Parties in said "Black Pearl Mine":

JOHN LAWLER, a one-fourth(¼)share(said said one-fourth share representing the sum of FORTY-THREE THOUSAND SEVEN HUNDRED FIFTY AND NO/100 DOLLARS ($43,750.00) out of the total rental or purchase price herein contained);

JAMES E. HARRINGTON and KATHRYN I. HARRINGTON, his wifre, and F. H. Lyons and MARY LYONS, his wife, a two-sixths (2/6) share (said two-sixths share representing the sum of FIFTY EIGHT THOUSAND THREE HUNDRED THIRTY THREE AND 34/100 DOLLARS ($58,333.34) out of the total rental or purchase price herein contained:

JOSEPH W. WALTON and FLORENCE E WALTON, his fife, as one -sixth 1/6) shafe (said one-sixth share representing the sum of TWENTY-NINE THOUSAND ONE HUNDRED SIXTY SIX AND 66/100 DOLLARS ($29,166.66) out of the total rental or purchase price herein contained);

MARY LAWLER, a one-fourth (1/4) share (said one-fourth share representing the sum of FORTY-THREE THOUSAND SEVEN HUNDRED FIFTY AND NO/100 DOLLARS ($43,750.00) out of the total rental or purchase price herein contained);

PROVIDED, HOWEVER, that in no event shall the royalty payments to be made and credited to Mary Lawler be less than the following amounts paid on or before the dates set forth opposite said amounts:

FIVE THOUSAND AND NO/100 DOLLARS ($5,000.00) on or before May 4, 1952;

TEN THOUSAND AND NO/100 DOLLARS ($10,000.00) on or before May 4, 1953;

TEN THOUSAND AND NO/100 DOLLARS($10,000.00) on or before May 4, 1954;

EIGHTEEN THOUSAND SEVEN HUNDRED FIFTY AND NO/100 DOLLARS ($18,750.00) on or before May 4, 1959,

The intent of this provision being that Second Parties agree to and must pay the above amounts to Mary Lawer, through the Escrow Agent, whether or not said payments are made from the twelve and one-half per cent (12½%) royalty payments herein provided or must necessarily be made by additional cash payments by Second Parties, to be treated as advance royalty payments. Failure of Second Parties to make the payments to Mary Lawler as above required shall constitute a default as to the entire lease and option agreement, PROVIDED, HOWEVER, THAT the said Mary Lawler may, in writing, agree to alter or amend said payments or extend said payment dates. Nothing herein contained shall be construed as impairing the right of Second Parties to abandon this agreement without liability to make the payments aforesaid, should they so elect.

III

Upon execution and delivery of this Agreement, Second Parties shall be entitled to the possession of the foregoing described patented and unpatented lode mining claims, and every part thereof, and they shall have the right to work, operate and develop the same in any manner and by such means as they may deem fit and proper and to extract, mine, mill and ship for treatment or other disposition, the ores and minerals therefrom. Second Parties agree that all such work shall be done in a good and minerlike manner.

It is agreed that beginning immediately after execution of this agreement, and during each and every month thereafter, during the term of this agreement, Second Parties shall do and perform not less than sixty (60) eight-hour shifts of work per month on said "Black Pearl Mine" afore-described, weather permitting and if not prevented by acts of God,

[illegible]

[illegible]

[illegible]

strikes, insurrections, rebellions, governmental restriction or other conditions beyond the control of Second Parties. The monthly shift obligations contained herein shall be cumulative.

IV

First Parties shall promptly pay all taxes which may be assessed on or levied against the foregoing described mining property for all years prior to the second installation of taxes due and payable for the year 1950. Taxes beginning with the second installment for the year 1950 and for all succeeding time there after, provided that Second Parties have not abandoned their interest hereunder, shall be paid by Second Parties. Failure tp pay said taxes shall be considered a default hereunder.

First Parties agree to convey the afore-described patented lode mining claimes to Second Parties free and clear of all liens and encumbrances and with Warranty Deed and warranty of title. First Parties agree to quit claim to Second Parties all of their right, title and interest in and to the afore-described unpatented lode mining claimes.

V

Second Parties shall promptly pay all debts and obligations incurred or created or on account of any of their obligations hereunder, and shall keep said property and mining claims clear and free of any and all liens and charges of every character, including all damage claims for injuries to employees as well as claims for labor materials, supplies, equipment and other charges: and in this connection, Second Parties shall record, post and keep posted, pursuant to the provisions of Section 62-210 of the Arizona Code Annotated, 1939, Notices of Non-Liability on the part of First Parties, First Parties to execute and furnishe such Notices of Non-Liability: PROVIDED, HOWEVER, that nothing herein contained shall prevent Second Parties from borrowing money and pledging or otherwise encumbering their rights hereunder as security for such borrowing: PROVIDED FURTHER, HOWEVER, that Second Parties agree that during the period hereof they will not mortgage, sell or otherwise encumber, or dispose of said property without first giving First Parties notice of therir intention to do do, and further that any such encumbrance or disposition of the property, or any part thereof, shall be made expressly subject to the rights of the First

Parties hereunder.

VI.

Second Parties shall do and perform within the time required by law the annual labor or assessment work on or for the benefit of the unpatented mining claims hereinbefore described as are necessary to comply with the laws of the United States and the State of Arizona, and upon completion of the annual labor for any particular year the Second Parties shall furnishe the First Parties, for recording, on or before June 15th of each year, and affidavit showing said work to have been performed: PROVIDED,HOWEVER, that if this Lease and Option is terminated and canceled at any time during the first six(6) months of any annual labor year, that is, at any time between July 1, at noon, and the following January 1, at noon, the Second Parties shall be relieved from doing the assessment work for that annual labor year.

VII

Simultaneously with the execution and delivery of this Agreement the parties shall execute and deposit in escrow with the Bank of Arizona, an Arizona banking corporation, with its principal office and place of business in Prescott, Yavapai County, Arizona, with escrow filing fees to be equally shared between the First Parties and Second Parties, the fol lowing instruments, together with proper escrow instruction to said Escrow Agent;

A. Executed copy of this Agreement:
B. Warranty Mining Deed of First Parties covering patented lode mining claims, title to such property to be in First Parties, free and clear of all liens and encumbrances:
C. Quit Claim Deed of First Parties covering the unpatented Lode Mining Claims.
D. Quit Claim Deed of Second Parties quit-claiming to First Parties all interest of Second Parties in and to the "Black Pearl Mine" hereinbefore described.

As and when the said purchase price hereinabove set forth shall have been fully paid by Second Parties to First Parties and Second Parties shall not be in default in the performance of any of their agreements and covernants herin, said escrow Agent shall deliver to Second Parties, or therir assigns, all of the foregoing described instruments, and First Parties, shall thereafter have no further right, title or interest in and to the property, and said intruments above-described, and this Agreement shall forthwith terminate. In any other event, said Escrow Agent shall deliver the said instruments to First Parties.

Second Parties may, at any time, abandon this Agreement upon thirty(30) days' written notice therof, delivered to First Parties at the

banking office of said Escrow Agent, Prescott, Arizona, and all parties hereto shall thereupon be relieved of all further obligations hereunder. In the event of such abandonment or forfeiture as hereinafter provided, Second Parties hall have the right to remove from said "Black Pearl Mine" property, all machiner, tools, and equipment of every kind and character that they have placed thereon, with the exception of timbering, rails, ladders and pipe placed underground. Said removal shall be made withing ninety(90) days after the effective dat of any such abandonment or forfeiture. It not so removed, title thereto shall vest in First Parties. In the event of forfeiture or abandonment of this Agreement, and and all monys which have been paid to the First Parties as royalty payments, or otherwise, shall belong to First Parties and shall be retained by First Parties as rent of said premised and as liquidated damages, or either.

In the event that Second Parties are, in the opinion of First Parties, failing to perform the mining work in a good and minerlike manner, or failing to perform in accordance with the requirements of this Contract, or in any particular, except the making of money payments, unless the amount due First Parties from Second Parties is in dispute, First Parties shall give Second Parties written notice of the condition or conditions which First Paries consider are not being fulfilled. If Second Parties fail to make good such deficiency, provided the objection is proper and within the terms of this Agreement, before the expiration of ninety (90) days fro the date of delivery or mailing of said notice, or fail to make the payments as provided herein, unless the mount due is in dispute, then this agreement shall, at the option of First Parties, terminate and First Parties shall have the right to re-enter and to take possession of said mining claims and Second Parties agree to give up, relinquish and give over the said mining property to First Parties, in which event Second Partie shall have thirty (30) days in which to remove the personal property as herinbefore provided for and under the same conditions as hereinabove set forth.

VIII

Second Parties agree to keep a true and correct record of the production, reduction and disposition of all ores or other materials mine, milled or otherwise handled by them unor this Agreement, which records shall be opern to the inspection of First Parties, or their representatives,

[illegible]

VIII

[illegible]

at all reasonable times. First Parties, or their representatives, reserve the right to go upon the mining claims and property herin described for the purpose of reasonable inspection.

IX

Time is of the essence of this Agreement, It is understood and agreed, however that Second Parties , at all times mentioned during the period of this Lease, and exclusive Option, shall have the right to pay said rental or purchase price on a royalty payment basis, in the manner and and at such times, as hereinabove set forth. And it is further specifically agreed that Second Parties at all times during the period of this Lease and exclusive Option shall have an option to pay said rental or purchase price on or before the expiration period of this Lease and Option, and the option to pay said rental or purchase price out of mineys apparate, distinct and apart from said royalty income payments.

X

It is understood and agreed that this is an option to purchase coupled with the right to operate and that Second Parties may at their pleasure surrender said properties back to First Parties upon giving the notice hereinafore provided for without further obligation hereunder, subject to the requirement that they shall perform all obligations which have matured and are owing to First Parties prior to the giving of such notice of termination.

XI

The delivery of any notices or papers required or permitted under this Agreement to any one person being a member of either First or Second Parties hereto shall constiture delivery and notice to all members of either First or Second Parties.

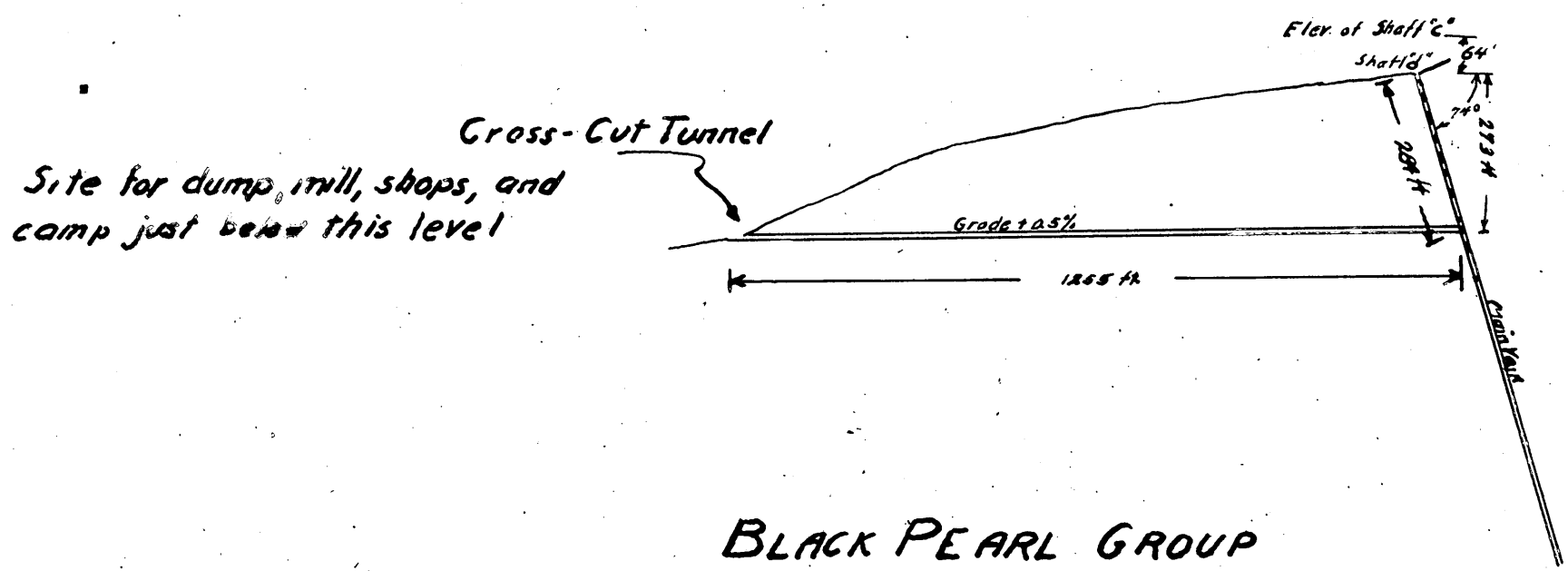
Delivery or notices, unless otherwise provided, may be made or given by registered mail, addressed as follows:

First Parties:
John Lawler
Prescott, Arizona
or
J. E. Harrington
Phoenix, Arizona

Second Parties:
E.A. Schols
Bagdad, Arizona
Or
J. H. Cadier
Bagdad, Arizona

XII

The parties hereto agree to make, execute and deliver, or cause



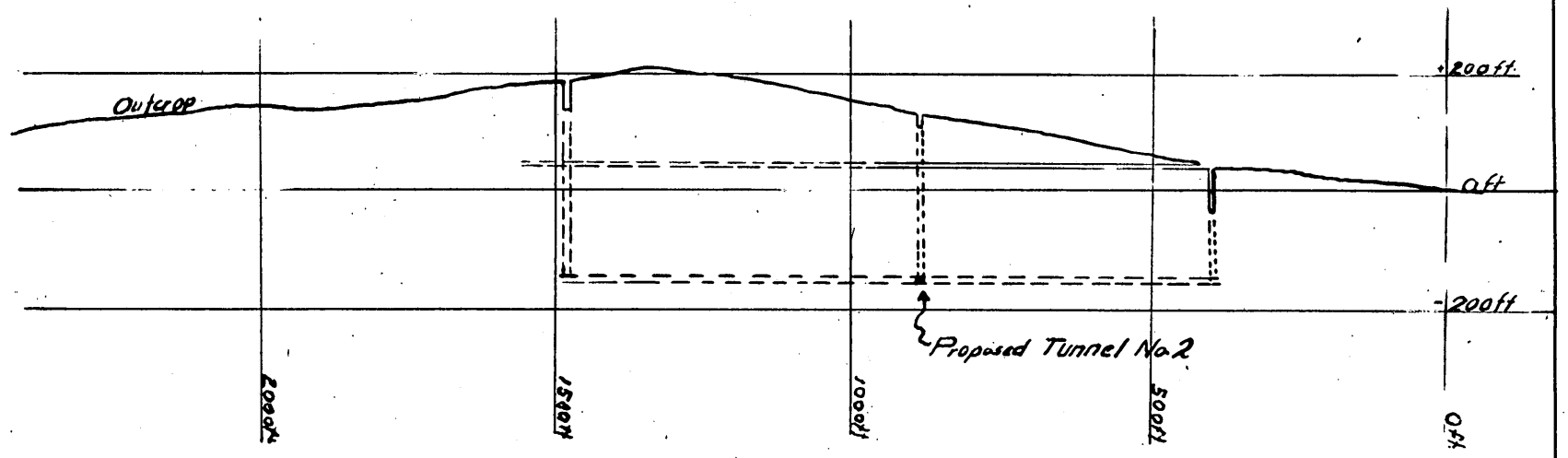
BLACK PEARL GROUP

Longitudinal Section
Proposed Tunnel No. 2.

Rough Brunton survey

Scale 1"=300' April 1938 J.E. Frost

Traced & Copied May 1951 J.H. Cazier



BLACK PEARL GROUP

Proposed Development (See Report) I

Section in Plane & Vein

= Now driven

::: Proposed

For present details: See Sections by H. R. Wood

Scale 1" = 300' April 1938 J.F. Frost

Traced & Copied May 1951 - J.H. Cazier

to be made, executed and delivered, and to mutually assist each other in the execution and delivery of all papers, deeds, assignments, releases, waivers, notices or any other instruments that may be necessary or required to carry out th terms and conditions of this Agreement.

XIII

The provisions of this Agreement shall extend to and be binding upon and inure to the benefit of the heirs, executors, administrators and assigns of the parties hereto. In this connection, First Parties specifically agree to recognize an assignment of this mining Lease and Option Agreement by Second Parties to any corporation of Second Parties's choosing, whether said corporation be now in existence or be chartered in the future.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first hereinabove written, in quintuplicate, each to be considered an original.

John Lawler

Mary Lawler

James E Harrington

Kathryn I Harrington

First Parties

FH. Lyons

Mary Lyons

Joseph W. Walton

Florence E Walton

E. A. Scheln

Second Parties

Irma R. Scheln

J. H. Cazier

Dorothy L. Cazier

Section of Workings on Black Pearl Group of Tungsten Mining Claims in Eureka Mng. Dist., Yav. Co., Arizona
Addendum of Charles Brackin E.M. as to 12 ledges running through the property and placer boundary as determined by him in the Fall of 1916, when he spent over a month examining the property; ledges being shown thus xxxxx, and boundary of placer shown thus ----
MAP OF THE BLACK PEARL GROUP OF LODE MINING CLAIMS EUREKA MINING DISTRICT YAVAPAI COUNTY, ARIZONA
Proposed Tunnel
Cut produced
50' Shaft
Cut
Caved
Stope
Top of hill
Cut
Charcoal Pit level, with scale noted each 200 feet
Scale: Horizontal, 1 inch = 80 feet. Vertical, 1 " = 40 "
Black Pearl Mine
Scholz & Cutler

Complete analysis of Four shipments

Weight	% SiO2	% MnO	% Fe2O3	% S	% P	% WO3
3401 lbs	2.27	16.77	9.38	0.038	0.036	71.73
3613 "	2.91	10.16	10.40	0.078	0.041	70.60
1482	1.77	7.52	10.08	0.075	0.062	70.81
1444	2.23	14.55	8.74	0.005	0.020	71.60

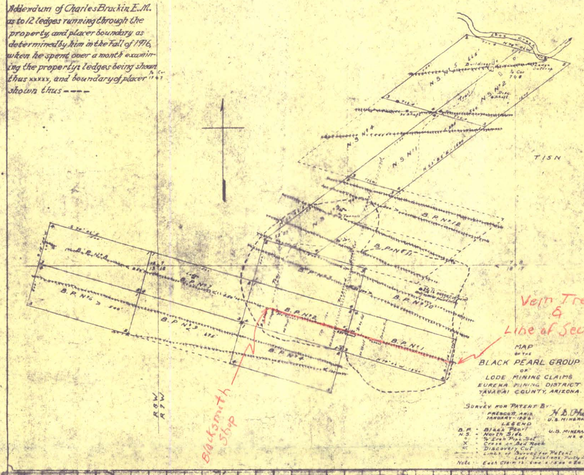
Date	Weight	% WO3
11-2-16	3401 lbs	71.73
5-25-17	3752 "	70.70
7-12-17	6530 "	69.90
2-8-18	3613 "	70.60
4-9-18	1482 "	70.81
4-9-18	1444 "	71.60
2-17-18	100 "	68.00
7-19-26	8934 "	71.70
6-7-29	2900 "	72.45
7-24-30	7620 "	72.00
3-23-31	18145 "	72.00
4-9-32	3825 "	68.00
2-14-33	4541 "	69.88
6-27-33	5054 "	72.35
10-2-33	7418 "	71.13
12-7-33	2291 "	69.76
Total	56860 lbs	70.55% average
	3465 "	in 71% not settled for
	915 "	shipped 8-26-35
	600 "	lost in shipping
	200 "	stolen from warehouse
	62100 "	produced to 10-1-35

Section
of
Workings on Black Pearl Group
of
Thunder Mining Claims
in
Eureka Mng. Dist. Co. Arizona.

Black Pearl - Schale - Cazier

Scale: Horizontal, 1 inch = 10 feet.
Vertical, 1 in. = 10 feet.

Addendum of Charles Brackin E.M.
as to 12 ledges running through the
property and placer boundary as
determined by him in the Fall of 1916,
when he spent over a month examin-
ing the property (12 ledges being shown
thus xxxx, and boundary of placer
shown thus ----



Section
of
Workings on Black Pearl Group
of
Tungsten Mining Claims
in
Eureka Mng. Dist., Yav. Co. Arizona

Complete analysis of Four samples

Water	0.80%	0.70%	0.60%	1.5%	1.2%	1.0%	0.8%	0.7%	0.6%
Silica	2.27	1.77	5.38	0.03%	0.02%	0.01%	71.25	70.60	70.51
Iron	2.31	1.06	11.40	0.07%	0.04%	0.02%	70.60	70.51	70.60
Alumina	1.77	1.56	0.05	0.05%	0.02%	0.02%	70.51	70.60	70.60
Lime	1.28	1.55	1.72	0.05%	0.02%	0.02%	70.60	70.60	70.60

This (150 ft. raise in 1934 by
Mr. Wagner of Denver & partners
Contains middle of 7 ft. vein
average content of 2.5% WO3

Charcoal Pit level, with scale noted each 100 feet.

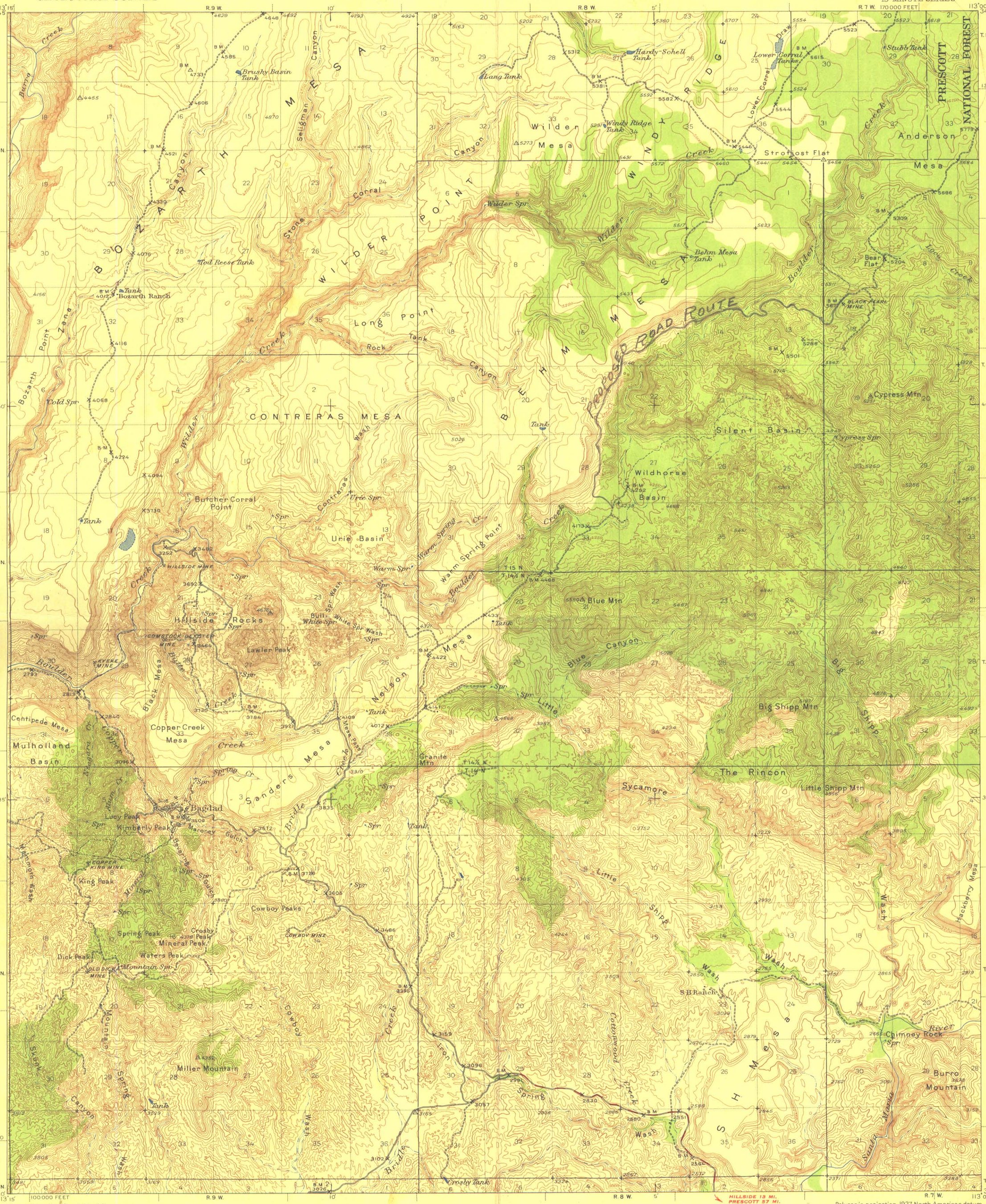
Scales: Horizontal, 1 inch = 80 feet.
Vertical, 1 " = 40 "

To Accompany
ACCESS ROAD APPLICATION
BLACK PEARL
Tungsten Mine
Yavapai Co. - Arizona

W.P. 18

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ARIZONA
(YAVAPAI COUNTY)
BAGDAD QUADRANGLE
15-MINUTE SERIES



Mapped by the Geological Survey
1945

ROAD CLASSIFICATION
1947

Dependable hard-surface — Dry weather roads — U. S. Route 15
heavy-duty road — Loose-surface graded
Secondary hard-surface — Unsurfaced, graded
all weather road — Dirt road — State Route 26
More than two lanes indicated along road with tick at point of change 2 LANE 4 LANE

TRUE NORTH — MAGNETIC NORTH 15°
APPROXIMATE MEAN DECLINATION, 1945

Scale 1:62500
1 ½ 0 1 2 3 4 Miles
1000 500 0 1000 2000 3000 4000 5000 6000 7000 Yards
1000 0 3000 6000 9000 12000 15000 18000 Feet
1 .5 0 1 2 3 4 5 Kilometers

Contour interval 50 feet
Datum is mean sea level

Polyconic projection. 1927 North American datum
10000 foot grid based on Arizona (Central)
rectangular coordinate system

To Accompany
ACCESS ROAD APPLICATION
BLACK PEARL
Tungsten Mine
Yavapai Co. Arizona

BAGDAD, ARIZ.
Edition of 1948

N3430-W11300/15

AR 18