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DEFENSE MINERALS ADMINISTRATION
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## DO NOT DETACH

## CONTROLLED DOCUMENT

MAR 21 1955

Mr. W. V. Skinner, President
Brownstone Mining Company
P. O. Box 396
Bishop, California

Re: Docket No. DMEA 3455-Tungsten
Brownstone Mine
Inyo County, California

Dear Mr. Skinner:

This will acknowledge receipt of your letter of March 10, 1955, giving us your comments on our program and returning, as we requested, the sketch map previously sent to you.

In lieu of holding your application in abeyance while you extend your road to the east contact zone and complete your proposed diamond drilling in the Brownstone workings, we would prefer for administrative reasons to withdraw the application from our active list. In the event that you wish to renew the application, however, it would not be necessary for you to submit new forms. If your proposed work gives you satisfactory results, it would then be sufficient for you to report these results to us, mentioning the docket number of the subject application.

Sincerely yours,

C. O. Mittendorf

Administrator

cc: Docket
Code 400
FT, Reg. 2 - San Francisco
Adm. Reading File
Robt. Holliday, USBM
Thor Kiilsgaard, USGS

WSMartin/ls
3/17/55

COPY

400

BROWNSTONE MINING COMPANY
P. O. Box 396
Bishop, California

March 10, 1955

Mr. C. O. Mittendorf
United States Department of the Interior
Defense Minerals Exploration Administration
Washington 25, D. C.

Re: Docket No. DMEA 3455 Tungsten
Brownstone Mine
Inyo County, California

Dear Mr. Mittendorf:

We greatly appreciate your consideration in letting us see the maps of the proposed exploration work. This has enabled us to evaluate the thinking of D.M.E.A. more clearly.

Inclosed is a copy of a letter from Mr. Dan King, the product of much discussion and counsultation, which expresses much of our attitude and conclusion regarding the proposed exploration. When we applied for this loan it was our understanding that ground with good showing, and in a well known, proven tungsten area would qualify for exploration money. It now is our opinion that the presence of the ore must be proven before the exploration help can be obtained.

In view of the foregoing it is our desire that you hold this application till the weather conditions will permit us to extend our road onto the east contact zone enabling us to explore it farther. At the same time we will do some diamond drilling in the Brownstone workings to demonstrate what lies below. Of one or the other, or both should prove out, we would appreciate your reconsidering our application in the light of all new findings.

Again we thank you for your help in this matter and are looking forward to a mutually satisfactory and profitable contract in the near future.

Very truly yours,

/s/ W. V. Skinner

President

400

C O P Y

KING & KING
Mining Engineers

CLARENCE R. KING
7648 Bolsa Rd.

Midway City, Calif.
Westminster 8272

DAN M. KING
11762 Mines Blvd.
Whittier, Calif.
Oxford 44361

February 4, 1955

3455

Brownstone Mining Company
P. O. Box 396
Bishop, California

Gentlemen:

This is in answer to the request of Mr. Skinner for comments on the proposal of the D.M.E.A. relative to exploration in the Brownstone Mine, Pine Creek, California.

You will recall that this is a result of your application for aid submitted with an engineering report prepared by us some time ago.

Our understanding of the basic elements of the proposal submitted by the geologist of the U.S.G.S. and the mining engineer of the U.S.B.M. is that drilling from within the Brownstone Mine, and from a station outside the portal be done. This drilling to total some 1300 feet of work.

It is further our understanding that the reason for the application was to secure aid in prospecting the mine to depths sufficient to justify investment in production facilities based on low level haulage. We have recommended this work in the light of geological evidence and probability as interpreted by us, and in the light of demonstrated work in the nearby U. S. Vanadium operations.

In the light of the above-cited basic reason for applying for the loan, we do not believe the proposal made by the U.S.G.S. people will aid in the project for which the application was intended. This is further pointed up by the fact that the ground in which the proposed drilling would take place has already been drilled (by the El Diablo Mining Co.) for the most part and the tungsten bearing tactite is known to exist beneath the aplite sill in which portal facilities at the mine are located. Further, the drill site as recommended appears to be located on the side of the cliff.

You will recall that while the D.M.E.A. Field Team was on the property, that Mr. Pompeyan stated categorically that the U.S.G.S. would not approve the proposed adit or any other work involving either shafts or drifts. The suggestion then was made by Mr. Sheehan that perhaps an approach to the problem could be based

on drilling for depth outside the mine from a station located approximately at the location monument of the Brownstone No. 2 claim. Mr. Skinner and I agreed this would be acceptable provided sufficient holes of sufficient footage to prospect the zone in depth were allowed, and again emphasized the fact that ~~holes~~ drilled from such a station had only a 40% probability of intersecting tactite even in good ore zones due to the aplite sills and the peculiar intersection angles involved. Further the problems of obtaining water, transportation of men and equipment, etc., would so add to the cost of the drilling that the deep drilling necessary to accomplish the desired results could easily cost a major portion of the budget for a more complete project begun from below. At no time was any discussion of drilling either short holes or on basing any holes in the mine brought up by us or the Field Team.

Summarized, our opinion is that the program proposed by the U.S.G.S. would not be worth the time and expense involved, since it adds nothing to what is now known about the Brownstone Mine.

We still think the basic approach to have in it the elements whereby the DMEA and yourselves can agree on a program. In order for this to be done, the basic objections of the Field Team to our recommendations will have to be answered. When sufficient data is on hand to do this, further field examination, preferably by a man thoroughly familiar with the district from the U.S.G.S. accompanied by Mr. Sheehan for the U.S.B.M. could lead to a more favorable attitude on their part towards a program of some use to you and to the Nation.

We therefore suggest that the present counter proposal be rejected, and that upon completion of the road to where exploration of the East Zone can be done, surface showings be developed to back up requests for exploration of that zone. Also that diamond drilling by you with your own funds be done to demonstrate ore to depths of 300 feet beneath your level. The latter to dispel the apparent opinion that the orebody will bottom within a few feet of the present workings which seems to exist within the U.S.G.S. If the above mentioned work is successful, we then suggest the application be renewed, perhaps in July of this year.

Very truly yours,

KING & KING

Signed: DAN M. KING

By Dan M. King

DMK:VJ

MAR 4 - 1955

Mr. W. V. Skinner, President
The Brownstone Mining Company
P. O. Box 396
Bishop, California

Re: Docket No. DMEA 3455 - Tungsten
Brownstone mine
Inyo County, California

Dear Mr. Skinner:

Reference is made to the above-docketed application for exploration assistance and our letters dated December 17, 1954, and January 21, 1955, respectively.

To expedite the Defense Minerals Program, it would be appreciated if you would provide us promptly with the requested information, or return our sketch, as requested, if you are no longer interested in obtaining a DMEA project.

Sincerely yours,

C. O. Mittendorf

Administrator

FARutledge:fec
3-3-55
cc to: Docket
Code 400
Adm. Reading File
FT. REG.II
Robert Holliday, USBM
Thor H. Kiilsgaard, USGS

400

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 25 1955

420 Custom House
555 Battery Street
San Francisco 11, Calif.

January 21, 1955

Memorandum

To: Geroge C. Selfridge, Chairman, Operating Committee, DMEA
Interior Building, Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-3455 - Tungsten
The Brownstone Mining Co.
Brownstone Mine
Inyo County, California

Reference is made to your letter of January 17, 1955, relating to subject docket and to the letter from Mr. C. O. Mittendorf to Mr. Skinner.

I am very glad to have the letter to Mr. Skinner and am forwarding it today. The Kings had called me from Los Angeles several weeks ago and I assumed from their conversation that they would not approve of the proposed modified program. In the meantime, I had an interview with Ben Sheahan in Reno on January 7 and with E. H. Pampeyan, indirectly through Roscoe Smith, some time later. Both Mr. Pampeyan and Mr. Sheahan stated that they had discussed their proposal with the applicants on the ground and that they were under the impression that it had met with their approval.

Mr. Mittendorf's letter to Mr. Skinner should clarify the situation.

I am returning the copies of Mr. Mittendorf's letter for the docket, Mr. Geehan, Mr. Kiilsgaard, the Operating Committee, and Code 400. These were probably sent to me in error.

S. RICKER

S. Ricker
Executive Officer
DMEA Field Team, Region II

Attachment

Copy to: Roscoe Smith, USGS
A. C. Johnson, Reno

JAN 21 1955

Re: Date

Answered

Mr. W. V. Skinner, President
The Brownstone Mining Company
P. O. Box 396
Bishop, California

Re: Docket No. DMEA 3455 - Tungsten
Brownstone Mine
Inyo County, California

Dear Mr. Skinner:

This will acknowledge receipt of your letter of January 4, 1955, requesting a copy of the proposed contract for the captioned exploration project. We have also held a conference on the same subject with Mr. C. R. King, Consulting Mining Engineer.

The proposed contract is not available yet. When there is doubt about the Owner's Consent to Lien being provided we often defer drafting a contract until such consent is received here. In this case, because of our experience with the earlier application covering the same property submitted by Mr. H. A. Bacheler, we anticipated that the Owner's Consent to Lien might not be obtained and have, therefore, held the matter in abeyance.

Our Field Team's report recommends approval of 1300 feet of diamond drilling at the locations shown on the attached "Figure 2 - Sketch Map of the Brownstone Mine, Inyo County, California," the work of Stage II to be dependent upon the results of the drilling of Stage I. It was our understanding that the proposed work had been discussed with you and had the approval of you and your consulting engineer. This modified program is subject to review here by a number of engineers and geologists, including our own staff and the commodity specialists of the Bureau of Mines and the Geological Survey.

Enough consideration has already been given to the proposal, however, so that it can be stated without making any commitment that a contract, if prepared, would cover substantially the same work outlined above.

Mr. King, who saw the above-mentioned sketch, advised us that you probably would not be interested in such a contract, but we shall, of course, appreciate having your comments. In any event, please return the sketch, which is for your own information only and is not for publication but merely to illustrate the type of map which would be attached to the draft of a proposed contract.

Sincerely yours,

C. O. Mittendorf

Administrator

Enclosure

cc: DOCKET
FIELD TEAM, REGION 2--San Francisco
CODE 400
ADM. READ. FILE
OPER. COMMITTEE
R. W. GEEHAN, USBM
T. KIILSGAARD, USGS

WSMartin/ls
1-13-55

JAN 17 1955

400

Mr. Spangler Ricker, Executive Officer
DMEA Field Team, Region II
420 Custom House, 555 Battery Street
San Francisco 11, California

Re: Docket No. DMEA 3455 - Tungsten
The Brownstone Mining Co.
Brownstone Mine
Inyo County, California

Dear Mr. Ricker:

Enclosed is a self-explanatory letter addressed to Mr. W. V. Skinner, President of The Brownstone Mining Company, regarding the subject application.

Please forward the letter to Mr. Skinner if it has your approval.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

Enclosure

Approved:

J. H. Hedges

Member, Bureau of Mines

Thor H. Kiilsgaard

Member, Geological Survey

cc: DOCKET
FT, REG. 2--San Francisco
CODE 400
ADM. READ. FILE
OPER. COMM.
R. W. GEEHAN, USBM
T. KIILSGAARD, USGS

WSMartin/ls
1-13-55

143

400

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

[illegible] 17 1954

Mr. William V. Skinner, President
The Brownstone Mining Company
P. O. Box 996
Bishop, California

Re: Docket No. [illegible] (Tungsten)
Brownstone Mine
Inyo County, California

Dear Mr. Skinner:

In connection with the above-docketed application, we have reviewed your interests in the property which you propose to explore, as described by the copies of agreements submitted with your application.

It appears to us that your company, by assignment from William V. Skinner and Jack Cathey, is a sublessee-optionee of the lands described in an agreement dated July 1, 1952, between El Diablo Mining Company and Skinner and Cathey. This lease recites that no rights in the lower tramway station or in the lower ore bin are conveyed thereby, the sublessor not having any rights therein. The owners of these lands do not appear to be disclosed in our docket.

It also appears that your company is sublessee-optionee of certain other lands described in two agreements dated July 1, 1954, with the sublessor, Robert F. Witter, doing business as High Sierra Realty Company. The owners of these lands appear to be G. Kinney and Fred J. [illegible].

In some circumstances we require that the following additional papers be furnished to us:

1. Copy of the agreement between the owners and El Diablo Mining Company, and Owner's Consent to Lien, on the form enclosed, executed by the owners.

2. Another Owner's Consent to Lien by El Diablo Mining Company, executed on the form enclosed.

3. Copy of the agreement between the owners and Robert F. Witter, and Owner's Consent to Lien, on the enclosed form, executed by the owners.

4. Another Owner's Consent to Lien from Robert F. Witter, executed on the enclosed form.

5. It appears from the application (page 16) that ownership of the Tailus claim is in dispute, and it was to be conveyed by your company to the owners of the Blue Grouse claims and included by the owners in the agreement with you, however, we do not see where this has been done. Therefore, we require a copy of an instrument giving you rights in this claim, for the purposes of the proposed project, and an Owner's Consent to Lien covering it.

It is requested that you also explain the nature of your rights in the lower tramway station and the lower ore bin (excepted from the El Diablo Mining Company Agreement).

Upon receipt of these data we shall give further prompt consideration to your application.

Sincerely yours,

C. O. Mittendorf

Administrator

Enclosures 35

HCRubin/emd 12/15/54
Copy to: DMEA Docket
Solicitor's Docket
Adm. Reading File
Operating Committee
T. H. Killingsard, USGS
R. W. Geehan, USBM
W. S. Martin
J. L. Heffland
H. C. Rubin
Field Team, Region III (2)
Chron.
Pending

IN REPLY REFER TO:

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

400

December 15, 1954

Re: DMEA-3455
The Brownstone Mining Co.
(Brownstone Mine)
Inyo Co., Calif.
$16,800 - Tungsten

Memorandum

To: W. S. Martin, Defense Minerals Exploration Administration

From: E. L. Newcomb, U. S. Geological Survey

Subject: Recommendation for approval of Field Team's two-stage project

This property was previously considered for exploration assistance in connection with docket DMA-1456. Although exploration was recommended by the Field Team, the application was withdrawn because the applicant was unable to obtain a Landlord's Subordination Agreement from the El Diablo Mining Company.

The Field Team has reexamined the property and has recommended a limited two-stage drilling project be approved. This program is similar to the project (DMA-1456) previously approved for the Brownstone property.

The proposed drilling will explore for possible ore below the adit level and the underlying aplite dike. If ore is found by the first stage of drilling than four additional holes will be used to further delineate the deposit.

This program is geologically feasible and has a reasonably good chance for success.

I concur with the program outlined by the Field Team, and recommend the application be approved.

E. L. Newcomb

ELNewcomb:hlm
G-12/15/54

Copy to: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
R. W. Geehan, 3513 Interior

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

FAR
12-6-54

Mr. William V. Skinner, President
Brownstone Mining Company, Inc.
Box 396
Bishop, California

Re: Docket No. DMEA 3455 - Tungsten
Brownstone mine
Inyo County, California

Dear Mr. Skinner:

A review of the above-docketed application for exploration assistance at the Brownstone mine indicates that additional data are required. It would be appreciated, therefore, if you would furnish us with the following:

1. Copy of the ~~lease~~ agreement between the owners of the Brownstone No. 1, Brownstone No. 2, Myrtle No. 1, Myrtle No. 2, Brownie No. 1 mill site, and Brownie No. 2 mill site, and the El Diablo Mining Company.

2. Six copies of Owner's Consent to Lien executed by the owners under 1 above on the enclosed forms.

3. Six copies of Owner's Consent to Lien executed by El Diablo Mining Company covering Brownstone No. 1, Brownstone No. 2, Myrtle No. 1, and Myrtle No. 2 claims.

5. Copy of the lease between G. Kinney and Fred J. Austin, owners of the Blue Grouse Nos. 1 through 7, inclusive, claims and Robert F. Witter, dba High Sierra Realty Company.

6. Six copies of Owner's Consent to Lien executed by the owners under 4 above covering the Blue Grouse claims.

7. Six copies of Owner's Consent to Lien covering the Blue Grouse claims executed by Robert F. Witter, dba High Sierra Realty Company.

8. Copy of lease or other legal document by which Brownstone Mining Company, Inc., controls Tallus claim.

9. Six copies of Owner's Consent to Lien executed by owner of Tallus claim.

4. Six copies of Owner's Consent to Lien executed by William V. Skinner and Jack Cathey, dba Brownstone Mining Company, covering Brownstone No. 1, Brownstone No. 2, Myrtle No. 1, and Myrtle No. 2 unpatented claims.

December 6, 1954

MEMORANDUM

To: Acting Assistant Solicitor, Defense Minerals

From: Chief, Iron and Ferro-Alloys Division, DMEA

Subject: Review of proposed draft to applicant
Docket No. DMEA 3455 - Tungsten
Brownstone Mining Company, Inc.
Brownstone mine
Inyo County, California

Transmitted herewith is a rough draft of a proposed letter to the applicant requesting new owner's consent to liens and copies of additional leases required to process the subject application.

Attention is called particularly to Sec. 18 of Page 8 of the lease between El Diablo Mining Company and the Brownstone Mining Company.

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

enclosure

FARutledge:foc
12-6-54
cc to: Docket
Code 400
Adm. Reading File

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

402

DEC - 2 1954

420 Custom House
555 Battery Street
San Francisco 11, Calif.

November 29, 1954

Memorandum

To: George C. Selfridge, Chairman, Operating Committee, DMEA
Interior Building, Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket No. DMEA-3455 - Tungsten
The Brownstone Mining Company
The Brownstone Mine
Inyo County, California

Reference is made to your letter dated September 1, 1954, referring the subject application to us for review and a field examination.

Attached are the original and three copies of a report entitled "DMEA-3455, The Brownstone Mine, Inyo County, California, (Tungsten)," by B. H. Sheahan, Mining Engineer, U. S. Bureau of Mines, and E. H. Pampeyan, Geologist, U. S. Geological Survey, dated November 1, 1954.

The engineer and geologist are in agreement that the proposal made by the applicant be denied. However, they are also in agreement that a smaller project on the property is warranted. Their reasons for a diamond drilling program on the property are to the effect that there is a good possibility that the Brownstone ore body does extend downward, but it is unlikely that the segments of the tabular inclusion would be found more than 200 or 300 feet below the adit level.

The exploration work would consist of diamond drilling. Three holes have been proposed to be drilled from the lower stope, vertical or nearly vertical, to determine the mineralization at depth. If these holes should prove to be successful, an additional four holes would be drilled from surface locations. The cost of this exploration program would be $10,800.00.

Reviewed by
DMEA OPERATING COMMITTEE
12-8-54
(date)

Mr. A. C. Johnson, Roscoe Smith, and I are in agreement with the recommendations set forth in the report. Mr. Smith and I suggest that the block of ground to be excluded from royalty payments should be that outlined in red on Figure 2. This block can be described as follows: All ore in block of ground from the adit level to the surface, from the portal of the adit to a plane through the face of the adit level at 225 feet, and to planes paralleling the ore zones 85 feet northeast of the adit to 85 feet southwest of the adit.

I would suggest that if a contract is granted, it be so arranged that work could start as early in the spring as possible in order to complete the project before the bad fall weather starts in 1955.

S. RICKER

S. Ricker
Executive Officer
DMEA Field Team, Region III

Attachment

Copy to: Roscoe Smith, USGS
A. C. Johnson, Reno

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

# DMEA-3455, The Brownstone Mine

## Inyo County, California

(Tungsten)

B. H. Sheahan, Mining Engineer
U. S. Bureau of Mines

E. H. Pampeyan, Geologist
U. S. Geological Survey

November 1, 1954

Reviewed by
DMEA OPERATING COMMITTEE
12-8-54
(date)

# EXAMINATION REPORT

Docket No.: DMEA-3455 (Tungsten)

Name and address of applicant: The Brownstone Mining Co.,
William V. Skinner, President
P. O. Box 396,
Bishop, California

Name and location of property: The Brownstone Mine
Inyo County, California

## SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The Brownstone tungsten mine, Inyo County, California, is located at an altitude of 9210 feet along the side of a cliff near Pine Creek and approximately 1.5 miles by trail southwest of the U. S. Vanadium Corporation tungsten mill in the Pine Creek Mining District. The property includes a consolidation of 12 unpatented mining claims which have been previously examined by engineers of the Bureau of Mines and geologists of the Geological Survey.

The applicant's consultant has proposed an exploration program in two stages to explore the "east" and the Brownstone ("west") tactite zones at depth. Stage 1 consists of 800 feet of crosscutting, 500 feet of drifting and 3,000 feet of diamond drilling to explore the "east" tactite zone 600 feet beneath its outcrop and to drill for the Brownstone ore body at this elevation. Stage II, dependent upon the results of Stage 1 drilling, consists of extending the crosscut 1,000 feet with 200 feet of

Reviewed by
DMEA OPERATING COMMITTEE
12-8-54
(date)

drifting and 2,000 feet of diamond drilling to examine the Brownstone ore body 1,100 feet below the existing mine. Total estimated cost of this project is $120,000.

As the "east" tactite zone shows little scheelite, both in surface exposures and in the diamond drill core which parallels the proposed adit, it is recommended that any exploration be confined to determining the downward extension of the Brownstone ("west") ore body. A revised program of diamond drilling to explore under the Brownstone mine, discussed with the applicant, is suggested and recommended for approval. The suggested program totaling 1,300 feet of drilling, would closely resemble a project (DMEA-1456X) previously approved for this property.

## TIME SPENT ON PROPERTY

The examining team were accompanied on September 21, 1954 by Mr. William V. Skinner, president; Mr. G. B. Voget, secretary-treasurer; and Mr. Dan M. King, consulting mining engineer of the Brownstone Mining Co.

Several previous examinations of the property have been made by engineers [1, 2] of the Bureau of Mines. The Brownstone Mine was mapped by Paul C. Bateman, geologist, Geological Survey in 1947 and by D. C. Ross and C. D. Rinehart, geologists, Geological Survey [3] in

1/ Preliminary examination report, Brownstone Mine, Inyo County, Calif. W. T. Benson, mining engineer, Bureau of Mines, August 1949.

2/ Report of examination, Blue Grouse Mine, Inyo Co., Calif. by Frank J. Wiebelt and L. F. Muller, mining engineers, Bureau of Mines, July 3, 1951.

3/ Report of examination, DMEA-1456X (Tungsten).

September 1953.

The recent examination included the inspection of the Brownstone Mine and lamping exposures of the Blue Grouse area with ultraviolet light.

## NAME AND LOCATION OF PROPERTY

The Brownstone Mining Company property is reached from Bishop, California, by following U.S. Highway 395 northwesterly 12 miles, turn westerly and follow a paved road 8.5 miles to the U. S. Vanadium Corporation mill on Pine Creek, follow a private road 0.2 mile to the lower tramway terminal of the Brownstone Mine, from this point the Brownstone Mine is reached by a very steep trail approximately 1.3 miles in length. The total distance from Bishop, California is approximately 22 miles (fig. 1).

The paved road to the U. S. Vanadium mill is usually kept open during winter months. Operations at the Brownstone Mine in the Pine Creek Mining District cannot be conducted during winter months when the access trail is closed. The claims are located in an area of extremely rugged topography. Snow slides during winter months are common occurrences. The operating season is usually from June to October.

The location and topography of the area is indicated on the Mt. Tom Quadrangle, Inyo County, California in sec. 8, T. 7 S., R. 30 E., M.D.B.&M.

## COMPETENCY OF APPLICANT

Mr. William V. Skinner, president of the company, has been engaged in the mining business in Inyo County, Calif., for approximately 20 years. He was competently supervising eight employees at the mining operation being conducted on the Brownstone No. 1 claim. Mr. G. B. Voget, secretary-treasurer, has very little mining experience.

According to information included with the application for DMEA assistance, the company intended to provide their share of the costs of exploration work with money.

Operating personnel at the property were skilled in their occupations as miners and laborers.

The application for aid in an exploration project by the Brownstone Mine was prepared with the assistance of Clarence R. King, Dan M. King, mining engineers. Their report was fairly well prepared, however, the exploration work proposed by the applicants was not justified.

## APPLICANTS PROPERTY RIGHTS

The claims indicated on Claim Map (fig. 1) include approximately 10 unpatented mining claims situated south of Pine Creek and to the west of the U. S. Vanadium mill site area. The Blue Grouse group of claims are owned by Mr. R. F. Witter, High Sierra Realty Co., Bishop, Calif. The Brownstone No. 1 and No. 2, Myrtle No. 1 and No. 2, and the Brownie Mill Site and Tailus claim were leased by the El Diablo Mining Co. The Brownstone Mining Company has obtained leases on the property.

## DESCRIPTION OF PROPERTY

The Brownstone No. 1 claim is developed by a 200-foot adit drift at an altitude of 9210 feet (see fig. 2). Total footage of workings amounts to approximately 350 feet of drifting and crosscutting and 250 feet of connecting raises. The workings have required very little timber for ground support. There are practically no exploratory workings on the other claims.

A gravity type aerial tramway, 2,400 feet in length from the lower terminal (elevation 7920 feet) to the adit level (elevation 9210 feet), is used to transport equipment and supplies to the property and to transport the ore produced. Employees are not allowed to ride the tramway, but either walk or ride horseback over the access trail. There are no housing facilities at the property. Most of the workmen reside at Bishop, Calif.

## GEOLOGY

The Brownstone Mining Company's claims are along the east edge of the Sierra Nevada batholith. Underlying the claims are metamorphosed sedimentary rocks which have been intruded by late Jurassic crystalline rocks. Tactite formed near the intrusive contact locally contains scheelite.

In the mine area Paleozoic arenaceous and calcareous sedimentary rocks of the Pine Creek pendant have been intruded by quartz

monzonite. These have been intruded by granite and cut by numerous flat-dipping aplite dikes which emanated from the granite intrusive.

The Brownstone mine is in a northwest striking, nearly vertical tabular inclusion about 75 feet wide of marble and scheelite-bearing tactite surrounded by quartz monzonite and cut by aplite dikes (fig. 2). As the inclusion is exposed in a cliff face dipping 70-80 degrees northwest, structural relations between the rock units are well exposed in a natural cross-section. The flat-dipping dikes are later than the ore and have no function in the ore body except in dilating the tabular inclusion.

About 1500 feet northeast from the Brownstone mine, a narrow, irregular zone of tactite crops out in Pine Creek near the west edge of the Pine Creek pendant. The tactite occurs along the west edge of an east-dipping marble mass and is separated from the quartz monzonite by 300-600 feet of hornfels and biotite-quartz schist. This zone, called the "east" tactite zone, is discontinuous to the south along its strike.

## ORE DEPOSITS

Scheelite and powellite occur in tactite formed at or near contacts between quartz monzonite and marble. The Brownstone ore body was formed along the west side of a tabular limestone inclusion engulfed in quartz monzonite while the "east" tactite zone formed along

a favorable limestone bed separated from the intrusive by arenaceous sedimentary rocks.

Scheelite, the principal ore mineral, is disseminated throughout the tactite which averages between 0.6 and 0.7 percent $WO_3$. Powellite was noted locally in the tactite. Molybdenite was also found and seemed to be more abundant near the intrusive contact. Assays and settlement sheets show that the tactite contains about 0.35 percent Mo.

The Brownstone or "west" tactite zone is an almost vertical, tabular mass of tactite which ranges in thickness from 5 to 35 feet. The vertical dimension of known tactite, excluding the aplite dikes, is about 150 feet and the ore body has been explored to the southeast along its strike for a distance of 220 feet. The sharp contact between tactite and aplite at the adit level portal suggests that one or more segments of the inclusion may lie below the present workings. It is unlikely, however, that any dilated segments would exist more than 200-300 feet below the adit level because the strike length, and thickness, of the tabular inclusion indicate a vertical dimension of about 250 feet which when dilated with dikes of almost uniform thickness and spacing give a total depth of about 200 feet below the adit level.

The "east" tactite zone is exposed discontinuously along its strike for 800 feet and vertically for 600 feet. While lamping this zone, it was noted that spotty scheelite occurs only locally in the outcrops of tactite and commonly as a very thin coating on fracture surfaces. Dia-

mond drilling done in May and June of 1952, parallel to the proposed adit, showed traces of scheelite but not enough to warrant assaying. (See Appendix A for log of core). Sampling of the "east" zone (Blue Grouse claims) by the Bureau of Mines in June 1951 showed little more than traces of tungsten.

A summary of total past production from the Brownstone mine is listed below:

| Period | Tons of Ore Mined | Units $WO_3$ | % $WO_3$ |
|---|---|---|---|
| Prior to 1952 (approximate) | 2000 | 1200 | 0.6 |
| Aug. 1952 to July 1953 | 2386.36 | 1478.66 | 0.62 |
| Aug. 1953 to June 26, 1954 | 5627.98 | 2876.09 | 0.51 |
| Total | 10014.34 | 5554.75 | 0.55 |

Production from the different stopes has not been separated because all the tactite is about the same average grade and all is mined.

No work other than prospecting has been done on the "east" tactite zone and no production has been reported from this prospecting.

## ORE RESERVES

Reserves in the Brownstone mine are summarized as follows: Measured, 2895 tons; indicated, 1400 tons; and inferred, 9068 tons. The average grade of this ore is assumed to be the same as the previous production average, or 0.55 percent $WO_3$. Samples collected by the field team from the "east" zone contained less than 0.01 percent $WO_3$, and the core from the hole parallel to the proposed adit was essen-

tially barren; therefore, the "east" tactite zone is not known to contain any reserves and none are inferred. In estimating reserves, a factor of 10 cubic feet per ton was used for ore in place.

Measured reserves above the adit level exposed in the face of the cliff equal about 1855 tons of ore averaging 0.55 percent $WO_3$ in a block 55 feet high, 30 feet wide and 15 feet thick. At least three-fourths of this block contains ore of the average grade. Measured ore in the cliff face above the middle level equals 450 tons containing 0.55 percent $WO_3$ in a block 40 feet high, 30 feet wide and 5 feet thick. Three-fourths of this block is estimated to contain ore of the average grade. In the upper stope, measured reserves in a block 15 feet high, 15 feet wide and 35 feet thick equal about 590 tons of ore containing 0.55 percent $WO_3$. At least three-fourths of this block contains ore of the average grade.

Indicated reserves below the adit level equal 1000 tons of ore averaging 0.55 percent $WO_3$. At least two-thirds of the block 120 feet long, 25 feet high and about 5 feet wide is indicated ore of the estimated grade. In the southeast end of the middle stope, indicated reserves equal 400 tons of ore. Two-thirds of this block 40 feet long, 30 feet high and 5 feet wide is estimated to be ore averaging 0.55 percent $WO_3$.

Inferred reserves on the middle level in a block 70 feet long, 40 feet high and about 5 feet wide equal 1870 tons of ore averaging 0.55 percent $WO_3$. On the upper level, in a block approximately 60 feet high,

60 feet long and 5 feet wide, indicated reserves equal 1200 tons of ore of the estimated grade. Two-thirds of each of these blocks is inferred to contain ore of the average grade. At least one additional block of inferred ore 200 feet long, 30 feet high and about 15 feet wide is thought to lie beneath the aplite dike under the adit level. Two-thirds of this block, or 6000 tons, is inferred to contain ore averaging 0.55 percent $WO_3$.

Summary of total reserves:

| | Class and location | Tons | %, $WO_3$ | Units $WO_3$ |
|---|---|---|---|---|
| Measured | - above Adit level (cliff face) | 1855 | 0.55 | 1020 |
| | - above Middle level " " | 450 | 0.55 | 248 |
| " | - above Upper level " " | 590 | 0.55 | 324 |
| Indicated | - below Adit level | 1000 | 0.55 | 550 |
| " | - above Middle level | 400 | 0.55 | 220 |
| Inferred | - above Middle level | 1870 | 0.55 | 1030 |
| " | - above Upper level | 1200 | 0.55 | 660 |
| " | - below Adit level | 6000 | 0.55 | 3300 |
| | | 13365 | | 7352 |

## PROPOSED EXPLORATION

The applicant's consultant has proposed a $120,000 program to thoroughly explore the "east" tactite zone and the Brownstone zone. The program is set up in two stages with the second stage dependent upon re-

sults of the first. Stage one consists of: Driving a crosscut adit 800 feet southwest to intersect and pass through the "east" tactite zone some 600 feet vertically below the outcrop; drifting 500 feet along the tactite zone; and diamond drilling 3000 feet to further explore the "east" zone, and to explore under the Brownstone ore body on this level. If drilling reveals a downward continuation of the Brownstone ore bodies, then Stage two would consist of: Extending the crosscut another 1000 feet to cut the Brownstone zone; drifting 200 feet on this zone; and diamond drilling 2000 feet to thoroughly explore the lower Brownstone tactite. It is estimated that Stage one would be completed in five months at a cost of $75,000 and Stage two would require an additional five months and $45,000 for completion. The consulting engineer believes this extensive program is justified because: The long adit will provide all-weather access to any ore found; the "east" tactite zone contains commercial amounts of tungsten; and the Brownstone ore body may extend downward some 1100 feet.

The proposed exploration program might be justified if the "east" tactite zone contained tungsten ore and if the Brownstone ore body was known to extend downward. Such an ambitious program, however, without preliminary sampling, trenching, or diamond drilling is unjustified. Samples of the "east" zone taken from outcrops which lamped well during the field team's examination showed less than 0.01

percent $WO_3$. The core from the hole drilled almost parallel to the proposed adit did not show enough scheelite to warrant assaying. Of eleven samples cut by the Bureau of Mines in June 1951 from the Blue Grouse claims ("east" tactite zone in Pine Creek), one assayed 0.02 percent $WO_3$ and ten assayed 0.01 percent $WO_3$ or less. On the basis of available evidence, the "east" tactite zone does not merit $75,000 worth of underground work and diamond drilling.

There is a good possibility that the Brownstone ore body does extend downward, but it is unlikely that segments of the tabular inclusion would be found more than 200-300 feet below the present adit level. If ore did extend down 300 feet, it still would not merit 1800 feet of crosscutting and 800 to 1000 feet of raising. A long adit and raise might be better considered development work for easier access rather than exploration work.

At the time of the field team's examination, a revised exploration program was discussed with the consulting engineer and operators and tentatively approved. It was agreed that a diamond drilling program to explore for additional segments of the Brownstone inclusion below the existing mine would be of greater value at this time. The suggested revision of the program would be as follows: Drill three 200-foot vertical (or near vertical) holes downward from the lower stope to prove whether or not the ore does exist below the aplite dike; if additional segments of the

inclusion are found by the vertical holes, drill four inclined holes, totaling about 700 feet, downward either from the small station in the upper tram terminal or from the foot of the cliff about 100 feet northeast of the adit level portal (cf. DMEA-1456X). The exact bearing and dip of these inclined holes will be dependent upon the information gained from the vertical holes. (See fig. 2 for approximate drilling data.) The purpose of the last four holes would be to determine the size of any other tungsten-bearing segments. It is suggested that a geologist or engineer be engaged to follow the drilling and evaluate the results.

As the area directly beneath the Brownstone mine offers good possibilities of containing economic amounts of tungsten ore, it is recommended that this area be explored by means of diamond drilling under the DMEA program.

## SAMPLING

Samples taken from the Blue Grouse claims contained less than 0.01% $WO_3$. One sample taken from a muck pile from the upper stope of the Brownstone Mine contained 0.09% $WO_3$.

## PAST OPERATIONS

The El Diablo Mining Company acquired the property in 1948. The Blue Grouse claims have been located for speculative purposes, and there has been no production recorded from this portion of the property. Present operations include selectively mining and sorting scheelite-bearing tactite ore from the Brownstone mine.

According to data compiled by D. M. King and C. R. King, mining engineers, the following production figures are as follows:

| Period | Tons of Ore Mined | Units $WO_3$ | %, $WO_3$ |
|---|---|---|---|
| Prior to 1952 (approximate) | 2000 | 1200 | 0.6 |
| Aug. 1952 to July 1953 | 2386.36 | 1478.66 | 0.62 |
| Aug. 1953 to June 26, 1954 | 5627.98 | 2876.09 | 0.51 |
| Total | 10014.34 | 5554.75 | 0.55 |

## MANPOWER, SUPPLIES, ETC.

The wage scale paid by the company amounted to $2.50 per hour. Bishop, California is the nearest source of mine supplies. Because of the high altitude of the property, short operating season, and difficult access, all actual costs are above average for the Pine Creek Mining District.

The aerial tramway has a capacity of 10 tons of ore per hour. The tram buckets have a maximum capacity of 1500 lbs. Transportation of fuel oil, mine supplies and equipment have been conducted by use of this tramway and also by use of pack trains over the trail.

Electric power and water is available near the U.S. Vanadium mill on Pine Creek.

Equipment at the property included the following:

| Item | Condition |
|---|---|
| 1 Tramway and ore bin | Fair |
| 1 Air compressor, 315 cfm | Fair |

| Item | Condition |
|---|---|
| 1 Air compressor, 365 cfm | Fair |
| 3 Rock drills with steel | Good |
| 1 Mucking machine | Poor |
| 2 Mine cars, 16 cu. ft. | Fair |
| 1 HD-14 bulldozer at lower tram terminal | Poor |
| Miscellaneous small tools an equipment and mine supplies | Fair |

## EXPLORATION PROJECT

(a) Expected starting date: June 1955
(b) Time required to complete the project: 3 months

## DESCRIPTION OF PROJECT

Exploration of the area directly beneath the Brownstone mine by core drilling. The revised proposed project would include drilling three 200-foot vertical (or near vertical) holes downward from the lower stope.

Stage II of the proposed work would depend upon the results obtained from Stage I and would include diamond drilling four holes at locations indicated on figure 2 from surface drill station.

### Estimated Costs of Project

a. Independent contract - 1300 feet of diamond drilling @ $7.00 per foot ..... $9,100.00
(The cost of all equipment, supplies and labor necessary for drilling the holes is included in the per foot cost)

b. Labor, supervision & consultant
1 resident engineer @ $500.00 per month - 3 months ..... 1,500.00

| | |
|---|---|
| c. Operating material and supplies ..... | None |
| d. Operating equipment ..... | " |
| e. Initial rehabilitation and repairs ..... | " |
| f. New buildings, improvements ..... | " |
| g. Miscellaneous: | |
| 25 core boxes @ $3.00/ea. ..... | $ 75.00 |
| 25 core sample analyses ..... | 125.00 |
| Total estimated cost of project ..... | $10,800.00 |

APPENDIX A

Blue Grouse Mining Claim

Diamond Drill Hole #1

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 2 1954

| | |
|---|---|
| Location | 70' S 51° E from end of road, south side of Pine Creek |
| Direction | S 47° W |
| Dip | -10½° |
| Elevation | 7962 (assumed) Scaled from Quadrangle Sheet |
| Started | May 24, 1952 |
| Completed | June 6, 1952 |
| Length | 467 feet  Hole size - AX, 1 1/5 inch diam core |
| Drilled by | Palmer & Decker  Logged by  Lawson A. Wright |

LOG

| | |
|---|---|
| 0 - 220' | Non-cored. Limestone. Hole encountered water at 20', 20 g.p.m. Water increased at 55' to 40 g.p.m., and to 80 g.p.m. at 100'. |
| 220' - 222' | Limestone, crystalline, blue |
| 222' - 223' | Schist, black-biotite |
| 223' - 223½' | Tactite, medium grained garnet. No scheelite. |
| 223½' - 229½' | Limestone, crystalline, blue |
| 229½' - 246' | Aplite dike, center portion coarse grained quartz and orthoclase with small amounts of garnet crystals. |
| 246' - 290' | Limestone, crystalline, blue. Two inch tactite bands at 259' and 260' |
| 290' - 292' | Tactite, coarse grained garnet, small amounts of epidote. No scheelite |
| 292' - 334' | Limestone, crystalline, blue. |
| 334' - 370' | Limestone, crystalline, blue. Hole parallels seam 313' to 315', and 329' to 334'. Solution channel at 328'. |
| 370' - 371.5' | Schist, biotite with tiny veinlets of sulphides - probably pyrrhotite |
| 371.5' - 380' | Limestone, crystalline, blue |
| 380' - 384' | Schist, biotite. Hit fault zone at 380', lost 1.0' of core |
| 384' - 420' | Limestone, crystalline, blue |

| | |
|---|---|
| 420' - 429' | Tactite,<br>420' - 425' Garnet and quartz, specks of scheelite<br>425' - 429' Medium grained epidote, low in garnet and quartz. No scheelite. Hit fault at 422', lost 2.0' of core. Fault at 426', lost 1.0' of core. |
| 429' - 434.5' | Quartz, white |
| 434.5' - 438' | Tactite, medium grained garnet-epidote. Mud seam at 436'. |
| 438' - 439.5' | Limestone, garnetized - about 5% garnet. |
| 439.5' - 454' | Tactite, medium grained epidote, garnet, and quartz. Specks of scheelite at 452', 453', 454'. |
| 454' - 464' | Limestone, silicified, mottled. Specks of molybdenite at 455', 458', 461', 463'. Specks of scheelite at 460', 462', 463'. |
| 464' - 465' | Pegmatite dike, medium to coarse grained quartz and orthoclase. |
| 465' - 466' | Limestone, silicified, with small inclusions of schist. |
| 466' - 467' | Schist, biotite and muscovite, with small amounts of sulphides chalcopyrite and probably pyrrhotite. |

SEP 1 0 1954

3455

Mr. Walter M. Hoover
764 Loraine
Grosse Pointe, Michigan

WSM

Dear Walter:

I was pleased to receive your letter of August 6 and interested to learn of your present activities. It appears that you are engaged in the design of several important projects. I trust that your contemplated venture will be highly successful and permit you to lissurely explore the areas in the West that you have in mind.

I have intentionally delayed replying to your letter because we had no record in Washington of having received an application from Bill Skinner as of the date your letter was received. It just recently came to my attention that Bill's application for exploration of the Brownstone Mine was docketed as DMEA-3455 on August 23d and that after a preliminary review in Washington, on September 1 it was referred to the Executive Officer at San Francisco for a field examination. Mr. Skinner was advised of the fact.

In accordance with established procedure, no further action will be taken by DMEA until after the Field Team recommendations have been received in Washington and reviewed by the commodity members of the Geological Survey and Bureau of Mines.

With kindest personal regards to Mrs. Hoover, the children, and yourself,

Sincerely yours,

C. O. Mittendorf
Administrator

COMittendorf/fw
9/9/54
cc: Mails & Files
Admr. Reading File
Iron & F.Alloys Div.
Mr. Mittendorf

SEP 1 1954

Mr. H. C. Miller, Executive Officer
DMEA Field Team, Region III
420 Custom House
555 Battery Street
San Francisco 11, California

Re: Docket No. DMEA 3455 - Tungsten
The Brownstone Mining Company
Brownstone Mine
Inyo County, California

Dear Mr. Miller:

The above-docketed application for exploration assistance is being referred to your office for review and a field examination of the property.

A memorandum by R. D. Trace, Geological Survey, dated August 26, 1954, is enclosed for your information.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

Enclosures

JHopkins:foc
8-30-54
cc to: Docket
Code 400
Adm. Reading File
Operating Comm.
FT. REG. III
R. W. Geehan, USBM
Thor H. Kilsgaard, USBM GS

APPROVED:

J. H. Hedges

Member, Bureau of Mines

Thor H. Kilsgaard

Member, Geological Survey

SEP 1 1954

Mr. William V. Skinner, President
The Brownstone Mining Company
Box 396
Bishop, California

Re: Docket No. DMEA 3455 - Tungsten
Brownstone Mine
Inyo County, California

Dear Mr. Skinner:

The above docketed application for exploration assistance has been reviewed by the Iron and Ferro Alloys Division of the Defense Minerals Exploration Administration and referred to Mr. H. C. Miller, Executive Officer, DMEA Field Team, Region III, 420 Custom House, 555 Battery Street, San Francisco 11, California, for a field examination of the property.

Any assistance that you can render the members of the Field Team will be appreciated.

Sincerely yours,

C. O. Mittendorf

Administrator

JHopkins:foc
8-30-54
cc to: Docket
Code 400
Adm. Reading File
Operating Comm.
FT. REG. III
R. W. Geehan, USBM
Thor H. Kilsgaard, USBM

IN REPLY REFER TO:

400

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

August 26, 1954

Memorandum

REVIEW OF APPLICATION DMEA-3455 (tungsten)

To: W. S. Martin, Defense Minerals Exploration Administration
From: R. D. Trace, U. S. Geological Survey
Applicant's name and address: The Brownstone Mining Company, Box 396, Bishop, California.
Name of property: Brownstone Mine
Location of property: Inyo County, California
Summary of applicant's proposal:

1) Drive 800-foot crosscut adit, drive 500 feet, diamond drill 5,000 feet of holes.
2) Drive adit 1,000 feet, drive 200 feet, diamond drill 2,000 feet of holes.

Sources of information on applicant's property:

Lemmon, D. M., 1944, Brownstone Claims in Pine Creek Canyon, Inyo County, Calif., unpublished report in files of USGS, 2 pages, 1 illus.

For general information, see also USGS Bull. 931-E (plate 16) and files of DMA 861X (Adamson Mine).

Comments:

The scheelite deposits on the Brownstone group of claims is on the west side of the Pine Creek pendant in a tactite contact zone between marble and intrusive granite.

An examination of the property is recommended, as the latest information available in Washington Survey files is a 1944 report by Dwight Lemmon. This report was written after the diamond drilling (not mentioned in application) done at the present site of the Brownstone mine, but before this mine was opened.

Lemmon's report describes the west (Brownstone) tactite zone as the "best exposure" of scheelite ore. He does not mention the east tactite zone, which is the primary target of the proposed phase 1 exploration. (Incidentally, the tactite zones are labelled incorrectly on the applicant's first photograph.)

As the east tactite zone is the first target, and as there has been no production from this zone, the plan to drive an adit to it may be premature. Our only data is applicant's statement that "outcrops and the drill hole are reported to show commercial scheelite."

Copy retained 400

Sampling of the outcrops, if possible, is the obvious first step and perhaps trenching and/or diamond drilling seem like they should precede any underground work. Any later work should be contingent upon these results.

**RECOMMENDATION:** Refer to Field Team.

R. D. Trace

RDTrace:hlm
G-8/26/54

Copy to: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
R. W. Geehan, 3513

400

DOCKET
SURNAME

Rutledge
Martin

December 6, 1954

MEMORANDUM

To: Acting Assistant Solicitor, Defense Minerals

From: Chief, Iron and Ferro-Alloys Division, DMEA

Subject: Review of proposed draft to applicant
Docket No. DMEA 3455 - Tungsten
Brownstone Mining Company, Inc.
Brownstone mine
Inyo County, California

Transmitted herewith is a rough draft of a proposed letter to the applicant requesting new owner's consent to liens and copies of additional leases required to process the subject application.

Attention is called particularly to Sec. 18 of Page 8 of the leases between El Diable Mining Company and the Brownstone Mining Company.

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

enclosure

FARutledge:foc
12-6-54
cc to: Docket
Code 400
Adm. Reading File

DOCKET
Surname:
Martin

MAR 21 1955

Mr. W. V. Skinner, President
Brownstone Mining Company
P. O. Box 396
Bishop, California

Re: Docket No. DMEA 3455-Tungsten
Brownstone Mine
Inyo County, California

Dear Mr. Skinner:

This will acknowledge receipt of your letter of March 10, 1955, giving us your comments on our program and returning, as we requested, the sketch map previously sent to you.

In lieu of holding your application in abeyance while you extend your road to the east contact zone and complete your proposed diamond drilling in the Brownstone workings, we would prefer for administrative reasons to withdraw the application from our active list. In the event that you wish to renew the application, however, it would not be necessary for you to submit new forms. If your proposed work gives you satisfactory results, it would then be sufficient for you to report those results to us, mentioning the docket number of the subject application.

Sincerely yours,

C. O. Mittendorf
by EGT
Administrator

cc: Docket
Code 400
FT, Reg. 2 - San Francisco
Adm. Reading File
Robt. Holliday, USBM
Thor Kiilsgaard, USGS

WSMartin/ls
3/17/55

Docket

# BROWNSTONE *Mining Co.*

P. O. BOX ~~903~~ • • • ~~PASADENA~~, CALIFORNIA

P.O.Box 396 . . . . . Bishop, California

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 15 1955

March 10, 1955 WSM

Mr. C. O. Mittendorf
United States Department of the Interior
Defense Minerals Exploration Administration
Washington 25, D.C.

Re: Docket No. DMEA 3455
Tungsten
Brownstone Mine
Inyo County, Calif.

Dear Mr. Mittendorf:

We greatly appreciate your consideration in letting us see the maps of the proposed exploration work. This has enabled us to evaluate the thinking of D.M.E.A. more clearly.

Inclosed is a copy of a letter from Mr. Dan King, the product of much discussion and counceltation, which expresses much of our attitude and conclusion regarding the proposed exploration. When we applied for this loan it was our understanding that ground with good showing, and in a well known, proven tungsten area would qualify for exploration money. It now is our opinion that the presence of the ore must be proven before the exploration help can be obtained. ?

In view of the forgoing it is our desire that you hold this application till the weather conditions will permit us to extend our road onto the east contact zone enabling us to explore it farther. At the same time we will do some diamond drilling in the Brownstone workings to demonstrate what lies below. Of one or the other, or both should prove out, we would appreciate your reconsidering our application in the light of all new findings.

Again we thank you for your help in this matter and are looking forward to a mutually satisfactory and profitable contract in the future.

Very truly yours,

W. V. Skinner

W. V. Skinner
President

Copy made for file
" sent to F.T.

EXAMINATION • EVALUATION • PLANT DESIGN • MANAGEMENT

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 15 1955

# KING & KING

MINING ENGINEERS

CLARENCE R. KING
7648 BOLSA RD.
MIDWAY CITY, CALIF.
WESTMINSTER 8272

DAN M. KING
11762 MINES BLVD.
WHITTIER, CALIF.
OXFORD 44361

February 4, 1955

Brownstone Mining Company
P. O. Box 396
Bishop, California

Gentlemen:

This is in answer to the request of Mr. Skinner for comments on the proposal of the D.M.E.A. relative to exploration in the Brownstone Mine, Pine Creek, California.

You will recall that this is a result of your application for aid submitted with an engineering report prepared by us some time ago.

Our understanding of the basic elements of the proposal submitted by the geologist of the U.S.G.S. and the mining engineer of the U.S.B.M. is that drilling from within the Brownstone Mine, and from a station outside the portal be done. This drilling to total some 1300 feet of work.

It is further our understanding that the reason for the application was to secure aid in prospecting the mine to depths sufficient to justify investment in production facilities based on low level haulage. We have recommended this work in the light of geological evidence and probability as interpreted by us, and in the light of demonstrated work in the nearby U.S. Vanadium operations.

In the light of the above-cited basic reason for applying for the loan we do not believe the proposal made by the U.S.G.S. people will aid in the project for which the application was intended. This is further pointed up by the fact that the ground in which the proposed drilling would take place has already been drilled (by the El Diablo Mining Co.) for the most part and the tungsten bearing tactite is known to exist beneath the aplite sill in which portal facilities at the mine are located. Further, the drill site as recommended appears to be located on the side of the cliff.

You will recall that while the D.M.E.A. Field Team was on the property, that Mr. Pompeyan stated categorically that the U.S.G.S. would not approve the proposed adit or any other work involving either shafts or drifts. The suggestion then was made by Mr. Sheehan that perhaps an

approach to the problem could be based on drilling for depth outside the mine from a station located approximately at the location monument of the Brownstone No. 2 claim. Mr. Skinner and I agreed this would be acceptable providing sufficient holes of sufficient footage to prospect the zone in depth were allowed, and again emphasized the fact that holes drilled from such a station had only a 40% probability of intersecting tactite even in good ore zones due to the aplite sills and the peculiar intersection angles involved. Further the problems of obtaining water, transportation of men and equipment, etc., would so add to the cost of the drilling that the deep drilling necessary to accomplish the desired results could easily cost a major portion of the budget for a more complete project begun from below. At no time was any discussion of drilling either short holes or on basing any holes in the mine brought up by us or the Field Team.

Summarized, our opinion is that the program proposed by the U.S.G.S. would not be worth the time and expense involved, since it adds nothing to what is now known about the Brownstone Mine.

We still think the basic approach to have in it the elements whereby the D.M.E.A. and yourselves can agree on a program. In order for this to be done, the basic objections of the Field Team to our recommendations will have to be answered. When sufficient data is on hand to do this, further field examination, preferably by a man thoroughly familiar with the district from the U.S.G.S. accompanied by Mr. Sheehan for the U.S.B.M. could lead to a more favorable attitude on their part towards a program of some use to you and to the Nation.

We therefore suggest that the present counter proposal be rejected, and that upon completion of the road to where exploration of the East Zone can be done, surface showings be developed to back up requests for exploration of that zone. Also that diamond drilling by you with your own funds be done to demonstrate ore to depths of 300 feet beneath your level. The latter to dispel the apparent opinion that the orebody will bottom within a few feet of the present workings which seems to exist within the U.S.G.S. If the above mentioned work is successful, we then suggest the application be renewed, perhaps in July of this year.

Very truly yours,

KING & KING

Dan M. King

By Dan M. King

DMK:VJ

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

400

DOCKET
SURNAME
Rutledge
Martin

MAR 4 - 1955

Mr. W. V. Skinner, President
The Brownstone Mining Company
P. O. Box 396
Bishop, California

Re: Docket No. DMEA 3455 - Tungsten
Brownstone mine
Inyo County, California

Dear Mr. Skinner:

Reference is made to the above-docketed application for exploration assistance and our letters dated December 17, 1954, and January 21, 1955, respectively.

To expedite the Defense Minerals Program, it would be appreciated if you would provide us promptly with the requested information, or return our sketch, as requested, if you are no longer interested in obtaining a DMEA project.

Sincerely yours,

C. O. Mittendorf

Administrator

FARutledge:fce
3-3-55
cc to: Docket
Code 400
Adm. Reading File
FT. REG.II
Robert Holliday, USBM
Thor H. Kiilsgaard, USGS

R.C.S.

Docket

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 25 1955

420 Custom House
555 Battery Street
San Francisco 11, Calif.

January 21, 1955

Memorandum

To: Geroge C. Selfridge, Chairman, Operating Committee, DMEA
Interior Building, Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-3455 - Tungsten
The Brownstone Mining Co.
Brownstone Mine
Inyo County, California

Reference is made to your letter of January 17, 1955, relating to subject docket and to the letter from Mr. C. O. Mittendorf to Mr. Skinner.

I am very glad to have the letter to Mr. Skinner and am forwarding it today. The Kings had called me from Los Angeles several weeks ago and I assumed from their conversation that they would not approve of the proposed modified program. In the meantime, I had an interview with Ben Sheahan in Reno on January 7 and with E. H. Pampeyan, indirectly through Roscoe Smith, some time later. Both Mr. Pampeyan and Mr. Sheahan stated that they had discussed their proposal with the applicants on the ground and that they were under the impression that it had met with their approval.

Mr. Mittendorf's letter to Mr. Skinner should clarify the situation.

I am returning the copies of Mr. Mittendorf's letter for the docket, Mr. Geehan, Mr. Kiilsgaard, the Operating Committee, and Code 400. These were probably sent to me in error.

Not sent in error, but sent to keep all the copies together till the letters either confirm or kill it.
No reply necessary
1/26/55

S. Ricker
S. Ricker
Executive Officer
DMEA Field Team, Region II

Attachment

Copy to: Roscoe Smith, USGS
A. C. Johnson, Reno

NOTE.- COPIES OF SKINNER'S LETTER, DATED & DIST. G. (1/21/55

DOCKET
Surname:
Martin
Guhon
Kilsgaard
Johnson
Hodges
Selfridge

JAN 21 1955

orig. dispatched in field.

Mr. W. V. Skinner, President
The Brownstone Mining Company
P. O. Box 396
Bishop, California

Re: Docket No. DMEA 3455 - Tungsten
Brownstone Mine
Inyo County, California

Dear Mr. Skinner:

This will acknowledge receipt of your letter of January 4, 1955, requesting a copy of the proposed contract for the captioned exploration project. We have also held a conference on the same subject with Mr. C. R. King, Consulting Mining Engineer.

The proposed contract is not available yet. When there is doubt about the Owner's Consent to Lien being provided we often defer drafting a contract until such consent is received here. In this case, because of our experience with the earlier application covering the same property submitted by Mr. H. A. Bacheler, we anticipated that the Owner's Consent to Lien might not be obtained and have, therefore, held the matter in abeyance.

Our Field Team's report recommends approval of 1300 feet of diamond drilling at the locations shown on the attached "Figure 2 - Sketch Map of the Brownstone Mine, Inyo County, California," the work of Stage II to be dependent upon the results of the drilling of Stage I. It was our understanding that the proposed work had been discussed with you and had the approval of you and your consulting engineer. This modified program is subject to review here by a number of engineers and geologists, including our own staff and the commodity specialists of the Bureau of Mines and the Geological Survey.

Enough consideration has already been given to the proposal, however, so that it can be stated without making any commitment that a contract, if prepared, would cover substantially the same work outlined above.

Mr. King, who saw the above-mentioned sketch, advised us that you probably would not be interested in such a contract, but we shall, of course, appreciate having your comments. In any event, please return the sketch, which is for your own information only and is not for publication but merely to illustrate the type of map which would be attached to the draft of a proposed contract.

Sincerely yours,

C. O. Mittendorf

Administrator

Enclosure

cc: DOCKET
FIELD TEAM, REGION 2--San Francisco
CODE 400
ADM. READ. FILE
OPER. COMMITTEE
R. W. GEEHAN, USBM
T. KIILSGAARD, USGS

WSMartin/ls
1-13-55

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

Mr. W. V. Skinner, President
Brownstone Mining Co.
P. O. Box 396
Bishop, California

Re: Docket No. DMEA 3455 - Tungsten
Brownstone Mine
Inyo County, California

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Enough consideration has already been given to the proposal, however, so that it can be stated without making any commitment that a contract, if prepared, would cover substantially the same work ~~recommended by the Field Team~~ outlined above.

Mr. King, who saw the above mentioned sketch, advised us that you probably would not be interested in such a contract, but we shall of course appreciate having your comments. In any event, please return the sketch, which is for your own information only and is not for publication, but merely to illustrate the type of map which would be attached to the draft of a proposed contract. Sincerely yours,

Enclosure

Administrator

It was our understanding that the proposed work had been discussed with, and had the approval of, your consulting engineer.

400

DOCKET
Surname:
Martin
Geehan
Kiilsgaard
H. Johnson
Selfridge

JAN 17 1955

Mr. Spangler Ricker, Executive Officer
DMEA Field Team, Region II
420 Custom House, 555 Battery Street
San Francisco 11, California

Re: Docket No. DMEA 3455 - Tungsten
The Brownstone Mining Co.
Brownstone Mine
Inyo County, California

Dear Mr. Ricker:

Enclosed is a self-explanatory letter addressed to Mr. W. V. Skinner, President of The Brownstone Mining Company, regarding the subject application.

Please forward the letter to Mr. Skinner if it has your approval.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee (2HB)

Enclosure

Approved:

J. H. Hedges
Member, Bureau of Mines (2HB)

Thor H. Kiilsgaard
Member, Geological Survey (2HB)

cc: DOCKET
FT, REG. 2--San Francisco
CODE 400
ADM. READ. FILE
OPER. COMM.
R. W. GEEHAN, USBM
T. KIILSGAARD, USGS

WSMartin/ls
1-13-55

R.C.L.

January 13, 1955

DMEA 3455

I question the attached letter on grounds that it can be construed to be a proposal by the Government rather than the applicant, and that the map should not be given to the company in advance of a contract.

Robert W. Geehan

Robert W. Geehan

**BROWNSTONE** *Mining Co.*

P. O. BOX ~~963~~ . . . ~~PASADENA~~, CALIFORNIA
P.O.Box 396 . . . . . Bishop, California

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
JAN 10 1955

January 4, 1955

WSM

Mr. C. O. Mittendorf
Defense Minerals Exploration Administrator
U. S. Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-3455 (Tungsten)
Brownstone Mine
Inyo County, California

Dear Mr. Mittendorf:

We wish to acknowledge receipt of your letter of December 17, 1954 with enclosures.

A careful study has been made of all points requested, and steps are being taken to complete each requirement as quickly as possible.

To clarify one point, we called the San Francisco office. After some conversation we discovered that a contract had been prepared which is quite different from our original application. If this is true, it is the first we had known about any contract and were not consulted as to the changes. Would it be possible for us to have a copy of the proposed contract for our consideration, and to enable us to give a true picture of the proposed exploration to the claim owners who will have to sign the consent to lien.

Very truly yours,

W. V. Skinner

W. V. Skinner
President

Rutin
Hoffland
Rutledge
Martin

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

DEC 17 1954

Mr. William V. Skinner, President
The Brownstone Mining Company
P. O. Box 396
Bishop, California

Re: Docket No. DMEA-3455 (Tungsten)
Brownstone Mine
Inyo County, California

Dear Mr. Skinner:

In connection with the above-docketed application, we have reviewed your interests in the property which you propose to explore, as described by the copies of agreements submitted with your application.

It appears to us that your company, by assignment from William V. Skinner and Jack Cathey, is a sublessee-optionee of the lands described in an agreement dated July 1, 1952, between El Diablo Mining Company and Skinner and Cathey. This lease recites that no rights in the lower tramway station or in the lower ore bin are conveyed thereby, the sublessor not having any rights therein. The owners of these lands do not appear to be disclosed in our docket.

It also appears that your company is sublessee-optionee of certain other lands described in two agreements dated July 1, 1954, with the sublessor, Robert F. Witter, doing business as High Sierra Realty Company. The owners of these lands appear to be G. Kinney and Fred J. Austin.

In these circumstances we require that the following additional papers be furnished to us:

1. Copy of the agreement between the owners and El Diablo Mining Company, and Owner's Consent to Lien, on the form enclosed, executed by the owners.

2. Another Owner's Consent to Lien by El Diablo Mining Company, executed on the form enclosed.

3. Copy of the agreement between the owners and Robert F. Witter, and Owner's Consent to Lien, on the enclosed form, executed by the owners.

4. Another Owner's Consent to Lien from Robert F. Witter, executed on the enclosed form.

5. It appears from the application (page 16) that ownership of the Tallus claim is in dispute, and it was to be conveyed by your company to the owners of the Blue Grouse claims and included by the owners in the agreement with you, however, we do not see where this has been done. Therefore, we require a copy of an instrument giving you rights in this claim, for the purposes of the proposed project, and an Owner's Consent to Lien covering it.

It is requested that you also explain the nature of your rights in the lower tramway station and the lower ore bin (excepted from the El Diablo Mining Company Agreement).

Upon receipt of these data we shall give further prompt consideration to your application.

Sincerely yours,

C. O. Mittendorf

Administrator

Enclosures 35

HCRubin/emd 12/15/54
Copy to: DMEA Docket
Solicitor's Docket
Adm. Reading File
Operating Committee
T. H. Kiilsgaard, USGS
R. W. Geehan, USBM
W. S. Martin
J. L. Hofflund
H. C. Rubin
Field Team, Region III (2)
Chron.
Pending

IN REPLY REFER TO:

Docket

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

Defense Minerals Administration
RECEIVED
DEC 16 1954

December 15, 1954

Re: DMEA-3455
The Brownstone Mining Co.
(Brownstone Mine)
Inyo Co., Calif.
$10,800 - Tungsten

WSM

Memorandum

To: W. S. Martin, Defense Minerals Exploration Administration

From: E. L. Newcomb, U. S. Geological Survey

Subject: Recommendation for approval of Field Team's two-stage project

This property was previously considered for exploration assistance in connection with docket DMA-1456. Although exploration was recommended by the Field Team, the application was withdrawn because the applicant was unable to obtain a Landlord's Subordination Agreement from the El Diablo Mining Company.

The Field Team has reexamined the property and has recommended a limited two-stage drilling project be approved. This program is similar to the project (DMA-1456) previously approved for the Brownstone property.

The proposed drilling will explore for possible ore below the adit level and the underlying aplite dike. If ore is found by the first stage of drilling then four additional holes will be used to further delineate the deposit.

This program is geologically feasible and has a reasonably good chance for success.

I concur with the program outlined by the Field Team, and recommend the application be approved.

E. L. Newcomb

E. L. Newcomb

IN REPLY REFER TO:

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

December 15, 1954

Re: DMEA-3455
The Bronzstone Mining Co.
(Bronzstone Mine)
Inyo Co., Calif.
$10,800 - Tungsten

Memorandum

To: W. S. Martin, Defense Minerals Exploration Administration

From: E. L. Newcomb, U. S. Geological Survey

Subject: Recommendation for approval of Field Team's two-stage project

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The proposed drilling will explore for possible ore below the adit level and the underlying aplite dike. If ore is found by the first stage of drilling then four additional holes will be used to further delineate the deposit.

This program is geologically feasible and has a reasonably good chance for success.

I concur with the program outlined by the Field Team, and recommend the application be approved.

E. L. Newcomb

ELNewcomb:hlm
G-12/15/54

Copy to: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
R. W. Geehan, 3513 Interior

IN REPLY REFER TO:

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

December 15, 1954

Re: DMEA-3455
The Brownstone Mining Co.
(Brownstone Mine)
Inyo Co., Calif.
$10,000 - Tungsten

Memorandum

To: W. S. Martin, Defense Minerals Exploration Administration

From: E. L. Newcomb, U. S. Geological Survey

Subject: Recommendation for approval of Field Team's two-stage project

This property was previously considered for exploration assistance in connection with docket DMEA-1456. Although exploration was recommended by the Field Team, the application was withdrawn because the applicant was unable to obtain a Landlord's Subordination Agreement from the El Diablo Mining Company.

The Field Team has reexamined the property and has recommended a limited two-stage drilling project be approved. This program is similar to the project (DMEA-1456) previously approved for the Brownstone property.

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This program is geologically feasible and has a reasonably good chance for success.

I concur with the program outlined by the Field Team, and recommend the application be approved.

E. L. Newcomb

ELNewcomb:hlm
G-12/15/54

Copy to: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
R. W. Geehan, 3513 Interior

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC - 2 1954

420 Custom House
555 Battery Street
San Francisco 11, Calif.

November 29, 1954

Memorandum

To: George C. Selfridge, Chairman, Operating Committee, DMEA
Interior Building, Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region III

See 1456X
WSM
12/3/54

Subject: Docket No. DMEA-3455 - Tungsten
The Brownstone Mining Company
The Brownstone Mine
Inyo County, California

Reference is made to your letter dated September 1, 1954, referring the subject application to us for review and a field examination.

Attached are the original and three copies of a report entitled "DMEA-3455, The Brownstone Mine, Inyo County, California, (Tungsten)," by B. H. Sheahan, Mining Engineer, U. S. Bureau of Mines, and E. H. Pampeyan, Geologist, U. S. Geological Survey, dated November 1, 1954.

The engineer and geologist are in agreement that the proposal made by the applicant be denied. However, they are also in agreement that a smaller project on the property is warranted. Their reasons for a diamond drilling program on the property are to the effect that there is a good possibility that the Brownstone ore body does extend downward, but it is unlikely that the segments of the tabular inclusion would be found more than 200 or 300 feet below the adit level.

The exploration work would consist of diamond drilling. Three holes have been proposed to be drilled from the lower stope, vertical or nearly vertical, to determine the mineralization at depth. If these holes should prove to be successful, an additional four holes would be drilled from surface locations. The cost of this exploration program would be $10,800.00.

Mr. A. C. Johnson, Roscoe Smith, and I are in agreement with the recommendations set forth in the report. Mr. Smith and I suggest that the block of ground to be excluded from royalty payments should be that outlined in red on Figure 2. This block can be described as follows: All ore in block of ground from the adit level to the surface, from the portal of the adit to a plane through the face of the adit level at 225 feet, and to planes paralleling the ore zones 85 feet northeast of the adit to 85 feet southwest of the adit.

I would suggest that if a contract is granted, it be so arranged that work could start as early in the spring as possible in order to complete the project before the bad fall weather starts in 1955.

S. Ricker
Executive Officer
DMEA Field Team, Region III

Attachment

Copy to: Roscoe Smith, USGS
A. C. Johnson, Reno

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC 2 1954

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

# DMEA-3455, The Brownstone Mine

## Inyo County, California

(Tungsten)

B. H. Sheahan, Mining Engineer
U. S. Bureau of Mines

E. H. Pampeyan, Geologist
U. S. Geological Survey

November 1, 1954

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
DEC - 2 1954

# EXAMINATION REPORT

Docket No.: DMEA-3455 (Tungsten)

Name and address of applicant: The Brownstone Mining Co.,
William V. Skinner, President
P. O. Box 396,
Bishop, California

Name and location of property: The Brownstone Mine
Inyo County, California

## SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The Brownstone tungsten mine, Inyo County, California, is located at an altitude of 9210 feet along the side of a cliff near Pine Creek and approximately 1.5 miles by trail southwest of the U.S. Vanadium Corporation tungsten mill in the Pine Creek Mining District. The property includes a consolidation of 12 unpatented mining claims which have been previously examined by engineers of the Bureau of Mines and geologists of the Geological Survey.

The applicant's consultant has proposed an exploration program in two stages to explore the "east" and the Brownstone ("west") tactite zones at depth. Stage 1 consists of 800 feet of crosscutting, 500 feet of drifting and 3,000 feet of diamond drilling to explore the "east" tactite zone 600 feet beneath its outcrop and to drill for the Brownstone ore body at this elevation. Stage 11, dependent upon the results of Stage 1 drilling, consists of extending the crosscut 1,000 feet with 200 feet of

drifting and 2,000 feet of diamond drilling to examine the Brownstone ore body 1,100 feet below the existing mine. Total estimated cost of this project is $120,000.

As the "east" tactite zone shows little scheelite, both in surface exposures and in the diamond drill core which parallels the proposed adit, it is recommended that any exploration be confined to determining the downward extension of the Brownstone ("west") ore body. A revised program of diamond drilling to explore under the Brownstone mine, discussed with the applicant, is suggested and recommended for approval. The suggested program totaling 1,300 feet of drilling, would closely resemble a project (DMEA-1456X) previously approved for this property.

## TIME SPENT ON PROPERTY

The examining team were accompanied on September 21, 1954 by Mr. William V. Skinner, president; Mr. G. B. Voget, secretary-treasurer; and Mr. Dan M. King, consulting mining engineer of the Brownstone Mining Co.

Several previous examinations of the property have been made by engineers 1, 2/ of the Bureau of Mines. The Brownstone Mine was mapped by Paul C. Bateman, geologist, Geological Survey in 1947 and by D. C. Ross and C. D. Rinehart, geologists, Geological Survey 3/ in

1/ Preliminary examination report, Brownstone Mine, Inyo County, Calif. W. T. Benson, mining engineer, Bureau of Mines, August 1949.

2/ Report of examination, Blue Grouse Mine, Inyo Co., Calif. by Frank J. Wiebelt and L. F. Muller, mining engineers, Bureau of Mines, July 3, 1951.

3/ Report of examination, DMEA-1456X (Tungsten).

September 1953.

The recent examination included the inspection of the Brownstone Mine and lamping exposures of the Blue Grouse area with ultraviolet light.

## NAME AND LOCATION OF PROPERTY

The Brownstone Mining Company property is reached from Bishop, California, by following U.S. Highway 395 northwesterly 12 miles, turn westerly and follow a paved road 8.5 miles to the U. S. Vanadium Corporation mill on Pine Creek, follow a private road 0.2 mile to the lower tramway terminal of the Brownstone Mine, from this point the Brownstone Mine is reached by a very steep trail approximately 1.3 miles in length. The total distance from Bishop, California is approximately 22 miles (fig. 1).

The paved road to the U. S. Vanadium mill is usually kept open during winter months. Operations at the Brownstone Mine in the Pine Creek Mining District cannot be conducted during winter months when the access trail is closed. The claims are located in an area of extremely rugged topography. Snow slides during winter months are common occurrences. The operating season is usually from June to Obtober.

The location and topography of the area is indicated on the Mt. Tom Quadrangle, Inyo County, California in sec. 8, T. 7 S., R. 30 E., M.D.B.&M.

## COMPETENCY OF APPLICANT

Mr. William V. Skinner, president of the company, has been engaged in the mining business in Inyo County, Calif., for approximately 20 years. He was competently supervising eight employees at the mining operation being conducted on the Brownstone No. 1 claim. Mr. G. B. Voget, secretary-treasurer, has very little mining experience.

According to information included with the application for DMEA assistance, the company intended to provide their share of the costs of exploration work with money.

Operating personnel at the property were skilled in their occupations as miners and laborers.

The application for aid in an exploration project by the Brownstone Mine was prepared with the assistance of Clarence R. King, Dan M. King, mining engineers. Their report was fairly well prepared, however, the exploration work proposed by the applicants was not justified.

## APPLICANTS PROPERTY RIGHTS

The claims indicated on Claim Map (fig. 1) include approximately 10 unpatented mining claims situated south of Pine Creek and to the west of the U.S. Vanadium mill site area. The Blue Grouse group of claims are owned by Mr. R. F. Witter, High Sierra Realty Co., Bishop, Calif. The Brownstone No. 1 and No. 2, Myrtle No. 1 and No. 2, and the Brownie Mill Site and Tallus claim were leased by the El Diablo Mining Co. The Brownstone Mining Company has obtained leases on the property.

## DESCRIPTION OF PROPERTY

The Brownstone No. 1 claim is developed by a 200-foot adit drift at an altitude of 9210 feet (see fig. 2). Total footage of workings amounts to approximately 350 feet of drifting and crosscutting and 250 feet of connecting raises. The workings have required very little timber for ground support. There are practically no exploratory workings on the other claims.

A gravity type aerial tramway, 2,400 feet in length from the lower terminal (elevation 7920 feet) to the adit level (elevation 9210 feet), is used to transport equipment and supplies to the property and to transport the ore produced. Employees are not allowed to ride the tramway, but either walk or ride horseback over the access trail. There are no housing facilities at the property. Most of the workmen reside at Bishop, Calif.

## GEOLOGY

The Brownstone Mining Company's claims are along the east edge of the Sierra Nevada batholith. Underlying the claims are metamorphosed sedimentary rocks which have been intruded by late Jurassic crystalline rocks. Tactite formed near the intrusive contact locally contains scheelite.

In the mine area Paleozoic arenaceous and calcareous sedimentary rocks of the Pine Creek pendant have been intruded by quartz

monzonite. These have been intruded by granite and cut by numerous flat-dipping aplite dikes which emanated from the granite intrusive.

The Brownstone mine is in a northwest striking, nearly vertical tabular inclusion about 75 feet wide of marble and scheelite-bearing tactite surrounded by quartz monzonite and cut by aplite dikes (fig. 2). As the inclusion is exposed in a cliff face dipping 70-80 degrees northwest, structural relations between the rock units are well exposed in a natural cross-section. The flat-dipping dikes are later than the ore and have no function in the ore body except in dilating the tabular inclusion.

About 1500 feet northeast from the Brownstone mine, a narrow, irregular zone of tactite crops out in Pine Creek near the west edge of the Pine Creek pendant. The tactite occurs along the west edge of an east-dipping marble mass and is separated from the quartz monzonite by 300-600 feet of hornfels and biotite-quartz schist. This zone, called the "east" tactite zone, is discontinuous to the south along its strike.

## ORE DEPOSITS

Scheelite and powellite occur in tactite formed at or near contacts between quartz monzonite and marble. The Brownstone ore body was formed along the west side of a tabular limestone inclusion engulfed in quartz monzonite while the "east" tactite zone formed along

a favorable limestone bed separated from the intrusive by arenaceous sedimentary rocks.

Scheelite, the principal ore mineral, is disseminated throughout the tactite which averages between 0.6 and 0.7 percent $WO_3$. Powellite was noted locally in the tactite. Molybdenite was also found and seemed to be more abundant near the intrusive contact. Assays and settlement sheets show that the tactite contains about 0.35 percent Mo.

The Brownstone or "west" tactite zone is an almost vertical, tabular mass of tactite which ranges in thickness from 5 to 35 feet. The vertical dimension of known tactite, excluding the aplite dikes, is about 150 feet and the ore body has been explored to the southeast along its strike for a distance of 220 feet. The sharp contact between tactite and aplite at the adit level portal suggests that one or more segments of the inclusion may lie below the present workings. It is unlikely, however, that any dilated segments would exist more than 200-300 feet below the adit level because the strike length, and thickness, of the tabular inclusion indicate a vertical dimension of about 250 feet which when dilated with dikes of almost uniform thickness and spacing give a total depth of about 200 feet below the adit level.

The "east" tactite zone is exposed discontinuously along its strike for 800 feet and vertically for 600 feet. While lamping this zone, it was noted that spotty scheelite occurs only locally in the outcrops of tactite and commonly as a very thin coating on fracture surfaces. Dia-

mond drilling done in May and June of 1952, parallel to the proposed adit, showed traces of scheelite but not enough to warrant assaying. (See Appendix A for log of core). Sampling of the "east" zone (Blue Grouse claims) by the Bureau of Mines in June 1951 showed little more than traces of tungsten.

A summary of total past production from the Brownstone mine is listed below:

| Period | Tons of Ore Mined | Units $WO_3$ | %, $WO_3$ |
|---|---|---|---|
| Prior to 1952 (approximate) | 2000 + | 1200 + | 0.6 + |
| Aug. 1952 to July 1953 | 2386.36 | 1478.66 | 0.62 |
| Aug. 1953 to June 26, 1954 | 5627.98 | 2876.09 | 0.51 |
| Total | 10014.34 + | 5554.75 + | 0.55 + |

Production from the different stopes has not been separated because all the tactite is about the same average grade and all is mined.

No work other than prospecting has been done on the "east" tactite zone and no production has been reported from this prospecting.

## ORE RESERVES

Reserves in the Brownstone mine are summarized as follows: Measured, 2895 tons; indicated, 1400 tons; and inferred, 9068 tons. The average grade of this ore is assumed to be the same as the previous production average, or 0.55 percent $WO_3$. Samples collected by the field team from the "east" zone contained less than 0.01 percent $WO_3$, and the core from the hole parallel to the proposed adit was essen-

tially barren; therefore, the "east" tactite zone is not known to contain any reserves and none are inferred. In estimating reserves, a factor of 10 cubic feet per ton was used for ore in place.

Measured reserves above the adit level exposed in the face of the cliff equal about 1855 tons of ore averaging 0.55 percent $WO_3$ in a block 55 feet high, 30 feet wide and 15 feet thick. At least three-fourths of this block contains ore of the average grade. Measured ore in the cliff face above the middle level equals 450 tons containing 0.55 percent $WO_3$ in a block 40 feet high, 30 feet wide and 5 feet thick. Three-fourths of this block is estimated to contain ore of the average grade. In the upper stope, measured reserves in a block 15 feet high, 15 feet wide and 35 feet thick equal about 590 tons of ore containing 0.55 percent $WO_3$. At least three-fourths of this block contains ore of the average grade.

Indicated reserves below the adit level equal 1000 tons of ore averaging 0.55 percent $WO_3$. At least two-thirds of the block 120 feet long, 25 feet high and about 5 feet wide is indicated ore of the estimated grade. In the southeast end of the middle stope, indicated reserves equal 400 tons of ore. Two-thirds of this block 40 feet long, 30 feet high and 5 feet wide is estimated to be ore averaging 0.55 percent $WO_3$.

Inferred reserves on the middle level in a block 70 feet long, 40 feet high and about 5 feet wide equal 1870 tons of ore averaging 0.55 percent $WO_3$. On the upper level, in a block approximately 60 feet high,

60 feet long and 5 feet wide, indicated reserves equal 1200 tons of ore of the estimated grade. Two-thirds of each of these blocks is inferred to contain ore of the average grade. At least one additional block of inferred ore 200 feet long, 30 feet high and about 15 feet wide is thought to lie beneath the aplite dike under the adit level. Two-thirds of this block, or 6000 tons, is inferred to contain ore averaging 0.55 percent $WO_3$.

Summary of total reserves:

| Class and location | | Tons | %, $WO_3$ | Units $WO_3$ |
|---|---|---|---|---|
| Measured | - above Adit level (cliff face) | 1855 | 0.55 | 1020 |
| " | - above Middle level " " | 450 | 0.55 | 248 |
| " | - above Upper level " " | 590 | 0.55 | 324 |
| Indicated | - below Adit level | 1000 | 0.55 | 550 |
| " | - above Middle level | 400 | 0.55 | 220 |
| Inferred | - above Middle level | 1870 | 0.55 | 1030 |
| " | - above Upper level | 1200 | 0.55 | 660 |
| " | - below Adit level | 6000 | 0.55 | 3300 |
| | | 13365 | | 7352 |

## PROPOSED EXPLORATION

The applicant's consultant has proposed a $120,000 program to thoroughly explore the "east" tactite zone and the Brownstone zone. The program is set up in two stages with the second stage dependent upon re-

sults of the first. Stage one consists of: Driving a crosscut adit 800 feet southwest to intersect and pass through the "east" tactite zone some 600 feet vertically below the outcrop; drifting 500 feet along the tactite zone; and diamond drilling 3000 feet to further explore the "east" zone, and to explore under the Brownstone ore body on this level. If drilling reveals a downward continuation of the Brownstone ore bodies, then Stage two would consist of: Extending the crosscut another 1000 feet to cut the Brownstone zone; drifting 200 f eet on this zone; and diamond drilling 2000 feet to thoroughly explore the lower Brownstone tactite. It is estimated that Stage one would be completed in five months at a cost of $75,000 and Stage two would require an additional five months and $45,000 for completion. The consulting engineer believes this extensive program is justified because: The long adit will provide all-weather access to any ore found; the "east" tactite zone contains commercial amounts of tungsten; and the Brownstone ore body may extend downward some 1100 feet.

The proposed exploration program might be justified if the "east" tactite zone contained tungsten ore and if the Brownstone ore body was known to extend downward. Such an ambitious program, however, without preliminary sampling, trenching, or diamond drilling is unjustified. Samples of the "east" zone taken from outcrops which lamped well during the field team's examination showed less than 0.01

percent $WO_3$. The core from the hole drilled almost parallel to the proposed adit did not show enough scheelite to warrant assaying. Of eleven samples cut by the Bureau of Mines in June 1951 from the Blue Grouse claims ("east" tactite zone in Pine Creek), one assayed 0.02 percent $WO_3$ and ten assayed 0.01 percent $WO_3$ or less. On the basis of available evidence, the "east" tactite zone does not merit $75,000 worth of underground work and diamond drilling.

There is a good possibility that the Brownstone ore body does extend downward, but it is unlikely that segments of the tabular inclusion would be found more than 200-300 feet below the present adit level. If ore did extend down 300 feet, it still would not merit 1800 feet of crosscutting and 800 to 1000 feet of raising. A long adit and raise might be better considered development work for easier access rather than exploration work.

At the time of the field team's examination, a revised exploration program was discussed with the consulting engineer and operators and tentatively approved. It was agreed that a diamond drilling program to explore for additional segments of the Brownstone inclusion below the existing mine would be of greater value at this time. The suggested revision of the program would be as follows: Drill three 200-foot vertical (or near vertical) holes downward from the lower stope to prove whether or not the ore does exist below the aplite dike; if additional segments of the

inclusion are found by the vertical holes, drill four inclined holes, totaling about 700 feet, downward either from the small station in the upper tram terminal or from the foot of the cliff about 100 feet northeast of the adit level portal (cf. DMEA-1456X). The exact bearing and dip of these inclined holes will be dependent upon the information gained from the vertical holes. (See fig. 2 for approximate drilling data.) The purpose of the last four holes would be to determine the size of any other tungsten-bearing segments. It is suggested that a geologist or engineer be engaged to follow the drilling and evaluate the results.

As the area directly beneath the Brownstone mine offers good possibilities of containing economic amounts of tungsten ore, it is recommended that this area be explored by means of diamond drilling under the DMEA program.

## SAMPLING

Samples taken from the Blue Grouse claims contained less than 0.01% $WO_3$. One sample taken from a muck pile from the upper stope of the Brownstone Mine contained 0.09% $WO_3$.

## PAST OPERATIONS

The El Diablo Mining Company acquired the property in 1948. The Blue Grouse claims have been located for speculative purposes, and there has been no production recorded from this portion of the property. Present operations include selectively mining and sorting scheelite-bearing tactite ore from the Brownstone mine.

According to data compiled by D.M. King and C.R. King, mining engineers, the following production figures are as follows:

| Period | Tons of Ore Mined | Units $WO_3$ | %, $WO_3$ |
|---|---|---|---|
| Prior to 1952 (approximate) | 2000 + | 1200 + | 0.6 + |
| Aug. 1952 to July 1953 | 2386.36 | 1478.66 | 0.62 |
| Aug. 1953 to June 26, 1954 | 5627.98 | 2876.09 | 0.51 |
| Total | 10014.34 | 5554.75 | 0.55 + |

## MANPOWER, SUPPLIES, ETC.

The wage scale paid by the company amounted to $2.50 per hour. Bishop, California is the nearest source of mine supplies. Because of the high altitude of the property, short operating season, and difficult access, all actual costs are above average for the Pine Creek Mining District.

The aerial tramway has a capacity of 10 tons of ore per hour. The tram buckets have a maximum capacity of 1500 lbs. Transportation of fuel oil, mine supplies and equipment have been conducted by use of this tramway and also by use of pack trains over the trail.

Electric power and water is available near the U.S. Vanadium mill on Pine Creek.

Equipment at the property included the following:

| Item | Condition |
|---|---|
| 1 Tramway and ore bin | Fair |
| 1 Air compressor, 315 cfm | Fair |

| Item | Condition |
|---|---|
| 1 Air compressor, 365 cfm | Fair |
| 3 Rock drills with steel | Good |
| 1 Mucking machine | Poor |
| 2 Mine cars, 16 cu. ft. | Fair |
| 1 HD-14 bulldozer at lower tram terminal | Poor |
| Miscellaneous small tools an equipment and mine supplies | Fair |

## EXPLORATION PROJECT

(a) Expected starting date: June 1955
(b) Time required to complete the project: 3 months

## DESCRIPTION OF PROJECT

Exploration of the area directly beneath the Brownstone mine by core drilling. The revised proposed project would include drilling three 200-foot vertical (or near vertical) holes downward from the lower stope.

Stage II of the proposed work would depend upon the results obtained from Stage I and would include diamond drilling four holes at locations indicated on figure 2 from surface drill station.

### Estimated Costs of Project

a. Independent contract - 1300 feet of diamond drilling @ $7.00 per foot ..... $9,100.00
(The cost of all equipment, supplies and labor necessary for drilling the holes is included in the per foot cost)

b. Labor, supervision & consultant
1 resident engineer @ $500.00 per month - 3 months ..... 1,500.00

| | | |
|---|---|---|
| c. | Operating material and supplies ..... | None |
| d. | Operating equipment ..... | " |
| e. | Initial rehabilitation and repairs ..... | " |
| f. | New buildings, improvements ..... | " |
| g. | Miscellaneous: | |
| | 25 core boxes @ $3.00/ea. ..... | $ 75.00 |
| | 25 core sample analyses ..... | 125.00 |
| | Total estimated cost of project ..... | $10,800.00 |

APPENDIX A

Blue Grouse Mining Claim

Diamond Drill Hole #1

| | |
|---|---|
| Location | 70' S 51° E from end of road, south side of Pine Creek |
| Direction | S 47° W |
| Dip | -10½° |
| Elevation | 7962 (assumed) Scaled from Quadrangle Sheet |
| Started | May 24, 1952 |
| Completed | June 6, 1952 |
| Length | 467 feet Hole size - AX, 1 1/8 inch diam core |
| Drilled by | Palmer & Decker Logged by Lawson A. Wright |

LOG

| | |
|---|---|
| 0 - 220' | Non-cored. Limestone. Hole encountered water at 20', 20 g.p.m. Water increased at 55' to 40 g.p.m., and to 80 g.p.m. at 100'. |
| 220' - 222' | Limestone, crystalline, blue |
| 222' - 223' | Schist, black-biotite |
| 223' - 223½' | Tactite, medium grained garnet. No scheelite. |
| 223½' - 229½' | Limestone, crystalline, blue |
| 229½' - 246' | Aplite dike, center portion coarse grained quartz and orthoclase with small amounts of garnet crystals. |
| 246' - 290' | Limestone, crystalline, blue. Two inch tactite bands at 259' and 260' |
| 290' - 292' | Tactite, coarse grained garnet, small amounts of epidote. No scheelite |
| 292' - 334' | Limestone, crystalline, blue. |
| 334' - 370' | Limestone, crystalline, blue. Hole parallels seam 313' to 315', and 329' to 334'. Solution channel at 328'. |
| 370' - 371.5' | Schist, biotite with tiny veinlets of sulphides - probably pyrrhotite |
| 371.5' - 380' | Limestone, crystalline, blue |
| 380' - 384' | Schist, biotite. Hit fault zone at 380', lost 1.0' of core |
| 384' - 420' | Limestone, crystalline, blue |

420' - 429' Tactite,
420' - 425' Garnet and quartz, specks of scheelite
425' - 429' Medium grained epidote, low in garnet and quartz. No scheelite. Hit fault at 422', lost 2.0' of core. Fault at 426', lost 1.0' of core.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
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DEC - 2 1954

429' - 434.5' Quartz, white

434.5' - 438' Tactite, medium grained garnet-epidote. Mud seam at 4

438' - 439.5' Limestone, garnetized - about 5% garnet.

439.5' - 454' Tactite, medium grained epidote, garnet, and quartz. Specks of scheelite at 452', 453', 454'.

454' - 464' Limestone, silicified, mottled. Specks of molybdenite at 455', 458', 461', 463'. Specks of scheelite at 460', 462', 463'.

464' - 465' Pegmatite dike, medium to coarse grained quartz and orthoclase.

465' - 466' Limestone, silicified, with small inclusions of schist.

466' - 467' Schist, biotite and muscovite, with small amounts of sulphides chalcopyrite and probably pyrrhotite.

400

Docket
Surname

Hopkins
Martin
Geehan
Kilsgaard
Hedges
Selfridge
Johnson

SEP 1 1954

Mr. William V. Skinner, President
The Brownstone Mining Company
Box 396
Bishop, California

Re: Docket No. DMEA 3455 - Tungsten
Brownstone Mine
Inyo County, California

Dear Mr. Skinner:

The above docketed application for exploration assistance has been reviewed by the Iron and Ferro Alloys Division of the Defense Minerals Exploration Administration and referred to Mr. H. C. Miller, Executive Officer, DMEA Field Team, Region III, 420 Custom House, 555 Battery Street, San Francisco 11, California, for a field examination of the property.

Any assistance that you can render the members of the Field Team will be appreciated.

Sincerely yours,

C. O. Mittendorf

Administrator

JHopkins:foc
8-30-54
cc to: Docket
Code 400
Adm. Reading File
Operating Comm.
FT. REG. III
R. W. Geehan, USBM
Thor H. Kilsgaard, USBM

N.C.G.

400
DOCKET
SURNAME

~~Hopkins~~
Martin
Geehan
Selfridge
H. Johnson

SEP 1 1954

Mr. H. C. Miller, Executive Officer
DMEA Field Team, Region III
420 Custom House
555 Battery Street
San Francisco 11, California

Re: Docket No. DMEA 3455 - Tungsten
The Brownstone Mining Company
Brownstone Mine
Inyo County, California

Dear Mr. Miller:

The above-docketed application for exploration assistance is being referred to your office for review and a field examination of the property.

A memorandum by R. D. Trace, Geological Survey, dated August 26, 1954, is enclosed for your information.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee (WB)

Enclosures

JHopkins:foc
8-30-54
cc to: Docket
Code 400
Adm. Reading File
Operating Comm.
FT. REG. III
R. W. Geehan, USBM
Thor H. Kilsgaard, USGS

APPROVED:

J. H. Hedges
Member, Bureau of Mines (WB)

Thor H. Kilsgaard
Member, Geological Survey (WB)

R.C.B.

Docket

IN REPLY REFER TO:

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

August 26, 1954

WSM

Memorandum

REVIEW OF APPLICATION DMEA-3455 (tungsten)

To: W. S. Martin, Defense Minerals Exploration Administration
From: R. D. Trace, U. S. Geological Survey
Applicant's name and address: The Brownstone Mining Company, Box 396, Bishop, California.
Name of property: Brownstone Mine
Location of property: Inyo County, California
Summary of applicant's proposal:

1) Drive 800-foot crosscut adit, drive 500 feet, diamond drill 5,000 feet of holes.
2) Drive adit 1,000 feet, drive 200 feet, diamond drill 2,000 feet of holes.

Sources of information on applicant's property:

Lemmon, D. M., 1944, Brownstone Claims in Pine Creek Canyon, Inyo County, Calif., unpublished report in files of USGS, 2 pages, 1 illus.

For general information, see also USGS Bull. 931-E (plate 16) and files of DMA 861X (Adamson Mine).

Comments:

The scheelite deposits on the Brownstone group of claims is on the west side of the Pine Creek pendant in a tactite contact zone between marble and intrusive granite.

An examination of the property is recommended, as the latest information available in Washington Survey files is a 1944 report by Dwight Lemmon. This report was written after the diamond drilling (not mentioned in application) done at the present site of the Brownstone mine, but before this mine was opened.

Lemmon's report describes the west (Brownstone) tactite zone as the "best exposure" of scheelite ore. He does not mention the east tactite zone, which is the primary target of the proposed phase 1 exploration. (Incidentally, the tactite zones are labelled incorrectly on the applicant's first photograph.)

As the east tactite zone is the first target, and as there has been no production from this zone, the plan to drive an adit to it may be premature. Our only data is applicant's statement that "outcrops and the drill hole are reported to show commercial scheelite."

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Sampling of the outcrops, if possible, is the obvious first step and perhaps trenching and/or diamond drilling seem like they should precede any underground work. Any later work should be contingent upon these results.

RECOMMENDATION: Refer to Field Team.

R. D. Trace

R. D. Trace

August 23, 1954

The Brownstone Mining Co.
Box 396
Bishop, California

Subject: DMEA-3455
Re: Exploration Assistance

Gentlemen:

The receipt of your application dated July 26, 1954 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-3455 and referred to the Iron and Ferro-Alloys Division.

Kindly refer to in any future correspondence relating to your application.

Sincerely yours,

MF-103
(Revised April 1952)

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

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

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

*Not to be filled in by applicant*

Docket No. 3455
Metal or Mineral Tungsten
Date Received
Estimated Cost $120,000
Participation (Government %)

## INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: William V. Skinner, Pres.; Gustav B. Voget, Secy.-Treasurer, of: THE BROWNSTONE MINING COMPANY, a Corporation(California) Box 396, Bishop, Inyo County, California. (addresses of the officers same as address of the corporation)

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract The Brownstone and Myrtle groups of claims, and part of the Blue Grouse group of claims, full descriptions of which are given in exhibits attached to this application. All property is in Inyo County, California.

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

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Lessee,(see copies of leases attached to this application).

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

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

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

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

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

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

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

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

16—66551-1

For detail upon all data requested under "4", see Engineers report attached to this application.

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Gold, (Also oil or gas)

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

(*c*) The work will start within 15 days and be completed within 16 months from the date of an exploration project contract.

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

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

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

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

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

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

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

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project. See rept.

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

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

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

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

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

☒ Money ☐ Use of equipment owned by you ☐ Other

Explain in detail on acompanying paper.

## CERTIFICATION

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

Dated July 26, 1954

Brownstone Mining Co. Inc
(Applicant)

By W. J. Hamber Pres.
Gustave B. Vogt
Secy Treas.

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

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

# KING & KING

MINING ENGINEERS

CLARENCE R. KING
7648 BOLSA RD.
MIDWAY CITY, CALIF.
WESTMINSTER 8272

DAN M. KING
11762 MINES BLVD.
WHITTIER, CALIF.
OXFORD 44361

REPORT UPON
THE
BROWNSTONE MINE, PINE CREEK DISTRICT,
INYO COUNTY, CALIF.

## Summary and Conclusions.

The following report, and recommended exploration program detailed therein, has been compiled to supply the technical data necessary to an application for aid in an exploration project to be made by the Brownstone Mining Co. to the Defense Minerals Exploration Administration. This report may be summarized as follows:

(1) The Brownstone mine is in a favorable part of a highly productive and strongly mineralized tungsten district, and adjoins the Pine Creek mine of the U.S.Vanadium Co., (one of the largest tungsten mines in the Western hemisphere). The Brownstone mine, as far as developed, has an excellent production record, per foot of development or in respect to the percentage of total tactite volume which is mineable as commercial ore, (over 75%).

(2) The location of the Brownstone mine is exceptionally favorable with respect to ore treatment facilities, if accessibility to working faces is improved by means of a low-level cross-cut adit. Such an adit would gain nearly foot-for-foot in backs; and would make the mine an all-year, low-cost producer.

(3) A favorable contact zone exists which has been explored only by surface "lamping" and one diamond drill hole intersecting this zone about 700 ft. dip slope below the outcrop. The proposed exploration program summarized below will cut this zone and explore it laterally, some 600 ft. dip slope below the outcrop and slightly above the drill hole intersection.

(4) The proposed program will also explore, first by drilling, then by adit, drifts and further drilling, (if the Phase 1 drilling proves favorable), the Brownstone tactite area now producing from near the surface; at a depth about 1200 ft. dip slope below present workings.

(5) The proposed exploration program is:

(a) Phase 1: drive a cross-cut adit 800 ft. to intersect the first or east tactite zone noted under (3) above; drift a total of 500 ft. on this zone, and explore it further from the adit and drifts by means of diamond drilling. Also, from the face of the adit so driven, diamond drill under the Brownstone tactite zone. If this zone exists at the adit level, then:

(b) Phase 2: extend the adit 1000 ft. to intersect the Brownstone tactite area; drift 200 ft. on this zone; and prove further by diamond drilling from the adit and drifts.

(6) The estimated cost of Phase 1 above is $75,000 in round numbers, and this phase should be completed in five months after signing an exploration contract. The estimated cost of Phase two above is $45,000 in round numbers, and the work should be completed five months after starting.

(7) The foregoing proposed exploration program appears justified, in view of the following:

(a) The work will provide an all-weather access to any ore discovered, will require little or no maintenance, cannot be flooded, and will make any ore found quickly available at any time of national emergency.

(b) The known ore habits of the district and the Brownstone mine indicate that it is probable that Phase 1 of the exploration program might develop ore on the order of 200,000 tons containing about 100,000 units of $WO_3$, of a present gross sales value of some $4,000,000; and that Phase 2 of this program, if drilling proves the extention in depth of the Brownstone tactite zone, might develop ore on the order of 300,000 tons containing $WO_3$ of a present gross sales value of some $6,000,000.

The report of which the foregoing is a summary consists of:

15 - typewritten pages, and 2 pages of photographs.
5 - maps
1 - Appendix 1, in several parts: copies of leases, assignments, and consents.
1 - Appendix 2,: Production record, Brownstone mine.
1 - Appendix 3: Drill hole log of d.d.h. shown on Map No. 1 & 2.
1 - Appendix 4: Statements of experience and financial responsibility, applicants and proposed consultants.

The above matter is hereby respectfully submitted,

KING & KING,
Mining Engineers

Clarence R. King

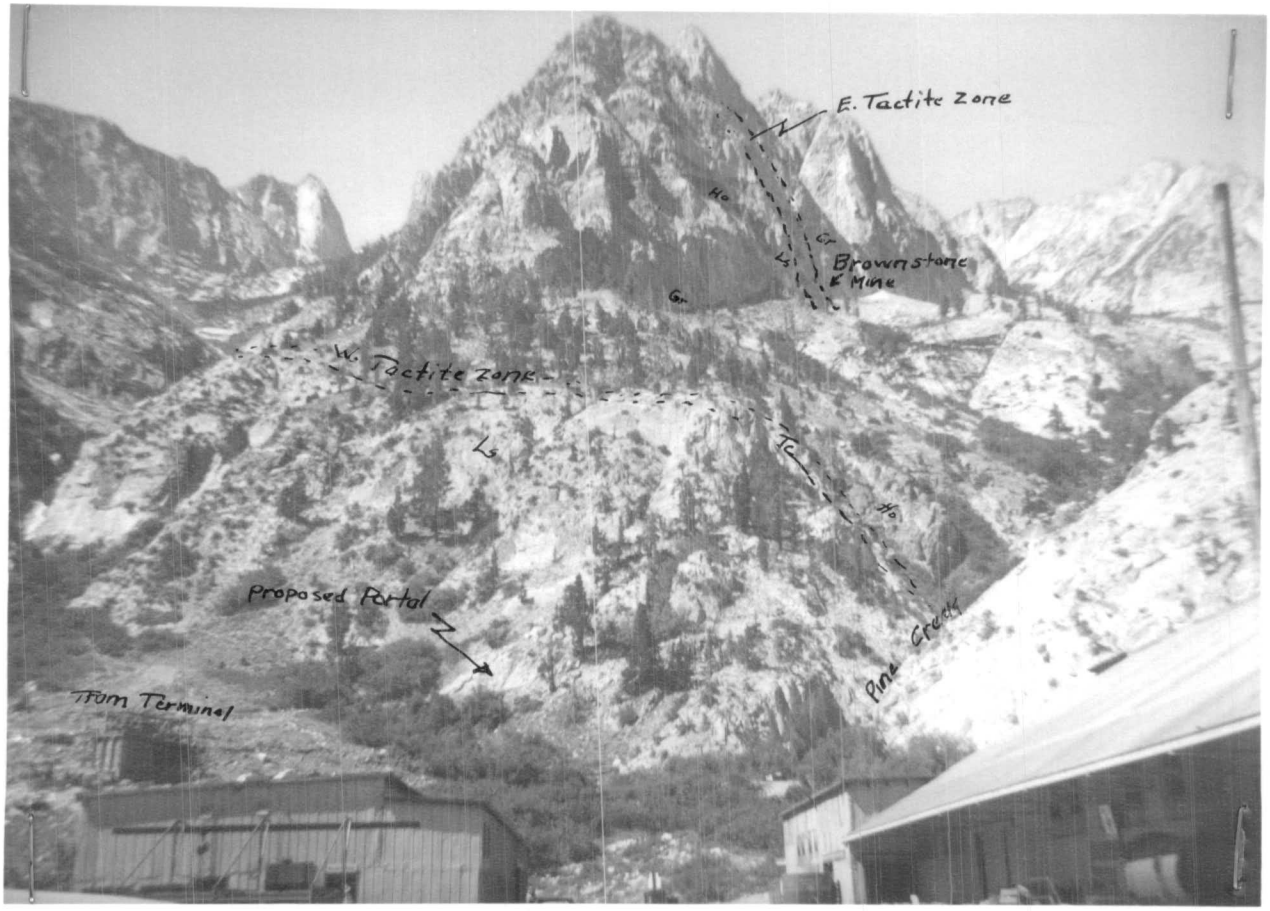
Dan M. King

Dated: July 30, 1954

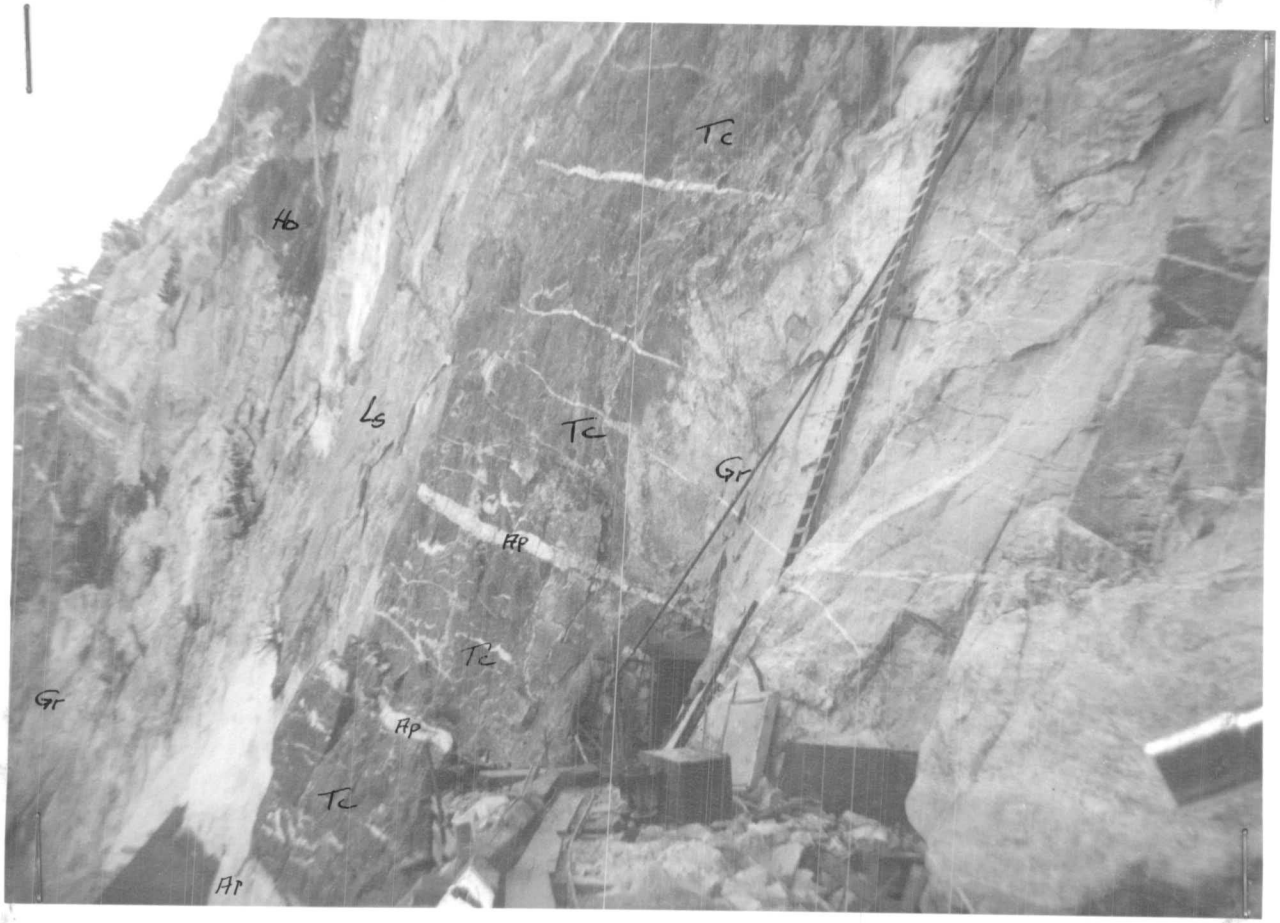
# P H O T O G R A P H S

View taken from U. S. Vanadium Co. Mill looking West showing general topography and culture of area mapped on Map 1 along proposed adit course.

View showing proposed adit portal in relation to courses taken by snow slides from Myrtle and Pine Creeks.


E. Tactite Zone
Ho
Gr
Ls
Brownstone Mine
Gr
W. Tactite zone
Ls
Tc
Ho
Proposed Portal
Pine Creek
Tom Terminal

Slide Area
Proposed Portal
Slide Area




**BROWNSTONE MINE PORTAL**

**showing ore outcrop**

## Introduction to Report

The purpose of this report, and included mapping, is to supply the technical data necessary to an application for aid in an exploration project to be made by the Brownstone Mining Co., to the Defense Minerals Exploration Administration. This report is a part of, and attached to, the above mentioned application.

The Brownstone Mine and the contiguous groups of claims held by lease by the Brownstone Mining Co. was the subject of a report made in August, 1953, by King & King, for the purpose of evaluating the mine and recommending certain development work. The mine has also been studied by Paul C. Batemen, (U.S.G.S.) in its early stages of development, (Unpublished data); and the existence of certain outcrops of tungsten ore in Pine Creek Canyon was noted by D. M. Lemmon before the discovery and operation of the Brownstone mine, (U.S.G.S. Bull. 931-E).

## Location and means of access.

The Brownstone Mine and associated claims included in the application for aid in an exploration project, adjoin the holding of the United States Vanadium Company's Pine Creek Mine, on the south, (see Map No. 5, Index Map). The properties are reached by a paved road extending from a point on U. S. Highway 395, 12 miles north of Bishop, Calif., 8½ miles up Pine Creek to the 1500 ton mill of the U. S. Vanadium Co. The present lower tram terminal of the Brownstone Mine is about 1500 feet by road from this mill. The nearest railroad is at Bishop, Calif., which is served by the Owens Valley branch of the Southern Pacific Co.

The present workings of the Brownstone Mine are reached by about a mile of switchback trail, which follows the tram line insofar as possible. In winter, this trail is impassable except when snowfall is light, or by use of mountain climbing technique.

## Titles, and area of claims.

The Brownstone Mining Co., a California Corporation: William V. Skinner, President, Gustav B. Voget, Secretary-Treasurer, Box 396, Bishop, Inyo Co., Calif.; the applicant for aid in an exploration project; holds the following unpatented mining claims under lease, (see Appendix 1 herewith for copies of the leases, and legal descriptions of claims; and Map No. 1 for position and relation of claims held):

| | |
|---|---|
| Brownstone No's. 1 and 2 lode claims<br>Myrtle No's. land 2 lode claims<br>Brownie No's. 1 and 2 millsites | Leased from El Diablo Mining Co. |

All that portion of the Blue Grouse No's. 1 to 7 lode claims, inclusive, lying south of Pine Creek.

The Blue Grouse claims are leased from R. F. Witter, dba/High Sierra Realty Co.

The total approximate acreage held by the Brownstone Mining Co. is about 274; the reduction in acreage below that indicated by the number of claims, being caused by overlap of the Brownstone and Blue Grouse groups, and the restriction to the area south of Pine Creek in the case of Blue Grouse No's. 1 and 2.

## History of the Property.

The existence of scheelite was known upon the Blue Grouse claims in 1940, when these claims were located, and two small cuts were made upon outcrops in the bed of Pine Creek. In 1940, Pat Murphy and Mike Covington discovered ore upon and located the Brownstone Mine. In the same year, R. F. Witter discovered ore upon and located the Myrtle No's. 1 and 2 claims. Shortly afterward the Myrtle group and the Brownstone group were both leased to the El Diablo Mining Co., of Bishop, Calif.; which company, after some diamond drilling upon outcrops, installed the present aerial tram and mined some two to three thousand tons of ore averaging about 0.6% $WO_3$ between 1942 and 1951. In the winter of 1952, a snowslide wrecked the lower terminal of the tram and the El Diablo Mining Co. ceased operations, upon the Brownstone.

In 1952 the Brownstone group was sub-leased by El Diablo Mining Co. to the Brownstone Mining Co.; which company rehabilitated the tram and has been operating the mine since.

## General Information.

The topography at the property is extremely rugged, (see Index Map No. 5). The elevation of the lower tram terminal of the Brownstone Mine is 7920 feet. The elevation of the mine portal is 9210 feet. The total length of the tramway is approximately 2,400 feet. The topography is characteristic of the eastern scarp of the Sierra Nevada range: extremely steep stream gradients, high cliffs and U-shaped valleys formed by glaciation, hanging valleys with accompanying small lakes, and comparative absence of vegetation except in the lower parts of the valleys and canyons.

The climate presents unusual extremes: hot, dry summers lasting from June to September, and cold winters with sometimes very heavy snowfall. Average annual precipitation, mostly in the form of winter snow, is between 20 and 40 inches, resulting in a snow pack on the summits and higher valleys of ten feet or more; and frequent snow slides along the steep canyons and slopes. The U. S. Vanadium Co. operates the year round, however, by means of an access road kept open in winter by bulldozing and tractor hauling of trucks and busses after severe storms. Ore is moved from their mine, (elevation over 10,000 feet) to the mill by means of an aerial tram so constructed that winter storms do not hamper operation seriously.

The labor supply is largely local. Bishop is the center of a large mining district, and given reasonable working conditions, shortage of skilled mining labor is rare. Local wage scale is governed by the contract between the U. S. Vanadium Co. and the local C.I.O. union. Miners at the Brownstone, as of July, 1954, were paid $2.50 per hour, (somewhat above scale), due to the long walk over steep trail to and from work.

Water is plentiful in the area in amounts adequate for all mine or mill use. In the case of large new use of water, however, arrangements must be made with the Forest Service or other agencies, depending on the location of the proposed water withdrawal.

Electric Power is available at Pine Creek, and is supplied by the Dept. of Water and Power, City of Los Angeles. Operation in the higher and more inaccessible areas requires gasoline or diesel units for power supply. The Brownstone mine is at present equipped with two Sullivan-Caterpillar compressors at the mine portal. These machines were dismantled, taken to the mine via the aerial tram, and reassembled in their present location.

Local timber and lumber for mine use may be purchased from a saw mill near Bishop, or structural fir may be brought in from more northern mills.

Equipment now upon the Brownstone group of claims consists of:
An aerial tram 2,400 ft. long, using 3/4 ton buckets, of a top capacity of about 10 tons of ore per hour; dump truck for hauling ore from tram terminal to U. S. Vanadium mill; one Sullivan-Cat. Compressor of 315 c.f.m. and one Sullivan-Cat. Compressor of 365 c.f.m. installed at the mine portal; and a supply of air drills, accessory equipment, cars, mucking machine, etc. necessary to mine at a scale of about 100 tons per day. None of this equipment would be used in the proposed exploration program cited in this application, since it is in use in ore production.

## Economic Geology of the Property

The principal mineral of economic value found in the district and upon the Brownstone properties is scheelite. This tungsten mineral is found in altered sedimentary rocks at or near the contact between these rocks and granitic rocks. The silicate rocks, (tactite) formed along these contacts are not always of ore grade, but in general the uniformity and persistence of scheelite mineralization in the tactite in the district, both laterally and in depth, results in large orebodies of comparatively uniform $WO_3$ content.

The mineralization is closely associated with the intrusion of the granite, which is the youngest of varied intrusives of pre-Tertiary age making up the mass of the Sierra Nevada range. The tungsten mineralization is associated with the last differentiates of this granite; probably contemporaneous with or slightly preceding the intrusion of numerous aplite dikes found on the borders of the

granitic mass; and which cleanly cut the granite, the tactite contact zone, and the metasediments adjoining the contact. Higher grade ore in the Brownstone mine is usually associated with fingering or dip changes of these dikes within the tactite.

All of the deposits of tungsten found in the district occur along the borders of septa of metamorphic rocks extending along the crest of the Sierra Nevada for nearly 50 miles. At Pine Creek, the septum contains a pendant of limestone on the order of 1/4 mile wide by four miles long. This pendant is exposed over a vertical range of about 1800 feet in the deep canyon of Pine Creek, and tactite with accompanying mineralization is found discontinuously over this entire vertical range, wherever the contact with the granite is exposed.

Upon the Brownstone group of claims, a marked deviation in the general strike of the limestone pendant occurs, accompanied by a split of apparently isolated smaller pendant of limestone and hornfels to the west of the main mass of limestone. It is possible that both the variation in strike and the isolated limestone pendant is the result of pre-granite folding and/or faulting, and intrusion of a cupola of the granite along the axis of the fold or fault.

The following references describe in some detail the economic geology of the Pine Creek district:

U.S.G.S. Bull. 931-E: "Tungsten Deposits in the Sierra Nevada near Bishop, Calif.", by - D. M. Lemmon

Calif. J. Mines and Geol., Vol. 41, No. 4: "Pine Creek and Adamson Tungsten" by - Paul C. Batemen.

The present workings of the Brownstone mine are at the foot of a vertical cliff at an elevation of approximately 9,000 feet, (lower or "A" level). The tactite zone bordering the Brownstone limestone pendant, (west tactite zone) is exposed up the cliff face to an elevation of about 9,800 feet near the top of the cliff. This tactite zone has been found near the head of Myrtle Creek, to the south of its outcrop on the cliff face, (see Map No. 1). It is very difficult to prospect the surface in this area, and expert mountain-climbing technique is required to reach many apparent outcrops of tactite.

The Brownstone workings are upon the contact of a wedge or disconnected body of limestone apparently separated from the main limestone pendant by some thousand feet of granite, at the surface, (see Map No. 1). The strike and dip of the Brownstone Mine limestone is in general conformable to that of the larger limestone body to the east, i.e.-N 40 to 50° W, dipping to the east from 50 to 70°. Whether the Brownstone pendant is a remnant of a limb of pre-granite tight folding in the metasediments or a part of the same bedded limestone noted to the east, which has been separated from the main body by the invasion of a small granite cupola, is not clear. The position of the Brownstone limestone with respect to the main limestone body could also be explained by pre-granite faulting: there is evidence of such faulting, although detail is obscure.

Upon the west side of the main limestone body, (which upon the property reported upon contains large lenses of hornfels, some facies of which are gneissic), along the contact with the granite separating this body from the Brownstone limestone, well developed tactite zones outcrop, and have been cut by a flat diamond drill hole some 700 feet (dip slope) beneath the outcrop. These tactite bodies have not been explored except by surface "lamping" and the one drill hole. The outcrops and the drill hole are reported to show commercial scheelite. Drill cores or assays are not available. (See Appendix 3 herewith), but scheelite ore estimated at from 0.5 to 1.0% $WO_3$ (by lamp) outcrop in the tactite zones at intervals over a strike length of some 2000 feet or more, as observed by the writers of this report.

The tactite zones, and the metasediments and adjacent granite, are cut at frequent intervals by flat-lying aplite dikes which are roughly parallel to each other and strike roughly east-west, with dips from 20° to 40° to the south or south-east. These dikes vary from a few inches to a hundred feet or more in thickness, and cleanly cut the granite, tactite, and limestone, (or hornfels) near the granite-metasediment contact. They were obviously injected after solidification of the granite at and close to the contact with the metasediments, and probably originated deep within the shell of the crystallizing granite mass. It is probable that the silicate contact zones (tactite) were formed at the granite-limestone contact before the intrusion of the aplite dikes; and it is probable that the tungsten-bearing solutions associated with the alteration of the metasediments near the granite contact rose along zones of fracturing and permeability caused partly by the solidification of the granite at the contact, and partly by pre-existing and contemporaneous fault structures. The aplite dikes probably also followed joints and faults resulting from stresses set up by the cooling granitic mass, and may have an important bearing upon the localization of orebodies.

The net result of the injection of the aplite dikes at a low angle across the steeply dipping contact zones has been to divide the tactite orebodies into rhombohedral blocks, separated by blocks of barren aplite, (see Maps No's. 3 and 4). These dikes complicate mining only to the extent of separating the ore zone into segments and reducing the total volume of the individual orebodies which may be stoped as a unit. On the other hand, the aplite dikes serve as pillars between sections of the, at times, wide tactite bodies, and ore can be cheaply mined clean between the dikes, with no timbering or necessity for leaving pillars of commercial ore.

## Ore Reserves and Production Record, Brownstone Mine.

Production Record: Prior to 1952, from the discovery of the property to the first months of 1952, the El Diablo Mining Co. mined and milled ore from the Brownstone Mine. Detailed production records are not available, but Mr. Johanson of that company stated that "more than 2000 tons of ore were mined and milled, with a recovery in the form of plus 60% $WO_3$ concentrate equal to somewhat more than 0.5% $WO_3$

per ton of ore milled". This would indicate that the average mill heads as mined were on the order of 0.6% to 0.7% $WO_3$. From August, 1952 to date, detailed production records are available, since the Brownstone Mining Co. has sold all of the ore mined under its leases to the U. S. Vanadium Co. mill at Pine Creek, and exact weights and assays appear in the settlement sheets.

A summary of total past production follows, (See Appendix 2 for detail):

Summary of Production, Brownstone Mine.

| Period | Short Dry Tons Mined | Total Units $WO_3$ contained | Avg. % $WO_3$ in ore |
|---|---|---|---|
| Prior to 1952, (approximate only) | 2000 plus | 1200 plus | 0.6 plus |
| Aug. 1952 to July, 1953 | 2386.36 | 1478.66 | 0.620 |
| Aug. 1953 to June 26, 1954 | 5627.98 | 2876.09 | 0.511 |
| Totals & avgs. to June 26,1954 | 10014.34+ | 5554.75+ | 0.555+ |

Ore Reserves: (See Maps No's. 3 and 4):

A condensed tabulation of proved ore reserves is given herewith.

In estimating volume of such reserves, reasonable extensions ahead of working faces and stope backs have been used; modified by known structural limits of ore bodies. Except for the face blocks remaining between the cliff face and stoped out areas, no ore is blocked out on four sides. In cases where but one face of ore is exposed, not more than half the length of the exposure has been allowed as proved ore above or below the exposure, over widths indicated by the exposure. Estimated assays of proved ore are based on stoping and development assays as shown by tonnage sold to the U. S. Vanadium Co. from the respective workings; checked by "lamping". The Brownstone ore is remarkably uniform in scheelite content, and in view of the method of estimating assay, (based on assay of large tonnages as mined), no dilution factor is used. A factor of 75% of estimated tonnage as cubicated has been applied, however, to allow for possible unmineable areas in the orebody, as a "safety factor". A factor of 10 cu. ft. ore in place, per short ton, is used.

Tabulated Proved Ore Reserves, Brownstone Mine.

| Location | Total cubic feet | Dry short tons est. | Est. % $WO_3$ |
|---|---|---|---|
| "A" Level: Face block..... | 27,500 | 2,750 | 0.70 |
| Below level floor, to aplite | 105,000 | 10,500 | 0.60 |
| "B" Level: Face block..... | 12,000 | 1,200 | 0.60 |
| Unmined area below floor.... | 24,000 | 2,400 | 0.60 |
| "C" Level: Total area above development level..... | 75,600 | 7,560 | 0.50 |
| Total, proved ore cubication..... | 244,100 | 24,410 | 0.58 |

Applying a factor of 75% of estimated tonnage as mineable ore, the total proved ore allowed is: 18,000 tons at an average grade of 0.58% $WO_3$.

Probable ore: It is assumed that extension to the south, along the main Brownstone contact, will develop ore for a distance equal to that shown by present development; the same average stoping width and assay. Upon this basis, about 45,000 short tons of ore of a grade of 0.5% $WO_3$ may be allowed, as probable.

Possible Ore: Pending the exploration recommended in this report, plus further development within the Brownstone mine itself, an attempt to quantify possible ore in terms of tonnage and $WO_3$ content would be meaningless. If surface outcrops along the line of the proposed exploration adit, (See Map No. 1), plus the continuation of the Brownstone contact to the south and in depth develop favorably, possible ore could be on the order of half a million to over a million tons at a grade above 0.4% $WO_3$.

In this connection, it may be noted that at the Pine Creek mine of U. S. Vanadium, (adjoining the Brownstone on the north), from 25% to 50% of the total tactite-silicate contact zone is commercial tungsten and/or molybdenum ore. At the Brownstone to date, over 75% of the tactite area explored has been of commercial $WO_3$ grade. Molybdenum is found throughout the mine, but these areas, (principally in quartz-silicate wall rocks associated with the aplite dikes) have not been explored or stoped, and molybdenum content is therefore unavailable.

## Ore Treatment and Marketing

The present Brownstone tram terminal, and the site of the proposed exploration adit portal, are within a thousand feet of the mill and treatment plant of the U. S. Vanadium Co. This company is at present buying the ore under their standard custom ore schedule. This schedule is quite liberal, compared to those offered by most custom tungsten mills; and as long as the U. S. Vanadium plant is operating under the present policy, treatment and marketing charges are fixed and do not involve guesswork.

Upon ore assaying 0.6% $WO_3$, (about the average grade of ore stoped from the Brownstone or to be expected as a result of further exploration), these charges amount to $26.00 per unit of contained scheelite in the ore, (based upon the domestic selling price under the stockpiling act, of $63 per unit): or $15.60 per ton of 0.6% $WO_3$ ore, (based upon a net payment to the Brownstone Mining Co. of $22.20 per ton of 0.6% $WO_3$ ore).

A hypothetical overall milling cost, including capital charges, value of tailing losses and other items; for a 100 ton capacity mill; would indicate a total cost per ton of ore to be about $17.40. It is obvious that it is more advantageous to sell the ore to the U. S. Vanadium Co. than to construct a mill for the account of the Brownstone Mining Co., even if proved ore reserves justified investment in milling facilities.

The present selling price of $63 per contained unit of $WO_3$ in plus 60% concentrate is guaranteed under the Stockpiling Act until July 1st, 1958, or until the quantity requirements of that Act are met. At present, it appears that the quantity requirements may be met sometime in 1957. The future price after that date is uncertain; at any rate, the profit and loss picture and overall future of the Brownstone mine will follow and reflect that of the Pine Creek operation of the U. S. Vanadium Co., provided contingency provision is made to carry the operation over a possible short period of very low tungsten prices after the expiration of the stockpiling program.

## Recommended Exploration Program

The exploration program as recommended herewith will provide access to any orebodies discovered even after long periods of shutdown, since the adit is: (a) an all-weather working, (b) will require little or no maintenance, and, (c) cannot be flooded. This implies that any ores discovered will always be available for quick production in times of national emergency.

Reference to Maps No's. 1 and 2, the description of the terrain and surface operating conditions, on the property, and the economic geology of the property and district, will show:

(1) A contact between the major pendant of limestone and granite exists, (east tactite zone), which has not been explored except by partial mapping and lamping of the surface and by one diamond drill hole intersecting the tactite areas outcropping, about 700 feet (dip slope) below the outcrop. This intersection, plus the known structure of the district, gives assurance of the persistence of this tactite in depth, and the probable existence of commercial orebodies therein.

(2) There is a possibility that the Brownstone pendant (west tactite zone) may terminate at some point above the level of the proposed adit. It is also possible that this pendant will extend

to the adit level. If extension of the Brownstone or west tactite zone is proved to the proposed adit level, by the proposed diamond drilling, it is almost certain that major orebodies will be found therein.

(3) Exploration from the surface is difficult and costly, whether by means of shafts or diamond drilling.

(4) The Brownstone mine is not equipped to explore in depth, or laterally along the contact, at a rapid rate and still maintain production, and the placing of additional equipment at the Brownstone portal will be very costly.

In view of the foregoing, the following exploration program is recommended. This program is divided into two phases, both for convenience in estimating the time and monetary requirements, and to make operation of Phase 2 contingent upon favorable results of Phase 1 exploration.

Phase 1 Exploration: Purpose: to cut and explore the east tactite zone outcropping and cut by diamond drill hole; to check this drill hole; and to serve as a base for exploration by diamond drilling of both the east tactite zone and the Brownstone or west tactite zone at depth, (See Maps No's. 1 and 2). This phase will involve the following work:

(a) Drive an exploration adit approximately at right angles to the strike of the surface structure and contact, a distance of 800 feet; at an elevation of approximately 7990 feet. The proposed portal of this adit is protected from snow slides; has a site suitable for dumps and surface structures; and is so situated in level with respect to the U. S. Vanadium mill that if commercial orebodies are encountered the adit may conveniently be used for inexpensive ore haulage throughout the year. The adit will cut the tactite zones intersected by the drill hole about one hundred feet above the drill hole intersection, and about six hundred feet below the outcrop of these zones. (See Appendix 3: Log of Diamond Drill Hole). It is not practical to place the adit portal at a lower elevation.

(b) Using the 800 foot adit as a base, the following exploratory work is proposed: (1) Drift on the tactite bodies cut by the adit, (east tactite zone). A total of 500 ft. of drifting is included in this section.

(2) Diamond drill from the face of the adit to determine the position and/or existence of the Brownstone, (or west) tactite zone at the adit level. A total of 3000 feet of drilling is included in this section.

(3) Explore the east tactite zone cut by the adit and drifts therefrom by short diamond drill holes, laterally and above the adit level. A total of 2000 feet of drilling is included in this section.

Phase 2 Exploration: Purpose: to check results of diamond drilling done under phase 1 (if this drilling proves the existence of the Brownstone or west tactite zone at or somewhat above the adit level), and to serve as a base for more detailed exploration of the west zone by short diamond drill holes, using the extension of the adit and drifts therefrom as a base.

Phase 2 will involve:

(a) Continuation of the adit driven under phase 1 an additional 600 to 1100 feet, depending on the location of the west zone at the adit level. For purposes of estimating cost and time, 1000 feet of additional adit is used.

(b) Two hundred feet of drifting upon the west tactite zone is included in this phase.

(c) Using the adit extension and drifts therefrom as a base, 2000 feet of diamond drilling is included, to explore the west tactite zone in some detail.

Detailed cost and time estimates for the foregoing proposed program are based upon the following recommended procedure and time schedule:

(1) The adit and drifts in both phases will be driven on company account, with an efficiency bonus based on footage and cost added to the base pay of the miners.

(2) Adit and drifts will be driven 8 ft. x 8 ft. in cross-section, with a side water ditch 2" x 2" dug as needed behind the face; to carry expected water flow. This tunnel section will result in about 50 tons of muck per round, assuming a 7 to 8 ft. pull, each round.

(3) Mechanical mucking into large (40 cu. ft.) cars, and mechanical tramming is assumed.

(4) Air-leg positioning of drills is assumed as faster than using a jumbo in this case.

(5) All diamond drilling will be done by independent contractor at a fixed charge per foot of hole.

(6) All engineering and consulting, including mapping, engineering direction, geology, and engineering supervision of diamond drilling will be done by a competent firm on a retainer basis.

(7) It is estimated that Phase 1 of the program will require: one month after signing an exploration contract to place machinery on the job and prepare the adit portal and surface facilities; three months to drive adit and drifts; and one month to complete diamond drilling after adit is completed; or a total time of five months.

(8) It is estimated that if results of Phase 1 are favorable, to complete Phase 2 will require three and one-half months to extend the adit and drive drifts therefrom, and one and one-half months to complete exploratory drilling in the west tactite zone; a total of five months to complete Phase 2.

Cost Estimate: Brownstone Mining Co. Exploration Project.

Phase 1: Prepare portal and surface installations; drive 1300 feet of adit and drifts; do 5000 total feet of diamond drilling. Time distribution: 1-month, portal preparation & machinery installation; 3-months adit & drift driving; 1-month complete diamond drilling after driving finished.

| Application Code No. | ITEM | Estimated cost, dollars Subtotal | Total | |
|---|---|---|---|---|
| 6-(a) | Independent Contracts: | | | |
| | (1) Bulldozing, adit portal site, 24 hrs. @$12.00 | 288.00 | | |
| | (2) Diamond drilling: 3000'-AX hole @ $4.00 | 12000.00 | | |
| | 2000'-EX hole @ $3.00 | 6000.00 | | |
| | Total, independent contracts | | 18,288.00 | |
| 6-(b) | Labor, supervision & consultation: | | | |
| | Direct labor, 950 man-shifts @ $16.40 | 15580.00 | 11.86 | |
| | Efficiency bonus and/or overtime | 4500.00 | 3.46 | |
| | Supervision, 5 mo. @ $500 | 2500.00 | 1.92 | |
| | Engineering & Consulting, 5 mo. @ $300 | 1500.00 | 1.15 | 18.52 |
| | Total labor, supervision & consulting | | 24,080.00 | |
| 6-(c) | Materials & supplies: | | | |
| | Powder, fuse, caps, etc. | 7950.00 | 6.12 | |
| | Fuel oil, gasoline, lubs., etc. | 2160.00 | 1.66 | |
| | Timber, (est. 40 sets @ $20) | 800.00 | 0.62 | |
| | Ties, 700 @ $1 | 700.00 | 0.54 | 185 |
| | Mine rail, 12 tons, 30#, @ 7¢/lb. w/fit. | 1700.00 | 1.31 | |
| | Drill steel, expended | 250.00 | 0.19 | |
| | Misc. expendable small tools & supplies | 1000.00 | 0.77 | 11.20 |
| | Total, materials & supplies | | 14,560.00 | |
| 6-(d) | Operating equipment: | | | |
| | (1) Purchased outright: | | | |
| | 2- jackhammers & air feed legs @ $500 | 1000.00 | | |
| | 300'- 1" air hose w/con @ 65¢ | 195.00 | | |
| | 300'-½" water hose w/con @ 40¢ | 120.00 | | |
| | 1300'- 1" water pipe @ 20¢,(used) | 260.00 | | |
| | 1300'- 3" air pipe @ 50¢,(used) | 650.00 | | |
| | 800' - 18" Ventube @ $1 | 800.00 | | |
| | 500' - 12" Ventube @ 60¢ | 300.00 | | |
| | 2- 40 cu.ft. side dump mine cars @ $300 | 600.00 | | |
| | Sub-total, purchase value equipment . . | 3925.00 | | |
| | Less salvage value, (30% of cost) . . . | 1175.00 | | |
| | Total, operating equipment purchased outright | | 2,750.00 | |
| | Total, Phase 1 cost estimate forward to page 12 . . . . . | | $59,678.00 | |

Phase 1 Exploration, (continued)

| Application Code No. | ITEM | Estimated cost, dollars Subtotal | Total |
|---|---|---|---|
| - - - | Brought forward from page 11 | | 59,678.00 |
| | (2) On lease-option (monthly rental-purchase contract): | | |
| | 1 - 500 cfm compressor, $350/mo., 5 mo. | 1750.00 | |
| | 1 - mucking machine, $200/mo., 5 mo. | 1000.00 | |
| | 1 - air trammer, $200/mo., 5 mo. | 1000.00 | |
| | 1 - 15 KVA diesel-elec. generator, $200/mo, 5 mo. | 1000.00 | |
| | 1 - 10 HP electric-dr. blower, $45/mo. 5 mo. | 225.00 | |
| | Subtotal, cost of rented equipment | 4975.00 | |
| | Less equity, (comp.pur.& sell) | 1500.00 | |
| | Total, operating equipment on rental-option | | 3,475.00 |
| 6-(e) | No repairs or rehab. to existing facilities | | |
| 6-(f) | New installations: | | |
| | 1 - compressor shed & tool house | 1600.00 | 1,600.00 |
| 6-(g) | Miscellaneous: | | |
| | Repairs & maintain. of equipment, ($150/mo., 5 mo.) | 750.00 | |
| | Accounting, $100/mo., 5 mo. | 500.00 | |
| | Comp. ins. & liab., safe.& hosp. fac. for labor | 2475.00 | |
| | Payroll tax, S/S, etc.(5% of payroll) | 1125.00 | |
| | Total, miscellaneous charges | | 4,850.00 |
| 6-(h) | Contingency, overall allowance | 5000.00 | 5,000.00 |
| | TOTAL ESTIMATED COST, PHASE 1, BROWNSTONE EXPLORATION PROGRAM . . . . . | | $74,653.00 |

The foregoing estimate, converted to unit costs as a basis of arriving at a unit cost type exploration contract, yield the following:

(1) Diamond drilling:
For AX hole over 500 ft. length: $4.00 per foot.
For EX hole not over 500 ft. length: $3.00 per foot.

(2) Driving 8' x 8' section adit & drifts, with 2' x 2' side water ditch:

| | | | |
|---|---|---|---|
| 6-(b) | Direct labor, supervision & consult | $18.54 | per foot. |
| 6-(c) | Materials & supplies . . . . . | 11.18 | " " |
| 6-(d) | Equipment purchased outright . . . | 2.12 | " " |
| 6-(d) | Equipment on rental-option . . . . | 2.67 | " " |
| 6-(g) | Miscellaneous direct charges . . . | 3.73 | " " |
| | Total direct overall cost, adit & drifts | $38.24 | per foot |

(3) All other charges, inc. portal, building, & contingencies, amount to $5.38 per foot of adit and drift.

Notes on the foregoing estimate:

6-(b): Labor: rate is that of U.S. Vanadium base rate, as fixed by contract with the local union. This base is usually exceeded by all first-class miners: it is difficult to keep a good man in the district unless his total wage and/or bonus is about $25 per day. The 950 man-shifts allowed for the adit & drifts includes drilling and shooting portal preparation and machinery installation. Three shift operation is planned in the adit and drift driving.

6-(c) Materials & supplies: track and rail are considered expendable, ie.- as remaining in the adit with no salvage, regardless of the outcome of the project. Misc. small tools & expendable supplies include picks, shovels, wiring and lights, etc.

6-(d) Operating equipment: a diesel-electric generator large enough to drive the blower and furnish all lighting and small tool power is considered advantageous. A 500 cfm. compressor is considered necessary at the altitude of the property, for the job. Air legs are believed faster than a jumbo in this type of job. 18" Ventube is specified to get faster ventilation for three shift work, and to provide for moving the blower to near the end of the phase 1 adit if phase 2 follows.

<u>Phase 2</u>: If existence of Brownstone (west) tactite zone proved by diamond drilling in phase 1, at adit level; extend adit driven in phase 1, 1000 ft., and drift 200 ft. on west tactite zone; explore this zone with 2000 ft. EX diamond drill hole. Time distribution: 3½ months to drive adit & drifts, 1½ months addition to finish diamond drilling.

| Application Code No. | ITEM | Estimated cost, dollars Subtotal | Total |
|---|---|---|---|
| 6-(a) | Independent contracts: 2000' EX hole @$3.00 | 6000.00 | 6,000.00 |
| 6-(b) | Labor, supervision & consultation: | | |
| | Direct labor, 500 m/shifts @ $16.40 | 8200.00 | |
| | Efficiency bonus and/or overtime | 4000.00 | |
| | Supervision, $500/mo., 5 mo. | 2500.00 | |
| | Eng.& consultation, $300/mo., 5 mo. | 1500.00 | |
| | Total labor, supervision & consulting | | 16,200.00 |
| 6-(c) | Materials & supplies: | | |
| | Powder, fuse, caps etc. | 6750.00 | |
| | 9- tons 30# rail @ 7¢/lb. w/fit. | 1260.00 | |
| | 600 ties @ $1 | 600.00 | |
| | Timber: 25 sets @ $20 | 500.00 | |
| | Fuel, blub., etc. | 2000.00 | |
| | Misc. small tools & exp. supplies | 500.00 | |
| | Total, materials & supplies | | 11,610.00 |
| 6-(d) | Operating equipment: | | |
| | 5-mo. rental-option @ rate from phase 1 | 4975.00 | |
| | Less, equity @ 60%(equip.pd 10 mo. by end of 2) | 2900.00 | |
| | Total, rental-option equipment | 2075.00 | |
| | 1200'- 1" water pipe, less salvage value | 168.00 | |
| | 1200'- 3" air pipe, less salvage value | 420.00 | |
| | 1200'- 12" Ventube, less salvage value | 504.00 | |
| | Total, operating equipment addnl.to phase 1 | | 3,167.00 |
| 6-(g) | Miscellaneous costs: | | |
| | Repairs & maint. of equipment | 1250.00 | |
| | Accounting, $100/mo., 5 mo. | 500.00 | |
| | Comp. ins. & liab., safe. & hosp. fac. for labor | 1100.00 | |
| | Payroll tax, S/S, etc. | 500.00 | |
| | Total miscellaneous charges | | 3,350.00 |
| 6-(h) | Overall contingencies | 3300.00 | 3,300.00 |
| | TOTAL ESTIMATED COST, PHASE 2, BROWNSTONE EXPLORATION PROGRAM . . . . . | | $43,627.00 |

The foregoing estimate, converted to unit costs, yields the following:

| | | |
|---|---|---|
| 6-(b) Direct labor, supervision & consult . . | $13.50 | per foot. |
| 6-(c) Materials & supplies . . . . . | 10.58 | " " |
| 6-(d) Operating equipment . . . . . | 1.73 | " " |
| 6-(g) Miscellaneous . . . . . | 2.79 | " " |
| Total direct overall costs, adit & drifts . . | $28.60 | per foot. |
| Diamond drilling, per foot of EX hole . . . . | $ 3.00 | per foot. |

All other charges, such as contingencies, included in the detailed estimates, phase 2, amount to $2.75 per foot of adit & drift.

Cost Estimate, Brownstone Exploration Program: continued from page 14.:

Notes on the foregoing estimate:

6-(b) Labor, supervision & consulting: same rate & proportionate efficiency bonus has been allowed as in phase 1, but allowance has been made for faster work a/c experience and smooth-working crew, assuming phase 2 will follow phase 1 before crew is disbanded. Hence lower per foot labor cost.

6-(c) Materials & supplies: about the same as in phase 1.

6-(d) Operating equipment: lower than in phase 1, a/c much purchased equipment charged off in phase 1.

6-(g) Miscellaneous: a higher repair and maint. allowance has been made in phase 2 than in phase 1. Otherwise this charge is proportionate.

Recapitulation: Cost Estimate: Brownstone Exploration Program:

| Item and identification | Time reqd. months | Cost in dollars Total | Per Foot. |
|---|---|---|---|
| Phase 1: Diamond drilling, AX hole) | | $12,000 | $ 4.00 |
| EX hole) | 1 | 6,000 | 3.00 |
| Driving adit & drifts | 3 | 49,715 | 38.24 |
| Portal preparation & other indirect: | 1 | 6,938 | 5.33(adit) |
| Phase 2: Diamond drilling, EX hole | 1½ | 6,000 | 3.00 |
| Adit extention driving,& drifts | 3½ | 34,327 | 28.60 |
| Additional & Contingencies | 1 | 3,300 | 2.75(adit) |
| TOTAL COST & TIME REQUIRED, AS ESTIMATED | 11 mo. | $118,280 | |

If an exploration contract is arranged whereby Phase 1 is included at an estimated cost of $75,000; and if results of this phase are favorable; Phase 2 will go into operation at an estimated cost of $45,000; or a total maximum cost of the program of about $120,000; the following estimates of ore that might be developed by the program are in line with experience in the district and the Brownstone mine to date:

In the east tactite zone, explored in Phase 1: the visible extent of this zone on the surface is on the order of 1700 ft. Projection to the adit level, with an assumed average width of 10 ft. only, results in about one million tons of possible tactite. Applying a factor of 20% of this as possible commercial ore, about 200,000 tons of ore containing about 100,000 units of $WO_3$ of a present sales value of about $4,000,000 gross is quite possible.

In the Brownstone (west) tactite zone, if this zone extends to the adit level, about 300,000 tons of ore of a gross sales value of about $6,000,000 might be found, using the same factors as noted in estimating possibilities in the east zone above.

These possibilities are reasonable, in view of the known ore habits in the district and the Brownstone mine as so far developed. The estimated cost of the exploration program is therefor not excessive when balanced against the chances of developing a major tungsten mine in a favorable location.

KING & KING

MINING ENGINEERS

## COMMENTS ON CLAIM LINES AND LEASES IN APPENDIX I

During the course of this examination, a gap was found between the Brownstone-Myrtle group and the Blue Grouse group along the proposed adit. This ground was located by the Brownstone Mining Co. as the Tallus Claim. Under the terms of the attached lease from Blue Grouse, title will be transferred from Brownstone to Blue Grouse where it will be considered a part of the Blue Grouse ground and lease to the Brownstone Mining Co. Attached is a copy of the recorded description of this claim (see Map No. 1).

Due to the extremely rugged terrain and a time interval of 10 years since monuments were erected, many were not found during the field examination leading to this report. Since all ground located or covered by lode claims south of Pine Creek is included in this application, and since no conflicts are on record, or known to the writers, and all locators in the area enclose consents herein, title to the ground appears clear as resting in Brownstone Mining Co. per leases herewith. A survey of all claim lines by a licensed Land Surveyor is pending at this time.

It will be noted that unpatented millsite locations by the U. S. Vanadium Co. are in conflict with part of a Blue Grouse claim. These millsites are of subsequent location date to Blue Grouse claims, and in a conference afforded by R. F. Witter for Blue Grouse, Mssrs. McKinley and Cortelyu for U. S. Vanadium Corp., respectively Western Manager, and President, as well as the writers, the matter was discussed. No claim was made by U. S. Vanadium, as represented, to any rights which would halt or hinder operation of this project, or subsequent mining of ores discovered as a result of this project.

KING & KING

By Dan M. King

Dan M. King

C. R. King

Clarence R. King

Dated: July 30, 1954

APPENDIX 1 - A

MINING LEASE WITH OPTION TO PURCHASE

THIS AGREEMENT, made this 1st day of July, 1952, by and between EL DIABLO MINING COMPANY, a California corporation, hereinafter referred to as "Lessor" and WILLIAM V. SKINNER and JACK CATHEY, co-partners d.b.a. Brownstone Mining Company, hereinafter referred to as "Lessees",

W I T N E S S E T H:

WHEREAS, the Lessor is now in possession, under terms of a written lease with the owners, of the following described mining claims, all of which are located in Inyo County, California:

Brownstone No. 1 and Brownstone No. 2, Notices of Locations of which were recorded in the Office of the County Recorder of said County on September 16, 1940, in Volume 44 at Page 1 of Mining Locations,

Myrtle No. 1, Notice of Location of which was recorded on September 10, 1941, in Book 55 at Page 79 of Mining Locations,

Myrtle No. 2, Notice of Location of which was recorded on April 28, 1942, in Book 55 at Page 314 of Mining Locations, in the Office of the County Recorder of Inyo County,

Brownie No. 1 Mill Site, Notice of Location being recorded October 1, 1941, in Volume "C", at Page 468, Land and Water Claims,

Brownie No. 2, Mill Site, Notice of Location being recorded October 1, 1941, in Volume "C", Page 469, Land and Water Claims, in the Office of the County Recorder of Inyo County,

and

WHEREAS, with the consent of the owners of said claims the Lessor desires to sublease the same to the Lessees with the option on the part of the Lessees to purchase the same,

NOW, THEREFORE, IT IS AGREED AS FOLLOWS:

1.

It is understood this is a sublease and wherever the term "Lessor" is used herein, it is intended to mean "Sublessor" and wherever the term "Lessees" is used, it is intended to mean "Sublessees"; and wherever this document is referred to as a "Lease", it is understood the term "Lease" is used as though it were synonymous with "Sublease".

2.

An inventory shall be taken of all machinery, equipment and supplies, including such items as air-compressors, slushers, track and personal property located upon said mining claims or any of them or attached to the same, excluding however the aerial tramway and ore bin at the lower tram station; and the Lessees agree to purchase all of said personal property, excluding said tramway and ore bin at the lower tram station, and to pay therefore the present fair market value thereof, taking into consideration the location and expense of installation of said personal property, but not to exceed the amount of $15,000. Such purchase price shall be paid in twelve equal monthly installments. The first installment shall be due when the aerial tramway has been repaired and is ready to operate; and subsequent monthly payments shall be made at intervals of one month from said date until the whole of the purchase price has been paid. Title to all of said personal property shall remain in the Lessor until the entire amount of the purchase price shall have been paid; and the Lessor shall have the right to repossess any or all of said personal property in event of default in the payment of said purchase price or any part thereof. The Lessees shall maintain all of said machinery and equipment in good mechanical condition, making all necessary repairs thereto until the full purchase price for the same has been paid.

3.

The Lessees shall have the right to use, operate and maintain the aerial tramway connected with said mining claims, including the ore bins and all of its appurtenances. The Lessees shall pay to the Lessor in cash as rental for the use of the same seventy-five (75¢) cents per ton for all ore or rock transported on said tramway from the upper to the lower station which does not carry, on the average, more than six-tenths of one per cent tungsten trioxide; and if the average is more than six-tenths of one per cent, then the rental price for the use of said tramway shall be increased at the rate of one and two-thirds cents (1-2/3¢) per ton for each additional one-tenth of one per cent, but said rental price shall in no event be more than one dollar ($1.00) per ton. If the Lessees shall elect to transport any ore from said mine by any means other than upon said aerial tramway, then notwithstanding the fact that the same be not transported on the tramway, the Lessees shall nevertheless pay said rental at the same rate. In other words, said rate of rentals shall be applicable not only to ore transported on the tramway, but also to ore from said mine which may be transported by other means. When and if the total rental for the use of said tramway paid to the Lessor shall equal the sum of forty thousand dollars ($40,000.00), then the title to said tramway and all of its appurtenances shall pass to the Lessees. If this lease be terminated prior to the receipt by the Lessor of the sum of forty thousand dollars ($40,000.00), then all rental payments made by the Lessees for the use of said tramway shall be considered to be rent and shall not vest in the Lessees any right, title or interest of any kind in or to said tramway or any of its appurtenances. During such time as the Lessees may be using said tramway, Lessees shall keep the same and all its appurtenances in good mechanical condition and shall make all necessary repairs in order that when the same is redelivered to the possession of the Lessor, if such redelivery should take place, it shall be in

good working mechanical condition and shall be in as good condition as when received by the Lessees, ordinary wear and tear alone excepted.

3. (a)

It is understood that the lower station and ore bin of said tramway has been damaged by snow slide and that Lessees will repair said damage. Notwithstanding anything seemingly to the contrary, the total purchase price, to wit: forty thousand dollars ($40,000.00), shall be reduced by the cost of labor and materials expended by the Lessees in repairing the damage to said tramway by snow slide, and particularly to the lower station and ore bin. Upon completion of such repairs, the Lessees shall furnish the Lessor with a statement of all labor and materials expended, accompanied by receipts showing payment therefor.

4.

The Lessees shall immediately take possession under the terms hereof of said mining claims for the purpose of prospecting, working and developing the same with the view of the purchase thereof; and the Lessor hereby grants to the Lessees for and during such term or period as the Lessees shall perform, keep and comply with every covenant, term and condition hereof on the Lessees, part to be kept and performed, the immediate possession and right to the exclusive possession of the said mining and millsite claims and the whole thereof with the water rights, if any, thereto appurtaining; and gives to the Lessees the option to purchase the same for the full purchase price of two hundred fifty thousand dollars ($250,000.00) lawful money of the United States, without interest, to be paid to the Lessor in installments as hereinafter provided.

5.

Lessees are hereby expressly granted the right to enter upon said premises and to mine and explore the same and to take, remove and dispose of any and all metals or minerals or other substances (organic or inorganic) and whether existing as placer, lode or other type of deposit on or beneath the surface of said property so long as this contract shall be and remain in full force and effect. That said mining operations to be conducted by the Lessees may be by any method selected by the Lessees as the most practical, expedient and economical method to be pursued in the extraction and recovery of minerals on the said lands.

6.

All mining operations shall at all times be conducted and carried on in a good and miner-like fashion and in accordance with the established and accepted practices and not otherwise.

Any or all timbers, lumber, track or pipes that are now in or upon the premises may be removed from one area thereof to another, so long as the same is used upon or in the premises and that by so doing, the underground workings are not endangered in such areas as may be considered active working areas. Within a reasonable time the Lessees shall extend the South drift in a miner-like manner in order that production of ore may be increased and said mine properly developed for maximum production. The Lessor or its duly appointed agents or representatives shall have the privilege of entering into and inspecting said property and all improvements and workings thereon for the purpose of ascertaining the manner in which the Lessees are carrying on said operations.

7.

The Lessees shall, within thirty (30) days from the date hereof commence mining operations on said premises and thereafter conduct the same diligently and shall cause to be performed on said premises one hundred fifty (150) shifts or more of labor within every thirty days in such mining operations and in the development of said property as a mine, the term "shift" meaning a workman employed to labor on or in said mine in furtherance of the mining projects contemplated by this agreement of one day of eight hours work or such other maximum working day as may be prescribed by law or other governmental regulations; a suspension of work due to unavoidable accidents, strikes, acts of God, war, weather conditions or other casualties beyond the control of the Lessees excepted. Suspension of work due to the mechanical failure of the tramway is also excepted. Excepted suspension of work shall be for a reasonable time under all the circumstances.

8.

The Lessees may, at any time during the term herein stated, surrender this lease and agreement, together with the possession of said claims hereinabove described, upon the giving of written notice to that effect to the Lessor, and thereupon be relieved of all future obligations hereunder, including the obligation to complete the payment of the purchase price of the machinery, equipment and supplies as provided in paragraph "2" hereof, but such surrender shall not release the Lessees from any obligation or liability theretofore accrued hereunder, including any accrued liability arising out of the provisions hereof with reference to the purchase or rental of mining machinery, equipment, supplies, etc.

9.

As a further and additional consideration for this agreement, the Lessees shall pay to the Lessor, at Bishop, Calif., as monthly rental for said claims and as monthly royalty payments, an amount equal in dollars and cents to ten percent (10%) of eighty percent (80%) of the assay value at current market prices f.o.b.

Bishop, California, of all ore mined from said premises, or if Lessees discontinue their present plan of selling all ore produced to the U. S. Vanadium Corporation and instead sell concentrates derived from milling said ore, then the Lessees shall pay to Lessor ten percent (10%) of all the gross proceeds derived from such sale. Payment to be made to the Lessor within ten (10) days after receipt by the Lessees of any payment for sale or shipments of ore or concentrate produced from said property. There shall be no deductions for transportation charges, commissions, taxes, insurance or other costs or charges whatsoever. The Lessor shall have the option, however, of taking and receiving in lieu of cash, ten percent (10%) of all the gross ore or gross concentrates produced from said premises. There shall be no minimum royalty so long as the Lessees cause to be performed on said premises one hundred fifty (150) shifts or more of labor during every thirty (30) day period, in accordance with the terms of paragraph "7" above. If during any thirty day period the Lessees fail to comply with the provisions of said paragraph "7" with reference to the performance of labor upon said premises, then for each thirty day period of such non-compliance, there shall be a minimum royalty of thirty-three and 33/100 dollars ($33.33) per day, or one thousand dollars ($1,000.00) for thirty days, due and payable to the Lessor, against which there shall be applied the percentage royalties paid to the Lessor during said thirty day period, and the excess in order to equal the minimum royalty of one thousand dollars ($1,000.00) for said thirty day period, shall be paid in cash with the said percentage royalty. All royalty payments made by the Lessees to the Lessor as aforesaid, shall constitute rental for said real property and shall also constitute payments upon the balance of said purchase price of said real property, in event the Lessees shall elect to purchase the same. All payments to be made on account of royalty as hereinabove specified shall be accompanied by assay statements from a competent and dependable assayer, showing the mineral content and values of all ore produced from said property. It is understood and agreed that Lessor will keep the underlying lease with the claim owners, in full force and effect, and will furnish to Lessees not less frequently than annually, statements showing royalty payments to the claim owners. Upon receipt by Lessor of the full purchase price hereunder, the Lessor agrees to deliver to Lessees a good and sufficient deed conveying a clear title to all of said claims.

10.

The Lessor shall have access to all shipping and refining returns, milling or production records, and all assay reports and records giving information of the amount of minerals contained in ores extracted, produced or removed by the Lessees from said real property and all the proceeds thereof.

11.

The Lessees may not assign this lease or any interest therein and may not sublease the whole or any portion of said real property without the written consent of the Lessor first had and obtained.

12.

The Lessor shall not be liable nor responsible for any work or labor of any kind or character done or performed in, on, or upon said property during the life of this agreement or for any material or materials furnished to be used or used in, on, or upon, or in connection with the work of said property; and the Lessees will post, in the name of the Lessor, notices of non-responsibility as provided in the laws of the State of California, immediately upon the beginning of the construction of any building or improvement upon said property and the Lessees will pay all expenses and charges of each and every nature for which it shall become expressly or impliedly liable in anywise connected with the working of this property during the life of this agreement and will protect and save harmless the said property from all claims and liens of every nature arising out of any act or omission of the Lessees.

13.

The Lessor shall have the right to enter upon said property at any time to post notice of non-responsibility or to inspect all or any part of the same or to inspect the machinery and equipment belonging to the Lessor or in which the Lessor has any interest of any kind.

14.

The Lessees agree that as soon as work shall be commenced by any employee upon said property under this agreement, they will procure and carry a policy of insurance for the protection of the parties hereto for any injury or injuries to employees under the Workmen's Compensation Insurance and Safety Act of the State of California and under all acts mandatory thereto and to carry and keep the same in effect at the Lessees' own expense.

15.

All development work done and all improvements made upon said property shall be in accordance with the requirements, rules and regulations of the Industrial Accident Commission of the State of California and shall constitute the annual assessment work required to maintain the said mining claims. The Lessees agree to perform the necessary assessment work and to provide the necessary improvements to so maintain said mining claims to the extent

required by law and to record proper proof of labor in connection therewith in the office of the County Recorder of Inyo County, California, on or before the 15th day of June of each year during the term of this agreement or any extension thereof. The Lessees shall pay, before delinquency, all personal property taxes assessed against any personal property which they may install upon the said mining claim and shall pay, before delinquency, all personal property taxes on any other personal property which may belong to the Lessor, but which is being rented or used by the Lessees, and the Lessees shall pay, before delinquency, all real property taxes, if any, which may be assessed against said property.

16.

Time is of the essence of this agreement and each and every covenant, term or condition herein contained on the part of the Lessees to be kept and performed shall be and is hereby made a condition of this agreement. In the event the Lessees shall fail or refuse to keep or perform any covenant, term or condition set forth herein for thirty days after written notice of default specifying the particulars of said alleged default, Lessor may, at its option, with written notice to the Lessees and without waiving any right hereunder, terminate this agreement and with or without process of law may expel, remove or put the Lessees out of possession of the real and personal property described herein, but such termination shall not release the Lessees from any obligation or liability therefore incurred under the provisions hereof. Notwithstanding anything herein to the contrary, no notice of termination need be given with respect to default in the payment of any installments of royalties as and when the same may become due by the terms hereof; and that this agreement may be terminated for failure to pay royalties due without the service of any notice of default with respect thereto. Waiver of one default by the Lessor shall not be deemed to be a waiver of any other default.

17.

In the event of the termination of this contract in any manner other than by the consummation of the sale of said real properties, the Lessees may remove all machinery and equipment, including underground and surface pumps and other personal property which may hereafter be placed on said property by the Lessees, said removal to be accomplished within ninety days, weather and road conditions permitting, after the termination of this contract as aforesaid, provided the Lessees are not indebted to the Lessor for the payment of any sum of money which may be due under the terms hereof and if so indebted, the Lessees shall not have the right to remove any of such personal property until after such indebtedness has been paid in full. It is understood and agreed that any of the following improvements hereafter placed upon said property shall remain thereon and shall be surrendered therewith, to wit: all buildings, including mill buildings, storage buildings,

bunkers for the storing of ore, flumes, ditches, gallows or head frames to any shaft, all ladders, underground timbering and other improvements which may be actually affixed to the land itself. In the event of the termination of this contract, as aforesaid, all sums of money theretofore paid to the Lessor shall be regarded as liquidated damages for the prior use and occupation of said real property and improvements and shall be so retained by the Lessor. In the event the Lessees elect to terminate this agreement prior to the term fixed in the same, the Lessees shall and will peacefully and quietly surrender and yield said premises to the Lessor and execute and deliver to the Lessor a quit-claim deed or other appropriate instrument by the terms of which the Lessees shall surrender all their right, title and interest in and to all of said claims and premises and the Lessees shall thereupon be relieved from all obligations with respect to the performance of the terms of this agreement, save and excepting those existing at the time of the execution of said quit-claim deed or other appropriate instrument.

18.

This lease shall not be recorded, and if recorded by the Lessees, it shall immediately terminate and end. This agreement shall inure to the benefit of and shall bind the successors, assigns, heirs, administrators and executors of the parties hereto. It is understood that a portion of the automobile road to the real property covered by this lease is owned and operated by the U. S. Vanadium Corporation and the Lessor makes no warranty with reference thereto. It is also understood that the lower station of the tramway and the lower ore bin is located upon Government land covered by a mining claim which is not owned by the Lessor. It is understood and agreed that the Lessor will save the Lessees harmless on account of any adverse claims or demands which might be made by the owner of said mining claim.

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

ATTEST:

/s/ H. O. Johanson
Secretary

(seal)

EL DIABLO MINING COMPANY, a corporation,

By Charles G. Scharf /s/
President

LESSOR

BROWNSTONE MINING COMPANY,

By _____
William V. Skinner

By _____
Jack Cathey

LESSEES

KING & KING OWNER'S CONSENT TO LIEN APPENDIX 1 - B

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of California, County of Inyo, described in a lease:

Brownstone No. 1 and Brownstone No. 2, Notices of Locations of which were recorded in the Office of the County Recorder of said County on September 16, 1940, in Volume 44 at Page 1 of Mining Locations.

Myrtle No. 1, Notice of Location of which was recorded on September 10, 1941, and Myrtle No. 2, Notice of Location of which was recorded on April 28, 1942, in Book 55 at Pages 79 and 314, in the Office of the County Recorder of Inyo County.

which is the subject of a proposed exploration project contract, hereinafter called the "contract", between the United States of America, hereinafter called the "Government", and Brownstone Mining Co., Inc., a California Corporation, hereinafter called the "Operator"; and

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

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

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

2. To secure the payment to the Government of the percentage royalty on production provided for under the terms of said exploration project contract, or any amendment thereof which does not increase the maximum amount of the Government's claim here stated or alter the provisions for repayment, there is hereby granted to the Government a lien upon the land herein described and upon any production of minerals therefrom, until the royalty claim is fully paid in the amount of the Government's contribution, not in excess of $ 100,000.00, or ten years have elapsed from the date of the contract.

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

Dated this 1 day of August, 1954

El Diablo Mining Co

Charles G. Sebo, Pres.

H. O. Johanson, Sec.

APPENDIX 1 - C

MINING LEASE WITH OPTION TO PURCHASE

THIS AGREEMENT, made this 1st day of July, 1954, by and between ROBERT F. WITTER, dba HIGH SIERRA REALTY COMPANY, of 5720 West Olympic Boulevard, Los Angeles, California, herein referred to as Lessor, and BROWNSTONE MINING COMPANY, Inc., a California corporation, herein referred to as Lessee,

W I T N E S S E T H:

WHEREAS, Lessor is now in possession, under the terms of an option and written lease with the owners of the following described mining claims, all of which are located in Inyo County, California:

BLUE GROUSE No. 1, notice of location of which is recorded in Book 54, Page 26 of Mining Locations;

BLUE GROUSE No. 2, notice of location of which is recorded in Book 54, Page 27 of Mining Locations;

BLUE GROUSE No. 3, notice of location of which is recorded in Book 54, Page 28 of Mining Locations;

BLUE GROUSE No. 4, notice of location of which is recorded in Book 54, Page 28 of Mining Locations;

BLUE GROUSE No. 5, notice of location of which is recorded in Book 54, Page 29 of Mining Locations;

BLUE GROUSE No. 6, notice of location of which is recorded in Book 54, Page 30 of Mining Locations;

BLUE GROUSE No. 7, notice of location of which is recorded in Book 54, Page 30 of Mining Locations;

all in the office of the County Recorder of the County of Inyo, State of California; and

WHEREAS, with the consent of the owners of said claims, the Lessor desires to sub-lease the southerly portion of the said claims, lying south of Pine Creek, to the Lessee with the option on the part of said Lessee to purchase the same;

NOW, THEREFORE, it is agreed as follows:

1.

It is understood that this is a sublease, and wherever the term "Lessor" is used herein it is intended to mean "Sublessor", and

wherever the term "Lessee" is used, it is intended to mean "Sublessee"; and wherever this document is referred to as a "Lease" it is understood said term is used as though it were synonymous with "Sublease".

2.

The Lessee shall immediately take possession under the terms hereof of said mining claims for the purpose of prospecting, working and developing the same with the view of the purchase thereof; and the Lessor hereby grants to the Lessee for and during such term or period as the Lessee shall perform, keep and comply with every covenant, term and condition hereof on the Lessee's part to be kept and performed, the immediate possession and right to the exclusive possession of the mining and mill site claims and the whole thereof with the water rights, if any, thereto appertaining; and gives to the Lessee the option to purchase the same for the full purchase price of one hundred thousand dollars ($100,000.00), lawful money of the United States, without interest, to be paid to the Lessor in installments as hereinafter provided.

3.

Lessee is hereby expressly granted the right to enter upon said premises and to mine and explore the same and to take, remove and dispose of any and all metals or minerals or other substances (organic or inorganic) and whether existing as placer, lode or other type of deposit on or beneath the surface of said property, so long as this contract shall be and remain in full force and effect. Said mining operations to be conducted by the Lessee may be by any method selected by it as the most practical, expedient and economical method to be pursued in the extraction and recovery of minerals on the said lands.

4.

All mining operations shall at all times be conducted and carried on in a good and minerlike fashion and in accordance with the established and accepted practices, and not otherwise. Any and all timbers, lumber, track or pipes that are now in or upon the premises may be removed from one area thereof to another, so long as the same is used upon or in the premises and that by so doing the underground workings are not endangered in such areas as may be considered active working areas. The Lessor or his duly appointed agents or representatives shall have the privilege of entering into and inspecting said property and all improvements and workings thereon, for the purpose of ascertaining the manner in which the Lessee is carrying on said operations.

5.

The Lessee shall, within thirty days from the date hereof, commence mining operations on said premises and thereafter conduct the same diligently, and shall cause to be performed on said premises one hundred and fifty shifts or more of labor within every thirty days in such mining operations and in the development of said property as a mine, the term "shift" meaning a workman employed to labor on or in

said mine in furtherance of the mining projects contemplated by this agreement of one day of eight hours work or such other maximum working day as may be prescribed by law or other governmental regulations; a suspension of work due to unavoidable accidents, strikes, acts of God, war, weather conditions or other casualties beyond the control of the Lessees excepted.

6.

The Lessee may, at any time during the term herein stated, surrender this lease and agreement, together with the possession of said claims hereinabove described, upon giving written notice to that effect to the Lessor, and thereupon be relieved of all future obligations hereunder, but such surrender shall not release the Lessees from any obligation or liability theretofore accrued hereunder.

7.

As a further and additional consideration for this agreement, the Lessee shall pay to the Lessor, at Bishop, California, as monthly rental for said claims and as monthly royalty payments, an amount equal in dollars and cents to ten per cent of eighty per cent (10% of 80%) of the assay value at current market prices F.O.B. Bishop, California, of all ore mined from said premises; or if Lessee discontinues its present plan of selling all ore produced to United States Vanadium Company and instead sells concentrates derived from milling said ore, then Lessee shall pay to Lessor ten per cent (10%) of all the gross proceeds derived from such sales. Payment to be made to the Lessor within ten days after receipt by the Lessee of any payment for sale or shipments of ore or concentrates produced from said property. There shall be no deductions for transportation charges, commissions, taxes, insurance or other costs or charges whatsoever. The Lessor shall have the option, however, of taking and receiving in lieu of cash, ten per cent of all the gross ore or gross concentrates produced from said premises. There shall be no minimum royalty so long as the Lessee causes to be performed on said premises one hundred and fifty shifts or more of labor during every thirty day period, in accordance with the terms of paragraph 5 above. If during any thirty day period the Lessee fails to comply with the provisions of said paragraph 5 with reference to the performance of labor upon said premises, then for each thirty day period of such non-compliance there shall be a minimum royalty of $5.00 per day, or $150.00 per thirty days, due and payable to the Lessor, against which there shall be applied the percentage royalties paid to Lessor during said thirty day period, and the excess in order to equal the minimum royalty of $150.00 for said thirty day period shall be paid in cash with the said percentage royalty. All royalty payments made by Lessee to the Lessor as aforesaid shall constitute rental for said real property and shall also constitute payments upon the balance of said purchase price of said real property, in the event the Lessee shall elect to

purchase the same. All payments to be made on account of royalty as hereinabove specified shall be accompanied by assay statements from a competent and dependable assayer, showing the mineral content and values of all ore produced from said property. It is understood and agreed that Lessor will keep the underlying lease with the claim owners in full force and effect, and will furnish to Lessee not less frequently than annually statements showing royalty payments to the claim owners. Upon receipt by the Lessor of the full purchase price hereunder, the Lessor agrees to deliver to the Lessee a good and sufficient deed conveying a clear title to all of said claims.

8.

The Lessor shall have access to all shipping and refining returns, milling or production records, and all assay reports and records giving information of the amount of minerals contained in ore extracted, produced or removed by the Lessee from said real property and all the proceeds thereof.

9.

The Lessee may not assign this lease or any interest therein, and may not sublease the whole or any portion of said real property without the written consent of the Lessor first had and obtained.

10.

The Lessor shall not be liable nor responsible for any work or labor of any kind or character done or performed in, on, or upon said property during the life of this agreement, or for any material or materials furnished to be used or used in, on, or upon or in connection with the work of said property; and the Lessee will post, in the name of the Lessor, notices of nonresponsibility as provided in the laws of the State of California, immediately upon the beginning of the construction of any building or improvement upon said property, and the Lessee will pay all expenses and charges of each and every nature for which it shall become expressly or impliedly liable in anywise connected with the working of this property during the life of this agreement, and will protect and save harmless the said property from all claims and liens of every nature arising out of any act or omission of the Lessee.

11.

The Lessor shall have the right to enter upon said property at any time to post notices of nonresponsibility or to inspect all or any part of the same.

12.

The Lessee agrees that as soon as work shall be commenced by any employee upon said property under this agreement, it will procure and carry a policy of insurance for the protection of the parties hereto

for any injury or injuries to employees under the Workmen's Compensation Insurance and Safety Act of the State of California and under all acts amendatory thereto, and will carry and keep the same in effect at the Lessees' own expense.

13.

All development work done and all improvements made upon said property shall be in accordance with the requirements, rules and regulations of the Industrial Accident Commission of the State of California, and shall constitute the annual assessment work required to maintain the said mining claims. The Lessee agrees to perform the necessary assessment work and to provide the necessary improvements to so maintain said mining claims to the extent required by law, and to record proper proof of labor in connection therewith in the office of the County Recorder of Inyo County, California, on or before the 15th day of June of each year during the term of this agreement or any extension thereof. The Lessee shall pay, before delinquency, all personal property taxes assessed against any personal property which may be installed upon said mining claims, and all real property taxes, if any, which may be assessed against said property.

14.

Time is of the essence of this agreement, and each and every covenant, term or condition herein contained on the part of the Lessee to be kept and performed shall be and is hereby made a condition of this agreement. In the event the Lessee shall fail or refuse to keep or perform any covenant, term or condition set forth herein for thirty days after written notice of default specifying the particulars of said alleged default, Lessor, may, at his option, with written notice to the Lessee and without waiving any right hereunder, terminate this agreement and with or without process of law may expel, remove or put the Lessee out of possession of the real and personal property described herein, but such termination shall not release the Lessee from any obligation or liability theretofore incurred under the provisions hereof. Notwithstanding anything herein to the contrary, no notice of termination need be given with respect to default in the payment of any installments of royalties as and when the same may become due by the terms hereof; and this agreement may be terminated for failure to pay royalties due without the service of any notice of default with respect thereto. Waiver of one default by the Lessor shall not be deemed to be a waiver of any other default.

15.

In the event of the termination of this contract in any manner other than by the consummation of the sale of said real properties, the Lessee may remove all machinery and equipment, including underground and surface pumps and other personal property which may hereafter be placed on said property by the Lessee, said removal to be accomplished within ninety days, weather and road conditions permitting, after the termination of this contract as aforesaid,

provided the Lessee is not indebted to the Lessor for the payment of any sum of money which may be due under the terms hereof, and if so indebted the Lessee shall not have the right to remove any of such personal property until after such indebtedness has been paid in full. It is understood and agreed that any of the following improvements hereafter placed upon said property shall remain thereon and shall be surrendered therewith, to-wit: All buildings, including mill buildings, storage buildings, bunkers for the storing of ore, flumes, ditches, gallows or head frames to any shaft, all ladders, underground timbering and other improvements which may be actually affixed to the land itself. In the event the Lessee elects to terminate this agreement prior to the term fixed in the same, the Lessee shall and will peacefully and quietly surrender and yield said premises to the Lessor and execute and deliver to the Lessor a quitclaim deed or other appropriate instrument by the terms of which the Lessee shall surrender all its right, title and interest in and to all of said claims and premises, and the Lessee shall thereupon be relieved from all obligations with respect to the performance of the terms of this agreement, save and excepting those existing at the time of the execution of said quitclaim deed or other appropriate instrument.

16.

If the market price of ore or concentrates produced from said mining claims shall so decline that mining operations upon any of said claims cannot be carried on except at a loss, then during such period the Lessee may suspend mining operations until the market price of such ore or concentrates is sufficiently high to make it possible to carry on such operations without a loss; providing, however, that said Lessee will perform all necessary assessment work on said claims.

17.

This lease shall not be recorded, and if recorded by the Lessee it shall immediately terminate and end.

18.

In the event Lessee discovers any lodes or veins whose apices lie within 2000 feet of the nearest boundaries of said hereinabove described lands and deem it necessary or advisable to locate the same under the lode mining laws of the United States and the State of California in order to protect or secure any extralateral rights as to said lodes or veins, Lessee shall make said locations in the name of the owners and said locations and any extralateral rights incident thereto, and any other locations by the owners or their associates within said area within 2000 feet of the boundaries of said leased lands shall be subject to the terms and conditions of this agreement, and upon full compliance therewith by Lessee shall be conveyed to Lessee with any other properties agreed to be conveyed hereunder.

This agreement shall inure to the benefit of and bind the successors, assigns, heirs, administrators and executors of the parties hereto.

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

DBA High Sierra Realty Company

LESSOR

BROWNSTONE MINING COMPANY, Inc.

By W. V. Skinner /s/
President

G. B. Voget /s/
Secretary-Treasurer

We, the undersigned owners of the above described claims, consent to this lease.

G. Kinney /s/

Fred J. Austin /s/

KING & KIN

MINING ENGINEERS

APPENDIX 1 - D

MEMORANDUM OF AGREEMENT

THIS AGREEMENT, dated July 1, 1954, between ROBERT F. WITTER, dba High Sierra Realty Company, and BROWNSTONE MINING COMPANY, a California corporation,

W I T N E S S E T H:

It is understood and agreed that Robert F. Witter, dba High Sierra Realty Company, now holds a mining lease with right to exercise an option to purchase on the Blue Grouse No. 1, Blue Grouse No. 2, Blue Grouse No. 3, Blue Grouse No. 4, Blue Grouse No. 5, Blue Grouse No. 6 and Blue Grouse No. 7 Mining Claims, situate in Inyo County, California; and that with the consent of the owners of said claims, Robert F. Witter, dba High Sierra Realty Company, desires to sublease all that portion of said claims lying southerly of Pine Creek to Brownstone Mining Company, a California corporation, upon the terms and conditions more particularly contained in said lease and option dated July 1, 1954, in consideration of the payment of $600.00, together with a monthly payment of $50.00 until October 31, 1954, during which time it is agreed that they will make every effort to secure an exploration loan for the construction of a tunnel through that portion of the Blue Grouse claims described in said sublease dated July 1, 1954, or until such time as work has been started on said tunnel, which ever is the prior date.

Dated July 1st, 1954.

_____

Robert F. Witter /s/
DBA High Sierra Realty Company

_____

BROWNSTONE MINING COMPANY

By W. V. Skinner /s/
President

G. B. Voget /s/
Secretary-Treasurer

(seal)

## APPENDIX 1 - E

## DESCRIPTION OF TALLUS CLAIM

All the Tallus Mining Claim of land, situate, lying and being in the County of Inyo and State of California and bounded and particularly described as follows, to wit:

The discovery monument is situated about 150 feet from portal of Brownstone Mine in a northerly direction. The southwest corner of Tallus claim is identical with the northwest corner of the Brownstone No. 1 and runs easterly and westerly so that the north ends of the Brownstone No. 1 and No. 2 are identical with the south side of the Tallus Claim:

Tallus Claim Notice of Location of which is recorded in Volume 68 of Mining Locations, Page 172, records of Inyo County, California

APPENDIX 1 - F

OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of California, County of Inyo, described in a lease:

> Tallus Claim Notice of Location of which is recorded in Volume 68 of Mining Locations, Page 172, records of Inyo County, California.

which is the subject of a proposed exploration project contract, hereinafter called the "contract", between the United States of America, hereinafter called the "Government", and Brownstone Mining Co., Inc., a California Corporation, hereinafter called the "Operator"; and

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

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

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

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

KING & KING

MINING ENGINEERS

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

Dated this 31 day of July, 1954

William T. Kimmer Jr.

Gustave B. Vogel

# ASSIGNMENT

THIS AGREEMENT made this 25 day of October, 1952 by and between WILLIAM V. SKINNER and JACK CATHEY, co-partners, dba Brownstone Mining Company, hereinafter called Assignors, and BROWNSTONE MINING COMPANY, a California corporation, hereinafter called Assignee,

W I T N E S S E T H:

WHEREAS, Assignors are the lessees under that certain Mining Lease With Option to Purchase dated July 1, 1952, and El Diablo Mining Company, a California corporation, is the lessor,

NOW, THEREFORE, said assignors, William V. Skinner and Jack Cathey, co-partners, dba Brownstone Mining Company, hereby transfer and assign to said assignee, Brownstone Mining Company, a California corporation, said Mining Lease With Option to Purchase including said option to purchase, subject to all the rents, covenants, conditions and terms of said lease.

Said assignee hereby assumes and agrees to perform all the rents, covenants, conditions and terms required under the provision of said lease.

BROWNSTONE MINING COMPANY,
a California corporation

WILLIAM V. SKINNER
William V. Skinner

By WILLIAM V. SKINNER
President

JACK CATHEY
Jack Cathey

By JACK CATHEY
Secretary

Assignor

Assignee

## CONSENT TO ASSIGNMENT

The undersigned, El Diablo Mining Company, a California corporation, hereby consents to the foregoing assignment of said Mining Lease with Option to Purchase.

EL DIABLO MINING COMPANY,
a California corporation

By CHARLES G. SCHARF
President

By H. O. JOHANSON
Secretary

MF-203

# OWNER'S CONSENT TO LIEN

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

Blue Grouse No. 1 & 2

Blue Grouse No. 1 & 2 - all that portion lying southerly of Pine Creek.

Recorded in Book 54, Page 26 of Mining Locations - County Recorder Inyo County

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

2/ Brownstone Mining Company

hereinafter called the "Operator"; and

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

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

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

2. To secure the payment to the Government of the percentage royalty on production3/ provided for under the terms of said exploration project contract, or any amendment thereof which does not increase the maximum amount of the Government's claim here stated or alter the provisions for repayment, there is hereby granted to the Government a lien upon the land herein described and upon any production of minerals therefrom, until the royalty claim is fully paid in the amount of the Government's contribution, not in excess of 4/$ 10,000.00, or ten years have elapsed from the date of the contract.

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

Dated this 21st day of July, 195[illegible].

[illegible] [Seal]

[illegible] [Seal]

[Seal]

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

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

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

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

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

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

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

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

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

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

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

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

F-203 OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain roperty in the State of California, County of Inyo, described as ollows:1/

Blue Grouse Nos 6 & 7
Blue Grouse No 1 & 2 & 3 - all that portion
lying southerly of Pine Creek.
Recorded in Book 54, Page 26 of Mining Locations - County Recorder Inyo County

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

2/ Brownston Mining Company

ereinafter called the "Operator"; and

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

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

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

2. To secure the payment to the Government of the percentage royalty on production3/ rovided for under the terms of said exploration project contract, or any amendment thereof which oes not increase the maximum amount of the Government's claim here stated or alter the provisions or repayment, there is hereby granted to the Government a lien upon the land herein described and pon any production of minerals therefrom, until the royalty claim is fully paid in the amount of he Government's contribution, not in excess of 4/$ 10,000.00, or ten ears have elapsed from the date of the contract.

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

Dated this 21st day of July, 1954.

G. Turney [Seal]

[illegible] [Seal]

[Seal]

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

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

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

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

RELEVANT CONTRACT PROVISION

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

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

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

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

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

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

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

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

MF-203

# OWNER'S CONSENT TO LIEN

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

Pine Creek, No. 6 & 7
Blue Grouse No. 1 & 2 & 3 - all that portion
lying southerly of Pine Creek.
Recorded in Book 54, Page 26 of Mining Locations, County Records, Inyo County

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

2/ Brownstone Mining Company

hereinafter called the "Operator"; and

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

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

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

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

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

Dated this [illegible] day of July, 195[illegible].

[illegible] [Seal]

[illegible] [Seal]

[Seal]

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

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

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

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

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

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

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

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

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

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

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

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

MF-203

# OWNER'S CONSENT TO LIEN

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

The Grease No. 1 & 2

Blue Grease No. 1 & 2 - all that portion lying southerly of Pine Creek.

Recorded in Book 54, Page 26 of Mining Locations - Inyo County Records

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

2/ Brownstone Mining Company

hereinafter called the "Operator"; and

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

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2. To secure the payment to the Government of the percentage royalty on production3/ provided for under the terms of said exploration project contract, or any amendment thereof which does not increase the maximum amount of the Government's claim here stated or alter the provisions for repayment, there is hereby granted to the Government a lien upon the land herein described and upon any production of minerals therefrom, until the royalty claim is fully paid in the amount of the Government's contribution, not in excess of 4/$ 100,000.00, or ten years have elapsed from the date of the contract.

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

Dated this 21st day of July, 1954.

G. Thurston [Seal]

[illegible] [Seal]

[Seal]

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

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

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

RELEVANT CONTRACT PROVISIC

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

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

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

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

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

Interior--Duplicating Section, Washington, D. C.

MINUTES OF MEETING OF BROWNSTONE BOARD OF DIRECTORS

Date Held: This meeting was held on July 1st, 1954, at the Brownstone Tram Terminal, Pine Creek, California.

Attendance: Of the Directors of This Corporation, Mssrs. Skinner and Voget, constituting a majority, were present.

Actions Taken: A discussion of the possibilities of leasing the Blue Grouse Claims from R.F. Witter, et al took place and the Officers of this Corporation were authorized to negociate and execute such contracts and options as necessary to lease this property with option to purchase.

I Certify that this is a true account of all the business which was transacted at the meeting of July 1st, 1954.

Gustav B Voget

Gustav Voget
Secretary Treasurer
Brownstone Mining Company

Seal

MINUTES OF MEETING OF THE BROWNSTONE BOARD OF DIRECTORS

Date Held: July 23, 1954. The meeting was held at the Brownstone Tram Terminal, Pine Creek, California.

Attendance: Of the Directors of this Corporation, Mssrs Skinner and Voget constituting a majority of the Board, were present.

Actions Taken: Various matters pertaining to application for aid from the U.S. Gov't for a proposed exploration project were discussed and the following matters were resolved:

1. That the President and Secretary Treasurer were authorized to negociate certain phases of the matter pertaining to employing technical assistance in this project.
2. That the President and the Secretary Treasurer were author--ized to negociate and execute the following documents:

   a. An application to the DMPA for aid in an exploration project.
   b. A transfer of title of the Tallus Claim from Brownstone Mining Co. to the ownership of the Blue Grouse Claims.
   c. Such other leases, contracts, options, and consents for leans as may be necessary to complete acquisition of title to, and aid for exploration of, ground sufficient to cover the course of an adit below the Brownstone Workings.

I certify this is a true account of all business which was transacted at the meeting of July 23, 1954.

seal

Gustav B. Voget
Gustav Voget
Secretary -Treasurer
Brownstone Mining Co.

KING & KING

MINING ENGINEERS

## APPENDIX 2

Production Record: Brownstone Mining Co.
(Ore sale settlements from U. S. Vanadium Co.)

| Lot No. | Lbs. Dry Wt. | % WO3 | Units WO3 | Value |
|---|---|---|---|---|
| 682 | 236,642 | 0.47 | 55.61 | $ 2,001.96 |
| 692 | 305,841 | 0.54 | 82.58 | 2,972.88 |
| 698 | 352,421 | 0.61 | 107.49 | 3,977.13 |
| 722 | 272,068 | 0.75 | 102.03 | 3,775.11 |
| 732 | 286,811 | 0.79 | 113.29 | 4,191.73 |
| 750 | 417,831 | 0.67 | 139.97 | 5,178.89 |
| 758 | 327,748 | 0.74 | 121.27 | 4,486.99 |
| 779 | 368,831 | 0.67 | 123.56 | 4,571.72 |
| 868 | 311,002 | 0.54 | 83.97 | 3,022.92 |
| 878 | 286,738 | 0.63 | 90.32 | 3,341.84 |
| 880 | 346,745 | 0.68 | 117.89 | 4,361.93 |
| 892 | 399,209 | 0.66 | 131.74 | 4,874.38 |
| 897 | 293,801 | 0.49 | 71.98 | 2,591.28 |
| 906 | 559,030 | 0.49 | 136.96 | 4,930.56 |
| 909 | 1,040,667 | 0.63 | 327.81 | 12,128.97 |
| 913 | 504,913 | 0.54 | 136.33 | 4,907.88 |
| 916 | 503,042 | 0.50 | 125.76 | 4,527.36 |
| 921 | 467.971 | 0.53 | 124.01 | 4,464.36 |
| 927 | 382.560 | 0.46 | 87.99 | 3,167.64 |
| 930 | 427,393 | 0.63 | 128.22 | 4,744.14 |
| 940 | 718,811 | 0.36 | 130.90 | 3,665.20 |
| 948 | 341,513 | 0.33 | 56.35 | 1,127.00 |
| 955 | 451,851 | 0.40 | 90.37 | 3,253.32 |
| 963 | 448,334 | 0.37 | 82.94 | 2,322.32 |
| 974 | 388,039 | 0.76 | 147.45 | 5,455.65 |
| 987 | 608,169 | 0.67 | 203.74 | 7,538.38 |
| 995 | 476,501 | 0.62 | 147.72 | 5,465.64 |
| 1017 | 502.467 | 0.46 | 115.57 | 4,160.52 |
| 1024 | 342,155 | 0.56 | 95.80 | 3,448.80 |
| 1043 | 504,627 | 0.48 | 121.11 | 4,359.96 |
| 1051 | 586,203 | 0.41 | 120.17 | 4,326.12 |
| 1142 | 307.747 | 0.50 | 76.94 | 2,769.84 |
| 1147 | 213,255 | 0.53 | 113.02 | 4,068.72 |
| 1158 | 362,672 | 0.41 | 74.35 | 2,676.60 |
| 1165 | 411,215 | 0.41 | 84.30 | 3,034.80 |
| 1176 | 432,003 | 0.50 | 108.00 | 3,888.00 |
| 1184 | 344,836 | 0.42 | 72.42 | 2,607.12 |
| 1193 | 488,020 | 0.43 | 104.92 | 3,777.12 |
| Totals & Averages | 16,019.682 (8,009.84 short tons) | 0.544 | 4,354.85 | $156,164.78 |

KING & KING

MINING ENGINEERS

## APPENDIX 3

Drillers Log of Diamond Drill hole collard 135 Ft. NW of Portal of Adit.

Note: Cores and assay records of this hole are not available. The original drillers shift logs are in the possession of Mr. Robert Witter, one of the owners of the Blue Grouse group of claims. These logs were copied in detail, as given below in tabular form. Mr. Witter states that "the tactite cores lamped good ore".

Drilled by: Palmer & Decker, Diamond Drill Contractors, Bishop, Calif.

Date Hole collared: May, 1952.

Hole Number: A - 1.

Direction of hole: S 47° W. Dip of hole: minus 10°.

Drilled: AX hole top to bottom.

Drillers log of hole

| From | To | Ft. Drilled | Material | Remarks |
|---|---|---|---|---|
| 0 | 44 | 44 | Blue limestone | 20 g.p.m. water @ 20 ft. |
| 44 | 100 | 56 | Blue limestone | 40 g.p.m. water @ 55 ft. |
| 100 | 149 | 49 | Blue limestone | 80 g.p.m. water @ 150 ft. |
| 149 | 159 | 10 | Tactite | |
| 159 | 200 | 41 | Limestone | |
| 200 | 220 | 20 | Limestone | |
| 220 | 232 | 12 | Limestone, bands of tactite | |
| 232 | 239 | 7 | White marble, very hard | (Note: silicate rock? C.R.K.) |
| 239 | 264 | 35 | Limestone | |
| 264 | 293 | 29 | Limestone | |
| 293 | 334 | 41 | Limestone | |
| 334 | 371 | 37 | Limestone | |
| 371 | 403 | 32 | Limestone and schist | |
| 403 | 425 | 23 | Limestone and schist | |
| 425 | 445 | 20 | Quartz and tactite | |
| 445 | 465 | 20 | Tactite | |
| 465 | 467 | 2 | Schist | Hole bottomed at 467 ft. |

# APPENDIX 4

Application Section 5, (d): Operating Experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations.

The applicant, Brownstone Mining Co., a California corporation, is controlled by William V. Skinner, Pres., and Gustav B. Voget, Secy.-Treasurer, who between them own a majority of the stock of the corporation. Mr. Skinner is in active charge of all mining done by the company upon their leased property, (The Brownstone mine), and has had extensive experience in mine operation and management covering many years, in the western States. The company, and the individuals controlling it, are financially responsible and are producing and selling ore of an average weekly net settlement value on the order of $4000, and have been so doing since 1952, upon the Brownstone property. Mr. Skinner will supervise the operations involved in the exploration program.

The firm of King & King, Mining Engineers, will furnish necessary engineering control, maps, measurements, and compilation of diamond drill data, conservation and sampling of cores, plotting and correlation of geological data, and consultation service during the program. This firm is experienced in the necessary engineering skills, and performs service of the same nature for various clients in the West and elsewhere. The members of this firm are: Clarence R. King, senior partner, and Dan M. King. Both are members of the A.I.M.E., and their qualifications and responsibility may be checked by reference to: Dr. Oliver C. Ralston, Chief, Metallurgical Divn., U.S.B.M.; Washington, D.C.; State of California, Division of Mines, Ferry Bldg., San Francisco, Calif., Olaf P. Jenkins, Chief; or the Los Angeles Chamber of Commerce, Mining Dept., Mr. E. D. Arthur, Mining Commissioner.

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

Written 3/18/55

DRAFT 3/16/55
WSMartin/ls

Mr. W. V. Skinner, President
Brownstone Mining Company
P. O. Box 396
Bishop, California

Re: Docket No. DMEA 3455 - Tungsten
Brownstone Mine
Inyo County, California

Dear Mr. Skinner:

This will acknowledge receipt of your letter of March 10, 1955, giving us your comments on our program and returning, as we requested, the sketch map previously sent to you.

In lieu of holding your application in abeyance while you extend your road to the east contact zone and complete your proposed diamond drilling in the Brownstone workings, we would prefer for administrative reasons to withdraw the application from our active list. In the event that you wish to renew the application, however, it would not be necessary for you to submit new forms. If your proposed work gives you satisfactory results, it would then be sufficient for you to report those results to us, mentioning the docket number of the subject application.

Sincerely yours,

Administrator

MF-500

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

# REFERENCE SLIP

DATE 3/16/55

REFERRED TO:

1. Mr. ~~Kiilsgaard, 5222~~
2. ~~Mr. Holliday~~, Bur. Mines
3. Mr. Selfridge, 4459
4. Mr. Martin, 3538

FOR:

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

REMARKS: Please review draft of proposed letter to applicant, making recommendations for suggested changes.

Check (X) before the items needing attention.

W. S. Martin

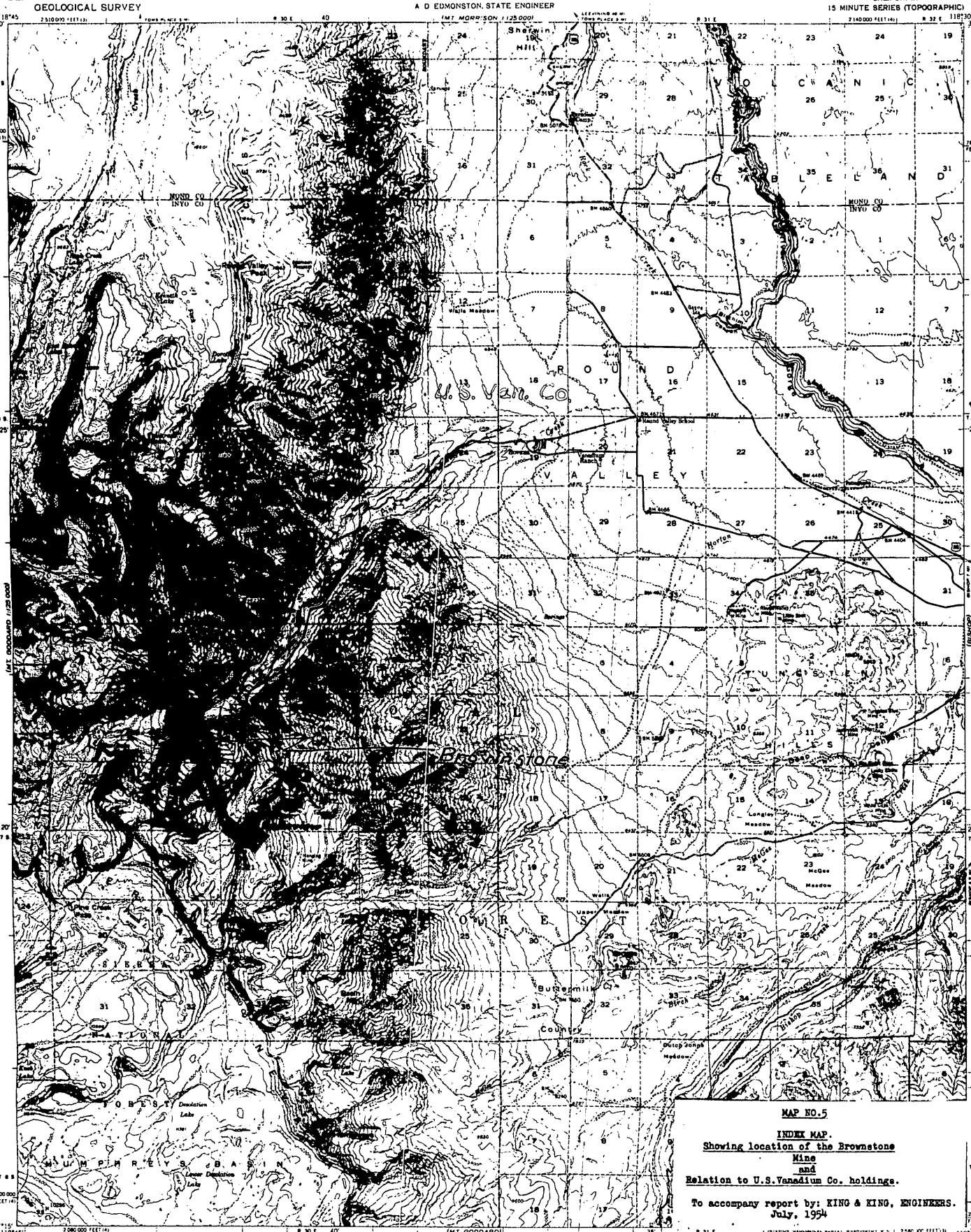
*Initials of sender.*

GPO 16—63815-1

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF CALIFORNIA
EARL WARREN, GOVERNOR
C H PURCELL, DIRECTOR OF PUBLIC WORKS
A D EDMONSTON, STATE ENGINEER

MT. TOM QUADRANGLE
CALIFORNIA
15 MINUTE SERIES (TOPOGRAPHIC)




**MAP NO.5**

**INDEX MAP.**
**Showing location of the Brownstone Mine and Relation to U.S.Vanadium Co. holdings.**

**To accompany report by: KING & KING, ENGINEERS.**
**July, 1954**

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by multiplex methods
Aerial photographs taken 1947 Field check 1949

Polyconic projection. 1927 North American datum
10,000-foot grid based on California coordinate system, zones 3 and 4

Dashed lines indicate approximate boundaries

Unchecked elevations are shown in brown

SCALE 1:62500

CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL

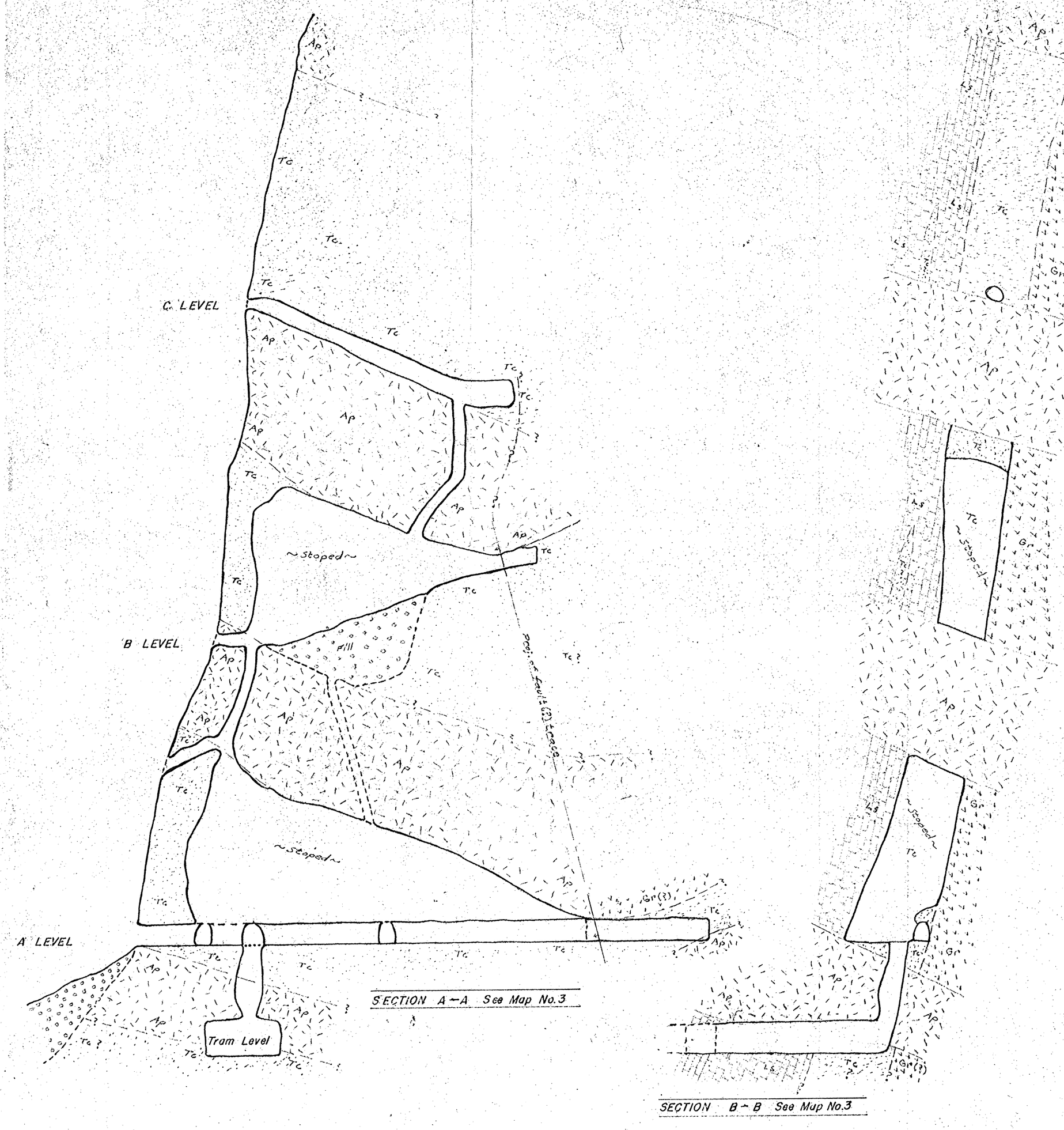
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS

ROAD CLASSIFICATION
Heavy duty — Light duty
Medium duty — Unimproved dirt
U. S. Route — State Route

MT. TOM, CALIF.
N3715—W11830/15

EDITION OF 1951

FOR SALE BY U. S. GEOLOGICAL SURVEY, FEDERAL CENTER, DENVER, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST




MAP NO. 4

# BROWNSTONE MINING CO.

## GENERALIZED SECTIONS OF WORKINGS

Scale: 1" = 20'

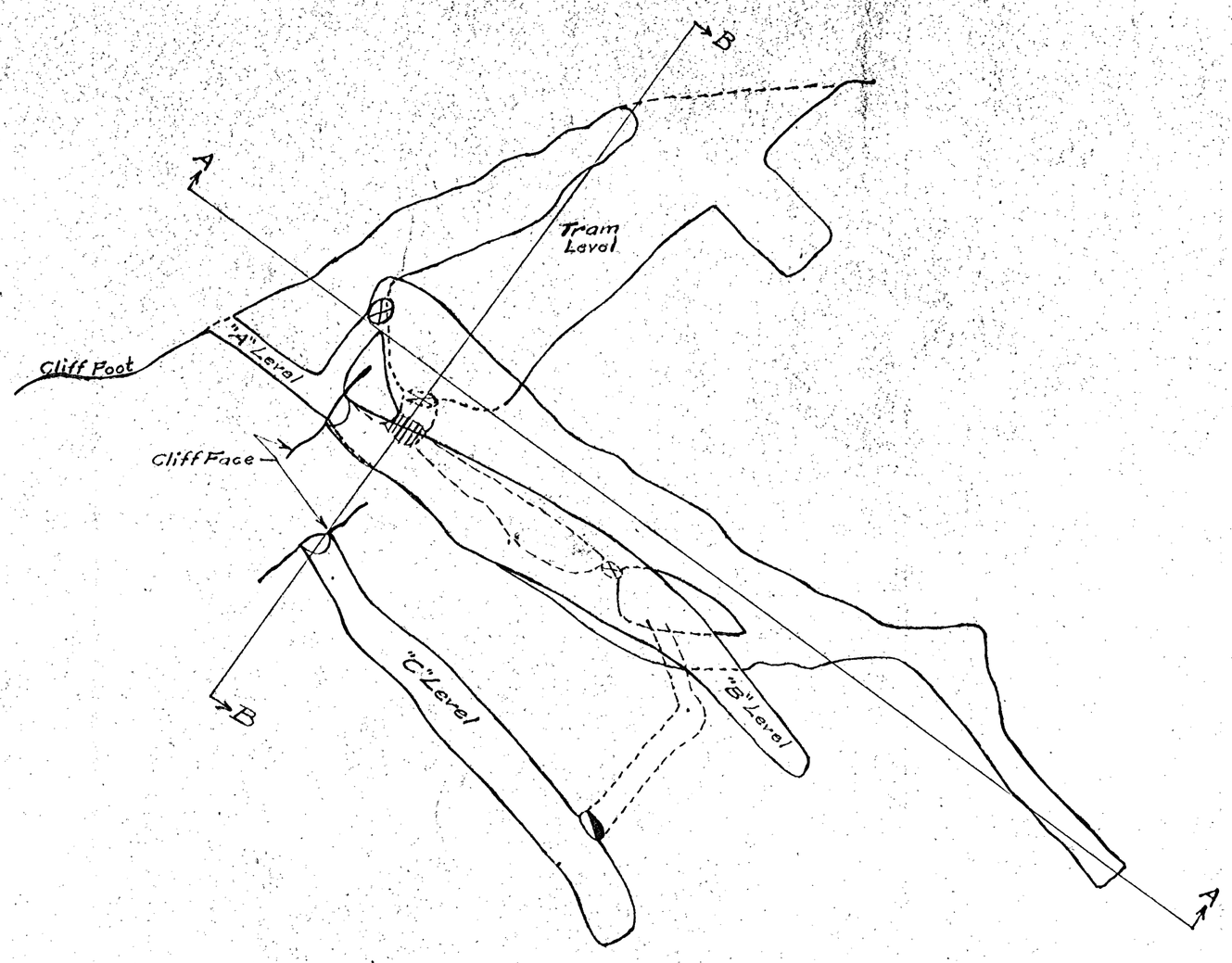
Tc — Tactite
Ap — Aplite
Gr — Granite
Ls — Limestone

To Accompany Report By:

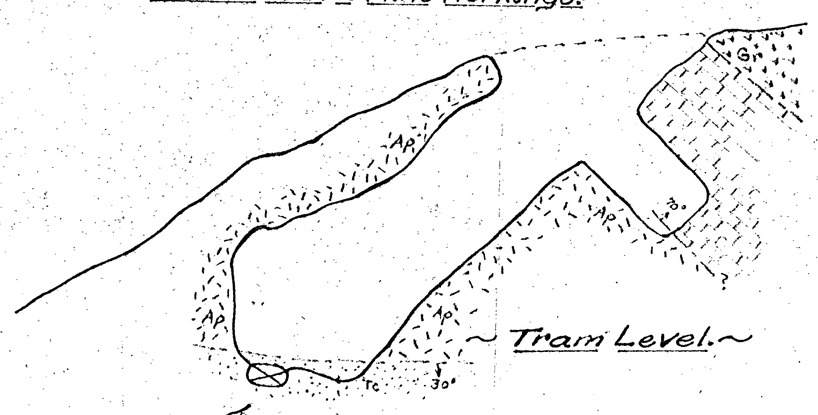
**KING & KING ~ ENGINEERS**

July 1954

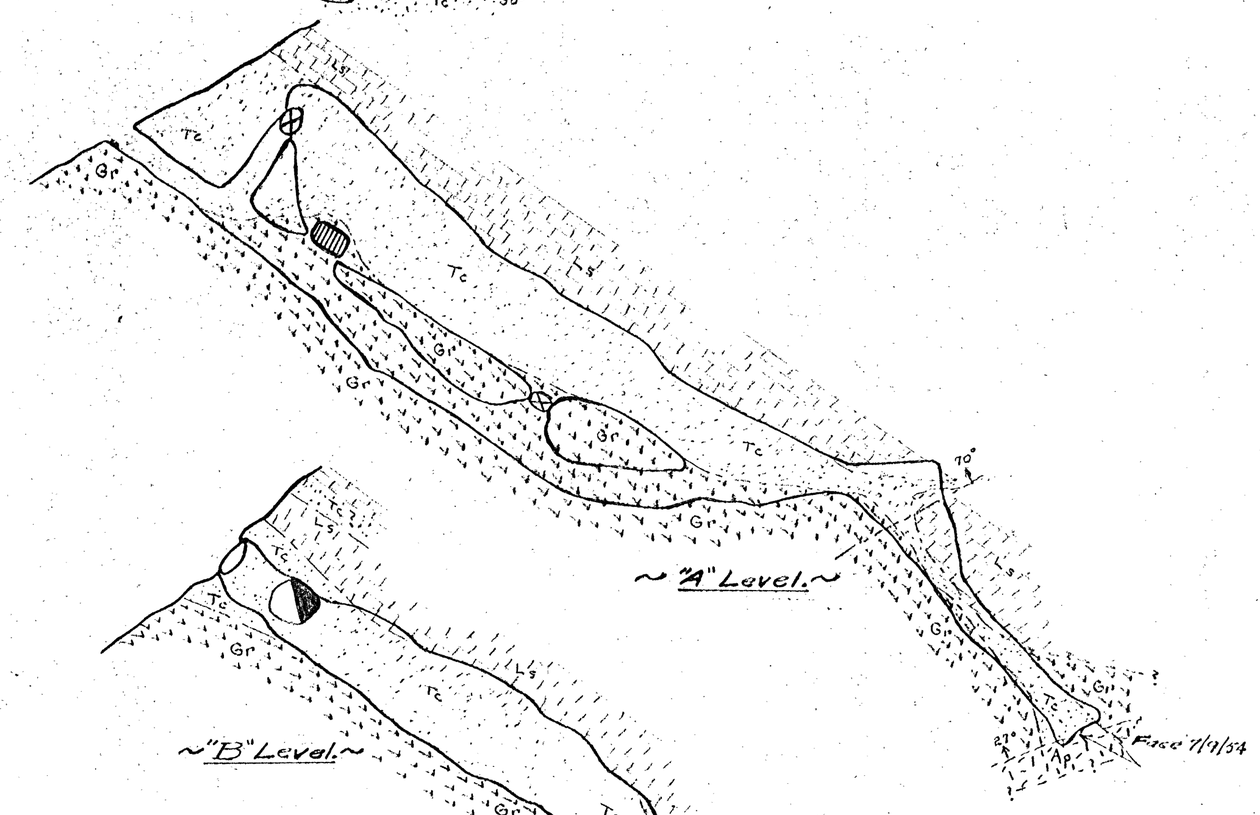
CRK



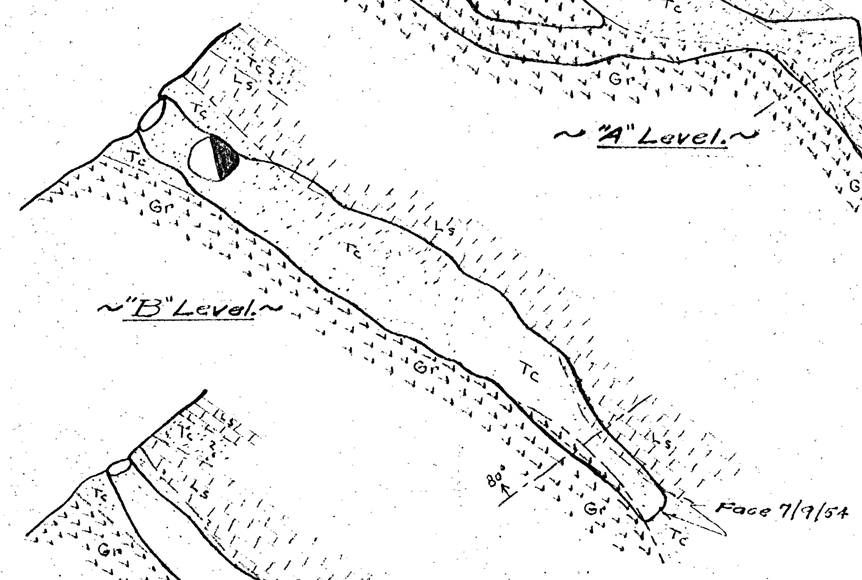

~General Plan of Mine Workings.~



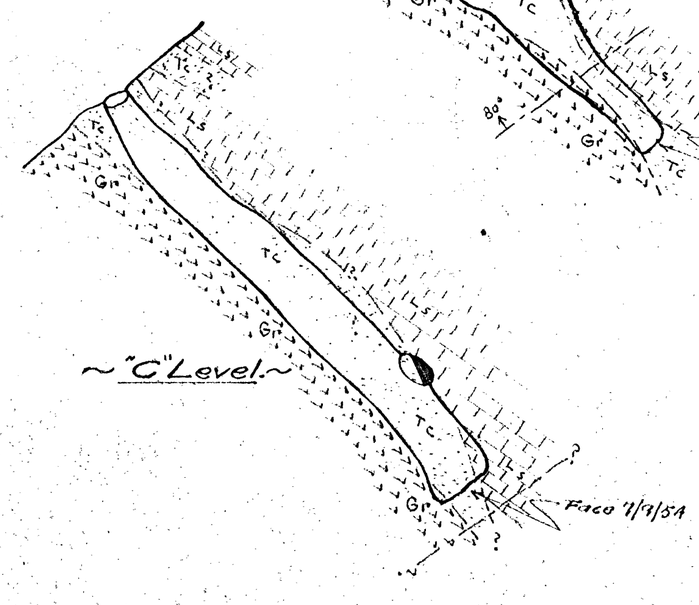

~ Tram Level.~




~ "A" Level.~




~"B" Level.~




~ "C" Level.~

MAP NO. 3

# BROWNSTONE MINING CO.

## PLAN AND GEOLOGY OF MINE WORKINGS

Scale: 1" = 20'

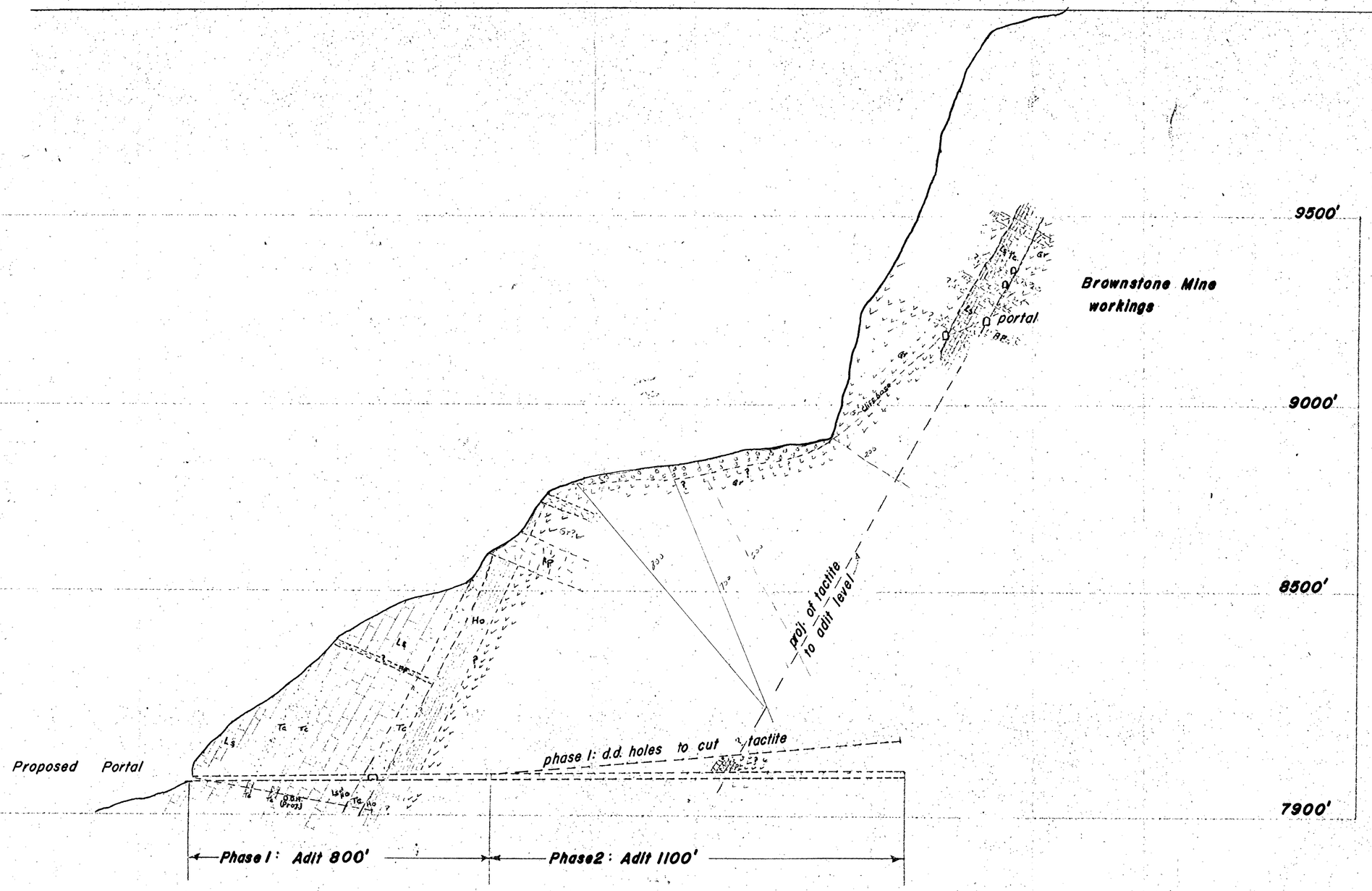
- Tc — Tactite
- Ls — Limestone
- Gr — Granite
- Ap — Aplite
- 25 — Fault or Contact

To Accompany Report By:

**KING & KING ~ ENGINEERS**

July 1954

CRK




**Map No. 2**

# BROWNSTONE MINING CO.

**Vertical Section Along Proposed Adit**

Scale: 1" = 200' horiz. & vertical

To Accompany Report By:

KING & KING ~ ENGINEERS

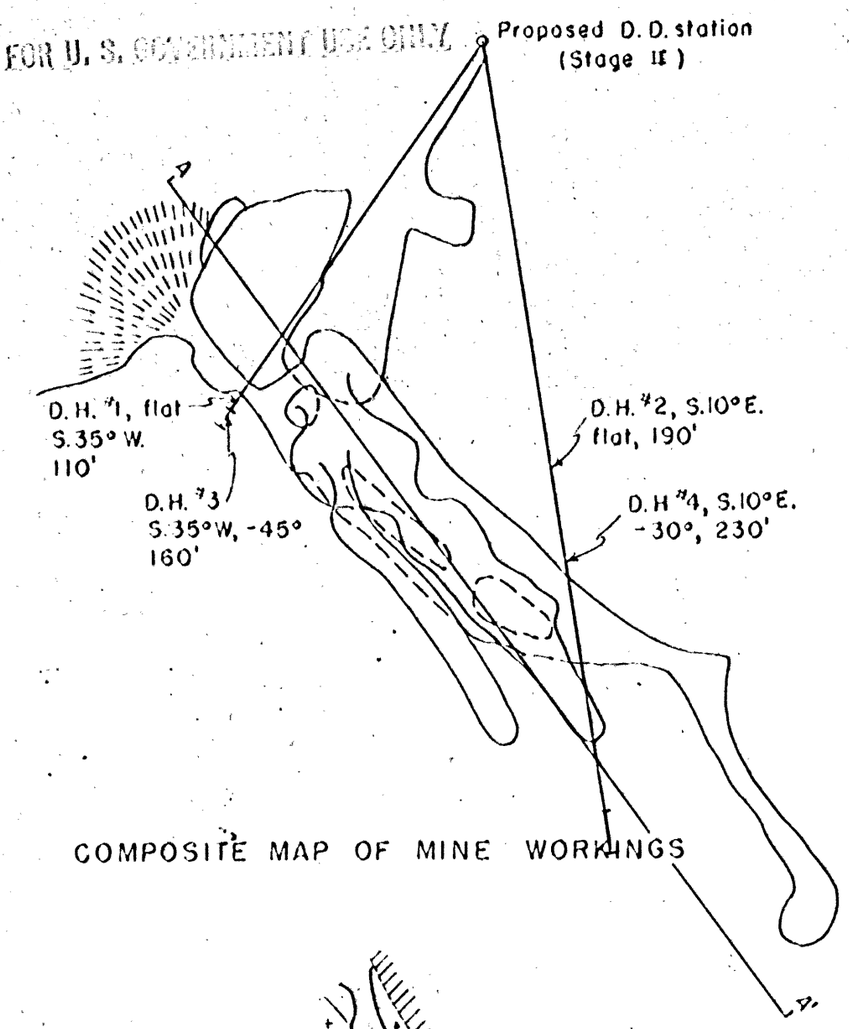
July 1954

DMK

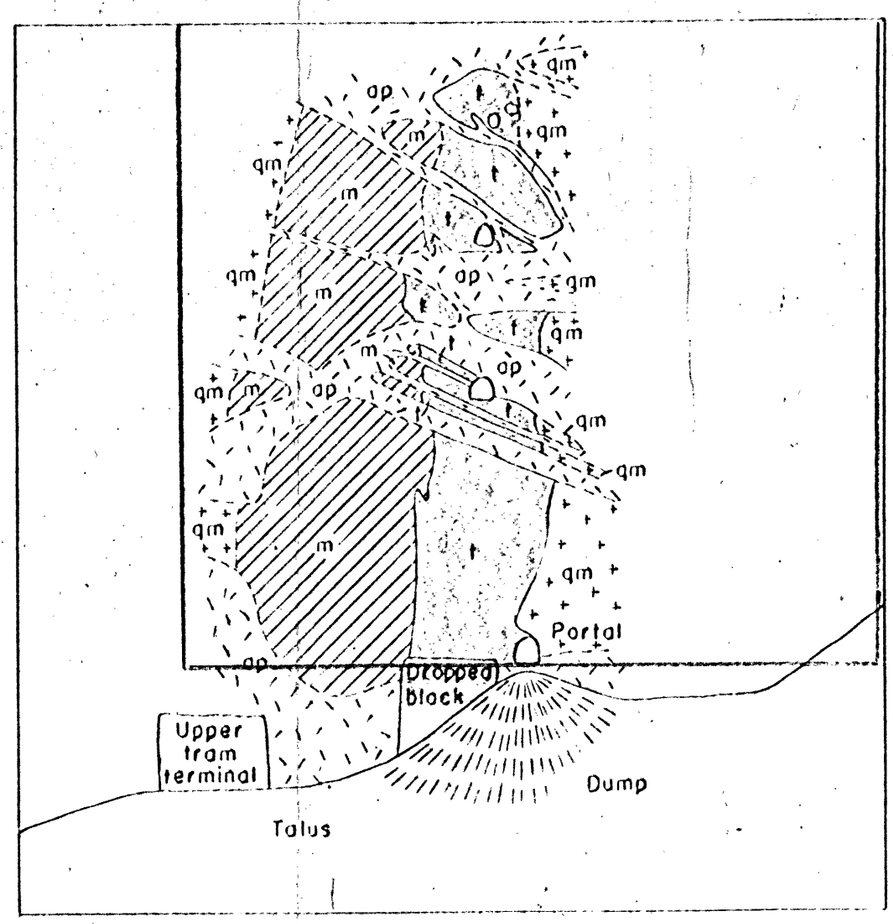
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DMEA 3455
(TUNGSTEN)

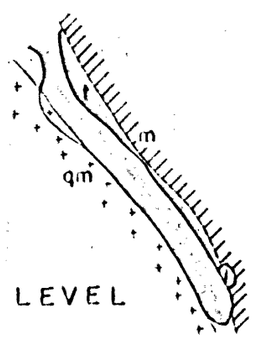
FOR U. S. GOVERNMENT USE ONLY



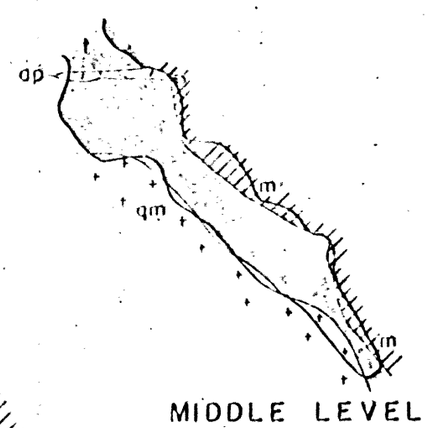

COMPOSITE MAP OF MINE WORKINGS



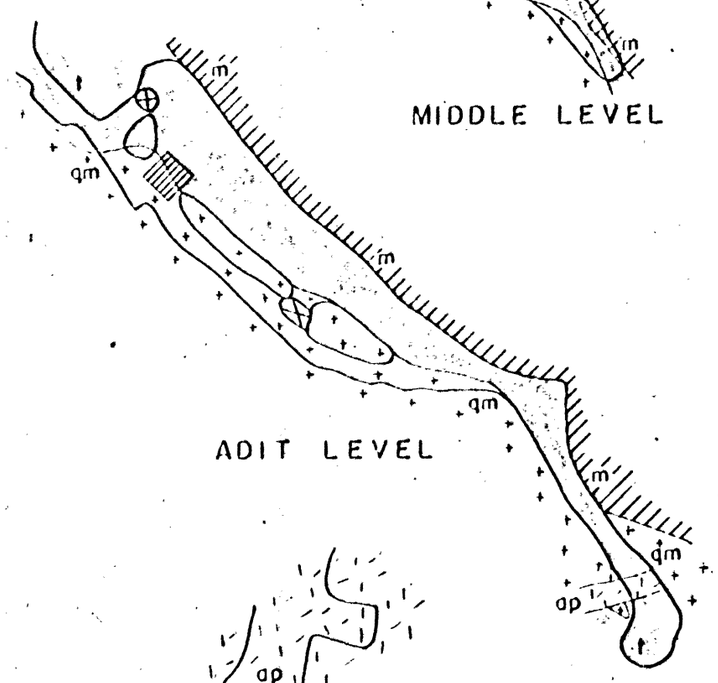

SKETCH OF CLIFF FACE




UPPER LEVEL

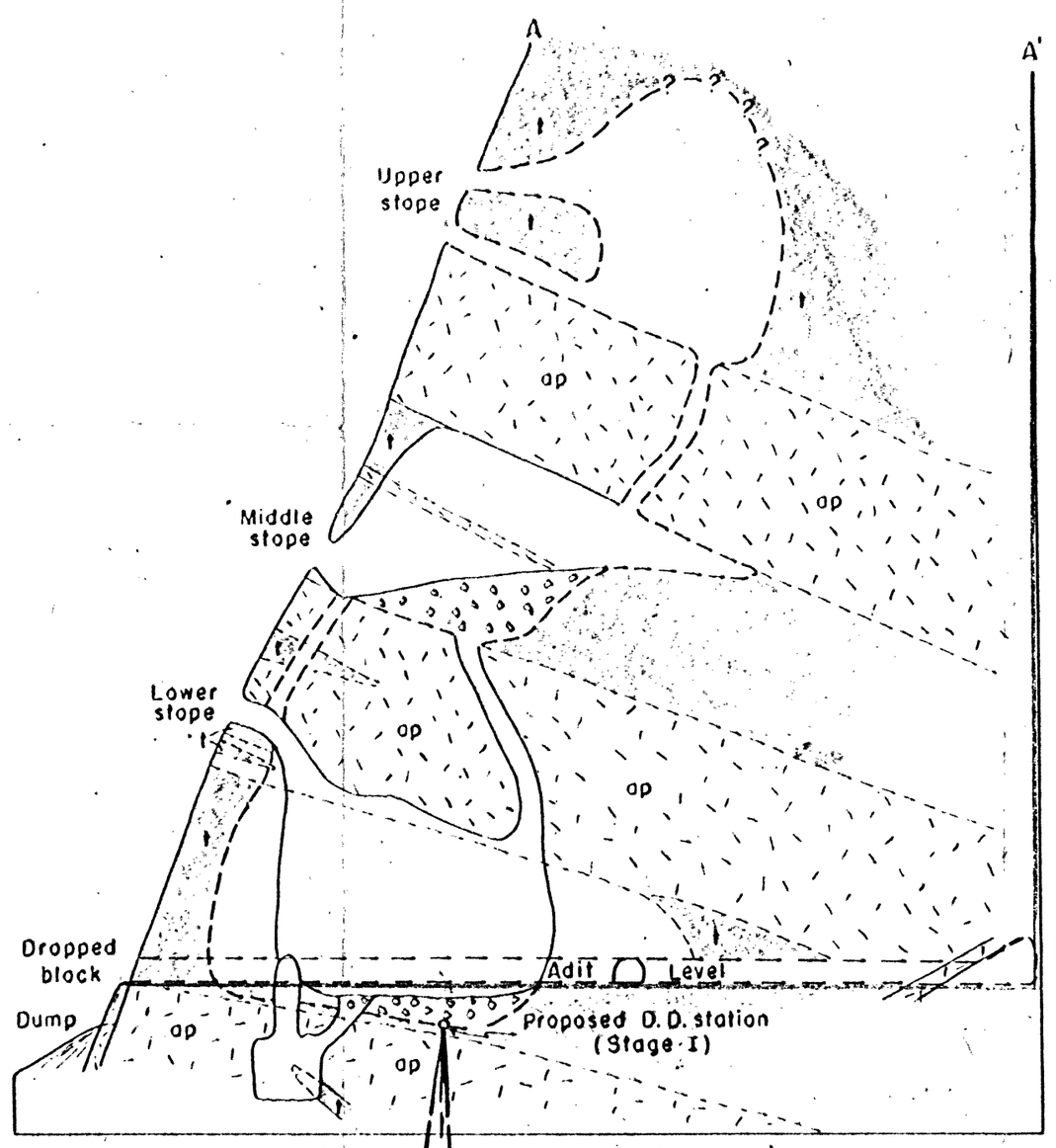



MIDDLE LEVEL




ADIT LEVEL

UPPER TRAM TERMINAL




LONGITUDINAL SECTION A–A'

0 50 100 150 FEET

EXPLANATION

- Tactite
- Marble
- Aplite and pegmatite dikes
- Quartz monzonite
- Contact, showing dip (Dashed where approximately located or restored)
- Foot of raise or winze
- Head of raise or winze
- Ore chute
- Stope fill
- Grizzly
- Boundary of mine workings (Dashed where projected or restored)

N

Note: Mapped by brunton and tape method. Dimensions and orientation of illustration are approximate.

Mapped by Paul C. Bateman, September 1947, and D.C. Ross and C. D. Rinehart, September 1953 with additions, September 1954

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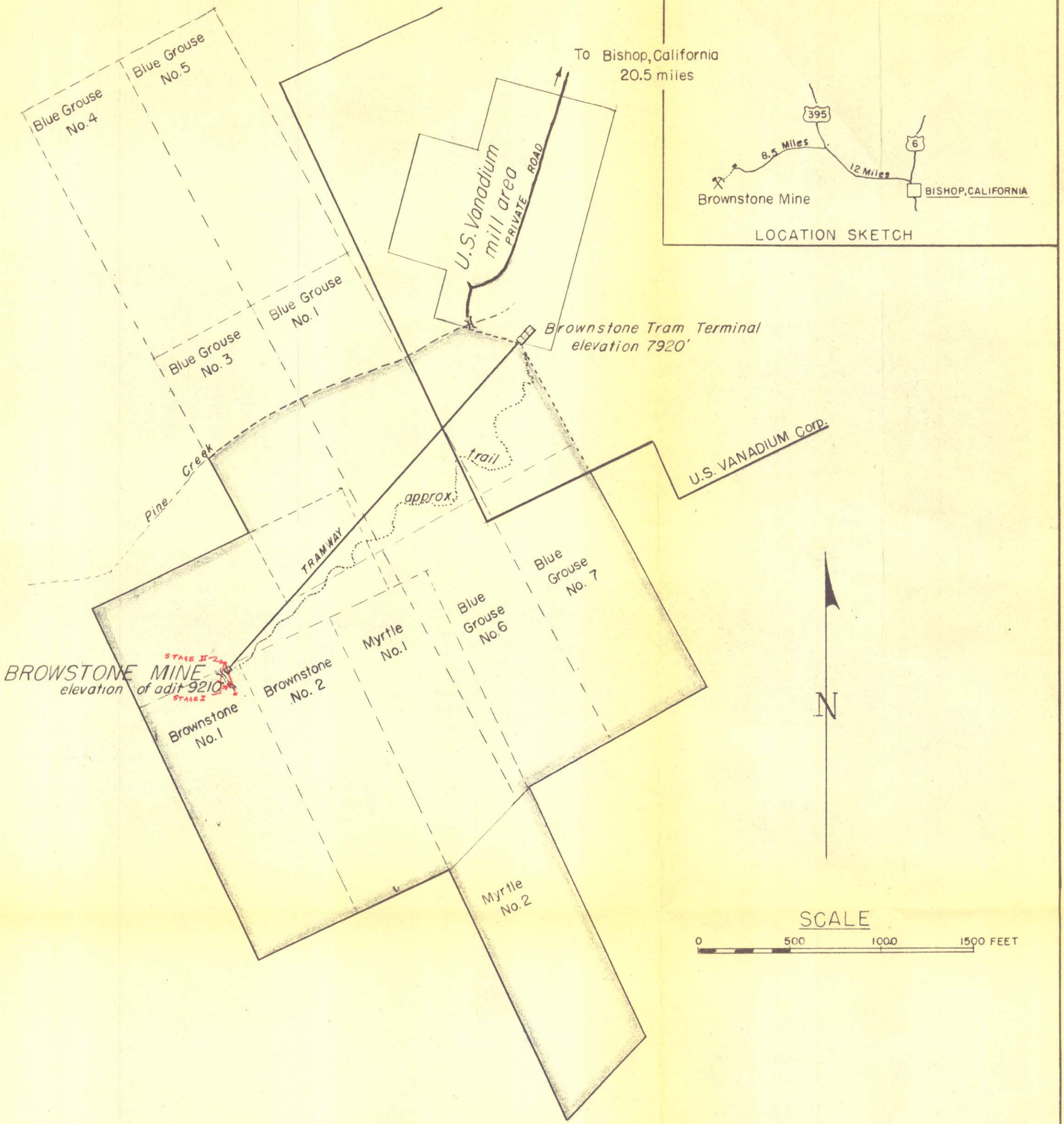
SKETCH MAP OF THE BROWNSTONE MINE, INYO COUNTY, CALIFORNIA

FIGURE 2



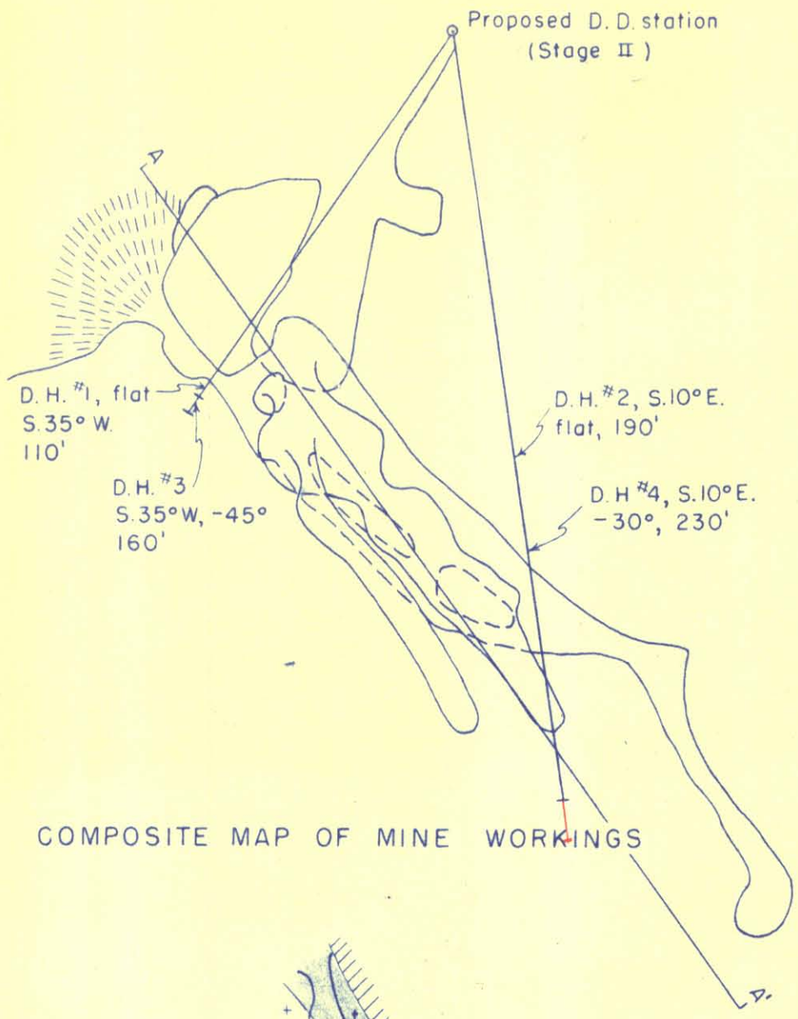

Note:
Assembled from information
submitted by Brownstone Mining Co.
October 1954

CLAIM MAP OF BROWNSTONE MINE, INYO COUNTY, CALIFORNIA DMEA 3455(Tungsten)

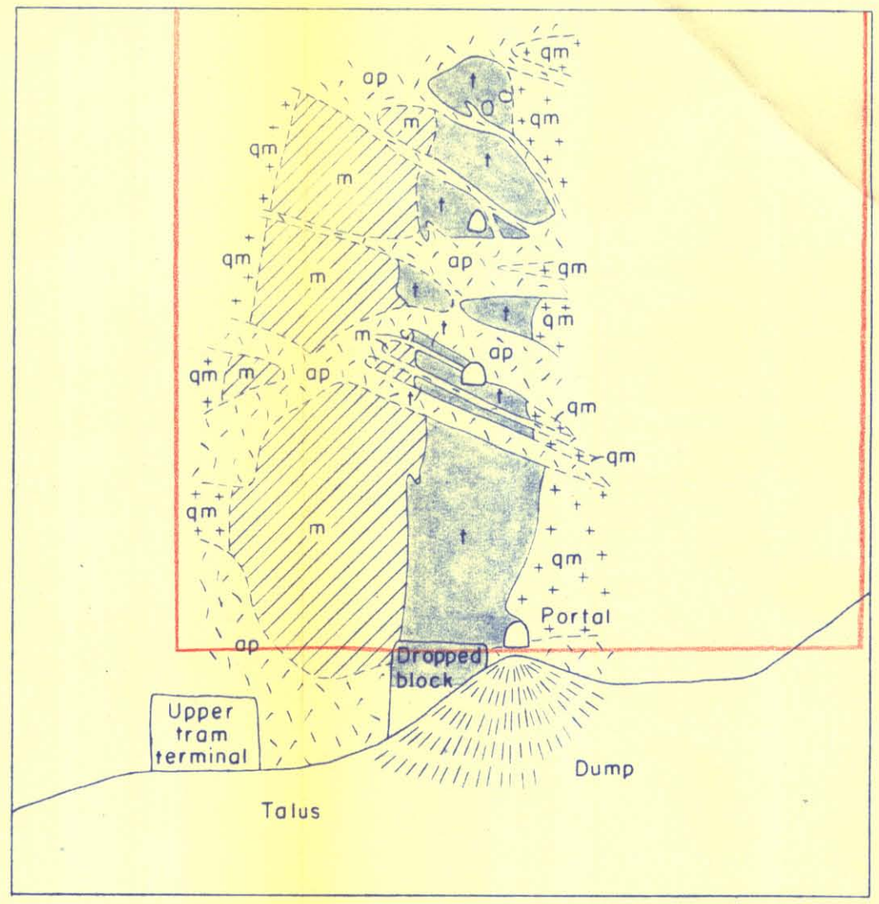
Figure 1

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

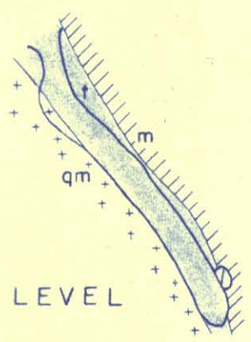
DMEA 3455
(TUNGSTEN)



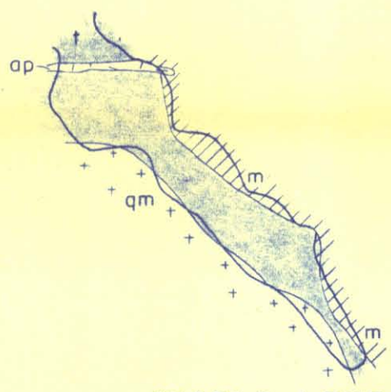

COMPOSITE MAP OF MINE WORKINGS



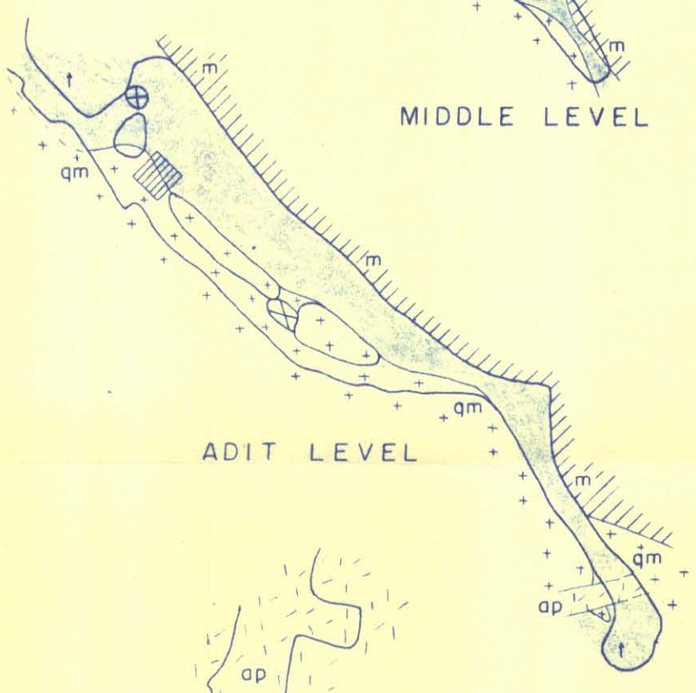

SKETCH OF CLIFF FACE



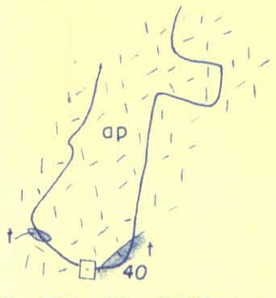

UPPER LEVEL



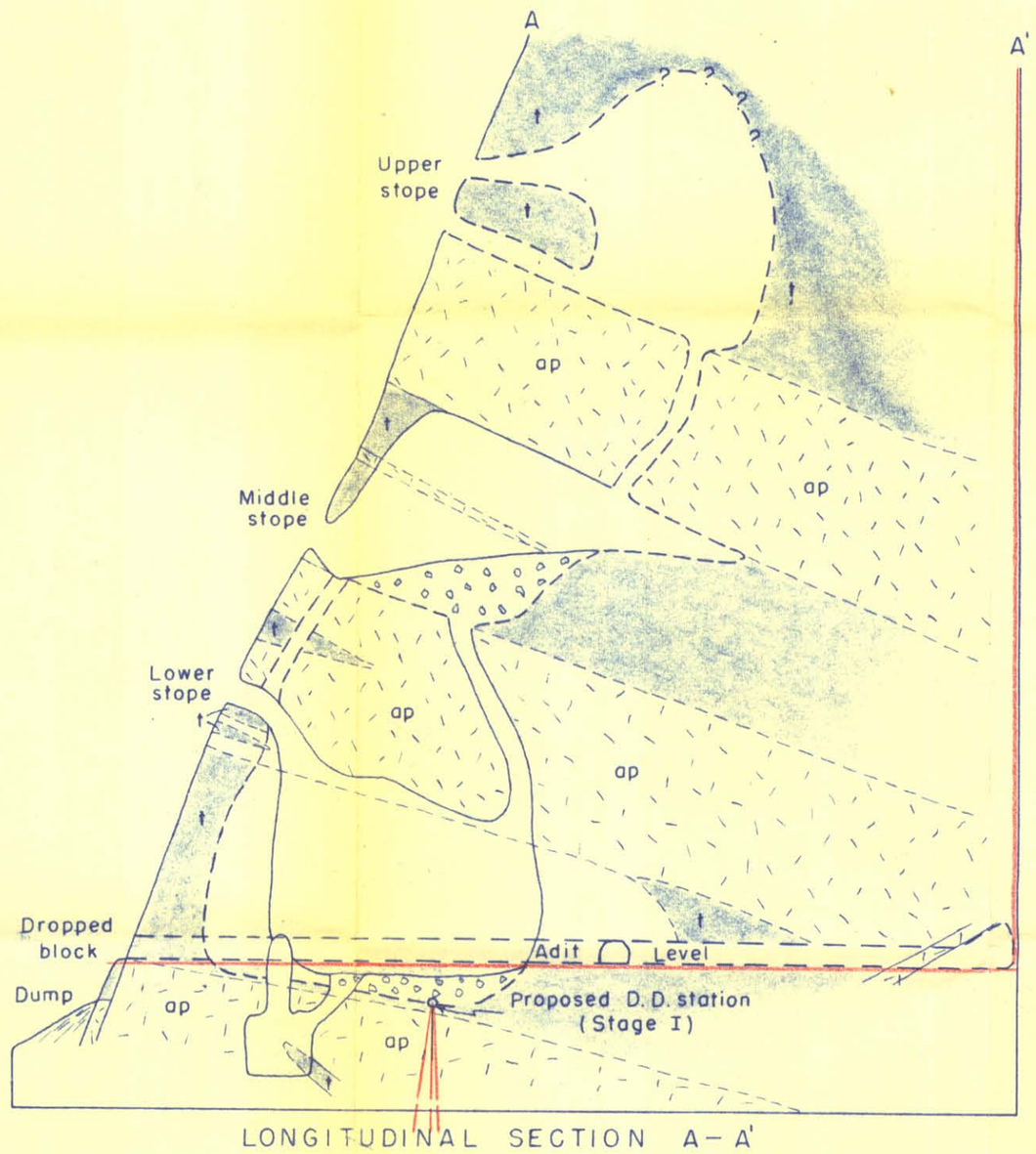

MIDDLE LEVEL




ADIT LEVEL




UPPER TRAM TERMINAL




LONGITUDINAL SECTION A–A'

0 50 100 150 FEET

EXPLANATION

- t — Tactite
- m — Marble
- ap — Aplite and pegmatite dikes
- qm — Quartz monzonite
- 40 — Contact, showing dip (Dashed where approximately located or restored)
- Foot of raise or winze
- Head of raise or winze
- Ore chute
- Stope fill
- Grizzly
- Boundary of mine workings (Dashed where projected or restored)

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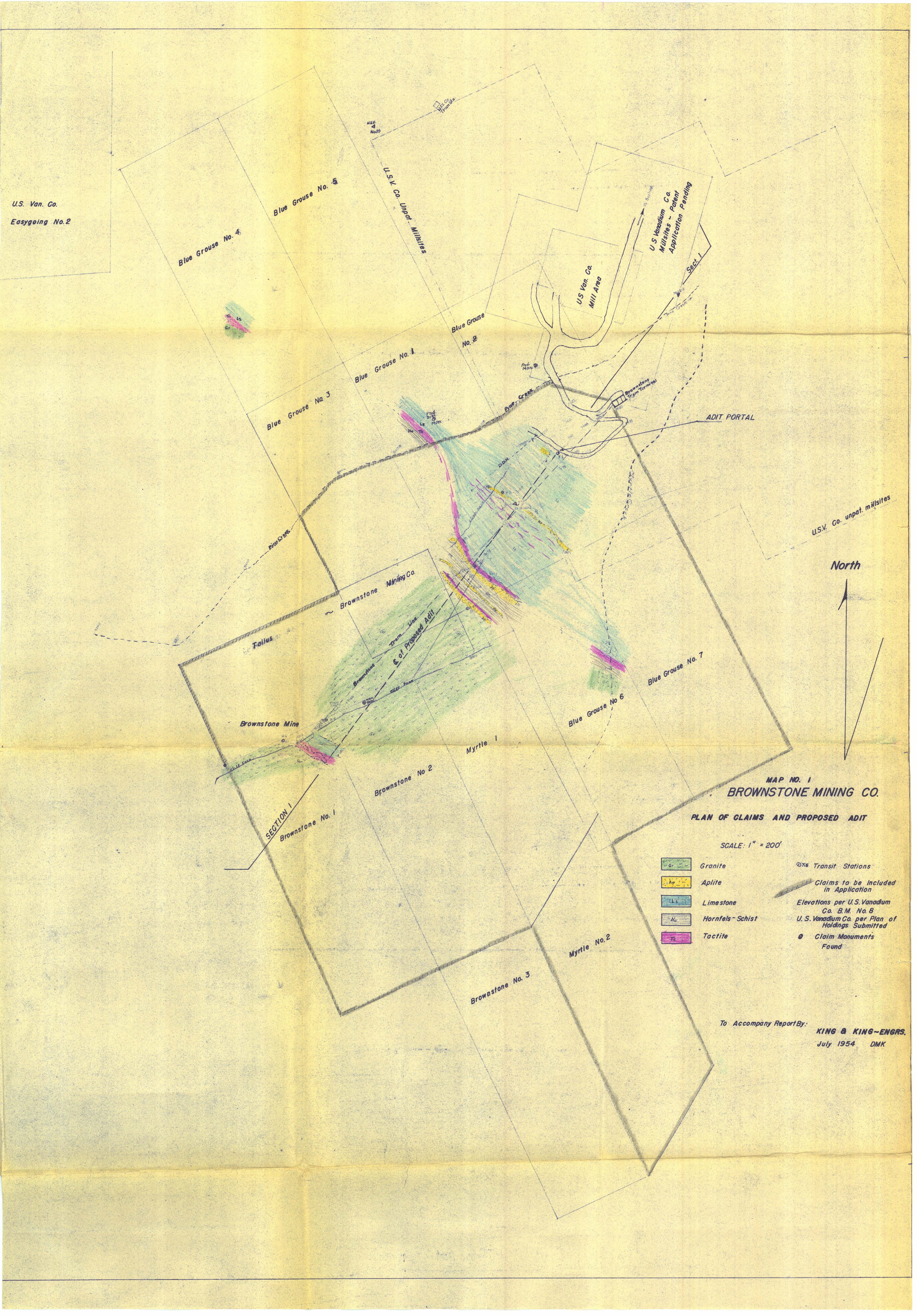
SKETCH MAP OF THE BROWNSTONE MINE, INYO COUNTY, CALIFORNIA

FIGURE 2


U.S. Van. Co.
Easygoing No. 2
Blue Grouse No. 4
Blue Grouse No. 4
U.S.V. Co. Unpat. Millsites
U.S.V. Co. Tram Sta.
U.S.V. Nat'l
Blue Grouse No. 1
Blue Grouse No. 3
Blue Grouse No. 2
US Van. Co. Mill Area
U S Vanadium Co. Millsites - Patent Application Pending
Sect. 1
Pine Creek
Fnd. Mon.
Brownstone Tram Terminal
ADIT PORTAL
Fnd. Disc. Mon.
DDH
U.S.V. Co. unpat. millsites
Tailus
Brownstone Mining Co.
Brownstone Tram Line
℄ of Proposed Adit
Cliff Face
Brownstone Mine
Blue Grouse No. 7
Blue Grouse No 6
Myrtle 1
Brownstone No 2
SECTION 1
Brownstone No. 1
Myrtle No. 2
Brownstone No. 3
North
MAP NO. 1
BROWNSTONE MINING CO.
PLAN OF CLAIMS AND PROPOSED ADIT
SCALE: 1" = 200'
Granite
Aplite
Limestone
Hornfels - Schist
Tactite
Transit Stations
Claims to be Included in Application
Elevations per U.S. Vanadium Co. B.M. No. 8
U.S. Vanadium Co. per Plan of Holdings Submitted
Claim Monuments Found
To Accompany Report By:
KING & KING - ENGRS.
July 1954 DMK