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DEFENSE MINERALS EXPLORATION ADMINISTRATION
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DMEA Docket No. 4508

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Land
Nelson

FEB 4 1957

Balcones Exploration and Drilling Corporation
403 East Travis Street
San Antonio 5, Texas

Re: Docket No. DMEA 4508 - Tungsten
Georgia Group of claims
White Pine County, Nevada

Gentlemen:

Your application for aid for an exploration project and other data available to us in Washington concerning the above referenced property have been reviewed.

Projects approved by the Defense Minerals Exploration Administration must, in its judgement, show definite promise of yielding material of acceptable grade in quantities that will significantly improve the mineral supply position of the National Defense Program.

Careful study of all our information, although noting the occurrence of tungsten mineralization on this property, indicates to us that the probability of disclosing minable ore reserves is not sufficiently promising to justify Government participation. Under these circumstances we regret to advise you that your application is denied.

We wish to thank you for your interest in the Defense Minerals Exploration Administration program and for bringing this property to our attention.

Sincerely yours,

C. O. [illegible]

Administrator

JHopkins:am 1-31-57
cc to: Docket
Code 400
Admr. Read. File
Oper. Comm.
FT REG II
Messrs. R. Holliday, USBM
T. Kiilsgaard, USGS

R.A.S.

8623

DMEA Form 7
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1/31	[illegible]	400
1/31	Martin	400
		130
		110
2/4	Mattendorf	100

January 30, 1957

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division

Subject: Denial of application for exploration assistance
Docket No. DMEA 4508 - Tungsten
Balcones Exploration and Drilling Corporation
Georgia Group of Claims
White Pine County, Nevada

Denial of the subject application is recommended by the Iron and Ferro-Alloys Division on the basis of the following information:

The Balcones Exploration and Drilling Corporation, 403 East Travis Street, San Antonio, Texas, made an application for exploration assistance October 3, 1956. The property was examined October 23 and 24, 1956, by Glenn G. Gentry, Bureau of Mines and Robert G. Reeves, Geological Survey, and their report recommended denial of the application.

Property: The property consisting of six unpatented mining claims - Georgia Nos. 1 to 6 - is held under a lease agreement from the owner, Leslie J. Olsen, 1366 South 14th Street East, Salt Lake City, Utah. The mining claims are located in Section 10, Township 23 North, Range 65 East, M.D.B.M. White Pine County, Nevada and have been recorded as follows:

Name of Claim	Recorded in Book	Recorded in Page
Georgia No. 1	195	368
No. 2	199	2
No. 3	199	3
No. 4	199	4
No. 5	199	5
No. 6	199	6

Geology: The mine area is underlain by limestone of Cambrian age that has been cut by silicic dikes.

Two types of limestone are present: massive limestone and thin-bedded limestone. These rocks are cut by several prominent faults and by three prominent systems of close-

8623

Geology: (Cont'd)

spaced joints. Numerous calcite veinlets cut the limestone and calcite has been deposited along most of joints and faults.

Two north-trending dikes cut the limestone - one 50 to 100 feet wide exposed for 400 feet, the other 50 to 70 feet wide and exposed for 1200 feet.

Scheelite, the ore mineral, occurs with the calcite in joints and along both north-trending faults. The scheelite-bearing veinlets are found in six places but in only three are they sufficiently concentrated to form ore bodies. These three areas are the shaft, cut north of the road and the adit. The veinlets are from a few tenths to several inches wide and occur in zones up to 2 feet wide.

In the shaft area the veinlet zone parallels the East fault and is 2 inches to 2 feet wide, averaging one and one-half feet wide, and is exposed for about 100 feet along the strike.

The zone exposed in the cut is probably an extension of the shaft zone and is about one foot wide and is exposed for about 100 feet along the strike.

The ore zone exposed in the adit and cut is 150 feet long and from 6 inches to 2 feet wide and averages about one foot wide. This zone parallels and often intersects the West fault.

Low-grade outcrops occur along northern part of West fault.

Workings: Development consisted of an inclined shaft to a depth of 25 feet and approximately 50 feet of trenching. Several shallow trenches are filled with loose and broken rock.

Past Production:

Approximately 2 tons of sorted ore assaying 1.53 - 1.70 percent WO_3 were produced and shipped to the Cherry Creek mill. An additional 2 tons of sorted ore of about the same grade have been stockpiled adjacent to the trench.

Sampling: The examiners took 17 samples. Assays ranged from less than 0.01% to 0.15% on twelve samples - with two assaying 0.58 and 0.74% respectively. The averages of ore blocks are shown in Ore Reserves calculations.

Ore Reserves: There are no measured reserves.

Ore Reserve Tonnage

Ore Block	Dimensions		Tons	Type		Assay
5	$\frac{100' \times 1\frac{1}{2}' \times 25'}{12\frac{1}{2}}$	=	300	Indicated	@	0.14% WO_3
2	$\frac{150' \times 1' \times 50'}{12\frac{1}{2}}$	=	600	Indicated	@	0.12% WO_3
4	$\frac{100' \times 1' \times 25'}{12\frac{1}{2}}$	=	200	Indicated	@	0.14% WO_3
2	$\frac{150' \times 1' \times 75'}{12\frac{1}{2}}$	=	900	Inferred	@	0.12% WO_3
4 and 5 and Intervening	$\frac{100' \times 375' \times 1\frac{1}{4}'}{12\frac{1}{2}}$	=	3750	Inferred	@	0.01% WO_3

TOTALS: Indicated = 1100 tons
Inferred = 4650 tons

Comments and Conclusions:

The Field Team concludes that the sporadic distribution of scheelite in very small lenses or pods indicates that no suitable exploration target can be inferred. They, therefore, recommend that the application be denied.

The Commodity Divisions of the Geological Survey and Bureau of Mines concur in the recommendation.

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

JHopkins:am
cc to: Docket
Code 400
Adm. Read. File
Oper. Comm.

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1/22	WSay	400

Docket

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
Washington 25, D. C.

Date January 17, 1957

DMEA Docket No. 4508
DMEA Contract No.
Commodity Tungsten
Name of applicant Balcones Expl. & Drilling Corp.
Name of property Georgia Claims
Location of property White Pine County, Nevada
Estimated cost of project

Memorandum

To: W. S. Martin, Chief, Iron and Ferroalloys Division-DMEA
Through: Chief, Br. of Ferrous Metals & Ferroalloys

From: R. W. Holliday, Commodity Specialist, Branch of Ferrous Metals & Ferroalloys

Subject: Review of Field Examination Report
(Application, Field Team Report, etc.)

1. Date of subject document: Jan. 2, 1957. Date received by reviewer: Jan. 14, 1957

3. Prior reports on this property known to reviewer: Yes [ ] No [x]

4. Prior reports on nearby properties known to reviewer: Yes [ ] No [x]

5. Information available on past production: Yes [ ] No [x]

6. Other pertinent factors known to reviewer: Yes [ ] No [x]

7. Explain items marked yes above:

8. Factors needing special consideration:
   a. Location [ ]
   b. Ownership [ ]
   c. Evidence of mineralization [ ]
   d. Geology [ ]
   e. Proposed exploration method [ ]
   f. Alternate exploration method [ ]
   g. Costs [ ]
   h. [ ]

9. Action advised:
   a. Obtain information from applicant [ ]
   b. Refer to Field Team [ ]
   c. Denial [x]
   d. Agree with Field Team [x]
      i. Consult with Mr. _____ at _____ AEC office.
   e. Disagree with Field Team [ ]
   f. Suggest alternate plan [ ]
   g. Request another examination [ ]
   h. Approval [ ]

10. Remarks: (Use back of page if necessary)

R. W. Holliday

R. W. Holliday

IN REPLY REFER TO:

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

DMEA
RECEIVED JAN 17 1957

DATE	INITIALS	CODE
1-17	cw	220
1/18	WSay	400
		400

January 16, 1957

Re: DMEA 4508
Balcones Expl. and Drilling Corp.
Georgia Claims
White Pine County, Nevada
$42,083.00 - Tungsten

Memorandum

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

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of Field Team Report

The applicant requested assistance in exploring scheelite-bearing zones in limestone by trenching and core drilling. From development work, done by the applicant, about 4 tons of 1.50-1.70% WO_3 material was recovered.

The scheelite occurs with calcite in narrow veinlets in limestone. The veinlets which occur as individuals and in groups, are noticeable in 6 places and in 3 places are sufficiently concentrated to form small low grade ore bodies. No tactite and little silicification accompany the 3 groups of veinlets, but patches of tactite occur in the general area.

Of 17 samples taken only 2 are of ore grade and they represent very small tonnages.

As estimated by the examiners, the indicated and inferred material amounts to 2,000 tons of about 0.12% WO_3.

Obviously such material is not ore and the recommendation of the examiners and the Field Team that exploratory work is not warranted is sustained.

I concur with the recommendation of denial.

N. E. Nelson

N. E. Nelson

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

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DATE	INITIALS	CODE
		130
1-16	CW	220
1/17	WSM	400

1605 Evans Avenue
Reno, Nevada

January 9, 1957

Memorandum

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

From: Executive Officer, DMEA Field Team, Region II

Subject: Docket No. DMEA-4508 (Tungsten)
Balcones Exploration and Drilling Corp.
Georgia Claims
White Pine County, Nevada
(Your letter November 9, 1956)

Enclosed are four copies of a report by Glenn G. Gentry, Bureau of Mines and Robert G. Reeves, Geological Survey on subject property.

Roscoe Smith and I concur in the recommendation that the application for DMEA exploration assistance be denied.

S. Ricker

Encl.

Reviewed by
DMEA OPERATING COMMITTEE
1-16-57
(date)

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RECEIVED JAN 11 1957

DATE	INITIALS	CODE
		130
		220
1/17	WSM	400

UNITED STATES
DEPARTMENT OF THE INTERIOR
FRED A. SEATON, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION II

APPLICATION REPORT

DMEA-4508 (Tungsten)
Balcones Exploration and Drilling Corporation
Georgia claims, White Pine County, Nevada

by

Glenn G. Gentry
U. S. Bureau of Mines

Robert G. Reeves
U. S. Geological Survey

January 2, 1957

Reviewed by
DMEA OPERATING COMMITTEE
1-16-57
(230).

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ILLUSTRATIONS

Figure 1 . . . . . Location map

2 . . . . . Geologic sketch map

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INTRODUCTION

The Balcones Exploration and Drilling Corporation applied to the Defense Minerals Exploration Administration for assistance to explore the Georgia mining claims, docket DMEA-4508, for tungsten.

The Georgia group of six unpatented mining claims are in sec. 10, T. 23 N., R. 65 E., M.D.B.&M., Siegel mining district, White Pine County, Nevada, 56.1 miles northeast of Ely, Nevada. The claims are owned by L. J. Olsen who granted a mining lease to the applicant on July 2, 1956.

SUMMARY

The mine was examined on October 23 and 24, 1956, accompanied by Howard L. Grant and Collins B. Cook, representing the applicant, and L. J. Olsen, owner of the property. The property is in the first stages of prospecting and only a limited amount of exploration work has been done. Several shallow trenches are partially filled with loose and broken rock. Samples averaged 0.02~~05~~ percent WO_3 and are considered to be representative of reserves which total 5,750 tons. The sporadic distribution of scheelite in very small lenses or pods indicates that no suitable exploration target can be inferred. It is recommended that the application be denied.

Development consisted of an inclined shaft to a depth of 25 feet and approximately 150 feet of trenching. Approximately 2 tons of sorted ore assaying 1.53 - 1.70 percent WO_3 was produced and shipped to the Cherry Creek mill. An additional 2 tons of sorted ore of about the same grade has been stockpiled adjacent to the trench on Area No. 4.

GEOLOGY

The mine area is underlain by limestone of Cambrian age that has been cut by silicic dikes.

Two types of limestone are present in the mine area: massive limestone and thin-bedded limestone. The massive limestone is light to dark gray and blue gray and is in beds from one to several feet thick, most of them separated by thin chert or shale layers one-fourth to one-half inch thick. The thin-bedded limestone is light to dark gray and blue gray. Most of the layers are 2 to 3 inches thick, but they range from less than an inch to six inches in thickness. The individual layers are generally separated by very thin shale partings. The limestone trends northerly and dips from 5° to 15° W.

The thin-bedded and massive limestones are thought by Hand[1/]

1/ Hand, David, Geological report covering Georgia tungsten mining claims: Private report for Balcones Expl. and Drilling Co., San Antonio, Texas.

---

to be two different facies of limestone equivalent to the Eldorado limestone of Cambrian age in the Eureka district.

The limestone is cut by several prominent faults, and by three prominent systems of close-spaced joints. Two of the faults trend northerly and the other trends easterly. The northerly-trending faults dip 55° to 70° E, with the east side downthrown; the attitude of the easterly-trending fault is unknown. The prominent joint systems are N 50° E, dipping 75° SE; N 40° E and vertical; and N 80° W, dipping 80° S. Numerous calcite veinlets cut the limestone, and calcite has been deposited along most of the joints and faults.

Along the east fault, the limestone has been silicified, with the introduction of fine-grained crypto-crystalline quartz. Epidote, garnet, magnetite, and quartz occur along fractures, generally parallel with the fault, in the silicified limestone, and quartz crystals line several small cavities.

Two north-trending dikes cut the limestone in the mine area. The easternmost one is 50 to 100 feet wide and is exposed for about 400 feet, and the westernmost is 50 to 70 feet wide and is exposed for about 1,200 feet. Both dip steeply eastward. The dike rock is light gray on fresh surfaces, weathering to reddish brown. It is composed of orthoclase, quartz, plagioclase, feldspar, and minor amounts of magnetite and biotite, and is granodioritic in composition. No evidence of contact metamorphism could be found along the dikes, and they are thought to have been intruded along fault or shear zones of the north-trending set.

ORE DEPOSITS

Scheelite, the ore mineral, occurs with the calcite in joints and along both the north-trending faults. The scheelite-bearing calcite veinlets are from a few tenths to several inches wide, most, however, are about 1/2 inch wide. They occur both singly, and as multiple parallel veinlets in limestone, in zones up to two feet wide, but most of the zones are from 6 inches to a foot wide.

The scheelite-bearing veinlets are found in six places (fig. 2), but in only three are they sufficiently concentrated to form ore bodies. These three areas are the shaft (No. 5), the cut north of the road (No. 4), and the adit (No. 2). In these areas no tactite and very little silica or other evidence of hydrothermal activity occurs. The

limestone along the northern part of the West fault, although lower in grade, is silicified, and the scheelite is disseminated in calcite, quartz, epidote, garnet, and other silicate minerals.

In the shaft area (No. 5), the scheelite-bearing calcite veinlets are parallel with the East fault, which trends northwest. The zone of veinlets is 2 inches to 2 feet wide, averages about one and one-half feet wide, and is exposed for about 100 feet along the strike. Both ends are concealed by soil cover.

The ore zone in the cut north of the road (No. 4) is probably an extension of the ore zone at the shaft, which it resembles closely. The zone is exposed for about 100 feet along the strike, and averages one foot wide. The mineralized area which is concealed by alluvium is inferred to be continuous between the two zones.

The ore zone exposed in the adit and cut (No. 2) is 150 feet long, and from 6 inches to 2 feet wide, and averages about one foot wide. The ore is associated with calcite in fractures both parallel to the West fault and intersecting it at various angles.

Low grade outcrops at areas (1), (3), and (6), along the northern part of the West fault, contain scheelite in occurrences similar to those at areas (2), (4), and (5). However, in (1) and (6) the ore is in silicified limestone. At area (3) the ore is associated with small patches of tactite.

SAMPLING

BM Sample No.	Width, feet	Location	Percent WO_3
2061	2.2	Calcite stringers on SE wall at N end of drift on West Fault.	<0.01
2062	2.4	Vertical cut under BM-2061. Calcite stringers cutting beds of limestone.	<0.01
2063	2.7	Under BM-2062. Silicified limestone. Small calcite stringers.	0.01
2064	1.0	Selected sample of calcite and scheelite. Same place as BM-2061. Limited occurrence of scheelite.	0.04
2065	2.3	Surface exposure of narrow calcite stringers. 6 ft. above BM-2061 and on west side of open cut.	0.58
2066	2.4	Surface exposure of silicified limestone about 250 ft. north of BM-2061.	<0.01
2067	3.4	West wall of shallow trench and about 60 ft. north of BM-2066.	0.13
2068	2.0	West wall of trench. Narrow calcite stringers. 4 ft. north of BM-2067.	0.15
2069	0.5	Bottom of trench. Calcite stringers 2 inches wide. 4 ft. south of BM-2067.	0.01
2070	1.5	Trench along East fault and north of road. Calcite and quartz vein on limestone hanging wall.	<0.01
2071	1.0	Quartz vein 9 ft. northeast of BM-2070.	0.06
2072	1.0	Quartz vein 4 ft. northeast of BM-2070.	0.74

BM Sample No.	Width, feet	Location	Percent WO_3
2073	1.5	Quartz vein 7 ft. northeast of BM-2071.	0.01
2074	1.0	Quartz vein in northeast face of shallow trench.	0.01
2075	1.5	Shallow trench 45 ft. north of shaft. Narrow calcite stringers in bottom of trench.	<0.01
2076	1.4	East side at bottom of 25 ft. shaft. Narrow calcite stringers in limestone.	<0.01
2077	1.3	East side of shaft and 4 ft. above BM-2076. Narrow calcite stringers cutting limestone beds.	0.23

ORE RESERVES

ORE RESERVES TONNAGE

Area	Indicated	Inferred	Total all classes	Percent WO_3
(4)	200		200	0.14
(5)	300		300	0.116
(4), (5), and intervening area		3,750	3,750	0.01
(2)	600	900	1,500	0.12
Totals:	1,100	4,650	5,750	

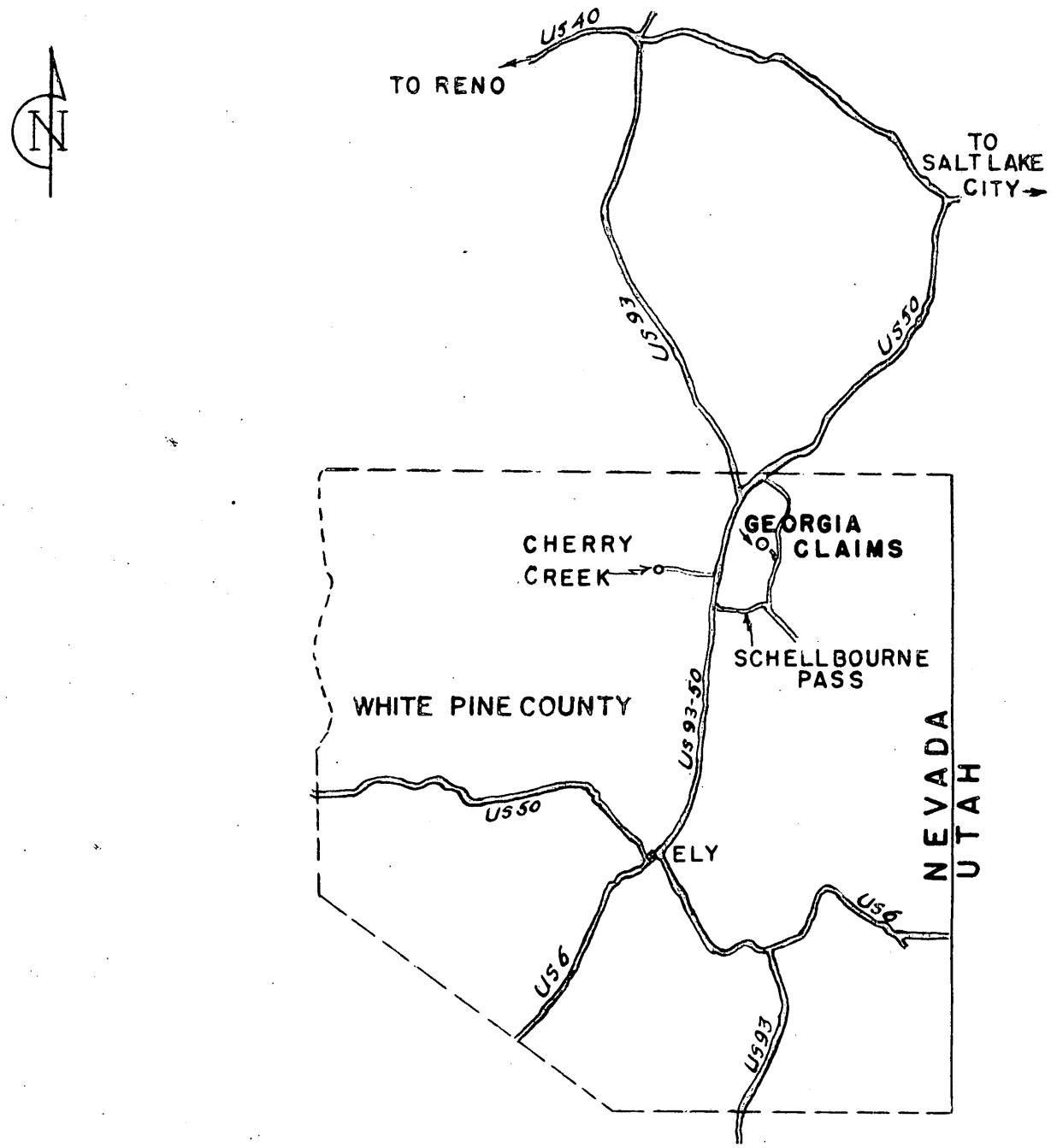
There are no measured reserves. Ore at the shaft area (5) is exposed for about 100 feet along the strike and averages one and one-half foot wide. Considering indicated ore to extend 25 feet below the exposures, the cut area contains ~~2~~3 00 tons of 0.140 percent ore.

$\frac{100 \times 1\frac{1}{2} \times 25}{12\frac{1}{2}} = 300$

Ore is inferred to extend to a depth of 100 feet, from 50 feet south of the shaft to 50 feet north of the cut continuously between those areas. Based on an average vein width of one and one-fourth feet, one half of which may be mineralized, these areas are estimated to contain 3,750 tons of inferred ore of 0.01 percent WO_3.

Ore at the adit area (2) is exposed for 150 feet along the strike and averages one foot wide, and is exposed through a vertical range of 25 feet. Considering indicated ore to extend 25 feet below the exposure, for a total vertical distance of 50 feet, the area contains 600 tons of 0.12 percent WO_3 ore. Considering inferred ore to extend 100 feet below the exposures, the deposit contains 900 tons of this class averaging 0.12 percent WO_3.

Reserves in areas (1), (3), and (6) are small, totalling at most only a few hundred tons of inferred ore. No work has been done on them, none is proposed or recommended, and no samples were taken. Visual inspection by ultra-violet lamp indicated the grade to be somewhat lower than that in (4) and (5), estimated to be from 0.1 to 0.2 percent WO_3.



LOCATION MAP

BALCONES EXPLORATION & DRILLING CORP.

GEORGIA CLAIMS - WHITE PINE COUNTY, NEVADA

DOCKET No. DMEA 4508 - TUNGSTEN

DOCKET
SURNAME
Chapman
Martin
Selfridge
Kilsgaard

400

9 NOV 1956

Mr. Spangler Richer
Executive Officer
DMEA Field Team, Region II
1605 Evans Avenue
Reno, Nevada

Re: Docket No. DMEA 4508 - Tungsten
Balcones Exploration and Drilling
Corporation
Georgia Claims
White Pine County, Nevada

Dear Mr. Richer:

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

Copies of memoranda dated October 30 and November 1, 1956, by R. W. Holliday, Bureau of Mines, and N. E. Nelson, Geological Survey, respectively, relating to the project are enclosed.

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

APPROVED:

Frank D. Lamb

Member, Bureau of Mines

Thor H. Kiilsgaard

Member, Geological Survey

TLChapman:foc 11/8/56
cc to: Docket
Code 400
Admr. Read. File
Oper. Comm.
FT. REG. II
Messrs. R. W. Holliday, USBM
T. H. Kiilsgaard, USGS

Enclosures

DOCKET
SURNAME

400 Chapman
Martin
Kiilsgaard
Lamp
Selfridge

Balconoes Exploration and Drilling
Corporation
403 East Travis Street
San Antonio 5, Texas

Re: Docket No. DMEA 4508 - Tungsten
Georgia Claims
White Pine County, Nevada

Gentlemen:

The above docketed application for exploration assistance for tungsten ores has been reviewed by the Iron and Ferro-Alloys Division, of the Defense Minerals Exploration Administration and referred to Mr. Spangler Ricker, Executive Officer, DMEA Field Team, Region II, 1605 Evans Avenue, Reno, Nevada, for a field examination of the property.

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

Sincerely yours,

Frank E. Johnson
(esf)
Administrator

TLChapman:foc
11/8/56
cc to: Docket
Code 400
Admr. Read. File
Oper. Comm.
FT. REG. II
Messrs. R. W. Holliday, BM
T. H. Kiilsgaard, GS

Docket

IN REPLY REFER TO:

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

RECEIVED NOV 5 1956 DMEA

November 1, 1956

Re: DMEA 4508
Balcones Expl. & Drilling Co.
Georgia Mines
White Pine Co., Nevada
$42,083 - Tungsten

WSM

Memorandum

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

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of application.

The applicant requests assistance in exploring scheelite-bearing zones in limestone by trenching, and core drilling.

Work done by the applicant on the new prospect, according to the application, has shown potential mining areas, but sampling data in support of the assertion are lacking. Small test shipments have been made and assays of material grading 1.53 to 1.70% WO_3 have been run but no widths are ascribed to the samples. An inclined shaft, 40 feet deep, has been sunk on ore-bearing rock, but again no information as to the grade or widths of such rock.

Referral of the application to the Field Team for action is recommended.

N. E. Nelson

N. E. Nelson

Copy retained 400

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

RECEIVED OCT 31 1956 U.M.E.A.

Docket

October 30, 1956

Memorandum

WSM

To: W. S. Martin, Chief, Iron and Ferroalloys Division-DMEA
Through: Chief, Branch of Ferrous Metals & Ferroalloys

From: R. W. Holliday, Commodity Specialist, Branch of Ferrous Metals & Ferroalloys

Subject: Application
Docket No. DMEA 4508
Tungsten
Balcones Exploration & Drilling Corporation
Name of Claim - Georgia No. 1 thru 6
White Pine County, Nevada
$42,083

Subject application indicates that considerable work has been done including excavation of a 40 foot shaft and small shipments of ore.

Sample locations, analyses, and widths however are indicated only in general terms and appraisal is not possible from the information provided. Proposed work is not specifically outlined but would include an additional 10 feet of shaft sinking, 120 feet of drift, unspecified trenching and 49 diamond drill holes from 100 to 300 feet deep.

It is noted that the company desires to work on a unit cost basis but except for the core drilling it appears that the estimated costs are set up on an actual cost basis.

I recommend that the application be referred to the Field Team or returned to the applicant for additional information.

R W Holliday
R. W. Holliday

Copy retained 400

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration
Washington 25, D. C.

October 24, 1956

Balcones Exploration & Drilling
403 E. Travis St.
San Antonio 5, Texas

Subject: DMEA-4508
Re: Exploration Assistance
Georgia Claims

Gentlemen

Your application for exploration assistance, dated October 3, 1956 submitted to our office at Reno, has been assigned Docket Number DMEA-4508 and referred to the Iron and Ferro-Alloys Division in the Washington office. Kindly identify all future correspondence relating to your application by this Docket Number.

Sincerely yours,

Allen S. Dakan, Chief
Operations Control and
Statistics Division

Copy to:

Region II. Reno 2, Nevada

✓ Code 400

D M E A

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

RECEIVED
OCT 15 1956

1605 Evans Avenue
Reno, Nevada

October 12, 1956

Memorandum

To: Operating Committee, DMEA, Interior Bldg.
Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region II

Subject: Loan Application - Tungsten
Balcones Exploration & Drilling Corp.
Georgia Claims
White Pine County, Nevada

Enclosed are three sets of MF-103 Application for Aid forms relative to above subject. The fourth set has been retained in our files.

S. Ricker

Encls.

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

RECEIVED
OCT 15 1956

1605 Evans Avenue
Reno, Nevada

October 12, 1956

Memorandum

To: Operating Committee, DMEA, Interior Bldg.
Washington 25, D. C.

From: Executive Officer, DMEA Field Team, Region II

Subject: Loan Application - Tungsten
Balcones Exploration & Drilling Corp.
Georgia Claims
White Pine County, Nevada

Enclosed are three sets of MF-103 Application for Aid forms relative to above subject. The fourth set has been retained in our files.

S. Ricker

Encls.

APPLICATION

FOR

DMEA AID IN TUNGSTEN

EXPLORATION PROJECT

RECEIVED
OCT 15 1956

GEORGIA CLAIMS

WHITE PINE COUNTY, NEVADA

BALCONES EXPLORATION & DRILLING CORPORATION

403 East Travis Street

San Antonio 5, Texas

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

RECEIVED
OCT 15 1956

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

Not to be filled in by applicant

Docket No. 4508
Metal or Mineral Tungsten
Date Received 10/15/56
Estimated Cost $ 42,083
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:

Balcones Exploration & Drilling Corporation
403 East Travis Street
San Antonio 5, Texas

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

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

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

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

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

See Accompanying Papers

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

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

See Accompanying Papers

(*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

There are none

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

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

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

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

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

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

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

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

(*c*) The work will start within 30 days and be completed within 4 months from the date of an exploration project contract.

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

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

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

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

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

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

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures, and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project.

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

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

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

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

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

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

[X] Money [X] Use of equipment owned by you [ ] Other

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated Oct 3, 1956

Balcones Exploration & Drilling Corporation
(Applicant)

By James E. Duke Jr.

Col. James E. Duke, Jr., President

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

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

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OCT 15 1956

APPLICATION FOR AID

DMEA EXPLORATION PROJECT

GEORGIA MINES, WHITE PINE CO., NEVADA

INTRODUCTION

The following document, a collection of legal papers, data, reports, maps, etc., has been prepared in accordance with DMEA form MF 103 (revised April, 1952) and is intended to take the place of said form as the form contains insufficient space to properly present the required information. The letters and numbers used herein refer to the letters and numbers on said form and all reports, maps and other substantiating papers accompanying this document and referred to as exhibits are considered as a part thereof.

1. NAME OF APPLICANT

(a) The name of the applicant is

BALCONES EXPLORATION & DRILLING CORPORATION
403 EAST TRAVIS STREET
SAN ANTONIO 5, TEXAS

(b) The Balcones Exploration and Drilling Corporation is incorporated in the State of Texas

(c) The titles, names and addresses of the company officials are as follows:

President	Col. James E. Duke, Jr.
Vice-President	Howard L. Grant, Chief Engineer
Vice-President	Collins B. Cook, Chief, Land Dept.
Vice-President	Claude F. Spang, General Counsel
Secy.-Treas.	Thomas J. Manion

All addresses are as shown in (a) above.

(d) The Balcones Exploration & Drilling Corporation is not a partnership.

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

2. GENERAL

This instruction has been adhered to in every way and we believe this document will comply in all respects to the criteria set forth in DMEA order 1 as ammended through March 21, 1955.

3. APPLICANTS PROPERTY RIGHTS

(a) & (b) The property covered by this application is known as the Georgia Claims and consists of six unpatented lode mining claims located in Section 10, Township 23N, Range 65E of the Mount Diablo Meridian, White Pine County, Nevada.

(c) The Georgia Claims are owned by Leslie J. Olsen, 1366 South 14th Street East, Salt Lake City, Utah. The applicant, Balcones Exploration & Drilling Corporation has control of the premises as set out in an Operating Agreement dated July 2, 1956, copy of which is attached and marked exhibit "A".

(d) See Exhibit "A"

(e) There are no liens or encumberances against the Georgia Claims.

(f) Following are shown the book and page numbers of the White Pine County, Nevada mining claim records where location notices are filed covering the claims covered by this application:

NAME OF CLAIM	RECORDED IN	
	BOOK	PAGE
Georgia No. 1	195	368
Georgia No. 2	199	2
Georgia No. 3	199	3
Georgia No. 4	199	4
Georgia No. 5	199	5
Georgia No. 5 6	199	6

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

4. PHYSICAL DESCRIPTION

(a) Prior to our acquisition of interest in this property, no mining or development work had been started. Since then, however, three or more men have been employed steadily with the result that considerable development work and some mining has been accomplished to date and work of both types is being continued.

An inclined shaft has been excavated to a depth of about 40 feet, the back of which exposes a trend of scheelite bearing calcite veins of varyung sizes. When this shaft is slightly deeper it is our intention to open drifts in both directions along the strike of the ore bearing rock at which time ore shipments will apparently be continuous for several weeks.

A considerable amount of excavation has also been accomplished where surface ore outcrops have been discovered and the results show potential mining areas in all cases. These sites and the mine shaft are all shown on a map included, herewith, and marked Exhibit "B" and all of the points are easily accessible for examination purposes.

(b) To date some small test shipments of ore have been made to the Cherry Creek Mill and custom assays have shown a percentage of tungstic oxide ranging from 1.53 to 1.70. It is expected that the next shipments will go considerably higher.

A considerable amount of surface exploration work has been done with several discoveries of promising deposits but no wark has been done to determine the ore reserves up to the present time. It is hoped that this application will enable us to carry out a complete underground survey which will determine the reserves and establish a pattern for future mining activities.

Balcones Exploration & Drilling Corp.
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San Antonio 5, Texas

(c) The general geology of the area is similar to that found in many nearby localities where tungsten ore is being produced and, in a number of cases, has been produced for the past several years. Massive and thin bedded limestones are predominate and with the exception of a granitic intrusion in the easterly portion, they comprise the structure of the Georgia Claims in their entirety. There is also a granitic intrusive a short distance to the west of the claims roughly paralleling the one on the east side and minor and major faulting are observed over the entire property.

Generally speaking the geology is ideal for the occurrence of scheelite and it is our desire to thoroughly explore the underground possibilities in order that future mining operations can be properly carried out.

For a complete answer to the requirements of this section you are referred to a geological report covering the properties dated September 6, 1956 which is included, herewith, and is marked Exhibit "C". There is no doubt, however, that, even though this report is thorough in its treatment of the sitiuation, a personal inspection by your field team will reveal many more reasons to justify this application than can be adequately described on paper.

(d) The Georgia Claims are located on the west side of Spring Valley at the lower end of a conyon known as Spring Gulch. This Gulch drains a portion of the Schell Creek Range to the Northeast of Schellbourn Station which is located on U.S. Hwy. 50-93 about 40 miles north of Ely, Nevada.

Access to the property is by an all weather gravelled road, starting at Schellbourn Station, and running easterly through Schellbourne Pass, of the Schell Creek Mountain Range to the Spring

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Valley Road and thence over a dirt ranch road to the north and west. The gravel road is maintained by the County, but the ranch road could become impassable for short periods of time due to snows and flash rains. The total distance from Schellbourne Station to the property is 17½ miles and from Schellbourne Station to the tungsten mill at Cherry Creek 15.4 miles which makes the ore haulage approximately 33 miles.

Limited supplies and equipment are available at Ely, Nevada, but the nearest source for major items is Salt Lake City, Utah, 190 miles distant.

The nearest living accommodations are at Ely, Nevada and because of the distance, which makes commuting prohibitive, we have established a camp site on the property where employees can obtain meals and lodging.

(e) Since starting operations on this property we have had no difficulty in finding qualified mine labor at Ely, Nevada. Should this source become depleted we are operating mines near Moab, Utah and Tucson, Arizona and could, no doubt, obtain labor of any type at these points.

No water is, at present, available on the property and both industrial and domestic supplies must be hauled from the Henroid Ranch about six miles away.

Mine and camp equipment now on hand consists of the following major items: Rock drills with legs, head frame, hoist with cable and bucket, compressor, air hoses and water lines, water and fuel tanks, pick-up trucks, all weather bunk tents, cook and dining tent, stoves, tables, bunks etc. This equipment will be added to considerably during the next few months.

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

5. THE EXPLORATION PROJECT

(a) The mineral for which we wish to explore is scheelite, a calcium tungstate.

(b) The purpose of this exploration project is to determine the location and size of the source ore bodies and their branching veins in order that intelligent mining proceedures may be formulated. The first step is to deliniate the various surface outcrops by lateral trenching across the apparent trend of the veins. When the strike and dip of these veins has been determined, roads should be constructed along the veins for drilling rig access and holes should be drilled at the intervals shown on Exhibit "B". These holes will be relatively shallow and cores should be recovered throughout their entire length. Assays should then be run on the portions which black light inspection show to contain ore.

It is probable that drilling will be handled by contract, but trenching and road building will be accomplished by mine labor with a rented bulldozer and front end loader. Records will be kept strictly in accordance with DMEA requirements. Samples will be assayed by our laboratory, Southwest Assay Corporation of San Antonio, Texas and, if necessary, such other laboratory as may be selected by DMEA.

(c) The work will start within 30 days and be completed within 4 months from the date of the signing of an exploration project contract.

(d) The Balcones Exploration and Drilling Corporation, a Texas oil company, now operate a lead and silver mine (Dog Town Mine) in the Pima Mining District near Tucson, Arizona and a uranium mine (Golden West Mine) in the Colorado Plateau near Moab, Utah, as well as the tungsten mine covered by this application. They are well equipped to handle the operation

of mining ventures of any type and also realize the importance and sometimes the necessity of obtaining the services of experts when needed.

Their Chief Engineer, Howard L. Grant, is a Registered Professional Engineer with a B.S. in Civil Engineering (Mining Major) from Union College. He has had nearly 30 years of experience of which about half was directly connected to mining and kindred operations including mill design and construction. Among other he has worked for Shenandoah Dives, Stearns-Roger, Mayflower Mining Co., V. L. Beavers and the Ozark Mine and Smelting Corp. He has also worked in a private consulting capacity in mining engineering and property surveys and appraisals. He is now engaged in the general supervision of our oil and mining operations and will devote a considerable amount of his time to this exploration project, should it be approved.

6. ESTIMATE OF COSTS

If this application is approved it is our desire that the work be carried out on a unit cost basis and the following cost estimates are prepared accordingly. In order that a true picture may be presented we are including, herewith, an enlarged aerial photograph of the area marked Exhibit "D".

(a) Independent Contracts:

The following unit prices are the average of prices obtained in a canvass of three active drilling companies experienced in this area:

CORE HOLES

49 Holes From 100' to 300' deep.

Depth	No.Holes	Footage	Cost/Foot	Total Cost
0' to 100'	49	4900	$2.00	$ 9,800.00
100' to 200'	25	2500	2.50	6,250.00
200' to 300'	10	1000	3.25	3,250.00
TOTALS		8400	$2.30 (av.)	$19,300.00

Balcones Exploration & Drilling Corp.
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It will be noted by referring to Exhibit "B" that the drill holes start near the areas of known mineralization and follow the trends of the veins as determined by exploratory trending. The drill points shown on this map departing from the outcrop areas are purely diagrametric and their actual location will depend upon the results of the exploratory trending. It is believed that total footage of drill holes shown above will be sufficient when properly located.

(b) Labor, Supervision, Consultants:

Included, herewith, is the labor required for the construction of the road to the drill and trench sites and the excavation of the exploratory trenches. Included also is one engineer who will lay out all work, keep the necessary records and act as supervisor under the direction of our Howard L. Grant and your Field Team. Mr. Grant will spend as much time on the project as may be necessary.

Item	Time	Unit Cost	Total Cost
1 Bulldozer Operator	350 hrs.	$3.00/hr	$ 1,050.00
2 Laborers	1000 hrs	1.50/hr	1,500.00
2 Miners	1000 hrs	2.25/hr	2,250.00
1 Engineer	4 months	500.00/m0	2,000.00
1 Geological consultant	4 days	100.00/day	400.00
General Supervision		Lump Sum	1,200.00
	TOTAL LABOR COST		$ 8,400.00

(c) Operating Materials and Supplies:

Item	Unit	No. Units	Cost/Unit	Total Cost
Dynamite,Caps & Fuses	Case	10	$ 15.00	$ 150.00
Gasoline	Gal.	400	0.27	108.00
Lubricants	-	-	Lump Sum	40.00
Drill Bit Sharpening	-	-	" "	30.00
Air & Water Hose Pipe & Fittings			" "	200.00
Stakes, Sample Sacks, Etc.				50.00
Office Supplies				40.00
TOTAL COST OF MATERIALS & SUPPLIES				$ 618.00

Balcones Exploration & Drilling Corp.
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San Antonio 5, Texas

(d) Operating Equipment:

Item	Months	Rent/Month	Total Cost
Bulldozer	4	$800.00	$ 3,200.00
2 Rock Drills	4	300.00	1,200.00
Compressor	4	250.00	1,000.00
Service Truck	4	100.00	400.00*
TOTAL COST OF OPERATING EQUIPMENT			$ 5,800.00

* Use allowance for Company owned truck

(e) Rehabilitation and Repairs:

It is not anticipated that any of the equipment or other items to be used in this project will require any rehabilitation or repairs prior to the start of the project.

(f) New Buildings, Improvements, Installations:

No new buildings, improvements or installations will be required.

(g) Miscellaneous:

Machinery, Maintenace & repairs	$ 400.00
Sample Analysis: (5 per hole) 250 assays @ $7.00	1,750.00
Direct Home Office Expense, Accounting, Drafting Typing, Etc.	500.00
Insurance (Wormans Comp., etc.)	650.00
Payroll Taxes (10% of $8,400.00)	840.00
	$ 4,140.00

* This price current at our laboratory

(h) Contingencies:

10% of items (a), (b), (c), (d), & (g)	$ 3,825.00

SUMMARY OF COSTS

(a) Independent Contracts	$19,300.00
(b) Labor, Supervision & Consultants	8,400.00
(c) Operating Material & Supplies	618.00
(d) Operating Equipment	5,800.00
(g) Miscellaneous	4,140.00
(h) Contingencies	3,825.00
ESTIMATED TOTAL COST OF PROJECT	$42,083.00
LESS 25%	10,520.75
AMOUNT OF LOAN REQUESTED	$31,562.25

Balcones Exploration & Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

7.

(a) We are prepared, with cash on hand, to furnish our share of the total cost of this project, namely $10,520.75

(b) Our share of the costs will be paid in cash, assay services and in the use of Company owned equipment.

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 Oct. 3, 1956

Balcones Exploration & Drilling Corporation
(APPLICANT)

BY James E. Duke Jr.
Col. James E. Duke, Jr., President

Approved:
Leslie J. Olsen
Owner Of Georgia Claims

EXHIBIT "A"

Balcones Exploration and Drilling Corp.
403 East Travis Street
San Antonio 5, Texas

OPERATING AGREEMENT

THIS AGREEMENT made and entered into this 2nd day of July, 1956 by and between LESLIE J. OLSEN of Salt Lake City, Utah, hereinafter designated as the First Party, and BALCONES EXPLORATION AND DRILLING CORPORATION of San Antonio, Texas, hereinafter designated as Second Part;

W I T N E S S E T H:

THAT WHEREAS, the First Party is the owner and locator of the following described mining claims located in Whit Pine County, State of Nevada:

Georgia No. 1, recorded in Book 195 Page 368;
Georgia No. 2, recorded in Book 199 Page 2;
Georgia No. 3, recorded in Book 199 Page 3;
Georgia No. 4, recorded in Book 199 Page 4;
Georgia No. 5, recorded in Book 199 Page 5;
Georgia No. 6, recorded in Book 199 Page 6; and

WHEREAS, the Second Party is desirous of undertaking a developing and mining operation upon said claims with a view to developing and shipping any marketable ores that may be located therein;

NOW THEREFORE, in consideration of the sum of One Dollar ($1.00) by each to the other in hand paid, receipt of which is hereby acknowledged, and in consideration of the mutual promises, covenants and agreements hereinafter set forth to be kept and performed by the parties hereto, it is mutually understood and agreed by and between them as follows:

1. Second Party agrees to enter into immediate possession of said claims and to conduct thereon a mining operation, and in the connection Second Party agrees to conduct such operation in workmanlike manner and in accordance with the generally accepted and suitable methods and practice of modern mining, with a view to recover the greatest amount of merchantable ores from the above-described claims.

2. Second Party agrees to comply in every respect with the laws of the State of Nevada and of the United States now existing or hereafter adopted, and Second Party agrees to comply with all of the lawful rules and regulations of any federal or state bureau or department in any way affecting or regulating the management and operation of mining property.

3. Second Party particularly agrees to comply with the Workmens' Compensation Laws of the State of Nevada and agrees to hold First Party safe and harmless from any and all liability arising from or growing out of the mining operations on said property, or the transportation of ores from said property to any buying station, mill or smelter.

4. Second Party agrees to furnish and provide the necessary machinery, equipment and transportation facilities for the mining and delivery of ores and agrees to keep said machinery, equipment and transportation facilities in good working condition and repair. Second party further agrees that the machinery and equipment furnished shall not be unnecessary and shall only be such as is reasonably necessary for the greatest production of ores at the lowest reasonable cost. It is understood that said machinery and equipment shall be obtained and furnished at the sold expense of the Second party; provided, however, that the actual cost of said machinery and equipment may be charged against the interest of the First Party and the Second Party in the net ore profits in accordance with the division thereof hereinafter set forth. This charge shall be made before any division of net ore profits shall be made to either of the parties. All machinery and equipment paid for out of the net ore profits shall be owned jiontly by the parties as follows: forty percent (40%0 by First Party and sixty percent (60%)by Second Party.

5. It is further understood and agreed that the Second Party shall advance the sum of One Thousand Dollars ($1,000.00) to the First Party upon the execution of this Agreement, said sum to be charged against the interest

of the first party in the net ore profits. Said advance of One Thousand Dollars shall not otherwise be repaid to Second Party. It is further understood and agreed that First Party shall be paid a salary of $100.00 per week, commencing July 1, 1956, for which salary First Party agrees to assist in the developing of the Property. After ore shipments have commenced and in the event First Party's share in the net ore prifits shall exceed the sum of $100.00 per week, the employment of First Party may be terminated by Second Party. In the further event that sufficient ore is not found within six weeks to justify the continuance of mining operation upon the property, such employment may be terminated by Second Party. Second Party agrees to make reasonable advances to First Party against production of ores when the development of the property has progressed to the point where such ores can be evaluated.

6. It is understood and agreed that the net ore profits shall be distributed forty per cent (40%) to First Party and sixty per cent (60%) to Second Party. Said net ore profits shall be construed to mean the profits obtained after the deduction of the reasonable cost of conducting the mining and developing operation herein agreed upon. No charge shall be made against the mining and developing operation for officers of the Second Party, or employees of the Second Party, for work or services rendered outside of the State of Nevada and not directly connected with the mining and developing of the above-described claims in White Pine County, Nevada.

7. Second Party agrees to keep accurate and complete records and books pertaining to the operation contemplated by this agreement, and said records and books shall be available for inspection at any time by the First Party.

8. Settlement and distribution of net ore profits shall be made within twelve (12) days after Second Party receives a shipment check, and the portion thereof distributable to First Party shall be distributed to his account

within said time at the Central Branch of the Continental Bank and Trust Company located 1575 South Main Street in Salt Lake City, Utah.

9. It is further understood and agreed that should the First Party determine that Second Party is charging excessive wages or excessive operation costs for mining and developing said property, the Second Party upon written demand, and within thirty (30) days from the receipt of said demand, shall produce evidence showing the actual cost of said mining operation and showing that the wages, charges and other costs are not in excess of charges usually made for wages and other costs in the same vicinity at the time involved; and if said costs or charges are excessive and out of proportion to charges ordinarily made in like operations, then Second Party shall remit and pay to First Party such sums as shall represent the excessive charges.

10. The Second Party agrees to keep the mining claims hereinafter described free and clear of all liens or encumbrances of any nature whatsoever.

11. This agreement shall remain in force as long as minerals are developed and produced from said property in commercial quantity and quality, but should production stop by reason of exhaustion or exploitation of a known body of ore, or should the same be prevented by restrictions on the part of the Atomic Energy Commission, the United States Government, or any other State or Government Agency, or should production be discontinued by reason of labor strikes or Acts of God, or other acts not within contol of the Second Party, then this operating agreement shall continue until such restrictions, Acts of God, or labor strike is removed and the Second Party shall have a reasonable time thereafter to commence operations on said premises, and to commence prospecting for other bodies of ore upon said premises above described.

12. Second Party agrees that First Party, his agents or representatives shall at all reasonable times have the right to examine the said mining

operations conducted by the Second Party under this Agreement, provided such examination shall be made at such times and in such manner as will not interfere with mining operations.

13. It is mutually understood and agreed between the parties hereto that it is the intent of this Agreement that the sale of minerals from said claims above described shall pay all expenses, and that in no event will First Party be liable, individually, to the Second Party, or to any other person, in connection with the operation of said claims or the acquisition of machinery to be used in connection therewith.

14. In the event that marketable ore cannot be found in quantity and quality and it shall be economically unsound to continue mining operations, the Second Party may terminate this Agreement by giving First Party ten (10) days notice of its intention so to do by registered mail.

15. In the event the Second Party shall fail to comply with the terms of this agreement as herein set fourth, the First Party shall have the right to terminate this agreement and take possession of the property, and in addition thereto First Party shall have any other right or remedy which shall be available to him either in law or in equity.

16. In the event it shall become necessary for either party to employ an attorney to enforce any right arising under this Agreement, the party in default agrees to pay a reasonable attorney's fee.

IN WITNESS WHEREOF, the First Party has hereunto subscribed his name and the Second Party has caused this agreement to be executed and its corporate seal to be affixed thereto duly authorized.

S/ Floyd K. Howell
WITNESS

S/ Leslie J. Olsen
FIRST PARTY

BALCONES EXPLORATION & DRILLING CORPORATION

S/ Thomas J. Manion
WITNESS

BY S/ James E. Duke, Jr. , President
SECOND PARTY

S/ Cyril H. Curtis
NOTARY PUBLIC

Cyril H. Curtis, Notary Public as to Leslie J. Olsen residing in Salt Lake City, Utah. My Commission Expires Dec. 7, 1957

STATE OF TEXAS

COUNTY OF BEXAR

Before me, Claude F. Spang, a notary public in and for Bexar County, Texas on this day personally appeared James E. Duke, Jr, President of Balcones Exploration and Drilling Corporation, a Texas corporation known to me to be the person and officer of said corporation, and acknowledged to me that he executed the same in his official capacity as president of said corporation as an act of the corporation.

Given under my hand and seal of office this 2nd day of July, 1956.

S/ Claude F. Spang
Notary Public
Bexar County, Texas

EXHIBIT "C"

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OCT 15 1956

GEOLOGICAL REPORT

COVERING

GEORGIA TUNGSTEN MINING CLAIMS

FOR

BALCONES EXPLORATION & DRILLING CORPORATION

403 East Travis Street

San Antonio 5, Texas

BY

DAVID HAND

CONSULTING GEOLOGIST

P.O. BOX 140, KIMBERLY, NEVADA

Kimberly, Nevada
September 6, 1956

Mr. Howard L. Grant
Superintendent Engineering Dept.
403 East Travis Street
San Antonio, Texas

Dear Sir:

During the week of September 2, 1956, I visited and examined in detail a tungsten property in Spring Valley, White Pine County, Nevada. This was the same property I had reported on in a report dated August 22, 1956. Portions of that report have been integrated into this document. This report is based on field study, transit-stadia traverse, Brunton-tape traverse, aerial photograph interpretation and a library study of the literature pertaining to this area.

Location, climate and accessibility: The prospect, consisting of six unpatented mining claims, is in Sec. 10, T23N, R65E Mount Diablo Meridian. It is the area known locally as Spring Gulch in Northern Spring Valley, White Pine County, Nevada. The claims are laid out two long in a north-south direction and three wide in an east-west direction. The area is accessible throughout most of the year by a dirt road from Schellbourne Station on US 50-93; the road is presently in fair condition but would have to be reconditioned before it could be used for heavy traffic. If operations are to be started on this prospect serious consideration should be given to scouting Spring Gulch for a shorter route to Cherry Creek, the nearest tungsten mill. The weather is fairly moderate and the property could be worked as a year-round operation. Snow stays on the ground for most of the winter but should not seriously affect underground operations; the weather would, however, make surface operations uncomfortable and add to costs.

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Geology: In this area the Schell Creek Range is composed of a thick series of Cambrian sediments. These sediments include quartzites, limestones, and shales but the sediments found in the map area are massive and thin-bedded limestones. The beds dip generally westward at a shallow angle and they strike roughly north-south.

The Schell Creek Range is a typical Basin-and-Range type structure. It is a horst between two grabens with north-south hinge and step faults causing the uplift of the range. The mountains are breached by several east-west faults that generally control the gaps through the range.

Sedimentary rocks: The only sediments cropping out in the map area are limestones. There are two different types present--a massive limestone and a thin-bedded limestone. These sediments probably represent two different facies of a rock equivalent to the Eldorado limestone (Cambrian in age) of the Eureka District, Eureka County, Nevada.

Massive Limestone: This rock is a light to dark gray fine-grained limestone. It is cut by numerous veinlets of coarsely-crystallized calcite. It is made up of beds that range in thickness from one foot to three feet; some of the limy beds are separated by very thin layers of chert and others by very thin layers of shale.

These rocks form bold outcrops and all of the cliff-like outcrops in the map area are made up of these beds. In the western portion of the map area these beds were observed from the open cut on the road westward to the igneous dike and beyond. They account for most of the base of the range in the area. In the eastern portion of the map area, however, they are generally absent along Spring Gulch from the Shaft eastward, almost to the igneous dike on that margin of the area where they again crop out.

The hill in the central portion of the area is composed entirely of this so-called "massive limestone". These beds strike N 10-25° E and dip 7-15° W. They have a set of joints that strike about N 40 E and dips steeply to the east. These limestones contain numerous narrow stringers of fine-to-coarse-grained calcite. Several of these stringers contain associated tungsten mineralization.

Thin-bedded Limestone: This rock is light to dark gray in color and, locally, has a strongly mottled appearance. It is quite thin-bedded, ranging in thickness from one quarter of an inch to six inches. Texturally the rock is generally uniformly fairly fine-grained but locally it ranges from a calci-lutite to a calc-arenite. Several interbedded shaley and cherty layers were noted but they did not appear to be associated with the tungsten mineralization.

The thin-bedded limestone crops out prominently only at the shaft in Spring Gulch but there is another outcrop at the open cut on the road. At the shaft the tungsten mineralization occurs in narrow stringers cutting the bedding of the thin-bedded limestone. The attitude of these rocks is about the same as those of the massive limestone.

Igneous Rocks: Igneous rocks crop out on both sides of the map area and generally delineate the "ore zone" within which the tungsten mineralization occurs. The rocks are similar in both texture and composition and they are spheroidally weathered. They are reddish-brown on the weathered surfaces and light gray on the fresh surface.

They are composed essentially of feldspar and quartz. Most of the feldspar is orthoclase but a few of the phenocrysts appear to be plagioclase.

Alteration has converted the feldspars, at least in part, to sericite and clay. Quartz phenocrysts are abundant and range from anhedral to subhederal in shape. No petrographic examinations were made of this rock but megascopic magnetite and biotite were noted. These rocks are probably granodiorites.

The granodiorites occur as dikes cutting the limestones of the area. The contact, where it can be observed, is sharp and clear-cut. No megascopic evidence of contact metamorphism was noted. It is possible that the dikes occupy portions of fault or shear zones that more or less paralleled the longitudinal axis of the Schell Creek Range.

The dike that appears to form the east boundary of the mineralization cannot be traced south of Spring Gulch and is covered to the north by alluvium. The dike strikes generally N 20° E and dips 85° E and is about 60 feet wide.

The dike on the west edge of the map area cannot be traced south of Spring Gulch but it extends for a considerable distance to the northwest. It strikes about N 10° W and appears to be vertical. It is quite variable in width and appears to widen considerably toward the northwest. Near the road it has a width of about 60 feet but higher on the hill it has widened to more than 150 feet.

During the first examination of this property bounders were found in Spring Gulch that were arrantly in place. They were identified as a basic igneous rock. Continued field work failed to locate this material in place. Trenches should be cut in this area to determine whether or not this rock is present.

The sediments which comprise the bulk of the Schell Creek Range all strike N 10-30° E and dip 8-40° W. The attitude of the limestones in the map area conforms with the general attitude of the sediments but dips of more than 15° W were not noted during this examination.

The Schell Creek Range was formed by "normal" Basin and Range type faulting with hinge faulting apparently being responsible for most of the uplift of the eastern portion of the range. The main fault evidently parallels the eastern front of the range. The range is breached by a number of east-west trending faults that are responsible for many of the gaps cutting the range. No evidence of folding was encountered.

The major structure in the map area is, of course, the implied fault that caused the uplift of the range; no discussion is given here about that structure since it does not materially affect the problem.

The most important fault directly involved with the mineralization in this area is the Spring Gulch Fault. This fault formed Spring Gulch, which trends about N 70° W through the map area. Alluvium covers most of the bedrock along this geomorphic feature; locally outcrops of limestone and granodiorite can be observed. Unfortunately no marker beds can be traced on both sides of Spring Gulch and so no estimation of heave and throw or even of dip of the structure can be made.

Several small silicified structures cut the area and trend slightly east of north. They are variable in dip with some of them dipping to the east and a few dipping to the west. The tungsten mineralization is associated with several of these faults or joints; they will be discussed more thoroughly in the section on ore deposits.

The relationship of the intrusions to the faulting is not clear. The dike on the eastern margin of the area appears to be cut off by the Spring Gulch Fault but the area is covered with alluvium and no outcrops are exposed for study. The same situation occurs to the west where the dike cannot even be traced to the gulch but is covered with terrace and mantle material. It is felt, however, that the intrusions took place shortly after the faulting as was the case in Aurum, an old mining camp a short distance to the south (Hill, James M. 1916, Notes on some mining districts in Eastern Nevada, U. S. G. S. Bull 648 pp 186-196).

Ore Deposits: Tungsten, in the form of scheelite, occurs in small scattered stringers in several places in the map area. Each of these occurrences is described below.

Outcrop one: This outcrop is in the western part of the map area and is exposed in a very shallow open cut. It consists of two stringers of coarse-grained calcite and quartz with associated scheelite. The stringers strike from NS to N 35 W and they appear tobe vertical. They are enclosed in massive gray limestone that is cut by numerous small stringers of white calcite; these stringers are of random orientation and vary in width from 1/4" to 1 1/2". The two tungsten bearing stringers are the widest veinlets in this outcrop and the only ones carrying tungsten.

Outcrop two: This outcrop is a short distance southeast of outcrop one and appears to form a north-west trending mineralized with the above mentioned occurrence (see sketch Western outcrops). A number of narrow veinlets of coarse-to-fine-grained calcite with associated scheelite; little quartz was noted. The veinlets strike N 25° W and dip 55-60° No. In one part of the open cut on this outcrop a series of veinlets are concentrated in a width of about 18"; this occurrence is one of the most promising on the

property. The host rock in this area is massive gray limestone that strikes N 6-25° E and dips 10-15° W.

Outcrop three: This outcrop is in the western part of the property just north of the road is it is probably associated with outcrops one and two. Stringers of calcite and quartz carrying some scheelite cut massive gray limestone. The tungsten bearing stringers strike N 20-23° E and dip steeply to the east.

Outcrops one and two form a N 15° W trending tungsten bearing zone that extends from a small outcrop in Spring Gulch northwest almost to the road that extends through the southern portion of the map area. A short distance from the road it is cut off by a silicified zone that strikes N 18° E and dips 70 E. Slickensides strike N 42° W and plunge 68° S. They obviously imply faulting along this plane. The zone cannot be traced north of the road but outcrop three is almost on strike with this zone, however, it differs in dip.

Another silicified zone occurs west of the zone just mentioned and strikes about parallel to it. A fault striking about east-west might be implied off-setting these zones, but it is more probable that the two outcrops form two parallel faults.

Outcrop four: This outcrop is just off the road traversing the map area and it is exposed in an open cut approximately 40 feet long and 5 feet wide. Tungsten occurs along a fault zone that strikes N 10° E and dips 55-60° E. The footwall of this fault is composed of massive gray limestone striking N 25° E and dipping 10° W. The hanging wall is composed of thin-bedded limestone that strikes N 20-30° E and dips 5-15° E.

Scheelite occurs in a bad about of calcite and quartz about one foot wide that lies between the hanging and foot walls of this fault. The calcite is coarse-grained and the scheelite occurs with the quartz.

Outcrop five: The only known shipment of tungsten ore from this property has been from this area around the shaft presently being sunk. Several tons of ore averaging between one and one and one-half percent WO_3 was shipped to the mill at Cherry Creek, Nevada. Tungsten occurs as scheelite in narrow veinlets that cut across the bedding of the thin-bedded limestone that is the host rock here. The zone of tungsten mineralization strikes general N 30° W and dips 60-75° N. The thin-bedded limestone strikes N 15° E and dips at a shallow angle to the west. Extensive trenching has been done along this outcrop and scheelite can be traced along the surface for a distance of at least 110 feet. The stringers are nowhere large in size but they are fairly persistent. The shaft is presently about 25 feet deep and scheelite can be seen down most of its length.

Outcrop six: Three outcrops are described under this heading because they are in the same general area and are a considerable distance from the other occurrences of tungsten in the map area. These outcrops are in the north-central portion of the map area and occur in the massive gray limestone so characteristic of this area. Their strikes vary from N 15-35° E and their dips range from 70° W to vertical. They are all narrow stringers or veinlets of white calcite cutting through the limestone. Scheelite occurs locally in these stringers.

A unique feature of these deposits is that although they are apparently genetically related to the acid igneous intrusions there is no evidence of contact metamorphism. The general type of limestone replacement scheelite deposit would include garnet-epidote rock. In this area, however, no tactites or skarns were observed.

Summary and Recommendations:

Scheelite, calcium tungstate occurs in coarse-grained calcite and quartz stringers cutting both massive and thin-bedded limestones. These tungsten bearing stringers are apparently genetically related to two granodiorite dikes that delineate the east and west limits of the mineralized area. Faulting has played a prominent part in the formation of most of the occurrences of scheelite and has been responsible for some of the geomorphic components of the topography.

The following recommendations are suggested:

1. Continue work in the shaft in Spring Gulch; sink this shaft to a depth of 50' and then drift a distance of 60' along the vein on both sides of the vein.
2. Continue work on outcrop two. Concentrate efforts on the part of the open cut that had the best showings of tungsten. Try and open this outcrop to a depth of at least 10'.
3. Trench across Outcrop one and see whether the two stringers persist with any depth at all.
4. Do more trenching on the outcrop on the south side of Spring Gulch where tungsten crops out.
5. Trench along the strike of the zone formed by these three outcrops and try to find out whether the tungsten mineralization is continuous.
6. Carry on trenching program on the outcrop just north of the road. Try to determine whether this mineralization continues to the northeast.
7. Clean out the pit at outcrop four. Scheelite is quite abundant in parts of the calcite vein and more work should be done here. Short drill holes (core drill) might be employed here to advantagebut since mining equipment is available on the property trenching could probably be done at a lower cost.

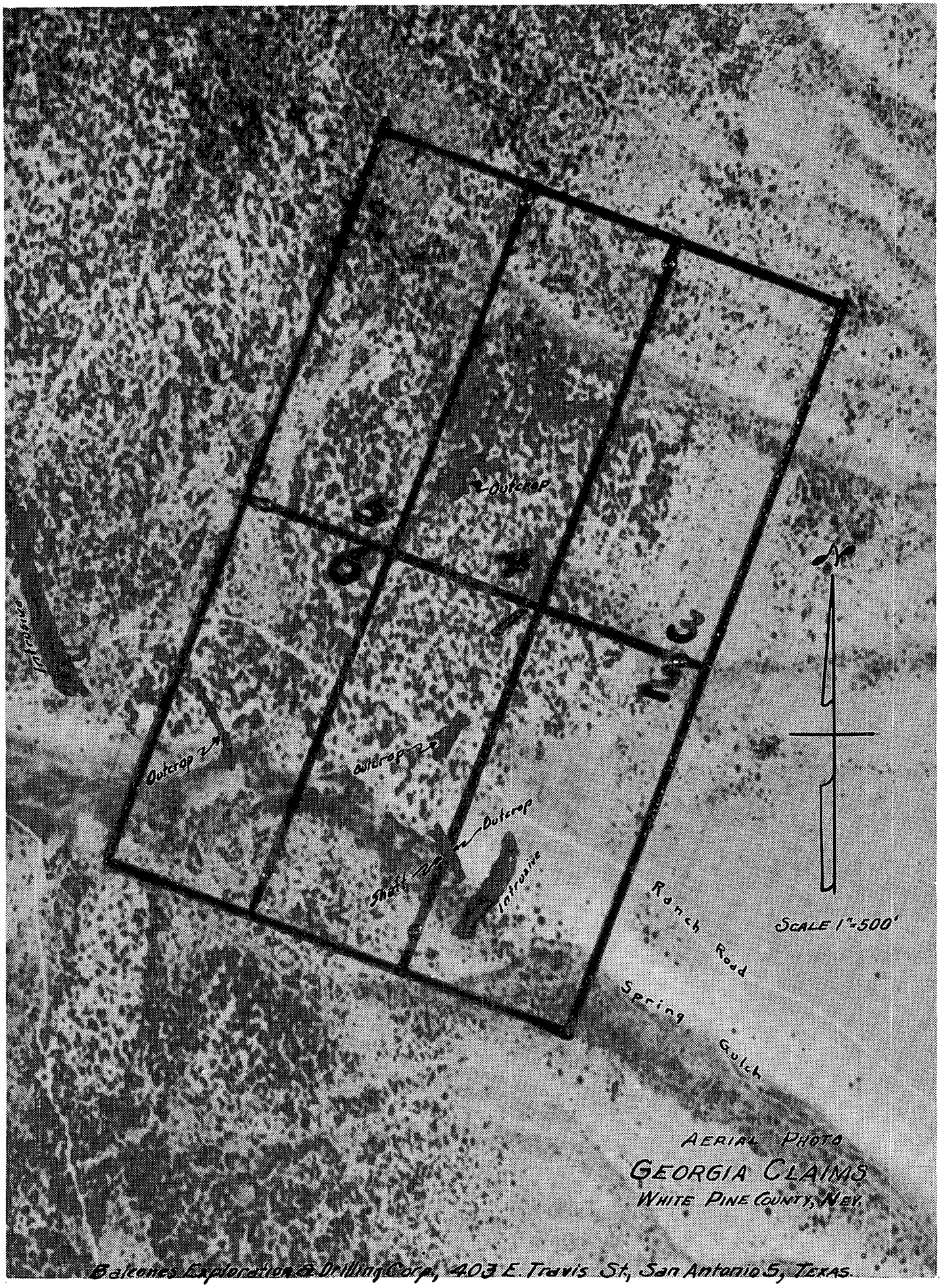
8. Trench across the silicified fault zone against which the tungsten zone abuts near Outcrop One.

9. Most of the work should be confined to the areas just listed but additional trenching should be done on the outcrops in the north central part of the map area.

Respectfully submitted,

David Hand
Consulting Geologist
Kimberly, Nevada

EXHIBIT "D"



AERIAL PHOTO
GEORGIA CLAIMS
WHITE PINE COUNTY, NEV.

Balcones Exploration & Drilling Corp., 403 E. Travis St., San Antonio 5, Texas.

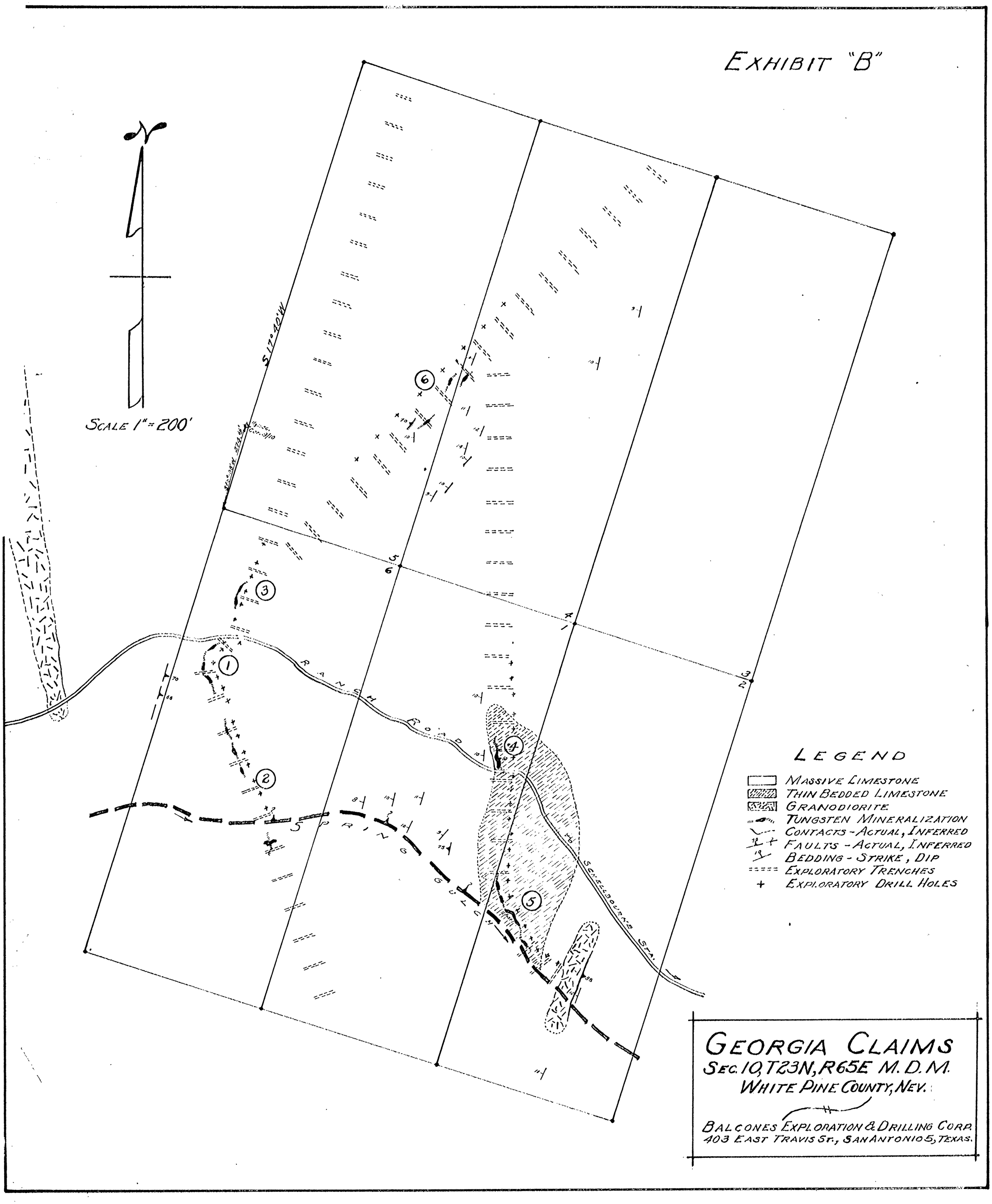
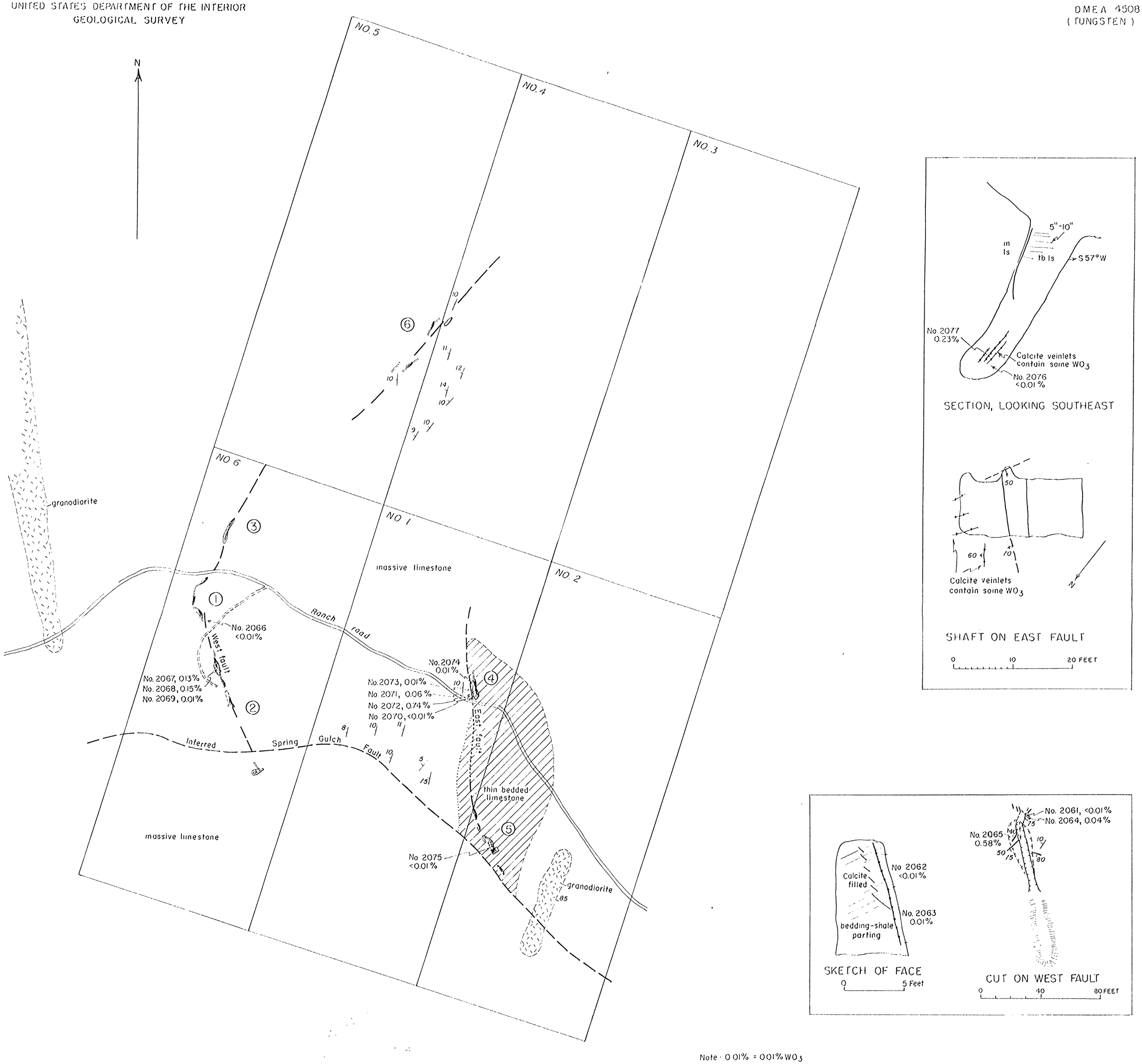


EXHIBIT "B"
SCALE 1" = 200'
S 17° 40' W
N 73° 00' W 2744.8'
COR. 9/10
6
5
4
3
1
2
3
4
5
RANCH ROAD
SPRING GULCH
SCHEELBOURNE STA.
LEGEND
MASSIVE LIMESTONE
THIN BEDDED LIMESTONE
GRANODIORITE
TUNGSTEN MINERALIZATION
CONTACTS - ACTUAL, INFERRED
FAULTS - ACTUAL, INFERRED
BEDDING - STRIKE, DIP
EXPLORATORY TRENCHES
EXPLORATORY DRILL HOLES
GEORGIA CLAIMS
SEC. 10, T23N, R65E M.D.M.
WHITE PINE COUNTY, NEV.
BALCONES EXPLORATION & DRILLING CORP.
403 EAST TRAVIS ST., SAN ANTONIO 5, TEXAS.



Note: 0.01% = 0.01% WO_3

Geology by David Hand, 1956
Modified by R.G. Reeves, 1956

Figure 2. GEORGIA CLAIMS, WHITE PINE COUNTY, NEVADA