400

September 11, 1953

3014
Tung

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division

Subject: Denial of application by Field Team, Region IV
Docket No. DMEA 3014 - Tungsten
Bodmar Bros.
Bonanza No. 2
Boulder County, Colorado

The applicants requested exploration assistance in the amount of $7,850.00 to explore two tungsten-bearing veins on the 115-foot level of the Bonanza No. 2 mine.

The workings on the 115-foot level were examined by the Field Team after being unwatered by the applicant at his own expense.

The appearance of the veins (A and B) on the 115-foot level was very disappointing to the examiners. The raise on (A) vein shows a little ferberite in a 4" to 6" quartz stringer just above the level. A little ore is reported to have been taken out when the raise was driven, but the work was abandoned when the vein split at 40 feet above the level.

Vein (B) shows some quartz mineralization in a short raise and stope at a crosscut but there is no showing of ore. No ore remains in the stope walls and it appears that the production of tungsten ore from vein (B), if any, was small. Both veins are in granite and granite gneiss.

The two veins, worked to some extent in open cuts on the surface, are now covered by a tailings pond. The veins on the 115-foot level cannot be definitely correlated with the veins reported on the surface, but they appear to be the same. If so, vein (A) has been adequately explored and no additional exploration is warranted. If the veins do not correlate, exploration would entail blind drifting at an expense not commensurate with probable discovery of ore.

The weak mineralization and character of vein (B) do not justify additional exploration along vein (B) or along either structure if they do not correlate.

The examiners concluded that there is little chance of making a significant discovery of tungsten ore and, therefore, recommended that the application be denied.

The Iron and Ferro-Alloys Division, DMEA, concurs in the denial.

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

CC: Docket
Adm. Reading File
Code 400

JHopkins/ls
9/11/53

FILE COPY
SURNAME:

Hopkins
Martin

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

September 11, 1953

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division

Subject: Denial of application by Field Team, Region IV
Docket No. DMEA 3014 - Tungsten
Bodnar Bros.
Bonanza No. 2
Boulder County, Colorado

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The examiners concluded that there is little chance of making a significant discovery of tungsten ore and, therefore, recommended that the application be denied.

The Iron and Ferro-Alloys Division, DMEA, concurs in the denial.

Signed

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

CC: Docket
Adm. Reading File
Code 400

JHopkins/ls
9/11/53

MWS
9-16-53

9-16

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

September 11, 1953

MEMORANDUM

To: Administrator, DMEA

From: Iron and Ferro-Alloys Division

Subject: Denial of application by Field Team, Region IV
Docket No. DMEA 3014 - Tungsten
Bodnar Bros.
Bonanza No. 2
Boulder County, Colorado

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The workings on the 115-foot level were examined by the Field Team after being unwatered by the applicant at his own expense.

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The two veins, worked to some extent in open cuts on the surface, are now covered by a tailings pond. The veins on the 115-foot level cannot be definitely correlated with the veins reported on the surface, but they appear to be the same. If so, vein (A) has been adequately explored and no additional exploration is warranted. If the veins do not correlate, exploration would entail blind drifting at an expense not commensurate with probable discovery of ore.

The weak mineralization and character of vein (B) do not justify additional exploration along vein (B) or along either structure if they do not correlate.

The examiners concluded that there is little chance of making a significant discovery of tungsten ore and, therefore, recommended that the application be denied.

The Iron and Ferro-Alloys Division, DMEA, concurs in the denial.

W S Martin

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

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

224 New Customhouse
Denver 2, Colorado

August 24, 1953.

WSM

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Field Team, Region IV

Subject: Final Report and Supplemental Memorandum, DMEA Docket 3014, (Tungsten), Bodnar Brothers, Bonanza No. 2, Boulder County, Colorado.

Enclosed are four copies of the final report and supplemental memorandum on the subject docket, a copy of the letter of denial to the applicants, and two copies of Form 3b.

W. H. King
W. H. King

W.H.K.

E. N. Hawkman
for A. H. Koschmann

Enclosures

DENIED

313

Reviewed by
DMEA OPERATING COMMITTEE
9-4-53
(date)

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

224 New Customhouse
Denver 2, Colorado

August 24, 1953.

Mr. George A. Bodnar and
Mr. Michael Bodnar
500 Grant Avenue
Louisville, Colorado

Re: Docket No. DMEA-3014

Gentlemen:

Reference is made to your application for Government aid on the Bonanza No. 2 Mine.

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

A careful study of your property and data available to this agency reveals that the probability of disclosing mineable reserves of tungsten by your proposed exploration program is not considered sufficiently promising to justify Government participation. Under these circumstances, we regret to advise that your application for exploration aid is denied.

Very truly yours,

W. H. King
W. H. King
Field Team, Region IV

HMC:cwm

cc: Docket
Administrator, DMEA
WMTraver
AHKoschmann (2)
Chron.

E. N. Harshman
for A. H. Koschmann
Field Team, Region IV

Reviewed by
DMEA OPERATING COMMITTEE
9-4-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

August 24, 1953.

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report and Supplemental Memorandum, DMEA Docket 3014 (Tungsten), Bodner Brothers, Bonanza No. 2, Boulder County, Colorado.

Enclosed are eight copies of the final engineering report on the subject docket.

The applicant requested $7,850.00 to explore two veins on the 115-foot level. At the time of the first field examination the shaft and underground workings were flooded. The applicant unwatered the shaft at his expense and the field examiners reexamined the property including the 115-foot level and they now recommend that the application be denied.

We concur in this recommendation.

W. H. King
W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
9-4-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
August 6, 1953

Memorandum

To: Executive Officer, Field Team, Region IV

From: Chief, Mineral Resources Branch, Mining Division, Region IV

Subject: DMEA 3014 Bonanza No. 2 mine (Tungsten), Bodnar Brothers, lessee, Boulder County, Colorado - Supplemental memorandum

Submitted herewith are the original and eight copies of M. H. Salsbury's supplemental memorandum on docket 3014.

After examination of the mine workings, which were unwatered by the applicants at their own expense, he finds that the possibilities of an ore discovery commensurate with the costs of exploration are poor and recommends denial of the loan. I concur with the recommendation.

W. M. Traver

W. M. Traver

enclosures

cc ✓8
3014
DMEA Chron.

WMT/pam

Reviewed by
DMEA OPERATING COMMITTEE
9-4-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
August 6, 1953

Memorandum

To: Chief, Mineral Resources Branch, Mining Division, Region IV

From: M. N. Salsbury

Subject: DMEA 3014 Bonanza No. 2 mine (Tungsten), Bodnar Brothers, lessee, Boulder County, Colorado - Supplemental memorandum

On July 20, 1953, after Bodnar Brothers notified the Region IV Field Team that the Bonanza shaft was unwatered to the 115-foot level, a re-examination was made by DMEA representatives. This was in accordance with recommendation in the transmittal of the original engineering report.

A survey of the 115-foot level and the surface was made, attempting to tie in the probable location of two tungsten outcrops now buried under a tailing pond (fig. 1 with geologic memorandum).

The underground workings are substantially the same as set forth in the application. However, a projection of the continuation of a 40-foot ore raise from the 115-foot level comes through to surface very close to the assumed position of the trenches on the outcrop where ore was mined, as nearly as the applicants can place them.

The vertical distance from the bedrock surface in the gulch to the 115-foot level is not over 80 feet. Thus, there is not over 40 feet of unexplored ground between the top of the raise and surface.

Reviewed by
DMEA OPERATING COMMITTEE
9-4-53
(date)

Assuming that the location of the outcrop may be west of the underground workings as the applicant supposed, the project is still not promising.

The appearance of the veins on the 115-foot level is disappointing. The raise on vein (A) shows a little ferberite in a quartz stringer in the northeast end just above the level. The back and southwest end are covered by timber and cannot be examined. Bodnar also stated that the lessee who drove the raise, taking out some ore, a Boulder man named MacKenzie, abandoned the work when the vein split at 40 feet above the level.

On the level, the vein in the raise appears to be cut off or displaced by a flat dipping fracture on the northeast side of the crosscut. On the southwest side, two narrow seams with very little mineralization can be seen.

Vein (B) shows some quartz mineralization in a short raise at the crosscut not reported by the applicants. There is no ore showing but appearance of the vein is better than the exposed sections of vein (A).

The veins on the 115-foot level cannot definitely be correlated with the outcrops. If the ore outcrops are over the raise, very little ore could be contained in the unmined section between the top of the raise and surface. If the ore outcrops are west of the raise, exploration to find the possible downward extension would have to be undertaken blindly. The logical method of exploration would be to drive west on the most promising vein, probably vein (B), and then crosscut north and

south. Unless the operator was very fortunate and ore was encountered in drifting, more work would be necessary than was contemplated in the examining team's first recommendations.

It is concluded that the chance for a significant discovery of tungsten, at a cost commensurate with the small ore potential, is poor.

It is recommended that the request for exploration assistance be denied.

M. H. Salsbury
M. H. Salsbury
Mining Engineer

cc ~~B~~
3014
Chron.

MHS/pam

August 19, 1953

Memorandum

To: Mr. A. H. Koschmann

From: E. N. Harshman

Subject: DMEA Docket 3014, Bonanza No. 2 Mine (tungsten), Bodnar Brothers (lessees), Boulder County, Colorado

The subject property was first examined on May 20, 1953, and although the underground workings were flooded, limited exploration on the 115-foot level appeared justified and was recommended in the examination report. Subsequently, it was decided to hold in abeyance any decision on the request for exploration assistance until the applicant completed unwatering the lower level and an underground examination of the mine was made.

On July 23, 1953, after notification that the mine was unwatered, a re-examination was made. At this time the underground workings, involved in the requested exploration program, were mapped (figure 1), and an attempt was made to ascertain the location and trend of the old surface workings, now covered by a tailings pond.

Underground workings are substantially as shown on the sketch submitted by the applicants, but geologic conditions are not as expected. Vein "A" either is cut off by a fault or terminates against it, and does not continue to the southwest of the crosscut (figure 1).

To the northeast of the crosscut a small stope and raise have been driven on vein "A." The southwest end and back of the stope are timbered and cannot be examined, but in the northeast end 4 to 6 inches of horn quartz and a little ferberite are exposed. The raise from the stope is reported by the applicant to have been driven to a height of 40 feet, at which point the vein split and the raise was abandoned.

Vein "B," as exposed in a small caved stope southwest of the crosscut (figure 1), consists of 2 to 6 inches of horn quartz with a trace of ferberite along the vein walls. Both veins are in granite and granite gneiss. No ore remains in the stope walls and it appears that the production of tungsten ore from vein "B," if any, was small.

A Brunton and tape survey indicates that the bedrock surface is 75 to 80 feet vertically above the 115-foot level of the Bonanza No. 2 mine. Thus there is only about 40 feet of unexplored ground above the top of the raise on vein "A," a very limited area in which to find a significant ore body.

The two veins, worked to some extent in open cuts on the surface, are now covered by a tailings pond. Their approximate location, as pointed out by the applicants, is shown on Figure 1. Although veins "A" and "B" on the 115-foot level cannot definitely be correlated with the veins reported on the surface, they appear to be the same. If so, vein "A" has been adequately explored by the raise and no additional exploration on this vein is warranted. If the veins do not correlate, exploration for the downward extension of the southeastern surface exposure would entail blind drifting and crosscutting at an expense not commensurate with the probable small size of any tungsten ore shoot that might be discovered.

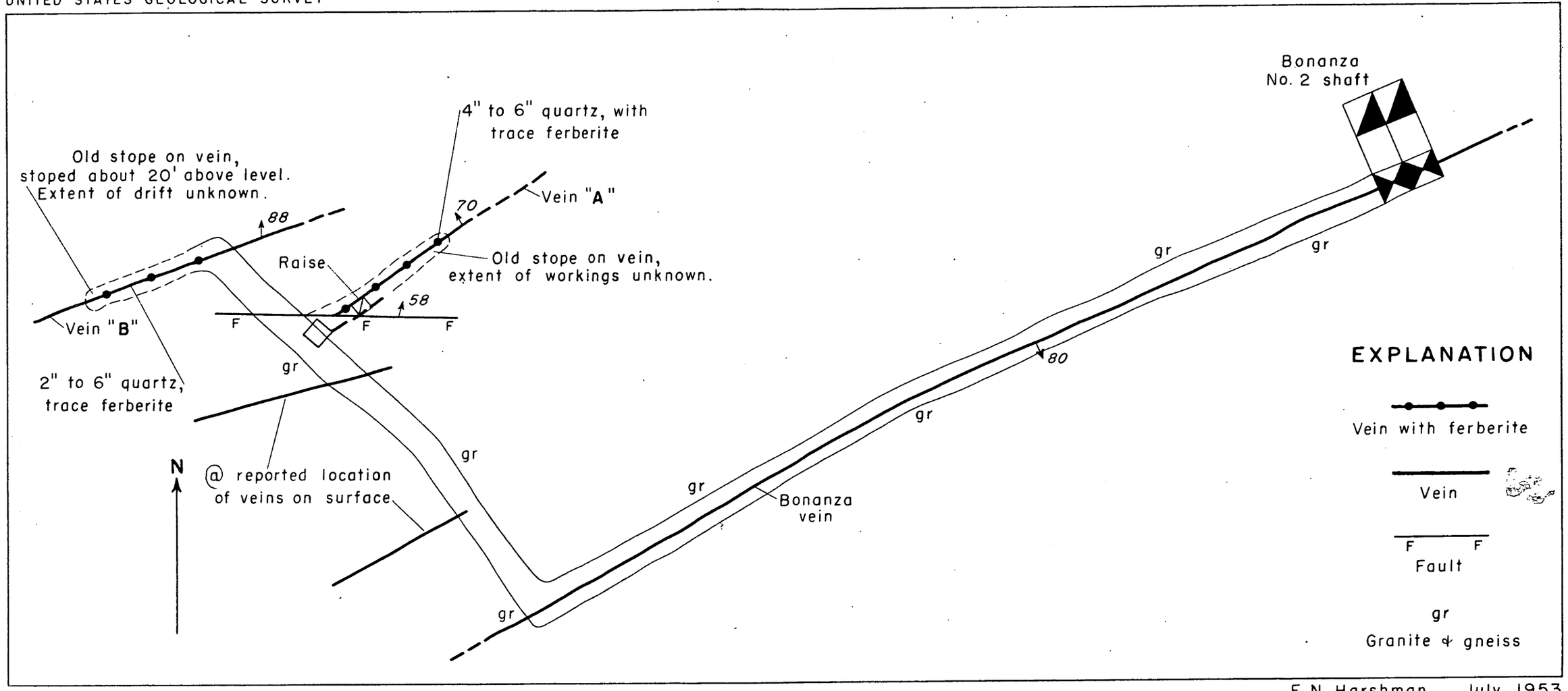
The weak mineralization reported in the northwestern surface exposure and the character of vein "B" on the 115-foot level do not justify additional exploration along vein "B" or along either structure, if they do not correlate.

It is therefore concluded that there is little chance of making a significant discovery of tungsten ore at a cost commensurate with the small ore potential of the mine. Denial of application for exploration assistance is recommended.

approved
EMH for AHK.
8-19-53

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

D.M.E.A. DOCKET 3014



Note – Brunton and tape survey

E.N. Harshman, July, 1953

FIG. 1 - GEOLOGIC PLAN 115 FOOT LEVEL, BONANZA NO. 2 SHAFT

20 0 20 40 Feet

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
June 9, 1953

Memorandum

To: Executive Officer, Field Team, Region IV

From: Chief, Mineral Resources Branch, Mining Division, Region IV

Subject: DMSA 3014, Bonanza No. 2 mine (Tungsten), Bodmar Brothers, Lessee, Boulder County, Colorado

Please find enclosed the original and eight copies of the "Summary, Conclusions, and Recommendations," by E. N. Harshman and M. H. Salsbury, and of Salsbury's engineering report on the subject docket.

The applicants propose to explore veins reported to exist on the 115-foot level of the Bonanza No. 2 shaft. Presumably the veins were exposed on surface, and one of them at least was partially developed through a tunnel by one of the Bodmar brothers. The tunnel is accessible but is not involved in the application, and other surface vein exposures are now under a tailings pond. They were, however, examined at one time by a Geological Survey geologist, and the existence of ferberite mineralization verified. There is only hearsay evidence of any mineralization in the veins underground. The Bonanza No. 2 shaft and workings are flooded, and on the date of examination operating equipment was being installed preparatory to unwatering the mine.

Salsbury recommends the loan--with the unwatering job estimated to cost $2,200.00 and 150 feet of drifting on one of two veins on the 115-foot level, to be determined when examination is possible, estimated to cost $4,400.00 or $29.33 per foot--suggesting a short-form unit-cost contract. The recommendation is based solely on the mineralization known to exist in the veins on the surface.

In my opinion, Government funds should not be expended for the purpose of unwatering mines to prove or disprove the existence of ore in veins, supported only by hearsay evidence.

Inasmuch as, in this case, the applicants have started unwatering operations and, according to the examiners, may have the

job completed by the time the loan request is processed, it is suggested action be deferred until they have the mine unwatered, so an examination can be made and a contract drawn up to allow exploration of a vein, or veins, based on more definite information. It may be that, when the project has reached that stage, the application may be withdrawn. If not, a more realistic program can be outlined.

If, in the opinion of the Region IV Field Team, a project should be authorized on the basis of present information, I certainly would concur.

A discrepancy noted in the lease concerning location of the property should be corrected before a contract is considered.

The extra brochure furnished the Mineral Resources Branch, May 25, 1953, for our convenience in preparing the report is also enclosed.

W. M. Traver

W. M. Traver

enclosures

WMT/pm

cc 8
General
Chron.

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

200 New Customhouse
Denver 2, Colorado

June 4, 1953

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3014, Bonanza No. 2 Mine, Boulder County, Colorado.

Attached are 8 copies of the geological report by E. N. Harshman covering DMEA Docket 3014, Bonanza No. 2 Mine, Boulder County, Colorado.

The applicant proposes to explore for tungsten and requests a loan of $7,850.50. The proposed exploration consists of unwatering the Bonanza No. 2 shaft and its workings, and of 150 feet of drift on each of two veins reported to be exposed in a crosscut on the 115-foot level.

Harshman recommends a somewhat modified program of exploration at an estimated cost of $6,600.00.

I concur in this recommendation.

The brochure is enclosed.

A. H. Koschmann
A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (9)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 3014, Bodnar Brothers, Lessee

Bonanza No. 2 Mine

Boulder County, Colorado

Tungsten

E. N. Harshman, Geologist
Geological Survey

M. H. Salsbury, Mining Engineer
Bureau of Mines

June 9, 1953

DMEA 3014

BODNAR BROTHERS, LESSEE
BONANZA NO. 2 MINE
BOULDER COUNTY, COLO.

Summary, Conclusions, and Recommendations

By E. N. Harshman
Geologist
Geological Survey

M. H. Salsbury
Mining Engineer
Bureau of Mines

DMEA 3014

BODNAR BROTHERS, LESSEE
BONANZA NO. 2 MINE
BOULDER COUNTY, COLO.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By E. N. Harshman and M. H. Salsbury

On May 20, 1953, an investigation of the Bonanza No. 2 mine in Boulder County, Colo., was made by a Region IV examining team to check the information furnished in a loan application by George A. and Michael Bodnar. Government assistance to unwater the flooded Bonanza No. 2 shaft and perform 300 feet of exploratory drifting on the 115-foot level was requested at an estimated cost of $7,850.50--Government participation 75 percent, or $5,887.88.

The Bodnar Brothers are lessee of a block 450 feet by 900 feet, part of the holdings of Hetzer Mines, Inc.

The applicants propose to explore two veins exposed in a crosscut northwest of the Bonanza No. 2 shaft on the 115-foot level. These veins are typical narrow quartz-ferberite veins in granite, which are probably the same ones that were developed at surface in 1943-44, by one of the applicants and his father. Substantial shipments of tungsten ore were made from a surface cut on one of these veins, and there is some production reported from a raise on the corresponding vein on the 115-foot level. The vein outcrops have since been covered by a tailings pond.

The surface and underground workings on the veins could not be examined, but Ogden Tweto, of the Geological Survey, verified the

statements of the applicants as to the ore mined at surface and stated that their reputation and mining experience is satisfactory.

The property has no measurable ore reserves.

The mine is fully equipped, and the applicants were preparing to unwater the shaft at the time of the examination.

A revised program of exploration, limited to the vein from which ore shipments have been made, is recommended by the examining team at an estimated cost of $6,600.00--Government participation 75 percent, or $4,950.00.

Because the applicants' proposal is not based on an accurate survey, it is recommended that the workings be resurveyed when the shaft is unwatered and the relation between the veins exposed underground and the surface outcrops be checked as far as possible by Region IV field representatives before drifting starts.

A short-form contract is suggested. It is possible that the first phase of the exploration project, unwatering and rehabilitating the Bonanza No. 2 shaft and 115-foot level, will have been completed before a loan application can be approved.

BONANZA NO. 2 MINE

BOULDER COUNTY, COLORADO

DMEA DOCKET 3014

Geologic Report

By E. N. Harshman
U. S. Geological Survey

BONANZA NO. 2 MINE
BOULDER COUNTY, COLORADO

INTRODUCTION

George A. and Michael Bodner, 500 Grant Avenue, Louisville, Colorado, have applied for Government assistance, DMEA Docket 3014, to explore for tungsten ore in the Bonanza No. 2 mine, located 2 3/4 miles (airline) northeast of Nederland, Boulder County, Colorado, in the SE¼ sec. 5, T. 1 S., R. 72 W., 6th P. M. The location given in the lease between the applicant and Hetzer Mines, Inc., is in error in that it places the property in the NE¼ sec. 5, T. 1 S., R. 73 W.

The applicants have requested a loan of $7,850.50 to unwater the Bonanza No. 2 shaft and workings therefrom, and to drift 150 feet on each of 2 veins reported to be exposed in the 115 foot level crosscut (fig. 2 in engineering report).

The property was examined on May 20, 1953, in company with J. C. MacLachlan, U. S. Geological Survey, M. H. Salsbury, U. S. Bureau of Mines, and the applicants. At this time the workings were flooded, and the outcrops of the two veins to be explored from the 115 foot level of the Bonanza No. 2 shaft were covered by a large tailings pond. The examination was therefore limited to the adit level and stopes on the Bonanza vein, a parallel structure not proposed for exploration.

GEOLOGY

The predominant rock types in the vicinity of the Bonanza No. 2 mine are pre-Cambrian granite and granite gneiss, with associated pegmatite

and aplite dikes. These rocks are part of the Boulder Creek batholith, the host rock for many of the ferberite ore sheets in the Boulder County tungsten district.

Major structural features are a number of northwesterly striking dikes or silicified breccia reefs and a series of northeasterly striking mineralized fissures.

Figure 2 in the engineering report shows the 2 veins along which exploration is proposed. Both veins are reported to have been exposed by dragline operations, and vein A was mined to a depth of about 10 feet below the bedrock surface. According to the applicant, veins A and B occupy strong fissures in granite, strike northeasterly, and dip steeply to the northwest. Both veins are reported to contain horn quartz and ferberite, with a maximum thickness of about 6 inches in vein A, and 2 inches in vein B.

It appears probable that the veins exposed in the 115 level crosscut are the same veins that were exposed by dragline operations and subsequently prospected, mined (vein A only), and covered by tailings. The applicants report that vein A, when exposed in the crosscut, contained 2 to 4 inches of horn quartz and ferberite and that W. M. MacKenzie mined some high grade ore from a small stope on the vein. A narrow streak of ore is reported to have been followed by a short drift on vein B (fig. 2).

CONCLUSIONS AND RECOMMENDATIONS

Ogden Tweto, U. S. Geological Survey, confirms the applicants' statements regarding the nature of the ore exposed and mined at the surface on vein A. He has not seen vein B at the surface, nor vein A or B in the 115 foot level crosscut.

From the observations of Mr. Tweto and the statements of the applicants, it is concluded that exploration on vein A in a westerly direction from the 115 foot level crosscut may discover significant tungsten ore. Because of an almost complete lack of information, it is believed that any recommendation for exploration on vein B should be postponed until the shaft is unwatered and an examination of the underground exposures is made.

The following modified exploration program, estimated by the U. S. Bureau of Mines to cost $6,600, is recommended.

1. Unwater the Bonanza No. 2 shaft and the 115 foot level workings.

2. Make any necessary repairs to the shaft and clean up workings between the shaft and vein A.

3. Survey the shaft and 115 foot level workings to determine definitely the relation of the veins exposed in the crosscut and the veins previously exposed on the surface.

4. Drift 150 feet southwest along vein A (fig. 2).

The above recommendations are contingent upon the Government being furnished with a copy of a valid lease between the applicants and Hetzer Mines, Inc., which correctly locates the property under consideration for exploration assistance.

DMEA 3014

BODMAR BROTHERS, LESSEE
BONANZA NO. 2 MINE
BOULDER COUNTY, COLORADO

Engineering Report

By M. H. Salsbury
Mining Engineer
Bureau of Mines

DMEA 3014

BODNAR BROTHERS, LESSEE
BONANZA NO. 2 MINE
BOULDER COUNTY, COLO.

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DMEA 3014

BONANZA NO. 2 MINE
BODNAR BROTHERS, LESSEE
BOULDER COUNTY, COLO.

ENGINEERING REPORT

By

M. N. Salsbury

INTRODUCTION

On May 20, 1953, a Region IV examining team made an investigation of the Bonanza No. 2 tungsten mine, Boulder County, Colo., to check the information in an application by Bodnar Brothers, lessee, 500 Grant Avenue, Louisville, Colo., for Government assistance in exploration on the property. A loan of $7,850.50--Government participation 75 percent, or $5,887.88--is sought to unwater the flooded Bonanza No. 2 shaft and perform 300 feet of drifting on the 115-foot level.

A conclusion was reached solely on geological considerations and on information furnished by the applicants and verified in part by Ogden Tweto, of the Geological Survey, from his knowledge of the Boulder tungsten district. The property appears to have merit, and a modified exploration program estimated to cost $6,600.00--Government participation 75 percent, or $4,950.00--is recommended.

ACKNOWLEDGMENTS

Information on the property was obtained from the application form MF-103, furnished by Bodnar Brothers, and from additional information given the examining team during the investigation. Ogden

Tweto, of the Geological Survey, was familiar with part of the surface work which forms the basis of the applicants' exploration project, and verified the occurrence of ore at surface.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The Bonansa No. 2 mine is in the SE 1/4 sec. 5, T. 1 S., R. 72 W., Boulder County, Colo., (fig. 1) about 3 miles northeast of Nederland, Colo., the nearest post office. The location given in the lease included with the application is erroneous and should be corrected before a contract is entered into. Nederland, a town of 300 population, is 17 miles west of Boulder, Colo., the county seat of Boulder County, and 37 miles northwest of Denver, Colo. There is a paved, all-weather highway to within 3 miles and a good, graded county road the remainder of the distance to the mine.

The nearest rail connections are at Rollinsville, 5 miles south of Nederland, and at Boulder.

The shaft, at an altitude of about 8,100 feet, is on the slope of a small gulch running through the property. The area is one of low rounded hills or ridges dissected by a drainage network running generally east and west. The area is sparsely forested with second-growth pine and shrubs.

Ore produced can be sold to custom mills in the vicinity.

Spring, summer, and fall seasons are cool. Winters are moderately severe, with occasional short cold periods and moderate to heavy snowfall, and precipitation varies widely from year to year. Continuous operations are feasible.

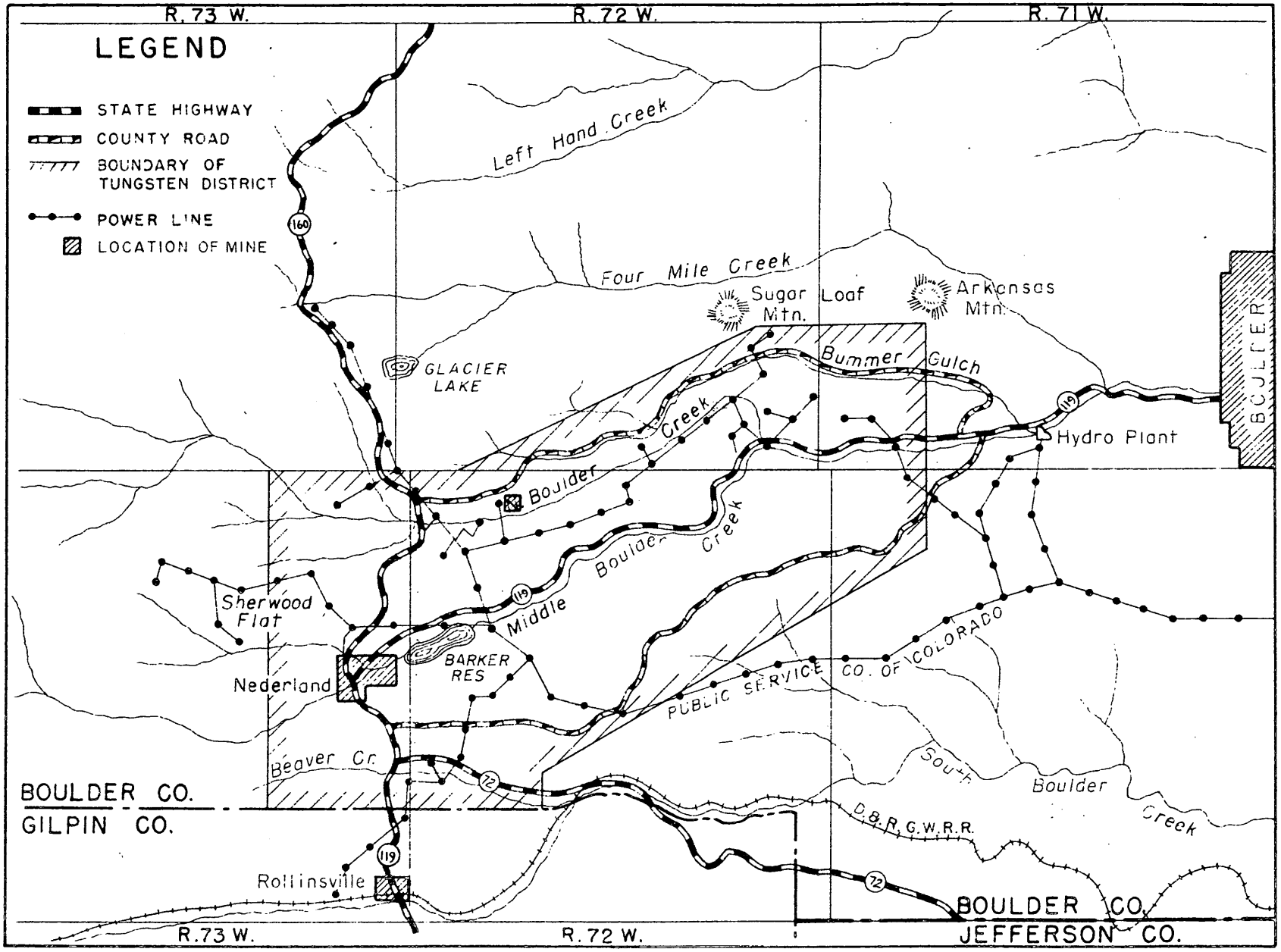


FIGURE 1. - LOCATION MAP OF THE BONANZA NO. 2 MINE, BOULDER COUNTY, COLO. (DMEA 3014).

Power is available at the mine from the lines of the Public Service Company of Colorado. A transformer station has been set near the shaft.

Most small mining supplies can be obtained from Nederland and Boulder. Larger supply items and machinery are quickly obtainable from Denver.

Mine timbers can be purchased locally if the small growth on the property is not adequate.

Water is easily obtained from the mine drainage or from the small stream running through the property.

HISTORY AND PRODUCTION

This property has been known and worked at intervals since 1907, with the first large production during World War I. Operations were carried on through the Bonanza No. 2 shaft and through a tunnel in the hillside northeast of the shaft. In 1943-44, George Bodnar, Sr., and a son, Michael Bodnar, one of the present applicants, produced good ore from an open-cut in the floor of a gulch west of the Bonanza No. 2 shaft. Another vein with good mineralization was exposed at the same time but not worked.

In 1948, lessees opened the Bonanza No. 2 shaft and drove a crosscut out under the gulch toward the veins, which the Bodnars had worked at surface. Three small veins were cut. Two of the veins showed tungsten mineralization, and a small stope was mined on one of them. No drifting was done, although Bodnar reports that some of the ore was high-grade. The shaft was allowed to flood after this operation.

In 1952, George A. Bodnar and Michael Bodnar, brothers, opened up ore on a split of the Bonanza vein in the tunnel. This was stoped underhand for 15 feet and then abandoned when the operation became too difficult. Some good ore was produced.

The production record of the Bonanza No. 2 mine furnished by the applicants follows:

Year	Pounds ore	Percent WO_3	Pounds WO_3
1907-1950, inclusive	2,826,542	10.53	297,751.7
1951	780	36.00	280.82
1952	35,447	7.00	2,334.99
Total	2,862,769		300,367.51

The production by the Bodnars in 1943-44, from the open-cut, is included in the 1907-50 total. The applicants were requested to assemble the figures from their records and submit them for inclusion in the application.

OWNERSHIP AND EXTENT

The property is part of an agricultural entry owned by Hetzer Mines, Inc., and held by the Bodnar Brothers under a lease extending to April 1, 1956. The location given in the lease is incorrect. The lease block is 450 feet by 900 feet, as shown on figure 2.

The lease provides for a royalty of 15 percent of the net proceeds of any ore sold, "net proceeds" being defined as the

net sale price less the cost of hauling to the lessors' mill at Nederland, Colo. The lessors will sign a subordination agreement.

DESCRIPTION OF THE DEPOSITS

The veins seen in the tunnel by the examining team, which are not included in the application, are typical narrow quartz-ferberite veins in granite with irregular mineralization. Undoubtedly the veins in the shaft are similar.

The applicants report that the vein in the Bonanza No. 2 shaft workings dips steeply to the south, but, where observed in the tunnel, it dips steeply to the north. The strike is N. 65° E. The applicants' sketch of the veins in the gulch on the surface does not give any dip, and the strike shown is probably not accurate. On the sketch, a junction of the two veins is indicated just east of the workings on the 115-foot level (fig. 2).

MINEABLE ORE RESERVES

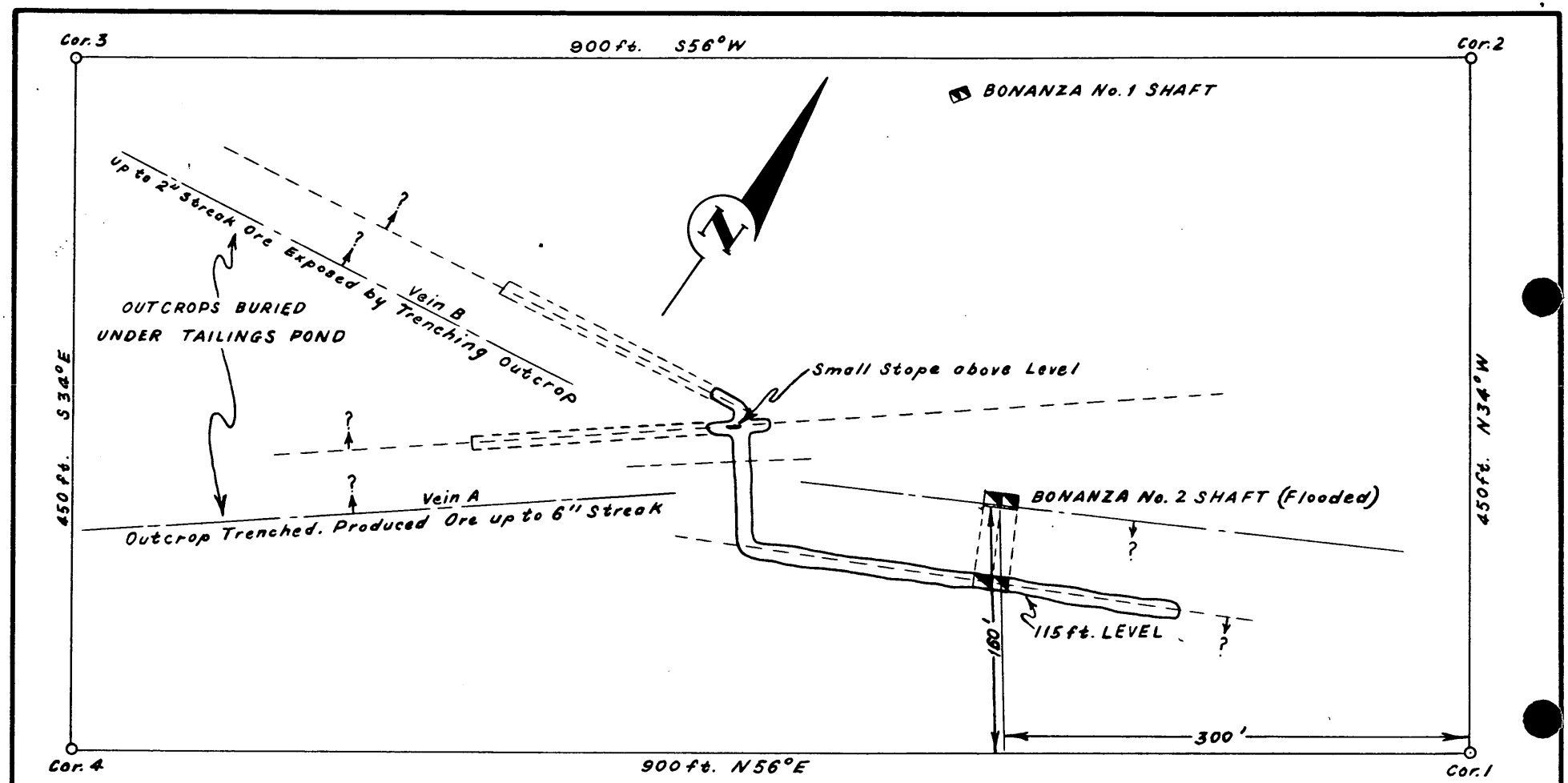
The mine has no measurable ore reserves.

PRESENT STATUS

Exploration and Development

The property is developed to a depth of several hundred feet through the Bonanza No. 2 shaft and was mined at shallow depth in the tunnel. Most of the work from the shaft has been done eastward under the tunnel workings.

On the 115-foot level of the shaft there are 135 feet of drift east and 150 feet west on the Bonanza vein. From the end of the west drift an 80-foot crosscut, driven northwest, intersects two mineralized veins near the end (fig. 2).



BODNER BROS. LEASE

FROM SKETCH BY BODNER BROS.
APPROXIMATION – NOT SURVEYED

BOUNDARIES AS DESCRIBED

THE SE QUARTER OF SEC. 5, T1S, R72W

LEGEND

- PROPOSED EXPLORATION
- 115 FOOT LEVEL
- VEINS ON 115 FOOT LEVEL
- VEINS AT SURFACE

0 50 100 200 300

SCALE IN FEET

MINERAL RESOURCES BRANCH
MINING DIV. – REGION IV
BUREAU OF MINES

FIGURE 2 – PLAN MAP, BONANZA NO. 2 MINE, BOULDER COUNTY, COLO. DMEA 3014

The tunnel workings are open except for several caves 300 or 400 feet from the portal which do not completely block passage. Fairly large stoping operations were carried on both below and above the tunnel level. Bodnars' underhand stope is partially caved but could have easily furnished the production claimed.

The shaft is flooded to within 25 feet of the collar. The water level is probably the creek level. A vertical distance of 80 feet from the 115-foot level of the shaft is estimated to the bottom of Bodnars' surface open-cut in the gulch.

The site of the ore exposures in open-cuts in the gulch is now covered by a tailings pond from nearby milling operations on old dumps; however, Ogden Tweto examined vein A, which the Bodnars were mining in the open-cut, and verifies the fact it was as much as 6 inches wide, with good ferberite exposed. Michael Bodnar states that the ore was worked for a length of 60 feet and not over 10 feet in depth, with a 1-inch streak still showing in the bottom of the cut. The cobbed ore assayed 47 percent WO_3.

The second vein, B, exposed in another cut, was as much as 2 inches wide, with good mineralization, but was not explored or developed.

Mining and Milling Equipment and Other Facilities

There is a headframe and shaft house at the Bonanza No. 2 shaft. Bodnar Brothers are now installing an electric hoist, air compressor, and sheave wheel. They have all the necessary equipment, owned or rented, to unwater the shaft and carry on mining operations.

There are no milling facilities on the property. The lease requires shipment of ore produced to the mill of Hetzer Mines, Inc., at Nederland.

PROJECT PROPOSALS WITH COSTS

The applicants propose the following work:

(a) Unwater the Bonanza No. 2 shaft to the 115-foot level and rehabilitate the shaft and level.

(b) Perform the 300 feet of drifting on the 115-foot level on the two veins, A and B, already intersected, which project roughly from those exposed on surface 80 feet above (fig. 2).

The applicants' over-all cost estimate for the above work is $7,850.50, or $26.16 per foot, for the drifting. The estimated time required to do the work is 4 months, which would allow 1 month for pumping and rehabilitation and 3 months for drifting at the rate of 100 feet per month.

The applicants' estimated costs are low.

A modified program is recommended by the examining team:

(a) Unwater and rehabilitate the shaft and 115-foot level.

(b) Drift a maximum of 150 feet on vein A showing on the 115-foot level, which projects roughly from the A vein (fig. 2) mined in the surface cut.

The time estimate for completion of this work is 3 months, including 1 month for pumping and rehabilitation. An estimate of the cost of unwatering and rehabilitation is included, although the applicants may have completed the phase by the time the loan can be approved.

Cost Estimate

	Unwater and rehabilitate shaft and 115-foot level (1 month or 25 shifts)		Drift 150 feet (2 months or 50 shifts)	
Labor and Supervision				
Working supervisor, at $17.33 per shift, including overtime	$433.25		$866.50	
Miner-timberman, at $14.30 per shift	357.50		715.00	
Underground helper, at $13.00 per shift	325.00	$1,115.75	650.00	$2,231.50
Operating Materials and Supplies				
Timber	$200.00		$100.00	
Explosives	---		525.00	
Track	230.00		150.00	
Pipe	258.75		112.50	
Power	150.00		300.00	
Other	65.36	904.11	150.00	1,337.50
Operating Equipment				
Rental of jack leg	$ ---		$ 50.00	
Rental of 215-c.f.m. compressor	---		400.00	
Rental of tugger hoist	50.00		---	
Rental of 15-horsepower electric hoist	25.00		50.00	
Depreciation on 15-horsepower pump	11.50		23.00	
Depreciation on sinker, oiler, air hose	---		12.00	
Depreciation on buckets, dolly, etc.	4.00	90.50	8.00	543.00
Miscellaneous				
Accounting (none on short form)	$ ---		$ ---	
Repairs to equipment	40.00		150.00	
Analyses	---		38.73	
Payroll taxes	16.73		33.46	
Liability insurance	32.91	89.64	65.81	288.00
Total Cost		$2,200.00		$4,400.00
Unit Cost		$2,200.00 for the job		$ 29.33 per foot

Manpower

The operation will require three men. Bodnar Brothers will be actively employed, and the one additional man can be hired locally without difficulty.

Power, Water, Timber

These items are already provided or are easily obtained.

Time for Completion of Project

The applicants estimate 4 months to complete the exploration program outlined in the loan request. The time and cost of unwatering and rehabilitating the shaft and 115-foot level are not segregated in their estimate; however, they estimate 75 rounds to drive 300 feet, an average of 4 feet per day, and the time to complete the work of driving as 3 months, leaving 1 month for pumping out and rehabilitation of the shaft and level.

The examining engineer believes that the total of the applicants' estimate is low and that a rate of 4 feet advance per day would require unusual efficiency.

A more realistic rate of 3-feet-per-shift advance was used in the Bureau engineer's estimate.

Rate of Production

The rate of production from any ore discovered will probably be low. This is to be expected in the small ore bodies of the Boulder tungsten area.

Mining Methods

The normal methods of open stoping, with the stope width kept to a minimum to avoid breaking more waste rock than necessary,

will probably be used. Ore will be sorted in the stopes, and cobbed ore will be trucked to the Wolf Tongue mill of Hetzer Mines, Inc., at Nederland.

Mining costs on this type of ore are high.

COST RECAPITULATION

Rehabilitation, including unwatering shaft	$2,200.00
Drifting 150 feet on vein A, at $29.33 per foot	4,400.00
Total	$6,600.00

PROPOSED FINANCING

Both applicants will be employed on the project, and the value of their labor will be more than their share of the cost.

CONCLUSIONS

The exploration proposals of the applicants are reasonable and appear to have good possibilities for the discovery of commercial ore.

However, the indicated location of the veins and the relationship between the mine workings and the ore mined on surface cannot be verified. No survey has been made or was possible at the time of the examination. For this reason, the examining team felt that the project should be limited for the present to vein A (fig. 2), which is known to have produced at surface, and which presumably was stoped on the 115-foot level of the mine.

The Bodnar Brothers are competent miners, and George Bodnar has a record of mining experience in the Boulder field and elsewhere since 1923. They are well able to carry on the exploration.

RECOMMENDATIONS

It is recommended that an exploration project, consisting of unwatering and rehabilitating the Bonanza No. 2 shaft to the 115-foot level and 150 feet of drifting on the 115-foot level on vein A, be approved at an estimated cost of $6,600.00--Government participation 75 percent, or $4,950.00.

A short-form contract is suggested.

All or most of the preliminary unwatering and rehabilitation work, estimated to cost $2,200.00 of the total, may be completed by the time an exploration contract can be approved and made effective. In that event, only the drifting operation should be included in the short-form contract.

As soon as the shaft is unwatered, a survey of the Bonanza No. 2 mine 115-foot level should be made by Region IV field representatives, and the relative location of the open-cut, now covered by a small tailings pond, be determined as accurately as possible. This information might change the proposed exploration plan. After completion of the recommended work, information gained from the rehabilitation and from a survey might make exploration of the second vein B more attractive than exploration of vein A, or distributing the drifting between the two veins might be desirable.

pm

OFFICE OF THE ADMINISTRATOR

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
AUG 31 1953

COPY

August 24, 1953

224 New Customhouse
Denver 2, Colorado

Mr. George A. Bodnar and
Mr. Michael Bodnar
500 Grant Avenue
Louisville, Colorado

Re: Docket No. DMEA-3014

Gentlemen:

Reference is made to your application for Government aid on the Bonanza No. 2 Mine.

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

A careful study of your property and data available to this agency reveals that the probability of disclosing mineable reserves of tungsten by your proposed exploration program is not considered sufficiently promising to justify Government participation. Under these circumstances, we regret to advise that your application for exploration aid is denied.

Very truly yours,

W.H. King
Field Team, Region IV
/s/ E. N. Nanshman for---
A. H. Koschmann
Field Team Region IV

HMC:cwm

cc: Docket
Administrator, DMEA
WMTraver
AHKoschmann (2)
Chron.

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

224 New Customhouse
Denver 2, Colorado

August 24, 1953.

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Field Team, Region IV

Subject: Final Report and Supplemental Memorandum, DMEA Docket 3014, (Tungsten), Bodnar Brothers, Bonanza No. 2, Boulder County, Colorado.

Enclosed are four copies of the final report and supplemental memorandum on the subject docket, a copy of the letter of denial to the applicants, and two copies of Form 3b.

W. H. King
W. H. King

E. N. Hanchman
for A. H. Koschmann

Enclosures

DENIED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

August 24, 1953.

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report and Supplemental Memorandum, DMEA Docket 3014 (Tungsten), Bodnar Brothers, Bonanza No. 2, Boulder County, Colorado.

Enclosed are eight copies of the final engineering report on the subject docket.

The applicant requested $7,850.00 to explore two veins on the 115-foot level. At the time of the first field examination the shaft and underground workings were flooded. The applicant unwatered the shaft at his expense and the field examiners reexamined the property including the 115-foot level and they now recommend that the application be denied.

We concur in this recommendation.

W. H. King
W. H. King

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
August 6, 1953

Memorandum

To: Executive Officer, Field Team, Region IV

From: Chief, Mineral Resources Branch, Mining Division, Region IV

Subject: DMEA 3014 Bonanza No. 2 mine (Tungsten), Bodnar Brothers, lessee, Boulder County, Colorado - Supplemental memorandum

Submitted herewith are the original and eight copies of M. H. Salsbury's supplemental memorandum on docket 3014.

After examination of the mine workings, which were unwatered by the applicants at their own expense, he finds that the possibilities of an ore discovery commensurate with the costs of exploration are poor and recommends denial of the loan. I concur with the recommendation.

W. M. Traver

W. M. Traver

enclosures

cc 8
3014
DMEA Chron.

WMT/pam

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
August 6, 1953

Memorandum

To: Chief, Mineral Resources Branch, Mining Division, Region IV

From: M. H. Salsbury

Subject: DMEA 3014 Bonanza No. 2 mine (Tungsten), Bodnar Brothers, lessee, Boulder County, Colorado - Supplemental memorandum

On July 20, 1953, after Bodnar Brothers notified the Region IV Field Team that the Bonanza shaft was unwatered to the 115-foot level, a re-examination was made by DMEA representatives. This was in accordance with recommendation in the transmittal of the original engineering report.

A survey of the 115-foot level and the surface was made, attempting to tie in the probable location of two tungsten outcrops now buried under a tailing pond (fig. 1 with geologic memorandum).

The underground workings are substantially the same as set forth in the application. However, a projection of the continuation of a 40-foot ore raise from the 115-foot level comes through to surface very close to the assumed position of the trenches on the outcrop where ore was mined, as nearly as the applicants can place them.

The vertical distance from the bedrock surface in the gulch to the 115-foot level is not over 80 feet. Thus, there is not over 40 feet of unexplored ground between the top of the raise and surface.

Assuming that the location of the outcrop may be west of the underground workings as the applicant supposed, the project is still not promising.

The appearance of the veins on the 115-foot level is disappointing. The raise on vein (A) shows a little ferberite in a quartz stringer in the northeast end just above the level. The back and southwest end are covered by timber and cannot be examined. Bodnar also stated that the lessee who drove the raise, taking out some ore, a Boulder man named MacKenzie, abandoned the work when the vein split at 40 feet above the level.

On the level, the vein in the raise appears to be cut off or displaced by a flat dipping fracture on the northeast side of the crosscut. On the southwest side, two narrow seams with very little mineralization can be seen.

Vein (B) shows some quartz mineralization in a short raise at the crosscut not reported by the applicants. There is no ore showing but appearance of the vein is better than the exposed sections of vein (A).

The veins on the 115-foot level cannot definitely be correlated with the outcrops. If the ore outcrops are over the raise, very little ore could be contained in the unmined section between the top of the raise and surface. If the ore outcrops are west of the raise, exploration to find the possible downward extension would have to be undertaken blindly. The logical method of exploration would be to drive west on the most promising vein, probably vein (B), and then crosscut north and

south. Unless the operator was very fortunate and ore was encountered in drifting, more work would be necessary than was contemplated in the examining team's first recommendations.

It is concluded that the chance for a significant discovery of tunsten, at a cost commensurate with the small ore potential, is poor.

It is recommended that the request for exploration assistance be denied.

M. H. Salsbury
M. H. Salsbury
Mining Engineer

cc 8
3014
Chron.

MHS/pam

August 19, 1953

Memorandum

To: Mr. A. H. Koschmann

From: E. N. Harshman

Subject: DMEA Docket 3014, Bonanza No. 2 Mine (tungsten), Bodnar Brothers (lessees), Boulder County, Colorado

The subject property was first examined on May 20, 1953, and although the underground workings were flooded, limited exploration on the 115-foot level appeared justified and was recommended in the examination report. Subsequently, it was decided to hold in abeyance anydecision on the request for exploration assistance until the applicant completed unwatering the lower level and an underground examination of the mine was made.

On July 23, 1953, after notification that the mine was unwatered, a re-examination was made. At this time the underground workings, involved in the requested exploration program, were mapped (figure 1), and an attempt was made to ascertain the location and trend of the old surface workings, now covered by a tailings pond.

Underground workings are substantially as shown on the sketch submitted by the applicants, but geologic conditions are not as expected. Vein "A" either is cut off by a fault or terminates against it, and does not continue to the southwest of the crosscut (figure 1).

To the northeast of the crosscut a small stope and raise have been driven on vein "A." The southwest end and back of the stope are timbered and cannot be examined, but in the northeast end 4 to 6 inches of horn quartz and a little ferberite are exposed. The raise from the stope is reported by the applicant to have been driven to a height of 40 feet, at which point the vein split and the raise was abandoned.

Vein "B," as exposed in a small caved stope southwest of the crosscut (figure 1), consists of 2 to 6 inches of horn quartz with a trace of ferberite along the vein walls. Both veins are in granite and granite gneiss. No ore remains in the stope walls and it appears that the production of tungsten ore from vein "B," if any, was small.

A Brunton and tape survey indicates that the bedrock surface is 75 to 80 feet vertically above the 115-foot level of the Bonanza No. 2 mine. Thus there is only about 40 feet of unexplored ground above the top of the raise on vein "A," a very limited area in which to find a significant ore body.

The two veins, worked to some extent in open cuts on the surface, are now covered by a tailings pond. Their approximate location, as pointed out by the applicants, is shown on Figure 1. Although veins "A" and "B" on the 115-foot level cannot definitely be correlated with the veins reported on the surface, they appear to be the same. If so, vein "A" has been adequately explored by the raise and no additional exploration on this vein is warranted. If the veins do not correlate, exploration for the downward extension of the southeastern surface exposure would entail blind drifting and crosscutting at an expense not commensurate with the probable small size of any tungsten ore shoot that might be discovered.

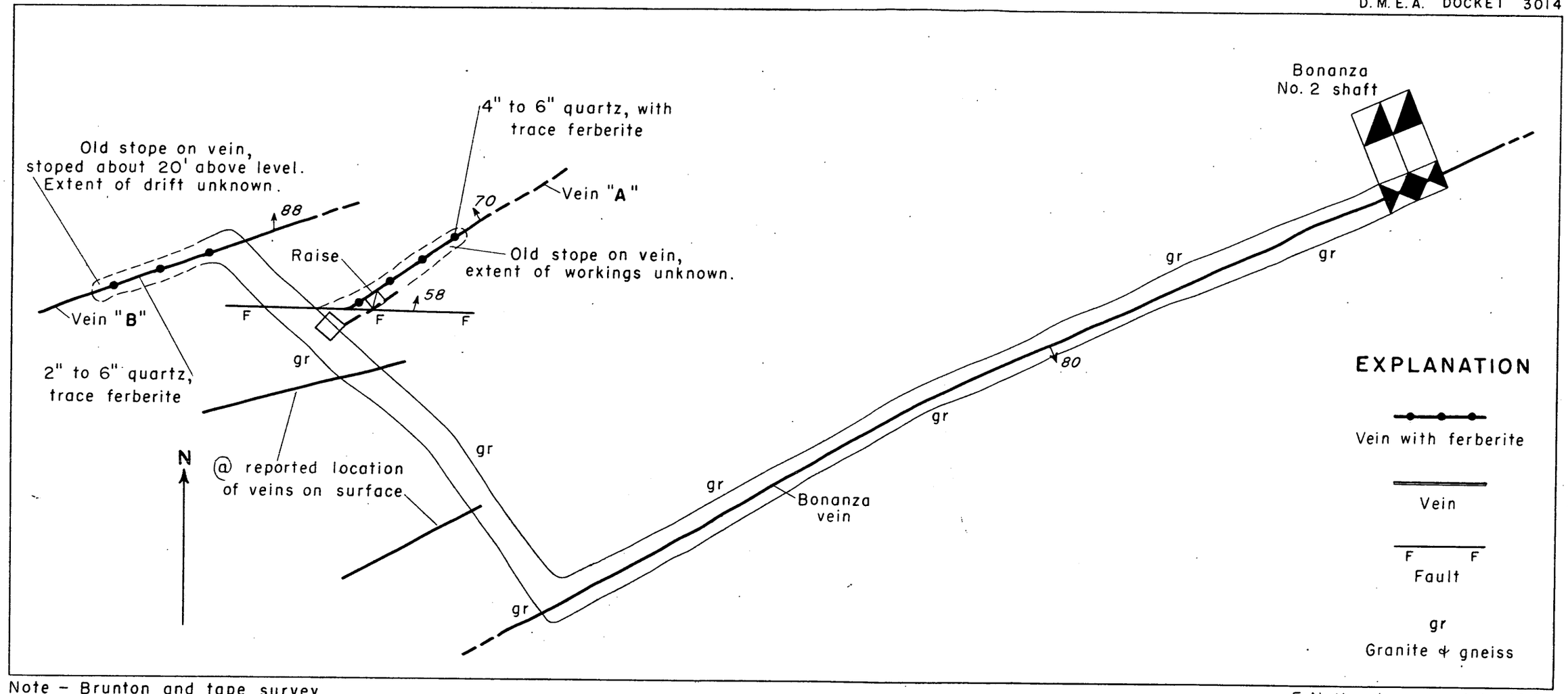
The weak mineralization reported in the northwestern surface exposure and the character of vein "B" on the 115-foot level do not justify additional exploration along vein "B" or along either structure, if they do not correlate.

It is therefore concluded that there is little chance of making a significant discovery of tungsten ore at a cost commensurate with the small ore potential of the mine. Denial of application for exploration assistance is recommended.

Approved
E.M.H. for R.H.K.
8-19-53

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

D.M.E.A. DOCKET 3014



Note – Brunton and tape survey

E.N. Harshman, July, 1953

FIG. 1 - GEOLOGIC PLAN 115 FOOT LEVEL, BONANZA NO. 2 SHAFT

20 0 20 40 Feet

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
June 9, 1953

Memorandum

To: Executive Officer, Field Team, Region IV

From: Chief, Mineral Resources Branch, Mining Division, Region IV

Subject: RMRA 3014, Bonanza No. 2 mine (Tungsten), Bednar Brothers, Lessee, Boulder County, Colorado

Please find enclosed the original and eight copies of the "Summary, Conclusions, and Recommendations," by E. N. Harshman and M. N. Salsbury, and of Salsbury's engineering report on the subject docket.

The applicants propose to explore veins reported to exist on the 115-foot level of the Bonanza No. 2 shaft. Presumably the veins were exposed on surface, and one of them at least was partially developed through a tunnel by one of the Bednar brothers. The tunnel is accessible but is not involved in the application, and other surface vein exposures are now under a tailings pond. They were, however, examined at one time by a Geological Survey geologist, and the existence of ferberite mineralization verified. There is only hearsay evidence of any mineralization in the veins underground. The Bonanza No. 2 shaft and workings are flooded, and on the date of examination operating equipment was being installed preparatory to unwatering the mine.

Salsbury recommends the loan--with the unwatering job estimated to cost $2,200.00 and 150 feet of drifting on one of two veins on the 115-foot level, to be determined when examination is possible, estimated to cost $4,400.00 or $29.33 per foot--suggesting a short-form unit-cost contract. The recommendation is based solely on the mineralization known to exist in the veins on the surface.

In my opinion, Government funds should not be expended for the purpose of unwatering mines to prove or disprove the existence of ore in veins, supported only by hearsay evidence.

Inasmuch as, in this case, the applicants have started unwatering operations and, according to the examiners, may have the

job completed by the time the loan request is processed, it is suggested action be deferred until they have the mine unwatered, so an examination can be made and a contract drawn up to allow exploration of a vein, or veins, based on more definite information. It may be that, when the project has reached that stage, the application may be withdrawn. If not, a more realistic program can be outlined.

If, in the opinion of the Region IV Field Team, a project should be authorized on the basis of present information, I certainly would concur.

A discrepancy noted in the lease concerning location of the property should be corrected before a contract is considered.

The extra brochure furnished the Mineral Resources Branch, May 25, 1953, for our convenience in preparing the report is also enclosed.

W. M. Traver

W. M. Traver

enclosures

WMT/pm

cc 8
General
Chron.

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

200 New Customhouse
Denver 2, Colorado

June 4, 1953

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3014, Bonanza No. 2 Mine, Boulder County, Colorado.

Attached are 8 copies of the geological report by E. N. Harshman covering DMEA Docket 3014, Bonanza No. 2 Mine, Boulder County, Colorado.

The applicant proposes to explore for tungsten and requests a loan of $7,850.50. The proposed exploration consists of unwatering the Bonanza No. 2 shaft and its workings, and of 150 feet of drift on each of two veins reported to be exposed in a crosscut on the 115-foot level.

Harshman recommends a somewhat modified program of exploration at an estimated cost of $6,600.00.

I concur in this recommendation.

The brochure is enclosed.

A. H. Koschmann
A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (9)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 3014, Bodnar Brothers, Lessee

Bonanza No. 2 Mine

Boulder County, Colorado

Tungsten

E. N. Harshman, Geologist
Geological Survey

M. H. Salsbury, Mining Engineer
Bureau of Mines

June 9, 1953

DMEA 3014

BODNAR BROTHERS, LESSEE
BONANZA NO. 2 MINE
BOULDER COUNTY, COLO.

Summary, Conclusions, and Recommendations

By E. N. Harshman
Geologist
Geological Survey

M. H. Salsbury
Mining Engineer
Bureau of Mines

DMEA 3014

BODNAR BROTHERS, LESSEE
BONANZA NO. 2 MINE
BOULDER COUNTY, COLO.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By E. N. Harshman and M. H. Salsbury

On May 20, 1953, an investigation of the Bonanza No. 2 mine in Boulder County, Colo., was made by a Region IV examining team to check the information furnished in a loan application by George A. and Michael Bodnar. Government assistance to unwater the flooded Bonanza No. 2 shaft and perform 300 feet of exploratory drifting on the 115-foot level was requested at an estimated cost of $7,850.50--Government participation 75 percent, or $5,887.88.

The Bodnar Brothers are lessee of a block 450 feet by 900 feet, part of the holdings of Hetzer Mines, Inc.

The applicants propose to explore two veins exposed in a crosscut northwest of the Bonanza No. 2 shaft on the 115-foot level. These veins are typical narrow quartz-ferberite veins in granite, which are probably the same ones that were developed at surface in 1943-44, by one of the applicants and his father. Substantial shipments of tungsten ore were made from a surface cut on one of these veins, and there is some production reported from a raise on the corresponding vein on the 115-foot level. The vein outcrops have since been covered by a tailings pond.

The surface and underground workings on the veins could not be examined, but Ogden Tweto, of the Geological Survey, verified the

statements of the applicants as to the ore mined at surface and stated that their reputation and mining experience is satisfactory.

The property has no measurable ore reserves.

The mine is fully equipped, and the applicants were preparing to unwater the shaft at the time of the examination.

A revised program of exploration, limited to the vein from which ore shipments have been made, is recommended by the examining team at an estimated cost of $6,600.00--Government participation 75 percent, or $4,950.00.

Because the applicants' proposal is not based on an accurate survey, it is recommended that the workings be resurveyed when the shaft is unwatered and the relation between the veins exposed underground and the surface outcrops be checked as far as possible by Region IV field representatives before drifting starts.

A short-form contract is suggested. It is possible that the first phase of the exploration project, unwatering and rehabilitating the Bonanza No. 2 shaft and 115-foot level, will have been completed before a loan application can be approved.

BONANZA NO. 2 MINE

BOULDER COUNTY, COLORADO

DMEA DOCKET 3014

Geologic Report

By E. N. Harshman
U. S. Geological Survey

BONANZA NO. 2 MINE
BOULDER COUNTY, COLORADO

INTRODUCTION

George A. and Michael Bodnar, 500 Grant Avenue, Louisville, Colorado, have applied for Government assistance, DMEA Docket 3014, to explore for tungsten ore in the Bonanza No. 2 mine, located 2 3/4 miles (airline) northeast of Nederland, Boulder County, Colorado, in the SE¼ sec. 5, T. 1 S., R. 72 W., 6th P. M. The location given in the lease between the applicant and Hetzer Mines, Inc., is in error in that it places the property in the NE¼ sec. 5, T. 1 S., R. 73 W.

The applicants have requested a loan of $7,850.50 to unwater the Bonanza No. 2 shaft and workings therefrom, and to drift 150 feet on each of 2 veins reported to be exposed in the 115 foot level crosscut (fig. 2 in engineering report).

The property was examined on May 20, 1953, in company with J. C. MacLachlan, U. S. Geological Survey, M. H. Salsbury, U. S. Bureau of Mines, and the applicants. At this time the workings were flooded, and the outcrops of the two veins to be explored from the 115 foot level of the Bonanza No. 2 shaft were covered by a large tailings pond. The examination was therefore limited to the adit level and stopes on the Bonanza vein, a parallel structure not proposed for exploration.

GEOLOGY

The predominant rock types in the vicinity of the Bonanza No. 2 mine are pre-Cambrian granite and granite gneiss, with associated pegmatite

and aplite dikes. These rocks are part of the Boulder Creek batholith, the host rock for many of the ferberite ore shoots in the Boulder County tungsten district.

Major structural features are a number of northwesterly striking dikes or silicified breccia reefs and a series of northeasterly striking mineralized fissures.

Figure 2 in the engineering report shows the 2 veins along which exploration is proposed. Both veins are reported to have been exposed by dragline operations, and vein A was mined to a depth of about 10 feet below the bedrock surface. According to the applicant, veins A and B occupy strong fissures in granite, strike northeasterly, and dip steeply to the northwest. Both veins are reported to contain horn quartz and ferberite, with a maximum thickness of about 6 inches in vein A, and 2 inches in vein B.

It appears probable that the veins exposed in the 115 level crosscut are the same veins that were exposed by dragline operations and subsequently prospected, mined (vein A only), and covered by tailings. The applicants report that vein A, when exposed in the crosscut, contained 2 to 4 inches of horn quartz and ferberite and that W. M. MacKenzie mined some high grade ore from a small stope on the vein. A narrow streak of ore is reported to have been followed by a short drift on vein B (fig. 2).

CONCLUSIONS AND RECOMMENDATIONS

Ogden Tweto, U. S. Geological Survey, confirms the applicants' statements regarding the nature of the ore exposed and mined at the surface on vein A. He has not seen vein B at the surface, nor vein A or B in the 115 foot level crosscut.

From the observations of Mr. Tweto and the statements of the applicants, it is concluded that exploration on vein A in a westerly direction from the 115 foot level crosscut may discover significant tungsten ore. Because of an almost complete lack of information, it is believed that any recommendation for exploration on vein B should be postponed until the shaft is unwatered and an examination of the underground exposures is made.

The following modified exploration program, estimated by the U. S. Bureau of Mines to cost $6,600, is recommended.

1. Unwater the Bonanza No. 2 shaft and the 115 foot level workings.

2. Make any necessary repairs to the shaft and clean up workings between the shaft and vein A.

3. Survey the shaft and 115 foot level workings to determine definitely the relation of the veins exposed in the crosscut and the veins previously exposed on the surface.

4. Drift 150 feet southwest along vein A (fig. 2).

The above recommendations are contingent upon the Government being furnished with a copy of a valid lease between the applicants and Hetzer Mines, Inc., which correctly locates the property under consideration for exploration assistance.

DMEA 3014

BODNAR BROTHERS, LESSEE
BONANZA NO. 2 MINE
BOULDER COUNTY, COLORADO

Engineering Report

By M. H. Salsbury
Mining Engineer
Bureau of Mines

DMEA 3014

BODNAR BROTHERS, LESSEE
BONANZA NO. 2 MINE
BOULDER COUNTY, COLO.

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DMEA 3014

BONANZA NO. 2 MINE
BODNAR BROTHERS, LESSEE
BOULDER COUNTY, COLO.

ENGINEERING REPORT

By

M. H. Salsbury

INTRODUCTION

On May 20, 1953, a Region IV examining team made an investigation of the Bonanza No. 2 tungsten mine, Boulder County, Colo., to check the information in an application by Bodnar Brothers, lessee, 500 Grant Avenue, Louisville, Colo., for Government assistance in exploration on the property. A loan of $7,850.50--Government participation 75 percent, or $5,887.88--is sought to unwater the flooded Bonanza No. 2 shaft and perform 300 feet of drifting on the 115-foot level.

A conclusion was reached solely on geological considerations and on information furnished by the applicants and verified in part by Ogden Tweto, of the Geological Survey, from his knowledge of the Boulder tungsten district. The property appears to have merit, and a modified exploration program estimated to cost $6,600.00--Government participation 75 percent, or $4,950.00--is recommended.

ACKNOWLEDGMENTS

Information on the property was obtained from the application form MF-103, furnished by Bodnar Brothers, and from additional information given the examining team during the investigation. Ogden

Tweto, of the Geological Survey, was familiar with part of the surface work which forms the basis of the applicants' exploration project, and verified the occurrence of ore at surface.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The Bonanza No. 2 mine is in the SE 1/4 sec. 5, T. 1 S., R. 72 W., Boulder County, Colo., (fig. 1) about 3 miles northeast of Nederland, Colo., the nearest post office. The location given in the lease included with the application is erroneous and should be corrected before a contract is entered into. Nederland, a town of 300 population, is 17 miles west of Boulder, Colo., the county seat of Boulder County, and 37 miles northwest of Denver, Colo. There is a paved, all-weather highway to within 3 miles and a good, graded county road the remainder of the distance to the mine.

The nearest rail connections are at Rollinsville, 5 miles south of Nederland, and at Boulder.

The shaft, at an altitude of about 8,100 feet, is on the slope of a small gulch running through the property. The area is one of low rounded hills or ridges dissected by a drainage network running generally east and west. The area is sparsely forested with second-growth pine and shrubs.

Ore produced can be sold to custom mills in the vicinity.

Spring, summer, and fall seasons are cool. Winters are moderately severe, with occasional short cold periods and moderate to heavy snowfall, and precipitation varies widely from year to year. Continuous operations are feasible.

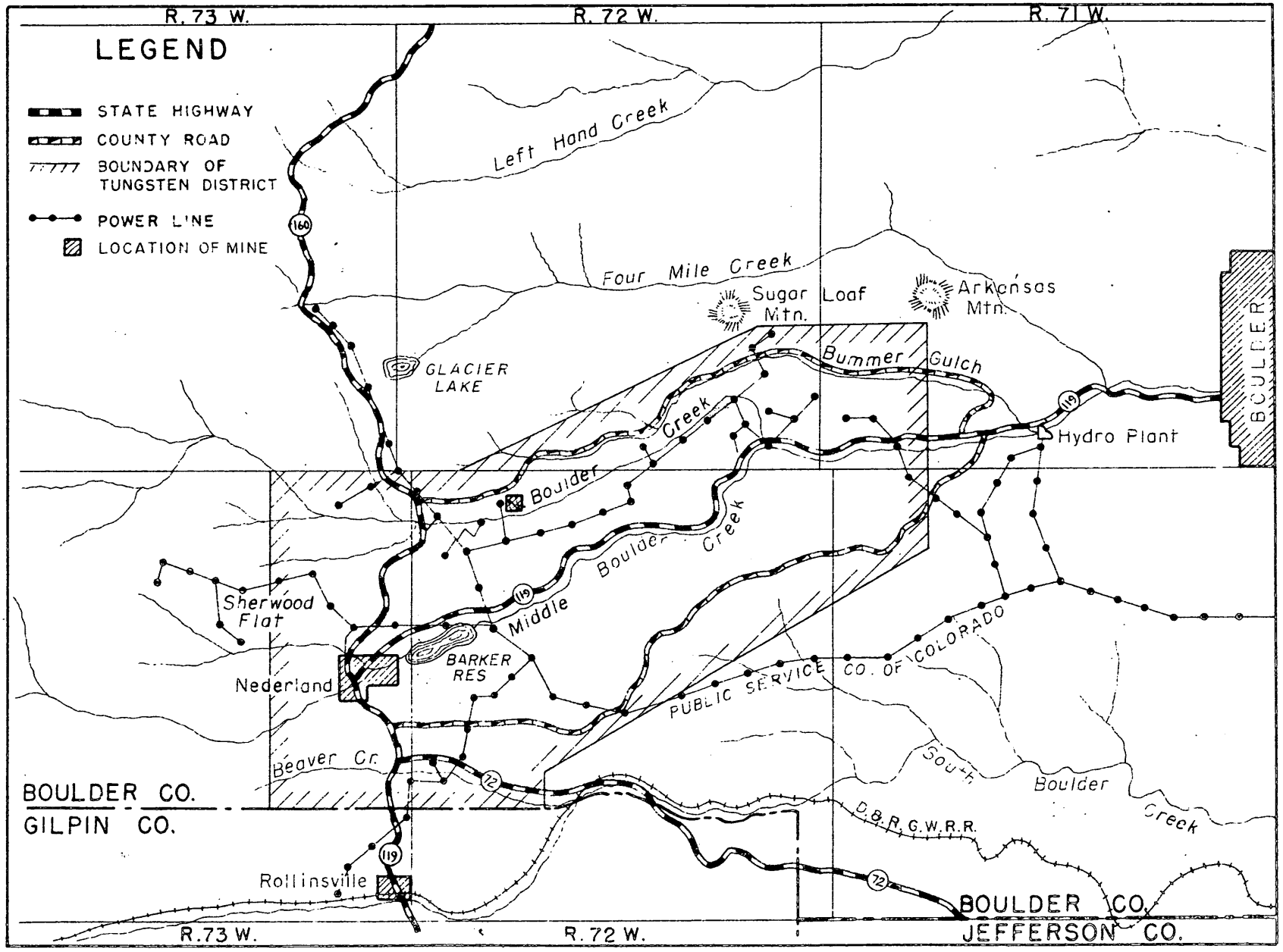


FIGURE 1. - LOCATION MAP OF THE BONANZA NO. 2 MINE, BOULDER COUNTY, COLO. (DMEA 3014).

Power is available at the mine from the lines of the Public Service Company of Colorado. A transformer station has been set near the shaft.

Most small mining supplies can be obtained from Nederland and Boulder. Larger supply items and machinery are quickly obtainable from Denver.

Mine timbers can be purchased locally if the small growth on the property is not adequate.

Water is easily obtained from the mine drainage or from the small stream running through the property.

HISTORY AND PRODUCTION

This property has been known and worked at intervals since 1907, with the first large production during World War I. Operations were carried on through the Bonanza No. 2 shaft and through a tunnel in the hillside northeast of the shaft. In 1943-44, George Bodnar, Sr., and a son, Michael Bodnar, one of the present applicants, produced good ore from an open-cut in the floor of a gulch west of the Bonanza No. 2 shaft. Another vein with good mineralization was exposed at the same time but not worked.

In 1948, lessees opened the Bonanza No. 2 shaft and drove a crosscut out under the gulch toward the veins, which the Bodnars had worked at surface. Three small veins were cut. Two of the veins showed tungsten mineralization, and a small stope was mined on one of them. No drifting was done, although Bodnar reports that some of the ore was high-grade. The shaft was allowed to flood after this operation.

In 1952, George A. Bodnar and Michael Bodnar, brothers, opened up ore on a split of the Bonanza vein in the tunnel. This was stoped underhand for 15 feet and then abandoned when the operation became too difficult. Some good ore was produced.

The production record of the Bonanza No. 2 mine furnished by the applicants follows:

Year	Pounds ore	Percent WO_3	Pounds WO_3
1907-1950, inclusive	2,826,542	10.53	297,751.7
1951	780	36.00	280.82
1952	35,447	7.00	2,334.99
Total	2,862,769		300,367.51

The production by the Bodnars in 1943-44, from the open-cut, is included in the 1907-50 total. The applicants were requested to assemble the figures from their records and submit them for inclusion in the application.

OWNERSHIP AND EXTENT

The property is part of an agricultural entry owned by Hetzer Mines, Inc., and held by the Bodnar Brothers under a lease extending to April 1, 1956. The location given in the lease is incorrect. The lease block is 450 feet by 900 feet, as shown on figure 2.

The lease provides for a royalty of 15 percent of the net proceeds of any ore sold, "net proceeds" being defined as the

net sale price less the cost of hauling to the lessors' mill at Nederland, Colo. The lessors will sign a subordination agreement.

DESCRIPTION OF THE DEPOSITS

The veins seen in the tunnel by the examining team, which are not included in the application, are typical narrow quartz-ferberite veins in granite with irregular mineralization. Undoubtedly the veins in the shaft are similar.

The applicants report that the vein in the Bonanza No. 2 shaft workings dips steeply to the south, but, where observed in the tunnel, it dips steeply to the north. The strike is N. 65° E. The applicants' sketch of the veins in the gulch on the surface does not give any dip, and the strike shown is probably not accurate. On the sketch, a junction of the two veins is indicated just east of the workings on the 115-foot level (fig. 2).

MINEABLE ORE RESERVES

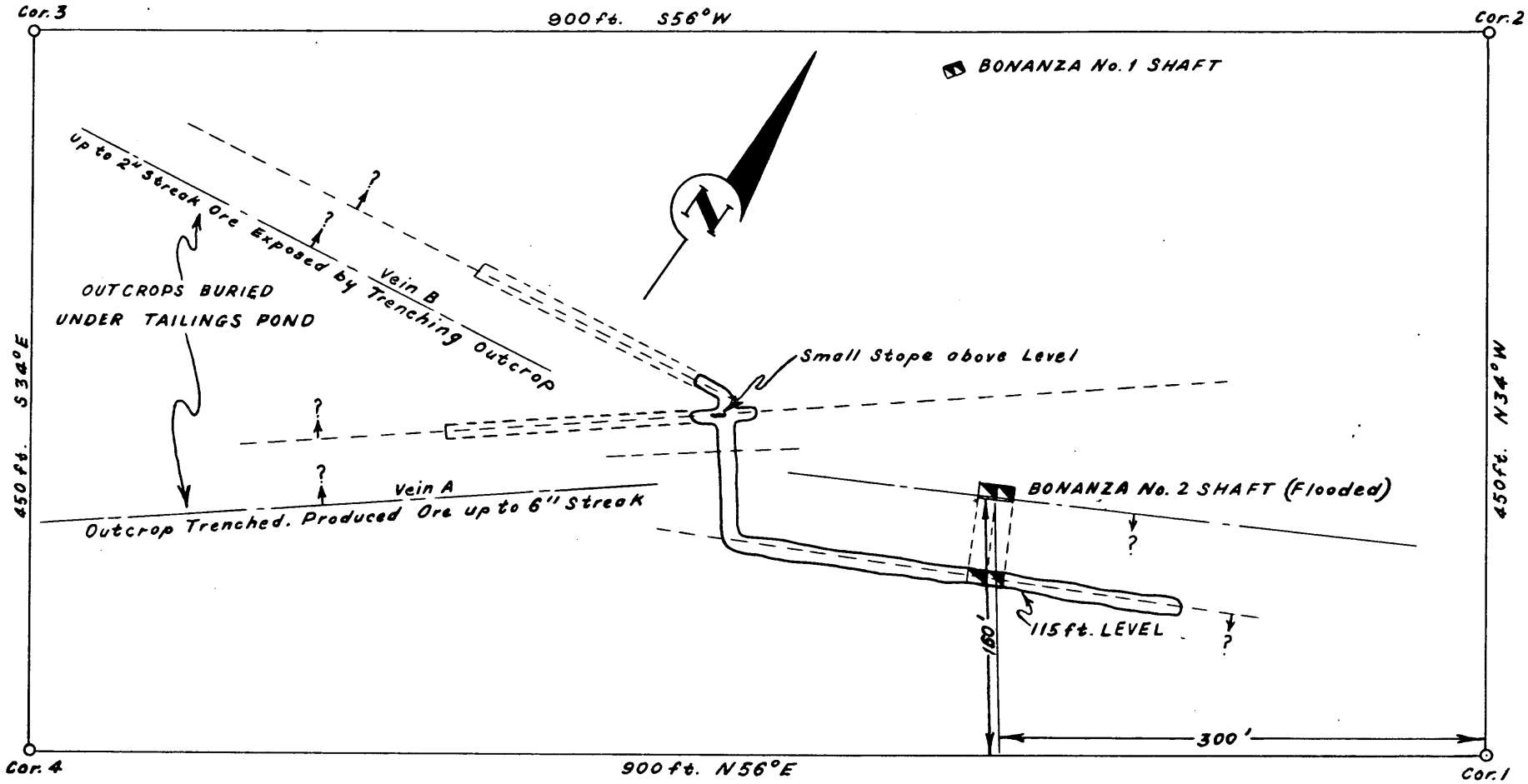
The mine has no measurable ore reserves.

PRESENT STATUS

Exploration and Development

The property is developed to a depth of several hundred feet through the Bonanza No. 2 shaft and was mined at shallow depth in the tunnel. Most of the work from the shaft has been done eastward under the tunnel workings.

On the 115-foot level of the shaft there are 105 feet of drift east and 150 feet west on the Bonanza vein. From the end of the west drift an 80-foot crosscut, driven northwest, intersects two mineralized veins near the end (fig. 2).



BODNER BROS. LEASE

FROM SKETCH BY BODNER BROS.
APPROXIMATION – NOT SURVEYED

BOUNDARIES AS DESCRIBED

THE SE QUARTER OF SEC. 5, T1S, R72W

LEGEND

- PROPOSED EXPLORATION
- 115 FOOT LEVEL
- VEINS ON 115 FOOT LEVEL
- VEINS AT SURFACE

0 50 100 200 300

SCALE IN FEET

MINERAL RESOURCES BRANCH
MINING DIV. – REGION IV
BUREAU OF MINES

FIGURE 2 – PLAN MAP, BONANZA NO. 2 MINE, BOULDER COUNTY, COLO. DMEA 3014

The tunnel workings are open except for several caves 300 or 400 feet from the portal which do not completely block passage. Fairly large stoping operations were carried on both below and above the tunnel level. Bodnars' underhand stope is partially caved but could have easily furnished the production claimed.

The shaft is flooded to within 25 feet of the collar. The water level is probably the creek level. A vertical distance of 80 feet from the 115-foot level of the shaft is estimated to the bottom of Bodnars' surface open-cut in the gulch.

The site of the ore exposures in open-cuts in the gulch is now covered by a tailings pond from nearby milling operations on old dumps; however, Ogden Tweto examined vein A, which the Bodnars were mining in the open-cut, and verifies the fact it was as much as 6 inches wide, with good ferberite exposed. Michael Bodnar states that the ore was worked for a length of 60 feet and not over 10 feet in depth, with a 1-inch streak still showing in the bottom of the cut. The cobbed ore assayed 47 percent WO_3.

The second vein, B, exposed in another cut, was as much as 2 inches wide, with good mineralization, but was not explored or developed.

Mining and Milling Equipment and Other Facilities

There is a headframe and shaft house at the Bonanza No. 2 shaft. Bodnar Brothers are now installing an electric hoist, air compressor, and sheave wheel. They have all the necessary equipment, owned or rented, to unwater the shaft and carry on mining operations.

There are no milling facilities on the property. The lease requires shipment of ore produced to the mill of Hetzer Mines, Inc., at Nederland.

PROJECT PROPOSALS WITH COSTS

The applicants propose the following work:

(a) Unwater the Bonanza No. 2 shaft to the 115-foot level and rehabilitate the shaft and level.

(b) Perform the 300 feet of drifting on the 115-foot level on the two veins, A and B, already intersected, which project roughly from those exposed on surface 80 feet above (fig. 2).

The applicants' over-all cost estimate for the above work is $7,850.50, or $26.16 per foot, for the drifting. The estimated time required to do the work is 4 months, which would allow 1 month for pumping and rehabilitation and 3 months for drifting at the rate of 100 feet per month.

The applicants' estimated costs are low.

A modified program is recommended by the examining team:

(a) Unwater and rehabilitate the shaft and 115-foot level.

(b) Drift a maximum of 150 feet on vein A showing on the 115-foot level, which projects roughly from the A vein (fig. 2) mined in the surface cut.

The time estimate for completion of this work is 3 months, including 1 month for pumping and rehabilitation. An estimate of the cost of unwatering and rehabilitation is included, although the applicants may have completed the phase by the time the loan can be approved.

Cost Estimate

	Unwater and rehabilitate shaft and 115-foot level (1 month or 25 shifts)		Drift 150 feet (2 months or 50 shifts)	
Labor and Supervision				
Working supervisor, at $17.33 per shift, including overtime	$433.25		$866.50	
Miner-timberman, at $14.30 per shift	357.50		715.00	
Underground helper, at $13.00 per shift	325.00	$1,115.75	650.00	$2,231.50
Operating Materials and Supplies				
Timber	$200.00		$100.00	
Explosives	---		525.00	
Track	230.00		150.00	
Pipe	258.75		112.50	
Power	150.00		300.00	
Other	65.36	904.11	150.00	1,337.50
Operating Equipment				
Rental of jack leg	$ ---		$ 50.00	
Rental of 215-c.f.m. compressor	---		400.00	
Rental of tugger hoist	50.00		---	
Rental of 15-horsepower electric hoist	25.00		50.00	
Depreciation on 15-horsepower pump	11.50		23.00	
Depreciation on sinker, oiler, air hose	---		12.00	
Depreciation on buckets, dolly, etc.	4.00	90.50	8.00	543.00
Miscellaneous				
Accounting (none on short form)	$ ---		$ ---	
Repairs to equipment	40.00		150.00	
Analyses	---		38.73	
Payroll taxes	16.73		33.46	
Liability insurance	32.91	89.64	65.81	288.00
Total Cost		$2,200.00		$4,400.00
Unit Cost		$2,200.00 for the job		$ 29.33 per foot

Manpower

The operation will require three men. Bodnar Brothers will be actively employed, and the one additional man can be hired locally without difficulty.

Power, Water, Timber

These items are already provided or are easily obtained.

Time for Completion of Project

The applicants estimate 4 months to complete the exploration program outlined in the loan request. The time and cost of unwatering and rehabilitating the shaft and 115-foot level are not segregated in their estimate; however, they estimate 75 rounds to drive 300 feet, an average of 4 feet per day, and the time to complete the work of driving as 3 months, leaving 1 month for pumping out and rehabilitation of the shaft and level.

The examining engineer believes that the total of the applicants' estimate is low and that a rate of 4 feet advance per day would require unusual efficiency.

A more realistic rate of 3-feet-per-shift advance was used in the Bureau engineer's estimate.

Rate of Production

The rate of production from any ore discovered will probably be low. This is to be expected in the small ore bodies of the Boulder tungsten area.

Mining Methods

The normal methods of open stoping, with the stope width kept to a minimum to avoid breaking more waste rock than necessary,

will probably be used. Ore will be sorted in the stopes, and cobbed ore will be trucked to the Wolf Tongue mill of Hetzer Mines, Inc., at Nederland.

Mining costs on this type of ore are high.

COST RECAPITULATION

Rehabilitation, including unwatering shaft	$2,200.00
Drifting 150 feet on vein A, at $29.33 per foot	4,400.00
Total	$6,600.00

PROPOSED FINANCING

Both applicants will be employed on the project, and the value of their labor will be more than their share of the cost.

CONCLUSIONS

The exploration proposals of the applicants are reasonable and appear to have good possibilities for the discovery of commercial ore.

However, the indicated location of the veins and the relationship between the mine workings and the ore mined on surface cannot be verified. No survey has been made or was possible at the time of the examination. For this reason, the examining team felt that the project should be limited for the present to vein A (fig. 2), which is known to have produced at surface, and which presumably was stoped on the 115-foot level of the mine.

The Bodnar Brothers are competent miners, and George Bodnar has a record of mining experience in the Boulder field and elsewhere since 1923. They are well able to carry on the exploration.

RECOMMENDATIONS

It is recommended that an exploration project, consisting of unwatering and rehabilitating the Bonanza No. 2 shaft to the 115-foot level and 150 feet of drifting on the 115-foot level on vein A, be approved at an estimated cost of $6,600.00--Government participation 75 percent, or $4,950.00.

A short-form contract is suggested.

All or most of the preliminary unwatering and rehabilitation work, estimated to cost $2,200.00 of the total, may be completed by the time an exploration contract can be approved and made effective. In that event, only the drifting operation should be included in the short-form contract.

As soon as the shaft is unwatered, a survey of the Bonanza No. 2 mine 115-foot level should be made by Region IV field representatives, and the relative location of the open-cut, now covered by a small tailings pond, be determined as accurately as possible. This information might change the proposed exploration plan. After completion of the recommended work, information gained from the rehabilitation and from a survey might make exploration of the second vein B more attractive than exploration of vein A, or distributing the drifting between the two veins might be desirable.

pm

May 4, 1953

Mr. George A. Bodnar
500 Grant Avenue
Louisville, Colorado

Subject: DMEA-3014
Re: Exploration Assistance
Bonanza #2 Mine

My dear Mr. Bodnar:

The receipt of your application dated May 1, 1953 for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-3014 and referred to Mr. W. H. King, Executive Officer, Region IV, Bureau of Mines, 224 New Customhouse Building, Denver 2, Colorado.

Kindly refer to DMEA-3014 in any future correspondence relating to your application.

Sincerely yours,

Robert E. Adams
Chief, Operation's Control
and Statistics Division

BODNAR BROS.
500 Grant Ave.
Louisville, Colo.

May 1, 1953

MAY 4 1953

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

Gentlemen:

We hereby submit our Application for Aid in an Exploration Project. This application and all accompanying papers have been prepared in quadruplicate as specified. Trusting the enclosures will be found entirely in order, we remain

Very truly yours,

BODNAR BROS.

By George H. Bodnar
Partner

GAB:ch
enc.

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. DMEA-3014
Metal or Mineral
Date Received 5/4/53
Estimated Cost
Participation (Government %)

MAY 4 1953

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: Bodnar Bros., 500 Grant Ave., Louisville, Colorado
George A. Bodnar, 500 Grant Ave., Louisville, Colorado
Michael Bodnar, 500 Grant Ave., Louisville, Colorado
This is a partnership.

(*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. Legal description of land given on property lease.

(*b*) State any mine name by which the property is known. Bonanza #2 Mine

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

(*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. Copy of lease submitted.

(*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.

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*) [redacted]e the mineral or minerals for which you wi[redacted] explore Tungsten

(*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 60 days and be completed within 4½ 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.). None

(*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. Not applicable

(*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. Not applicable

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

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

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

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

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

[XX] 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 May 1, 1953

BODNAR BROS.
(Applicant)

By George A. Bodnar
Michael Bodnar

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

Bodnar Bros.
500 Grant Ave.
Louisville, Colo.

UNITED STATES DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

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4. (a) In the past year, 1952, Bodnar Bros., working in a tunnel connected with the old abandoned Bonanza #2 Shaft, known as Pugh's Shaft, discovered and worked a small streak of high grade ore in the foot wall of the Bonanza vein. The ore was underhanded to a depth of 15 feet and then abandoned due to difficulties of such operations. In 1948 two leasors did operate the Bonanza #2, driving a crosscut from the Bonanza vein on the 115 ft. level to the northwest, into the footwall to the extent of 80 feet. Three small veins were exposed in this operation - two of them showing ore. A small stope was run up on one of these veins and considerable ore taken out. Most of this ore was of high grade. No drifts were driven on any of the veins exposed.

All workings on tunnel level are accessible for examination purposes. Workings on Bonanza #2 Shaft are under water at present time.

(b) Past and current production, and ore reserves, if any.

Production Record - Bonanza #2

Year	Ore lbs.	Ore Assay	Lbs. WO3
1907 - 1950 Incl.	2,826,542	10.53	297,751.7
1951	780	36.00	280.82
1952	35,447	7.00	2,334.99
Total	2,862,769		300,367.51

No ore reserves at present.

(c) Geological Features - Vein, flanked by granite walls, except where it is crossed by spar dikes. High grade ore occurs in granite. Lower grade ore in spar dikes. Ore is mostly high grade with very little phosphorus content.

Main reasons for wishing to explore - In 1943 and 1944, George Bodnar, Sr. and Mike Bodnar worked on the surface on one of the veins we wish to explore on the 115-foot level. They did have good ore on the surface that at times was six (6) inches wide, and their cobbed ore ran 47% in Tungstic acid. These surface workings were only driven down to a depth of about ten (10) feet at the most. The open cut that they worked was about sixty (60) feet long. The ore continued down in places but was only about one (1) inch thick. Another vein of ore about two (2) inches thick was exposed by a drag-line shovel but was not explored. We believe the two veins exposed in the crosscut on the 115-foot level are the two veins on the surface that showed ore. We believe that by drifting on the two veins we may expose ore chutes to the southwest. We are submitting maps and sketches to show reason that ore could be found by drifting on veins.

Bodnar Bros.
500 Grant Ave.
Louisville, Colo.

(continued)

4. (d) Accessibility - Project is readily accessible to county road which is kept in good shape. Ore is shipped to mill at Nederland, Colorado, a distance of about three (3) miles. Supplies to be purchased at Boulder, Colorado, a distance of twenty-one (21) miles. Operating residence one mile from mine.

(e) Availability of Manpower, etc. - All necessary materials, supplies, and equipment are available either at Boulder, Colo., Nederland, Colo., Central City, Colo., Black Hawk, Colo., or Idaho Springs, Colo. Ample supply of water available either from shaft or creek running through property. Power lines are on property with transformers already set. Miners are available around Nederland and Boulder.

5. (b) Describe Proposed Work - The proposed work on this Project is primarily to explore fully two of the veins exposed in the crosscut on the 115-foot level. All of the work will be drifting on these veins. The drifts on these two veins to be driven 150 feet.

(d) Experience of Applicant - I, George Bodnar, have been engaged in mining since 1923. Have worked in the tungsten mines both as a hired miner at day's pay, and also as mine operator. For the most part I have operated a leased property with partners. I believe I am able to supervise the operation of this project.

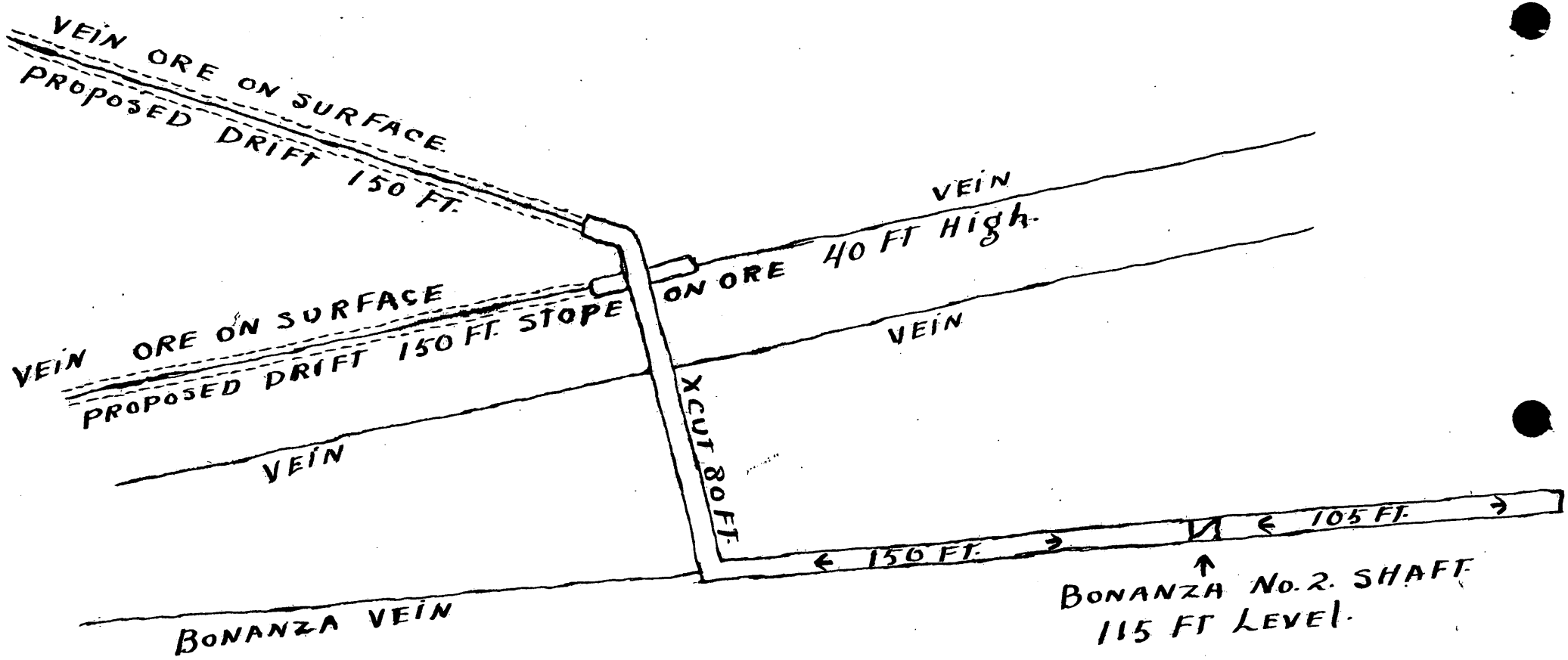
Bodnar Bros.
500 Grant Ave.
Louisville, Colo.

(continued)

6. Estimate of Costs

(b) Bookkeeper	4 mos. @ $30.00 per mo.		$ 120.00
(c) Operating Supplies			
Ties - 2 per round	75 rds. x 2 @ 15¢ each		22.50
Rails - 4 ft. per round	300 ft. x 2 @ 10¢ per ft.		60.00
Spikes 8 per round	75 rds.	@ 8¢ per rd.	6.00
Powder 25# per rd.	75 rds.- ½ x $22.50 or	@ $5.60 per rd.	420.00
Caps - 16 holes x 2½ c.	75 rds.	@ 36¢ per rd.	27.00
Fuse - 16 holes x 6 ft. = 96	75 rds.	@ $1.36 per rd.	102.00
Carbide - 25# per mo.	4 months	@ 3.01 per mo.	12.00
Steel & Bits	4 months	@ $25.00 per mo.	100.00
Power - 105 h.p. @ 1.50 per mo. per h.p.	4 months	@ $157.50 per mo.	630.00
(d) Operating Equipment			
Jack leg for Thor - (rented)	4 months	@ $25.00 per mo.	100.00
Pipe - 2" - 300 ft. for $75.00		(Depreciation)	5.00
Thor drifter - $300.00 & Ingersoll Rand drifter - $300.00		(Depreciation)	40.00
Air Hose (60 ft. @ 70¢ per ft. - $42.00) & Oiler - $18.00 = $60.00		(Depreciation)	4.00
Hoist, 15 h.p. motor, Grids - Rented	4 months	@ $25.00 per mo.	100.00
Pump, 15 h.p. - 150 ft. cable - $690.00 - owned		(Depreciation	46.00
Compressor - C.F.M. - rented	4 months	@ $300.00 per mo.	1,200.00
Tugger hoist - rented	4 months	@ $50.00 per mo.	200.00
(g) Workmen's Compensation Insurance			
Three men - $8.00 per man per month			96.00
Wages			
1 man	25 days per mo. @ $18.00 per day for 4 mos.		1,800.00
1 man	25 days per mo. @ $16.00 per day for 4 mos.		1,600.00
1 man	25 days per mo. @ $12.00 per day for 4 mos.		1,200.00
		TOTAL	$7,850.50

Sketch of proposed work on Bonanza #2



LEASE

THIS INDENTURE, Made and entered into this 1st day of April, 1953, between HETZER MINES, INC., a corporation, hereinafter called the Lessor, and GEORGE A. BODNAR and MICHAEL BODNAR, hereinafter called the Lessee,

WITNESSETH: That the Lessor, in consideration of the covenants and agreements of the Lessee hereinafter expressed to be kept and performed by the Lessee, and upon and subject to the conditions hereinafter provided, has leased and demised, and by these presents does lease and demise unto the Lessee, the following described mining property or premises situate in Boulder County, Colorado, to-wit:

> That part of the Southwest Quarter of the Northeast Quarter of Section Five, Township One South, Range Seventy-three West described as follows: Beginning at the center of the Bonanza No. 2 shaft; running thence South 34° East 150 feet; thence North 56° East 300 feet; ~~thence~~ to corner No. 1, the true point of beginning; thence North 34° West 450 feet to corner No. 2; thence South 56° West 900 feet to corner No. 3; thence South 34° East 450 feet to corner No. 4; thence North 56° East 900 feet to corner No. 1, the true point of beginning;

TO HAVE AND TO HOLD The said demised premises, only however to the extent necessary for the purpose of mining the same for tungsten ore and for no other purpose, for a term of three (3) years from the date hereof.

IN CONSIDERATION Of this lease, the Lessee covenants and agrees as follows, to-wit:

1. To work the said premises in thorough mine-fashion to the end of the safe development and preservation of the same as a workable mine, at all times extracting as much ore therefrom as is possible consistent with safe and prudent mining; and in this connection it is agreed and understood that the Lessor may at its election require the Lessee to produce ore instead of doing development work.

2. To work the demised premises continuously from April 1, 1953 performing at least 40 shifts of work therein underground during each calendar month during the time this lease shall remain in force and effect; any excess labor performed during any calendar month shall not apply on the work required hereunder in any preceding or following calendar month. The word "shift" is taken and accepted to mean the labor of one man for one day of at lease 8 hours.

3. To make all shafts and inclines eight (8) feet long by four (4) feet wide in the clear, with bucket ways three and one-half (3-1/2) by four (4) feet in the clear, and all drifts seven (7) feet high by four (4) feet wide in the clear, provided that existing shafts, drifts and inclines shall, unless otherwise directed by the Lessor, be continued with their present dimensions. The Lessor reserves the right to change the dimensions of any workings as and whenever in the judgment of the Mining Superintendent of the Lessor the same may be necessary or expedient.

4. To do no underhand stoping, whether for the purpose of taking out ore or for any other purpose whatsoever.

5. to neither mine, extract nor remove the ground to a point nearer than four (4) feet to each side of any working shaft, and always to leave at least four (4) feet of ground, in its original condition, to support each such shaft. To leave more than four (4) feet of ground to support each such shaft if the Mining Superintendent of the Lessor shall so direct and to drib or rip-rap any shaft at the Lessee's expense, if the said Mining Superintendent shall so request the Lessee.

6. To allow the officers, agents and representatives of the Lessor at all times to enter upon and into the said premises and all parts thereof for the purpose of inspection and sampling, and to make any surveys they may desire, and to render them all the assistance in the power of the Lessee in so doing.

7. To keep and maintain the drifts, shafts, tunnels and other workings in the said premises thoroughly drained and clear of loose rock and rubbish, and in a safe and secure condition, except as prevented by extraordinary mining ~~workings~~ casualty, and to maintain at all times and leave the floors of all drifts and workings in good, even and unobstructed condition; to stow no waste underground except with the consent in writing of and under the direction of the Mining Superintendent of the Lessor.

8. To keep posted in conspicuous places on the surface of the said premises all notices which may be furnished by the Lessor for posting thereon.

9. To not assign this lease or any interest therein, nor to sublet the said premises or any part thereof; and to not assign or transfer to anyone any interest in the sums payable by the Lessor, or any other, to the Lessee for ores produced from the said premises, without the written consent of the Lessor first had and obtained.

10. To pay monthly in advance to the Public Service Company of Colorado its charges for electric power required or to be furnished to the Lessee at the said premises, together with all proper costs of making such power available to the Lessee.

11. The Lessee hereby agrees and promises that on or before the 10th day of each calendar month after the date hereof, the Lessee will make, sign and deliver to the Lessor a written report, in duplicate, of the payroll for all operations under this agreement of lease upon the premises hereinabove described, for the preceding calendar month, on such forms as the Lessor and/or the State Compensation Insurance Fund shall direct from time to time; and the Leseee agrees and promises that each such report shall be in sufficient detail so that the actual payroll may be ascertained for all operations under this lease upon the demised premises during the preceding calendar month, including the Lessee's own time at Lessee's actual wages, but in any event at not less than the minimum rate of pay fixed from time to time by the State Compensation Insurance Fund or the Industrial Commission of Colorado for a Lessee, and including the payroll of his sublessees and employees, if any, and including the payroll on account of contractors and subcontractors and their employees, if any, so that from such report there may be ascertained the amount of premium payable by the Lessor to the State Compensation Insurance Fund or other insurance carrier for compensation insurance covering the Lessee, his employees and sublessees, if any, and all contractors and subcontractors, if any, and the employees thereof, for operations on the said premises under this lease.

The Lessee agrees hereby to pay to the Lessor the cost of such compensation insurance as may be carried by the Lessor on account of or for the Lessee and Lessee's sublessees and employees, if any, and on account of each contractor with the Lessee and subcontractor, if any, and the employees of each thereof, if any, because of any operations on the demised premises under this lease; and the Lessee agrees to pay the cost of such insurance to the Lessor in cash monthly installments payable on or before the 20th day of each calendar month during the life of this lease for the operations of the preceding calendar month; and the Lessee agrees further that the Lessor, at its option, may withhold and deduct each such monthly installment, and any unpaid monthly installments, if any, from sums otherwise payable to the Lessee upon ore settlements from operations under this lease, or from any other money due or owing or to become due in any fashion to the Lessee from the Lessor.

12. The Lessee agrees to pay to the Lessor and the Lessor reserves a royalty of fifteen (15) percent of the net proceeds from the sale of any ores produced by the Lessee. The "net proceeds" is agreed to be the net sale price of said ores less the cost of hauling the same to the Lessor's mill at Nederland, Colorado.

13. The Lessee agrees also to pay to the Lessor eighty-five (85) percent of the production tax on all ore produced by the Lessee from the above described property.

IT IS MUTUALLY AGREED BY AND Between the Lessor and Lessee as follows:

(a) The Lessor agrees that as long as it has a market for ore, it will maintain what it considers a fair shhedule of price for tungsten ore produced from properties owned or leased by it. The Lessor shall have the right to purchase and the Lessee agrees to sell to the Lessor all ore produced by the Lessee from the leased premises, provided said schedule of prices maintained by the Lessor is at least equal to the price which may be offered the Lessee by any other party. In the event the Lessee is able to sell said ore at a net price higher than offered by the Lessor, the Lessee shall have the right to sell said ore to the buyer offering a higher net price. In the event any of said ore is sold to any one or other than the Lessor, said ore shall be shipped in the names of the Lessor and the Lessee, and the royalty reserved by the Lessor shall be paid directly to the Lessor. It is further agreed that no hauling charges in excess of hauling said ore to Lessor's mill shall be deducted in the event said ore is sold to any one other than the Lessor.

(b) It is further mutually understood and agreed that in the event the Lessee delivers to the Lessor shipments or lots of ore of a value less than $100.00 per lot, that the Lessee shall pay to the Lessor the cost of milling such ore and the cost of sampling the same.

(c) It is further mutually understood and agreed that in the event the Lessee fails to pay the royalty herein reserved, or fails to pay compensation insurance premiums, the Lessor shall have the right to terminate this lease immediately and without notice to the Lessee. In the event of the violation of any other term, provision or condition of this lease by the Lessee, the Lessor shall have the right to terminate this lease upon giving thirty (30) days written notice to the Lessee. In the event the Lessee corrects any such defaults within thirty (30) days, said lease shall not be terminated. In the event any default shall not be corrected at the end of said thirty-day period, then said lease shall be terminated as of the end of said thirty-day period. Said notice shall be given in writing, addressed to the Lessee at Nederland, Colorado.

(d) The title to any ores broken or mined on said leased premises at the termination of this lease, shall be the property of the Lessor, and it shall not be liable for the payment to the Lessee for the same before any costs or expenses of breaking or mining said ore.

IN WITNESS WHEREOF, The Lessor has caused its name to be hereunto subscribed by its President and attested by its Secretary and its seal affixed hereunto, and the Lessee has hereunto set their hands and seals the day and year first above written.

ATTEST:

Dudley J. Hathaway
Secretary

HETZER MINES, INC.

BY Elmer Hetzer
President

Michael Bodnar

George A. Bodnar

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
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870 Market Street
San Francisco 2, Calif.
OFFICIAL BUSINESS

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

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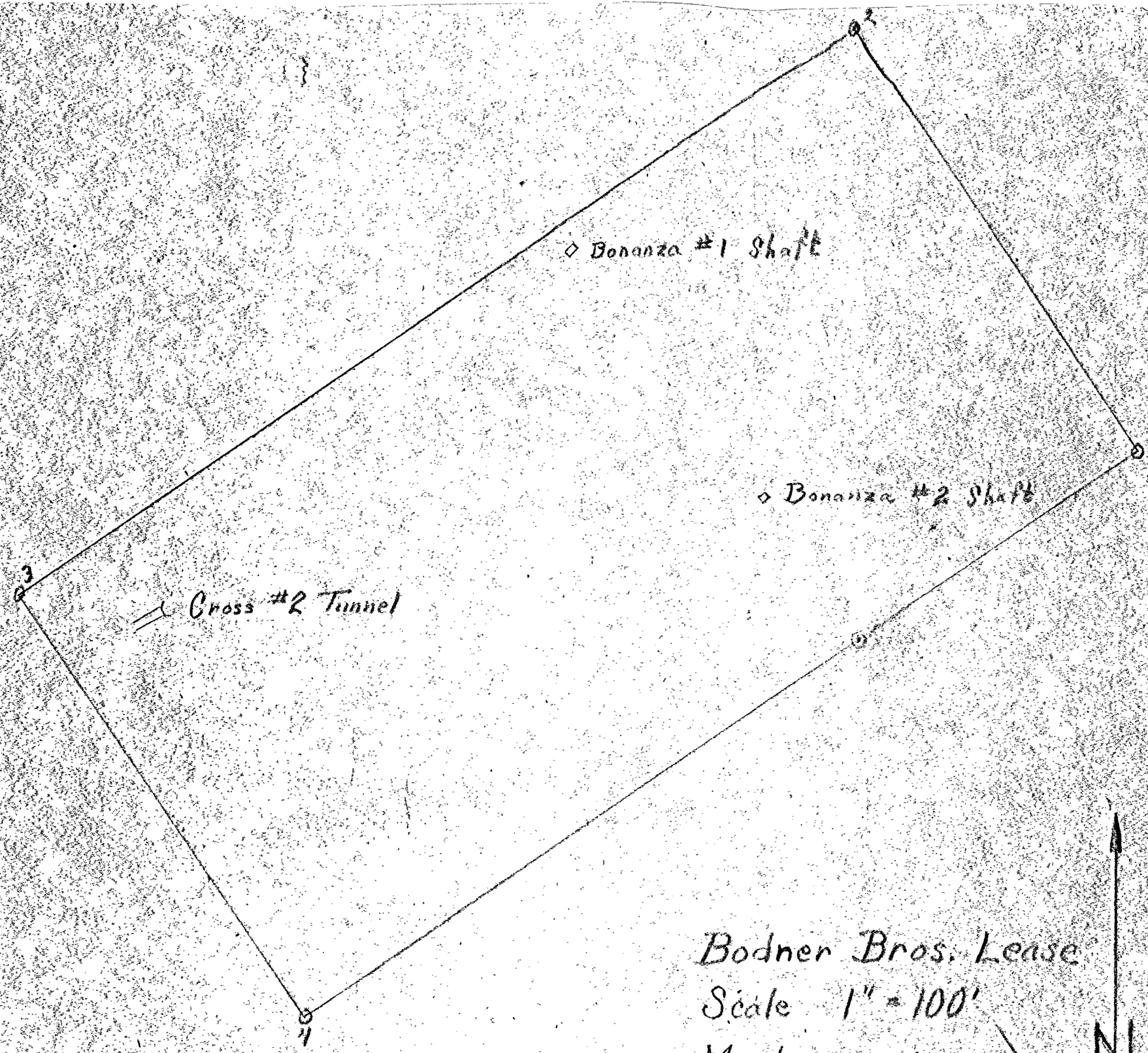
Defense Minerals Exploration Administration
Interior Building
Washington 25, D. C.



Bodner Bros. Lease
Scale 1" = 100'
March 16, 1953

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Point of Beginning - Center of Bonanza #2 Shaft, South 34° East 150' to true point of beginning, thence north 56° East to corner #1, thence North 34° West 450' to corner #2, thence South 56° West 900' to corner #3, thence South 34° East 450' to corner #4, thence North 56° East to true point of beginning.

DMEA-3014