WMT/dd

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
DENVER, COLORADO

Region IV

Mining Division
Date Rec'd
JUL 24 1951
Bureau of Mines
Denver Colorado

Building 2-A
Denver Federal Center

July 24, 1951

Mr. E. F. Gobatti
2301 North Grand Avenue
Pueblo, Colorado

RE: DMA-245, Rainbow Mining Company

Dear Mr. Gobatti:

Reference is made to your letter of July 16, 1951, to J. H. East, Jr., Director, Region IV, requesting a copy of the confidential information concerned with the captioned DMA report. This request was forwarded to me by Paul T. Allsman, Chief, Mining Division, Region IV, for reply.

According to Procedural Instructions issued by Administrator James Boyd of the Defense Minerals Administration, personnel are not permitted to disclose information contained in any reports without authority, which, in this instance, would include the map and assay returns you requested.

It is suggested that you address your request direct to the Production Expansion Division, Defense Minerals Administration, Washington 25, D. C.

Very truly yours,

W. M. Traver, Jr., Chief
Colorado Branch, Mining Division

cc PTAllsman
DMA-245
dma Chron.

Allison
DMA files

REGIONAL DIRECTOR'S
OFFICE
REGION IV
JUL 23 1951

July 18, 1951

Unites States
Department Of The Interior
Defense Minerals Administration
Washington 25, D. C.

DMA - 245 - X Tungsten

Attn: Mr. Tom Lyon, Director, Supply Division

Gentlement:

Your letter of July sixth received, and I am somewhat at a loss at the contents which read as follows:

Dear Mr. Gobatti:

We have again reviewed your application for an exploration project to cost $45.000 on the Stockton, Gertrude, and other claims near Salida, Colorado. The additional information assembled by the Field Team from Region IV has been carefully considered.

It is our conclusion that the exploration propsed will not disclose workable bodies of tungsten ore at this locality. Therefore, we regret that we must again deny your request.

Very truly yours,
Tom Lyon
Director, Supply Division

The upper tunnel of the Stockton Mine has not been inspected by your Field Engineers during their visit there on May 1-2 due of caved at the entrance of the Portal a few days prior to this date.

Last week a private Geologist and Mining Engineer from California, Mr. W. M. Brown, has entered the upper tunnel and reported that at 150 feet from the Portal, there is a cross cut to the right of the tunnel 100 feet in length, and at about 100 feet from this cross cut farther in the tunnel is a caved in. Number 1 and 2 Ore Veins crosses the tunnel just above the caved in. Ore Veins number 3- 4 and 5, comes in the upper tunnel within a distance of approximately 100 feet from the Portal. Ore Vein number 6, being to the left of the Gulch, and Ore Vein number 7, being to the right of the Gulch, these Veins also have a direction toward the location of the upper tunnel.

J.T.L.
WM

Mr. W. M. Brown, reported good values in Tungsten and very promising with some exploration work to disclose workable bodies of mineral ore, tungsten.

Mr. Brown, has suggested the continuation of the lower tunnel to a distance of approximately 400 feet, at which point a raise or a shaft to be build in order to connect the lower tunnel with the upper at a point of about 150 feet inside of the upper tunnel from the Portak of same.

Mr. Brown is returning to the property within the next few days, I will furnish to him two miners to open and rebuild the Portal of the upper tunnel, so that he may explore further the ore bodies in this tunnel, after which he will prepare a report on this property, with recommendation of the development work to be done.

I wonder if you would be interested to receive a copy of Mr. Brown report when completed, also would like to know if the Field Engineers of the Bureau of Mines, would be interested to again examine the Stockton Mine - the interior of the upper tunnel after it has been open and made safe.

Would like to know if a report was prepared by the Field Engineers of the Bureau of Mines, on my GRAND VIEW mining property which has seven tunnels and good value in tungsten prevail most everywhere.

Yours very truly

E. F. Gobatti
2301 N. Grand Avenue
Pueblo, Colorado.

Copies sent to:
Mr. J. H. East, Jr.,
Regional Director IV
Mr. William M. Traver, Jr.,
Chief Supervising Engineer
Building 2A, Denver Federal Center.

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

REGIONAL DIRECTOR'S OFFICE
REGION IV
JUL 12 1951
BUREAU OF MINES
DENVER, COLORADO

July 6, 1951

Memorandum

To: Landon F. Strobel, Executive Secretary, DMA

Through: Director, Supply Division

From: Tungsten Branch

In reply please refer to
DMA-245-X Tungsten

Subject: Denial of exploration application of
Edmond F. Gobatti
Rainbow Mining Co.
2301 North Grand Avenue
Pueblo, Colorado

Mr. Gobatti applied for an exploration project costing $45,000, Government share $33,750, at the Stockton, Gertrude, and other claims near that the proposed exploration would yield only an insignificant amount of tungsten, insufficient to warrant concentration facilities which are not available nearby.

The Tungsten Branch concurs with the recommendation of the Field Team, and has denied the application.

George B. Holderer
Chief, Tungsten Branch

Attachment

Approved:

Tom Lyon

Tom Lyon
Director, Supply Division

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

REGIONAL DIRECTOR'S
OFFICE
REGION IV
JUL 12 1951
BUREAU OF MINES
DENVER, COLORADO

July 6, 1951

Mr. Edmond F. Gobatti
2301 North Grand Avenue
Pueblo, Colorado

In reply please refer to
DMA-245-X Tungsten

Dear Mr. Gobatti:

We have again reviewed your application for an exploration project to cost $45,000 on the Stockton, Gertrude, and other claims near Salida, Colorado. The additional information assembled by the Field Team from Region IV has been carefully considered.

It is our conclusion that the exploration proposed will not disclose workable bodies of tungsten ore at this locality. Therefore, we regret that we must again deny your request.

Very truly yours,

Tom Lyon

Tom Lyon
Director, Supply Division

9TE
2/10/24

Mining Division
Region IV

June 29, 1951

Memorandum

To: DMA Field Team, Region IV

From: Chief, Mining Division

Subject: DMA Docket 245, The Rainbow Mining Company, Stockton mine, Chaffee County, Colorado

The report of the examiners has been reviewed and it appears that exploration would yield only an insignificant amount of tungsten. No facilities are available near enough to permit economical mining. Therefore, it is recommended that the loan request be denied.

F. T. Allmann

Enclosures

DMg

234 New Customhouse
Denver, Colorado

June 29, 1951

Memorandum

To: Landon Strobel, Executive Secretary, Defense Minerals Administration

From: DMA Field Team, Region IV

Subject: DMA Docket 245, The Rainbow Mining Company, Stockton mine, Chaffee county, Colorado

The examiners reports and original brochure on the above docket are enclosed.

We concur with the examiners conclusions and recommendations that a loan be denied.

F. T. Allsman, Alternate

A. H. Koschmann

Attachments
One copy by air mail
Two copies by regular mail
Original brochure

Copy to DMA files
Koschmann
Allsman
Traver

FTA/cl

WMT/dd

Building 2-A, Denver Federal Center

Chief, Mining Division, Region IV June 22, 1951

W. M. Traver, Jr.

DMA Docket 245, The Rainbow Mining Company, Stockton mine, Chaffee County, Colorado.

Please find enclosed the original and seven copies of Hazen's engineering report on the subject docket along with three copies of Gobatti's statement that he is able and willing to participate. It is presumed Mr. Koschmann has the original brochure.

I am not entirely in agreement with the conclusions and recommendations arrived at in this report for the following reasons:

1. The rehabilitation work which the applicant has performed at this property since the Bureau's examination in 1948 has failed to disclose any conditions that in any way affect the conclusions. It was on this work that Gobatti bases his loan request. The upper tunnel, where the most possibilities for additional reserves by exploration exist, has been allowed to cave at the portal and, consequently, the examiners have had to rely on the one sample T-84 taken in 1948. This assayed 1.27 percent WO_3.

2. From my experience in the investigation of tungsten deposits in the Front Range, the ore shoot mined at the Stockton from the shaft is the largest I have seen. Under ore reserves in the report this development has accounted for possibly 1,500 tons which includes a substantial indicated and inferred reserve in blocks 1 and 2 below the third level which may not materialize. Accordingly, it would be my guess that the possibility of delineating a shoot in the upper tunnel of 5,850 tons would be a 100 to 1 shot. This, incidentally, is noted in the report.

3. The deposit is far removed from milling facilities in Boulder County and there is little likelihood that Gobatti can meet the specifications required by the Teal mill, if and when it is in operation. It is also questionable if, when the mill proposed at Buena Vista is completed, they will be able to treat scheelite ores produced in the area successfully. They are entirely without experience except for operating a lead-zinc mill in Leadville on St. Louis mine ore that proved unprofitable.

4. The floor price set by General Services constitutes a substantial Government subsidy, and it would be my approach to these marginal operations, like the Stockton, that any additional subsidy be deferred until it is possible to observe what results in the way of production from the increased price.

5. Gobatti is entirely dependent on a market for his ore. If one becomes available, his contribution to the tungsten shortage will be small at best. More than likely it will be only the amount produced from screening the 1,000 or so tons included in the dump, for I doubt if he mines the ore remaining in the blocks around the shaft. In the event he does, it will not be a profitable operation.

Unless the demand for tungsten is extremely critical, I would be inclined to denial of loans of this character. The applicant, although entirely inexperienced, is imbued with the desire to enter the mining field and will, no doubt, proceed with the operation whether assisted by the Government or not, and the production will probably accrue to the program in any event. In my opinion, it will be easier to deny the loan now than to have to terminate the project later. In the meantime, observation of the operations will prove interesting.

W. M. Traver, Jr.

W. M. Traver, Jr.

enclosures

cc PTAllsman
DMA-245
DMA Chron.

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

JUN 25 1951
BUREAU OF MINES
DENVER, COLORADO

June 20, 1951

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

In reply please refer to:
DMA 245-X Tungsten

Dear Mr. East:

We are enclosing two copies of the exploration loan application together with copies of the landlord's subordination agreement of the subject docket for your consideration. We think it is advisable to have the landlord's subordination agreement executed on the enclosed standard forms.

This docket was forwarded to you on April 16 for a field appraisal.

Very truly yours,

George B. Holderer, Chief
Tungsten Branch

Enclosures

6-303
(March 1947)

cc: P. T. Allsman
W. M. Traver, Jr.

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
Salt Lake City, Utah

No. 1

Report to Mr. Scott W. Hazen, Jr.

Chemical Laboratory Report

Date received May 17, 1951

Date reported May 23, 1951

Serial No.	DESCRIPTION	Lot No.	In	WO_3	Cu								
	Stockton Mine, Chaffee County, Salida, Colo.												
	Rainbow Mining Company, DMA Docket 245												
96210	Lower level	SWH-1	<.005	<0.01	0.01								
11	Raise	-2	<.005	<0.01	0.01								
12	Level 3	-3	<.005	<0.01	0.03								
13	Level 3	-4	<.005	<0.01	0.06								
14	Level 3	-5	<.005	<0.01	0.02								
15	Level 3	-6	<.005	<0.01	0.02								
16	Level 2	-7	0.02	<0.01	0.87								

Mining Division
Denver

Denver Colorado

U. S. GOVERNMENT PRINTING OFFICE 16—33553-3

Signed H. E. Peterson

SWH/dd

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
DENVER, COLORADO

Region IV

Building 2-A
Denver Federal Center
Denver 14, Colorado

May 23, 1951

Mining Division
Data Record
MAY 25 1951
BUREAU OF MINES
Denver, Colorado

Mr. E. F. Gobatti
2301 North Grand Avenue
Pueblo, Colorado

Through: W. M. Traver, Jr., Chief
Colorado Branch,
Mining Division

Dear Mr. Gobatti:

During our discussion of the Stockton mine at Salida on May 2, you informed me that you have had mill tests on the Stockton ore by the Denver Equipment Company and you were also having a test run made by the Humphreys Corporation. You estimated at the time that the results of these tests would be available in approximately three weeks. In order to complete our report on the Stockton we would like to include copies of these mill tests together with the recommendations for milling equipment which were to be made by these companies. If they are available, would you please send us a copy of each report.

We have been notified by the Washington office that our reports on properties requesting exploration loans should include a letter from the owner stating that he is willing to contribute the necessary matching funds with the Government for the exploration work. The Washington office may have already contacted you regarding such a letter. If you have already forwarded it to Washington, we would appreciate having a copy of such a letter signed by you to attach to our report.

Very truly yours,

Scott W. Hazen, Jr.
Mining Engineer

cc PTAllsman
DMA 245
Chron.

Building 2-A, Denver Federal Center

May 10, 1951

S. R. Zimmerley

W. M. Traver, Jr.

Sample Shipment

Please find enclosed the original and memorandum copy of Government Bill of Lading I-126335 covering a shipment via Rio Grande Motor Way, Inc., of nine samples from this station for analyses. Seven samples are from the Stockton Mine, Chaffee County, Colorado, and were taken on DMA Docket 245. Two are from the Round Mountain Tungsten Mine, ~~Park County~~, Colorado, and are from a routine mine examination.

Enclosed are three copies each of the two sets of Form 7353 indicating the assays required.

Your usual prompt attention will be appreciated.

W. M. Traver, Jr.

enclosures

cc: P. T. Allsman
DMA 245
Round Mountain
Extra
Chron.

C
O
P
Y

Mining Division
Region IV

April 25, 1951

Mr. Edmond F. Gabatti
2301 North Grand Avenue
Pueblo, Colorado

Dear Mr. Gabatti:

This acknowledges receipt of your letter dated April 23, 1951.

A copy is being transmitted to Mr. Traver and Mr. Koschmann in order that they will be advised of your desire to have the engineers contact you in advance of their investigation.

The docket has only recently been placed in their hands, and it may be a short while before they contact you.

Very truly yours,

Paul T. Allsman
Chief, Mining Division

Copy to: A.H. Koschmann
W.M. Traver, Jr.

PTA:ftm

DMA File
Allsman File
Chron.

E. F. Gobatti

MECHANICAL ENGINEER
EST. 1910
SPECIALIZING IN MECHANICAL & HYDRAULIC ENGINEERING
TEL. OFFICE 963 • RESIDENCE 658
P. O. BOX 1089

MANUFACTURERS' REPRESENTATIVE

2301 NO. GRAND AVE.
PUEBLO, COLORADO

DMA

April 23rd, 1951

REGIONAL DIRECTOR'S OFFICE
REGION IV
APR 24 1951
BUREAU OF MINES
DENVER, COLORADO

U. S. Department of the Interior
Bureau of Mines, Region IV
224 New Customhouse
Denver 2, Colorado

Attention: Mr. J. H. East, Jr.

Gentlemen:

Herewith enclosed copy of a letter I just received from Mr. Tom Lyon - Director, Supply Division.

I would appreciate you advising me a few days in advance of the date you may arrange for inspection of the Rainbow Mining Company properties, located on Highway 50 near the City limit of the City of Salida, Colorado.

I would like to arrange to meet your group of Engineers at the Sherman Hotel, Salida, Colorado., and from there I will accompany them to the Mining Properties, leaving them free to do whatever they may wish or desire,

Thanking you for your courtesy.

Very truly yours

E. F. Gobatti

Edmond F. Gobatti,
2301 N. Grand Avenue
Pueblo, Colorado.
Phone - 658 -

Copy to Traver & Koschmann 4-25-51

ALL CONTRACTS AND AGREEMENTS ARE CONTINGENT UPON INABILITY TO MAKE DELIVERIES BECAUSE OF ACCIDENTS, RIOTS, STRIKES, INABILITY TO SECURE LABOR AND MATERIAL OR OTHER CAUSES BEYOND OUR CONTROL.

* C-O-P-Y *

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

WASHINGTON 25, D.C.

April 16, 1951

Mr. Edmond F. Gobatti
2301 North Grand Avenue
Pueblo, Colorado

In reply please refer to
DMA - 245

Dear Mr. Gobatti:

We have requested Mr. J. H. East, Jr., Executive Officer, DMA Field Team Region IV, 224 New Customhouse Building, Denver, 2, Colorado to have his field engineers examine the Rainbow Mining Company properties in view of the rehabilitation work you have done on the mine workings.

It may be helpful if you will inform Mr. East where you may be contacted, or of any suggestions that will facilitate the examination.

Very truly yours,

Signed, Tom Lyon
Director, Supply Division

Copy to Traver & Koschmann 4-25-51

REGIONAL DIRECTOR'S
OFFICE
REGION IV
APR 9 - 1951
BUREAU OF MINES
DENVER, COLORADO

April 4, 1951

Mr. E. F. Gobatti
2301 N. Grand Avenue
Pueblo, Colorado

Dear Mr. Gobatti:

This is in answer to your letter of March 22, addressed to Mr. Frank H. Hayes, Miscellaneous Minerals Division.

I am enclosing for your information two press releases; one, which is dated December 5, 1950, and has to do with the financing of properties with developed ore bodies sufficiently large to insure repayment of the loan; and the other, dated February 20, and has to do with the exploration program. Your letter does not contain enough information for me to decide which of these programs you are interested in. However, in case you desire to participate in either of these programs, it will be necessary for you to make a separate application for each metal mentioned in your letter.

Very truly yours,

Tom Lyon, Director
Supply Division

Enclosure 2

TLyon/ad

cc: Administrator
Deputy Administrator
Executive Secretary
Exec.Officer, Field Team, Region IV
Mr. Lyon
Files

DMA

February 27, 1951

United States
Department of The Interior,
Defense Minerals Administration,
Washington 25, D.C.

Re: DMA - 245,
Tungsten

Attention Director, Supply Division
Mr. S. H. Williston

Gentlemen:

I wish to acknowledge your letter of February 6th outlining a report of the Commodity Committee concerning my letter of December 1st, 1950, to Bureau of Mines, Region IV, 224 New Custom House, Denver 2, Colorado, to the attention of Mr. J. H. East, Jr., Regional Director.

Perhaps the answers as outlined in my letter of December 1st were not in direct reply to the questionnaire.

The group of mining properties as listed in my letter of December 1st, are not developed and before considering actual mining or the building of a mill, development work must be done to cut through new ore veins which outcrop on top of the ground.

At the time that the Bureau of Mines inspected the Stockton property it was impossible to make a thorough inspection due to several cave-ins. After the Bureau of Mines engineers had checked the Stockton property, considerable rehabilitation work was done and I desire to have the engineers of the Bureau of Mines make a complete inspection of these mining properties at this time, and if possible arrange for core drilling before a definite conclusion is arrived at, as to the merit of this group of mineralized properties.

After the cleaning work of the Stockton workings was completed during the spring of 1950, not only tungsten was uncovered, but on the second drift a three foot vein of copper ore was found, which assay of an average sample showed from 5 to 20% copper value. On the dump of the lower tun of the Stockton some 3,000 tons of ore can be put through small pilot mill for the recovery of tungsten, which, fro assays made at different locations, shows tungsten value .25 to 1%. The amount of this ore can be worked without turbing the needed space of the dump for the mining oper

U.S.Dept of In[redacted]
Att Dir Sply Div

February 27, 1951
File DMA - 245,
Tungsten

Appreciating your courtesy and consideration in having this mining property inspected as soon as arrangements can be made with the engineers of the Bureau of Mines, and looking forward to your advice, I remain ,

Very truly yours,

E. F. Gobatti

EDMOND F. GOBATTI, M.E.
2301 NORTH GRAND AVENUE
PUEBLO, COLORADO.

EFG:g

cc J.H.East,Jr.,Regional Director
Bureau of Mines, Region IV
Denver 2, Colorado

COPY COPY

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

DMH

February 6, 1951

Rainbow Mining Company
2301 North Grand Avenue
Pueblo, Colorado

DMA - 245, Tungsten

Gentlemen:

The Commodity Committee has thoroughly reviewed the information which you have submitted on a group of claims held by your company in Chaffee County, Colorado, for which you ask a loan of $91,500 for the purpose of developing and equipping and operating same.

We have also reviewed the information which has been gathered by Federal agencies from time to time in recent years on the deposit. The Operating Committee has agreed that from this information it appears that occurrences of oxide copper and tungsten are too low grade and too sporadic for favorable consideration at this time.

We nevertheless appreciate your having brought the matter to our attention.

Very truly yours,

/s/ Tom Lyon

For S. H. illiston
Director, Supply Division

JRE

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

February 6, 1951

Rainbow Mining Company
2301 North Grand Avenue
Pueblo, Colorado

DMA - 245, Tungsten

Gentlemen:

The Commodity Committee has thoroughly reviewed the information which you have submitted on a group of claims held by your company in Chaffee County, Colorado, for which you ask a loan of $91,500 for the purpose of developing and equipping and operating a mine.

We have also reviewed the information which has been gathered by Federal agencies from time to time in recent years on the deposit. The Operati[illegible] Committee has agreed that from this information it ap[illegible] that occurrences of oxide copper and tungsten are to[illegible] and to sporadic for favorable consideration at this [illegible]

We nevertheless appreciate [illegible] brought the matter to our attention.

Very tru[illegible]

S/ for Jon[illegible]
S. M. Bil[illegible]
Director, [illegible]ition

PHBradley/al

cc: Files
Administrator's reading file - 46[illegible]
L.F.Strobel - 4623
Region IV

Copy to Rainbow

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
WASHINGTON 25, D. C.

January 23, 1951

Memorandum

To: P. R. Bradley, Jr.
Chief, Tungsten Branch, DMA

From: Operating Committee

Subject: Letter of Denial on DMA-245, Tungsten

It is suggested that the letter of denial to the Rainbow Mining Company be amended as follows:

No change in first paragraph.

We have also reviewed the information which has been gathered by Federal agencies from time to time in recent years on the deposit. The Operating Committee has agreed that from this information it appears that occurrences of oxide copper and tungsten are too low grade and to sporadic for favorable consideration at this time.

Delete paragraph 3 and substitute the following:

We nevertheless appreciate your having brought the matter to our attention.

Acting Chairman, Operating Committee

J. H. Hedges

Olaf N. Rove

cc: Files
Administrator's reading file - Rm.4606
L.F.Strobel - 4623
Region IV

February 8, 1951

DMC 245

Memorandum

To: Operating Committee, Defense Minerals Administration, Washington, D. C.

From: Regional Director, Region IV

Subject: Mining loan application of E. F. Cobatti, 2301 No. Grand Avenue, Pueblo, Colorado

On December 18 we forwarded to you three copies of an application of E. F. Cobatti, who is operating under the Rainbow Mining Company. Mr. Cobatti called at the office today and stated he has acquired some adjoining property and requested that it be included with the original application. We are forwarding you three copies, with maps attached.

J. H. East, Jr.
Regional Director

JHE/cl

Attach.

Copies to: Allsman
DMA

Mr. E's file

April 24, 1951

Memorandum

To: W. M. Traver

A. H. Koschmann

From: DMA Field Team, Region IV

Subject: DMA 245, Rainbow Mining Company.

Enclosed is a letter from the Coordinating Committee regarding tungsten property.

It is requested that a field examination be made to determine if the property merits an exploration loan or if an examination of the rehabilitated workings changes the picture presented in the original application.

Since Mr. Allsman is acting for Mr. East in his absence, the brochure is being given to Mr. Koschmann, who will get in touch with Mr. Traver in order to arrange an examination.

Copy to:
Koschmann
Allsman
DMA files
AHK/al

P. T. Allsman, Alternate

A. H. Koschmann

A. H. Koschmann

Attachments
Coordinating Committee letter, April 16
Letter to East from Gobatti, dated February 7, 1951, with map
Letter to Bureau of Mines from Gobatti, dated December 1, 1950
Colorado Assaying Company report

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

April 16, 1951

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

In reply please refer to
DMA - 245

Through: Coordinating Committee
Director, Supply Division

Dear Mr. East:

The application of the Rainbow Mining Company, 2301 North Grand Avenue, Pueblo, Colorado for a loan of $91,500 on their tungsten properties was declined and the applicant so notified in our letter of February 6, 1951.

However, the company states in a letter dated February 27, that part of their property is unexplored and in addition, several inaccessible workings have been opened which were not seen during the Bureau of Mines inspection.

Therefore it appears advisable to have a field examination made of the property to determine if it merits an exploration loan or if an examination of the rehabilitated workings changes the picture any. We are enclosing a copy of the mine map.

Please let us have a report of your conclusions and recommendations.

Very truly yours,

George N. Malcolm, Acting Chief
Tungsten Branch

Enclosure

Approved:

Chairman, Coordinating Committee

Geological Survey

Bureau of Mines

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

April 11, 1951

Mr. Edward F. Cobatti
1301 North Grand Avenue
Pueblo, Colorado

In reply please refer to
DMA-245

Dear Mr. Cobatti:

We have requested Mr. J. M. Ca t, Jr., Executive Officer, the Field Team Region IV, 204 Newspaper Building, Denver, 2, Colorado to have the field engineers examine the Rainbow Mining Company properties in view of the valuable information work you have done on the mine workings.

It may be helpful if you will inform Mr. ect where you may be contacted, or of any suggestions that will facilitate the examination.

Very truly yours,

Tom Lyon
Director, Supply Division

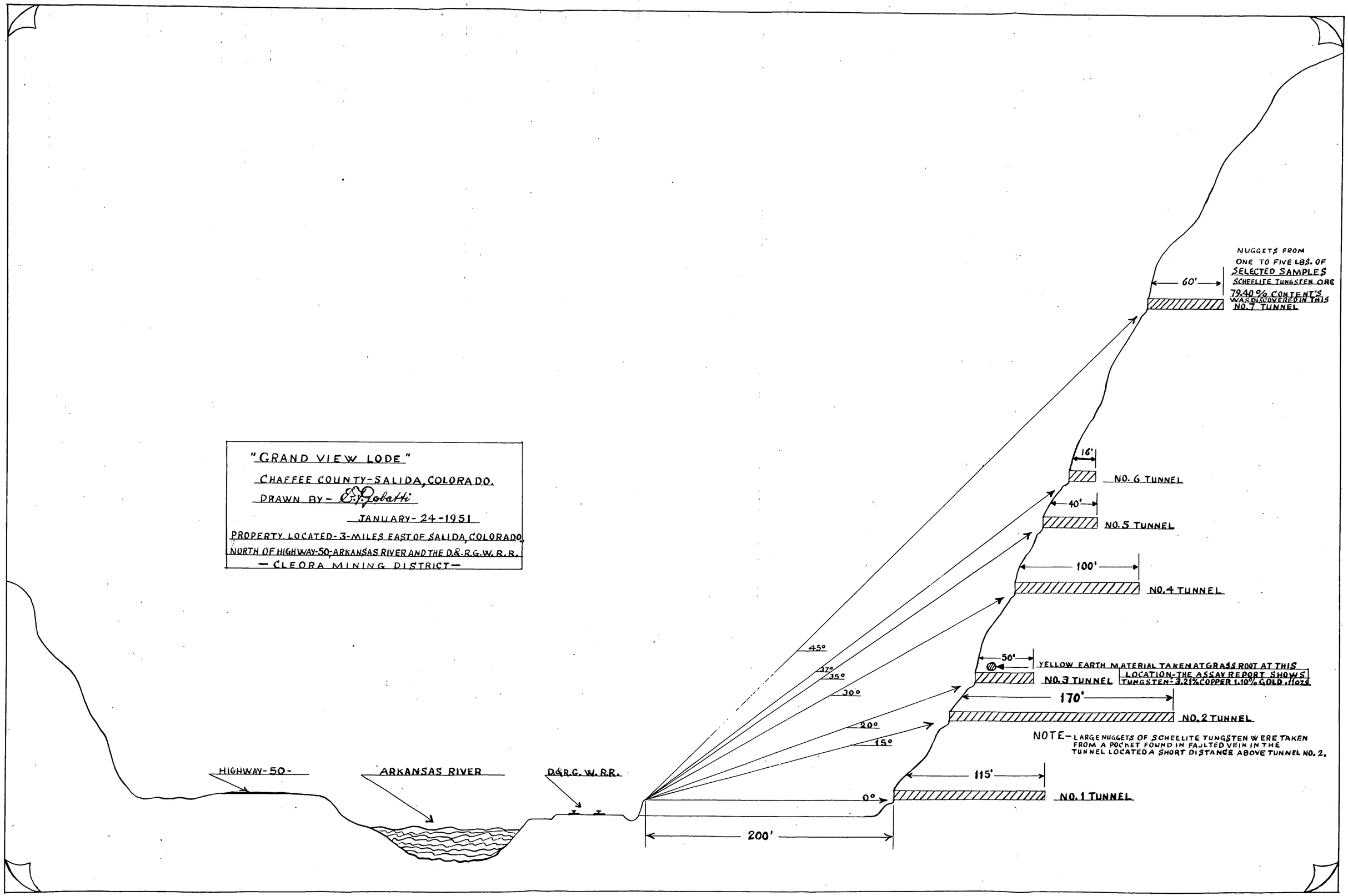
TJ:all:rd:cc

CC: Adm. Morning File
Mr. Lyon
Mr. Strobel
Mr. Bradley
Regional Field Team - Region IV
Files

Form 6–98

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

U. S. GOVERNMENT PRINTING OFFICE 16—53493-2


"GRAND VIEW LODE"
CHAFFEE COUNTY-SALIDA, COLORADO.
DRAWN BY- E. Zobatti
JANUARY-24-1951
PROPERTY LOCATED-3-MILES EAST OF SALIDA, COLORADO, NORTH OF HIGHWAY-50, ARKANSAS RIVER AND THE D&R.G.W. R.R.
— CLEORA MINING DISTRICT —
NUGGETS FROM ONE TO FIVE LBS. OF SELECTED SAMPLES SCHEELITE TUNGSTEN ORE 79.40% CONTENT'S WAS DISCOVERED IN THIS NO. 7 TUNNEL
60'
16'
NO. 6 TUNNEL
40'
NO. 5 TUNNEL
100'
NO. 4 TUNNEL
50'
YELLOW EARTH MATERIAL TAKEN AT GRASS ROOT AT THIS LOCATION-THE ASSAY REPORT SHOWS TUNGSTEN-3.21% COPPER 1.10% GOLD .11 OZS.
NO. 3 TUNNEL
170'
NO. 2 TUNNEL
NOTE- LARGE NUGGETS OF SCHEELITE TUNGSTEN WERE TAKEN FROM A POCKET FOUND IN FAULTED VEIN IN THE TUNNEL LOCATED A SHORT DISTANCE ABOVE TUNNEL NO. 2.
115'
NO. 1 TUNNEL
45°
37°
35°
30°
20°
15°
0°
200'
HIGHWAY-50-
ARKANSAS RIVER
D&R.G. W. R.R.

224 New Customhouse
Denver, Colorado

June 29, 1951

Memorandum

To: Landon Strobel, Executive Secretary, Defense Minerals Administration

From: DMA Field Team, Region IV

Subject: DMA Docket 245, The Rainbow Mining Company, Stockton mine, Chaffee county, Colorado

The examiners reports and original brochure on the above docket are enclosed.

We concur with the examiners conclusions and recommendations that a loan be denied.

P. T. Allsman, Alternate

A. H. Koschmann

Attachments:
One copy by air mail
Two copies by regular mail
Original brochure

Copy to DMA files
Koschmann
Allsman
Traver

PTA/cl

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

224 NEW CUSTOMHOUSE
DENVER 2, COLORADO

June 29, 1951

Memorandum

To: DMA Field Team, Region IV

From: Chief, Mining Division

Subject: DMA Docket 245, The Rainbow Mining Company, Stockton mine, Chaffee county, Colorado

The report of the examiners has been reviewed and it appears that exploration would yield only an insignificant amount of tungsten. No facilities are available near enough to permit economical mining. Therefore, it is recommended that the loan request be denied.

P. T. Allsman

Enclosures

DARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

Building 2-A, Denver Federal Center

TO : Chief, Mining Division, Region IV DATE: June 22, 1951

FROM : W. M. Traver, Jr.

SUBJECT: DMA Docket 245, The Rainbow Mining Company, Stockton mine, Chaffee County, Colorado.

Please find enclosed the original and seven copies of Hazen's engineering report on the subject docket along with three copies of Gobatti's statement that he is able and willing to participate. It is presumed Mr. Koschmann has the original brochure.

I am not entirely in agreement with the conclusions and recommendations arrived at in this report for the following reasons:

1. The rehabilitation work which the applicant has performed at this property since the Bureau's examination in 1948 has failed to disclose any conditions that in any way affect the conclusions. It was on this work that Gobatti bases his loan request. The upper tunnel, where the most possibilities for additional reserves by exploration exist, has been allowed to cave at the portal and, consequently, the examiners have had to rely on the one sample T-84 taken in 1948. This assayed 1.27 percent WO_3.

2. From my experience in the investigation of tungsten deposits in the Front Range, the ore shoot mined at the Stockton from the shaft is the largest I have seen. Under ore reserves in the report this development has accounted for possibly 1,500 tons which includes a substantial indicated and inferred reserve in blocks 1 and 2 below the third level which may not materialize. Accordingly, it would be my guess that the possibility of delineating a shoot in the upper tunnel of 5,850 tons would be a 100 to 1 shot. This, incidentally, is noted in the report.

3. The deposit is far removed from milling facilities in Boulder County and there is little likelihood that Gobatti can meet the specifications required by the Teal mill, if and when it is in operation. It is also questionable if, when the mill proposed at Buena Vista is completed, they will be able to treat scheelite ores produced in the area successfully. They are entirely without experience except for operating a lead-zinc mill in Leadville on St. Louis mine ore that proved unprofitable.

4. The floor price set by General Services constitutes a substantial Government subsidy, and it would be my approach to these marginal operations, like the Stockton, that any additional subsidy be deferred until it is possible to observe what results in the way of production from the increased price.

5. Gobatti is entirely dependent on a market for his ore. If one becomes available, his contribution to the tungsten shortage will be small at best. More than likely it will be only the amount produced from screening the 1,000 or so tons included in the dump, for I doubt if he mines the ore remaining in the blocks around the shaft. In the event he does, it will not be a profitable operation. 12 tons done

Unless the demand for tungsten is extremely critical, I would be inclined to denial of loans of this character. The applicant, although entirely inexperienced, is imbued with the desire to enter the mining field and will, no doubt, proceed with the operation whether assisted by the Government or not, and the production will probably accrue to the program in any event. In my opinion, it will be easier to deny the loan now than to have to terminate the project later. In the meantime, observation of the operations will prove interesting.

W. M. Traver, Jr.

W. M. Traver, Jr.

enclosures

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

200 New Customhouse
Denver 2, Colorado

June 20, 1951

Memorandum

To: DMA Field Team, Region IV

From: A. H. Koschmann

Subject: DMA Docket 245 - Rainbow Mining Company

Submitted herewith are the original and 7 copies of the geologic report covering the above docketed project.

Geologic examination of this property shows that tungsten in the form of scheelite is erratically disseminated in small and low grade deposits. It is pointed out that exploration is not likely to find tungsten ore in larger amounts nor of higher grade. In view of the unfavorable geologic conditions, Mr. Evans recommends that the loan be denied.

I concur in this recommendation.

The brochure is enclosed herewith.

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

Enclosures (9)

UNITED STATES
DEPARTMENT OF THE INTERIOR
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMA-245. The Rainbow Mining Company, Steakton Mine

Chaffee County, Colorado

Scott W. Hazen, Jr., Mining Engineer
U. S. Bureau of Mines

Owen Evans, Geologist
U. S. Geological Survey

June 20, 1951

THE RAINBOW MINING COMPANY

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By Scott W. Hazen, Jr., and Dean Evans

The Defense Minerals Administration requested a field examination to analyze the potential production of the Stockton mine of the Rainbow Mining Company to determine if it could come within the scope of an exploration loan.

Although the property has no record of production, a dump at the portal of the lower tunnel on the Stockton claim contains an estimated 1,000 tons of 0.5 percent tungsten ore which is segregated. There is an additional 500 tons of 0.7 percent indicated and inferred ore in the mine. In addition, there is a caved upper tunnel which is reported to be 500 feet long that has been driven on a vein showing tungsten mineralization. There is a reasonable assumption that reopening the upper tunnel will result in expanding the ore reserves by 1,000 to 2,000 tons. The average grade is expected to be 0.5 percent.

The mine is not equipped to produce or mill ore. Mining operations, if undertaken, will require purchase of all essential machinery and supplies. It may be possible to arrange for milling any ore produced either at Boulder or Buena Vista, Colorado, depending on facilities at those localities now under consideration.

An exploration loan application recently submitted by E. F. Gobatti requests $45,000.00 for the following:

1.	Reopen the upper Stockton tunnel	$ 4,500.00
2.	Explore two additional veins by open-cuts	1,000.00
3.	Contingent upon results of No. 1, equip the mine for operation	20,000.00
4.	Drive the lower tunnel ahead 350 feet and raise 100 feet to the upper tunnel, 450 feet at $30.00 per foot	13,500.00
5.	Operating capital	6,000.00
		$45,000.00

If the maximum possible inferred ore reserves should result from reopening the upper tunnel, the production of ore will be on such a narrow profit margin that the operation cannot possibly repay the Government more than a minor part of the 75 percent of the $45,000.00 requested.

If milling facilities for scheelite ore become available, Gobatti has stated he will screen the estimated 1,000 tons of ore on the lower tunnel dump and ship these screenings. If an acceptable mill product can be made from the dump ore and sufficient profit made to indicate mining will be profitable, then favorable consideration may be given to item No. 1 of the exploration proposal--cleaning out the upper Stockton tunnel at the estimated cost of $4,000.00 of which the Government's share would be $3,000.00. Additional exploration requested in the application should either be denied or held in abeyance until completion of item No. 1, and at that time a complete re-evaluation of the request be made based on sampling of the upper tunnel.

The applicant has indicated he is financially able and willing to furnish his share of the loan, or $1,000.00, and also that he will participate in the larger loan if it is approved.

STOCKTON & GERTRUDE CLAIMS OF THE RAINBOW MINING COMPANY
(GORATTI)
NEAR SALIDA, COLORADO

EMA Docket 246

Geology and Reserves

By O. D. Evans
Geologist, U. S. Geological Survey

Geology

The Rainbow Mining Company Claims

Location

The Stockton and Gertrude claims owned by the Rainbow Mining Company are in the now practically defunct Cleora Mining District, on the north bank of the Arkansas River, three miles below Salida, Chaffee County, Colorado.

Geology and Ore Deposits

The country rock in the Stockton and Gertude claims is a dark, medium to fine grained diorite or metadiorite of pre-Cambrian age. It is cut by a series of veins that strike approximately east and dip 78 degrees north. Surface outcrops can be traced for several hundred feet. Negligible quantities of tungsten have been produced from this district.

One vein in the Stockton claim has been well developed by mine workings. (See Figure 3.) It is typical of the veins in the area under consideration, except that tungsten mineralization is stronger. The upper part of this vein contains a lens of bull quartz as much as 2 feet wide and about 130 feet long. It pinches downward a short distance below the 3rd Level. The quartz is bordered by several inches of tabular feldspar which grades outward into a mottled appearing biotite-hornblende-feldspar zone of irregular width. Beyond the limits of the quartz lens the vein narrows, and is composed of coarse feldspar or the biotite-hornblende-feldspar phase. This type of mineralization indicates the vein is pegmatitic in origin and therefore of pre-Cambrian age. Later movement brecciated the quartz, and produced some gouge in the bordering material.

Tungsten occurs as scheelite in the form of thin, whitish sheets, films and flakes, and as small glassy crystals. It is distributed

throughout the vein, but is most closely associated with the quartz. A few small concentrations of scheelite exist, but in general mineralization is weak and erratic. Pyrite and chalcopyrite are disseminated in small quantities throughout the vein and wall rock, but chalcopyrite like scheelite, is most closely associated with the quartz. It seems likely that the tungsten and copper minerals were deposited simultaneously with the formation of the pegmatite vein. The vein is strongly oxidized and limonite is widespread. Close to the surface, where oxidation is most intense, the vein contains a hard, reddish-brown limonite in which are concentrated small specks of malachite, chalcopyrite and bornite.

Ore Reserves

Ore has been estimated only on the vein developed by mine workings in the Stockton claim. Figure 3 shows the extent of the workings, location of samples, and location of estimated ore. Samples number H-165 and H-167 were not used in calculating the grade of ore because check samples failed to confirm them.

Block 1, Indicated Ore.....370 tons at .70 %WO per ton
Block 2, Inferred Ore.....140 tons at .70 %WO per ton

Conclusions and Recommendations

The pre-Cambrian pegmatite veins in the Stockton and Gertrude claims contain tungsten in the form of erratically disseminated scheelite. The deposits are small and low grade. Exploration is not likely to find tungsten ore in larger amounts nor of higher grade than that already known.

In view of the economic factors given in the metallurgical section of this report, and the unfavorable geologic conditions described above, it is recommended that the loan be denied.

LIST OF SAMPLES AND ASSAYS TAKEN AT THE RAINBOW MINING COMPANY'S CLAIMS

NEAR SALIDA, CHAFFEE COUNTY, COLORADO, BY THE U. S. BUREAU OF MINES

Sample No.	Width Ft.	% Cu	% WO	Oz.Au
H-163'	1.8		0.02	
H-164	1.5		0.01	
H-165	1.0		3.15	
H-166	2.0		0.53*	
H-167	1.0		6.56	
H-168	2.0		3.95*	
H-169	1.5		0.19	
H-170	1.5		2.09*	
T-79''	2.3	0.92	0.01	(Taken in Gertrude Claim drift, not on map)
T-80	1.3	0.82	0.01	" " " " " " " "
T-81	1.8	0.62	0.01	" " " " " " " "
T-82	1.5	0.04	0.01	" " " " " " " "
T-83	2.2	0.11	0.01	
T-84	2.0	0.28	1.27	
T-85	1.6	0.32	0.02	
T-86	3.4	1.01	0.07	
T-87	2.0	2.30	0.22*	
T-88	1.6	0.78	0.08*	
T-89	5.5	0.88	0.01*	
T-90	4.2	2.66	0.06*	
SWH-1'''	Grab	0.01	0.01	.005
SWH-2	2.0	0.01	0.01	.005
SWH-3	3.2	0.03	0.01	.005
SWH-4	3.0	0.06	0.01	.005
SWH-5	1.0	0.02	0.01	.005
SWH-6	3.3	0.02	0.01	.005
SWH-7	2.5	0.87	0.01*	.02

' - Samples taken by W. P. Huleatt, December 1942
'' - Samples taken by W. M. Traver, Jr. and S. W. Hazen, November 1948
''' - Samples taken by S. W. Hazen, May 1951
* - Samples used in calculation of ore estimate

THE RAINBOW MINING COMPANY
STOCKTON MINE
CHAFFEE COUNTY, COLORADO

Engineering Report

By Scott W. Hazen, Jr.
Mining Engineer
U. S. Bureau of Mines

Engineering

THE RAINBOW MINING COMPANY
STOCKTON MINE
CHAFFEE COUNTY, COLORADO

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* See figures with Geologic Report.

THE RAINBOW MINING COMPANY

ENGINEERING REPORT

By

Scott W. Hazen, Jr.
U. S. Bureau of Mines

INTRODUCTION

In December of 1950 E. F. Gobatti, on behalf of the Rainbow Mining Company, applied for a Government loan of $91,500.00 to provide mining equipment, milling facilities, and reserve funds to develop and operate the Stockton copper-tungsten mine in Chaffee County, Colorado. The application was denied by the Washington office of the Defense Minerals Administration.

Later, a review of the application resulted in a request for a field examination to determine if the property had sufficient merit to fall within the scope of the exploration program. An examination was made the first week of May 1951.

ACKNOWLEDGMENTS

E. F. Gobatti and A. J. Posselt accompanied the examining engineer and geologist to the property and furnished information on ownership and previous operations.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The Stockton copper-tungsten mine is in sec. 10, T. 49 N., R. 9 E., N. M. P. M., Cleora Mining District, three miles east of Salida, Chaffee County, Colo. (fig. 1). The lower mine tunnel is at the bottom of the foothills on the north side of the Arkansas Valley and the mill site location covers a flat terrace at the

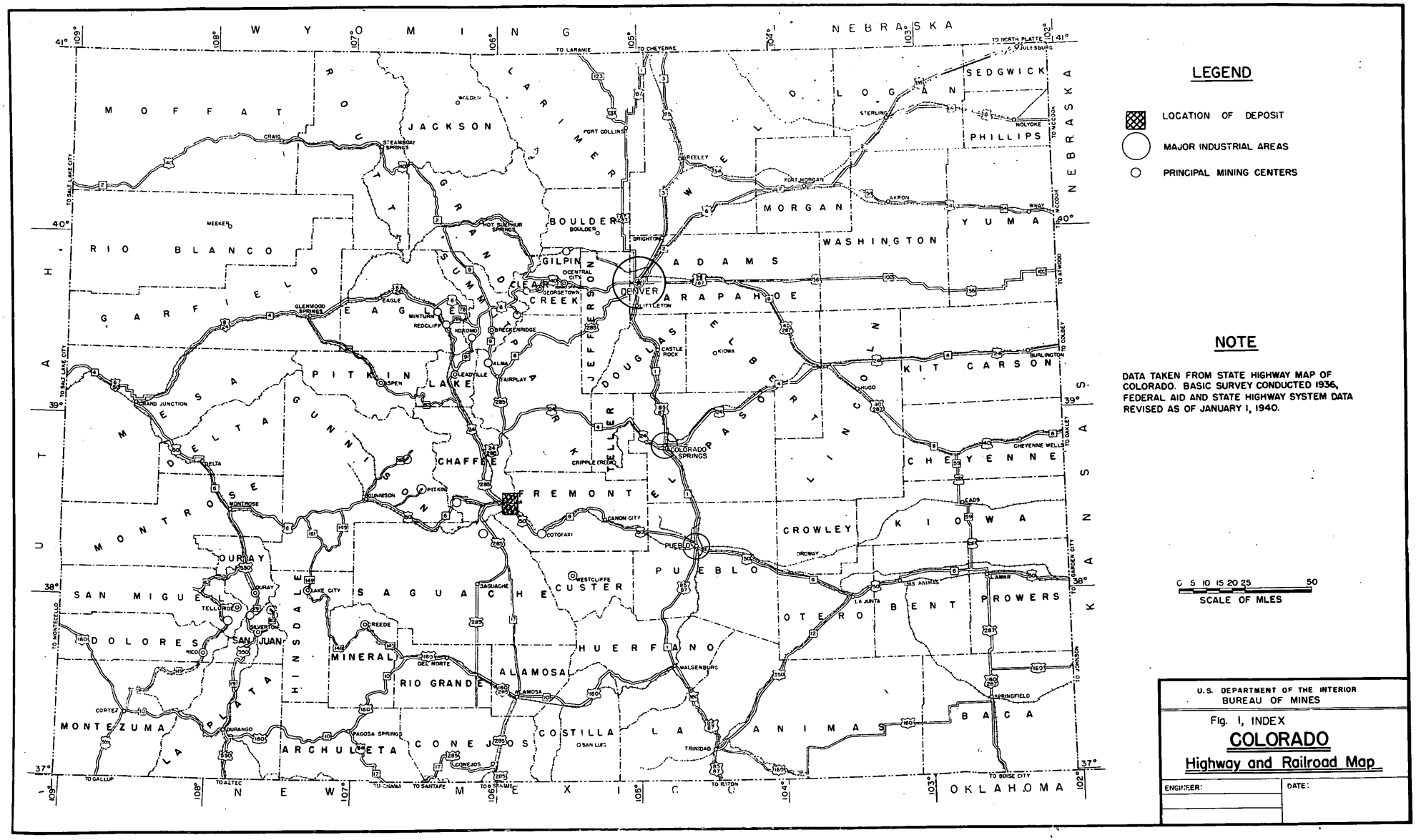

FIG. 1 LOCATION MAP RAINBOW MINING CO. D.M.A. 245

base of the hills (fig. 2). The mine workings are dry but water for a mill is available by pumping from the Arkansas River. The mine is easily accessible from U. S. Highway 50 by way of a short access road. The Denver and Rio Grande Western Railroad and the Arkansas River pass within a few hundred feet of the portal of the lower tunnel.

Altitudes at the mine range from 7,050 feet to 7,400 feet; consequently, winters are mild and all-year operations will present no difficulty. Most of the surface is covered with a thin mantle of overburden and sparsely scattered juniper is the only timber available on the property. A small sawmill that can supply all types of mine and rough building timber at $65 to $75 per thousand feet is located about one mile west of the property.

HISTORY AND PRODUCTION

The Cleora Mining District was prospected in the 1880's and 1890's. The small amount of development work was accomplished prior to 1900 in search for gold and copper. Tungsten was not recognized in the veins until World War I and no attempt was made to recover the metal at that time. During World War II some effort was made to concentrate the tungsten in the dump at the lower Stockton tunnel but an acceptable concentrate was not made. No production of any metal from the Stockton deposits is recorded.

OWNERSHIP AND EXTENT

E. F. Gobatti, 2301 North Grand Avenue, Pueblo, Colo., has indicated that he is the owner of the following claims shown on figure 2:

The Stockton (Stocton)	Lode Patent Survey 18559
The Gertrude	Lode Patent Survey 16948
The Regina Mining Claim	(Location)
The Aldea Mining Claim	"
The River View Mining Claim	"
The Mondo Mining Claim	"
The Fleeta Fraction Claim	"
The Whispering Pines Mining Claim	"
The River View Mill Site	"

The claims are held in the name of the Rainbow Mining Company. Incorporation papers have been filed for this company but it has not been activated as an incorporated company. At the present time Gobatti states that he is the sole owner of the Rainbow Mining Company but he has two or three interested parties who will become stockholders in the officially incorporated company when it is activated.

A verbal statement was made by A. J. Posselt, 624 I Street, Salida, Colo., that he and his former partner, now deceased, had purchased the Stockton and Gertrude patented claims several years ago. Location notices on the property indicate that Gobatti and Posselt have filed location notices together on at least some of the claims. Posselt has made an agreement for lease and option with Gobatti and Gobatti states that he is exercising the option and has made payments toward purchase of the Stockton and Gertrude claims.

DESCRIPTION OF THE DEPOSITS

The Stockton veins outcrop on a rather steeply rising hillside on the north side of the Arkansas River. Most of the veins occur on the Stockton and the Gertrude patented lode claims.

Scheelite occurring as relatively large friable crystals is the only tungsten mineral in the veins and it is too widely distributed throughout the material to permit its classification as a tungsten ore.

The wall rock, which is badly fractured, jointed, and altered, has been classified as a metadiorite with a schist-like structure. Slickensides were noted all along the veins and, in places, movement in three different directions is indicated. Where the wall rock is exposed away from the vein, several successive sets of slickensides were found which are roughly parallel to the vein. Where moist conditions and poor air circulation exist, as in the lower tunnel east of the raise, slickensides are muddy, causing the walls to cave in blocks and slabs. A cave in this area has extended as much as 30 feet above the tunnel level and is 15 to 20 feet wide. The dry, well-ventilated portions of the workings show less caving and sloughing than the moist areas.

The alteration, fracturing, jointing, and schistose structure make timbering and lagging necessary in the lower tunnel where it has been driven along the vein and also along most of the tunnel from the portal to the vein. The upper shaft levels are partly timbered with stulls and lagging.

The vein material is pegmatitic with granular quartz, feldspar, hornblende, and biotite as the main constituents. Alteration is intense at the surface and gradually diminishes with depth. The veins are narrow--12 to 36 inches in width--and will require selective mining to maintain the best possible grade of ore. Over-breaking and wall sloughing will be unavoidable. The wall rock which must be taken out to provide working space will more than supply stope filling. Stulls and head boards may suffice for timbering if only small stopes are opened. The vein material is granular and altered and it will break fine with the tungsten values in the finely-broken material. Tight flooring and slides will be necessary to insure recovery and, if care is not taken, the mining losses of the tungsten values will be excessive.

ORE RESERVES

In approaching the question of exploration at the Stockton, the matter of economics of the potential reserves which might be developed must be considered against the anticipated expenditures which will be required to produce any ore found.

The existing development on the property has accounted for an estimated 1,000 tons of tungsten ore which is now on the lower Stockton dump. Some additional tonnage might be available by hand screening some of the other dumps. There is an estimated 500 tons of indicated and inferred ore remaining in blocks (1) and (2) surrounding the shaft and raise (fig. 3). If the upper tunnel proves to be 500 feet long and average tungsten mineralization is found throughout its length, the potential tonnage of reserves for the property is still not great. An average width for the ore

appears to be 2 feet while 70 feet of vertical height is inferred. Assuming the full 500 feet of tunnel distance as containing tungsten mineralization and using the above figures will show only a maximum possible inferred potential of $\frac{2 \times 70 \times 500}{12 \text{ (tonnage factor)}}$, or about 5,850 tons.

It is more reasonable to expect an ore body of 1,000 - 2,000 tons, similar to that found in the vicinity of the shaft.

Assuming a tungsten ore grade of 0.5 percent with a mining and milling loss of 20 percent leaves only a value of 0.4 percent, or $25.20 per ton of crude ore calculated on a $63.00 base price for 60 percent tungsten trioxide. Metallurgical tests by the Bureau of Mines in 1948 indicate a rather simple tabling process will successfully make a 60 percent concentrate but it has to be cleaned magnetically to remove impurities and the final product will still contain 0.2 percent copper. This will cause a penalty of approximately $3.00 per ton.

At this time there are no mills handling scheelite on a custom basis so there is no local or state outlet for the Stockton ore. However, the Teal mill, at Boulder, Colo., has verbally informed Gobatti that they will treat the Stockton ore for $6.00 per ton if the grade does not average below 0.75 percent tungsten trioxide. Transportation charges by rail to Boulder and truck charge from Boulder to the Teal mill amount to $6.00 per ton. Mining costs are estimated at $7.50 per ton. A cost analysis based on the above assumptions follows:

		Per Ton
Value of crude ore		$25.20
Mining	$7.50	
Milling	6.00	
Transportation	6.00	
Estimated penalty (impurities)	3.00	22.50
Profit margin		$ 2.70

There is a small mill being installed at Buena Vista, Colo., 35 miles north of Salida, which the owners intend to use for milling tungsten ores. Transportation to this mill would be about $2.00 per ton. Shipping Stockton ore to this mill would increase the profit margin appreciably.

Unless the above costs can be reduced, operation of the property appears to be a marginal venture.

If the assumed maximum possible reserve of 5,850 tons of ore is found to exist in the upper tunnel, it will require a return of $6.00 per ton to recover $33,750.00, the Government's share of the requested $45,000.00.

PRESENT STATUS

Exploration and Development

Nine veins are exposed along the sides of a steep gulch which cuts across the Stockton and Gertrude claims. The No. 1 vein has been developed by a 75-foot adit driven southwesterly along the vein from where it is exposed in the gulch. The No. 2 vein is located within a few feet of the No. 1 vein and has been developed by a 25-foot adit driven southwesterly from its exposure in the gulch.

Both of these adits are narrow but are in good condition except for the portals.

The Gertrude tunnel has been driven about 150 feet northeasterly from the slope of the hillside facing the river on the Gertrude vein which the owners presume to be the same as the No. 1 vein. This adit is about 200 feet west of the lower Stockton tunnel and is perhaps 75 feet higher in elevation. The portal is caved and heavy sloughing has occurred throughout the adit.

The major mine development (fig. 3) has been on the Stockton claim where the lower Stockton tunnel has been driven as a crosscut adit to reach the No. 5 vein. After reaching the vein, the tunnel was extended by drifting along the vein for a reported distance of 275 feet. A 100-foot crosscut has also been driven to the north along a thin, barren slip. A 90-foot raise has been driven to connect to the bottom of a 60-foot shaft which had been sunk on the vein from the surface outcrop and there are three short levels driven from this shaft. The shaft and raise are in reasonably good condition with new ladders recently installed. The raise is only a single compartment chute and does not have a manway for access when rock is being transferred through it.

The upper Stockton tunnel (fig. 2) has been driven northeasterly on what is supposed to be the No. 5 vein where it is exposed in the gulch. It is doubtful that this work is on the same vein as the shaft and lower tunnel workings. This upper tunnel is reported to be 550 feet long and at approximately 400 feet in from the portal

there is believed to be a winze sunk to an unknown depth. The portal of the upper tunnel was caved at the time of examination but the tunnel was open for 150 feet when the mine was examined by Bureau of Mines engineers in 1948.

Some of the remaining veins which are found on the property have been opened up by small cuts but not to sufficient depth to determine the extent of tungsten mineralization.

The recent work by the company included removing 75 cars of caved vein material from the three shaft levels and advancing about 40 feet through the cave in the lower tunnel level. The present face of the cave is estimated to be 75 feet from the end of the drift.

Mining and Milling Equipment and Other Facilities

There are no milling facilities available and only meager mine equipment. Light weight rails have been used in the lower Stockton tunnel where there is also one old mine car. The present operators have installed a gasoline-powered generator set to provide electric lights for work in the tunnel. Two small buildings for shop and storage facilities have been erected near the tunnel portal.

Water is available by pumping from the Arkansas River, requiring about $1,000.00 to install a pump and pipe line.

Electric power is available at the stockyards about 1,000 feet west of the tunnel. The Public Service Company of Colorado has indicated it will provide a 440 volt service for a capacity of 50 horsepower for approximately $1,000.00. This is to be paid as a deposit and refunded at a rate of 20 percent per year over a five-year period.

METALLURGICAL TESTING

A mill test was run by the Bureau of Mines Metallurgical Division and Intermountain Experiment Station, Region IV, Salt Lake City, Utah, on a mill sample furnished at the time of the Bureau of Mines examination in 1948.

"Ore-dressing tests have been completed on sample T-91, which was submitted with the other samples from the Stockton mine, and the results of these tests are summarized as follows:

"Sample T-91 contained 1.2 percent copper and 0.55 percent tungsten. The copper is present chiefly as minus 48-mesh grains of chrysocolla and cuprite, but small amounts of residual copper sulfides also occur in the ore. Scheelite is the only tungsten mineral present in the ore, and it occurs as relatively large crystals. The gangue is complex, being composed of quartz, hornblende, biotite mica, calcite, chlorite, tourmaline, and apatite.

"Attempts to recover the copper minerals by flotation proved unsuccessful. The best concentrate made assayed 17 percent copper, but contained only 13 percent of the copper in the ore. Examination of the flotation tailing from this test showed that although the chrysocolla and cuprite in the tails was liberated, these minerals were not floatable with either xanthate type or fatty-acid type collectors.

"Because of the unsatisfactory results obtained when attempting to recover a copper concentrate, further tests were directed to separating the scheelite in the ore. Best results were obtained by tabling. A sample of the ore was crushed to 28-mesh, classified, and tabled to make a small amount of clean tungsten concentrate,

a relatively large middling product, and a tailing. The middling product was then ground to 48-mesh and retabled in the same manner to make another middling product that was ground to 100-mesh and retabled. The final tungsten concentrate was dried and treated in a magnetic separator to reject the iron-bearing minerals contaminating the concentrate. The results of this test are given in the following table.

Metallurgical Results

Product	Weight, percent	Assay, percent WO_3	Assay, percent Cu	Dist., percent WO_3	Dist., percent Cu
Tungsten conct.	0.8	67.3	0.2	95.7	0.2
Magnetic reject	3.1	0.006	3.6	-	9.7
Table middlings	0.4	1.91	2.0	1.4	0.7
Table tailings	95.7	0.17	1.1	2.9	89.4
Calculated heads	100.0	0.56	1.2	100.0	100.0

"An excellent recovery of scheelite was made by tabling; however, the table concentrate must be magnetically separated to make a salable high-grade product. It should be noted that, except for about 10 percent, the copper in the ore is low in specific gravity and concentrates in the tailing fraction. The final tungsten concentrate contains 0.2 percent copper, chiefly as locked particles of cuprite and chrysocolla; however, it may be possible to extract the copper with a dilute acid leach.

"It is our conclusion from the preliminary tests made on the ore that the copper minerals cannot be concentrated to a satisfactory grade by ore-dressing methods and that acid leaching would probably be too expensive on such low-grade ore. The tungsten content of the ore can be readily recovered as a high-grade product by combined tabling and magnetic separation."[1/]

1/ From memorandum of May 9, 1949, from C. H. Schack for S. R. Zimmerley, Salt Lake City, Utah, to William M. Traver, Denver, Colo.

PROPOSED EXPLORATION

The original loan application did not specify or itemize any plan for development. Subsequent to the examination Gobatti completed the application forms for an exploration loan. In this latter application he requested the following:

1. Reopen the upper Stockton tunnel to determine the extent of tungsten mineralization in the vein developed by this tunnel. . . . . $ 4,500.00
2. Explore two other veins on the Stockton, or Grandview, claims by open-cuts. 1,000.00
3. Equipping mine for operation. 20,000.00
4. If item No. 1 indicates sufficient tonnage of tungsten in the upper tunnel, continue the lower Stockton tunnel ahead to explore the vein at depth under the upper tunnel--350 feet drifting and raise 100 feet, total 450 feet at $30.00 per foot. . . . 13,500.00
5. Operating capital. 6,000.00

Total	$45,000.00

Items No. 3, 4, and 5 are contingent upon results of item No. 1.

ESTIMATED COSTS OF THE PROGRAM

The costs as given above are estimates and are probably as close as can be expected. The condition of the upper Stockton tunnel is unknown as only hearsay evidence has been presented. An itemized estimate is given below for the costs.

Item No. 1, opening of upper Stockton tunnel

Labor, 3 miners at $12.00 per day, 50 working days	$ 1,800.00	
Supervision, one miner as working foreman, add $0.25 per hour, $2.00 per day, 50 days	100.00	
Compensation at $3.00 per $100.00 of payroll	57.00	
Timber for drift, 50 sets at $15.00 per set	750.00	
Track, 600 feet at $1.00 per feet	600.00	
Transportation of track and timber by pack trail to tunnel, 8 days at $25.00 per day	200.00	
Supplies and transportation	243.00	
Contingencies	250.00	
Total		$ 4,000.00

Item No. 2, open cuts on unexplored veins

Labor, 2 miners at $12.00 per day, 15 days	$ 360.00	
Rental of portable compressor and drilling equipment	240.00	
Supplies and powder	200.00	
Transportation, freight, etc.	100.00	
Contingencies	100.00	
Total		1,000.00

Item No. 3, equip mine for operation

Compressor	$ 8,500.00	
Air line and water line	1,000.00	
Water system and pump	1,000.00	
Electrical service	1,000.00	
Electrical equipment	500.00	

Item No. 3, continued

Air trammer and cars	$ 1,500.00	
Drilling machines		
Steper	1,000.00	
Drifter	1,000.00	
Tugger hoist for raise	1,000.00	
Supplies, drill steel, bits, tools, small equipment	3,500.00	
Total		$20,000.00

Item No. 4, drifting and raising

350 feet drift at $30.00 per foot	$10,500.00	
100 feet raise at $30.00 per foot	3,000.00	
Total		13,500.00
Item No. 5, operating capital		6,000.00
Total		$44,500.00

CONCLUSIONS

The Stockton deposits contain a small amount of low-grade tungsten ore which can be produced at a slight profit to the operator. There is a possibility of finding additional tonnage of this low-grade ore in the upper tunnel. The margin of profit to be expected from the production of the maximum possible inferred ore reserves will be insufficient for recovery by the Government of more than a small percentage of the total amount of the loan requested. However, possibility of proving the existence of a few thousand tons of low-grade tungsten ore cannot be overlooked in its importance to the commodity purchasing program. If milling facilities become available closer than those in Boulder County and a reasonable amount of ore is found to exist in the upper tunnel, there is a chance that

the applicant will proceed on his own account and produce the ore, even in the event his request for further Governmental assistance is disapproved. He has signified his willingness and ability to match funds for the exploration loan and requests permission to charge his full time to the project as a superviser for part of his contribution to the matching funds. Gobatti is not a mining man and has had little experience in such work. It appears to be more logical to pay a competent miner a small amount more per hour in wages to act as working foreman on the job. This would probably assure more efficient work from the man and contribute to safe and prompt completion of the project.

RECOMMENDATIONS

If the maximum possible ore reserves should result from reopening the upper tunnel, the production of ore will be on such a narrow profit margin that the operation cannot possibly repay the Government more than a minor part of the 75 percent of the $45,000.00 requested.

If milling facilities for the scheelite ore become available, Gobatti has stated he will screen the estimated 1,000 tons of ore on the lower Stockton tunnel dump and ship these screenings. If an acceptable mill product can be made from the dump ore and sufficient profit made to indicate mining will be profitable, then the fact that the upper tunnel already exists and can be cleaned out for a reasonable expenditure justifies a favorable consideration of item No. 1 of the proposal at an estimated cost of $4,000.00 of which the Government's share will be $3,000.00. Additional exploration requested in the application should either be denied or held in abeyance until

completion of item No. 1 and at that time a complete re-evaluation of the request be made based on sampling of the upper tunnel.

224 New Customhouse
Denver, Colorado

June 29, 1951

Memorandum

To: Landon Strobel, Executive Secretary, Defense Minerals Administration

From: DMA Field Team, Region IV

Subject: DMA Docket 245, The Rainbow Mining Company, Stockton mine, Chaffee county, Colorado

The examiners reports and original brochure on the above docket are enclosed.

We concur with the examiners conclusions and recommendations that a loan be denied.

Paul V. Allman
P. V. Allman, Alternate

A. H. Koschmann
A. H. Koschmann

Attachments
One copy by air mail
Two copies by regular mail
Original brochure

Copy to DMA files
Koschmann
Allman
Traver

PVA/el

ekfrq

Mining Division
Region IV

June 29, 1951

Memorandum

To: DMA Field Team, Region IV

From: Chief, Mining Division

Subject: DMA Docket 245, The Rainbow Mining Company, Stockton mine, Chaffee county, Colorado

The report of the examiners has been reviewed and it appears that exploration would yield only an insignificant amount of tungsten. No facilities are available near enough to permit economical mining. Therefore, it is recommended that the loan request be denied.

P. T. Allman

P. T. Allman

Enclosures

COPY

June 22, 1951

Memorandum

To: Chief, Mining Division, Region IV

From: W. M. Trever, Jr.

Subject: DMA Docket 245, The Rainbow Mining Company, Stockton mine, Chaffee county, Colorado

Please find enclosed the original and seven copies of Hazen's engineering report on the subject docket along with three copies of Cobatti's statement that he is able and willing to participate. It is presumed Mr. Engelmann has the original brochure.

I am not entirely in agreement with the conclusions and recommendations arrived at in this report for the following reasons:

1. The rehabilitation work which the applicant has performed at this property since the Bureau's examination in 1948 has failed to disclose any conditions that in any way affect the conclusions. It was on this work that Cobatti bases his loan request. The upper tunnel, where the most possibilities for additional reserves by exploration exist, has been allowed to cave at the portal and, consequently, the examiners have had to rely on the one sample T-84 taken in 1948. This assayed 1.27 percent WO_3.

2. From my experience in the investigation of tungsten deposits in the Front Range, the ore shoot mined at the Stockton from the shaft is the largest I have seen. Under ore reserves in the report this development has accounted for possibly 1,500 tons which includes a substantial indicated and inferred reserve in blocks 1 and 2 below the third level which may not materialize. Accordingly, it would be my guess that the possibility of delineating a shoot in the upper tunnel of 5,850 tons would be a 100 to 1 shot. This, incidentally, is noted in the report.

3. The deposit is far removed from milling facilities in Boulder County and there is little likelihood that Cobatti can meet the specifications required by the Tenl mill, if and when it is in operation. It is also questionable if, when the mill proposed at Buena Vista is completed, they will be able to treat scheelite ores produced in the area successfully. They are entirely without experience except for operating a hand-sine mill in Leadville on St. Louis mine ore that proved unprofitable.

4. The floor price set by General Services constitutes a substantial Govt. subsidy, and it would be my approach to these marginal operations, like the Stockton, that any additional subsidy be deferred until it is possible to observe what results in the way of production from the increased price.

5. Gobetti is entirely dependent on a market for this ore. If one becomes available, his contribution to the tungsten shortage will be small at best. More than likely it will be only the amount produced from screening the 1,000 or so tons included in the dump, for I doubt if he mines the ore remaining in the blocks around the shaft. In the event he does, it will not be a profitable operation.

Unless the demand for tungsten is extremely critical, I would be inclined to denial of loans of this character. The applicant, although entirely inexperienced, is imbued with the desire to enter the mining field and will, no doubt, proceed with the operation whether assisted by the Government or not, and the production will probably accrue to the program in any event. In my opinion, it will be easier to deny the loan now than to have to terminate the project later. In the meantime, observation of the operations will prove interesting.

/s/ W. M. Traver, Jr.

Enclosures

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

200 New Customhouse
Denver 2, Colorado

June 20, 1951

Memorandum

To: DMA Field Team, Region IV

From: A. H. Koschmann

Subject: DMA Docket 245 - Rainbow Mining Company

Submitted herewith are the original and 7 copies of the geologic report covering the above docketed project.

Geologic examination of this property shows that tungsten in the form of scheelite is erratically disseminated in small and low grade deposits. It is pointed out that exploration is not likely to find tungsten ore in larger amounts nor of higher grade. In view of the unfavorable geologic conditions, Mr. Evans recommends that the loan be denied.

I concur in this recommendation.

The brochure is enclosed herewith.

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

Enclosures (8)

UNITED STATES
DEPARTMENT OF THE INTERIOR
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMA-245. The Rainbow Mining Company, Shoshone Mine

Chaffee County, Colorado

Scott W. Hazen, Jr., Mining Engineer
U. S. Bureau of Mines

Omer Evans, Geologist
U. S. Geological Survey

June 20, 1951

THE RAINBOW MINING COMPANY

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By Scott W. Hazen, Jr., and Owen Evans

The Defense Minerals Administration requested a field examination to analyze the potential production of the Stockton mine of the Rainbow Mining Company to determine if it could come within the scope of an exploration loan.

Although the property has no record of production, a dump at the portal of the lower tunnel on the Stockton claim contains an estimated 1,000 tons of 0.5 percent tungsten ore which is segregated. There is an additional 500 tons of 0.7 percent indicated and inferred ore in the mine. In addition, there is a caved upper tunnel which is reported to be 500 feet long that has been driven on a vein showing tungsten mineralization. There is a reasonable assumption that reopening the upper tunnel will result in expanding the ore reserves by 1,000 to 2,000 tons. The average grade is expected to be 0.5 percent.

The mine is not equipped to produce or mill ore. Mining operations, if undertaken, will require purchase of all essential machinery and supplies. It may be possible to arrange for milling any ore produced either at Boulder or Buena Vista, Colorado, depending on facilities at these localities now under consideration.

An exploration loan application recently submitted by E. F. Cobatti requests $45,000.00 for the following:

1. Reopen the upper Stockton tunnel	$ 4,500.00
2. Explore two additional veins by open-cuts	1,000.00
3. Contingent upon results of No. 1, equip the mine for operation	20,000.00
4. Drive the lower tunnel ahead 350 feet and raise 100 feet to the upper tunnel, 450 feet at $30.00 per foot	13,500.00
5. Operating capital	6,000.00
	$45,000.00

If the maximum possible inferred ore reserves should result from reopening the upper tunnel, the production of ore will be on such a narrow profit margin that the operation cannot possibly repay the Government more than a minor part of the 75 percent of the $45,000.00 requested.

If milling facilities for scheelite ore become available, Cobatti has stated he will screen the estimated 1,000 tons of ore on the lower tunnel dump and ship these screenings. If an acceptable mill product can be made from the dump ore and sufficient profit made to indicate mining will be profitable, then favorable consideration may be given to item No. 1 of the exploration proposal--clearing out the upper Stockton tunnel at the estimated cost of $4,000.00 of which the Government's share would be $3,000.00. Additional exploration requested in the application should either be denied or held in abeyance until completion of item No. 1, and at that time a complete re-evaluation of the request be made based on sampling of the upper tunnel.

The applicant has indicated he is financially able and willing to furnish his share of the loan, or $1,000.00, and also that he will participate in the larger loan if it is approved.

STOCKTON & GERTRUDE CLAIMS OF THE RAINBOW MINING COMPANY
(GORATTI)
NEAR SALIDA, COLORADO

Geology

DMA Docket 246

Geology and Reserves

By C. D. Evans
Geologist, U. S. Geological Survey

The Rainbow Mining Company Claims

Location

The Stockton and Gertrude claims owned by the Rainbow Mining Company are in the now practically defunct Cleora Mining District, on the north bank of the Arkansas River, three miles below Salida, Chaffee County, Colorado.

Geology and Ore Deposits

The country rock in the Stockton and Gertrude claims is a dark, medium to fine grained diorite or metadiorite of pre-Cambrian age. It is cut by a series of veins that strike approximately east and dip 78 degrees north. Surface outcrops can be traced for several hundred feet. Negligible quantities of tungsten have been produced from this district.

One vein in the Stockton claim has been well developed by mine workings. (See Figure 3.) It is typical of the veins in the area under consideration, except that tungsten mineralization is stronger. The upper part of this vein contains a lens of bull quartz as much as 2 feet wide and about 150 feet long. It pinches downward a short distance below the 3rd Level. The quartz is bordered by several inches of tabular feldspar which grades outward into a mottled appearing biotite-hornblende-feldspar zone of irregular width. Beyond the limits of the quartz lens the vein narrows, and is composed of coarse feldspar or the biotite-hornblende-feldspar phase. This type of mineralization indicates the vein is pegmatitic in origin and therefore of pre-Cambrian age. Later movement brecciated the quartz, and produced some gouge in the bordering material.

Tungsten occurs as scheelite in the form of thin, whitish sheets, films and flakes, and as small glassy crystals. It is distributed

throughout the vein, but is most closely associated with the quartz. A few small concentrations of scheelite exist, but in general mineralization is weak and erratic. Pyrite and chalcopyrite are disseminated in small quantities throughout the vein and wall rock, but chalcopyrite like scheelite, is most closely associated with the quartz. It seems likely that the tungsten and copper minerals were deposited simultaneously with the formation of the pegmatite vein. The vein is strongly oxidized and limonite is widespread. Close to the surface, where oxidation is most intense, the vein contains a hard, reddish-brown limonite in which are concentrated small specks of malachite, chalcopyrite and bornite.

Ore Reserves

Ore has been estimated only on the vein developed by mine workings in the Stockton claim. Figure 3 shows the extent of the workings, location of samples, and location of estimated ore. Samples number H-165 and H-167 were not used in calculating the grade of ore because check samples failed to confirm them.

Block 1, Indicated Ore.....370 tons at .70 %WO per ton
Block 2, Inferred Ore.....140 tons at .70 %WO per ton

Conclusions and Recommendations

The pre-Cambrian pegmatite veins in the Stockton and Gertrude claims contain tungsten in the form of erratically disseminated scheelite. The deposits are small and low grade. Exploration is not likely to find tungsten ore in larger amounts nor of higher grade than that already known.

In view of the economic factors given in the metallurgical section of this report, and the unfavorable geologic conditions described above, it is recommended that the loan be denied.

LIST OF SAMPLES AND ASSAYS TAKEN AT THE RAINBOW MINING COMPANY'S CLAIMS

NEAR SALIDA, CHAFFEE COUNTY, COLORADO, BY THE U. S. BUREAU OF MINES

Sample No.	Width Ft.	% Cu	% MO	Oz./ton
H-163'	1.8		0.02	
H-164	1.5		0.01	
H-165	1.0		0.15	
H-166	2.0		0.42*	
H-167	1.0		0.56	
H-168	2.0		0.09*	
H-169	1.5		0.19	
H-170	1.5		2.09*	
T-79''	2.2	0.02	0.01	(Taken in Gertrude Claim drift, not on map)
T-80	1.5	0.52	0.01	" " " " " " " "
T-81	1.8	0.62	0.01	" " " " " " " "
T-82	1.5	0.04	0.01	" " " " " " " "
T-83	2.2	0.11	0.01	
T-84	2.0	0.28	1.27	
T-85	1.6	0.38	0.02	
T-86	3.4	1.01	0.07	
T-87	2.0	2.50	0.22*	
T-88	1.6	0.78	0.05*	
T-89	5.5	0.88	0.01*	
T-90	4.2	2.66	0.06*	
SWU-1'''	Grab	0.01	0.01	.005
SWU-2	2.0	0.01	0.01	.005
SWU-3	3.2	0.08	0.01	.005
SWU-4	3.0	0.06	0.01	.005
SWU-5	1.0	0.02	0.01	.005
SWU-6	3.3	0.02	0.01	.005
SWU-7	2.5	0.07	0.01*	.02

' - Samples taken by W. F. Bulcatt, December 1942
'' - Samples taken by R. M. Traver, Jr. and S. W. Hagen, November 1948
''' - Samples taken by S. W. Hagen, May 1951
* - Samples used in calculation of ore estimate

THE RAINBOW MINING COMPANY
STOCKTON MINE
CHAFFEE COUNTY, COLORADO

Engineering Report

By Scott W. Hasan, Jr.
Mining Engineer
U. S. Bureau of Mines

Engineering

THE RAINBOW MINING COMPANY
STOCKTON MINE
CHAFFEE COUNTY, COLORADO

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* See figures with Geologic Report.

THE RAINBOW MINING COMPANY

ENGINEERING REPORT

By

Scott W. Hasen, Jr.
U. S. Bureau of Mines

INTRODUCTION

In December of 1950 E. F. Gobatti, on behalf of the Rainbow Mining Company, applied for a Government loan of $91,500.00 to provide mining equipment, milling facilities, and reserve funds to develop and operate the Stockton copper-tungsten mine in Chaffee County, Colorado. The application was denied by the Washington office of the Defense Minerals Administration.

Later, a review of the application resulted in a request for a field examination to determine if the property had sufficient merit to fall within the scope of the exploration program. An examination was made the first week of May 1951.

ACKNOWLEDGMENTS

E. F. Gobatti and A. J. Fosselt accompanied the examining engineer and geologist to the property and furnished information on ownership and previous operations.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The Stockton copper-tungsten mine is in sec. 10, T. 49 N., R. 9 E., N. M. P. M., Cleora Mining District, three miles east of Salida, Chaffee County, Colo. (fig. 1). The lower mine tunnel is at the bottom of the foothills on the north side of the Arkansas Valley and the mill site location covers a flat terrace at the

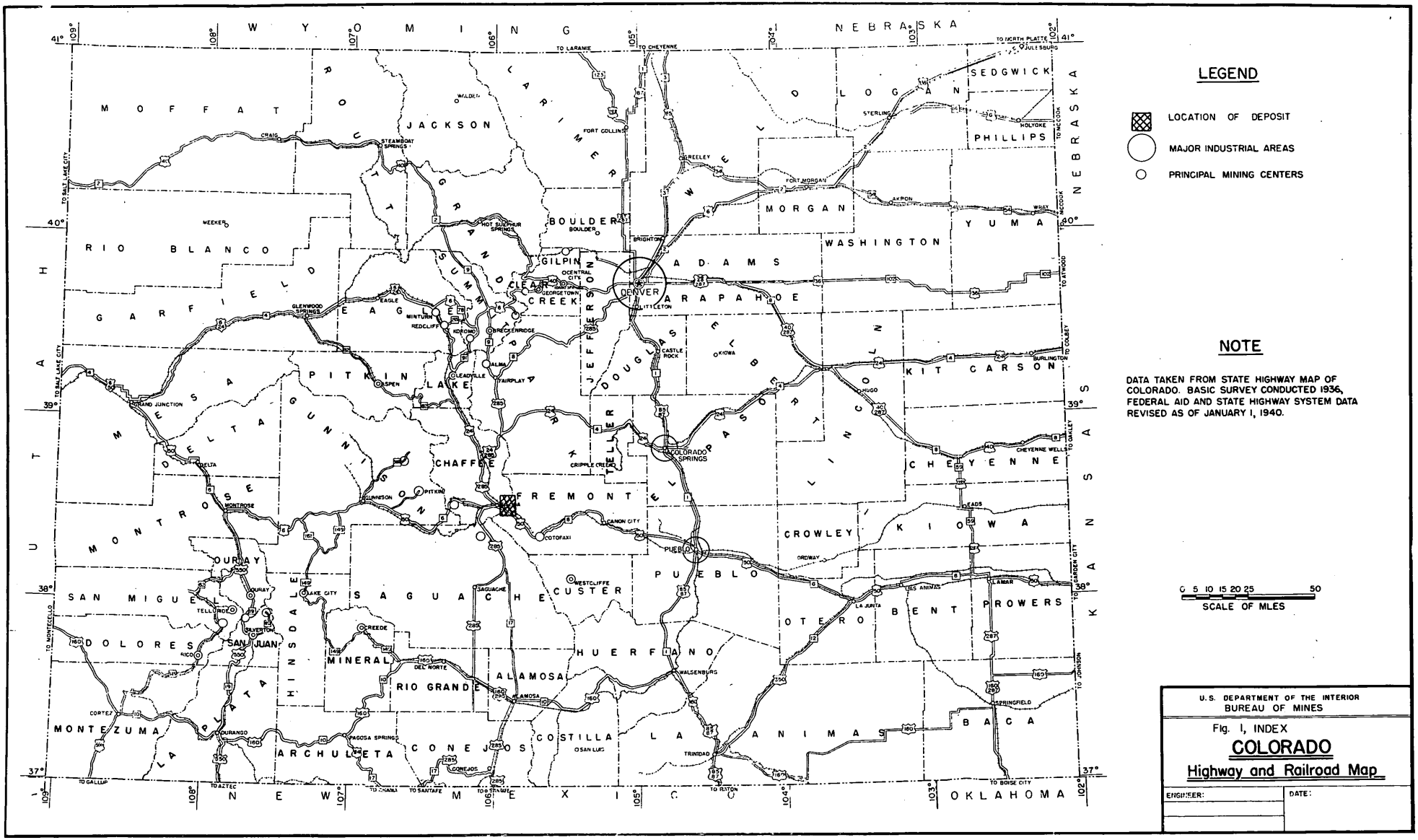


FIG. 1 LOCATION MAP RAINBOW MINING CO. D.M.A. 245

base of the hills (fig. 2). The mine workings are dry but water for a mill is available by pumping from the Arkansas River. The mine is easily accessible from U. S. Highway 50 by way of a short access road. The Denver and Rio Grande Western Railroad and the Arkansas River pass within a few hundred feet of the portal of the lower tunnel.

Altitudes at the mine range from 7,050 feet to 7,400 feet; consequently, winters are mild and all-year operations will present no difficulty. Most of the surface is covered with a thin mantle of overburden and sparsely scattered juniper is the only timber available on the property. A small sawmill that can supply all types of mine and rough building timber at $65 to $75 per thousand feet is located about one mile west of the property.

HISTORY AND PRODUCTION

The Cleora Mining District was prospected in the 1880's and 1890's. The small amount of development work was accomplished prior to 1900 in search for gold and copper. Tungsten was not recognized in the veins until World War I and no attempt was made to recover the metal at that time. During World War II some effort was made to concentrate the tungsten in the dump at the lower Stockton tunnel but an acceptable concentrate was not made. No production of any metal from the Stockton deposits is recorded.

OWNERSHIP AND EXTENT

E. F. Gobatti, 2301 North Grand Avenue, Pueblo, Colo., has indicated that he is the owner of the following claims shown on figure 2:

The Stockton (Stocton)	Lode Patent Survey 18559
The Gertrude	Lode Patent Survey 16948
The Regina Mining Claim	(Location)
The Aldea Mining Claim	"
The River View Mining Claim	"
The Mondo Mining Claim	"
The Fleeta Fraction Claim	"
The Whispering Pines Mining Claim	"
The River View Mill Site	"

The claims are held in the name of the Rainbow Mining Company. Incorporation papers have been filed for this company but it has not been activated as an incorporated company. At the present time Gobatti states that he is the sole owner of the Rainbow Mining Company but he has two or three interested parties who will become stockholders in the officially incorporated company when it is activated.

A verbal statement was made by A. J. Posselt, 624 I Street, Salida, Colo., that he and his former partner, now deceased, had purchased the Stockton and Gertrude patented claims several years ago. Location notices on the property indicate that Gobatti and Posselt have filed location notices together on at least some of the claims. Posselt has made an agreement for lease and option with Gobatti and Gobatti states that he is exercising the option and has made payments toward purchase of the Stockton and Gertrude claims.

DESCRIPTION OF THE DEPOSITS

The Stockton veins outcrop on a rather steeply rising hillside on the north side of the Arkansas River. Most of the veins occur on the Stockton and the Gertrude patented lode claims.

Scheelite occurring as relatively large friable crystals is the only tungsten mineral in the veins and it is too widely distributed throughout the material to permit its classification as a tungsten ore.

The wall rock, which is badly fractured, jointed, and altered, has been classified as a metadiorite with a schist-like structure. Slickensides were noted all along the veins and, in places, movement in three different directions is indicated. Where the wall rock is exposed away from the vein, several successive sets of slickensides were found which are roughly parallel to the vein. Where moist conditions and poor air circulation exist, as in the lower tunnel east of the raise, slickensides are muddy, causing the walls to cave in blocks and slabs. A cave in this area has extended as much as 30 feet above the tunnel level and is 15 to 20 feet wide. The dry, well-ventilated portions of the workings show less caving and sloughing than the moist areas.

The alteration, fracturing, jointing, and schistose structure make timbering and lagging necessary in the lower tunnel where it has been driven along the vein and also along most of the tunnel from the portal to the vein. The upper shaft levels are partly timbered with stulls and lagging.

The vein material is pegmatitic with granular quartz, feldspar, hornblende, and biotite as the main constituents. Alteration is intense at the surface and gradually diminishes with depth. The veins are narrow--12 to 36 inches in width--and will require selective mining to maintain the best possible grade of ore. Over-breaking and wall sloughing will be unavoidable. The wall rock which must be taken out to provide working space will more than supply stope filling. Stulls and head boards may suffice for timbering if only small stopes are opened. The vein material is granular and altered and it will break fine with the tungsten values in the finely-broken material. Tight flooring and slides will be necessary to insure recovery and, if care is not taken, the mining losses of the tungsten values will be excessive.

ORE RESERVES

In approaching the question of exploration at the Stockton, the matter of economics of the potential reserves which might be developed must be considered against the anticipated expenditures which will be required to produce any ore found.

The existing development on the property has accounted for an estimated 1,000 tons of tungsten ore which is now on the lower Stockton dump. Some additional tonnage might be available by hand screening some of the other dumps. There is an estimated 500 tons of indicated and inferred ore remaining in blocks (1) and (2) surrounding the shaft and raise (fig. 3). If the upper tunnel proves to be 500 feet long and average tungsten mineralization is found throughout its length, the potential tonnage of reserves for the property is still not great. An average width for the ore

appears to be 2 feet while 70 feet of vertical height is inferred. Assuming the full 500 feet of tunnel distance as containing tungsten mineralization and using the above figures will show only a maximum possible inferred potential of $\frac{2 \times 70 \times 500}{12 \text{ (tonnage factor)}}$, or about 5,850 tons.

It is more reasonable to expect an ore body of 1,000 - 2,000 tons, similar to that found in the vicinity of the shaft.

Assuming a tungsten ore grade of 0.5 percent with a mining and milling loss of 20 percent leaves only a value of 0.4 percent, or $25.20 per ton of crude ore calculated on a $63.00 base price for 60 percent tungsten trioxide. Metallurgical tests by the Bureau of Mines in 1948 indicate a rather simple tabling process will successfully make a 60 percent concentrate but it has to be cleaned magnetically to remove impurities and the final product will still contain 0.2 percent copper. This will cause a penalty of approximately $3.00 per ton.

At this time there are no mills handling scheelite on a custom basis so there is no local or state outlet for the Stockton ore. However, the Teal mill, at Boulder, Colo., has verbally informed Cobatti that they will treat the Stockton ore for $6.00 per ton if the grade does not average below 0.75 percent tungsten trioxide. Transportation charges by rail to Boulder and truck charge from Boulder to the Teal mill amount to $6.00 per ton. Mining costs are estimated at $7.50 per ton. A cost analysis based on the above assumptions follows:

		Per Ton
Value of crude ore		$25.20
Mining	$7.50	
Milling	6.00	
Transportation	6.00	
Estimated penalty (impurities)	3.00	22.50
Profit margin		$ 2.70

There is a small mill being installed at Buena Vista, Colo., 35 miles north of Salida, which the owners intend to use for milling tungsten ores. Transportation to this mill would be about $2.00 per ton. Shipping Stockton ore to this mill would increase the profit margin appreciably.

Unless the above costs can be reduced, operation of the property appears to be a marginal venture.

If the assumed maximum possible reserve of 5,850 tons of ore is found to exist in the upper tunnel, it will require a return of $6.00 per ton to recover $33,750.00, the Government's share of the requested $45,000.00.

PRESENT STATUS

Exploration and Development

Nine veins are exposed along the sides of a steep gulch which cuts across the Stockton and Gertrude claims. The No. 1 vein has been developed by a 75-foot adit driven southwesterly along the vein from where it is exposed in the gulch. The No. 2 vein is located within a few feet of the No. 1 vein and has been developed by a 25-foot adit driven southwesterly from its exposure in the gulch.

Both of these adits are narrow but are in good condition except for the portals.

The Gertrude tunnel has been driven about 150 feet northeasterly from the slope of the hillside facing the river on the Gertrude vein which the owners presume to be the same as the No. 1 vein. This adit is about 200 feet west of the lower Stockton tunnel and is perhaps 75 feet higher in elevation. The portal is caved and heavy sloughing has occurred throughout the adit.

The major mine development (fig. 3) has been on the Stockton claim where the lower Stockton tunnel has been driven as a crosscut adit to reach the No. 5 vein. After reaching the vein, the tunnel was extended by drifting along the vein for a reported distance of 275 feet. A 100-foot crosscut has also been driven to the north along a thin, barren slip. A 90-foot raise has been driven to connect to the bottom of a 60-foot shaft which had been sunk on the vein from the surface outcrop and there are three short levels driven from this shaft. The shaft and raise are in reasonably good condition with new ladders recently installed. The raise is only a single compartment chute and does not have a manway for access when rock is being transferred through it.

The upper Stockton tunnel (fig. 2) has been driven northeasterly on what is supposed to be the No. 5 vein where it is exposed in the gulch. It is doubtful that this work is on the same vein as the shaft and lower tunnel workings. This upper tunnel is reported to be 550 feet long and at approximately 400 feet in from the portal

there is believed to be a winze sunk to an unknown depth. The portal of the upper tunnel was caved at the time of examination but the tunnel was open for 150 feet when the mine was examined by Bureau of Mines engineers in 1948.

Some of the remaining veins which are found on the property have been opened up by small cuts but not to sufficient depth to determine the extent of tungsten mineralization.

The recent work by the company included removing 75 cars of caved vein material from the three shaft levels and advancing about 40 feet through the cave in the lower tunnel level. The present face of the cave is estimated to be 75 feet from the end of the drift.

Mining and Milling Equipment and Other Facilities

There are no milling facilities available and only meager mine equipment. Light weight rails have been used in the lower Stockton tunnel where there is also one old mine car. The present operators have installed a gasoline-powered generator set to provide electric lights for work in the tunnel. Two small buildings for shop and storage facilities have been erected near the tunnel portal.

Water is available by pumping from the Arkansas River, requiring about $1,000.00 to install a pump and pipe line.

Electric power is available at the stockyards about 1,000 feet west of the tunnel. The Public Service Company of Colorado has indicated it will provide a 440 volt service for a capacity of 50 horsepower for approximately $1,000.00. This is to be paid as a deposit and refunded at a rate of 20 percent per year over a five-year period.

METALLURGICAL TESTING

A mill test was run by the Bureau of Mines Metallurgical Division and Intermountain Experiment Station, Region IV, Salt Lake City, Utah, on a mill sample furnished at the time of the Bureau of Mines examination in 1948.

"Ore-dressing tests have been completed on sample T-91, which was submitted with the other samples from the Stockton mine, and the results of these tests are summarized as follows:

"Sample T-91 contained 1.2 percent copper and 0.55 percent tungsten. The copper is present chiefly as minus 48-mesh grains of chrysocolla and cuprite, but small amounts of residual copper sulfides also occur in the ore. Scheelite is the only tungsten mineral present in the ore, and it occurs as relatively large crystals. The gangue is complex, being composed of quartz, hornblende, biotite mica, calcite, chlorite, tourmaline, and apatite.

"Attempts to recover the copper minerals by flotation proved unsuccessful. The best concentrate made assayed 17 percent copper, but contained only 13 percent of the copper in the ore. Examination of the flotation tailing from this test showed that although the chrysocolla and cuprite in the tails was liberated, these minerals were not floatable with either xanthate type or fatty-acid type collectors.

"Because of the unsatisfactory results obtained when attempting to recover a copper concentrate, further tests were directed to separating the scheelite in the ore. Best results were obtained by tabling. A sample of the ore was crushed to 28-mesh, classified, and tabled to make a small amount of clean tungsten concentrate,

a relatively large middling product, and a tailing. The middling product was then ground to 48-mesh and retabled in the same manner to make another middling product that was ground to 100-mesh and retabled. The final tungsten concentrate was dried and treated in a magnetic separator to reject the iron-bearing minerals contaminating the concentrate. The results of this test are given in the following table.

Metallurgical Results

Product	Weight, percent	Assay, percent WO_3	Assay, percent Cu	Dist., percent WO_3	Dist., percent Cu
Tungsten conct.	0.8	67.3	0.2	95.7	0.2
Magnetic reject	3.1	0.006	3.6	-	9.7
Table middlings	0.4	1.91	2.0	1.4	0.7
Table tailings	95.7	0.17	1.1	2.9	89.4
Calculated heads	100.0	0.56	1.2	100.0	100.0

"An excellent recovery of scheelite was made by tabling; however, the table concentrate must be magnetically separated to make a salable high-grade product. It should be noted that, except for about 10 percent, the copper in the ore is low in specific gravity and concentrates in the tailing fraction. The final tungsten concentrate contains 0.2 percent copper, chiefly as locked particles of cuprite and chrysocolla; however, it may be possible to extract the copper with a dilute acid leach.

"It is our conclusion from the preliminary tests made on the ore that the copper minerals cannot be concentrated to a satisfactory grade by ore-dressing methods and that acid leaching would probably be too expensive on such low-grade ore. The tungsten content of the ore can be readily recovered as a high-grade product by combined tabling and magnetic separation."[1]

1/ From memorandum of May 9, 1949, from C. H. Schaak for S. R. Zimmerley, Salt Lake City, Utah, to William M. Traver, Denver, Colo.

PROPOSED EXPLORATION

The original loan application did not specify or itemize any plan for development. Subsequent to the examination Cobatti completed the application forms for an exploration loan. In this latter application he requested the following:

1. Reopen the upper Stockton tunnel to determine the extent of tungsten mineralization in the vein developed by this tunnel. . . . . $ 4,500.00
2. Explore two other veins on the Stockton, or Grandview, claims by open-cuts. 1,000.00
3. Equipping mine for operation. 20,000.00
4. If item No. 1 indicates sufficient tonnage of tungsten in the upper tunnel, continue the lower Stockton tunnel ahead to explore the vein at depth under the upper tunnel—350 feet drifting and raise 100 feet, total 450 feet at $30.00 per foot. . . . 13,500.00
5. Operating capital. 6,000.00

Total $45,000.00

Items No. 3, 4, and 5 are contingent upon results of item No. 1.

ESTIMATED COSTS OF THE PROGRAM

The costs as given above are estimates and are probably as close as can be expected. The condition of the upper Stockton tunnel is unknown as only hearsay evidence has been presented. An itemized estimate is given below for the costs.

Item No. 1, opening of upper Stockton tunnel

Labor, 3 miners at $12.00 per day, 50 working days	$ 1,800.00	
Supervision, one miner as working foreman, add $0.25 per hour, $2.00 per day, 50 days	100.00	
Compensation at $3.00 per $100.00 of payroll	57.00	
Timber for drift, 50 sets at $15.00 per set	750.00	
Track, 600 feet at $1.00 per foot	600.00	
Transportation of track and timber by pack trail to tunnel, 8 days at $25.00 per day	200.00	
Supplies and transportation	243.00	
Contingencies	250.00	
Total		$ 4,000.00

Item No. 2, open cuts on unexplored veins

Labor, 2 miners at $12.00 per day, 15 days	$ 360.00	
Rental of portable compressor and drilling equipment	240.00	
Supplies and powder	200.00	
Transportation, freight, etc.	100.00	
Contingencies	100.00	
Total		1,000.00

Item No. 3, equip mine for operation

Compressor	$ 8,500.00	
Air line and water line	1,000.00	
Water system and pump	1,000.00	
Electrical service	1,000.00	
Electrical equipment	500.00	

Item No. 3, continued

Air tresser and dsrs	$ 1,[illegible]00.00	
Drilling machines		
Shaper	1,000.00	
Drifter	1,000.00	
Tugger hoist for raise	1,000.00	
Supplies, drill steel, bits, tools, small equipment	[illegible]	
Total		$20,000.00

Item No. 4, drifting and raising

350 feet drift at $30.00 per foot	$10,500.00	
100 feet raise at $30.00 per foot	3,000.00	
Total		13,500.00
Item No. 5, operating capital		6,000.00
Total		$44,500.00

CONCLUSIONS

The Stockton deposits contain a small amount of low-grade tungsten ore which can be produced at a slight profit to the operator. There is a possibility of finding additional tonnage of this low-grade ore in the upper tunnel. The margin of profit to be expected from the production of the maximum possible inferred ore reserves will be insufficient for recovery by the Government of more than a small percentage of the total amount of the loan requested. However, possibility of proving the existence of a few thousand tons of low-grade tungsten ore cannot be overlooked in its importance to the commodity purchasing program. If milling facilities become available closer than those in Boulder County and a reasonable amount of ore is found to exist in the upper tunnel, there is a chance that

the applicant will proceed on his own account and produce the ore, even in the event his request for further Governmental assistance is disapproved. He has signified his willingness and ability to match funds for the exploration loan and requests permission to charge his full time to the project as a supervisor for part of his contribution to the matching funds. Gabatti is not a mining man and has had little experience in such work. It appears to be more logical to pay a competent miner a small amount more per hour in wages to act as working foreman on the job. This would probably assure more efficient work from the men and contribute to safe and prompt completion of the project.

RECOMMENDATIONS

If the maximum possible ore reserves should result from reopening the upper tunnel, the production of ore will be on such a narrow profit margin that the operation cannot possibly repay the Government more than a minor part of the 75 percent of the $45,000.00 requested.

If milling facilities for the scheelite ore become available, Gabatti has stated he will screen the estimated 1,000 tons of ore on the lower Stockton tunnel dump and ship these screenings. If an acceptable mill product can be made from the dump ore and sufficient profit made to indicate mining will be profitable, then the fact that the upper tunnel already exists and can be cleaned out for a reasonable expenditure justifies a favorable consideration of item No. 1 of the proposal at an estimated cost of $4,000.00 of which the Government's share will be $3,000.00. Additional exploration requested in the application should either be denied or held in abeyance until

completion of item No. 1 and at that time a complete re-evaluation of the requirement be made based on sampling of the upper tunnel.

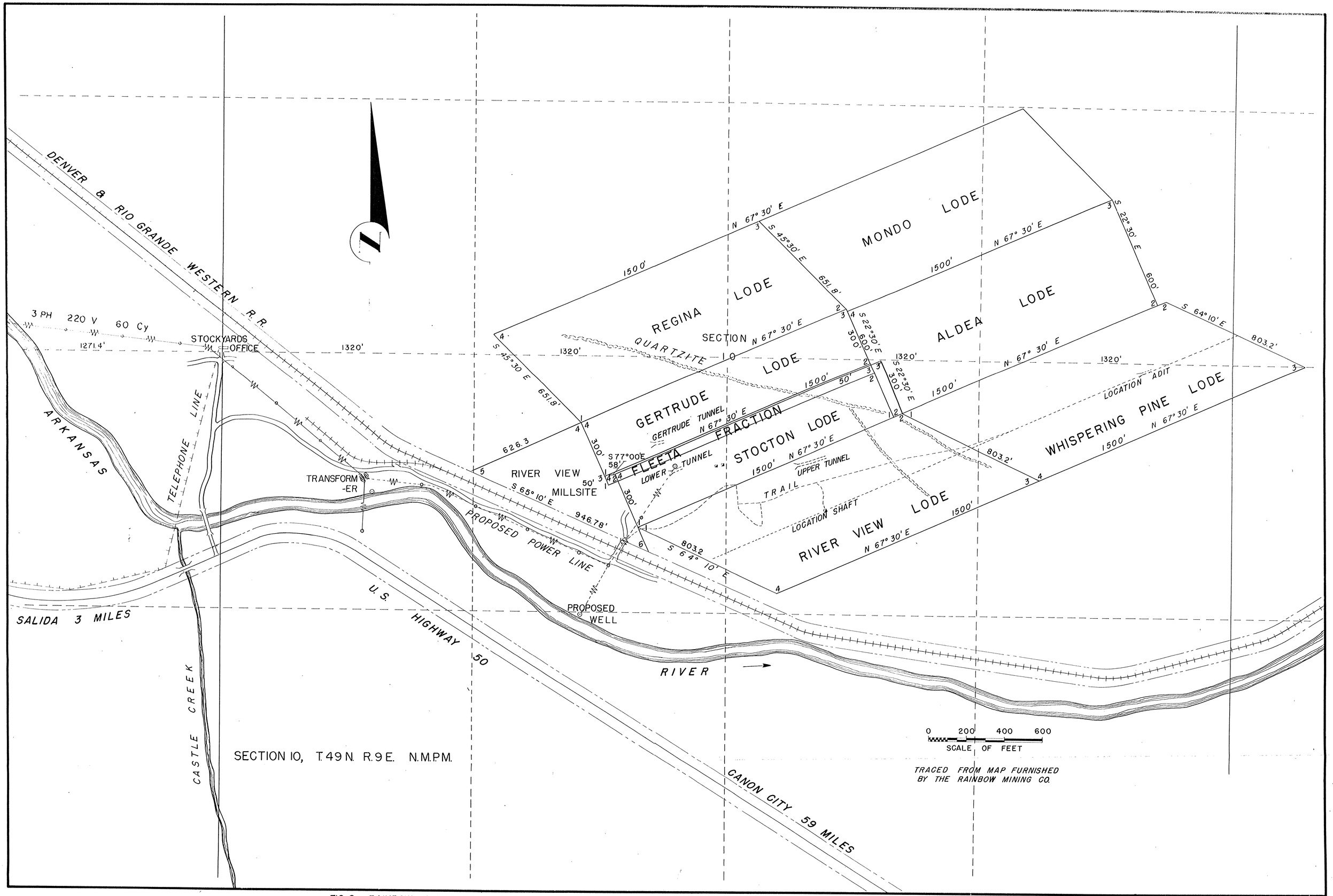
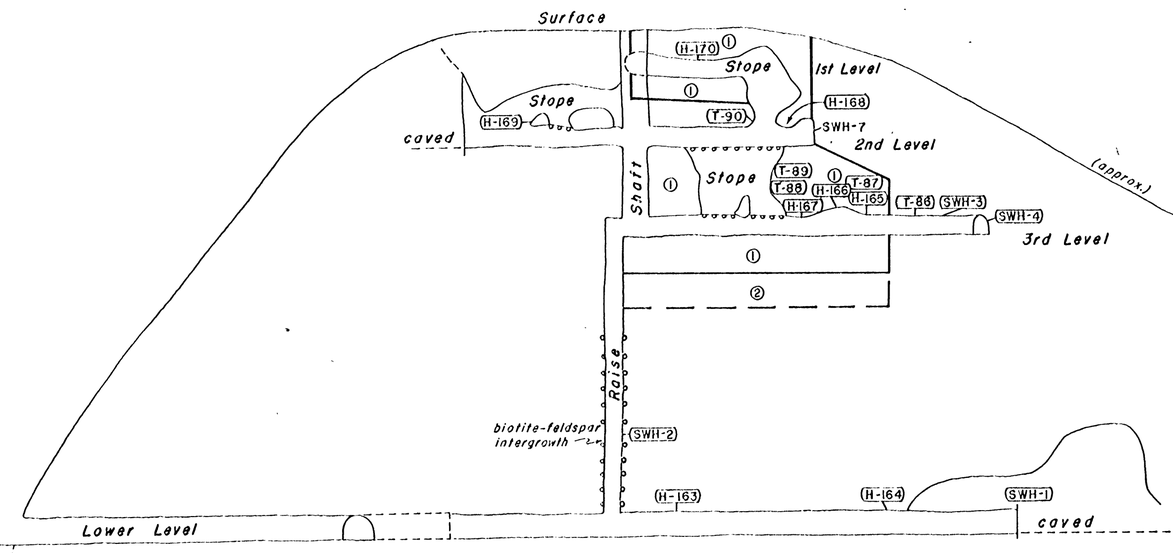
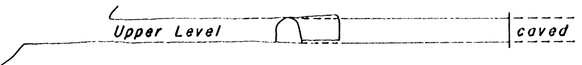


FIG. 2 - RAINBOW MINING CO. CHAFFEE COUNTY, COLORADO CLAIM MAP DMA-245

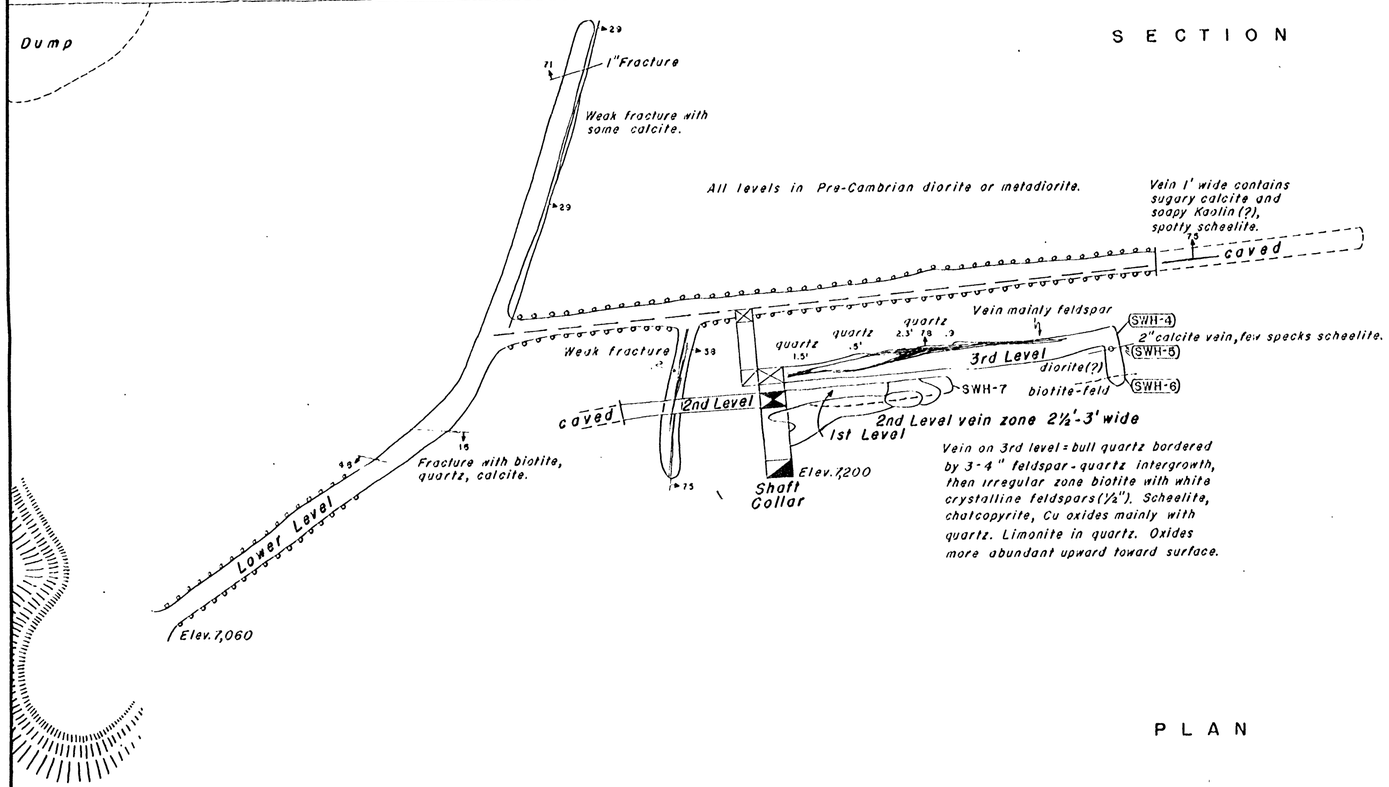


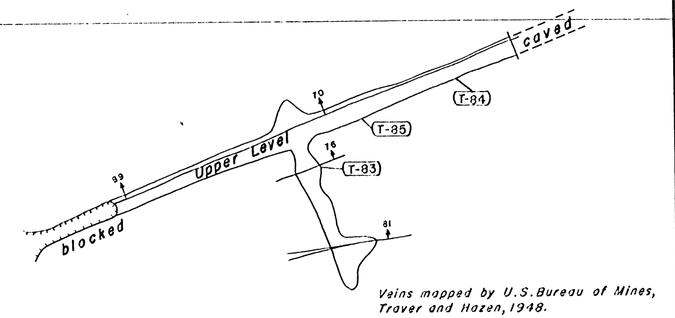


SAMPLES

SAMPLE NO.	WIDTH FT.	Cu %	Wo3 %	SAMPLE NO.	WIDTH FT.	Cu %	Wo3 %
T-79	2.25	0.92	<0.01	H-163	1.81	—	0.02
T-80	1.25	0.82	<.01	H-164	1.5	—	0.01
T-81	1.75	0.62	<.01	H-165	1.0	—	3.15
T-82	1.5	0.04	<.01	H-166	2.0	—	0.53
T-83	2.15	0.11	<.01	H-167	1.0	—	6.56
T-84	2.0	0.28	1.27	H-168	2.0	—	3.95
T-85	1.6	0.32	0.02	H-169	1.5	—	0.19
T-86	3.4	1.01	0.07	H-170	1.5	—	2.09
T-87	2.0	2.30	0.22	SWH-1	Grab	0.01	<0.01
T-88	1.6	0.78	0.08	SWH-2	2.0	0.01	<0.01
T-89	5.5	0.88	<0.01	SWH-3	3.2	0.03	<0.01
T-90	4.2	2.66	0.06	SWH-4	3.0	0.06	<0.01
				SWH-5	1.0	0.02	<0.01
				SWH-6	3.3	0.02	<0.01
				SWH-7	2.5	0.87	<0.01

SECTION





Vein on 3rd level = bull quartz bordered by 3-4" feldspar-quartz intergrowth, then irregular zone biotite with white crystalline feldspars (½"). Scheelite, chalcopyrite, Cu oxides mainly with quartz. Limonite in quartz. Oxides more abundant upward toward surface.

PLAN

SCALE
0 30 60 FT.

SWH-1, T-83, H-164 — Sample Number
Indicated Ore
Inferred Ore
① Block Number

Department of Interior
U.S. Geological Survey

Longitudinal Section and Plan of workings on

STOCKTON LODE

near Salida, Chaffee County, Colorado showing geology, estimated ore, location of samples.

Map based on Rainbow Mining Co. maps and U.S. Bureau of Mines Tape and Compass Survey, Wm. M. Traver, Jr. and Scott W. Hazen, Jr., 1948.

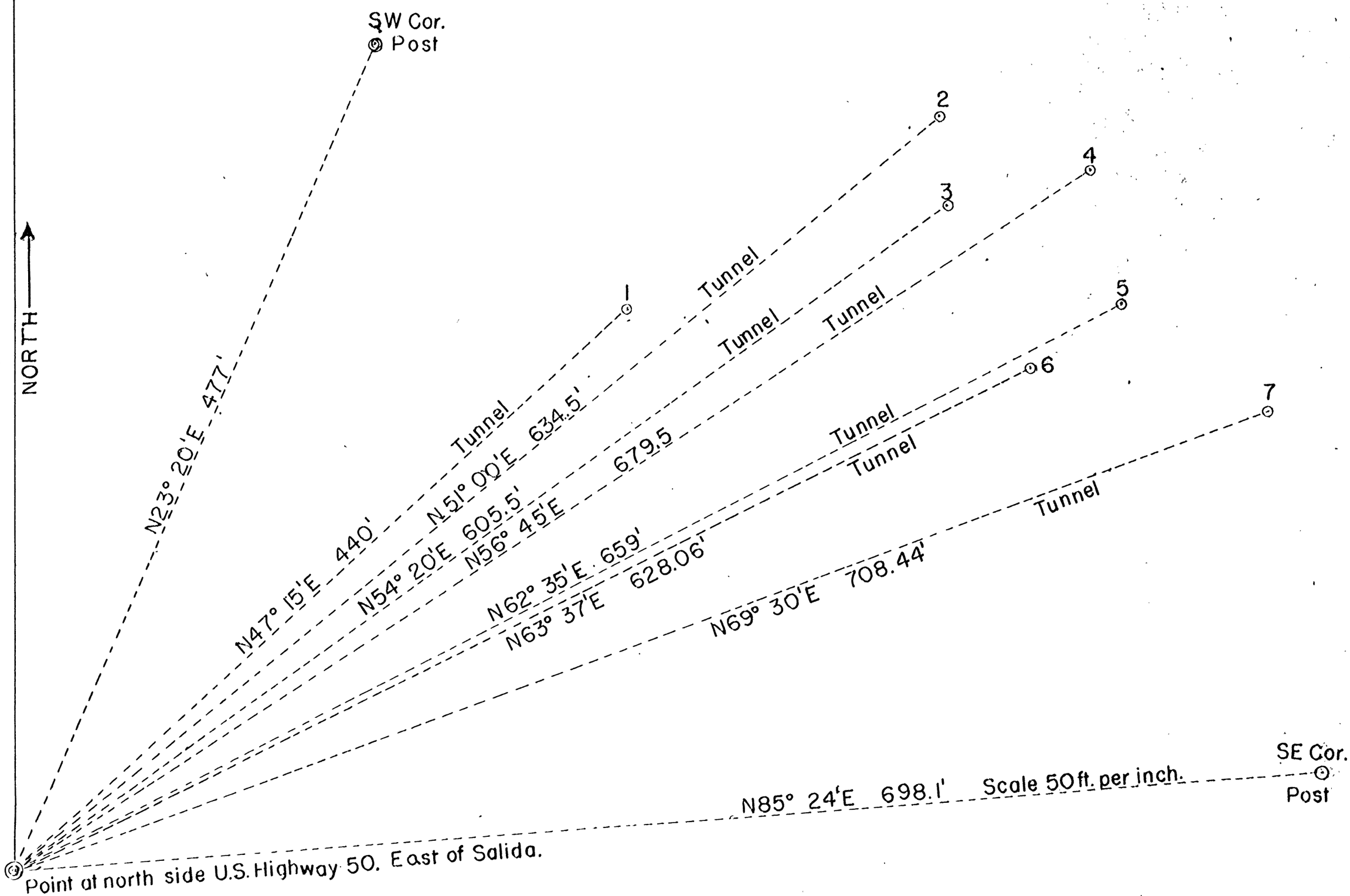
Sampling by U.S. Bureau of Mines: W. P. Huleatt, Dec. 1942; Traver and Hazen, Nov., 1948; Hazen, May, 1951.

Geology and ore estimation by O. D. Evans.

D.M.A. DOCKET 245

Figure 3

GRAND VIEW LODE.

AUGUST 7, 1950

J. M. Cuenin, County Surveyor.