SEP 13 1951

REGIONAL DIRECTOR'S
OFFICE
REGION IV
SEP 17 1951
BUREAU OF MINES
DENVER, COLORADO

Re: DMA-1650X

Mr. Anthony A. Abrutz
The East Slope Mining Company
Colorado Springs, Colorado

Dear Mr. Abrutz:

Your application (DMA-1650X) for a Government loan of $56,039 for an exploration project at the Betty Mine, Park County, Colorado, has been reviewed again by the Defense Minerals Administration after a report of an examination of your property was received from our field staff.

From this report, we conclude that the cobalt mineralization on your property is of very low grade (less than 0.02 per cent) and that the base metal deposits are small and erratic. There are no geologic indications that the exploration work which you propose would encounter cobalt mineralization of higher grade or that a significant tonnage of base metal ore would be developed. The Defense Minerals Administration does not consider that the chances of developing significant reserves of strategic minerals are great enough to warrant the expenditure of public funds which you request. I regret, therefore, that your application must be declined.

We wish to thank you for bringing this property to our attention.

J.H. 9/12

Very truly yours,

Tom Lyon

Tom Lyon, Director
Supply Division

ABCampbell:emp
G 9-12-51
Copies to: J. H. East, Jr. (2)
Chief, Lead-Zinc Br.
E. T. McKnight 4204 GSA
O. Bishop
Directors r. files 4214 GSA
Br. r. files 4214 GSA
Administrators r. files
DMA docket files

REGIONAL DIRECTOR'S OFFICE
REGION IV
SEP 17 1951
BUREAU OF MINES
DENVER, COLORADO

SEP 13 1951

Memorandum

Re: DLA-1650X
East Slope Mining Co.
Betty Mine
Park County, Colorado
Exploration loan $56,039
Cobalt, zinc, copper

To: Reports and Records Unit
Administrative Management Div.

From: Chief, Lead-Zinc Branch

Subject: Denial of exploration loan

The applicant has requested an exploration loan of $56,039 (Government participation, 90%) for work at the Betty Mine, Park County, Colorado. The applicant stated that the property contained cobalt and qualified for 90% Government participation.

The property was examined by the Field Team, Region IV, and a report was submitted. According to the report, the application can be denied immediately on the 90%-10% basis as no cobalt minerals were seen in the mine and assays of vein material showed less than 0.02% cobalt. The report states further that the field team would also recommend denial of a 50%-50% program, for the base metal ore deposits are small and erratic and there are no geologic indications that significant tonnages can be developed by the proposed exploration work to support a sustained and profitable operation.

The Lead-Zinc Branch concurs with the field team's recommentation that the loan be denied.

Returned herewith are:

1 copy "Review of Application"
3 copies Form MF-103 and attachments
3 " " MF-100 " "

The field team report is in the hands of Mr. Schroeder and will presumably be returned by him.

T. P. Billings, Chief
Lead-Zinc Branch

Approved:

Tom Lyon
Director, Supply Division

EXXXXXX
ABCampbell:emp
G 9-12-51

Copies to: J. H. East, Jr. Reg. IV
Chief, Lead-Zinc Br.
E. T. McKnight 4204 GSA
O. Bishop
Directors r. files 4214
Br. r. files 4214 GSA
Administrators r. files

DMA docket files

Mining Division
Region IV

August 31, 1951

Memorandum

To: DMA Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, Docket DMA-1695X, Hank Slope Mining Company, Baby Cobalt - Zinc - Copper Mine, Freedomer Mining District, Park County, Colorado.

The application of the subject docket was for an exploration loan of $36,000.00 on cobalt, zinc and copper, with government participation of 90 percent.

Examination and sampling by the Field Team has resulted in estimated reserves of 480 tons of zinc-copper ore averaging approximately 7.6 percent zinc and 1.90 percent copper. There is considerable development, but the ore deposits are developed are small and production to date has amounted to only 49 tons of hand sorted ore. Less than 0.02 percent cobalt was found in 7 samples.

The examining geologist and engineer recommend denial of the application, with which we concur.

W. W. King, for
F. T. Allman

WHK:oj

cc: DMA subject and chronological

August 31, 1952

Air Mail

Memorandum

To: Executive Secretary, Defense Minerals Administration

From: DMA Field Team, Region IV

Subject: Final Report, Project DMA-1F30X, Lost Slope Mining Company, Rocky Cobalt-Lead-Copper Mine, Pyrenees Mining District, Park County, Colorado

Enclosed herewith is original and two copies of the report as indicated above.

We concur with the conclusions and recommendations of the examining team.

J. E. Ent, Jr.

L. E. Kaufmann

Enclosures

oj

cc: DMA Subject and Chronological

6-308
(March 1947)

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

Mining Division
Date Rec'd AUG 6 1951
No. 12

BUREAU OF MINES
Denver, Colorado

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

Report to Mr. C. M. Harrer

Chemical Laboratory Report

Date received July 30, 1951

Date reported Aug. 2, 1951

Serial No.	DESCRIPTION	Lot No.	Au	Ag	Cu	Pb	Zn	Co
	DMA -1650X, The BettyMine, sec. 21, T. 15 S., R. 75 W., Freshwater Mining District, Park County, Colorado							
97597	Stope	Betty 1	<.005	0.90	0.30	0.1	0.05	<.02
98	226 Level	2	<.005	0.60	2.05	<.1	8.75	<.02
99	225 "	3	<.005	0.10	0.48	<.1	8.8	<.02
97400	Stope 200 Level	4	0.01	0.80	2.21	<.1	8.25	<.02
1	150' Level	5	<.005	0.50	1.17	<.1	4.7	<.02
2	100' "	6	<.005	0.10	0.25	<.1	0.05	<.02
3	Breast 100' Level	7	<.005	0.30	0.31	0.1	0.3	<.02

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

Signed H. E. Peterson

dd

Building 2-A, Denver Federal Center

S. R. Zimmerley, Chief
Salt Lake Experiment Station
Chief, Colorado Branch, Mining Division

July 20, 1951

Sample Shipment

Enclosed please find three copies of form 7353 covering a shipment of seven samples of ore from the Betty mine, DMA-1650X, Freshwater Mining District, Park County, Colorado. The original and memorandum copy of government bill of lading IN-93943 covering the shipment by Pacific Intermountain Express are also enclosed.

Inasmuch as these are DMA samples, it will be appreciated if you will expedite assay returns as much as possible.

W. M. Traver, Jr.

enclosures

cc PTAllsman
DMA-1650X (2)
DMA Chron.

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

224 New Customhouse
Denver, Colorado

June 28, 1951

Memorandum

To: A. H. Koschmann (with brochure)

P. T. Allsman

From: DMA Field Team, Region IV

Subject: DMA Docket 1650X, The Betty Lode Mine, Freshwater Mining District, Colorado
Applicant--The East Slope Mining Company, Colorado Springs, Colorado

We are enclosing the brochure on DMA 1650X and the "Review" made in the Washington office covering this application. Please make the necessary geologic field examination to determine if the project is worthy of an exploration loan. It should be specially noted that cobalt is claimed to be present.

If the geologic setting is favorable exploration costs should be investigated.

P. T. Allsman, Alternate

A. H. Koschmann

A. H. Koschmann

Attachments

DMA 1650X.

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

224 New Customhouse
Denver, Colorado

June 28, 1951

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If the geologic setting is favorable exploration costs should be investigated.

P. T. Allsman, Alternate

A. H. Koschmann

A. H. Koschmann

Attachments

REGIONAL DIRECTOR

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

224 NEW CUSTOMHOUSE
DENVER 2, COLORADO

August 31, 1951

Air Mail

Memorandum

To: Executive Secretary, Defense Minerals Administration

From: DMA Field Team, Region IV

Subject: Final Report, Docket DMA-1650X, East Slope Mining Company, Betty Cobalt-Zinc-Copper Mine, Freshwater Mining District, Park County, Colorado

Enclosed herewith is original and two copies of the report as indicated above.

We concur with the conclusions and recommendations of the examining team.

J. H. East, Jr.

A. N. Koschmann

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

224 NEW CUSTOMHOUSE
DENVER 2, COLORADO

August 31, 1951

Memorandum

To: DMA Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, Docket DMA-1650X, East Slope Mining Company, Betty Cobalt - Zinc - Copper Mine, Freshwater Mining District, Park County, Colorado.

The application of the subject docket was for an exploration loan of $56,039.00 on cobalt, zinc and copper, with government participation of 90 percent.

Examination and sampling by the Field Team has resulted in estimated reserves of 620 tons of zinc-copper ore assaying approximately 7.6 percent zinc and 1.50 percent copper. There is considerable development, but the ore deposits now developed are small and production to date has amounted to only 49 tons of hand sorted ore. Less than 0.02 percent cobalt was found in 7 samples.

The examining geologist and engineer recommend denial of the application, with which we concur.

W. H. King

W. H. King, for
P. T. Allsman

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

Region IV

Building 20
Denver Federal Center
August 30, 1951

Mining Division
Date Rec'd.
AUG 30 1951
BUREAU OF MINES
Denver, Colorado

Memorandum

To: Chief, Mining Division, Region IV

From: W. M. Traver, Jr.

Subject: DMA-1650X, Betty Mine, Park County, Colorado

Please find enclosed the original and seven copies of the "Summary, Conclusions, and Recommendations", by Harrer and Evans, and the same number of copies of Harrer's engineering report on the subject docket.

The applicant apparently included cobalt as a mineral to be produced in order to obtain the 90 - 10 percent participating loan. It is quite evident from the assays that the request can not qualify on that basis.

It was not considered necessary to determine if the applicant would consider a loan on the 50 - 50 percent participation as the property, according to the examining team, would be unlikely to contribute any substantial amount of copper or zinc to national defense if the exploration requested were performed. They recommend denial of the loan request for $56,309.00 and I concur.

We are returning also one copy of the loan application and accompanying data which were originally furnished to the Survey and loaned our engineer for writing the report.

W. M. Traver, Jr.
W. M. Traver, Jr.

enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Defense Minerals Administration
200 New Customhouse
Denver 2, Colorado

August 2, 1951

Memorandum

To: DMA Field Team, Region IV

From: A. H. Koschmann

Subject: DMA Docket 1650X, Betty Mine, Near Guffey, Park County, Colorado

Attached are 8 copies of the report by Mr. O. D. Evans covering the Betty Mine, DMA Docket 1650X. It is pointed out that the ore deposits in the Betty mine are small and erratic, and that the geologic setting is such that additional ore bodies that may be found will very probably also be small and erratic. Mr. Evans, therefore, recommends that the loan be denied, with which recommendation I concur.

The brochure is attached herewith.

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

Attachments (9)

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

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMA-1650X, East Slope Mining Company, Betty Mine

Freshwater Mining District, Park County, Colo.

C. M. Harrer, Mining Engineer
U. S. Bureau of Mines

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

August 27, 1951

EAST SLOPE MINING COMPANY
BETTY MINE
FRESHWATER MINING DISTRICT
PARK COUNTY, COLO.

Summary, Conclusions, and Recommendations

By C. M. Harrer
Mining Engineer
U. S. Bureau of Mines

and

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

EAST SLOPE MINING COMPANY
BETTY MINE
FRESHWATER MINING DISTRICT
PARK COUNTY, COLO.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By C. M. Harrer and O. D. Evans

Examination of the East Slope Mining Company's Betty mine, located in sec. 21, T. 15 S., R. 73 W., Freshwater Mining District, Park County, Colo., was completed on July 19, 1951, by members of the U. S. Bureau of Mines, and the U. S. Geological Survey.

The property consists of one unpatented mining claim developed through a vertical shaft on the 100, 160, 200, 225, and 300 foot levels. The last level is under water.

Total estimated reserves are about 620 tons of sphalerite-chalcopyrite ore assaying approximately 0.005 ounce gold and 0.5 ounce silver per ton, 1.5 percent copper and 7.6 percent zinc, which can be sorted to a higher shipping-grade at a considerable reduction in quantity.

Ore deposits presently developed are small and have produced only 49 tons of hand-sorted ore to date.

Additional ore bodies may be discovered by further exploration but are expected to be small and low grade.

Cobalt mineralization is very weak, less than 0.02 percent, and does not qualify the applicant for a Defense Minerals Administration exploration loan of $56,309.00 in which the U. S. Government is a 90 percent participant.

It is recommended that the loan application be denied.

Geology

BETTY MINE

NEAR GUFFEY, PARK COUNTY, COLORADO

DMA DOCKET 1650X

Geology and Ore Deposits

July 26, 1951

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

BETTY MINE
NEAR GUFFEY, PARK COUNTY, COLORADO

GEOLOGY

The country rock at the Betty mine is composed of a series of pre-Cambrian schists and crystalline rocks which have been intruded by a dike of Tertiary rhyolite. The pre-Cambrian rocks include the following: light green, fine to coarse grained actinolite schist; red stained, fine to coarse grained tremolite schist; biotite schist; massive quartz or quartzite with coarse white tremolite; massive quartz with hornblende crystals up to 1/2 inches in diameter. A medium to fine grained conglomerate made up of decomposed, rounded fragments of granite and schist was found on the 100 level. These formations pinch and swell both horizontally and vertically, but the general trend appears to be to the north and northwest, and the dip more or less vertical. See figures 2 and 3. Two bodies of actinolite schist are separated by from 25 to 60 feet of tremolite schist and the massive quartz rocks.

Ore minerals include chalcopyrite, galena, sphalerite and pyrite. Except weak copper mineralization in a small patch of quartzite on the 225 level, these minerals are found replacing only the actinolite schist. The ore solutions appear to have favored the actinolite schist close to its contact with tremolite schist and the quartz rocks. The two main deposits found are on the west end of the 160 level and the east end of the 200 level. Here the ore minerals occur as small discontinuous stringers, and as erratic, block-like replacements as much as 10 feet

wide. The boundaries of these blocks are sharp and irregular. The maximum horizontal dimension of these two zones of mineralization is 20 feet. The stope on the 200 level is 50 feet high, but ore probably was not continuous for that distance. A few stringers of chalcopyrite as much as 1 inch wide were found in the northeast face of the 225 level. No cobalt minerals were found in the mine.

CONCLUSIONS AND RECOMMENDATIONS

The ore deposits in the Betty mine are small and erratic. Prospecting in the actinolite schist near its boundaries with tremolite schist and quartz rocks may discover additional ore bodies, but they are likely to be of the same size as those already found, and which have produced only 48 tons of ore to date. No cobalt minerals were found in the Betty mine.

It is recommended that the loan be denied.

EAST SLOPE MINING COMPANY
BETTY MINE
FRESHWATER MINING DISTRICT
[redacted] COUNTY, COLO.

Engineering Report

By C. M. Harrer
Mining Engineer
U. S. Bureau of Mines

Engineering

EAST SLOPE MINING COMPANY
BETTY MINE
FRESHWATER MINING DISTRICT
PARK COUNTY, COLO.

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Present status	5
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Conclusions	7
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ILLUSTRATIONS

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1.	Location map, Betty mine, Park County, Colo.	1
2.	Geologic plan of Betty mine near Guffey, Park County Colo.	3
3.	Geologic section N68E (Looking NW) Betty mine near Guffey, Park County, Colo.	3

EAST SLOPE MINING COMPANY
BETTY MINE
FRESHWATER MINING DISTRICT
PARK COUNTY, COLO.

ENGINEERING REPORT

By

C. M. Harrer

INTRODUCTION

The examination was made at the request of the East Slope Mining Company, of Colorado Springs, Colo., in connection with a proposed exploration loan of $56,039.00 under the Defense Production Act of 1950, docket 1650X, and was completed on July 19, 1951, by C. M. Harrer and D. L. Roberts, mining engineers of the Colorado Branch, Region IV, Bureau of Mines, and O. D. Evans, geologist, U. S. Geological Survey, accompanied by Messrs. Paul Sisk, mine manager, and E. M. Douglas, engineer for Bazely Schumaker Engineering Company, consultants.

ACKNOWLEDGMENTS

Mr. Paul Sisk, manager of operations at the Betty mine and a partner in the enterprise, extended every courtesy and convenience to facilitate the examination.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The Betty lode claim, is in sec. 21, T. 15 S., R. 73 W., 6th P. M., Freshwater Mining District, Park County, Colo. (fig. 1), two and one-half miles southwest of Guffey, Colo., on good dirt roads, and at an altitude of about 9,500 feet. It is 5.5 miles from Guffey by road. Parkdale, the nearest loading station on the Denver and Rio Grande Western Railroad, is 22 miles south.

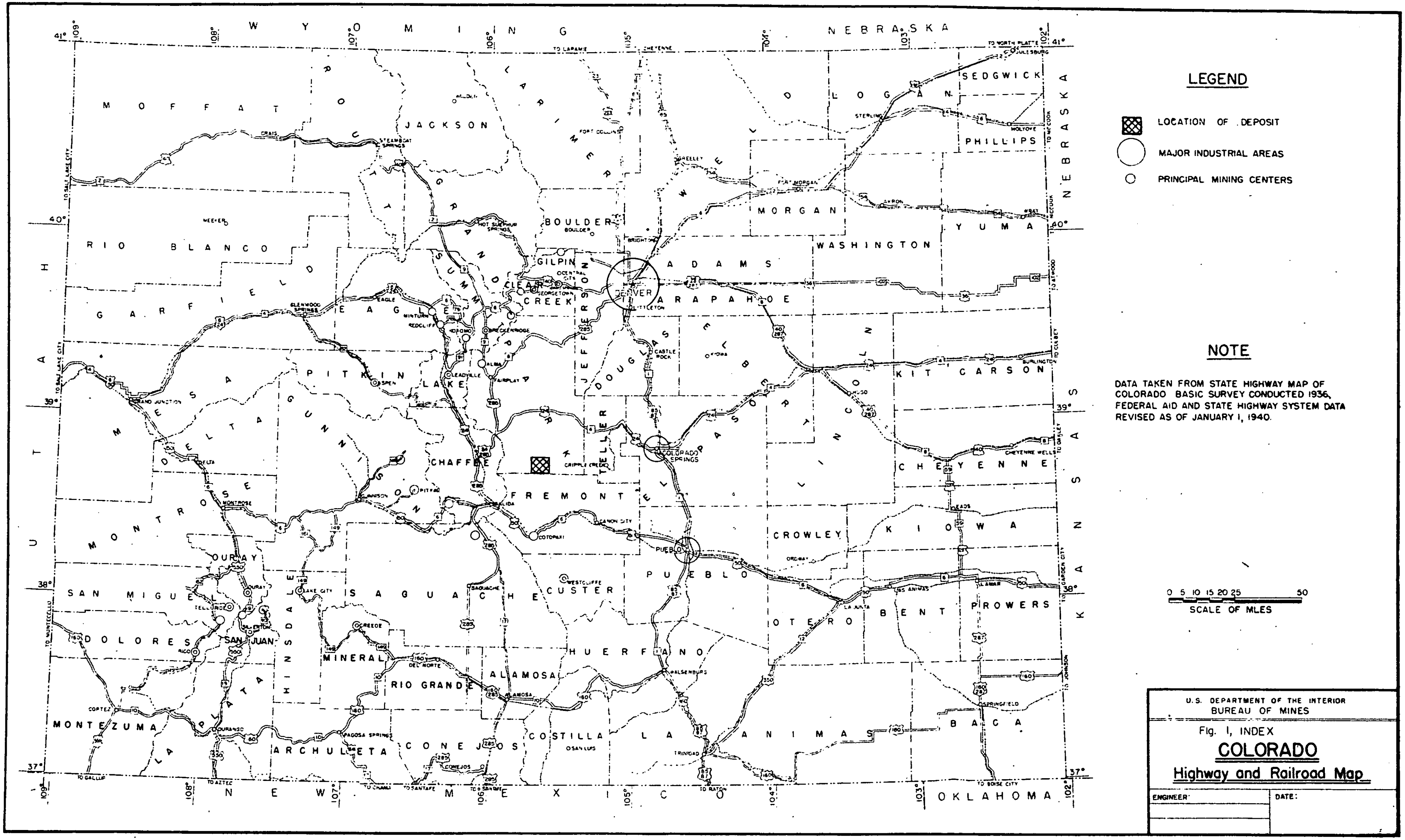


Fig. 1 - LOCATION MAP, BETTY MINE, PARK COUNTY, COLORADO. (DMA-1650X)

The mine is readily accessible and year 'round operations can be maintained. The terrain is moderately rough and slopes well wooded. Water is available from mine workings and nearby Thirty-One Mile Creek. Electric power is available within 10 miles of the property.

HISTORY AND PRODUCTION

During 1901-37 the property was operated as the Lone Chimney Mining Company. During 1938-43 it was renamed the Betty lode. During 1944-50 the property was known as the Betty Mining Company. In 1950 it was acquired by the present operators, East Slope Mining Company, of Colorado Springs, Colo., and is known as the Betty Mine.

Little activity other than prospecting and assessment work is recorded, with the exception of the year 1945 when 38 tons of sorted copper ore assaying 0.03 ounce gold and 2.0 ounces silver per ton, and 4.9 percent copper were shipped. In addition, 11 tons of zinc ore assaying 0.55 ounce silver per ton, 20 percent zinc, 1.4 percent copper, and 1.0 percent lead were shipped to the Resurrection Mining Company mill at Leadville, Colo., and yielded 3 dry tons of concentrates assaying 1.0 ounce silver per ton, 51.4 percent zinc, 2.8 percent copper, and 2.8 percent lead.

OWNERSHIP AND EXTENT

The property consists of a single unpatented mining claim known as the Betty lode, four-fifths interest owned by B. G. Dell, of Guffey, Colo., and one-fifth by H. J. Newberry, of Fairplay, Colo.

On December 9, 1950, the East Slope Mining Company, of Colorado Springs, Colo., a partnership between Messrs. A. A. Abrutz, of 514 Catalina Avenue, Youngstown, Ohio, and Paul Sisk, of Guffey and Colorado Springs, Colo., secured a 5-year operating lease with a 5-year renewal

clause. A royalty of 10 percent of the value of all ores removed and processed is stipulated.

The lease assignment is recorded on page 282, book 144, of the records of Park County, Colo.

DESCRIPTION OF THE DEPOSITS

The ore is a complex aggregate of chalcopyrite, sphalerite, galena, and pyrite, with minor amounts of gold and silver and a trace of cobalt.

It occurs as discontinuous stringers and small, irregular replacement bodies, two of which have been mined on the 160- and 200-foot levels (fig. 3). The country rock is mainly actinolite schist.

The small production of 49 tons to date was mined from open and stull stopes which are well adapted to the small ore bodies encountered.

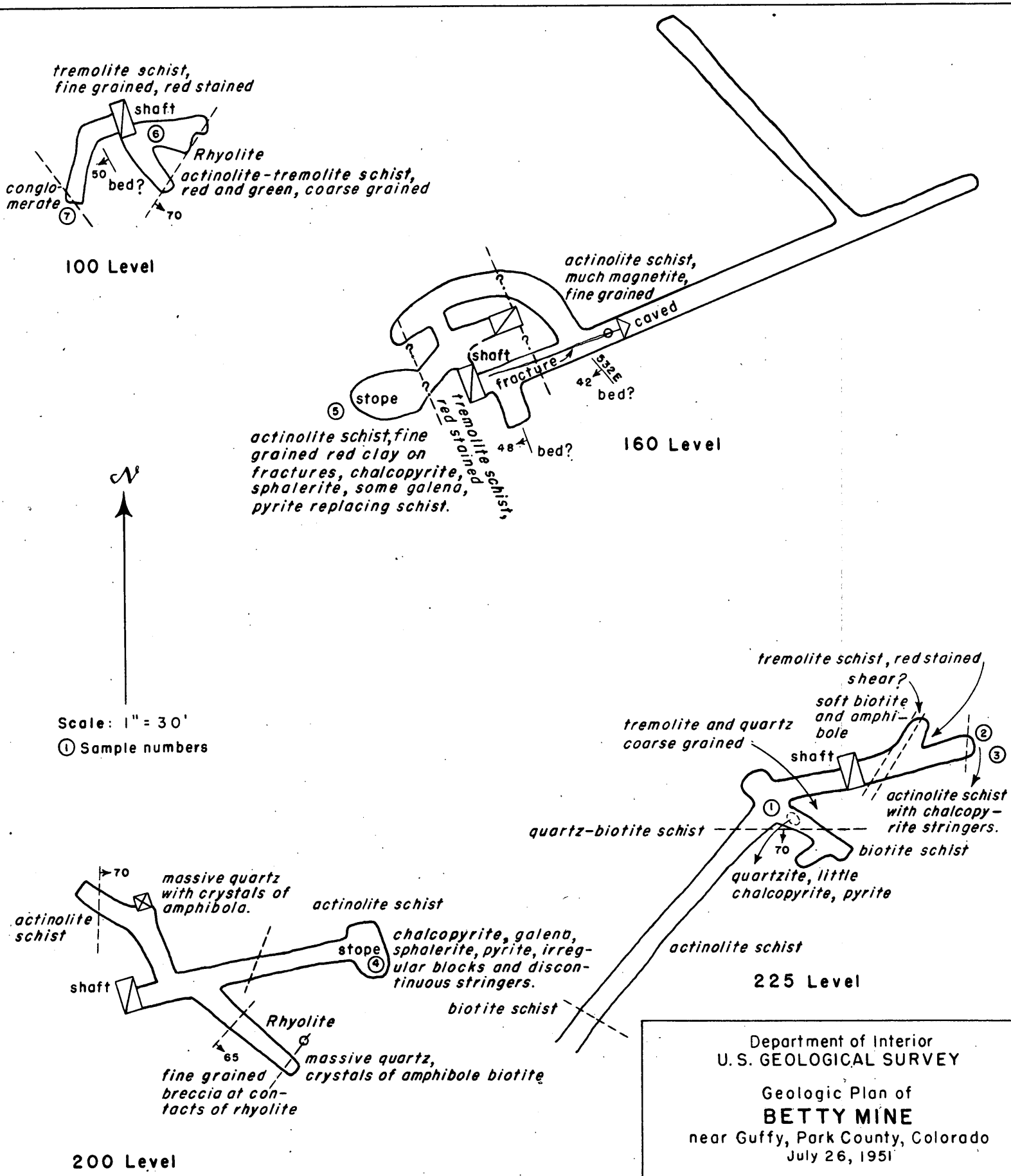
SAMPLING

The apparent complexity of the ore and the questionable existence of cobalt mineralization which could not be verified by visual examination required detailed analyses of seven character samples. These samples were taken of mineralized exposures on the 100, 160, 200, and 225-foot levels. Their locations are shown on the plan and section, figures 2 and 3, and complete sample data are reported in the following table:

TABLE 1. - Betty Mine, Sample Data

Sample No.	Width Feet	Ounces/ton Au.	Ounces/ton Ag.	Percent Cu.	Percent Pb.	Percent Zn.	Percent Co.	Description
(1)	-	< .005	0.90	0.30	0.1	0.05	< .02	Small kidney of doubtful ore
(2)	2.0	< .005	0.60	2.05	< .1	8.75	< .02	North side of drift
(3)	3.0	< .005	0.10	0.48	< .1	8.80	< .02	South side of above drift
(4)	5.8	0.01	0.80	2.21	< .1	8.25	< .02	East side of stope
(5)	2.0	< .005	0.50	1.17	< .1	4.70	< .02	West side of high stope
(6)	-	< .005	0.10	0.25	< .1	0.05	< .02	Grab sample of muck pile
(7)	2.0	< .005	0.30	0.31	0.1	0.30	< .02	Cobalt (?) heading

< Less than



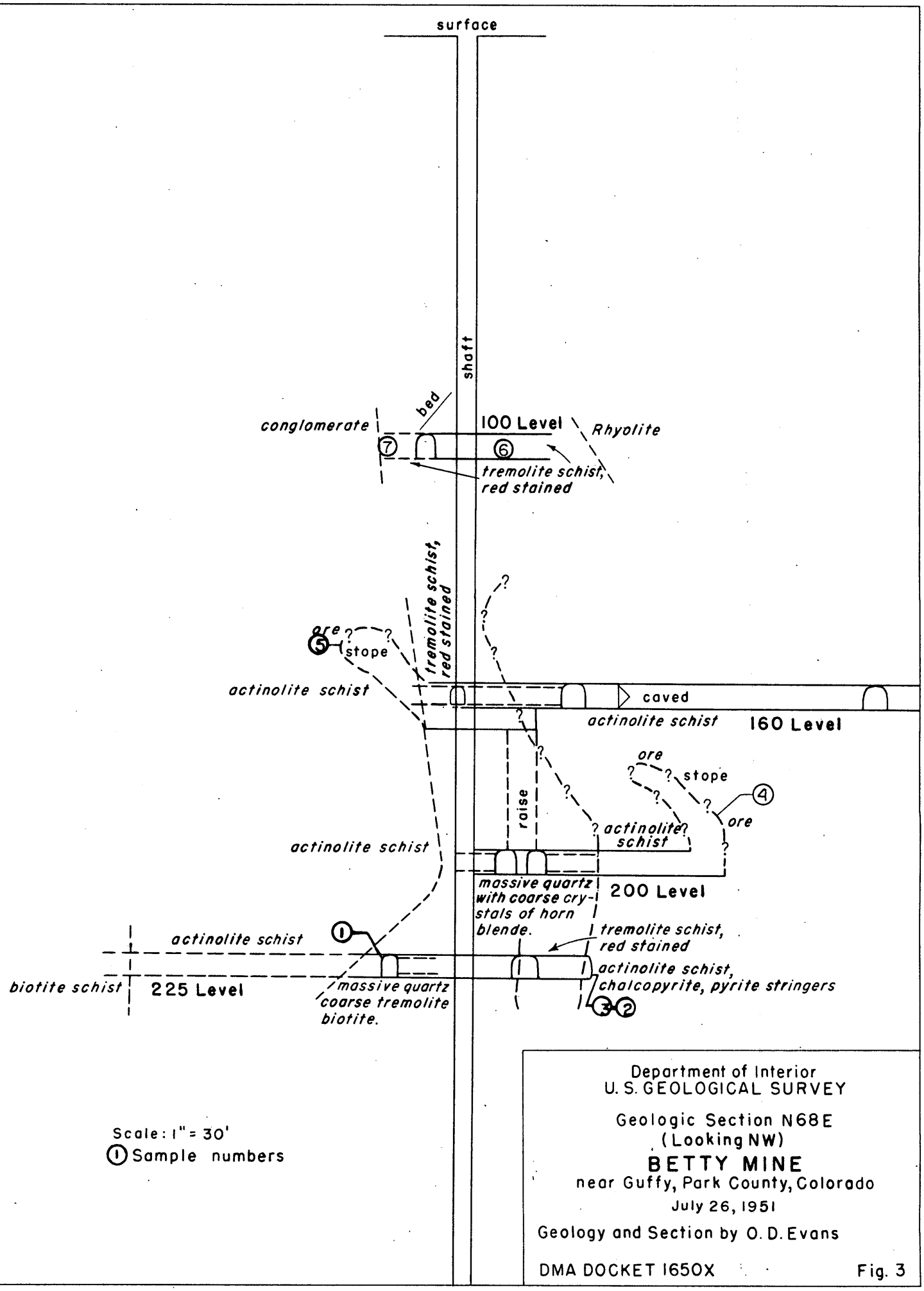
Department of Interior
U. S. GEOLOGICAL SURVEY

Geologic Plan of
BETTY MINE
near Guffy, Park County, Colorado
July 26, 1951

Geology by O.D. Evans; samples by C. M. Harrer and D. L. Roberts, U. S. Bureau of Mines
Workings from East Slope Mining Co. Maps

DMA DOCKET 1650X

Fig. 2


surface
shaft
bed
conglomerate
100 Level
Rhyolite
7
6
tremolite schist, red stained
tremolite schist, red stained
ore
5
stope
actinolite schist
caved
actinolite schist
160 Level
ore
stope
4
ore
raise
actinolite schist
actinolite schist
massive quartz with coarse crystals of horn blende.
200 Level
actinolite schist
1
tremolite schist, red stained
biotite schist
225 Level
massive quartz coarse tremolite biotite.
actinolite schist, chalcopyrite, pyrite stringers
3
2
Scale: 1" = 30'
1 Sample numbers
Department of Interior
U. S. GEOLOGICAL SURVEY
Geologic Section N68E
(Looking NW)
BETTY MINE
near Guffy, Park County, Colorado
July 26, 1951
Geology and Section by O. D. Evans
DMA DOCKET 1650X
Fig. 3

Sample (1) was taken as representative of a small, hard kidney of doubtful ore on the 225-foot level. Inspection and assays indicate very weak and complex mineralization.

Samples (2) and (3) are a composite of the east breast of the 225-foot level and show possibilities of developing sphalerite-chalcopyrite ore of milling grade by further drifting.

Samples (4) and (5) are the breasts of stopes which may connect between the 200- and 160-foot levels and indicate extensions for short distrances beyond present working faces. The ore is predominantly sphalerite and chalcopyrite. This zone is the source of the only shipments of ore noted in the section of this report on "History and Production".

Samples (6) and (7) indicate complex but very weak mineralization on the 100-foot level and offer no encouragement to further exploration.

The cobalt content of all exposed development headings and stopes is little more than a trace.

MINABLE ORE RESERVES

Measurable reserves consist of 20 tons of ore broken by previous operators in a stope above the 200-foot level assaying about 0.01 ounce gold and 0.8 ounce silver per ton, 2.2 percent copper, less than 0.1 percent lead, 8.3 percent zinc, and less than 0.02 percent cobalt.

Indicated reserves are estimated at about 200 tons of ore, assaying 0.005 ounce gold and 0.5 ounce silver per ton, 1.5 percent copper, less than 0.1 percent lead, 7.6 percent zinc, and less than 0.02 percent cobalt.

Inferred reserves consist of approximately 500 tons of ore assaying the same as the indicated ore.

Total estimated reserves are about 720 tons of sphalerite-chalcopyrite ore assaying approximately 0.005 ounce gold and 0.5 ounce silver per ton, 1.5 percent copper, less than 0.1 percent lead, 7.6 percent zinc, and less than 0.02 percent cobalt, which can be sorted to a higher shipping grade at a considerable reduction in quantity.

PRESENT STATUS

The Betty lode is developed through a 4 x 8 foot shaft about 310 feet deep with levels at the 100, 160, 200, 225 and 300-foot horizons (figs. 2 and 3). The shaft has been re-cribbed recently and underground workings are accessible from a hoisting bucket. Operations are presently concentrated on rehabilitating the surface plant, shaft, and underground workings preparatory to mining.

The 100-foot level is developed by 53 feet of drifting.

The 160-foot level is developed by 260 feet of drifting and two small stopes, one overhead and the other underhand.

The 200-foot level is developed through 120 feet of drifting and a small overhead stull stope. A 6 x 8 foot raise connects the 200-foot level with the 160-foot level in the underhand stope.

The 225-foot level is developed through 166 feet of drifting and one small stope.

Water level in the shaft is at 240 feet below the collar and the 300-foot level is inaccessible for examination.

The property is equipped with a 300-cubic-foot Gardner-Denver, diesel-driven air compressor, a second motion mine hoist, mine cars, rails, and a variety of tools sufficient for general mining operations. The compressor and mine hoist are well housed. There are no living accomodations for employees.

Ample laber to carry on mining operations appears available locally at $1.25 an hour for surface work and $1.50 per hour for underground work.

PROPOSED EXPLORATION PLAN AND COSTS

The East Slope Mining Company proposes to unwater the 4 x 8 foot shaft to the 300-foot level and deepen it an additional 250 feet. In addition, 1,120 feet of drifting are considered necessary to explore the 100, 160, 200, 225, and 300 foot levels and drive two new levels at 400 and 500 feet below the collar.

Estimated Costs of Proposed Exploration:

Explore the 100, 160, 200, and 225 foot levels: 305 feet of drifting at $32.00 per foot	$9,760.00
Explore and develop the 300, 400, and 500 foot levels: 815 feet of drifting at $32.00 per foot	26,080.00
Deepen the shaft 250 feet at $40.00 per foot	10,000.00
Construct a combination warehouse, office, and change house for employees	2,000.00
Pumping plant for mine drainage	1,500.00
Repair existing shaft	1,000.00
Repairs to headframe	250.00
Pneumatic equipment	600.00
Subtotal	$51,190.00
Contingencies (10 percent)	5,119.00
Total	*$56,309.00

The above costs appear reasonable for the work proposed.

Approximately 3 months will be required to complete shaft sinking and an additional 4 1/2 months to complete drift exploration, a total of 7 1/2 months.

* Stated incorrectly in application form MP-103 as $56,039.00.

CONCLUSIONS

Ore deposits presently developed are small and erratic in distribution and have produced only 49 tons of hand-sorted ores to date.

Additional ore bodies may be discovered by further exploration but they will probably be correspondingly small and low grade.

This property will always be a small and intermittent producer of hand-sorted copper-zinc ores.

Cobalt mineralization is very weak and does not qualify the application for an exploration loan in which the U. S. Government participates on a 90 percent basis.

It is doubtful whether sufficient reserves of copper-zinc ores can be developed to support sustained and profitable operation.

RECOMMENDATIONS

It is recommended that the loan application be denied.