UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

July 16, 1953.

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 2939 (Copper-Lead-Zinc-Uranium), Gold Hill Mines Company, Clear Creek County, Colorado.

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

The applicant requested $15,000.00 for diamond drilling to explore the granite-alaskite contract.

No evidence was presented by the applicant or observed by the examiners to indicate any probability of making a significant discovery of copper, lead, zinc or uranium on this property.

We concur in the recommendation of the field examiners that the application be denied.

W. H. King
W. H. King

Enclosures

Region IV

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
June 26, 1953

Memorandum

To: Executive Officer, Field Team, Region IV

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

Subject: DMEA 2939 (Copper-lead-zinc-uranium), Gold Hill Mines Company (Independence tunnel), Clear Creek County, Colorado

Please find enclosed the original and ten copies of the "Summary, Conclusions, and Recommendations", by C. M. Harrer and D. R. Maclaren, and of Harrer's engineering report on the subject docket.

Harrer concludes that, although results of sampling the porphyry and breccia exposed in 1,100 feet of the Independence tunnel indicate a possible widespread, but very low-grade, lead-zinc mineralization, the possibility of finding an ore body of strategic importance is very remote. His recommendation that the loan request be denied has my approval.

The brochure furnished by the Region IV Field Team with instructions to make a field investigation is also enclosed.

Scott W. Hagen Jr.
Scott W. Hagen, Jr., For
W. M. Trever, Chief

WMT/eb

enclosures

cc: 10
DMEA 2939
CMRCH.

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

[illegible] New Customhouse
Denver 2, Colorado

June 10, 1953

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 2939, Gold Hill Mines Company, Clear Creek County, Colorado.

Attached are 10 copies of the geologic report by D. R. MacLaren covering DMEA Docket 2939, Gold Hill Mines Company, Clear Creek County, Colorado.

The applicant proposes to explore for lead, zinc, copper, and uranium by diamond drilling 7 holes for a total of 2800 feet at an estimated cost of $15,000.

MacLaren points out that no evidence was presented by the applicant or observed by the examiners to indicate that there is any reasonable chance of making a significant discovery of copper, lead, zinc, or uranium ore on subject property. He recommends, therefore, that the loan be denied.

I concur in this recommendation.

The brochure is enclosed.

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

Enclosures (10)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 2939, Gold Hill Mines Company

Independence Tunnel

Clear Creek County, Colorado

Copper-lead-zinc-uranium

C. M. Harrer, Mining Engineer
Bureau of Mines

D. R. MacLaren, Geologist
Geological Survey

June 25, 1953

DMEA 2939

GOLD HILL MINES COMPANY
INDEPENDENCE TUNNEL
CLEAR CREEK COUNTY, COLORADO

Summary, Conclusions, and Recommendations

By C. M. Harper
Mining Engineer
Bureau of Mines

and

D. R. Maclaren
Geologist
Geological Survey

DMEA 2939

GOLD HILL MINES COMPANY
INDEPENDENCE TUNNEL
CLEAR CREEK COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By C. M. Harrer and D. R. MacLaren

The Gold Hill Mines Company, a Colorado corporation, has applied for a Defense Minerals Exploration Administration loan of $15,000.00 to explore its property for copper, lead, zinc, and possible uranium by diamond drilling.

The property was investigated by a Region IV examining team April 16, 1953.

Gold Hill Mines Company's Independence tunnel group of mining claims is in secs. 20, 21, 28, and 29, T. 35 N., R. 74 W., sixth principal meridian, upper Union Mining District, Clear Creek County, Colo., near Empire, at altitudes ranging between 8,000 and 9,000 feet. Terrain is steep and rugged.

There is no evidence that the Silver Mountain vein system will extend onto the subject property, 3/4 mile to the southwest, as a productive ore zone, since this zone appears to be related to the intrusion of a stock in its vicinity.

The effects of intrusives on the Gold Hill Mines Company's property are sufficiently exposed so that the possibility of finding an ore body of strategic importance appears remote.

Results of sampling the porphyry and breccia exposed in 1,100 feet of the Independence tunnel indicate a possible widespread, but very low-grade, lead-zinc mineralization, which may or may not be limited to the contact. The average assay of twenty-four 5-foot chip samples and one check sample by Defense Minerals Exploration Administration representatives was 0.03 ounce gold and 0.9 ounce silver per ton, 0.65 percent lead and 1.9 percent zinc.

Reconnaissance with a scintillometer showed no evidence of radioactivity or uranium occurrence.

It is recommended that Gold Hill Mines Company's request for a Defense Minerals Exploration Administration loan of $15,000.00 be denied.

GOLD HILL MINES COMPANY

CLEAR CREEK COUNTY, COLORADO

DMEA DOCKET 2959

Geologic Report

By D. R. MacLaren
U. S. Geological Survey

GOLD HILL MINES COMPANY
CLEAR CREEK COUNTY, COLORADO

INTRODUCTION

Gold Hill Mines Company of Denver, Colorado, has applied to the Defense Minerals Exploration Administration for assistance to explore for lead, zinc, copper, and uranium on the Gold Hill claims about half a mile west of Empire, Clear Creek County, Colorado. The applicant proposes to diamond drill 4 holes from the surface and 3 holes from underground locations, the 7 holes to total 2,800 feet, at an estimated cost of $15,000 (Government's share 50% or $7,500).

The property was examined on April 16, 1953, in the company of C. M. Harrer of the U. S. Bureau of Mines; W. W. Moore, President of the Gold Hill Mines Company; and W. C. Prosser, Consultant for the applicant company.

It is concluded that the chance of making a significant discovery of lead, zinc, copper, or uranium ore is very poor, and it is recommended that this application be denied.

GEOLOGY

The geology of the Empire mining district is described in U. S. Geological Survey Professional Paper 63 (1908) and Professional Paper 223 (1950). The Gold Hill claims are in an area of Silver Plume granite of pre-Cambrian age that has been intruded by stocks of rhyolite and alaskite in Tertiary (?) times. About 1800 feet from the portal, the Independence tunnel crosses the granite-alaskite contact and continues 1,400 feet in the alaskite. Throughout the entire length of the tunnel,

only 1 vein showed more than small knife-like stringers of sulphides. This vein, which strikes N. 59° E., and dips 60°-75° N., was followed for about 50 feet by drift B (fig. 2). For the most part it is a gouge-filled fissure with a few thin seams of pyrite, sphalerite, and galena. Three small lenses of sphalerite and galena have been mined. The largest one is only about 20 feet long with a vertical extent of not more than 15 feet. A sample taken from this "stope" by the examiners assayed 2.9% lead and 7.6% zinc, over a width of 0.3 feet. Drift A followed a thin gouge filled fissure with occasional very small knife-like stringers of sphalerite and galena. Drift C was driven along, or close to, the granite-alaskite contact. A sample across the contact, taken by the examiners, assayed 1.3% lead and 0.6% zinc. Twenty-two samples taken by the applicant at about 50 foot intervals along the last 1,100 feet of the tunnel averaged 0.54% lead and 1.92% zinc. Due to bad air in this part of the tunnel, the examiners were unable to take any check samples. A radiometric survey with a scintillometer was made throughout the workings and over parts of the surface, but no abnormal radioactivity was registered.

CONCLUSIONS AND RECOMMENDATIONS

No evidence was presented by the applicant or observed by the examiners that indicates that there is any chance of making a significant discovery of copper, lead, zinc, or uranium ores on this property. Therefore, it is recommended that this application be denied.

REFERENCES

Spurr, J. E.; Garrey, G. H.; and Ball, S. H.; Economic geology of the Georgetown quadrangle (together with the Empire district), Colorado: U. S. Geol. Survey Prof. Paper 63, 1908.

Lovering, T. S., and Goddard, E. N., Geology and ore deposits of the Front Range, Colorado: U. S. Geol. Survey Prof. Paper 223, 1950.

DMEA 2939

GOLD HILL MINES COMPANY
INDEPENDENCE TUNNEL
CLEAR CREEK COUNTY, COLORADO

Engineering Report

By G. M. Meyer
Mining Engineer
Bureau of Mines

DMEA 2939

GOLD HILL MINES COMPANY
INDEPENDENCE TUNNEL
CLEAR CREEK COUNTY, COLORADO

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DMEA 2939

GOLD HILL MINES COMPANY
INDEPENDENCE TUNNEL
CLEAR CREEK COUNTY, COLORADO

ENGINEERING REPORT

By

C. M. Harrer

INTRODUCTION

The Gold Hill Mines Company, a Colorado corporation, has applied for a Defense Minerals Exploration Administration loan of $15,000.00 to explore its property for copper, lead, zinc, and possible uranium by diamond drilling.

The property was investigated by a Region IV examining team for the Defense Minerals Exploration Administration on April 16, 1953.

ACKNOWLEDGMENTS

W. W. Moore, president of Gold Hill Mines Company, and W. C. Prosser, consulting Mining Engineer, accompanied the examining team over the property.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The Gold Hill Mines Company's Independence tunnel group of mining claims is on Independence Mountain, in secs. 20, 21, 28, and 29, T. 35 N., R. 74 W., sixth principal meridian (fig. 1), upper Union Mining District, Clear Creek County, Colo., at altitudes ranging between 8,000 and 9,000 feet. The portal of the Independence tunnel,

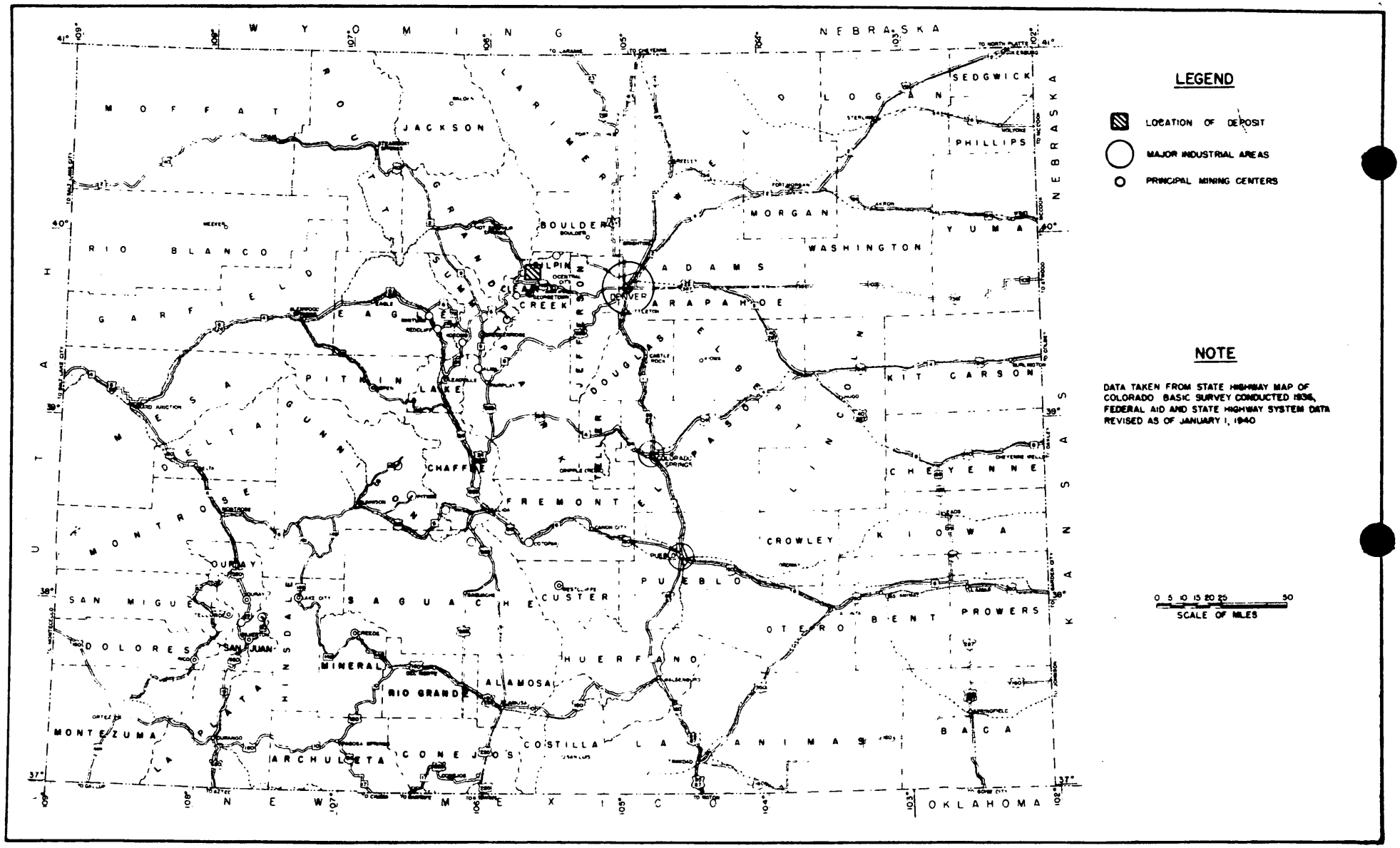

FIGURE 1. - LOCATION MAP, GOLD HILL MINES COMPANY, INDEPENDENCE TUNNEL, CLEAR CREEK COUNTY, COLO. (DMEA 2939).

at an altitude of 8,620 feet, is directly north of U. S. Highway 40, and about 1/2 mile west of Empire, Colo. The terrain is steep and rugged. Operations from the tunnel level are not hampered by the severe cold and heavy snowfall. Exploration above the tunnel level would be a seasonal undertaking due to inaccessibility in winter months.

HISTORY AND PRODUCTION

The district first received attention with the discovery of the Silver Mountain lode in 1862 and later development of the Crown Prince-Atlantic group of veins in 1934. These properties are about 3/4 mile northeast of the Independence tunnel group of claims.

Little is known of the early history of this group of mining claims other than that Gold Hill Mines Company started rehabilitating the caved Independence tunnel during 1949 and started developing vein structures with drifts B and C (fig. 2). In addition, nine short holes were diamond drilled from within the Independence tunnel.

About 70 tons of vein material were excavated from the underhand stope in drift B and treated in local mills. There is no official record of this production or its metal content.

A sample (H-654) across 0.3 feet of vein at this location assayed 0.03 ounce gold and 2.8 ounces silver per ton, 2.9 percent lead, 7.6 percent zinc, and 0.6 percent copper. There was no visible lead, zinc, or copper in the remaining 2 feet of vein.

OWNERSHIP AND EXTENT

Gold Hill Mines Company holds ten standard, unpatented mining locations (fig. 2), entered in the records of Clear Creek County as follows:

Claim	Recorded Book	Recorded Page	Claim	Recorded Book	Recorded Page
Gold Hill	245	281	Gold Hill No. 5	245	283
Gold Hill No. 1	245	281	Gold Hill No. 6	245	284
Gold Hill No. 2	245	282	Gold Hill No. 7	245	284
Gold Hill No. 3	245	282	Independence	245	289
Gold Hill No. 4	245	283	Colorado	245	289

DESCRIPTION OF THE DEPOSITS

About 1-1/4 miles north of Empire a zone of extensive fracturing and alteration (fig. 2A, as part of fig. 2) is known as the Silver Mountain ore zone.[1/ 2/] Several irregular gold-copper deposits, here, were worked extensively. Most of the veins are simple to complex fissure fillings. The chief minerals are pyrite, gold, chalcopyrite, and quartz, with very minor amounts of sphalerite and galena. Veins trend northeasterly with dips steeply to the southeast. In general, the individual veins are not persistent although they may be wide and heavily mineralized shear zones. Few have been traced for more than 1,000 feet, and most have not been explored to depths greater than 500 feet.

1/ Spurr, J. E., Garrey, G. H., and Ball, S. H., Economic Geology of the Georgetown Quadrangle, Colorado, U. S. Geol. Survey Professional Paper 63, 1908.

2/ Lovering, T. S., and Goddard, E. N., Geology and Ore Deposits of the Front Range, Colorado., U. S. Geol. Survey Professional Paper 223, 1951.

The compact group of claims owned by Gold Hill Mines Company is about 3/4 mile southeast of the Silver Mountain ore zone (fig. 2A, as part of fig. 2) and part of the subject exploration program is to prospect the hoped-for extension of this zone to the southwest onto the applicant's ground.

Shallow discovery shafts on the respective claims disclosed only pyrite mineralization in quartz veins. The Davis tunnel, now inaccessible, is said to show only weak sphalerite-pyrite mineralization.

The property of Gold Hill Mines Company is explored in depth with the 3,285-foot Independence tunnel driven N. 28° W. (fig. 2). A small pyritic quartz vein encountered in drift A was explored for 150 feet with no evidence of other mineral content.

Drift B (fig. 2) developed a strong, quartz-filled fissure east and west of the tunnel for 510 feet of strike length. The vein was further developed with five shallow winzes 10 to 16 feet deep and two small overhand stopes. The walls and bottom were explored with six diamond drill holes 20 to 60 feet deep, in the vicinity of a shallow winze and underhand stope on the best showing of galena-sphalerite-chalcopyrite-pyrite, as a very small lens, about 320 feet northeast of the Independence tunnel. A character sample (H-654) was taken across the best showing of ore, which was only 0.3 foot wide, in a vein about 3 feet thick. It assayed 0.03 ounce gold and 2.8 ounces silver per ton, 2.9 percent lead, 7.6 percent zinc, and 0.6 percent copper.

In the Independence tunnel the contact between Boulder Creek granite and an alaskite porphyry stock was cut in several places, as shown on figure 2. It was further explored by three short diamond drill holes from drift C.

To determine whether the alaskite porphyry stock carried any minerals of strategic importance, Gold Hill Mines Company ship sampled the porphyry, as exposed in the southwest wall of the tunnel, for 1,100 feet, starting at the contact 40 feet from the end of the tunnel. The results of sampling by the applicant and a check sample (H-655) are shown on figure 2. The average assay value of all twenty-five samples is 0.03 ounce gold and 0.9 ounce silver per ton, 0.65 percent lead, and 1.9 percent zinc. The results of sampling indicate a possibility of widespread, but very low-grade, lead-zinc mineralization of the porphyry, which may or may not be limited to the contact.

Scintillometer reconnaissance of the property showed no evidence of uranium occurrence.

ORE RESERVES

No ore reserves can be established for this property on the basis of present information.

PRESENT STATUS

Exploration and Development

The subject group of claims is explored to within 130 feet of its northwest sideline by the Independence crosscut tunnel, which extends N. 28° W. for 3,285 feet (fig. 2). In addition, exposures at A, B, and C have been developed by a total of 1,386 feet of drifts. The vein at location B has been further explored with five shallow winzes to water level, 10 to 16 feet below the tunnel. Stoping was limited to two very small and narrow excavations. In addition, nine short drill holes, 30 to 130 feet, were drilled at locations B and C, totaling 586 feet.

The vein in drift B was also developed by the Davis tunnel at a higher elevation for a total of about 900 feet. The latter workings are presently inaccessible.

Surface discovery shafts are shallow and caved.

Mining and Milling Equipment

The Gold Hill Mines Company owns a gasoline-engine-powered air compressor, receivers, and pipe sufficient to furnish compressed air for underground diamond drilling and ventilation. All equipment is well housed and ready to operate.

There are no milling facilities on the property; however, several custom mills, some in operation and others closed down, are located in the general area.

PROJECT PROPOSALS, WITH COSTS

The Gold Hill Mines Company has applied for a Defense Minerals Exploration Administration loan of $15,000.00 to prospect its property for a possible mineralized extension of the Silver Mountain ore zone located about 3/4 mile to the northeast and to explore an alaskite porphyry stock which exhibits low-grade lead-zinc mineralization where exposed in the Independence tunnel.

The proposed work is shown on figure 2 and would be accomplished as follows:

> One 600-foot hole would be diamond drilled from a point near the end of the Independence tunnel to prospect part of the alaskite porphyry stock exposed in the tunnel and the remaining distance to the north limit of the property.
>
> One 500-foot hole would be diamond drilled from the west breast of the B drift to determine whether the alaskite porphyry stock carries lead-zinc values for any depth.
>
> One 700-foot hole would be diamond drilled from the east breast of the B drift to prospect for the possible extension of the Silver Mountain ore zone at the tunnel level.
>
> Three 200-foot holes would be diamond drilled from the surface west of the tunnel to explore the stock area for lead-zinc mineralization and a possible vein near the northwest limits of the property.
>
> Two 200-foot holes would be diamond drilled from the surface to explore the area beyond and to the east of the Independence tunnel.

Summary of Operator's Estimated Costs

Rehabilitation of Independence tunnel	$ 628.00
1,800 feet of underground diamond drilling at $2.75 per foot (owner to furnish compressed air, water, and transportation from portal of tunnel to drilling site)	4,950.00
1,000 feet of surface diamond drilling, at $3.50 per foot (contractor to furnish everything)	3,500.00
Compressor, air locomotive, cars, et cetera (rental for job)	325.00
Compressor fuel and lubricants--60 days	562.00
1,200 feet of pipe and track	600.00
Labor - one compressor operator and one timberman at $14.00 per day--60 days	1,680.00
Supervision - 3.1 months at $500.00 per month	1,550.00
Engineering - part-time for 3.1 months at $200.00 per month	660.00
Accounting	150.00
Assaying - 100 samples at $2.50 each	250.00
Colorado State Compensation Insurance fund	120.00
Social security	25.00
Total	$15,000.00

CONCLUSIONS

There appears to be little evidence that the Silver Mountain vein system will extend onto the Gold Hill Mines Company's property as a productive ore zone, since the Silver Mountain ore zone appears to be related to the intrusion of a stock in its vicinity and is not expected to carry through the required distance.

The effects of intrusives on the Gold Hill Mines Company's property are sufficiently exposed so that the possibility of finding an ore body of strategic importance appears remote.

Exploration of the vein exposed in B drift to the east, where it disappears into the wall, may develop small additional reserves of lead-zinc-copper ore. The history of the vein, which has already been explored for 510 feet, does not, however, encourage the belief that important reserves will be discovered.

Results of sampling the porphyry and breccia exposed in the Independence tunnel indicate possible widespread, but very low-grade, lead-zinc mineralization, which may or may not be limited to the contact.

The average of twenty-five samples,[3/] shown on figure 2, assayed 0.03 ounce gold and 0.9 ounce silver per ton, 0.65 percent lead, and 1.9 percent zinc.

Reconnaissance of the property disclosed no evidence of uranium occurrence.

3/ Twenty-four samples were 5-foot chip cuts, with a prospector's pick, at 50-foot intervals, taken by Gold Hill Mines Company and assayed by the Miners Assay Office, Idaho Springs, Colo. One sample (M-655) was taken by the examining team as a check and is included in the average.

RECOMMENDATIONS

It is recommended that Gold Hill Mines Company's request for a Defense Minerals Exploration Administration loan of $15,000.00 to explore its property by diamond drilling be denied.

eb

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

RECEIVED
JUL 2 3 1953

224 New Customhouse
Denver 2, Colorado

July 16, 1953.

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 2939 (Copper-Lead-Zinc-Uranium), Gold Hill Mines Company, Clear Creek County, Colorado.

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

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

A. H. Koschmann
A. H. Koschmann
Field Team, Region IV

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
7-24-53
(date)

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

RECEIVED
JUL 20 1953

224 New Customhouse
Denver 2, Colorado

July 16, 1953.

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

A. H. Koschmann
A. H. Koschmann
Field Team, Region IV

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
7-24-53
(date)

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

224 New Customhouse
Denver 2, Colorado

July 16, 1953.

Mr. W. W. Moore, President
The Gold Hill Mines Company
P. O. Box 236
Empire, Colorado

Re: Docket DMEA-2939

Dear Mr. Moore:

Reference is made to your application for Government aid on the Independence Tunnel.

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

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

Very truly yours,

W. H. King

W. H. King
Field Team, Region IV

A. N. Koschmann

A. N. Koschmann
Field Team, Region IV

HMC:cwm

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

Reviewed by
DMEA OPERATING COMMITTEE
7-24-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

July 16, 1953.

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 2939 (Copper-Lead-Zinc-Uranium), Gold Hill Mines Company, Clear Creek County, Colorado.

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

The applicant requested $15,000.00 for diamond drilling to explore the granite-alaskite contract.

No evidence was presented by the applicant or observed by the examiners to indicate any probability of making a significant discovery of copper, lead, zinc or uranium on this property.

We concur in the recommendation of the field examiners that the application be denied.

W. H. King
W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
7-24-53
(date)

Region IV

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
June 26, 1953

Memorandum

To: Executive Officer, Field Team, Region IV

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

Subject: DMEA 2939 (Copper-lead-zinc-uranium), Gold Hill Mines Company (Independence tunnel), Clear Creek County, Colorado

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Harrer concludes that, although results of sampling the porphyry and breccia exposed in 1,100 feet of the Independence tunnel indicate a possible widespread, but very low-grade, lead-zinc mineralization, the possibility of finding an ore body of strategic importance is very remote. His recommendation that the loan request be denied has my approval.

The brochure furnished by the Region IV Field Team with instructions to make a field investigation is also enclosed.

Scott W. Hazen Jr.
Scott W. Hazen, Jr., For
W. M. Traver, Chief

WMT/eb

enclosures

cc: 10
DMEA 2939
CHRON.

Reviewed by
DMEA OPERATING COMMITTEE
7-24-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.
200 New Customhouse
Denver 2, Colorado

June 18, 1953

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 2939, Gold Hill Mines Company, Clear Creek County, Colorado.

Attached are 10 copies of the geologic report by D. R. MacLaren covering DMEA Docket 2939, Gold Hill Mines Company, Clear Creek County, Colorado.

The applicant proposes to explore for lead, zinc, copper, and uranium by diamond drilling 7 holes for a total of 2800 feet at an estimated cost of $15,000.

MacLaren points out that no evidence was presented by the applicant or observed by the examiners to indicate that there is any reasonable chance of making a significant discovery of copper, lead, zinc, or uranium ore on subject property. He recommends, therefore, that the loan be denied.

I concur in this recommendation.

The brochure is enclosed.

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

Enclosures (10)

Reviewed by
DMEA OPERATING COMMITTEE
7-24-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 2939, Gold Hill Mines Company

Independence Tunnel

Clear Creek County, Colorado

Copper-lead-zinc-uranium

C. M. Harrer, Mining Engineer
Bureau of Mines

D. R. MacLaren, Geologist
Geological Survey

June 25, 1953

Reviewed by
DMEA OPERATING COMMITTEE
7-24-53
(date)

DMEA 2939

GOLD HILL MINES COMPANY
INDEPENDENCE TUNNEL
CLEAR CREEK COUNTY, COLORADO

Summary, Conclusions, and Recommendations

By C. M. Harrer
Mining Engineer
Bureau of Mines

and

D. R. MacLaren
Geologist
Geological Survey

DMEA 2939

GOLD HILL MINES COMPANY
INDEPENDENCE TUNNEL
CLEAR CREEK COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By C. M. Harrer and D. R. MacLaren

The Gold Hill Mines Company, a Colorado corporation, has applied for a Defense Minerals Exploration Administration loan of $15,000.00 to explore its property for copper, lead, zinc, and possible uranium by diamond drilling.

The property was investigated by a Region IV examining team April 16, 1953.

Gold Hill Mines Company's Independence tunnel group of mining claims is in secs. 20, 21, 28, and 29, T. 35 N., R. 74 W., sixth principal meridian, upper Union Mining District, Clear Creek County, Colo., near Empire, at altitudes ranging between 8,000 and 9,000 feet. Terrain is steep and rugged.

There is no evidence that the Silver Mountain vein system will extend onto the subject property, 3/4 mile to the southwest, as a productive ore zone, since this zone appears to be related to the intrusion of a stock in its vicinity.

The effects of intrusives on the Gold Hill Mines Company's property are sufficiently exposed so that the possibility of finding an ore body of strategic importance appears remote.

Results of sampling the porphyry and breccia exposed in 1,100 feet of the Independence tunnel indicate a possible widespread, but very low-grade, lead-zinc mineralization, which may or may not be limited to the contact. The average assay of twenty-four 5-foot chip samples and one check sample by Defense Minerals Exploration Administration representatives was 0.03 ounce gold and 0.9 ounce silver per ton, 0.65 percent lead and 1.9 percent zinc.

Reconnaissance with a scintillometer showed no evidence of radioactivity or uranium occurrence.

It is recommended that Gold Hill Mines Company's request for a Defense Minerals Exploration Administration loan of $15,000.00 be denied.

GOLD HILL MINES COMPANY

CLEAR CREEK COUNTY, COLORADO

DMEA DOCKET 2939

Geologic Report

By D. R. MacLaren
U. S. Geological Survey

GOLD HILL MINES COMPANY
CLEAR CREEK COUNTY, COLORADO

INTRODUCTION

Gold Hill Mines Company of Denver, Colorado, has applied to the Defense Minerals Exploration Administration for assistance to explore for lead, zinc, copper, and uranium on the Gold Hill claims about half a mile west of Empire, Clear Creek County, Colorado. The applicant proposes to diamond drill 4 holes from the surface and 3 holes from underground locations, the 7 holes to total 2,800 feet, at an estimated cost of $15,000 (Government's share 50% or $7,500).

The property was examined on April 16, 1953, in the company of C. M. Harrer of the U. S. Bureau of Mines; W. W. Moore, President of the Gold Hill Mines Company; and W. C. Prosser, Consultant for the applicant company.

It is concluded that the chance of making a significant discovery of lead, zinc, copper, or uranium ore is very poor, and it is recommended that this application be denied.

GEOLOGY

The geology of the Empire mining district is described in U. S. Geological Survey Professional Paper 63 (1908) and Professional Paper 223 (1950). The Gold Hill claims are in an area of Silver Plume granite of pre-Cambrian age that has been intruded by stocks of rhyolite and alaskite in Tertiary (?) times. About 1800 feet from the portal, the Independence tunnel crosses the granite-alaskite contact and continues 1,400 feet in the alaskite. Throughout the entire length of the tunnel,

only 1 vein showed more than small knife-like stringers of sulphides. This vein, which strikes N. 59° E., and dips 60°-73° N., was followed for about 50 feet by drift B (fig. 2). For the most part it is a gouge-filled fissure with a few thin seams of pyrite, sphalerite, and galena. Three small lenses of sphalerite and galena have been mined. The largest one is only about 20 feet long with a vertical extent of not more than 15 feet. A sample taken from this "stope" by the examiners assayed 2.9% lead and 7.6% zinc, over a width of 0.3 feet. Drift A followed a thin gouge filled fissure with occasional very small knife-like stringers of sphalerite and galena. Drift C was driven along, or close to, the granite-alaskite contact. A sample across the contact, taken by the examiners, assayed 1.3% lead and 0.6% zinc. Twenty-two samples taken by the applicant at about 50 foot intervals along the last 1,100 feet of the tunnel averaged 0.54% lead and 1.92% zinc. Due to bad air in this part of the tunnel, the examiners were unable to take any check samples. A radiometric survey with a scintillometer was made throughout the workings and over parts of the surface, but no abnormal radioactivity was registered.

CONCLUSIONS AND RECOMMENDATIONS

No evidence was presented by the applicant or observed by the examiners that indicates that there is any chance of making a significant discovery of copper, lead, zinc, or uranium ores on this property. Therefore, it is recommended that this application be denied.

REFERENCES

Spurr, J. E.; Garrey, G. H.; and Ball, S. H.; Economic geology of the Georgetown quadrangle (together with the Empire district), Colorado: U. S. Geol. Survey Prof. Paper 63, 1908.

Lovering, T. S., and Goddard, E. N., Geology and ore deposits of the Front Range, Colorado: U. S. Geol. Survey Prof. Paper 223, 1950.

DMEA 2939

GOLD HILL MINES COMPANY
INDEPENDENCE TUNNEL
CLEAR CREEK COUNTY, COLORADO

Engineering Report

By C. M. Herrer
Mining Engineer
Bureau of Mines

DMEA 2939

GOLD HILL MINES COMPANY
INDEPENDENCE TUNNEL
CLEAR CREEK COUNTY, COLORADO

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ILLUSTRATIONS

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DMEA 2939

GOLD HILL MINES COMPANY
INDEPENDENCE TUNNEL
CLEAR CREEK COUNTY, COLORADO

ENGINEERING REPORT

By

C. M. Harrer

INTRODUCTION

The Gold Hill Mines Company, a Colorado corporation, has applied for a Defense Minerals Exploration Administration loan of $15,000.00 to explore its property for copper, lead, zinc, and possible uranium by diamond drilling.

The property was investigated by a Region IV examining team for the Defense Minerals Exploration Administration on April 16, 1953.

ACKNOWLEDGMENTS

W. W. Moore, president of Gold Hill Mines Company, and W. C. Prosser, consulting Mining Engineer, accompanied the examining team over the property.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The Gold Hill Mines Company's Independence tunnel group of mining claims is on Independence Mountain, in secs. 20, 21, 28, and 29, T. 35 N., R. 74 W., sixth principal meridian (fig. 1), upper Union Mining District, Clear Creek County, Colo., at altitudes ranging between 8,000 and 9,000 feet. The portal of the Independence tunnel,

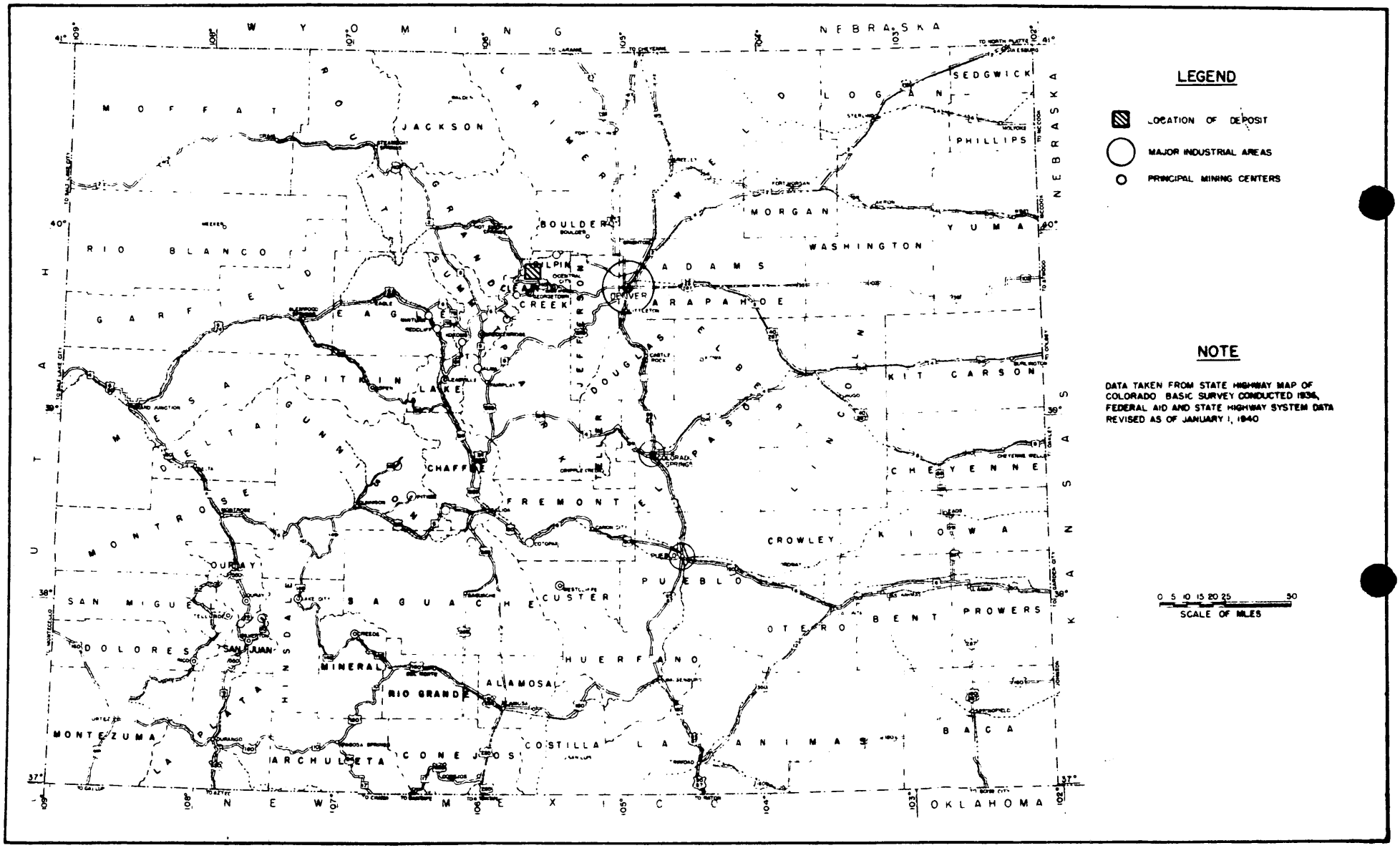


FIGURE 1. - LOCATION MAP, GOLD HILL MINES COMPANY, INDEPENDENCE TUNNEL, CLEAR CREEK COUNTY, COLO. (DMEA 2939).

at an altitude of 8,620 feet, is directly north of U. S. Highway 40, and about 1/2 mile west of Empire, Colo. The terrain is steep and rugged. Operations from the tunnel level are not hampered by the severe cold and heavy snowfall. Exploration above the tunnel level would be a seasonal undertaking due to inaccessibility in winter months.

HISTORY AND PRODUCTION

The district first received attention with the discovery of the Silver Mountain lode in 1862 and later development of the Crown Prince-Atlantic group of veins in 1934. These properties are about 3/4 mile northeast of the Independence tunnel group of claims.

Little is known of the early history of this group of mining claims other than that Gold Hill Mines Company started rehabilitating the caved Independence tunnel during 1949 and started developing vein structures with drifts B and C (fig. 2). In addition, nine short holes were diamond drilled from within the Independence tunnel.

About 70 tons of vein material were excavated from the underhand stope in drift B and treated in local mills. There is no official record of this production or its metal content.

A sample (H-654) across 0.3 foot of vein at this location assayed 0.03 ounce gold and 2.8 ounces silver per ton, 2.9 percent lead, 7.6 percent zinc, and 0.6 percent copper. There was no visible lead, zinc, or copper in the remaining 2 feet of vein.

OWNERSHIP AND EXTENT

Gold Hill Mines Company holds ten standard, unpatented mining locations (fig. 2), entered in the records of Clear Creek County as follows:

Claim	Recorded Book	Recorded Page	Claim	Recorded Book	Recorded Page
Gold Hill	245	281	Gold Hill No. 5	245	283
Gold Hill No. 1	245	281	Gold Hill No. 6	245	284
Gold Hill No. 2	245	282	Gold Hill No. 7	245	284
Gold Hill No. 3	245	282	Independence	245	289
Gold Hill No. 4	245	283	Colorado	245	289

DESCRIPTION OF THE DEPOSITS

About 1-1/4 miles north of Empire a zone of extensive fracturing and alteration (fig. 2A, as part of fig. 2) is known as the Silver Mountain ore zone.[1/] [2/] Several irregular gold-copper deposits, here, were worked extensively. Most of the veins are simple to complex fissure fillings. The chief minerals are pyrite, gold, chalcopyrite, and quartz, with very minor amounts of sphalerite and galena. Veins trend northeasterly with dips steeply to the southeast. In general, the individual veins are not persistent although they may be wide and heavily mineralized shear zones. Few have been traced for more than 1,000 feet, and most have not been explored to depths greater than 500 feet.

1/ Spurr, J. E., Garrey, G. H., and Ball, S. H., Economic Geology of the Georgetown Quadrangle, Colorado, U. S. Geol. Survey Professional Paper 63, 1908.

2/ Lovering, T. S., and Goddard, E. N., Geology and Ore Deposits of the Front Range, Colorado., U. S. Geol. Survey Professional Paper 223, 1951.

The compact group of claims owned by Gold Hill Mines Company is about 3/4 mile southwest of the Silver Mountain ore zone (fig. 2A, as part of fig. 2) and part of the subject exploration program is to prospect the hoped-for extension of this zone to the southwest onto the applicant's ground.

Shallow discovery shafts on the respective claims disclosed only pyrite mineralization in quartz veins. The Davis tunnel, now inaccessible, is said to show only weak sphalerite-pyrite mineralization.

The property of Gold Hill Mines Company is explored in depth with the 3,285-foot Independence tunnel driven N. 28° W. (fig. 2). A small pyritic quartz vein encountered in drift A was explored for 150 feet with no evidence of other mineral content.

Drift B (fig. 2) developed a strong, quartz-filled fissure east and west of the tunnel for 510 feet of strike length. The vein was further developed with five shallow winzes 10 to 16 feet deep and two small overhand stopes. The walls and bottom were explored with six diamond drill holes 20 to 60 feet deep, in the vicinity of a shallow winze and underhand stope on the best showing of galena-sphalerite-chalcopyrite-pyrite, as a very small lens, about 320 feet northeast of the Independence tunnel. A character sample (H-654) was taken across the best showing of ore, which was only 0.3 foot wide, in a vein about 3 feet thick. It assayed 0.03 ounce gold and 2.8 ounces silver per ton, 2.9 percent lead, 7.6 percent zinc, and 0.6 percent copper.

In the Independence tunnel the contact between Boulder Creek granite and an alaskite porphyry stock was cut in several places, as shown on figure 2. It was further explored by three short diamond drill holes from drift C.

To determine whether the alaskite porphyry stock carried any minerals of strategic importance, Gold Hill Mines Company chip sampled the porphyry, as exposed in the southwest wall of the tunnel, for 1,100 feet, starting at the contact 40 feet from the end of the tunnel. The results of sampling by the applicant and a check sample (H-655) are shown on figure 2. The average assay value of all twenty-five samples is 0.03 ounce gold and 0.9 ounce silver per ton, 0.65 percent lead, and 1.9 percent zinc. The results of sampling indicate a possibility of widespread, but very low-grade, lead-zinc mineralization of the porphyry, which may or may not be limited to the contact.

Scintillometer reconnaissance of the property showed no evidence of uranium occurrence.

ORE RESERVES

No ore reserves can be established for this property on the basis of present information.

PRESENT STATUS

Exploration and Development

The subject group of claims is explored to within 130 feet of its northwest sideline by the Independence crosscut tunnel, which extends N. 28° W. for 3,285 feet (fig. 2). In addition, exposures at A, B, and C have been developed by a total of 1,386 feet of drifts. The vein at location B has been further explored with five shallow winzes to water level, 10 to 16 feet below the tunnel. Stoping was limited to two very small and narrow excavations. In addition, nine short drill holes, 30 to 130 feet, were drilled at locations B and C, totaling 586 feet.

The vein in drift B was also developed by the Davis tunnel at a higher elevation for a total of about 900 feet. The latter workings are presently inaccessible.

Surface discovery shafts are shallow and caved.

Mining and Milling Equipment

The Gold Hill Mines Company owns a gasoline-engine-powered air compressor, receivers, and pipe sufficient to furnish compressed air for underground diamond drilling and ventilation. All equipment is well housed and ready to operate.

There are no milling facilities on the property; however, several custom mills, some in operation and others closed down, are located in the general area.

PROJECT PROPOSALS, WITH COSTS

The Gold Hill Mines Company has applied for a Defense Minerals Exploration Administration loan of $15,000.00 to prospect its property for a possible mineralized extension of the Silver Mountain ore zone located about 3/4 mile to the northeast and to explore an alaskite porphyry stock which exhibits low-grade lead-zinc mineralization where exposed in the Independence tunnel.

The proposed work is shown on figure 2 and would be accomplished as follows:

> One600-foot hole would be diamond drilled from a point near the end of the Independence tunnel to prospect part of the alaskite porphyry stock exposed in the tunnel and the remaining distance to the north limit of the property.
>
> One 500-foot hole would be diamond drilled from the west breast of the B drift to determine whether the alaskite porphyry stock carries lead-zinc values for any depth.
>
> One 700-foot hole would be diamond drilled from the east breast of the B drift to prospect for the possible extension of the Silver Mountain ore zone at the tunnel level.
>
> Three 200-foot holes would be diamond drilled from the surface west of the tunnel to explore the stock area for lead-zinc mineralization and a possible vein near the northwest limits of the property.
>
> Two 200-foot holes would be diamond drilled from the surface to explore the area beyond and to the east of the Independence tunnel.

Summary of Operator's Estimated Costs

Rehabilitation of Independence tunnel	$ 628.00
1,800 feet of underground diamond drilling at $2.75 per foot (owner to furnish compressed air, water, and transportation from portal of tunnel to drilling site)	4,950.00
1,000 feet of surface diamond drilling, at $3.50 per foot (contractor to furnish everything)	3,500.00
Compressor, air locomotive, cars, et cetera (rental for job)	325.00
Compressor fuel and lubricants--60 days	562.00
1,200 feet of pipe and track	600.00
Labor - one compressor operator and one timberman at $14.00 per day--60 days	1,680.00
Supervision - 3.1 months at $500.00 per month	1,550.00
Engineering - part-time for 3.1 months at $200.00 per month	660.00
Accounting	150.00
Assaying - 100 samples at $2.50 each	250.00
Colorado State Compensation Insurance fund	120.00
Social security	25.00
Total	$15,000.00

CONCLUSIONS

There appears to be little evidence that the Silver Mountain vein system will extend onto the Gold Hill Mines Company's property as a productive ore zone, since the Silver Mountain ore zone appears to be related to the intrusion of a stock in its vicinity and is not expected to carry through the required distance.

The effects of intrusives on the Gold Hill Mines Company's property are sufficiently exposed so that the possibility of finding an ore body of strategic importance appears remote.

Exploration of the vein exposed in B drift to the east, where it disappears into the wall, may develop small additional reserves of lead-zinc-copper ore. The history of the vein, which has already been explored for 510 feet, does not, however, encourage the belief that important reserves will be discovered.

Results of sampling the porphyry and breccia exposed in the Independence tunnel indicate possible widespread, but very low-grade, lead-zinc mineralization, which may or may not be limited to the contact.

The average of twenty-five samples,[3/] shown on figure 2, assayed 0.03 ounce gold and 0.9 ounce silver per ton, 0.65 percent lead, and 1.9 percent zinc.

Reconnaissance of the property disclosed no evidence of uranium occurrence.

3/ Twenty-four samples were 5-foot chip cuts, with a prospector's pick, at 50-foot intervals, taken by Gold Hill Mines Company and assayed by the Miners Assay Office, Idaho Springs, Colo. One sample (H-655) was taken by the examining team as a check and is included in the average.

RECOMMENDATIONS

It is recommended that Gold Hill Mines Company's request for a Defense Minerals Exploration Administration loan of $15,000.00 to explore its property by diamond drilling be denied.

cb

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

224 New Customhouse
Denver 2, Colorado

June 2, 1953

Mr. W. W. Moore, President
The Gold Hill Mines Co.
P. O. Box 236
Empire, Colorado

Re: Docket 2939 (Lead-Zinc)
Independence Tunnel,
Clear Creek County, Colorado

Dear Mr. Moore:

On May 18 we advised you that effective April 15, 1953, funds for certain specified metals had been denied and since your application related to lead and zinc it was accordingly denied.

We are pleased to inform you that since your application was received prior to May 15, 1953, we are now authorized to process it if you are still interested in exploration assistance.

We are as of this date placing your application in our active files for processing.

Yours very truly,

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

HMC:ld

sub
chron
Mittendorf
Kochmann
Traver

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

224 New Customhouse
Denver 2, Colorado

May 18, 1953

BD

Mr. W. W. Moore, President
The Gold Hill Mines Co.
P. O. Box 236
Empire, Colorado

Re: Docket 2939 (Lead-Zinc)
Independence Tunnel, Clear
Creek County, Colorado

Dear Mr. Moore:

This is to inform you that effective April 15, 1953, the commitment of funds allocated to the Defense Minerals Exploration Administration for exploration assistance under the Defense Production Act was restricted to certain specified metals and minerals still short in supply. Lead and Zinc were not specified, and consequently were automatically removed from the list of metals or minerals eligible for exploration assistance.

We regret to advise you that, since your application relates to lead-zinc, and was pending on the date of the restrictive order, we are without authority or funds to enter into a contract for exploration and your application is accordingly denied. This action is taken without prejudice to the merits of the proposed project.

The staff of the Defense Minerals Exploration Administration wishes to express its appreciation for your interest in the exploration program and for your cooperation during the period your application has been under consideration.

Sincerely yours,

W. H. King

W. H. King
Field Team, Region IV

HMC:es

cc: Docket
Chron.
Mittendorf
Traver
Koschmann (2)

for

A. H. Koschmann
Field Team, Region IV

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

224 New Customhouse
Denver 2, Colorado

March 20, 1953.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 23 1953

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Executive Officer, Field Team, Region IV

Subject: Docketing for Exploration Assistance

Enclosed herewith in duplicate is DMA Form 3a and Form MF-103 in duplicate and supporting data pertaining to the following applications for Government assistance in exploration work:

~~Gramlich Minerals, Inc.~~,
~~Moab~~,
~~Utah~~

Gold Hill Mines Company,
Denver 1, (P.O. Box 812)
Colorado.

W. H. King
W. H. King

Enclosures

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

DEPARTMENT OF THE INTERIOR
Defense Minerals Adm. Washington
RECEIVED
MAR 23 1953

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

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

Not to be filled in by applicant

Docket No. DMEA-2939
Metal or Mineral
Date Received 3-23-53
Estimated Cost
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name in the form in which you will wish to contract, and your mailing address: The Gold Hill Mines Co., P.O. Box 616, Denver, Colo.
" " " " " " " 236, Empire, Colo.
J. Moore, President and Treasurer.
S. A. Moore, Secretary, Frank A. Beth, Treas. and Director.

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

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

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

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

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

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

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or other claimant. Owner, title by lode locations patented from Public Domain

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

(*e*) If you own the land, describe any liens or encumbrances on it None

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. See Note.3

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

(*b*) State past and current production, and ore reserves, if any, giving quantities and grades. Test lots only no reserves

(*c*) Describe the geologic features of the property, including mineralization, type of deposit (vein, bedded, etc.), and your reasons for wishing to explore. Illustrate with maps or sketches. Send with your application (but not necessarily as a part of it) any geologic or engineering report, assay, or other technologic information you may have, indicating on each whether you require its return to you. See Note.4

(*d*) State the facts relative to the accessibility of the property, and distances to shipping, supply and residence points. On U.S. Highway 40 2 miles east Empire, Colorado.

(*e*) State the availability of manpower, materials, supplies, equipment, water, and power. Manpower available in Empire, Idaho Springs and Georgetown, also supplies and equipment, water present on the ground, Power to be used is Gasoline, available in towns named.

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Copper, lead, and zinc, and uranium possible

(*b*) Describe fully the proposed work, including a map or sketch of the property showing a plan (and cross sections if needed) of any present mine workings, and the location of the proposed exploration work as related to such features as contacts, veins, ore-bearing beds, etc. See Note 5b

(*c*) The work will start within 30 days and be completed within 6 months from the date of an exploration project contract.

(*d*) State the operating experience and background of the applicant with relation to the ability to carry out such exploration project, and also that of the person or persons who will supervise the operations. See Note 5d

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

(*a*) *Independent contracts.*—(Note.—If the applicant does not intend to let any of the work to contractors, write "none" after this item. To the extent that the work is to be contracted, do not repeat the cost of the contract-work in subsequent items.) State the cost of any proposed independent contracts for the performance of all or any part of the work, expressed in terms of units of work (such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved, etc.). See Note 6a

(*b*) *Labor, supervision, consultants.*—Include an itemized schedule of numbers, classes and rates of wages, salaries or fees for necessary labor, supervision and engineering and geological consultants. See Note 6a

(*c*) *Operating materials and supplies.*—Furnish an itemized list, including items of equipment costing less than $50 each, and power, water and fuel. See Note 6a

(*d*) *Operating equipment.*—Furnish an itemized list of any operating equipment to be rented, purchased, or which is owned and will be furnished by the Operator, with the estimated rental, purchase price, or suggested use-allowance based on present value, as the case may be. See Note 6d

(*e*) *Rehabilitation and repairs.*—Furnish a detailed list showing the cost of any necessary initial rehabilitation or repairs of existing buildings, installations, fixtures and movable operating equipment, now owned by the Operator and which will be devoted to the exploration project. See Note 6e

(*f*) *New buildings, improvements, installations.*—Furnish a detailed list showing the cost of any necessary buildings, fixed improvements, or installations to be purchased, installed or constructed for the benefit of the exploration project. none

(*g*) *Miscellaneous.*—Furnish a detailed list showing the cost of repairs to and maintenance of operating equipment (not including initial rehabilitation or repairs of the Operator's equipment), analytical work, accounting, workmen's compensation and employers' liability insurance, and payroll taxes. See Note 6g

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

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

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

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

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

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated _____, 195__

The Cold Hill Mines Co.
(Applicant)

By _____

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

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

The Gold Hill Mines Co.
P.O.Box 812.
Denver 1,Colorado.

Note 3. The Property involved in this application for Exploration Aid,consists of the Following unpatented lode Mining Claims, situated in Clear Creek County,Upper Union Mining District and recorded in the Office of the Clerk and Recorder,as follows:

Name of Claim	Recorded	Book	Page
Gold Hill	"	245	281
Gold Hill No.1	"	245	281
Gold Hill No.2	"	245	282
Gold Hill No.3	"	245	282
Gold Hill No.4	"	245	283
Gold Hill No.5	"	245	283
Gold Hill No.6	"	245	284
Gold Hill No.7	"	245	284
Independence	"	245	289
Colorado	"	245	289

Note 4. Mining and Exploration work has been carried on by this Company. The results are shown in the report of Survey by Warren,C,Prosser submitted herewith. Mine workings are easily accessible on U.S. Highway 40. Workings are open and access in their entirity.

Note 4a

The Independence Tunnel is driven in Granite and Alaskite Porphyry.The type of deposit sought are veins and lenses of ore in typical ore zones of the area,in altered country rock or within the Alaskite Porphyry. These features are described more fully in the report of Warren C.Prosser,submitted herewith.

Note 5b The location of diamond drill holes proposed to be driven,are shown on the maps of the property,submitted herewith.

Note 5d The Applicant herein has been mining in Colorado,Leadville,Aspen and Empire for more than ten years. The project will be under the supervision of W.E.Moore.its General Manager,who has been in charge of all its operations to date. The services of Warren C.Prosser,Consulting Engineer,who has served the Company in the past,will be continued in this project.of Exploration.

Note 6a Estimate of Costs.
The Diamond drilling proposed herein is to be done under contract. Underground, the cost to be $2,75 per foot,owner to compressed air,water and transportation from the portal of the Independence Tunnel to the drilling site.
On Surface the costs to be $3,50 per foot,contractor to furnish everything.

The Applicant owns compressor,pipe and receivers,with which to furnish compressed air,Gasoline engine driven.

Cost of operation including gas and oil and weekly oil change for the compressor per day $9.70
Track Locomotive running on compressed air is also by the Applicant and will be used in this work.

Labor required.

Compressor operator and surface man per day $14.00
Trammer and underground track and timber man per day $14.00
Total per day $28.00
Cost of operation of machinery and labor per day $37.80
Reasonable rental of equipment entire underground work, $325.00
Mine track is laid in the Independence Tunnel as far in as Drift "C" and in both breaches of Drift "B" and in Drift "C"

If diamond drill holes are to be driven nor the breast of the Independence Tunnel,to locate the vein which may be uncovered on the surface above,then track will have to be laid to the breast a distance of 1200ft.

Track will cost laid down using the underground help available per 100 ft $32.00 for 1800 feet ---------- $576.00
Pipe for compressed air, 2½ O.D. black pipe will cost per feet 32¢ 1800 feet ---------- $184.00
Cost of pipe and track---------- $577.60

It is estimated that driller will complete at least 30 feet of hole per day. Supervision by G.W.Moore will be on the basis of $500.00 per month, Engineering Consultation by Warren C. Prosser part time on the basis of $200.00 per month.

Summary of drilling costs.

North breast of "B" Drift	700 ft @ 2.75	$1925.00
East " " " "	500 ft @ 2.75	$1375.00
Breast of Independence Tunnel if required	600 ft @ 2.75	$1650.00
	Total 1800 feet	
On the basis of 30 ft per day, 60 days.		
Compressor cost 60 days @ $9.70 day		$ 582.00
Labor 2 men @ $14 day, $28 for @ 60 days		$1680.00
Supervision 2 months @ $500.00		$1000.00
Engineering 2 Months @ $200.00		$ 400.00

Drilling on Surface.

As outlined 1000 ft @ $350.00 per ft	$3500.00
33 days supervision	$ 550.00
Engineering	$ 200.00

Analytical work, estimated 100 samples @ $2.00	$ 250.00
Accounting, estimated	$ 150.00
Workmens Compensation and Employers Liability estimate	$ 120.00
Payroll Taxes	25.20
Total estimated cost of Exploration project	$15,000 00

Note 6d The equipment to be used consists of Compressor Gasoline driven engine, Compressed Air Locomotive ore cars, and hand tools, estimated value $7500.00 This equipment is owned by the Applicant.

Note 6e Some track repairs will be necessary, requiring possibly the work of 2 men for 10 days, this can be worked out in conjunction with the Exploration project, and accomplished in spare time, from serving the driller.

INDEPENDENCE TUNNEL GROUP
Lode Mining Claims
GOLD HILL MINES COMPANY

This group of lode mining claims is located on Independence Mountain, Upper Union Mining District, Clear Creek County, Colo., in close proximity to and northwest of, Empire, Colorado. It is adjacent to U.S.Highway 40.

It consists of the following unpatented lode mining claims, held under lode location laws and recorded in the records of Clear Creek County, in books and pages, as indicated below,

Name of claim.	Recorded	Book	Page	
Gold Hill		245	281	By legal subdivision
Gold Hill No. 1		245	281	they are located in
Gold Hill No. 2		245	282	Sec's 21,20, 29 and29
Gold Hill No. 3		245	282	T 35N, R 74 W 6thP.M.
Gold Hill No. 4		245	283	
Gold Hill No. 5		245	283	
Gold Hill No. 6		245	284	
Gold Hill No. 7		245	284	
Independence		245	289	
Colorado		245	289	

These locations as surveyed, together with the Independence Tunnel are shown more particularly upon the Map which accompanies this report.

The reopening and reconstruction of the Independence Tunnel was commenced in 1949 by the owning Company. Many caves of large size were caught up and retimbered, track and pipe were laid, in continuous operation. Development of the vein in Drift "B" was carried on and Drift "C" was driven around the border of an Alaskite porphyry stock, which exists at that location and will be described later in this report. The Independence tunnel is driven through the easterly segment of this stock to within 15 ft. of its breast, which is in granite.

The surface of these lode claims on Independence Mountain, has been examined by me. There are numerous shafts, open cuts and short tunnels, some of which have been caved. The nature of the vein material in which they were made is shown in those which are open and on the dumps of those which have been closed.

On the Independence claim, about 300 ft. northerly from the portal of the tunnel, is a shaft 40 ft. deep, sunk in a crushed and brecciated zone in granite. A monzonite dike 6 ft. in width, is present and on both walls of this dike, vein quartz has been developed in widths from 6 to 18 inches. Some of the quartz is cellular with casts of pyrite crystals.

A large shaft 10 x 12 ft., has been sunk 12 ft. in depth on a vein showing a 5 ft. width of quartz, on the lode line, 200 ft. from the north end line of the claim.

The Gold Hill-Gold Hill No. 1 vein is in granite and granite gneiss and has been developed by shafts and open cuts, also a tunnel, in places as indicated on the map of the property. The vein is a quartz vein 18 ins. to 5 ft. in width. The east-west vein in the Davis Tunnel workings, is probably the same vein and shows abundant sphalerite. It is likely that this vein is the same as that one developed by "B" drift in the Independence tunnel, at 1456 ft. from

the portal.

The discovery shafts of Gold Hill Nos 6 and 7 claims are reported, by the workmen who dug them, to have shown some float ore, containing lead and zinc sulphides. Above this location is a series of springs, which hold water even when the surrounding country is very dry, in the fall. It is thought that these may mark the location of a fault fissure, which conceivably could be connected with the ore zone extending from Silver Mountain.

Several monzonite porphyry dikes have been encountered, outcropping on the surface and two have been located in the tunnel workings. These dikes have in all probability filled fault fissures created by the injection into the area, of large masses of porphyry, such as that to the immediate west of this property. Under the influence of such a relatively large intrusion, faulting and filling the fissures with dike material and also with mineralized vein material, are common throughout the district and are noted on this property. Another small outcropping stock of monzonite porphyry has been noted on Silver Mountain, to the northeast of this property, and has been disclosed between the Silver Mountain mineralized zone and the Atlantic, Crown Prince, Minnesota mine zone. These mineralized zones have been traced by us, along their courses, to Lyon Creek gulch, running directly toward the Gold Hill property and the Independence tunnel workings. Timbered slopes and the presence of the Alaskite porphyry stock in the tunnel, make it impossible to trace these zones through this property and require more development in the unexplored likely ground.

In order to ascertain the effect of the mineralogical conditions, a study of the Minnesota mine on that mountain was made, and the extensive mineral zone developed there was subjected to careful inspection. It is apparent that the mineralizing effect has been widely carried into the country rock and the zone is noted to have a definite trend toward the emplacement of the Independence tunnel. It is along this zone that the Atlantic, Crown Point veins were developed. The average ore of the Minnesota mine is a pyritic ore and is reported by the management to have had an average value of about $9 in gold. This was treated by amalgamation, cyanidation and flotation and the production was said to have been about $500,000 annually.

The following has been taken from the description of the Silver Mountain ore zone in Professional Paper No. 63, U.S.G.S.

"The ore zone of Silver Mountain has been developed for 3300 ft. in length along a course N 45° E, within which the rock is fractured and altered irregularly. In mines of Silver Mountain the lodes show 30 ft. in width of irregularly developed porphyritic granite, showing decomposed and fractured rock throughout, containing bunches of pay ore scattered therein. This is typical of the lodes of the crushed zone. Some of the best ore occurs along the main slips of narrow fractured zones, so that definite veins exist but the wall rock also is in places sufficiently mineralized to become an ore. Some of the largest and richest ore bodies consist only of an irregular impregnation of the country rock by sulphides, on either side of a central small crack. The mineralization appears to be replacement rather than fracture filling.

The fractured zone originated with a monzonite porphyry dike, which followed a zone of weakness, first recognized near the 33 tunnel, passing through the Silver Mountain and Gold Fissure veins. Fracturing then occured, which in places broke up the dike as well as the surrounding country rock, after which the mineralizing

solutions replaced the country rock with ore, sometimes very high grade ore.

The principal veins on that zone are the Silver Mountain, the Gold Fissure and Gold Dirt. The Tenth Legion and Pittsburg veins are northeast extensions. The metallic minerals consist chiefly of chalcopyrite and pyrite. Black sulphides of copper are developed in the upper workings. Native copper in small amounts is reported to have been found in different places. In value, a carload of ore from the Sprangle vein of the Gold Dirt mine, is reported to have averaged several ounces of gold to the ton. Picked ore from the third level of the same mine is reported as containing 3 ozs. gold per ton. In the Tenth Legion vein some ore rich in copper was encountered, carrying as much as 12% copper, with 7 ozs. gold and 20 ozs. silver per ton. Two feet of high grade ore from the same vein on the 125 ft. level, is reported to have yielded $40 to $50 per ton in gold. The country rock is granite gneiss."

The center of this zone is represented by a line drawn between the center of the intersection of the Gold Dirt, Gold Fissure intersection and the Lafayette-Changdoodle intersection. It can be followed plainly into the gulch of Lyon Creek to the west.

The Independence tunnel portal is at an elevation of 8020 ft. above sea level. The Aorta tunnel of the Silver Mountain zone being the lowest working of that area is at 9244 ft.

Description of Independence Tunnel.

The portal of this tunnel is situated 700 ft. westerly of Empire townsite and 270 ft. north of the sideline of the Salmon Placer, U.S.Sur. No. 1642. This is 250 ft. north of U.S.Highway "40". It is 5 x 7 ft. minimum crosssection and extends N 25° W. 3300 ft. in length to the breast, water grade.

The first 1600 ft. is driven in granite and granite gneiss with several dikes of monzonite porphyry and pegmatite lenses having been encountered. From 1600 ft. to 3285 ft. the tunnel is in Alaskite porphyry.

Drift "A" is driven on a small quartz vein in granite. Pyrite is the only sulphide encountered there.

Drift "B" is driven on a straight, narrow vein of quartz, in granite. This is mineralized throughout with lead and zinc sulphides, which widened out to 12 ins. of sulphide ore in two short lenses. Rhodochrosite and platy barite are also present. Drift "B" leaves this vein at 360 ft. from the tunnel and becomes a crosscut veering toward the north for a total distance of 860 ft. To the southeast drift "B" follows the same narrow vein for 150 ft. where it encounters the Alaskite porphyry stock.

Several winzes have been sunk below the tunnel level to depths of 10 to 16 ft. before striking water. The downward continuation of the vein shows the same sulphide vein filling. In the winze last sunk at the extreme northeast exposure of the vein, the water level is at 12 ft. below the track. Around this later winze a series of short diagonal drill holes have been driven to further explore the sulphide mineralization.

No. 1 was driven westerly below the bottom of the winze at an angle of -45° with the horizontal, for a distance of 55 ft. It follows 5 ins. of sulphide ore for 6 ft.

No. 2 was driven into the south wall at an angle of -30° with the horizontal. From 5 to 11 ft. it passed through sulphide ore of mill grade. It was driven to 30 ft.

No. 3 was driven into the north wall at 40 ft. northerly from the winze. It entered the hanging wall of the vein at 10 ft. and was driven to 60 ft.

No. 4 was driven in the south wall at 94 ft. beyond the winze, at an angle of -50° with the horizontal for 20 ft. Found no ore.

No. 5 was driven into the south wall at 150 ft. beyond the winze at an angle of -50° with the horizontal for 20 ft. No. ore.

No. 6 was driven into the north hanging wall at 30 ft. west of the winze at an angle of -45° with the horizontal for 60 ft. Found no ore.

Drift "C" was driven northeasterly from a point in the Independence tunnel, 1052 ft. from the portal. Its details are shown on a separate map drawn to a scale of 20 ft. to 1 in. This drift is driven along the border of the Alaskite porphyry stock, disclosing extensive gouge and breccia, which sampling has shown to be mineralized with lead, zinc, gold and silver. A water source was struck in this drift as shown, which was followed until it entered the fresher granite and gneiss.

Diamond drill hole No. C1 was driven on the same course, through granite and encountered an open vug at 70 ft. where the hole was stopped.

Hole C2 was driven into the west wall at an angle of -37° with the horizontal for a distance of 32 ft.

Hole C3 was driven N 41° W, level, for 55 ft. All in breccia and porphyry with some of the core showing lead and zinc sulphides.

The vein in Drift "D" was explored to a very full extent. Drift "C" did not depart from the Alaskite porphyry for enough to get out of its influence.

Assuming that the Silver Mountain ore zone extends S 46° 30' W, as the source appears to be, from the Lafayette claim, a diamond drill hole driven northerly from the breast of "D" drift would have the best chance of encountering it. Such a hole is recommended as a desirable new development.

The presence of lead and zinc sulphides, pyrite and chalcopyrite, platy barite, rhodochrosite and siderite, indicate that the character of mineralization at the Independence tunnel level, may be modified over what it is at Silver Mountain.

The lead zinc sulphide float reported found on Gold Hill Nos. 6 and 7 claim, warrants further investigation and hand prospecting on the surface. The results of further investigation may support the desirability of running diamond drill holes under the area to locate the possible presence of a lode of good size, there. If found and sufficient evidence is disclosed by the proposed work, it could be located on the tunnel level by other diamond drill holes.

In the Alaskite porphyry stock, mag alteration seems to have resulted in a concentration of sulphides or lead zinc and copper in regularly disposed crevices and vugs. That part of the stockout by the Independence tunnel is supposedly near the edge and is not as pronounced in mineralization as further back in the stock. The Superior Lode claim, northwest of this property indicates that fact.

In this respect a diamond drill hole is proposed to be

driven in a westerly direction from the west breast of "B" drift to determine the character of the stock toward its center.

It is also proposed to drive three test holes into the stock at favorable points south of the private road, as indicated on the map. These several holes to determine whether the stock, thus sampled might constitute a workable mineral deposit, with consid erable tonnage involved.

This indicates in some small measure the lead, zinc and copper possibilities.

Possible presence of Uranium.

In the Central City quadrangle at Quartz Hill and in an area lying between Silver Creek and Alps Mountain, uranium ores have been found as minor components of gold silver ores, in mines worked principally for these metals.

According to the Geological Survey and confirmed by other engineers more recently, "specimens studied were found to show clearly the relationship of the pitchblende to the sulphides which accompany it in the vein." "There is evidence that the pitchblende crystallized contemporaneously with the chalcopyrite, pyrite and possibly gray quartz." "Galena, Siderite and Sphalerite also enter as associates in various specimens.

It is emphasized that in the Lawson area, there are two periods of mineralization, an earlier pyrite mineralization and a later galena sphalerite mineralization, the pitchblende being associated with the earlier.

It is also emphasized that the pitchblende with the associated sulphides are genetically connected to the tertiary monzonite intrusions.

Among the numerous monzonite intrusions of the Central City Georgetown Area, a large stock on monzonite porphyry is present in the area of the junction of Mad Creek with West Clear Creek, immediately west of the Independence Tunnel of this Gold Hill property. Part of this monzonite stock is either on altered facies, which is represented by the Alaskite porphyry, or the latter is a separate injection. In the Geological Survey Reports, particularly Professional Paper No. 94 by Lestin and Hill, many mine descriptions show the presence of pyrite and gray quartz with siderite and other minerals known to be associated with with uranium deposits.

It is fully realized that all depositions of pyrite and gray quartz could not be expected to yield uranium minerals, even when associated with rich gold and silver ores, siderite or bismuth as found elsewhere in the world. Nevertheless where heavy monzonite intrusion with known associates of pitchblende are present, it may have a future importance. It is inferred therefore that that the primary purpose for exploration for copper, lead and zinc, in this Independence tunnel area, might be expected to yield indications of uranium as a minor possibility, for future consideration.

The surface workings, made in the quartz veins, do not disclose any heavy sulphide mineralization, excepting pyrite. In the Davis tunnel workings, with the exception of zinc in the east-west vein, the sulphides are limited to pyrite. In one drift a peg - matite dike is followed and this is recognized in the Independence tunnel also.

The mineralization of the vein in Drift "D" presents the most encouraging type of sulphide deposition yet encountered in the development of the property. The vein is a clean straight fault and the movement along its walls has been slight, thus no openings of any considerable size have been made, at least where developed and observed, to allow the deposition of large bodies of ore, altho such deposition did take place to the allowable limits of available openings. This appears to prove the presence of mineralizing solutions, carrying satisfactory values in lead, zinc, copper, gold and silver.

The sulphide mineralization of the Alaskite porphyry stock presents a problem as regards the extent and average content of pay minerals. Twenty two samples taken by Mr. U.[illegible] Moore and his miners at 20 ft. intervals, by chipping down the wall of the crosscut, between drift "C" and the breast and assayed by George Bader of the Minera Assay Office of Idaho Springs, gave the following average assay;

Gold	Silver	Lead	Zinc	Copper	per ton.
0.03 oz.	1.14 oz.	0.05%	1.00%	present	

Other samples which included sizable lenses of sulphide minerals gave higher results. It should be noted however that the Independence tunnel cuts what appears to be an outside segment of this stock. Further and detailed examination and exploration is required to establish its value in both metallic and non metallic minerals.

Drift "C" discloses an entirely different condition bordering the Alaskite porphyry stock. Here considerable breccia is present, composed of fragments of both the granite walls and the porphyry. Some areas appear to be mineralized with sulphide minerals to a moderate extent. The gold and silver values in the breccia appear to be substantially higher than that of the porphyry alone.

Conclusions.

Taking into consideration the presence of the porphyry, both sunnonite and alaskite, the development and exploration work done on the dépen of the stock, and the related Silver Mountain ore zone, the most likely area for heavy deposition, between the two, has not been explored. The surface being largely covered by timber and overburden, does not present as good an opportunity, as the underground workings to explore this likely area. The length of this area is 1500 ft. The distance to the surface from the Independence tunnel is from 500 to 620 ft.

Much of the granite, near the porphyry stock has been altered and an excess of pyrite has been deposited in the altered rock in seam and corroded areas. This is displayed plentifully in the Independence tunnel between the portal and drift "B"

Two peculiar occurrences are not readily explained, (1) the water level in drift "B", 12 to 15 ft. below the floor, (2) cold bad air emitting from the drill hole and vug, in the breast of drift "C"

Respectfully Submitted

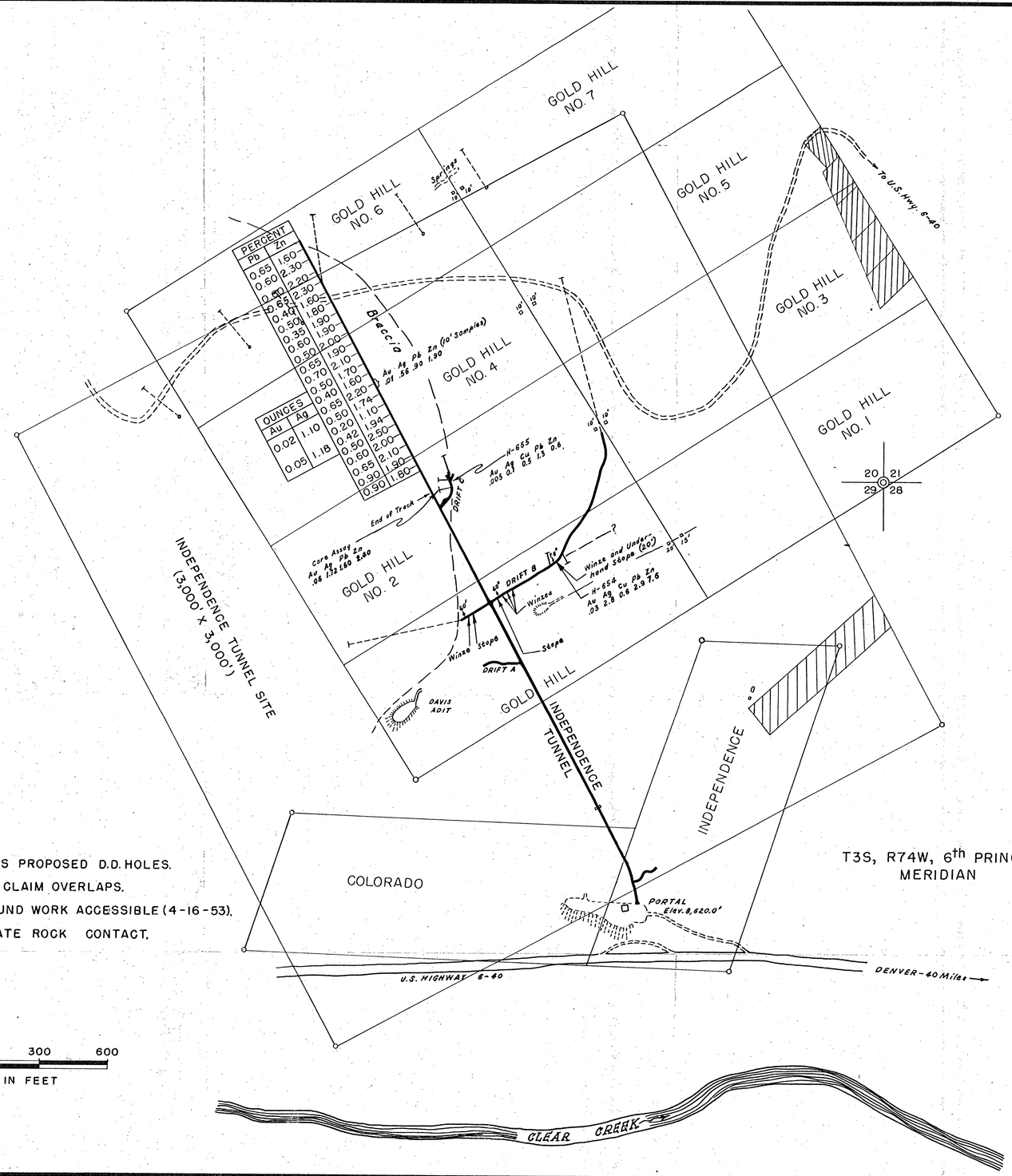
March 1955.

Warren Rosser

Registered Mining Engineer.

1 cy of thru maps enclosed
3-23-53

on the
Independence Tunnel
Gold Hill Mines Co.



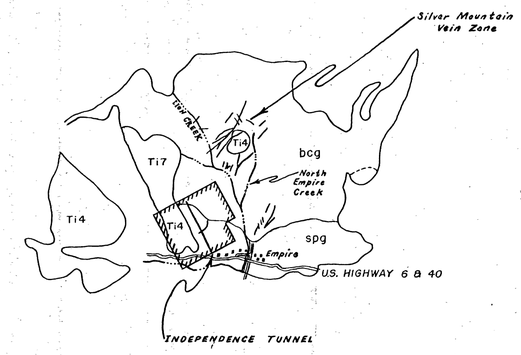


FIG. 2A
MAP SHOWING GEOLOGIC RELATIONSHIPS

Taken from geologic map of the front range mineral belt, U.S.G.S. P.P. 223.

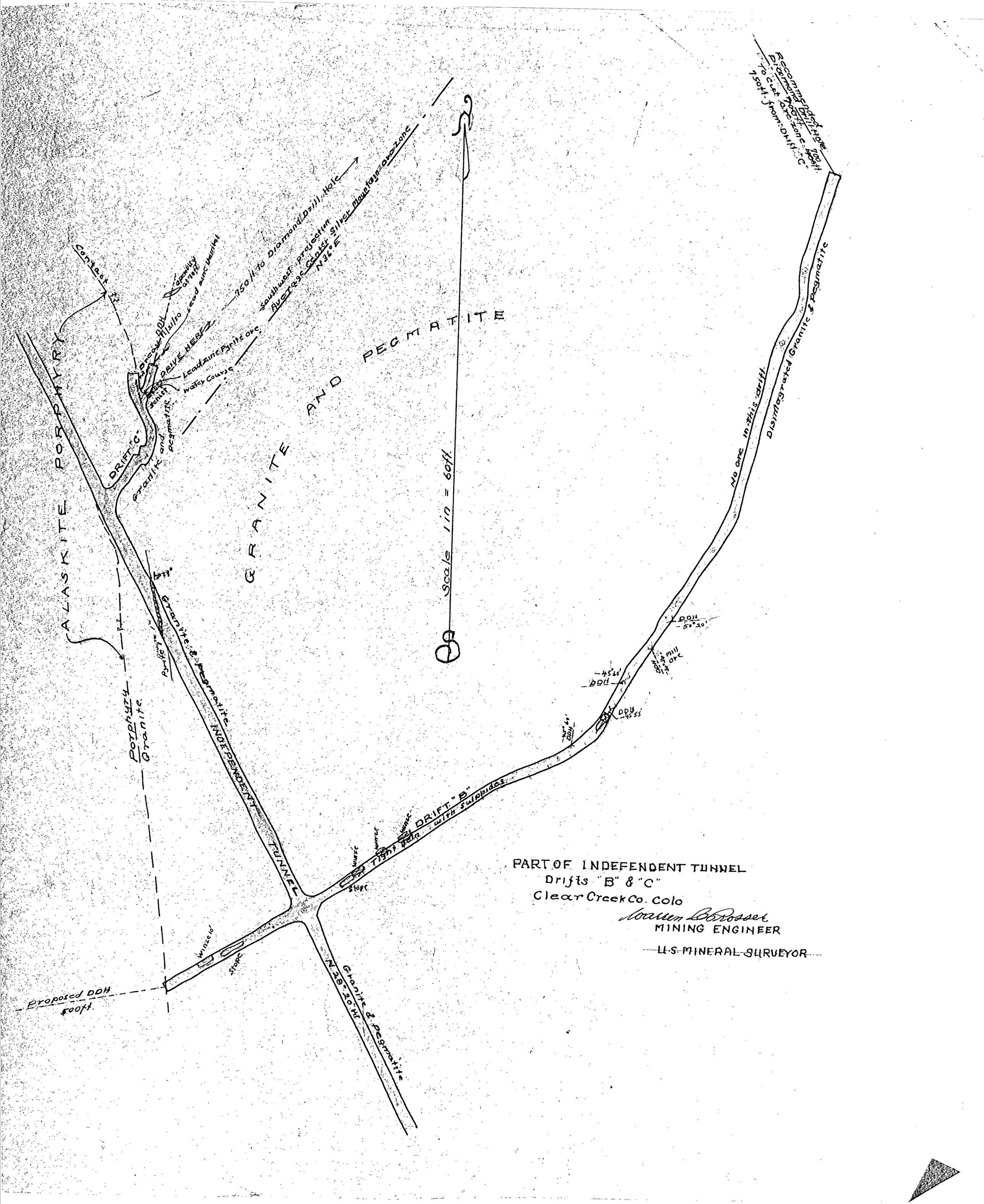
LEGEND

- GOLD HILL MINES CO. PROPERTY.
- VEINS.
- Ti4 / bcg — ROCK BOUNDARIES ON SURFACE.
- bcg — BOULDER CREEK GRANITE AND QUARTZ MONZONITE.
- spg — SILVER PLUME GRANITE.
- Ti4 — RHYOLITE - ALASKITE.
- Ti7 — DIORITE, GRANODIORITE, ANDESITE.

1 1/2 0 1 2
SCALE IN MILES

MINERAL RESOURCES BRANCH - MINING DIVISION
REGION IV
BUREAU OF MINES

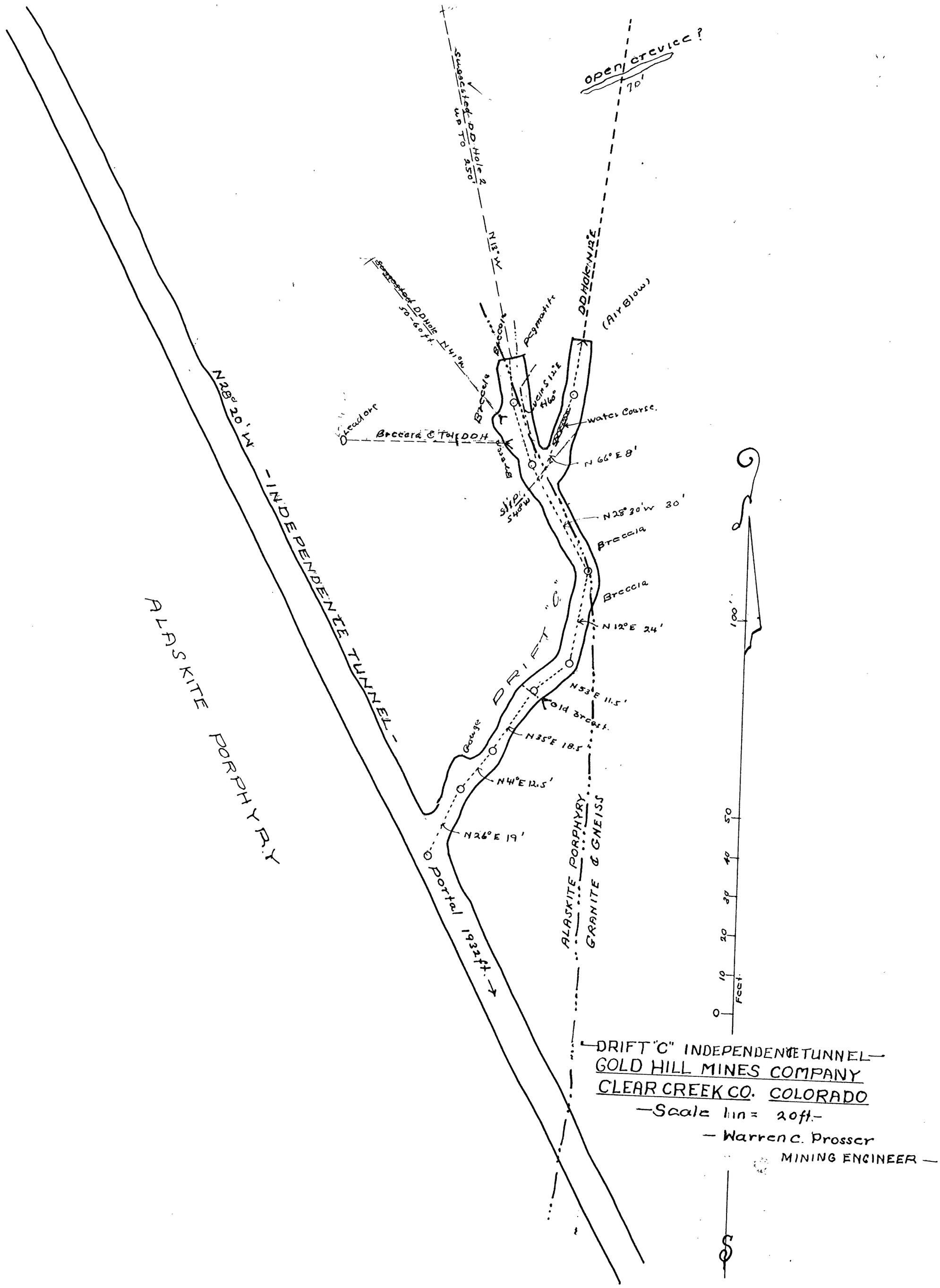
FIGURE 2 - CLAIM AND EXPLORATION MAP, GOLD HILL MINES COMPANY, INDEPENDENCE TUNNEL, CLEAR CREEK COUNTY, COLO. (DMEA 2939)

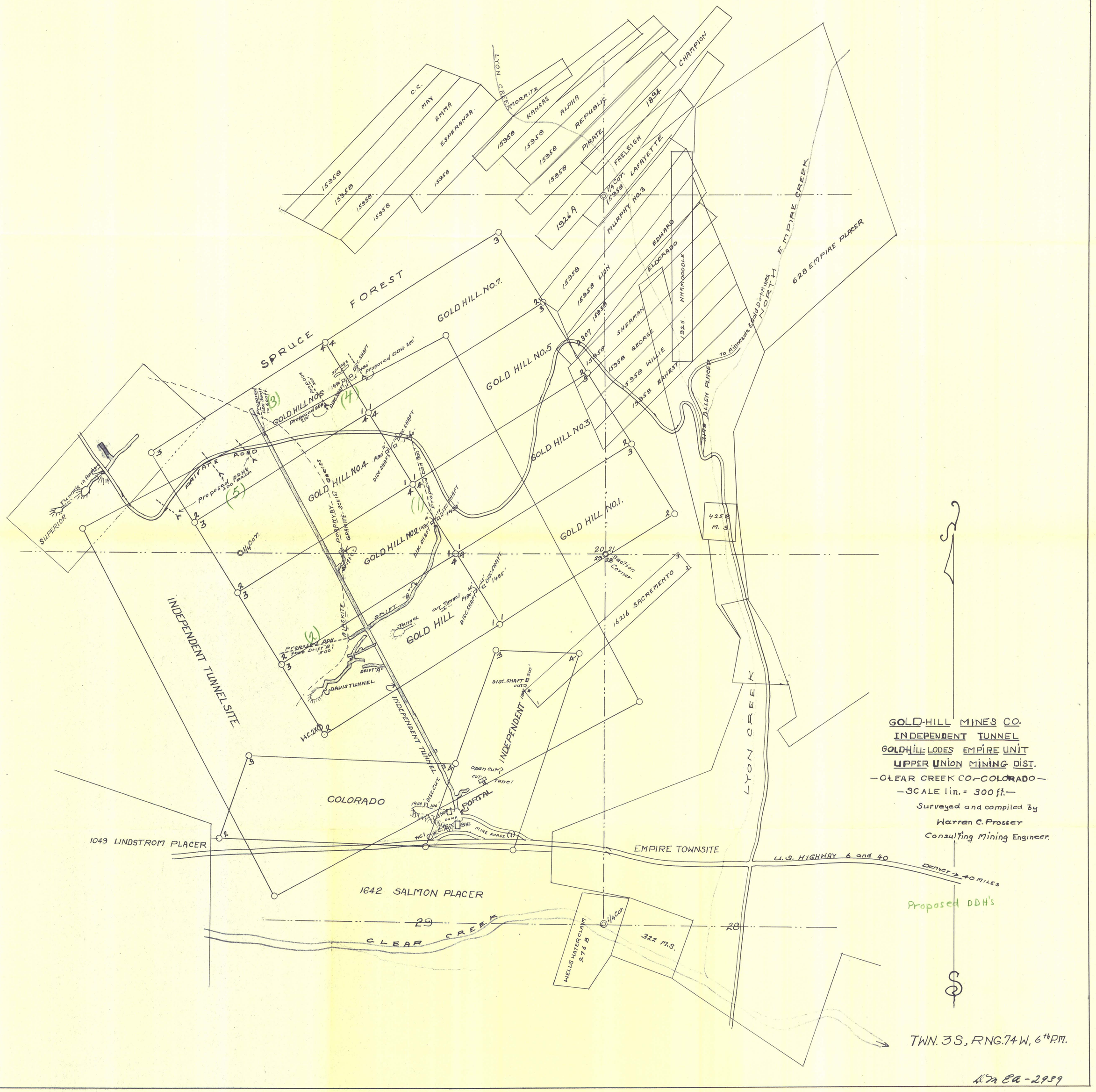


PART OF INDEPENDENT TUNNEL
Drifts "B" & "C"
Clear Creek Co. Colo

Norman B. Rosser
MINING ENGINEER

~~U.S. MINERAL SURVEYOR~~


open crevice ?
70'
Suggested DD Hole 2
up 70 250'
N 13° W
DD Hole N 12° E
(Air Blow)
Suggested DD Hole
50-60 ft.
N 41° W
Pegmatite
Breccia
Vein S 12° E
Hole
Leadore
Breccia & Tal DDH
Breccia
Water Course.
N 66° E 8'
Slip
S 40° W
N 28° 20' W 30'
Breccia
Breccia
N 12° E 24'
N 53° E 11.5'
Old Breast.
N 35° E 18.5'
N 44° E 12.5'
N 26° E 19'
Gauge
DRIFT "C"
Portal 1932 ft.
ALASKITE PORPHYRY
GRANITE & GNEISS
N 28° 20' W
INDEPENDENTE TUNNEL
ALASKITE PORPHYRY
100'
50
40
30
20
10
0
Feet
DRIFT "C" INDEPENDENTE TUNNEL
GOLD HILL MINES COMPANY
CLEAR CREEK CO. COLORADO
Scale 1 in = 20 ft.
Warren C. Prosser
MINING ENGINEER


GOLD-HILL MINES CO.
INDEPENDENT TUNNEL
GOLD-HILL LODES EMPIRE UNIT
UPPER UNION MINING DIST.
—CLEAR CREEK CO.—COLORADO—
—SCALE 1 in. = 300 ft.—
Surveyed and compiled by
Warren C. Prosser
Consulting Mining Engineer.
Proposed DDH's
TWN. 3 S, RNG. 74 W, 6th P.M.
SPRUCE FOREST
GOLD HILL NO.7.
GOLD HILL NO.5
GOLD HILL NO.4
GOLD HILL NO.3
GOLD HILL NO.2
GOLD HILL NO.1.
GOLD HILL
INDEPENDENT TUNNELSITE
INDEPENDENT TUNNEL
INDEPENDENT
COLORADO
PORTAL
LYON CREEK
EMPIRE CREEK
EMPIRE TOWNSITE
U.S. HIGHWAY 6 and 40
Denver 40 MILES
CLEAR CREEK
1049 LINDSTROM PLACER
1642 SALMON PLACER
628 EMPIRE PLACER
16216 SACREMENTO
1926 A
1894
1925
4258 M.S.
322 M.S.
WELLS HATER CLAIM 276 B
SUPERIOR
CHAMPION
C.C.
MAY
EMMA
ESPERANZA
MONARITZ
KANSAS
ALPHA
REPUBLIC
PIRATE
FRELEIGH
LAFAYETTE
MURPHY NO.3
EDWARD
ELDORADO
MAMMOOOLE
SHERMAN
GEORGE
WILLIE
ERNEST
LYON
ALLEN PLACER
To Minnesota & Gold Dirt Mines
NORTH
Section Corner
1/4 cor.
PRIVATE ROAD
Proposed DDH
Proposed Tunnel
Proposed Drift
Disc. shaft
Tunnel
Open cut
Drift "A"
Drift "B"
Davis tunnel
Mine roads
Pump
Bins
Shop
Porphyry
Granite-schist
Alaskite
Tunnels in porphyry
15958