COPY

224 New Customhouse
Denver 2, Colorado

February 18, 1953

Re: DMEA Docket 2735

Mr. S. P. True
Box 796
Tulsa, Oklahoma

Dear Mr. True:

Reference is made to your application for Government aid on the Paymaster Mine.

Projects approved by the Defense Minerals Exploration Administration must, in its judgement, 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 lead and zinc 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,

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

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

HMC:cwm
cc: Administrator (DMEA)
WMTravers
Subject
Chron.
Koschmann (2)

Reviewed by
DMEA OPERATING COMMITTEE
2-27-53
(date)

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 24 1953

224 New Customhouse
Denver 2, Colorado

February 18, 1953

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 2735, (Lead-Zinc) Paymaster Mine, Summit County, Colorado

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

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
2-27-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

DEPARTMENT OF THE INTERIOR
Defense Materials Administration
RECEIVED
FEB 2 1953

Mining Division
Region IV

February 18, 1953

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 2735 (Lead-Zinc) S. P. True, Paymaster Mine, Summit County, Colorado

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

The examining engineer concludes that the work proposed by the applicant presents too small a target for a significant discovery. He therefore recommends that the application be denied and we concur in this recommendation.

W. H. King
W. H. King

Enclosures

Reviewed by
DMEA OPERATIONS COMMITTEE
2-27-53
(Date)

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

February 16, 1953

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 2735, Paymaster Mine, Peru Mining District, Summit County, Colorado.

Attached are 8 copies of the geological report by T. H. Kuhn and 8 copies of the Summary, Conclusions, and Recommendations by C. M. Harrer and T. H. Kuhn, covering DMEA Docket 2735, Paymaster Mine, Peru Mining District, Summit County, Colorado.

The applicant proposes to explore for lead and zinc on the Paymaster claim by 175 feet of drifting and 100 feet of raising at an estimated cost of $14,390.50.

Two converging fracture systems, one barren and the other mineralized with galena and sphalerite, diagonally cross the Paymaster claim. They cut pre-Cambrian gneiss and schist. The mineralized fracture has been prospected for a distance of 485 feet, and one ore shoot 85 feet long was found and mined. Only 65 to 100 feet of this vein on the Paymaster claim remain unexplored, and both the northern and southern exposures of the unexplored portion are essentially barren. Kuhn concludes that the probability of finding ore in the unexplored portion of the vein is unfavorable and recommends that the application for a loan be denied.

I concur with this recommendation.

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

Enclosures (8)

Region IV

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
January 27, 1953

Memorandum

To: Executive Officer, Field Team, Region IV

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

Subject: DMEA 2735, Paymaster mine (Lead-zinc), Summit County, Colorado

Please find enclosed the original and eight copies of C. M. Harrer's engineering report on the subject docket. The "Summary, Conclusions, and Recommendations," by C. M. Harrer and Truman H. Kuhn, is being typed by the Geological Survey for submission.

Harrer concludes the Paymaster vein crosses the Paymaster claim instead of paralleling it, the portion of the vein under consideration is sufficiently exposed to eliminate it from the favorable category, present mine workings terminate off owned property, and, based on small production, the probability of the discovery of mineable-grade ore bodies is remote. He recommends denial of the loan application.

I concur with his conclusions and recommendation.

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

W. M. Traver, Jr.

W. M. Traver, Jr.

WMT/cb

enclosures

cc 8
DMEA 2735
Chron

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 2735

Paymaster Mine

Summit County, Colorado

Lead-zinc

C. M. Harrer, Mining Engineer
Bureau of Mines

Truman H. Kuhn, Geologist
U. S. Geological Survey

January 26, 1953

Reviewed by
DMEA OPERATING COMMITTEE
2-27-53
(date)

PAYMASTER MINE

PERU MINING DISTRICT

SUMMIT COUNTY, COLORADO

DMEA DOCKET 2735

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By C. M. Harrer, U. S. Bureau of Mines
and
Truman H. Kuhn, U. S. Geological Survey

PAYMASTER MINE
SUMMIT COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Sterling P. True of Tulsa, Oklahoma, has applied to the Defense Minerals Exploration Administration (DMEA Docket 2735) for assistance to explore for lead and zinc on the Paymaster claim in sec. 16, T. 5 S., R. 75 W., Peru Mining District, Summit County, Colorado. The property lies at an altitude of about 12,000 feet. It is inaccessible by truck for 6 months of the year.

The proposed program of 175 feet of drift and 100 feet of raise is estimated by the applicant to cost $14,390.50.

The Paymaster mine has a recorded production of 521 1/3 tons with a recovered average value of 0.04 ounces of gold per ton, 3.6 ounces of silver per ton, 11.3% lead, and 4.1% zinc.

Two converging fracture systems, one barren of sulphide mineralization and the other containing some galena and sphalerite, diagonally cross the Paymaster claim. The fractures cut pre-Cambrian gneiss and schist of the Idaho Springs formation. The mineralized system has been prospected for a distance of 485 feet--135 feet on the Paymaster claim and 350 feet on the Calla claim--and one ore body 85 feet in length has been mined upward along this nearly vertical vein. Much of the vein on the Paymaster claim at the adit level has been prospected and only 65 feet of unexplored ground remains on the claim. Because of a possible overlap caused by an offsetting fault, the unexplored vein length may be 100 feet. The northern

and southern exposures of the unexplored portion of the vein are essentially barren of lead-zinc mineralization.

Present reserves are estimated to be approximately 1000 tons, of which not more than 100 tons can be classified as measured ore. The grade should average about 0.04 ounces of gold per ton, 2.1 ounces of silver per ton, 7.5% lead, and 4.1% zinc.

Total production of only 52 tons from the Paymaster shaft and its 30- and 100-foot levels, inaccessible at the time of the examination, does not indicate the presence of an extensive ore shoot in the portion of the vein explored from the shaft.

The probability of finding shoots of lead-zinc ore of mineable grade within the zone to be investigated is very unfavorable.

Denial of Sterling P. True's application for Government assistance to explore the Paymaster lode is recommended.

PAYMASTER MINE

PERU MINING DISTRICT

SUMMIT COUNTY, COLORADO

DMEA DOCKET 2735

Geologic Report

By Truman H. Kuhn
U. S. Geological Survey

PAYMASTER MINE
SUMMIT COUNTY, COLORADO

INTRODUCTION

Sterling P. True, 104 Howard Building, Tulsa, Oklahoma, has applied to the Defense Minerals Exploration Administration for assistance in exploring for lead and zinc at the Paymaster mine. The proposed exploration program is estimated by the applicant to cost $14,390.50.

The Paymaster mine, located on the patented Paymaster claim in the northwestern corner of sec. 16, T. 5 S., R. 75 W., 6th P. M., is in Horseshoe Basin at the head of Peru Creek, approximately 4½ airline miles northeasterly from Montezuma, Summit County, Colorado. Four miles of fair, unimproved access road, which follows Peru Creek, connects the mine with State Highway 294 at a point about three-quarters of a mile north of Montezuma. Because of severe winters, the access road is open to trucks for only about 6 months of the year.

Three claims are held under lease by the applicant, the Paymaster claim (survey No. 2324), the Silver Ball claim (survey No. 2325), and the Calla mill site (survey No. 6814B). The relative location of the three claims is shown on fig. 2, "Claim and Project Map," in the accompanying U. S. Bureau of Mines engineering report on the Paymaster mine.

In U. S. Geol. Survey Prof. Paper 178, the collar of the Paymaster shaft is reported to be at an altitude of 12,050 feet and the portal of the adit level is reported to be at an altitude of 11,725 feet, a difference in elevation of 325 feet. The difference in elevation between the collar

of the Paymaster shaft and the portal of the adit level is shown to be 230 feet on a map prepared for the applicant by G. F. Galloway, U. S. Deputy Mineral Land Surveyor, of Alma, Colorado. Galloway's map is dated August 22, 1952. The Paymaster mine is also briefly described by T. S. Lovering (1935, p. 92), and by E. L. Homes (1902).

The Paymaster mine was visited on October 24, 1952 in the company of C. M. Harrer of the U. S. Bureau of Mines and Sterling P. True, applicant.

MINE WORKINGS

Mine workings on the adit level are reached by a westerly-trending crosscut approximately 530 feet long (plate I). The strongest known structure that crosses the Paymaster claim was encountered at the end of the crosscut; drift B follows that structure for 280 feet in a northerly direction and for 205 feet in a southwesterly direction. Only the most southerly 135 feet of drift B is on the Paymaster claim; the other 350 feet of the drift is on the Calla lode. Drift A was driven about 365 feet in a southwesterly direction from a point 100 feet from the end of the crosscut. At 320 feet from the crosscut, drift A crosses the southeasterly side line of the Paymaster claim and the last 45 feet of the drift is on the Calla lode. Near the northwesterly side line of the Paymaster claim, 85 feet of the vein in drift B has been stoped upward for about 40 feet. Only the southernmost 65 feet of the stope is on the Paymaster claim; the northernmost 20 feet of the stope is on the Calla lode.

A vertical shaft, the collar of which is at an altitude of about 12,050 feet, was sunk on the Paymaster vein. According to E. L. Homes (1902), the depth of the shaft is 140 feet. He also reported that at the

30-foot level of the shaft, drifts were driven both to the east and to the west for about 30 feet and at the 100-foot level, drifts were driven in both directions for about 100 feet.

All workings on the adit level can be examined. Because of water and an unsafe collar, the shaft and the levels from the shaft are inaccessible.

PROPOSED WORK

The applicant proposes a 175-foot southwesterly extension of drift B along the vein to a point approximately 100 feet past the downward projection of the Paymaster shaft. The applicant also proposes a raise from drift B to connect with the bottom of the Paymaster shaft.

RELATION OF PAYMASTER VEIN TO CLAIM BOUNDARIES

Tape and Brunton compass mapping by the DMEA examining team shows that the vein in drift B makes an angle of approximately 25° with the length of the narrow (100 foot) Paymaster claim (plate 1). At that 25° angle, a vein length of about 200 feet normally would be the maximum expectable length between the sidelines of the claim. At the time of the examination, the vein in drift B had been explored for at least 135 feet on the Paymaster claim.

As discussed below under "Geology," the vein mapped on the Paymaster and Calla claims in the southernmost workings of drift A is assumed to be the same vein as the one exposed in the southern face of drift B. If this assumption is correct, the two segments are separated by only 65 feet of unexplored ground. Because of possible overlap produced by the offsetting, northerly-trending, fault that cuts between the two exposures, the length

of the unexplored vein could be as much as 30 feet in the northeastern fault block and 70 feet on the south side of the fault.

At the adit level, the vein in drift B is nearly parallel to the length of the Calla claim, but near the southern end line of the Calla, the vein crosses onto the older, overlapping Silver Falls claim. Neither the Calla (survey No. 6814A), which is a younger claim crossing the Paymaster and the Silver Falls claims, nor the older Silver Falls claim (survey No. 466) is controlled by the applicant.

GEOLOGY

Two converging fracture systems, which diagonally cross the Paymaster claim, are exposed on the adit level. The fractures cut pre-Cambrian gneiss and schist of the Idaho Springs formation. One system, explored by drift A (plate I), has an average strike of approximately N. 30° E., an average dip of 60° NW., and is made up of gouge- and breccia-filled branching fractures. The individual fractures range from 1 to 6 inches in width and are barren of sulphide mineralization. Drift B has been driven on a second fracture system that crosses the Paymaster claim. Exposed in the drift is a sheeted zone with a maximum thickness of 5 feet. North of the main crosscut, where this second system has a north strike and a dip ranging from 87° W. to 75° E., the individual fractures attain a maximum width of 6 inches and consist principally of gouge, brecciated wallrock, and quartz. Only a few, small, isolated pyrite grains were observed. South of the crosscut, the strike of the fracture system exposed in drift B changes from north to N. 20° E. Dips are between 88° W. and 80° E. The individual fractures within the zone range up to 6 inches in width. In

places on the Paymaster claim and on adjoining portions of the Calla claim, gouge and breccia in the fractures have been cemented and cut by veinlets, small masses, and disseminated grains of galena, pyrite, sphalerite, quartz, rhodochrosite (?), and barite. In the stope mined from the adit level, mineralization averaged 4 feet in width over a length of 85 feet and for a height of about 40 feet.

Reasonable assumption can be made that the vein exposed in the southern face of drift B continues across 65 feet of unexplored ground on the Paymaster claim, and, with a resumed north strike, is exposed again for 60 feet in the southernmost portion of drift A. In the southern end of drift A, a 2- to 4-inch brecciated zone with gouge, quartz, rhodochrosite (?), and small, scattered grains of pyrite can be seen for 10 feet on the Paymaster claim and for an additional 50 feet on the Calla lode. This zone in drift A is very similar in character to the one-inch crushed zone in the breast of drift B, which contains quartz, rhodochrosite (?), and scattered grains of pyrite, sphalerite, and galena. The dip and strike of the two segments are similar.

Projections of the segments in drift A and drift B will not meet because a strong fault, striking N. 5° W., and dipping 80° E., apparently intersects both continuations in an unprospected region on the Paymaster claim. A possible overlap, resulting from movement along this northerly-trending fault, could increase the unexplored vein length from 65 to 100 feet. If the overlap exists, approximately 30 feet of unexplored vein would be north of the fault and about 70 feet of unexplored vein would be south of the fault.

At the surface a nearly vertical vein, striking N. 15°-40° E., is exposed in and near the Paymaster shaft. The vein has a width of 5½ feet in a shallow trench near the collar of the shaft. Quartz, barite, galena, green and brown sphalerite, and minor amounts of chalcopyrite can be seen in the trench and on the Paymaster dump. The Paymaster shaft and drift B are probably on the same vein.

PRODUCTION

According to U. S. Bureau of Mines production statistics and a statement by Sterling P. True, the total production from the Paymaster mine amounts to 521 1/3 tons of ore having an average value of 0.04 ounces of gold per ton, 3.6 ounces of silver per ton, 11.3% lead, and 4.1% zinc. Approximately 52 tons of the ore were taken from the shaft and the workings off the shaft, about 13 1/3 tons came from the surface trench near the collar of the Paymaster shaft, and the rest came from the adit level stope on the Paymaster and Calla claims.

The following table shows the production by years:

Date	oz. Au /Ton	oz. Ag /Ton	% Pb	% Zn	Tons	From
1882					10	Shaft
1886					30	Shaft
1917	0.045	13.0	43.35		12	Shaft
1922	0.06	9.0	9.5		23	Adit level stope
1951	0.13	5.35	12.45	2.15	9 1/3	Surface trench
1951	0.265	5.7	16.05	3.2	4	Surface trench
1952	0.045	1.95	5.52	4.45	144	Adit level stope
1952	0.037	2.23	8.47	3.92	289	Adit level stope

ORE RESERVES AND GRADE

Estimated ore reserves on the Paymaster claim will not exceed 1000 tons, of which not more than 100 tons can be classified as measured ore.

Adit Level Reserves

Discovery of additional ore bodies at the adit level on the Paymaster claim is considered improbable and the only estimable ore reserves are above and below the small stope near the northwesterly sideline of the Paymaster claim. The estimated ore above and below the stope will not exceed 1000 tons, of which not more than 100 tons can be classed as measured ore.

The maximum possible length of unexplored vein at the adit level is estimated to be 100 feet--30 feet to the north of an offsetting fault and 70 feet to the south of the fault. The northern and southern exposures of the unexplored portion of the vein are essentially barren of lead-zinc mineralization. From geologic mapping of drift B it appears improbable that an ore shoot might occur within 40 or 50 feet of the barren or only weakly mineralized portion of the vein. Thus, an ore shoot, if present in the unexplored portion of the vein, would probably not exceed 10 to 20 feet in length.

Paymaster Shaft Reserves

E. L. Homes (1902) mentioned the presence of a "body of ore" on the 30-foot level and "a large amount of heavy mill ore" on the 100-foot level of the Paymaster shaft. Past production figures indicate that mining was attempted from the shaft at three separate periods in 1882, 1886, and 1917, and during those three periods only 10 tons, 30 tons, and 12 tons

respectively, were shipped. Since only 52 tons of ore were produced from the shaft during three separate attempts at mining, the presence of mineable amounts of ore in the shaft is seriously questioned.

Grade of Adit Level Ore

The ore mined in 1952 from the adit level stope on the Paymaster and Celia claims averaged 0.04 ounces of gold per ton, 2.1 ounces of silver per ton, 7.5% lead, and 4.1% zinc.

Three vein samples taken at the adit level on the Paymaster claim assayed:

Sample No.	oz. Au /Ton	oz. Ag /Ton	% Pb	% Zn	Width Feet	Location
638	0.08	0.4	0.1	0.5	0.9	South face of drift B
639	0.02	3.2	10.6	2.8	3.0	Stope, drift level
640	0.04	2.6	12.1	2.6	3.0	Stope, 27 feet above track

Grade of Paymaster Shaft Ore

No reliable record exists of the grade of the ore produced from the Paymaster shaft. However, a 5½ foot vein sample taken from the surface trench near the collar of the Paymaster shaft contained 0.02 ounces of gold per ton, 2.4 ounces of silver per ton, 6.2% lead, and 0.25% zinc.

CONCLUSIONS

Enough exploration work has been done and sufficient geologic evidence is available to conclude that little or no additional lead-zinc ore would be discovered by further exploration work on the Paymaster claim.

The above conclusion is based on the following factors:

1. Only about 65 feet of unexplored ground separates the two assumed segments of the vein on the Paymaster claim. (Because of a possible overlap caused by an offsetting fault, the unexplored vein length may be 100 feet.)

2. Based on observations made in drift B, logical assumption can be made that if an ore body exists in the unexplored portion of the vein at the adit level, that ore body would not exceed 10 to 20 feet in length.

3. Of the 485 feet of exposed vein in drift B, only 85 feet is sufficiently mineralized to be mineable.

4. The Paymaster shaft and drift B probably are on the same vein.

5. Because a total of only 52 tons of ore have been produced by three separate mining operations at the Paymaster shaft, the conclusion can be drawn that very little ore is present in the shaft or the workings from the shaft.

6. There is no reason to believe that the ore in the small stope above the adit level continues upward to the showing of ore at the surface.

RECOMMENDATION

Denial of the request for Defense Minerals Exploration Administration assistance to explore on the Paymaster claim for lead and zinc at a cost of $14,390.50 is recommended.

REFERENCES

Lovering, T. S., Geology and ore deposits of the Montezuma quadrangle, Colo.: U. S. Geol. Survey Prof. Paper 178, p. 92, 1935.

Homes, E. L., Unpublished private report, listed in the "Annotated Catalogue of Unpublished Engineering and Geologic Reports of Mineral Resources of Colo., and on file at the Denver Public Library and the library of the Colo. School of Mines.

DMEA 2735

PAYMASTER MINE
SUMMIT COUNTY, COLORADO

Engineering Report

By C. M. Harrer
Mining Engineer
Bureau of Mines

DMEA 2735

PAYMASTER MINE
SUMMIT COUNTY, COLORADO

CONTENTS

Engineering Report	Page
Introduction	1
Acknowledgments	1
Location, topography, and physical features	1
History and production	2
Ownership and extent	3
Sampling	4
Description of the deposit	5
Mineable ore reserves	7
Present status	8
Exploration and development	8
Mining and milling equipment	9
Project proposals	9
Conclusions	9
Recommendations	10

ILLUSTRATIONS

Figure	Follows page
1. Location map, Paymaster mine, Summit County, Colorado	1
2. Claim and project map, Paymaster mine, Summit County, Colorado	10

DMEA 2735

PAYMASTER MINE
SUMMIT COUNTY, COLORADO

ENGINEERING REPORT

By

C. M. Harrer

INTRODUCTION

S. P. True, of Tulsa, Okla., lessee of the Paymaster mine, has applied for a Defense Minerals Exploration Administration loan of $14,390.50 to explore the Paymaster vein with an estimated 175 feet of drift and approximately 100 feet of raise from the drift to the bottom of the Paymaster shaft.

A field examination of surface exposures and underground development was made by an examining team of the Defense Minerals Exploration Administration on October 24, 1952.

ACKNOWLEDGMENTS

S. P. True, lessee of the Paymaster mine and loan applicant, accompanied the examining team as guide and cooperated fully with all information at his disposal.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The Paymaster mine is in sec. 16, T. 5 S., R. 75 W., sixth principal meridian, in the Horseshoe Basin, Peru Mining District, Summit County, Colo. (fig. 1), at an altitude of about 12,000 feet.

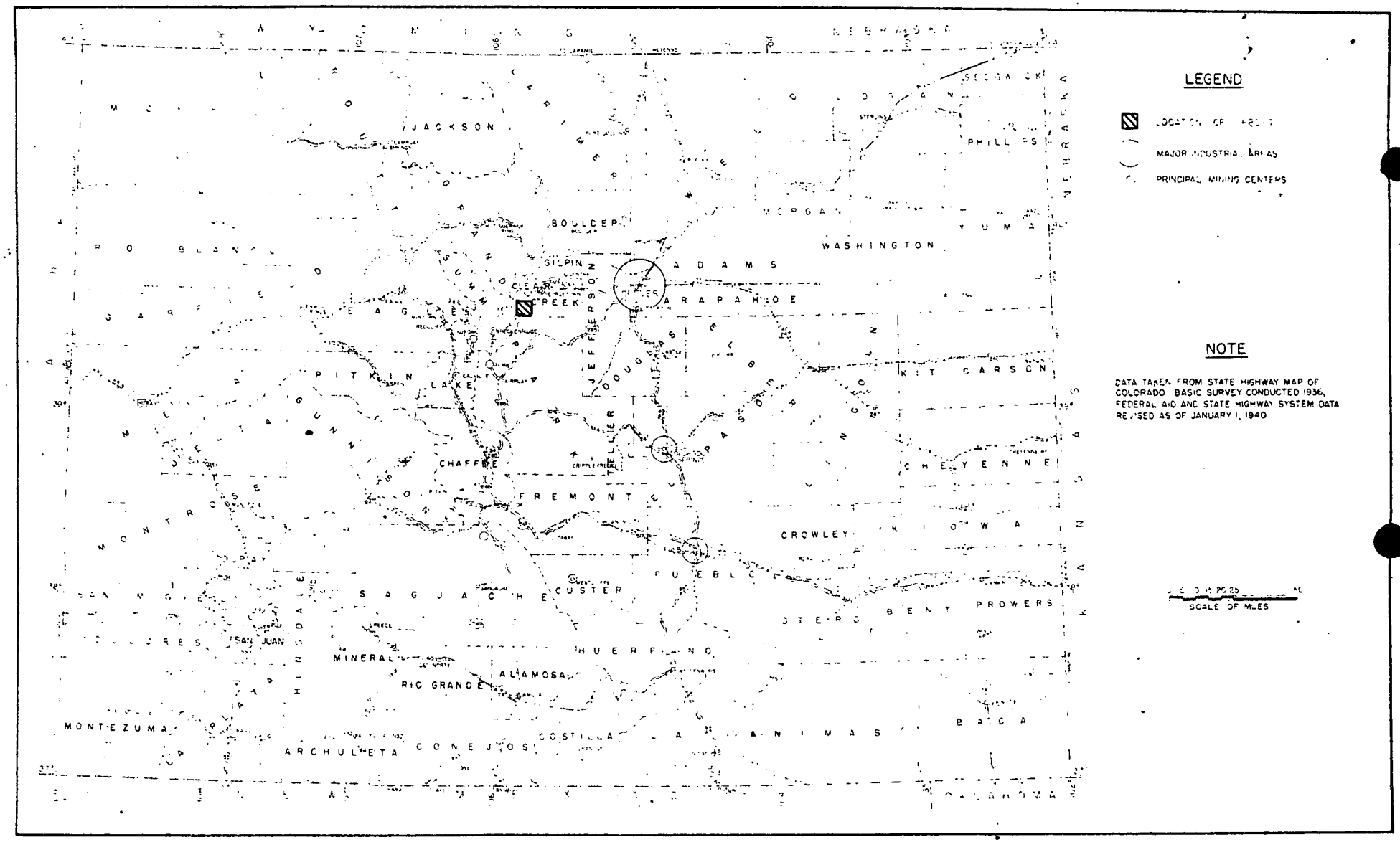


Figure 1 - Location map, Paymaster mine, Summit County, Colorado. - DMEA 2735.

The mine is reached from the junction of U. S. Highway 9 and the Montezuma road (county road 294), over the latter for 4.9 miles to the Horseshoe Basin junction; thence 6 miles up Peru Creek on a rough ore-haul road.

The Paymaster mine is about 45 miles from Leadville, Colo., site of the nearest smelting facilities of the American Smelting and Refining Company and the Resurrection Mining Company's custom mill.

There is no timber on the property. Water is available from underground drainage and Peru Creek, about 1/2 mile distant. Winters are severe, with heavy snowfall, limiting mining operations to not more than a 6-month period.

HISTORY AND PRODUCTION

The Paymaster vein was discovered about 1860. Active development started in 1879. In the next few years the shaft was sunk to 80 feet and several hundred feet of drifts were driven. A tramway and mill built in 1882 have vanished. The Paymaster and Silver Ball claims were patented in 1881. Production has been sporadic and small, totaling 521 tons to date, as follows:

Production Data - Paymaster Mine

Year	Tons	Location	Type of ore	Ounce per Ton Gold	Ounce per Ton Silver	Percent Lead	Percent Zinc	Percent Copper
1879-1916	40	Paymaster shaft and levels	—	-	-	-	-	-
1917	12	Paymaster shaft and levels	Smelter	0.045	13.0	43.35	-	0.2
1918-21	none	-	-	-	-	-	-	-
1922	23	Stope above adit level	Smelter	.06	9.0	9.5	-	-
1923-50	none	-	-	-	-	-	-	-
1951	13-1/3*	Outcrop trench	Smelter	.17	5.4	13.6	2.5	-
1952	433*	Stope above adit level	Mill	.04	2.1	7.5	4.1	-

*Average reported in written communication dated October 27, 1952, from the applicant.

One carload lot of sorted ore shipped to the Grant smelter prior to 1902 reportedly assayed 0.1 ounce gold and 13.0 ounces silver per ton, 37.0 percent lead and 13.0 percent zinc. This came from the start of the stope which is the source of all 1952 production.

OWNERSHIP AND EXTENT

S. P. True, loan applicant, is lessee of the Paymaster mine, figure 2, which includes the patented Paymaster lode, survey number 2324, and the Silver Ball lode, survey number 2325, which adjoins it to the southwest. The Calla mill site, survey number 6814-B is also included.

Lessors include:

Mrs. C. B. Hoyt, of Gering, Nebr.
Mrs. M. W. Smith, of Los Angeles, Calif.
Mr. F. L. Marquis, of Los Angeles, Calif.
Mr. K. L. Marquis, of Lakeside, Calif.
Mabel B. Wade, of Halford, Kans.
Mrs. A. Trupp, of Hastings, Nebr.

The lease operations started July 1, 1951, and will continue for 5 years.

Royalties on all ores from the property are:

10 percent on ores with a net smelter return value of up to $50.00 per ton.

15 percent on ores with a net smelter return value over $50.00 and up to $90.00 per ton.

20 percent on ores with a net smelter return value over $90.00 and up to $125.00 per ton.

25 percent on ores with a net smelter return value of over $125.00 per ton.

SAMPLING

Four samples were taken across the vein as shown on figure 2. Sample H-638 was taken across the vein width of 0.9 feet in the breast of the south drift, 238 feet south of the crosscut adit. Sample H-639 was taken across a vein width of 3.0 feet in the back of the drift at the south edge of the stope. Sample H-640 was taken across the vein and ore width of 3.0 feet at the north edge of the stope, 27 feet above the sill. Sample H-641 was taken across the vein and ore width of 5.5 feet, exposed in the surface trench southwest of the Paymaster shaft.

Sampling Data

Sample Number	Width in feet	Ounce per Ton Gold	Silver	Percent Lead	Zinc	Description
B-638	0.9	0.03	0.4	0.1	0.5	Vein width at south drift breast on crosscut adit level
B-639	3.0	0.02	3.2	10.6	2.8	Vein width, south end of stope, on crosscut adit level
B-640	3.0	0.04	2.6	12.1	2.6	Vein width, north end of stope, 27 feet above adit level sill
B-641	5.5	0.02	2.4	6.2	0.25	Vein width in trench at outcrop, 17 feet southwest of Paymaster shaft

DESCRIPTION OF THE DEPOSIT

Galena and sphalerite occur in the Paymaster vein with a quartz and barite gangue. Manganosiderite and rhodonite are also present. Sphalerite appears as the light-colored and greenish varieties. A small amount of tennite and chalcopyrite is also present. Fine-grained pyrite appears concentrated in the wall rocks and more barren portions of the vein. The vein is about 3 feet wide but varies between limits of 2 inches to over 7 feet. It is open-textured, as evidenced by coarse and vuggy quartz. Vein material on the dumps is partly coated with a black, metallic, manganese film.

The Paymaster vein roughly parallels the foliation of the enclosing gneiss and schist. It is traceable over the surface in the vicinity of the Paymaster shaft for about 100 feet and is 5.5

feet wide as exposed in a trench. It is reported[1] developed through the Paymaster shaft on the 30- and 100-foot levels as follows:

The 30-foot level is reported to expose 365 feet of ore and vein over its length of 60 feet.

The 100-foot level was reported to expose the vein and ore over its length of 100 feet southwest of the shaft with widths averaging 4 feet. Northeast of the shaft, ore is reported to extend 50 feet from the shaft, at which point galena and sphalerite mineralization ceases and is replaced by quartz.

Only 52 tons of closely sorted ore are reported shipped from the Paymaster shaft and the 30- and 100-foot levels (fig. 2), all prior to 1918.

An additional 13-1/3 tons of sorted ore were shipped from the outcrop trench (fig. 2), south of the Paymaster shaft, during 1951.

Major production of 456 tons was from the stope developed from the adit level (fig. 2), southwest of the crosscut and about 222 feet below the top of the Paymaster shaft and outcrop.

On the adit level, the vein is exposed from about 40 feet south of the crosscut to its end, 320 feet to the north, as a barren, iron-stained, and quartz-filled fissure paralleling the foliation of the enclosing gneiss and schist. This portion is known as the Calla vein.

1/ Homes, E. L., Consulting Engineer. Report on Paymaster group of mines. 1902. Denver Public Library.

To the southeast, the same vein crosses the schistosity and is known as the Paymaster vein. The single lenticular body of ore developed has been stoped to a width of 4 feet and a length of 80 feet. The stope extends 23 feet above the sill. It has been the major source of production.

Beyond this ore shoot the vein is again pinched and poorly mineralized to the end of the drift.

Extension of the Paymaster vein to the southeast beyond the end of the aforementioned drift is visible for about 60 feet in the end of the parallel drift to the southeast, beyond a postmineral fault. The vein is very narrow and poorly mineralized to the limits of the Paymaster claim.

The 70-foot gap between the above end extensions of the Paymaster vein on the adit level shows no promise of developing appreciable reserves of lead-zinc ore.

Furthermore, the reported total production of 52 tons of sorted ore from the Paymaster shaft and its 30- and 100-foot levels does not lend credence to the existence of an extensive ore shoot and the occurrence of large ore bodies of commercial grade.

MINEABLE ORE RESERVES

Lead-zinc ore reserves remain as stope remnants and extensions above and below the adit level, and total about 1,000 tons as follows:

100 tons of measured ore
200 tons of indicated ore
700 tons of inferred ore

Average assay value is assumed as that for the 433 tons of mill-grade ore produced during 1952, i. e., 0.04 ounce gold and 2.1 ounces silver per ton, 7.5 percent lead and 4.1 percent zinc.

PRESENT STATUS

Exploration and Development

The Paymaster mine (fig. 2) was first developed from its outcrop on the Paymaster lode claim by a 4- by 8-foot shaft which followed the vein down dip for 140 feet. Two levels were driven 30 and 100 feet below the shaft collar. The 30-foot level was reported driven 30 feet each direction from the shaft. The 100-foot level was reported driven 100 feet each direction from the shaft. All of the shaft workings were inaccessible at the time of examination.

The surface southwest of the shaft has been stripped and the vein exposed in a 5- by 20-foot pit over a width of 5.5 feet. The vein can be traced on the surface for about 100 feet.

Underground exploration accessible to the examining team consisted of a 535-foot crosscut adit whose portal is 320 feet east of the Paymaster shaft and 230 feet below it. It intersects the Calla and Paymaster veins which are developed by a total of 850 feet of drift and 20 feet of crosscut (fig. 2). The only production from this level on the Paymaster vein was from a single stope, roughly 80 feet long by 23 feet high and 4 feet wide. It is entirely accessible.

Mining and Milling Equipment

The surface plant consists of one building which houses the compressor and tools on the job. Equipment which the applicant has on the property and its estimated valuation are as follows:

Item	Value
1 Gardner-Denver air compressor, capacity 285 c.f.m.	$3,000.00
1 Thor stoper, complete with hoses and water tank	450.00
1 Ingersoll-Rand jackhammer, complete with hoses and water tank	500.00
3 27-cubic-foot mine cars	600.00
1 Dodge, model WC-14, 4-wheel-drive truck (used)	750.00

There is no mill on the property and none is contemplated. A small ore bin is located at the adit portal and was used as a trucking terminus during 1952.

PROJECT PROPOSALS

S. P. True has applied for $14,390.50 to explore the Paymaster vein with 175 feet of drift to the south of the present breast of the adit level to a point beyond the Paymaster shaft. Also included are about 100 feet of raise to a connection with the Paymaster shaft for information on the continuity of the ore shoot reported to extend over 100 feet below the collar of the Paymaster shaft.

In addition, he expects to house the sorting and ore bins and construct snowsheds over outside trackage.

CONCLUSIONS

Ore occurs as small lenticular bodies of galena-sphalerite, gold, and silver, widely separated by barren zones. Gangue is predominantly quartz and barite.

That part of the Paymaster vein under consideration for exploration is sufficiently exposed to eliminate it from consideration as a favorable exploration project.

The vein crosses the Paymaster claim instead of paralleling it.

Present termination of development in the southeasternmost drift is off the property controlled by the applicant (fig. 2).

The small production of 52 tons from the Paymaster shaft and its 30- and 100-foot levels does not lend credence to the existence of an extensive ore shoot and the occurrence of large lead-zinc ore bodies.

The probability of finding shoots of lead-zinc ore of mineable grade within the zone to be investigated is very unfavorable.

RECOMMENDATIONS

It is recommended that S. P. True's application for Government assistance to explore the Paymaster lode at a cost of $14,390.50 under a Defense Minerals Exploration Administration loan be denied.

cb

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 24 1953

224 New Customhouse
Denver 2, Colorado

February 18, 1953

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 2735, (Lead-Zinc) Paymaster Mine, Summit County, Colorado

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

W. H. King

W. H. King

A. H. Koschmann

A. H. Koschmann

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE

2-27-53
(date)

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 24 1953

224 New Customhouse
Denver 2, Colorado

February 18, 1953.

Re: DMEA Docket 2735

Mr. S. P. True
Box 796
Tulsa, Oklahoma

Dear Mr. True:

Reference is made to your application for Government aid on the Paymaster Mine.

Projects approved by the Defense Minerals Exploration Administration must, in its judgement, 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 lead and zinc 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. H. Koschmann
A. H. Koschmann
Field Team, Region IV

HMC:cwm

cc: Administrator (DMEA)
WMTravers
Subject
Chron.
Koschmann (2)

Reviewed by
DMEA OPERATING COMMITTEE
2-27-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

DEPARTMENT OF THE INTERIOR
D... Mines Administration
RECEIVED
FEB 2 1953

Mining Division
Region IV

February 18, 1953

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 2735 (Lead-Zinc) S. F. True, Paymaster Mine, Summit County, Colorado

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

The examining engineer concludes that the work proposed by the applicant presents too small a target for a significant discovery. He therefore recommends that the application be denied and we concur in this recommendation.

W. H. King
W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
2-27-53
(date)

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

February 16, 1953

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 2735, Paymaster Mine, Peru Mining District, Summit County, Colorado.

Attached are 8 copies of the geological report by T. H. Kuhn and 8 copies of the Summary, Conclusions, and Recommendations by C. M. Harrer and T. H. Kuhn, covering DMEA Docket 2735, Paymaster Mine, Peru Mining District, Summit County, Colorado.

The applicant proposes to explore for lead and zinc on the Paymaster claim by 175 feet of drifting and 100 feet of raising at an estimated cost of $14,390.50.

Two converging fracture systems, one barren and the other mineralized with galena and sphalerite, diagonally cross the Paymaster claim. They cut pre-Cambrian gneiss and schist. The mineralized fracture has been prospected for a distance of 485 feet, and one ore shoot 85 feet long was found and mined. Only 65 to 100 feet of this vein on the Paymaster claim remain unexplored, and both the northern and southern exposures of the unexplored portion are essentially barren. Kuhn concludes that the probability of finding ore in the unexplored portion of the vein is unfavorable and recommends that the application for a loan be denied.

I concur with this recommendation.

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

Enclosures (8)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
January 27, 1953

Memorandum

To: Executive Officer, Field Team, Region IV

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

Subject: DMEA 2735, Paymaster mine (Lead-zinc), Summit County, Colorado

Please find enclosed the original and eight copies of C. M. Harrer's engineering report on the subject docket. The "Summary, Conclusions, and Recommendations," by C. M. Harrer and Truman H. Kuhn, is being typed by the Geological Survey for submission.

Harrer concludes the Paymaster vein crosses the Paymaster claim instead of paralleling it, the portion of the vein under consideration is sufficiently exposed to eliminate it from the favorable category, present mine workings terminate off owned property, and, based on small production, the probability of the discovery of mineable-grade ore bodies is remote. He recommends denial of the loan application.

I concur with his conclusions and recommendation.

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

W. M. Traver, Jr.

W. M. Traver, Jr.

WMT/cb

enclosures

cc 8
DMEA 2735
Chron

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 2735

Paymaster Mine

Summit County, Colorado

Lead-zinc

C. M. Harrer, Mining Engineer
Bureau of Mines

Truman H. Kuhn, Geologist
U. S. Geological Survey

January 26, 1953

Reviewed by
DMEA OPERATING COMMITTEE
2-27-53
(date)

PAYMASTER MINE

PERU MINING DISTRICT

SUMMIT COUNTY, COLORADO

DMEA DOCKET 2735

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By C. M. Harrer, U. S. Bureau of Mines
and
Truman H. Kuhn, U. S. Geological Survey

PAYMASTER MINE
SUMMIT COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Sterling P. True of Tulsa, Oklahoma, has applied to the Defense Minerals Exploration Administration (DMEA Docket 2735) for assistance to explore for lead and zinc on the Paymaster claim in sec. 16, T. 5 S., R. 75 W., Peru Mining District, Summit County, Colorado. The property lies at an altitude of about 12,000 feet. It is inaccessible by truck for 6 months of the year.

The proposed program of 175 feet of drift and 100 feet of raise is estimated by the applicant to cost $14,390.50.

The Paymaster mine has a recorded production of 521 1/3 tons with a recovered average value of 0.04 ounces of gold per ton, 3.6 ounces of silver per ton, 11.3% lead, and 4.1% zinc.

Two converging fracture systems, one barren of sulphide mineralization and the other containing some galena and sphalerite, diagonally cross the Paymaster claim. The fractures cut pre-Cambrian gneiss and schist of the Idaho Springs formation. The mineralized system has been prospected for a distance of 485 feet--135 feet on the Paymaster claim and 350 feet on the Calla claim--and one ore body 85 feet in length has been mined upward along this nearly vertical vein. Much of the vein on the Paymaster claim at the adit level has been prospected and only 65 feet of unexplored ground remains on the claim. Because of a possible overlap caused by an offsetting fault, the unexplored vein length may be 100 feet. The northern

and southern exposures of the unexplored portion of the vein are essentially barren of lead-zinc mineralization.

Present reserves are estimated to be approximately 1000 tons, of which not more than 100 tons can be classified as measured ore. The grade should average about 0.04 ounces of gold per ton, 2.1 ounces of silver per ton, 7.5% lead, and 4.1% zinc.

Total production of only 52 tons from the Paymaster shaft and its 30- and 100-foot levels, inaccessible at the time of the examination, does not indicate the presence of an extensive ore shoot in the portion of the vein explored from the shaft.

The probability of finding shoots of lead-zinc ore of mineable grade within the zone to be investigated is very unfavorable.

Denial of Sterling P. True's application for Government assistance to explore the Paymaster lode is recommended.

PAYMASTER MINE

PERU MINING DISTRICT

SUMMIT COUNTY, COLORADO

DMEA DOCKET 2735

Geologic Report

By Truman H. Kuhn
U. S. Geological Survey

PAYMASTER MINE
SUMMIT COUNTY, COLORADO

INTRODUCTION

Sterling P. True, 104 Howard Building, Tulsa, Oklahoma, has applied to the Defense Minerals Exploration Administration for assistance in exploring for lead and zinc at the Paymaster mine. The proposed exploration program is estimated by the applicant to cost $14,390.50.

The Paymaster mine, located on the patented Paymaster claim in the northwestern corner of sec. 16, T. 5 S., R. 75 W., 6th P. M., is in Horseshoe Basin at the head of Peru Creek, approximately 4½ airline miles northeasterly from Montezuma, Summit County, Colorado. Four miles of fair, unimproved access road, which follows Peru Creek, connects the mine with State Highway 294 at a point about three-quarters of a mile north of Montezuma. Because of severe winters, the access road is open to trucks for only about 6 months of the year.

Three claims are held under lease by the applicant, the Paymaster claim (survey No. 2324), the Silver Ball claim (survey No. 2325), and the Calla mill site (survey No. 6814B). The relative location of the three claims is shown on fig. 2, "Claim and Project Map," in the accompanying U. S. Bureau of Mines engineering report on the Paymaster mine.

In U. S. Geol. Survey Prof. Paper 178, the collar of the Paymaster shaft is reported to be at an altitude of 12,050 feet and the portal of the adit level is reported to be at an altitude of 11,725 feet, a difference in elevation of 325 feet. The difference in elevation between the collar

of the Paymaster shaft and the portal of the adit level is shown to be 230 feet on a map prepared for the applicant by G. F. Galloway, U. S. Deputy Mineral Land Surveyor, of Alma, Colorado. Galloway's map is dated August 22, 1952. The Paymaster mine is also briefly described by T. S. Lovering (1935, p. 92), and by E. L. Homes (1902).

The Paymaster mine was visited on October 24, 1952 in the company of C. M. Harrer of the U. S. Bureau of Mines and Sterling P. True, applicant.

MINE WORKINGS

Mine workings on the adit level are reached by a westerly-trending crosscut approximately 530 feet long (plate 1). The strongest known structure that crosses the Paymaster claim was encountered at the end of the crosscut; drift B follows that structure for 280 feet in a northerly direction and for 205 feet in a southwesterly direction. Only the most southerly 135 feet of drift B is on the Paymaster claim; the other 350 feet of the drift is on the Calla lode. Drift A was driven about 365 feet in a southwesterly direction from a point 100 feet from the end of the crosscut. At 320 feet from the crosscut, drift A crosses the southeasterly side line of the Paymaster claim and the last 45 feet of the drift is on the Calla lode. Near the northwesterly side line of the Paymaster claim, 85 feet of the vein in drift B has been stoped upward for about 40 feet. Only the southernmost 65 feet of the stope is on the Paymaster claim; the northernmost 20 feet of the stope is on the Calla lode.

A vertical shaft, the collar of which is at an altitude of about 12,050 feet, was sunk on the Paymaster vein. According to E. L. Homes (1902), the depth of the shaft is 140 feet. He also reported that at the

30-foot level of the shaft, drifts were driven both to the east and to the west for about 30 feet and at the 100-foot level, drifts were driven in both directions for about 100 feet.

All workings on the adit level can be examined. Because of water and an unsafe collar, the shaft and the levels from the shaft are inaccessible.

PROPOSED WORK

The applicant proposes a 175-foot southwesterly extension of drift B along the vein to a point approximately 100 feet past the downward projection of the Paymaster shaft. The applicant also proposes a raise from drift B to connect with the bottom of the Paymaster shaft.

RELATION OF PAYMASTER VEIN TO CLAIM BOUNDARIES

Tape and Brunton compass mapping by the DMEA examining team shows that the vein in drift B makes an angle of approximately 25° with the length of the narrow (100 foot) Paymaster claim (plate 1). At that 25° angle, a vein length of about 200 feet normally would be the maximum expectable length between the sidelines of the claim. At the time of the examination, the vein in drift B had been explored for at least 135 feet on the Paymaster claim.

As discussed below under "Geology," the vein mapped on the Paymaster and Calla claims in the southernmost workings of drift A is assumed to be the same vein as the one exposed in the southern face of drift B. If this assumption is correct, the two segments are separated by only 65 feet of unexplored ground. Because of possible overlap produced by the offsetting, northerly-trending, fault that cuts between the two exposures, the length

of the unexplored vein could be as much as 30 feet in the northeastern fault block and 70 feet on the south side of the fault.

At the adit level, the vein in drift B is nearly parallel to the length of the Calla claim, but near the southern end line of the Calla, the vein crosses onto the older, overlapping Silver Falls claim. Neither the Calla (survey No. 6814A), which is a younger claim crossing the Paymaster and the Silver Falls claims, nor the older Silver Falls claim (survey No. 466) is controlled by the applicant.

GEOLOGY

Two converging fracture systems, which diagonally cross the Paymaster claim, are exposed on the adit level. The fractures cut pre-Cambrian gneiss and schist of the Idaho Springs formation. One system, explored by drift A (plate I), has an average strike of approximately N. 30° E., an average dip of 60° NW., and is made up of gouge- and breccia-filled branching fractures. The individual fractures range from 1 to 6 inches in width and are barren of sulphide mineralization. Drift B has been driven on a second fracture system that crosses the Paymaster claim. Exposed in the drift is a sheeted zone with a maximum thickness of 5 feet. North of the main crosscut, where this second system has a north strike and a dip ranging from 87° W. to 75° E., the individual fractures attain a maximum width of 6 inches and consist principally of gouge, brecciated wallrock, and quartz. Only a few, small, isolated pyrite grains were observed. South of the crosscut, the strike of the fracture system exposed in drift B changes from north to N. 20° E. Dips are between 88° W. and 80° E. The individual fractures within the zone range up to 6 inches in width. In

places on the Paymaster claim and on adjoining portions of the Calla claim, gouge and breccia in the fractures have been cemented and cut by veinlets, small masses, and disseminated grains of galena, pyrite, sphalerite, quartz, rhodochrosite (?), and barite. In the stope mined from the adit level, mineralization averaged 4 feet in width over a length of 85 feet and for a height of about 40 feet.

Reasonable assumption can be made that the vein exposed in the southern face of drift B continues across 65 feet of unexplored ground on the Paymaster claim, and, with a resumed north strike, is exposed again for 60 feet in the southernmost portion of drift A. In the southern end of drift A, a 2- to 4-inch brecciated zone with gouge, quartz, rhodochrosite (?), and small, scattered grains of pyrite can be seen for 10 feet on the Paymaster claim and for an additional 50 feet on the Calla lode. This zone in drift A is very similar in character to the one-inch crushed zone in the breast of drift B, which contains quartz, rhodochrosite (?), and scattered grains of pyrite, sphalerite, and galena. The dip and strike of the two segments are similar.

Projections of the segments in drift A and drift B will not meet because a strong fault, striking N. 5° W., and dipping 80° E., apparently intersects both continuations in an unprospected region on the Paymaster claim. A possible overlap, resulting from movement along this northerly-trending fault, could increase the unexplored vein length from 65 to 100 feet. If the overlap exists, approximately 30 feet of unexplored vein would be north of the fault and about 70 feet of unexplored vein would be south of the fault.

At the surface a nearly vertical vein, striking N. 15°-40° E., is exposed in and near the Paymaster shaft. The vein has a width of 5½ feet in a shallow trench near the collar of the shaft. Quartz, barite, galena, green and brown sphalerite, and minor amounts of chalcopyrite can be seen in the trench and on the Paymaster dump. The Paymaster shaft and drift B are probably on the same vein.

PRODUCTION

According to U. S. Bureau of Mines production statistics and a statement by Sterling P. True, the total production from the Paymaster mine amounts to 521 1/3 tons of ore having an average value of 0.04 ounces of gold per ton, 3.6 ounces of silver per ton, 11.3% lead, and 4.1% zinc. Approximately 52 tons of the ore were taken from the shaft and the workings off the shaft, about 13 1/3 tons came from the surface trench near the collar of the Paymaster shaft, and the rest came from the adit level stope on the Paymaster and Calla claims.

The following table shows the production by years:

Date	oz. Au /Ton	oz. Ag /Ton	% Pb	% Zn	Tons	From
1882					10	Shaft
1886					30	Shaft
1917	0.045	13.0	43.35		12	Shaft
1922	0.06	9.0	9.5		23	Adit level stope
1951	0.13	5.35	12.45	2.15	9 1/3	Surface trench
1951	0.265	5.7	16.05	3.2	4	Surface trench
1952	0.045	1.95	5.52	4.45	144	Adit level stope
1952	0.037	2.23	8.47	3.92	289	Adit level stope

ORE RESERVES AND GRADE

Estimated ore reserves on the Paymaster claim will not exceed 1000 tons, of which not more than 100 tons can be classified as measured ore.

Adit Level Reserves

Discovery of additional ore bodies at the adit level on the Paymaster claim is considered improbable and the only estimable ore reserves are above and below the small stope near the northwesterly sideline of the Paymaster claim. The estimated ore above and below the stope will not exceed 1000 tons, of which not more than 100 tons can be classed as measured ore.

The maximum possible length of unexplored vein at the adit level is estimated to be 100 feet--30 feet to the north of an offsetting fault and 70 feet to the south of the fault. The northern and southern exposures of the unexplored portion of the vein are essentially barren of lead-zinc mineralization. From geologic mapping of drift B it appears improbable that an ore shoot might occur within 40 or 50 feet of the barren or only weakly mineralized portion of the vein. Thus, an ore shoot, if present in the unexplored portion of the vein, would probably not exceed 10 to 20 feet in length.

Paymaster Shaft Reserves

E. L. Homes (1902) mentioned the presence of a "body of ore" on the 30-foot level and "a large amount of heavy mill ore" on the 100-foot level of the Paymaster shaft. Past production figures indicate that mining was attempted from the shaft at three separate periods in 1882, 1886, and 1917, and during those three periods only 10 tons, 30 tons, and 12 tons

respectively, were shipped. Since only 52 tons of ore were produced from the shaft during three separate attempts at mining, the presence of mineable amounts of ore in the shaft is seriously questioned.

Grade of Adit Level Ore

The ore mined in 1952 from the adit level stope on the Paymaster and Calla claims averaged 0.04 ounces of gold per ton, 2.1 ounces of silver per ton, 7.5% lead, and 4.1% zinc.

Three vein samples taken at the adit level on the Paymaster claim assayed:

Sample No.	oz. Au /Ton	oz. Ag /Ton	% Pb	% Zn	Width Feet	Location
638	0.08	0.4	0.1	0.5	0.9	South face of drift B
639	0.02	3.2	10.6	2.8	3.0	Stope, drift level
640	0.04	2.6	12.1	2.6	3.0	Stope, 27 feet above track

Grade of Paymaster Shaft Ore

No reliable record exists of the grade of the ore produced from the Paymaster shaft. However, a 5½ foot vein sample taken from the surface trench near the collar of the Paymaster shaft contained 0.02 ounces of gold per ton, 2.4 ounces of silver per ton, 6.2% lead, and 0.25% zinc.

CONCLUSIONS

Enough exploration work has been done and sufficient geologic evidence is available to conclude that little or no additional lead-zinc ore would be discovered by further exploration work on the Paymaster claim.

The above conclusion is based on the following factors:

1. Only about 65 feet of unexplored ground separates the two assumed segments of the vein on the Paymaster claim. (Because of a possible overlap caused by an offsetting fault, the unexplored vein length may be 100 feet.)

2. Based on observations made in drift B, logical assumption can be made that if an ore body exists in the unexplored portion of the vein at the adit level, that ore body would not exceed 10 to 20 feet in length.

3. Of the 485 feet of exposed vein in drift B, only 85 feet is sufficiently mineralized to be mineable.

4. The Paymaster shaft and drift B probably are on the same vein.

5. Because a total of only 52 tons of ore have been produced by three separate mining operations at the Paymaster shaft, the conclusion can be drawn that very little ore is present in the shaft or the workings from the shaft.

6. There is no reason to believe that the ore in the small stope above the adit level continues upward to the showing of ore at the surface.

RECOMMENDATION

Denial of the request for Defense Minerals Exploration Administration assistance to explore on the Paymaster claim for lead and zinc at a cost of $14,390.50 is recommended.

REFERENCES

Lovering, T. S., Geology and ore deposits of the Montezuma quadrangle, Colo.: U. S. Geol. Survey Prof. Paper 178, p. 92, 1935.

Homes, E. L., Unpublished private report, listed in the "Annotated Catalogue of Unpublished Engineering and Geologic Reports of Mineral Resources of Colo., and on file at the Denver Public Library and the library of the Colo. School of Mines.

DMEA 2735

PAYMASTER MINE
SUMMIT COUNTY, COLORADO

Engineering Report

By C. M. Harrer
Mining Engineer
Bureau of Mines

DMEA 2735

PAYMASTER MINE
SUMMIT COUNTY, COLORADO

CONTENTS

Engineering Report	Page
Introduction	1
Acknowledgments	1
Location, topography, and physical features	1
History and production	2
Ownership and extent	3
Sampling	4
Description of the deposit	5
Mineable ore reserves	7
Present status	8
Exploration and development	8
Mining and milling equipment	9
Project proposals	9
Conclusions	9
Recommendations	10

ILLUSTRATIONS

Figure	Follows page
1. Location map, Paymaster mine, Summit County, Colorado	1
2. Claim and project map, Paymaster mine, Summit County, Colorado	10

DMEA 2735

PAYMASTER MINE
SUMMIT COUNTY, COLORADO

ENGINEERING REPORT

By

C. M. Harrer

INTRODUCTION

S. P. True, of Tulsa, Okla., lessee of the Paymaster mine, has applied for a Defense Minerals Exploration Administration loan of $14,390.50 to explore the Paymaster vein with an estimated 175 feet of drift and approximately 100 feet of raise from the drift to the bottom of the Paymaster shaft.

A field examination of surface exposures and underground development was made by an examining team of the Defense Minerals Exploration Administration on October 24, 1952.

ACKNOWLEDGMENTS

S. P. True, lessee of the Paymaster mine and loan applicant, accompanied the examining team as guide and cooperated fully with all information at his disposal.

LOCATION, TOPOGRAPHY, AND PHYSICAL FEATURES

The Paymaster mine is in sec. 16, T. 5 S., R. 75 W., sixth principal meridian, in the Horseshoe Basin, Peru Mining District, Summit County, Colo. (fig. 1), at an altitude of about 12,000 feet.

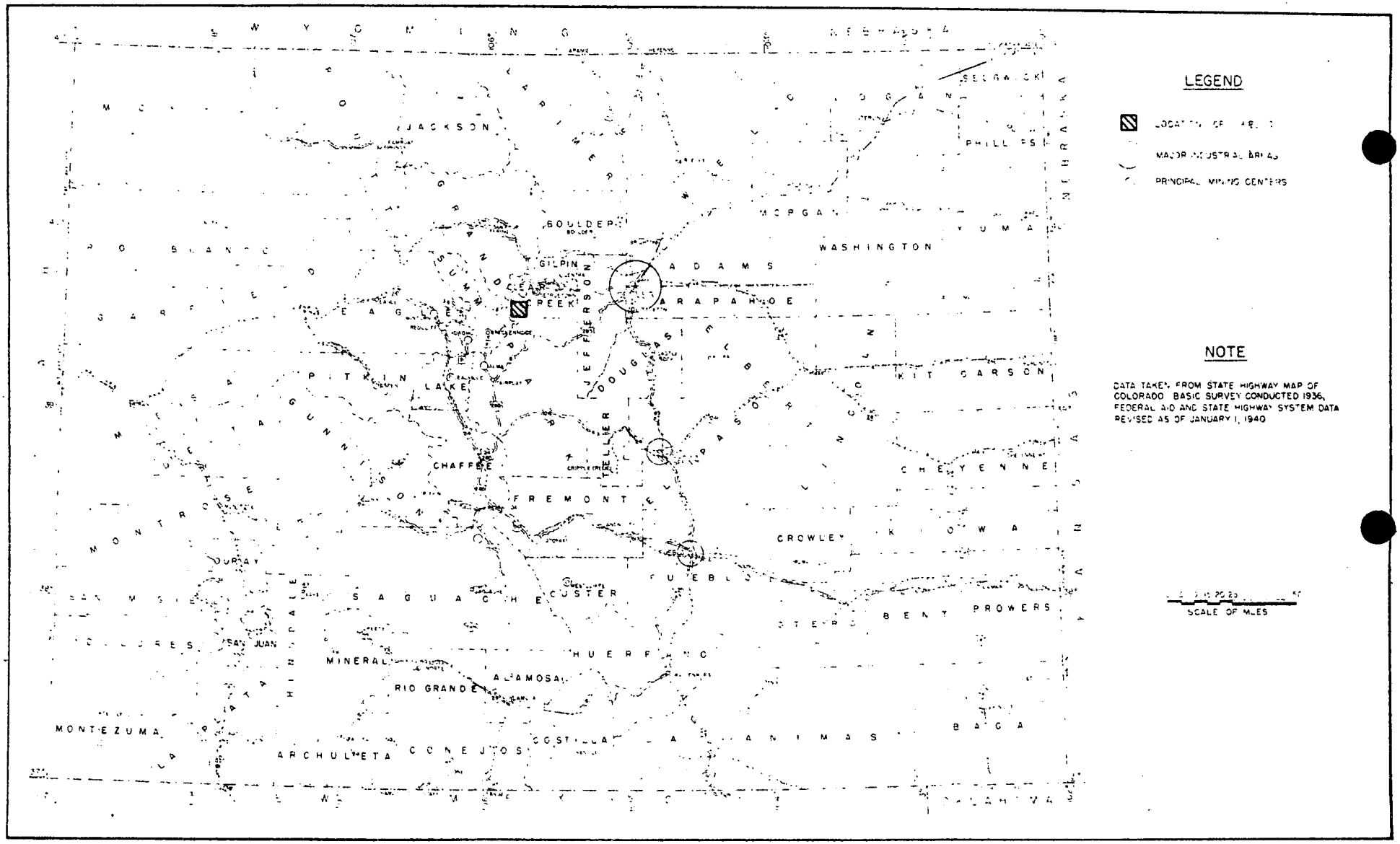


Figure 1 - Location map, Paymaster mine, Summit County, Colorado - DMEA 2735.

The mine is reached from the junction of U. S. Highway 9 and the Montezuma road (county road 294), over the latter for 4.9 miles to the Horseshoe Basin junction; thence 6 miles up Peru Creek on a rough ore-haul road.

The Paymaster mine is about 45 miles from Leadville, Colo., site of the nearest smelting facilities of the American Smelting and Refining Company and the Resurrection Mining Company's custom mill.

There is no timber on the property. Water is available from underground drainage and Peru Creek, about 1/2 mile distant. Winters are severe, with heavy snowfall, limiting mining operations to not more than a 6-month period.

HISTORY AND PRODUCTION

The Paymaster vein was discovered about 1860. Active development started in 1879. In the next few years the shaft was sunk to 80 feet and several hundred feet of drifts were driven. A tramway and mill built in 1882 have vanished. The Paymaster and Silver Ball claims were patented in 1881. Production has been sporadic and small, totaling 521 tons to date, as follows:

Production Data - Paymaster Mine

Year	Tons	Location	Type of ore	Ounce per Ton Gold	Ounce per Ton Silver	Percent Lead	Percent Zinc	Percent Copper
1879-1916	40	Paymaster shaft and levels	--	-	-	-	-	-
1917	12	Paymaster shaft and levels	Smelter	0.045	13.0	43.35	-	0.2
1918-21	none	-	-	-	-	-	-	-
1922	23	Stope above adit level	Smelter	.06	9.0	9.5	-	-
1923-50	none	-	-	-	-	-	-	-
1951	13-1/3*	Outcrop trench	Smelter	.17	5.4	13.6	2.5	-
1952	433*	Stope above adit level	Mill	.04	2.1	7.5	4.1	-

*Average reported in written communication dated October 27, 1952, from the applicant.

One carload lot of sorted ore shipped to the Grant smelter prior to 1902 reportedly assayed 0.1 ounce gold and 13.0 ounces silver per ton, 37.0percent lead and 13.0 percent zinc. This came from the start of the stope which is the source of all 1952 production.

OWNERSHIP AND EXTENT

S. P. True, loan applicant, is lessee of the Paymaster mine, figure 2, which includes the patented Paymaster lode, survey number 2324, and the Silver Ball lode, survey number 2325, which adjoins it to the southwest. The Calla mill site, survey number 6814-B is also included.

Lessors include:

Mrs. C. B. Hoyt, of Gering, Nebr.
Mrs. M. W. Smith, of Los Angeles, Calif.
Mr. F. L. Marquis, of Los Angeles, Calif.
Mr. K. L. Marquis, of Lakeside, Calif.
Mabel B. Wade, of Halford, Kans.
Mrs. A. Trupp, of Hastings, Nebr.

The lease operations started July 1, 1951, and will continue for 5 years.

Royalties on all ores from the property are:

10 percent on ores with a net smelter return value of up to $50.00 per ton.

15 percent on ores with a net smelter return value over $50.00 and up to $90.00 per ton.

20 percent on ores with a net smelter return value over $90.00 and up to $125.00 per ton.

25 percent on ores with a net smelter return value of over $125.00 per ton.

SAMPLING

Four samples were taken across the vein as shown on figure 2. Sample H-638 was taken across the vein width of 0.9 feet in the breast of the south drift, 238 feet south of the crosscut adit. Sample H-639 was taken across a vein width of 3.0 feet in the back of the drift at the south edge of the stope. Sample H-640 was taken across the vein and ore width of 3.0 feet at the north edge of the stope, 27 feet above the sill. Sample H-641 was taken across the vein and ore width of 5.5 feet, exposed in the surface trench southwest of the Paymaster shaft.

Sampling Data

Sample Number	Width in feet	Ounce per Ton Gold	Ounce per Ton Silver	Percent Lead	Percent Zinc	Description
H-638	0.9	0.08	0.4	0.1	0.5	Vein width at south drift breast on cross-cut adit level
H-639	3.0	0.02	3.2	10.6	2.8	Vein width, south end of stope, on crosscut adit level
H-640	3.0	0.04	2.6	12.1	2.6	Vein width, north end of stope, 27 feet above adit level sill
H-641	5.5	0.02	2.4	6.2	0.25	Vein width in trench at outcrop, 17 feet south-west of Paymaster shaft

DESCRIPTION OF THE DEPOSIT

Galena and sphalerite occur in the Paymaster vein with a quartz and barite gangue. Manganosiderite and rhodonite are also present. Sphalerite appears as the light-colored and greenish varieties. A small amount of bornite and chalcopyrite is also present. Fine-grained pyrite appears concentrated in the wall rocks and more barren portions of the vein. The vein is about 3 feet wide but varies between limits of 2 inches to over 7 feet. It is open-textured, as evidenced by coarse and vuggy quartz. Vein material on the dumps is partly coated with a black, metallic, manganese film.

The Paymaster vein roughly parallels the foliation of the enclosing gneiss and schist. It is traceable over the surface in the vicinity of the Paymaster shaft for about 100 feet and is 5.5

feet wide as exposed in a trench. It is reported[1/] developed through the Paymaster shaft on the 30- and 100-foot levels as follows:

The 30-foot level is reported to expose 365 feet of ore and vein over its length of 60 feet.

The 100-foot level was reported to expose the vein and ore over its length of 100 feet southwest of the shaft with widths averaging 4 feet. Northeast of the shaft, ore is reported to extend 50 feet from the shaft, at which point galena and sphalerite mineralization ceases and is replaced by quartz.

Only 52 tons of closely sorted ore are reported shipped from the Paymaster shaft and the 30- and 100-foot levels (fig. 2), all prior to 1918.

An additional 13-1/3 tons of sorted ore were shipped from the outcrop trench (fig. 2), south of the Paymaster shaft, during 1951.

Major production of 456 tons was from the stope developed from the adit level (fig. 2), southwest of the crosscut and about 222 feet below the top of the Paymaster shaft and outcrop.

On the adit level, the vein is exposed from about 40 feet south of the crosscut to its end, 320 feet to the north, as a barren, iron-stained, and quartz-filled fissure paralleling the foliation of the enclosing gneiss and schist. This portion is known as the Calla vein.

1/ Homes, E. L., Consulting Engineer. Report on Paymaster group of mines. 1902. Denver Public Library.

To the southeast, the same vein crosses the schistosity and is known as the Paymaster vein. The single lenticular body of ore developed has been stoped to a width of 4 feet and a length of 80 feet. The stope extends 23 feet above the sill. It has been the major source of production.

Beyond this ore shoot the vein is again pinched and poorly mineralized to the end of the drift.

Extension of the Paymaster vein to the southeast beyond the end of the aforementioned drift is visible for about 60 feet in the end of the parallel drift to the southeast, beyond a postmineral fault. The vein is very narrow and poorly mineralized to the limits of the Paymaster claim.

The 70-foot gap between the above end extensions of the Paymaster vein on the adit level shows no promise of developing appreciable reserves of lead-zinc ore.

Furthermore, the reported total production of 52 tons of sorted ore from the Paymaster shaft and its 30- and 100-foot levels does not lend credence to the existence of an extensive ore shoot and the occurrence of large ore bodies of commercial grade.

MINEABLE ORE RESERVES

Lead-zinc ore reserves remain as stope remnants and extensions above and below the adit level, and total about 1,000 tons as follows:

100 tons of measured ore
200 tons of indicated ore
700 tons of inferred ore

Average assay value is assumed as that for the 433 tons of mill-grade ore produced during 1952, i. e., 0.04 ounce gold and 2.1 ounces silver per ton, 7.5 percent lead and 4.1 percent zinc.

PRESENT STATUS

Exploration and Development

The Paymaster mine (fig. 2) was first developed from its outcrop on the Paymaster lode claim by a 4- by 8-foot shaft which followed the vein down dip for 140 feet. Two levels were driven 30 and 100 feet below the shaft collar. The 30-foot level was reported driven 30 feet each direction from the shaft. The 100-foot level was reported driven 100 feet each direction from the shaft. All of the shaft workings were inaccessible at the time of examination.

The surface southwest of the shaft has been stripped and the vein exposed in a 5- by 20-foot pit over a width of 5.5 feet. The vein can be traced on the surface for about 100 feet.

Underground exploration accessible to the examining team consisted of a 535-foot crosscut adit whose portal is 320 feet east of the Paymaster shaft and 230 feet below it. It intersects the Calla and Paymaster veins which are developed by a total of 850 feet of drift and 20 feet of crosscut (fig. 2). The only production from this level on the Paymaster vein was from a single stope, roughly 80 feet long by 23 feet high and 4 feet wide. It is entirely accessible.

Mining and Milling Equipment

The surface plant consists of one building which houses the compressor and tools on the job. Equipment which the applicant has on the property and its estimated valuation are as follows:

Item	Value
1 Gardner-Denver air compressor, capacity 285 c.f.m.	$3,000.00
1 Thor stoper, complete with hoses and water tank	450.00
1 Ingersoll-Rand jackhammer, complete with hoses and water tank	500.00
3 27-cubic-foot mine cars	600.00
1 Dodge, model WC-14, 4-wheel-drive truck (used)	750.00

There is no mill on the property and none is contemplated. A small ore bin is located at the adit portal and was used as a trucking terminus during 1952.

PROJECT PROPOSALS

S. P. True has applied for $14,390.50 to explore the Paymaster vein with 175 feet of drift to the south of the present breast of the adit level to a point beyond the Paymaster shaft. Also included are about 100 feet of raise to a connection with the Paymaster shaft for information on the continuity of the ore shoot reported to extend over 100 feet below the collar of the Paymaster shaft.

In addition, he expects to house the sorting and ore bins and construct snowsheds over outside trackage.

CONCLUSIONS

Ore occurs as small lenticular bodies of galena-sphalerite, gold, and silver, widely separated by barren zones. Gangue is predominantly quartz and barite.

That part of the Paymaster vein under consideration for exploration is sufficiently exposed to eliminate it from consideration as a favorable exploration project.

The vein crosses the Paymaster claim instead of paralleling it.

Present termination of development in the southeasternmost drift is off the property controlled by the applicant (fig. 2).

The small production of 52 tons from the Paymaster shaft and its 30- and 100-foot levels does not lend credence to the existence of an extensive ore shoot and the occurrence of large lead-zinc ore bodies.

The probability of finding shoots of lead-zinc ore of mineable grade within the zone to be investigated is very unfavorable.

RECOMMENDATIONS

It is recommended that S. P. True's application for Government assistance to explore the Paymaster lode at a cost of $14,390.50 under a Defense Minerals Exploration Administration loan be denied.

cb

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
OCT 13 1952

224 New Customhouse
Denver 2, Colorado

October 10, 1952

Memorandum

To: Administrator, Defense Minerals Exploration Administration, Attention: Code 210

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docketing for Exploration Assistance

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

S. P. True — Dmea - 2735
Box 796
Tulsa, Oklahoma

John F. Shaw
John F. Shaw
For W. H. King

Enclosures

(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

Department of the Interior
Defense Minerals Administration
RECEIVED
OCT 13 1952

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-2735
Metal or Mineral
Date Received 10-13-52
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: S. P. True, Box 796, Tulsa, Okla.

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract
Paymaster Lode Mining Claim, Survey No. 2324
Silver Ball Lode Mining Claim, Survey No. 2325
Peru Mining District, Summit County, Colorado

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

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

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

(*e*) If you own the land, describe any liens or encumbrances on it

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

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

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

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

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

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

5. *The exploration proje*[redacted] (*a*) State the mineral or minerals for whic[redacted]u wish to explore lead and zinc

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

(*c*) The work will start within 200 days and be completed within 24 months from the date of an exploration project contract.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated October 7th, 1952

S P True
(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

G. F. True
Box 756
Pueblo, Colo.

4.--(a) The attached report by E. L. Hence, E.E., gives a full report of the workings in the discovery shaft. Last year and this year mining was carried on in the cross cut drift from the end of the tunnel towards to bottom of the shaft. The rake of the ore was such that after raising some forty feet, the ore ran out. It was then decided to drift along the vein to get under the shaft and then raise. Thus, it would be possible to mine clear to the surface. At the surface the overburden was dozed off last year which revealed the vein 3 to 4 feet wide with values as detailed in paragraph 4-b. The drift at the tunnel level has been driven about 175 feet, which puts the heading approximately 75 feet from a point under the shaft.

My interest in these operations is to open up the main body of ore lying further along the vein and up to the surface. The operations at the drift level are open and can be easily inspected. The old discovery shaft is filled with water from about 75 feet down, and the collar of the shaft is in dangerous condition. The surface pit which was opened up last year can be inspected easily.

4.--(b) Following are production figures to date:

	Year	Tonnage shipped		Au.	Ag.	Pb.	Zn.	
	1898	10	Tons	No values of record.				
	1906	50	"	"	"	"	"	
	1917	12	"	.34oz.	15oz.	10,403 lbs.		(totals for shipment)
	1922	23	"	1.40oz.	200oz.	4,375 lbs.		" " "
(Mill)	1951	141	"	.049	2.23	8.93%	3.74%	per ton
(Smelter)	1951	11	"	.197	5.37	14.85%	2.67%	" "
(Mill)	1952	442	"	.04	2.12	7.04%	3.07%	" "

From the ore already opened up it is estimated that there are more than 40,000 tons of ore in place. Further explorations and extensions of the drifts at the 50 and 100 foot levels in the discovery shaft should open up considerably more ore.

4.--(c) The country rock is granite and porphyry. The veins have an easterly and westerly course and a dip towards the north of 25 to 50 degrees. The veins are in the mineral belt known as the Argentine Pass mineral belt, the trend of which can be followed for 25 to 30 miles and is opened up by numerous mines along its course. The width of the vein is from 3 to 7 feet between the walls. The matrix is quartz and feldspar. The ore is gold and silver bearing galena and zincblende. Copper appears in small quantities as pernite and chalcopyrite. The occurrence of the ore is massive, i.e.: smelting ore and mill dirt are mixed and the whole must be mined together, from which the smelting ore can then be sorted. (Copied from report by E. L. Hence, M.E., 1902, Engineering Dept., Denver Public Library.)

4.--(d) This property is reached by a good mine road some 4 miles up Porn Creek from the Montezuma Road. Elevation is 11,750', time limiting operations to the period June 1st to about Nov. 15th. Ores have been shipped to Leadville, some 45 miles distant, but it is hoped that facilities for milling can be had in Montezuma in 1953. Leadville is also the closest supply point. There is a good cabin for quarters at the mine with ample living facilities at Montezuma, Dillon or Breckenridge

. P. True
ox 796
Tulsa, Okla.

4.--(c) Sufficient manpower is easily available in surrounding area. Materials, supplies and equipment can all be readily obtained in Leadville or Denver. Water is plentiful in the mine or from Fern creek which runs only a few hundred feet away. Electric power could be had from the power line about one mile away.

5.--(b) It is proposed to continue the drift along the vein in a southwesterly direction to a point some 100 feet past the shaft. Also, when the point is reached directly under the shaft, it is proposed to raise to the bottom of this shaft, thereby draining it and opening up the old drifts at the higher levels for mining. This proposed exploration work is below the known ore body but on the same vein, and this ore body will be reached when the proposed drift and raise have been made. As can be seen on the copy of the map made by G. F. Galloway, Registered E. & M. E., of Alma, Colorado, there is a fault at the x-cut level which has almost been reached in the current drifting. In breaking through this fault, it is expected that the main body of the Reynaster Vein will be reached.

5.--(d) I have been operating since for the past four years, and I am also in the oil business, having been an oil operator in Texas, but currently associated with my brother as an oil producer in Tulsa, Okla. It is my policy to have a good practical miner, with ample experience, to superintend actual mining operations. I have one now who has been actively mining for the past 12 years. In a consultative capacity on engineering and geological matters, I have the services of Mr. Galloway.

6.--(a)	Contract for 175' of drift @30.00 per ft.		$5500.00
	" " 160' of raise @16.00		1600.00
~~6.--(b)~~	~~Supervisor and machine operator $400.00 per mo.~~		
	~~5 General miners @ $1.75 per hr.~~	~~1050.00~~	
	~~Engineering Consultant @$50.00~~		
	~~per day, 4 days per month~~	~~200.00~~	omit
	~~Total~~	~~1650.00~~	
	~~6 mo. per year for 2 yrs. @ $1650.00 per mo.~~		~~19800.00~~
6.--(c)	Powder	600.00	
	Fuse	115.50	
	Caps	25.00	
	Bits	100.00	
	Steels	100.00	
	Lumber and timber	400.00	
	Gasoline and oil and grease	330.00	1770.50
6.--(d)	Compressor-use allowance, $250.00 mo. for 12 mos.		3000.00
	Stoperiuse allowance, $60.00 mo. for 12 mos.		720.00
	Jack Hammeriuse allowance, $60.00 mo. for 12 mos.		720.00
	4-wheel drive truck-$100.00 mo. for 12 mos.		1200.00
	Rail, pipe, tree ears, etc. included.		
6.--(e)	To build roof on ore bin and sorting bin, lay water line to sorting bin to wash ore for sorting, and complete snow shed over track on dump		600.00

B. F. True
Box 796
Tulsa, Okla.

6.--(g)	Regrinding bits	75.00	
	Repairing steels	45.00	
	Compensation Insurance	100.00	
	Payroll taxes	300.00	600.00
6.--(h)	To cover cover necessary allowances for unforseen contingencies		300.00
		Grand Total	14,990.50

7.--(b) For my share of the costs, use allowance of equipment already on hand shall be used to defray part of the costs. For the balance I shall furnish whatever money is required.

3 (d)

S. P. True
Box 796
Tulsa, Okla.

MINING LEASE

THIS INDENTURE, Made this 12 day of June 1951, between Mrs. C.B. Hoyt, Route #1, Gering, Nebraska; Mrs. M.W. Smith, 2703 West 76th Street, Los Angeles, California; Mr. F. L. Marquis, 2703 West 76th Street, Los Angeles, California; Mr. R. L. Marquis, Route #1, Box 29E, Lakeside, California; Mabel B. Wade, Halford, Kansas; and Mrs. Adam Trupp, 150 E. 12th Street, Hastings, Nebraska, hereinafter called Lessors, and Sterling P. True, of Tyler, Texas, hereinafter called Lessee.

WITNESSETH:

1. That the said Lessors, for and in consideration of the rents, covenants and agreements hereinafter expressed to be paid, kept and performed by the said Lessee, have leased, let and demised, and by these presents do lease, let and demise unto the said Lessee, the following described premises situate, lying and being in the County of Summit, State of Colorado, to-wit:

Paymaster Lode Mining Claim, U. S. Survey No. 2324
Silver Ball Lode Mining Claim, U. S. Survey No. 2325
Calla Millsite, U. S. Survey No. 6814-B

2. TO HAVE AND TO HOLD said herein demised premises and every part thereof, for the purpose of mining, for the period of five (5) years from the date hereof, unless sooner terminated under any of the provisions herein contained, with no power to assign this lease or to sublet the whole or any part of said premises except upon the written consent of the Lessors.

3. AND THE LESSEE, for and in consideration of the leasing of said premises, covenants and agrees with Lessors to commence work on said p premises on or before July 1, 1951, and thereafter to work the same continuously in a thorough and workmanlike manner, and working at least two hundred (200) man shifts of eight (8) hours each underground in each calendar year; to keep such portions thereof that are being worked by the Lessee securely timbered, drained and clear of loose rock and rubbish; to keep accurate accounts, and to render monthly statements to the Lessors, their agent or attorney, showing the amount and character of work done, and to pay to the said Lessors, their agent or attorney, as rental for said premises, royalty upon all ore taken and sold therefrom as follows, to-wit:

10% on ore of net value up to $50.00 per ton
15% on ore of net value over $50.00 and up to $90.00 per ton
20% on ore of net value over $90.00 and up to $125.00 per ton
25% on ore of net value over $125.00 per ton
all ore royalties to be based on the dry ton of 2,000 pounds.

4. AND IT IS expressly agreed and understood by and between the parties hereto that the Lessors reserve the property and right of property in and to all ores extracted from said premises during the term hereof, and that all settlements for royalty shall be based upon the net smelter return value of ore shipped from said premises before deduction of transportation costs and treatment charges; and such additional charges or deductions as are usually made by the smelter or custom mill; and the purchaser of any such ore shall retain the amount of royalty herein stated and shall pay the same to the Lessors at each settlement for ore purchased. Detailed duplicate statements on all sales of ore from the demised premises to smelter or custom mill shall be furnished by the buyer to lessor. That all transportation costs and treatment charges, smelter or custom milling shall be paid by lessee.

S. P. True
Box 796
Tulsa, Okla.

5. AND THE SAID LESSEE further more covenants and agrees that the said Lessors, their agent or attorney, shall have the right at any and all times to enter upon and descend into any and all parts of said premises to inspect same, make surveys thereof, or take samples therefrom, and that the Lessee will render to them all the assistance in his power in so doing, and Lessor shall be furnised duplicates of all maps, engineers' reports, core loggings, and assays of cores and core sludge, and may also examine all cores and loggings upon demand.

6. AND THE LESSEE furthermore covenants and agrees to occupy and hold all side veins, spurs, feeders, cross-lodes, parallel lodes or mineral deposits of any kind which may be discovered by the said Lessee or by any person working under him in any manner, by working within or from the aforesaid premises, as the property of the said Lessors and as part of the premises demised, and no to allow any person not in privity with the parties hereto to take or hold possession of said premises or any part thereof under any pretense whatever.

7. AND IT IS expressly mutually understood and hereby agreed by and between the parties hereto, Lessors and Lessee, that all taxes levied upon the output of ores and metals mined and extracted from said premises shall be paid by the respective parties hereto in proportion to the net mill, smelter and sale return value respectively received by them; and, to pay all State and County property taxes assessed by the County of Summit upon Lessors' interest in the demised premises or improvements t thereon, beginning with taxes assessed for the year 1951, and the same shall be paid in entirety by the Lessor not later than the first day of September of each year of the life of this lease.

8. The said Lessee further more covenants and agrees to carry proper and sufficient Workmen's Compensation Insurance at all times during the life of this lease, so as to insure the Less and his employees hereunder against liability for industrial accidents and to save the Lessors and each of them from liability therefor, and to keep such notices respecting such insurance as may be required by law properly posted on said premises.

9. And the Lessee further covenants and agrees to pay promptly for all labor, materials and supplies to be performed or furnished to the Lessee or anyone under or in privity with him upon the said premises, and at all times to save and keep harmless the Lessors and the said premises and every part thereof from any and all claims, demands and liens on account of any such labor, materials and supplies, and during the entire life of this lease to post and to keep conspicuously posted on said premises and at the entrances to all workings, notices in the following form, to-wit:

NOTICE
July 1, 1951

Notice is hereby given to all persons performing labor or service of any character or furnishing machinery or other materials or supplies, at any time to, on or in connection with the Paymaster LMC, U.S.Survey No. 2324, Silver Ball LMC, U.S.Survey No. 2325 and Calla Millsite, U.S.Survey No. 68148, or upon any of the property, real or personal, used in connection therewith, that the undersigned owners of the claims and millsite and of the improvements thereon and connected therewith, will not be responsible for any such, labor, service, machinery, materials or supplies, nor shall the interests of any of the said owners be subject to any liens therefor. The said premises have been leased to Sterling P. True.

S. P. True
Box 796
Tulsa, Okla.

Mrs. C. B. Hoyt
Mrs. M. W. Smith
Mr. F. L. Marquis
Mr. K. L. Marquis
Mabel B. Wade
Mrs. Adam Trupp
OWNERS

10. AND THE SAID LESSEE furthermore covenants and agrees that in case he fails in any respect to keep and fulfill any one or more of the covenants or agreements herein expressed, the Lessors shall have the right and privilege to declare this lease forfeited by giving to Lessee thirty (30) days' written notice of its intention so to do; provided, however, in any event that this becomes forfeited, or at the expiration of the term hereof, the Lessee covenants and agrees that it shall be lawful for said Lessors, their agent or attorney to declare said term ended, and with or without process of law to enter upon and take possession of said premises, and in any such case said Lessee agrees to surrender, yield and deliver to said Lessors quiet and peaceable possession of said premises, together with the appurtenances and improvements now on the premises or hereafter to be erected or constructed thereon by the Lessee, and all repairs and replacements that shall have been made by the Lessee during his possession of the said premises, in as good order and condition, ordinary wear and tear excepted, as the said premises are in at the beginning of the term hereof, and the mine ready for work. Inclement weather, strikes or an act of God intervening shall excuse Lessee from compliance with any of the covenants and agreements herein set forth as long as said conditions shall exist.

11. AND IT IS FURTHER AGREED that time shall be of the essence of all terms and conditions of this mining lease, and that the covenants and agreements herein contained shall extend and be binding upon the heirs, executors, administrators, successors and lawful assigns of the respective parties hereto.

IN WITNESS WHEREOF, the parties hereto have executed this presents the day and year first above written.

LESSORS	(C. B. H.)	Mrs. C. B. Hoyt
	(M. W. S.)	Mrs. M. W. Smith
	(F. L. M.)	Floyd L. Marquis
	(K. L. M.)	Kenneth L. Marquis
	(M. B. W.)	Mabel B. Wade
	(M. A. T.)	Mrs. Adam Trupp
LESSEE	(S. P. T.)	S. P. True

The following clause is to be in the reading of the foregoing MINING LEASE after the semi-colon in line six (6) of Paragraph ten (10), and is to be considered as much a part of this agreement as though incorporated in the original writing, to wit:

"provided, however, that Lessees may remedy any such matter or matters complained of within said thirty (30) day period, and in any

S. P. True
Box 796
Tulsa, Okla.

such event saif motice shall have no force and effect; but, if said matter or matters are not remedied, then said lease shall terminate and become null and voind and of no further force and effect at the expiration of said (Thirty (30) day period; and"

With their signatures attached below, the parties hereby hereby agree that the above clause is incorporated in the preceding MINING LEASE at the point therein above-mentioned.

4 (c)

REPORT
on the
PAYMASTER GROUP
SUMMIT COUNTY
COLORADO

S. P. True
Box 796
Tulsa, Okla.

by

E. L. HOMES, E.M.
1902

Report furnished by Lewis E. Ashbaugh, consulting Engineer, Denver, Colorado

DEVELOPMENT

The Paymaster claim is the most developed and a shaft sunk to a depth of 140 feet in the vein shows continuous ore body from the apex to 100 feet in depth from 3 to 5 feet in the bottom of shaft, 7 feet wide. At a depth of 30 feet drifts have been run East and West of about 30 feet, opening up a large body of ore, with about two feet of solid ore and a large amount of heavy mineralized concentrating ore throughout the whole distance. At the depth of 100 feet drifts have been run 100 feet East and West. The West drift shows the ore body to be continuous the entire distance of 100 feet and still very strong in the breast. It is of the same general character as in the drift above, averaging from 3 to 4 feet in width of concentrating and solid ore, there being about 2 feet of each. In the drift towards the east the ore body widens out in one place to ver eight feet. The ore continues very strong East of shaft to a distance of about 50 feet and then turns into a large body of quartz with less solid ore, but still a very promising prospect.

Two other shafts one about 40 feet and the ~~teehr~~ other about 20 feet have been sunk in the vein, some distance east of the main shaft and each of them shows the ore equally as well as the respective depth in the main shaft.

At the foot of the hill 400 feet below the apex of the vein and 300 feet below the bottom of shaft, the cross cut tunnel was driven to cut the vein at a depth of 400 feet by a length of said tunnel of 700 feet. The vein was intersected about 300 feet east of the main shaft and drifted in the vein towards the west a distance of 125 feet. There is a continuous ore body the entire distance to the breast ranging from two to four feet and still showing well in the breast. In this drift a stope has been started about 10 feet high and 30 feet long, in which there is about two feet of solid ore and from two to thre three feet of concentrating ore. A carload of ore taken from here and marketed at the Grant Smelter at Denver gave 37% Lead, 13% Zinc, 13 oz. silver and $3.40 in gold per ton. The breast of this drift is about 175 feet East of the main shaft. Judging from the present development it is more than probable that when this drift reaches the point under the main shaft and at the added depth of 300 feet the ore body will be found practically solid and with better values than have been encountered. The permanency of vein and ore body to depth is with this work established to a certainty.

4(c)

S. P. True
Box 796
Tulsa, Okla.

[illegible]

The Paymaster mine is in Horseshoe Basin, a quarter of a mile north of Falls Gulch and about 4½ miles northeast of Montezuma. The shaft is at an altitude of 12,050 feet and was partly filled with water in 1925; the adit has an altitude of 11725 feet and was inaccessible when the writer visited it. The Paymaster vein was discovered in the late sixties and its ore is briefly mentioned by Raymond in his report for 1870. The activity of the Argentine District in 1870, caused by the developments on the Baker and Belmont veins, encouraged prospecting in Horseshoe Basin, and some work was done on the Paymaster at that time, but it was not until 1879, when the claim was relocated that active development was undertaken. In the next few years an 80-foot shaft was sunk on the vein, and a few hundred feet of drifts were driven. A three-story mill was completed in 1882 and joined to the mine by a tramline 1500 feet long. The Paymaster, Silver Bell and Seven-thirty-claims, all on the same vein, were patented in 1881.

The recorded production of the mine is small. Some galena ore was shipped to Frisco in 1880 but probably not more than 10 tons. In 1883 according to the Montezuma Mill Run, the mine was having development work done, but no mention of shipments was made. According to the same authority, it was active in 1884, 1885, and 1886 and shipped some ore in 1886, probably about 30 tons.

PRODUCTION OF PAYMASTER MINE

	Ore (lb. tons)	Gold (oz)	Silver (oz)	Lead (pounds)	Copper	Zinc
1882 -	10	?	?	?	?	?
1886 -	30	?	?	?	?	?
1917 -	12	0.94	193	10,403	74	------
1922 -	23	1.40	200	4,273	------	------

No record available for 1893-1900; 1918-21; no production 1883-5, 1887-92, 1901-16, 1923-33.

As shown above, the mine is credited with two shipments since 1902. The ore probably came from the Paymaster shaft, where the vein is reported to have had seams of quartz and galena about 10 inches in aggregate thickness and a sheeted zone about 4 feet wide. The ore on the dump near the shaft indicated that the vein was at least 10 inches wide. It consisted largely of coarse-grained vuggy quartz, barite, and galena, but manganosiderite and light-colored sphalerite were common. Pyrite was confined to the wall rocks. The ore milled in the eighties, according to the Colorado Mining Directory, assayed about 34 percent of lead, and 30 ounces of silver to the ton. The vein is nearly parallel to the schistosity of the enclosing Idaho Springs formation, which is almost vertical, and strikes north-northeast. The country rock is injection gneiss and quartz-biotite-sillimanite schist.

The paragenesis of the ore on the dump shows that silicification and pyritization of the wall rocks occurred early and was followed by the formation of manganosiderite in the vein; barite was deposited later and was followed by galena, sphalerite, and quartz. A large amount of quartz was later than all the other minerals.

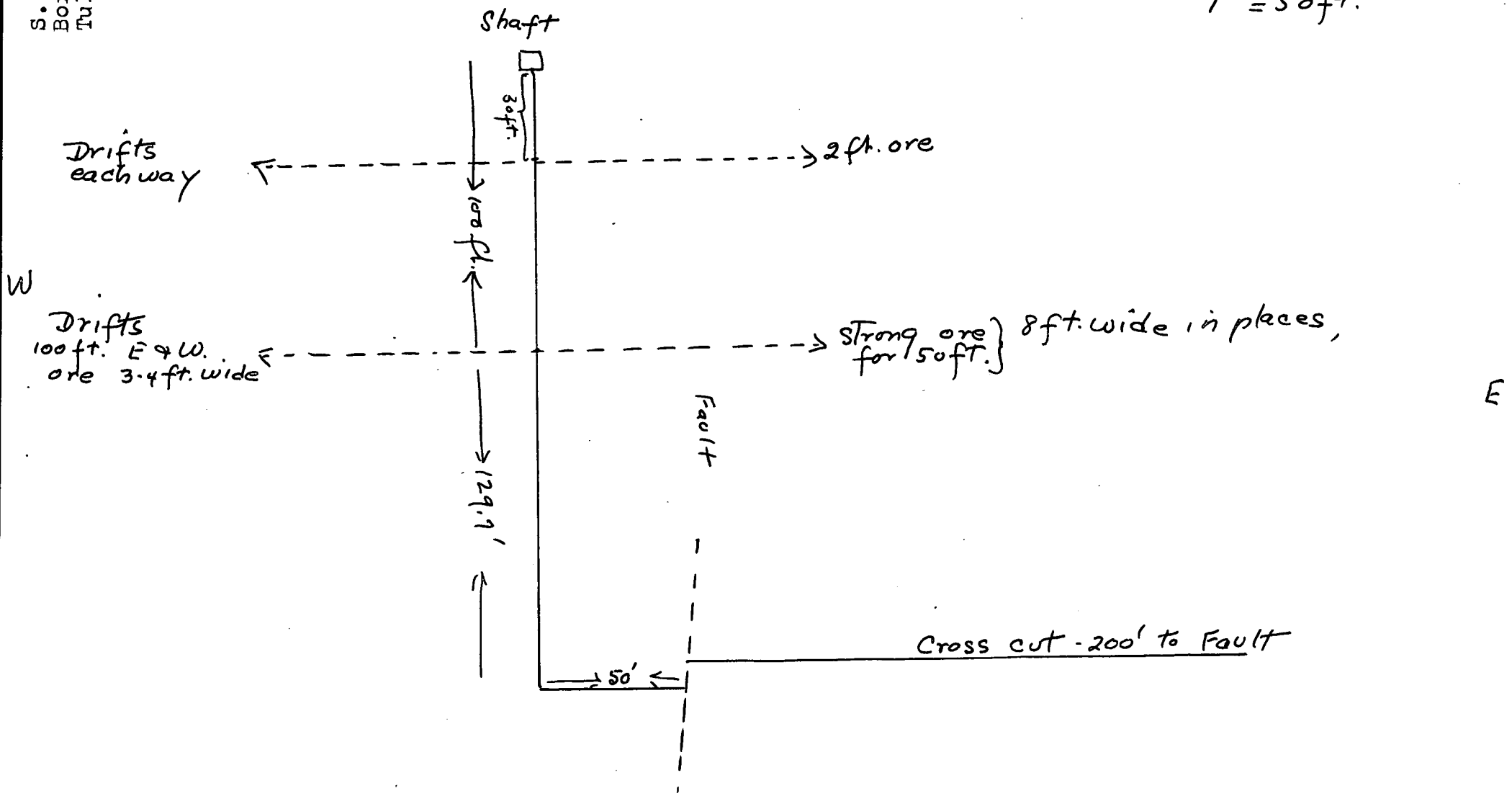
1. Wing
2. Jean
3. Mr. Muckland
4. Sid
5. Cookie
6. Mr. Adams
7. Catherine
8. Mary
9. Mr. Hank
10. Sue
11. Bernadette
12. Wilson

5 (b).

Cross section of Paymaster Lode - Shaft and Cross cut

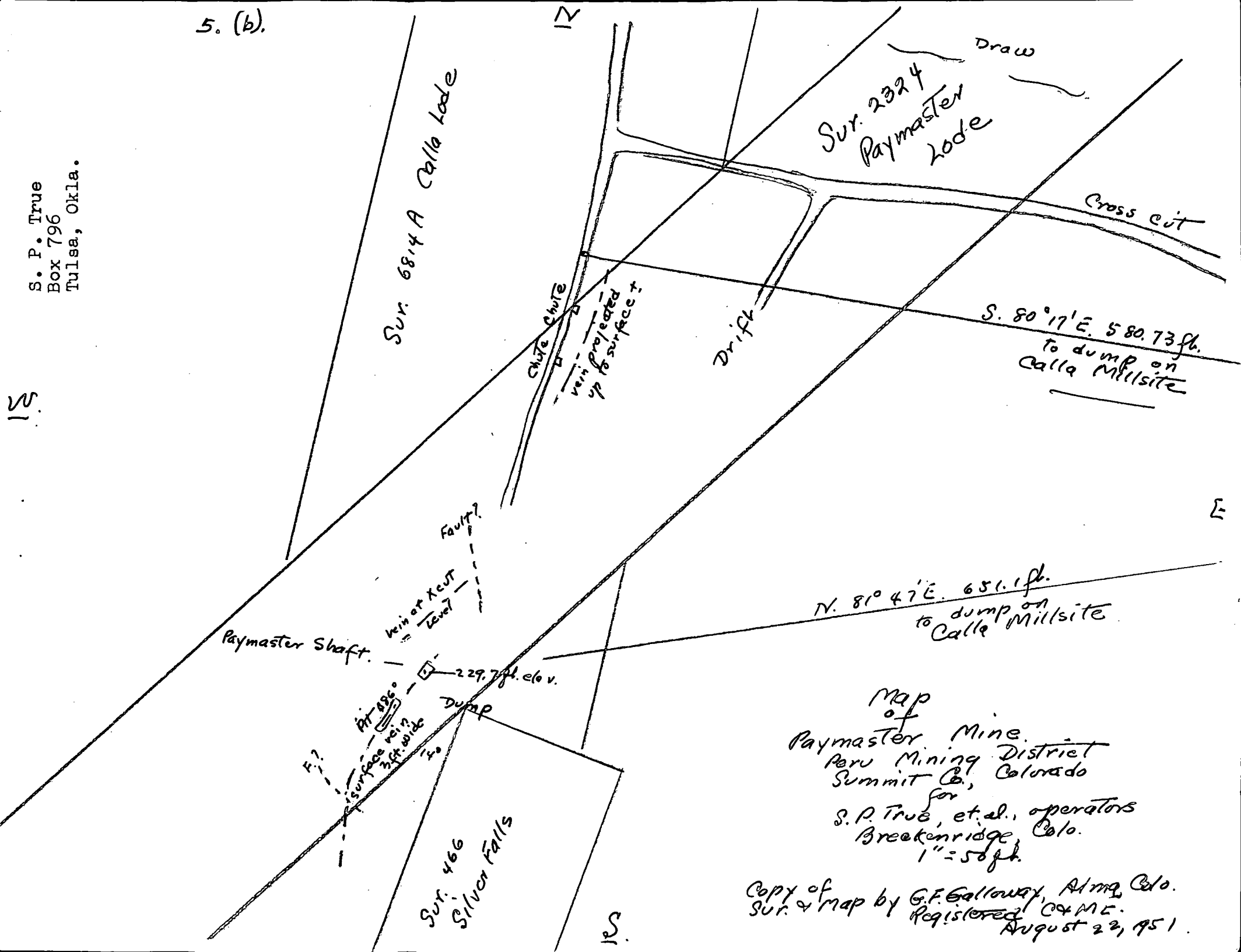
1" = 50 ft.

S. P. True
Box 796
Tulsa, Okla.



5. (b).

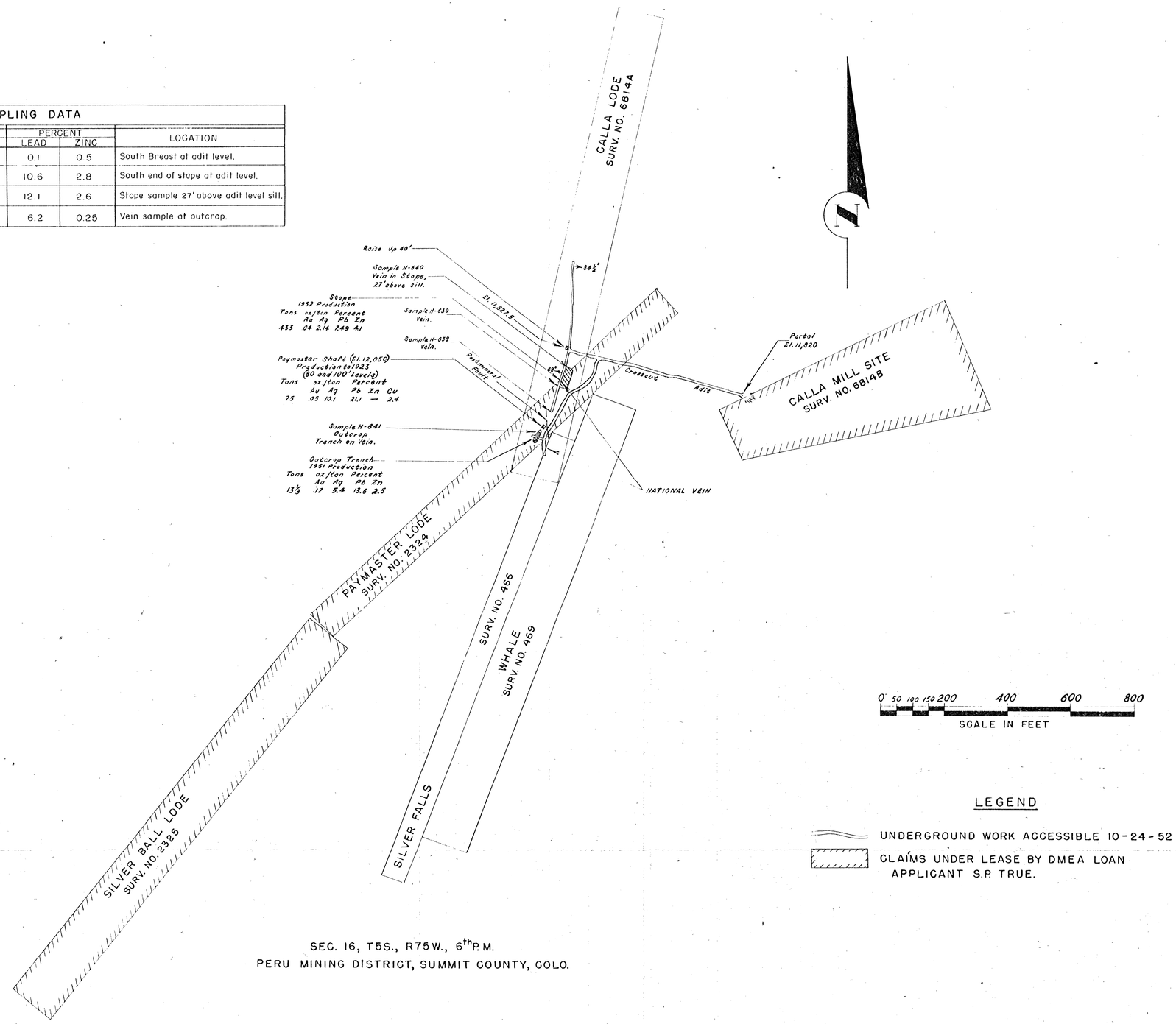
S. P. True
Box 796
Tulsa, Okla.



Map of Paymaster Mine
Peru Mining District
Summit Co., Colorado
for
S. P. True, et. al., operators
Breckenridge, Colo.
1" = 50 ft.

Copy of Sur. & map by G. F. Galloway, Alma, Colo.
Registered C. & M. E.
August 22, 1951.

SAMPLING DATA						
NUMBER	WIDTH OF VEIN (feet)	OUNCES PER TON		PERCENT		LOCATION
		GOLD	SILVER	LEAD	ZINC	
H-638	0.9	0.08	0.4	0.1	0.5	South Breast at adit level.
H-639	3.0	0.02	3.2	10.6	2.8	South end of stope at adit level.
H-640	3.0	0.04	2.6	12.1	2.6	Stope sample 27' above adit level sill.
H-641	5.5	0.02	2.4	6.2	0.25	Vein sample at outcrop.

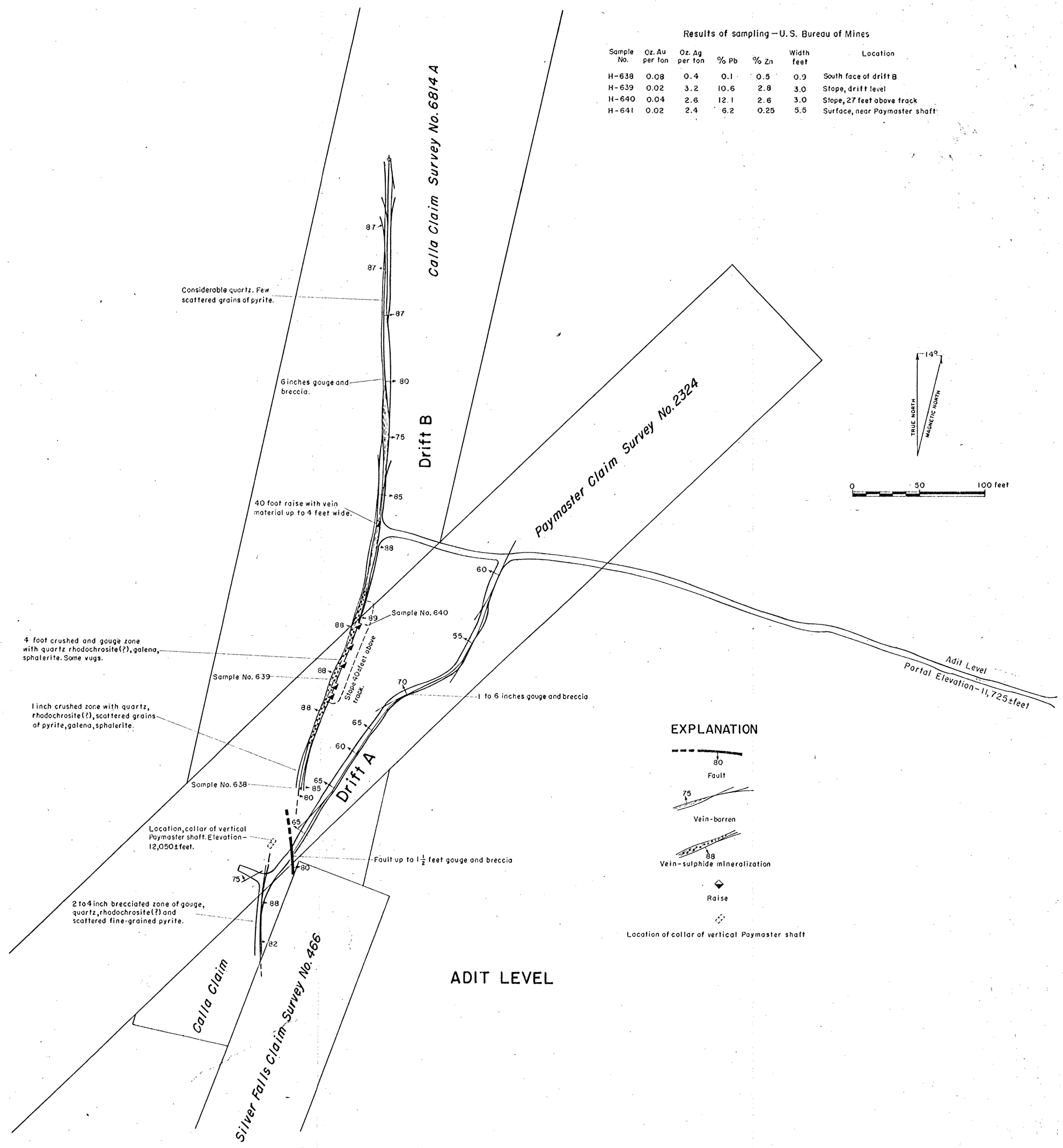


SEC. 16, T5S., R75W., 6th P.M.
PERU MINING DISTRICT, SUMMIT COUNTY, COLO.

FIGURE 2 - CLAIM AND PROJECT MAP, PAYMASTER MINE, SUMMIT COUNTY, COLORADO. DMEA 2735

Results of sampling—U.S. Bureau of Mines

Sample No.	Oz. Au per ton	Oz. Ag per ton	% Pb	% Zn	Width feet	Location
H-638	0.08	0.4	0.1	0.5	0.9	South face of drift B
H-639	0.02	3.2	10.6	2.8	3.0	Stope, drift level
H-640	0.04	2.6	12.1	2.6	3.0	Stope, 27 feet above track
H-641	0.02	2.4	6.2	0.25	5.5	Surface, near Paymaster shaft

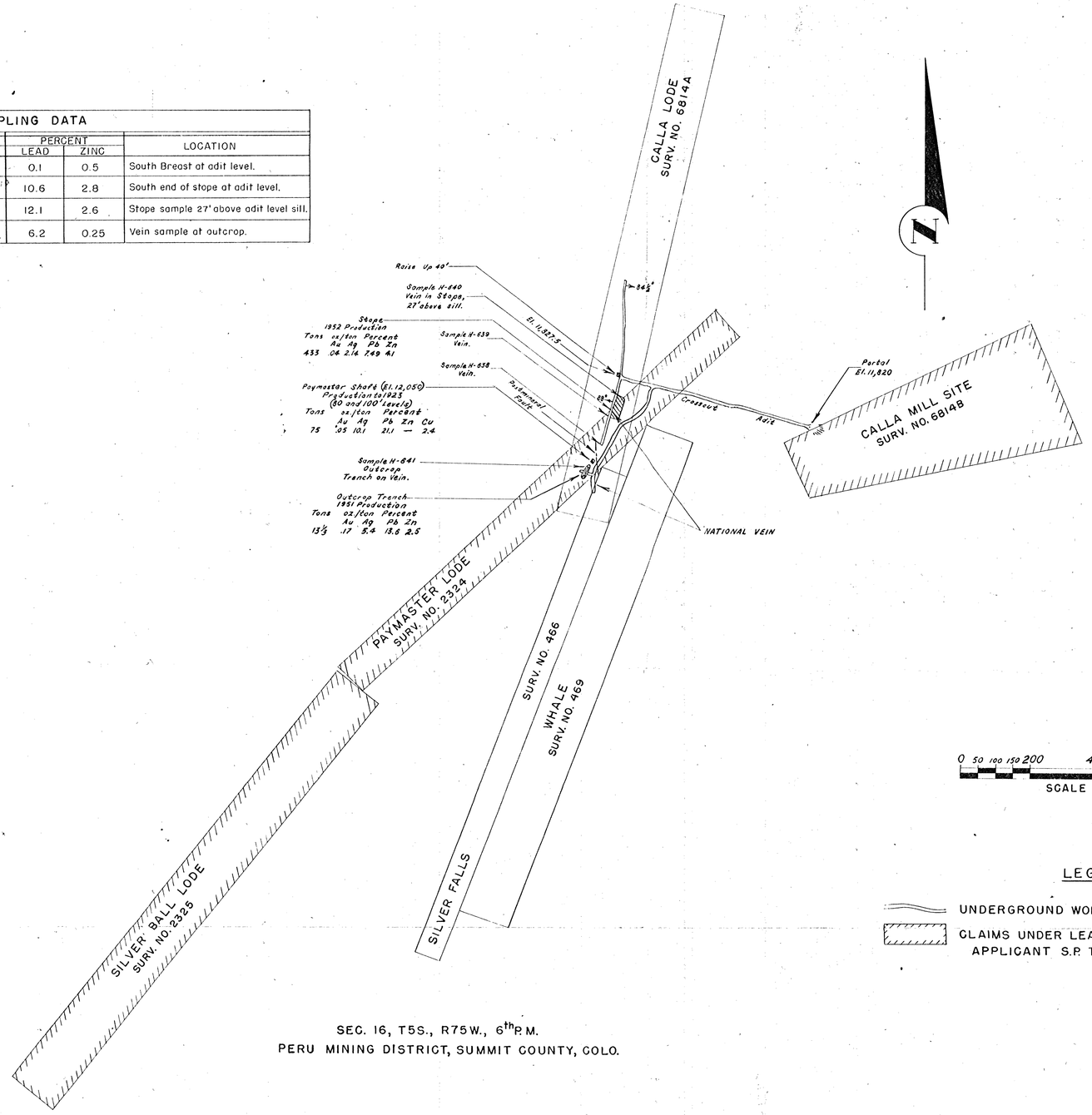


Claim boundries, crosscut and drift B from map by G.F. Galloway, Registered C and M.E.-Alma, Colorado
Drift A and addition to drift B, tape and Brunton compass survey by Kuhn, U.S.G.S., and Harrer, U.S.B.M.

Geology by Truman H. Kuhn, Oct. 1951

PLATE I.—PAYMASTER MINE, MINING DISTRICT—SUMMIT COUNTY, COLORADO

SAMPLING DATA						
NUMBER	WIDTH OF VEIN (feet)	OUNCES PER TON		PERCENT		LOCATION
		GOLD	SILVER	LEAD	ZINC	
H-638	0.9	0.08	0.4	0.1	0.5	South Breast at adit level.
H-639	3.0	0.02	3.2	10.6	2.8	South end of stope at adit level.
H-640	3.0	0.04	2.6	12.1	2.6	Stope sample 27' above adit level sill.
H-641	5.5	0.02	2.4	6.2	0.25	Vein sample at outcrop.



SEC. 16, T5S., R75W., 6th P.M.
PERU MINING DISTRICT, SUMMIT COUNTY, COLO.

FIGURE 2 - CLAIM AND PROJECT MAP, PAYMASTER MINE, SUMMIT COUNTY, COLORADO. DMEA 2735