MME Form 7
(2/63)

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	Selfridge	
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MAR 9 1965

Mr. J. D. Schlottmann
Chief Geologist
Cotter Corporation
P. O. Box 751
Canon City, Colorado

Re: DMMA-2698 (Lead-Zinc)
Mendota-Freotberg Mining Company
Mendota Mine
Clear Creek County, Colorado

Dear Mr. Schlottmann:

Our Denver office has now informed us that their subject docket file does not contain any report by Mr. Wilfley or anyone else; however, it did contain an extra copy of a map which is enclosed. At the time that the application was received and was being considered, 1952-53, the mine was open at least on the lower levels; and it was proposed to sink the existing winze an additional 100 feet and drift therefrom. As probably Mr. Conners has informed you, the Government reports in the file are considered confidential and for Government use only.

Sincerely yours,

George Fumich, Jr.

Acting Director

Enclosure

GCSelfridge/mm (3/9/65)
cc: Director's Reading File
Region III
Docket
Mr. Selfridge

23263

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF MINERALS EXPLORATION

Bldg. 20, Denver Federal Center
Denver, Colo. 80225

~~March 5, 1965~~

OFFICIAL COPY
O. M. E.
RECEIVED
MAR 8 1965

INITIALS	CODE
	120
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Memorandum

To: George C. Selfridge, Chief
Division of Exploration Operations
Washington, D. C. 20240

From: Acting Field Officer, OME, Region III

Subject: DMEA-2698 (Lead-Zinc)
Mendota-Frostberg Mining Company
Mendota Mine
Clear Creek County, Colorado

This replies to note on your letter to Schlottmann dated February 25, 1965.

Our docket folder contained three maps like the one attached. If it would be OK to let Cotter Corp. have it will you please forward it to them. The other two will remain in the file in the Archives. There was no report in our file by Mr. Wilfley or anybody else.

ORIGINAL SIGNED BY
Hugh M. Connors

H. M. Connors (3-5-65)
cc: 2698
Chron

MME Form 7
(2/63)

OFFICIAL FILE COPY

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FEB 25 1965

Mr. J. D. Schlottmann
Cotter Corporation
P. O. Box 751
Canon City, Colorado

Re: DRRA-2698 (Lead-Zinc)
Mandota-Frostberg Mining Company
Mandota Mine
Clear Creek County, Colorado

Dear Mr. Schlottmann:

A search of our file on the subject mine reveals that we do not have a copy of an application report by a Mr. Wilfley or anyone else. Neither is such a report mentioned. By a copy of this letter we are asking Mr. Connors of our Denver office to inform us if their files contain such a report. As soon as we hear from him, we shall write you further.

Sincerely yours,

George Fumich, Jr.

Acting Director

Mr. Connors: If you have such a report, will you please let us know the number of pages of text and the approximate number of square feet of maps that might have to be reproduced.

GCSelfridge/um (2/26/65)
cc: Director's Reading File
Region III w/cy of incoming letter and attachment
Docket
Mr. Selfridge

23263

COTTER CORPORATION
FIRST NATIONAL BANK BUILDING
CAÑON CITY, COLORADO
P. O. BOX 751

CRestwood 5-3367-68

OFFICIAL COPY
O. M. E.
RECEIVED
FEB 23 1965

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file called for

Mr. George Fumich, Jr.
Acting Director
Office of Minerals Exploration
Department of the Interior
Washington, D. C.

Dear Sir:

Cotter Corporation, the company I represent, is considering the exploration and development of the vein system of Mendota Mine. Mrs. Conners, your representative in Denver, told me that the Mendota-Frostburg Mining Company had applied for DMEA aid to explore portions of the south and north Frostburg veins. The proposal was dropped for some reason.

Cotter tentatively plans to explore the targets proposed for exploration in the Mendota-Frostburg application with its own funds.

Would you please send us a copy of the application report (Docket DMEA 2698)? Mr. Wilfley, the author, is now dead and there is no other known source of this report. No work has been done at the mine since this report was written. It may contain up-to-date maps and factual statements on areas now inaccessible upon which we have no record that are of vital interest to us.

Enclosed is a photostatic copy of a letter from D. V. Watrous, President of Jack Pine Mining Company, the present owner of the Mendota-Frostburg Mine, authorizing our access to factual data on the mine held by the Bureau of Mines.

Expeditious handling of this matter will be appreciated because our evaluation period is limited.

Sincerely yours,

COTTER CORPORATION

J. D. Schlottmann

J. D. Schlottmann
Chief Geologist

JDS:mwc
encls - 1
dc: corr.
num.

JACK PINE MINING COMPANY
P. O. BOX 66
IDAHO SPRINGS, COLORADO

PHONE IDAHO SPRINGS 498

February 15, 1965

U. S. Bureau of Mines
Federal Center
Denver, Colorado

This will authorize Mr. J. D. Schlottmann of the Cotter Corp. Canyon City, Colorado to examine any records you may have and can show him covering the Mendota, Tishomingo, Silver Cloud, Cashier, South Frostburg, north Foostburg, and Terrible-Dunder burg mines, located in Clear Creek County, Colorado near Silver Plume.
This Company is the owner of the above properties.

Thank you,

Jack Pine Mining Company
by D. V. Watrous
D. V. Watrous, Pres.

UNITED STATES
DEPARTMENT OF THE INTERIOR

DEFENSE MINERALS ADMINISTRATION
WASHINGTON 25, D. C.

[redacted] New Customhouse
Denver 1, Colorado

REVIEWED BY
DMEA OPERATING COMMITTEE

January 28, 1953

Memorandum

2-6-53
(Date)

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 2698, Mendota-Frostberg Mining Co., Mendota Mine, Clear Creek County, Colorado

Enclosed are 4 copies of the final Engineering and Geologic report covering Docket DMEA-2698 and 4 copies of Engineering and Geologic Supplemental Report on the application submitted by Mendota-Frostberg Mining Company.

The applicant proposed to sink 100 feet of winze and drift 490 feet from the bottom of the winze at a cost of $27,620.00. He also proposed a crosscut to the South Frostberg vein and 100 feet of drifting on the South Frostberg vein at a cost of $11,400.00.

The project has merit and was reported on favorably by the examining engineer and geologist; however a study of the maps indicates that there is a strong possibility that the apex of the vein on which the drifting was proposed would be on the Virgin Claim. This was brought to the attention of the applicant and it was suggested that he obtain a lease on the Virgin Claim. He doubted the apex of the vein left his sideline on the strike of the vein and entered the Virgin Claim, and refused to obtain a lease on this claim.

A supplementary investigation by the Engineer and Geologist indicated that the location of the apex is doubtful and that the applicant's rights are reasonably secure to a point about 200 feet east of the winze. We do not believe that we would be justified in approving this application because it would involve an expenditure of $9,000 sinking the winze and $18,000 in drifting a limited amount which in turn would be for the benefit of a property in which we had no rights.

If we should enter into a contract to perform this work we might become involved in a lawsuit. The old lawsuit did not determine the apex rights on the east end of the Frostberg Vein.

The applicant has a map showing a block of ground, approximately 500 feet thick between the mapped upper workings and the lower workings adjacent to the Victoria Tunnel level. This map shows no raises or other

development to tie the upper workings and lower workings together on the same vein.

We have, therefore, denied this application and a copy of the letter of denial is attached.

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

Enclosure:

COPY

224 New Customhouse
Denver 2, Colorado

January 28, 1953

Mr. A. Cohen
Mendota-Frostberg Mining Co.
P. O. Box 6630 - Stockyards Station
Denver, Colorado

Re: DMEA Docket 2698

Dear Mr. Cohen:

Reference is made to your application for Government aid in exploration work on the Mendota mine.

A careful study of your property and maps leaves doubt in our minds concerning the ownership of ore which might be found after sinking a winze and driving east on the vein at the bottom of the winze.

If, at some later date, you obtain the right to mine ore on the Virgin lode mining Claim, U. S. Survey 110, and include it with your adjoining holdings we will be glad to reconsider your application.

Under the present circumstances, we regret to advise you that your application for Government aid is denied.

Very truly yours,

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

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

HMC:oc
cc: Administrator
WMTraver
Subject
Chron.
AHKoschmann (2)

Reviewed by
DMEA OPERATING COMMITTEE

2-6-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 2 1953

Mining Division
Region IV

January 28, 1953

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMA Docket 269B, Mendota-Freeberg Mining Co., Mendota Mine, Clear Creek County, Colorado

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

The examining engineer believes the proposal as submitted by the applicant has merit provided the Virgin Claim is included. He ran a Brunton Survey of the bottom, or fifth, level of the Mount Vernon workings on the North Freeberg vein, which indicated that this vein enters the Virgin claim in a northeasterly direction.

The applicant has refused to obtain a lease on the Virgin claim. An old law suit established apex rights on the west end of the vein but apex rights were not established on the east end where according to the Brunton Survey the North Freeberg vein enters the Virgin Claim at depth. The east end of the North Freeberg vein appears to be barren toward surface and very little work has been done on it. Court action may be necessary to establish ownership, and this might involve raising to surface on an uninsured vein, an expensive operation.

Under these circumstances we recommend that the application be denied until such time as the applicant obtains the right to mine on the Virgin Claim.

W. H. King
W. H. King

Enclosures

Forwarded by
DMA Contracts Management
2-6-53
(Date)

Region IV

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 2 1953

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
January 16, 1953

Memorandum

To: Executive Officer, Field Team, Region IV

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

Subject: DMEA #698 (Lead-zinc), Mandota-Freeberg Mining Company (Mandota mine), Clear Creek County, Colo. - Property rights

Please find enclosed the original and eight copies of M. M. Salsbury's memorandum on the above subject. A corresponding memorandum with a revised copy of figure 3 is being prepared by D. R. MacLaren, U. S. Geological Survey participant in both field examinations.

Under the circumstances it would appear that the decision regarding preparation of a contract should be referred to the Washington level unless the applicant company is able to substantiate further its property rights to your satisfaction.

W. H. Traver, Jr.

enclosures

WHT/amh

cc: 8
AEHoschmann
DMEA #698
DMEA Chron.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20, Room 137
Denver Federal Center
Denver 14, Colorado
January 16, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 2 1953

Memorandum

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

From: M. H. Salsbury

Subject: DMMA 2698 (Lead-zinc), Mendota-Frostberg Mining Company (Mendota mine), Clear Creek County, Colo. - Property rights

On December 30, 1952, at the request of the Region IV Field Team, a compass survey was made of the bottom, or fifth, level of the Howard winze workings on the North Frostberg vein. The information thus obtained has been plotted on revised figure 3 of the original geological report on the Mendota. It was established that on the fifth level, and probably on the proposed sixth level, the North Frostberg vein enters the Virgin claim, U. S. survey 110, in a northeasterly direction.

The applicant under the subject docket does not have a lease on the Virgin claim and whether or not the owners of this claim have any rights to ore on the North Frostberg vein is debatable.

When the original examination was made by the Bureau engineer, the conclusion was reached that the owners of the Mendota clearly had apex rights to the North Frostberg vein. This was based, in part, on a statement by Harvey L. Tedrow, consulting engineer, representing

the applicant, to the effect that apex rights to the North Frostberg vein had been established years ago by court action.

On December 30, 1952, the date of the last examination, Tedrow produced a map made by Walter Scott, a mining engineer interested in the applicant company, showing the extent of the apex rights granted by the courts.

This map indicates that the apex rights were not established as far east as the point where the North Frostberg vein enters the Virgin claim at depth.

The east end of the North Frostberg vein appears to be barren toward surface and very little work has been done on it. A barren vein cut and drifted on on the Sherman Mountain tunnel lines up with the North Frostberg vein and is so considered. However, there are no raises through from other levels to prove this.

On the Victoria tunnel level, vein mineralization goes into the south wall of the east drift before the drift crosses into the Virgin claim. The drift actually becomes a crosscut at the east end which cuts mineralization to the north of the North Frostberg vein. This was not clear on the original map accompanying the geological report, which was reproduced from an unpublished War Minerals Report (247B), found to be inaccurate.

The North Frostberg vein is barren at the east end of the drift on the Victoria tunnel level and is not too well defined because it is somewhat broken up. However, it does not turn and go into the Virgin claim.

Thus, while the evidence appears to substantiate the claim of the Mendota owners to apex rights on the east end of the North Frostberg vein, it might be necessary to establish ownership by court action. This might possibly necessitate raising through to surface on unmineralized vein, an expensive operation.

Neither the applicant nor the owners of the Mendota want to ask the owners of the Virgin claim for a lease because they do not admit that there is any possibility that their apex rights on the North Frostberg do not extend east.

Tedrow was advised to present any other evidence he may have to support the claim to apex rights.

This memorandum will modify, to the extent explained herein, the statement in the original engineering report that the Mendota owners had, without reservation, apex rights to the North Frostberg vein. The revised figure 3 should be substituted for figure 3 with the original geologic report.

For Scott W. Hagen
M. H. Salsbury
Mining Engineer

MHS/amh

cc: 8

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

A. H. Koschmann
1/19/53

January 7, 1953

Memorandum

To: Mr. A. H. Koschmann

From: D. R. MacLaren, Geologist, U. S. Geological Survey

Subject: DMEA Docket 2698, Mendota Mine, Clear Creek County, Colorado.

While checking the location of claims controlled by subject applicant, the question was raised as to the possibility of the eastern portion of the work proposed for the 457 foot level, which would cross side lines into the Virginia claim (not controlled by applicant) being in jeopardy under the law of apex rights. To check on this possibility the writer, accompanied by M. H. Salsbury of the U. S. Bureau of Mines and H. L. Tedrow, consultant for the applicant, revisited the mine on December 30, 1952.

Mr. Tedrow had with him a map showing the apex of the North Frostberg vein as established by an old law suit, and its relation to the workings on the Victoria level. The east end of the apex so established protects the vein on the Victoria level for a distance of at least 50 feet east of the Howard winze (fig. 3 of the report previously submitted).

The vein has been stoped above the Victoria level for a distance of 240 feet east of the winze. As no evidence of the vein passing into either wall was noted, it is assumed that the twists and turns of the drift follow a continuous vein at least to a point about 10 feet east of the end of the stope. Here the ground becomes blocky and jointed for about 30 feet. An uninmeralized shear that appears to be the continuation of the North Frostberg vein passes out of the southeast wall of the drift which was

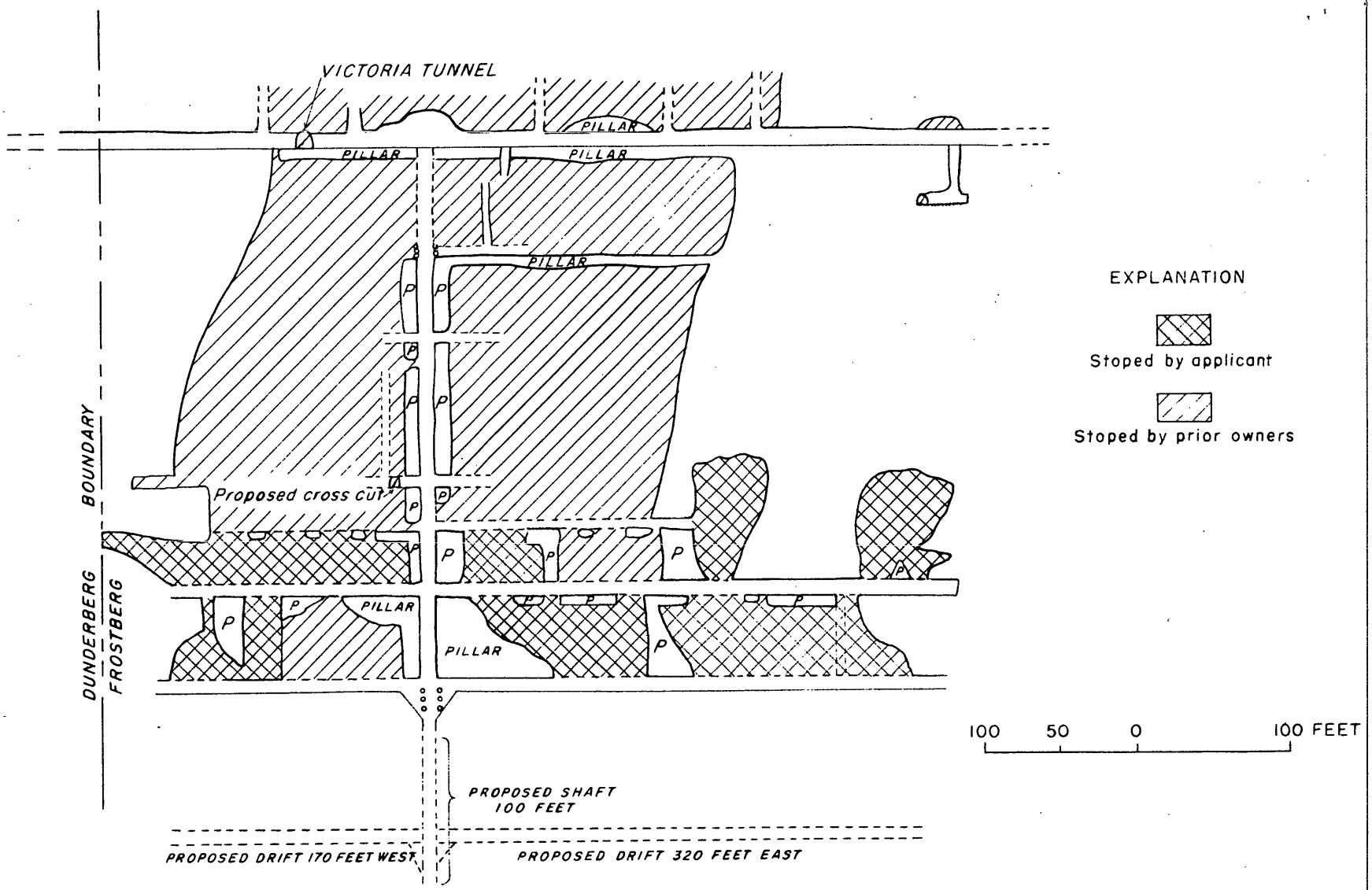
turned to the northeast and follows a partially mineralized shear for 30 feet then swings more easterly, following another vein.

On the 357 foot level the vein can be followed in the back of the drift from the winze to the stoped portion. The sharp swing of the drift to the northeast, about 150 feet east of the winze, follows a similar swing in the vein which is exposed in the back of the drift between stopes. The last 150 feet or so of the vein has been stoped. The vein, where it can be seen in pillars, and the raises that are open dip steeply north to vertical. At the east breast of the drift the vein dips 78° S. West of the winze the vein has been stoped to the breast. From the raises that are open it appears to dip from steeply north to vertical to steeply south until at the west breast the dip is 65° S.

The applicant's right to the North Frostberg vein on the Victoria level seems well established as far east as the end of the stope. His rights on the 357 foot level are reasonably secure to a point about 200 feet east of the winze. East of that point, because of the steep north to vertical dips seen on both levels, the vein would have to become much flatter than any observed dip in order to get from the drift on the 357 foot level to the drift on the Victoria level. While strikingly large swings in strike and rolls in dip have been seen in the mine, such a roll as would be necessary can not be safely postulated until a raise has been driven along the vein and connects the two levels in this region.

/s/ Donald R. MacLaren

Donald R. MacLaren



NOTE: REDUCED FROM COMPANY STOPE MAP

By D. R. MacLaren October 1952.

FIGURE 2-LONGITUDINAL SECTION OF NORTH FROSTBERG VEIN, SHOWING PROPOSED WINZE AND DRIFTS, MENDOTA MINE, CLEAR CREEK COUNTY, COLORADO.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 2 1953

Building 20
Denver Federal Center
Denver 14, Colorado
November 28, 1952

Memorandum

To: Executive Officer, Field Team, Region IV

From: Chief, Colorado Branch, Mining Division, Region IV

Subject: DMEA 2698 (Lead-zinc), Mandota-Frostberg Mining Company (Mandota mine), Clear Creek County, Colorado

Please find enclosed the original and eight copies of the "Summary, Conclusions, and Recommendations", by M. K. Salsbury and D. R. MacLaren, and of Salsbury's engineering report on the subject district.

Salsbury concludes exploration of the North Frostberg vein by winning 100 feet and drifting 490 feet on the 100-foot winze level is worthwhile and should result in the development of a fairly substantial reserve of lead-zinc ore. Crosscutting on the 357-foot level to explore the South Frostberg vein is not considered justified and, instead, a suitable drill station and 600 feet of diamond drilling are suggested. His recommendations are for the above work to be performed at an estimated cost of $29,300.00, the contract to be prepared with unit costs on the short form MF-300 (A).

I concur with Salsbury's conclusions and recommendations.

You will note only $3.00 per foot is allowed for diamond drilling which is much lower than we usually estimate. However, that cost is stated as the figure the applicant estimates he can do it or have it done for and it is accepted by the examining engineer.

The brochure provided by the Region IV Field Team with instructions to make a field examination is also returned herewith.

W. M. Traver, Jr.

W. M. Traver, Jr.

enclosures

WMT/mh

cc: 8
DMEA 2698
DMEA Chron.

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

200 New Customhouse
Denver 2, Colorado

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 2 1953

November 14, 1952

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 2698, Mendota Mine, Silver Plume, Clear Creek County, Colorado.

Attached are 8 copies of the geological report by D. R. Maclaren covering DMEA Docket 2698, the Mendota Mine, Silver Plume, Clear Creek County, Colorado.

The applicant proposes to explore for lead-zinc ore on the North and South Frostberg veins in the Mendota mine. Ore, now nearly mined out, has been developed to the lowest levels on the North and South Frostberg veins.

Maclaren concludes that the chances of discovering significant ore are good. He, therefore, recommends that the proposal of the applicant to sink and drift on the North Frostberg vein be approved. However, he recommends that the South Frostberg vein be diamond drilled to locate the most favorable location, before any crosscutting be approved.

I concur in this recommendation.

A. H. Koschmann

A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (8)

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 2698, Mendota-Frostberg Mining Company

Mendota Mine

Clear Creek County, Colorado

Lead-zinc

M. H. Salsbury, Mining Engineer
Bureau of Mines

D. R. MacLaren, Geologist
U. S. Geological Survey

November 25, 1952

DMEA 2698

MENDOTA-FROSTBERG MINING COMPANY
MENDOTA MINE
CLEAR CREEK COUNTY, COLORADO

Summary, Conclusions, and Recommendations

By M. H. Salsbury
Mining Engineer
Bureau of Mines

and

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

DMEA 2698

MENDOTA-FROSTBERG MINING COMPANY
MENDOTA MINE
CLEAR CREEK COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By M. H. Salsbury and D. R. MacLaren

The Mendota mine was visited by M. H. Salsbury, of the Bureau of Mines, and D. R. MacLaren, of the U. S. Geological Survey, to check the information in an application under DMEA 2698 for exploration assistance. The applicant, the Mendota-Frostberg Mining Company, lessee of the property, proposes exploration work costing $39,020.00, Government participation--50 percent, or $19,510.00. A revised program is recommended by the examining team.

The North Frostberg and South Frostberg veins, where the proposed exploration projects are located, are typical fissure veins occupying faults in gneisses and schists of the Idaho Springs formation, containing sphalerite, silver-bearing galena, and very small amounts of gold in a gangue of quartz and crushed wall rock.

The mine has no measured ore reserves, and the North Frostberg vein is almost mined out down as far as the 357-foot winze level. There is still good ore showing in the winze sump, and, applying the tonnage factor of ore produced by the applicant between the 231- and 357-foot levels and using the smelter settlement values, 7,500 tons of inferred ore containing 498,000 pounds of recoverable lead and 948,000 pounds of recoverable zinc are estimated to occur in a block 100 feet in depth below the 357-foot winze level and 490 feet long, the extent of the proposed exploration.

The applicant proposes to accomplish 100 feet of winzing and 490 feet of drifting on the North Frostberg vein and 300 feet of crosscutting and drifting on the 231-foot level to explore the South Frostberg vein which has never been exposed below the Mendota adit tunnel level.

The applicant's cost figures are good and were closely checked by the Bureau engineer. The proposed exploration of the North Frostberg vein is worthwhile. The available information on the South Frostberg vein and its appearance on the tunnel level does not make the expenditure of the funds called for to explore it by crosscutting and drifting advisable. Instead, the examining team suggests 600 feet of diamond drilling from the 357-foot level to test the vein first.

The management of the Mendota-Frostberg Mining Company appears to be competent and experienced.

At present metal prices, 14 cents per pound for lead and 12.5 cents per pound for zinc, the expected grade of ore probably could not be mined profitably. However, at the prices prevailing in 1951 and early 1952, a substantial profit could be realized.

With the understanding that the ore probably could not be mined profitably at present, it is recommended that a modified exploration program be approved, requiring a loan of $29,300.00, Government participation--50 percent, or $14,650.00. A short form contract is suggested.

MENDOTA MINE

SILVER PLUME

CLEAR CREEK COUNTY, COLORADO

CMEA DOCKET 2608

Geologic Report

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

MENDOTA MINE
SILVER PLUME, CLEAR CREEK COUNTY, COLORADO

INTRODUCTION

The Mendota-Frostberg Mining Company of Denver, Colorado, has applied to the Defense Minerals Exploration Administration for assistance to explore for lead and zinc on the North and South Frostberg veins in the Mendota mine. The applicant proposes:

1. To sink the North Frostberg winze 100 feet from the 357 foot level, and to drift 170 feet west and 320 feet east on the 457 foot level.

2. To crosscut 200 feet on the 231 foot level from the North Frostberg vein to the South Frostberg vein, and to drift a total of 100 feet on the South Frostberg vein.

The applicant estimates that the total cost will be $39,020, the Government's share to be 50 percent.

The property was examined on October 20, 1952, accompanied by M. H. Salsbury of the U. S. Bureau of Mines, and Andrew Holm, superintendant for the applicant. The mine, easily accessible throughout the year, is a few hundred yards north of U. S. Highway 6, at the west edge of the town of Silver Plume, Clear Creek County, Colorado (fig. 1).

It is concluded that the chance of discovering a significant lead and zinc ore body is good. It is recommended that the proposal to sink and drift on the North Frostberg vein be approved. However, it is recommended that the South Frostberg vein be diamond drilled from the North Frostberg vein to locate the most favorable ore horizon before any crosscutting be approved.

GEOLOGY

The geology of the area has been described by Spurr, Garrey, and Ball (1908). Irregular dikes and stocklike masses of pre-Cambrian Silver Plume granite and associated pegmatites and aplites have intruded the schists and gneisses of the Idaho Springs formation. These rocks, in turn, have been intruded by Tertiary dikes of quartz monzonite porphyry and alaskite porphyry.

Two general sets of fissures, one striking northwest and the other striking northeast, afforded channels for ore deposition. The northeast-trending set of fissures, which include the North and South Frostberg veins, strike from N. 55° E. to due east and in general dip steeply south with reverses to steeply north. Movement along the fissures has displaced the southeast wall downward and to the southwest from 1 to 5 feet. This has tended to open the easterly trending and the northerly dipping portions of the fissures and to tighten the northeasterly-trending and southerly dipping portions.

The veins vary from zones of sheared or altered rock with interlacing veinlets of sphalerite and galena half an inch to 3 inches wide, to nearly solid veins of sulfides up to 3 feet or more, locally, in width. The vein minerals are sphalerite, galena, silver-bearing minerals, and pyrite in a gangue of quartz and crushed fragments of wall rock. The combined average of the lead-zinc content ranges from a few percent to 60%, of which the zinc makes up from 60% to 90%.

On the North Frostberg vein, a winze has been sunk from the Victoria tunnel level to the 357 foot level, a vertical distance of 355 feet (fig. 2). For the first 180 to 185 feet, the vein dips steeply to the south and is

only a few inches wide (fig. 3). Between 100 and 165 feet down the dip changes to steeply north and the vein widens to 3-5 feet of massive sulfides. At about 300 feet down, the vein again changes dip to the south and narrows to only a few inches. In the bottom 30 feet of the winze, the vein tends to steepen. Two samples were taken from the vein at the bottom of the winze. The sample from the east side assayed 31.3% Zn, 2.2% Pb, and 6.1 oz. Ag over a width of 6 inches; the one from the west side assayed 31.2% Zn, 2.25% Pb, and 0.4 oz. Ag, over a width of 6 inches.

The South Frostberg vein (fig. 3) has not been explored below the Victoria tunnel level. Above the level a stope 165 feet long has been nearly mined out. The vein varied from narrow stringers in a crushed zone to 4 feet of massive sulfides.

PROPOSED EXPLORATION

The applicant proposes to crosscut 200 feet south from the North Frostberg vein, to cut the South Frostberg about 225 feet below the tunnel level, and to drift 100 feet on the South Frostberg vein on that level. Considering that the ore deposition is controlled by structure and that the North Frostberg vein, only 200 feet away, has been developed on 6 levels below the lowest level on the South Frostberg, it seems much more reasonable to locate any ore zone that might exist on the South Frostberg by diamond drilling before driving a crosscut blindly (fig. 3). The possibility of drilling was suggested to Mr. Holm. He stated that he had already lined up a driller who was willing to contract the work at $2.50 per foot, but that the proposal was not acceptable to the applicant.

A second proposal is to sink the North Frostberg winze from the 357 foot level for 100 feet, and to drift 320 feet east and 170 feet west of the winze on the 457 foot level. Ore has been developed to the 357 foot level and three stopes on that level have been or are being mined.

CONCLUSIONS AND RECOMMENDATIONS

Ore has been developed to the lowest levels of the North and South Frostberg veins, and is now nearly mined out. The planes of both veins are irregular and those sections where the strike is east and west, or where the dip is north, have been the most favorable for ore deposition. There is no indication that the bottom of the zone of deposition has been reached. It is concluded that there is a good chance of finding additional ore in significant amounts below the lowest levels in each vein.

It is recommended that the proposal to sink the North Frostberg winze from the 357 foot level to the 457 foot level, and to drift 320 feet east and 170 feet west on the 457 foot level be approved. It is also recommended that the applicant be urged to reconsider diamond drilling the South Frostberg to locate the most favorable ore horizon and that this be done before any crosscutting be approved.

The cost of this exploration is estimated by the U. S. Bureau of Mines to be $20,300, the Government's share to be $14,650.

REFERENCE

Spurr, Garrey, and Ball: U. S. Geological Survey Professional Paper 63, 1908.

DMEA 2698

MENDOTA-FROSTBERG MINING COMPANY
MENDOTA MINE
CLEAR CREEK COUNTY, COLORADO

Engineering Report

By M. H. Salisbury
Mining Engineer
Bureau of Mines

DMEA 2698

MENDOTA-FROSTBERG MINING COMPANY
MENDOTA MINE
CLEAR CREEK COUNTY, COLORADO

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2. Longitudinal section of North Frostberg vein, showing proposed winze and drifts, Mendota mine, Clear Creek County, Colorado	*
3. Sketch showing Victoria tunnel level and section of North Frostberg and South Frostberg veins, Mendota mine, Clear Creek County, Colorado	*

*See figure following Geologic Report

DMEA 2698

MENDOTA-FROSTBERG MINING COMPANY
MENDOTA MINE
CLEAR CREEK COUNTY, COLORADO

ENGINEERING REPORT

By

M. H. Salsbury

INTRODUCTION

The Mendota, or Victoria, tunnel and the North Frostberg winze workings of the Mendota mine were examined October 20, 1952, by M. H Salsbury, of the Bureau of Mines, and D. R. MacLaren, of the U. S. Geological Survey, and the information submitted under an application for exploration assistance, DMEA 2698, checked. The applicant requested a loan in amount of $39,020.00, Government participation--50 percent, or $19,510.00, to sink the North Frostberg winze 100 feet, construct loading pockets and accomplish some 790 feet of drifting and crosscutting on two levels.

ACKNOWLEDGMENTS

Information was obtained from Andrew Holm, present superintendent of the mine, and Harvey L. Tedrow, consulting engineer representing the applicant, and from several unpublished War Mineral Reports and maps in the Bureau of Mines Colorado Branch files, particularly War Minerals Report 247-B, dated July 1943.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

The Mendota, or Victoria, tunnel is located 40 feet above creek

level on the north side of a narrow, steep-walled canyon, at the western outskirts of Silver Plume, Clear Creek County, Colo. (fig. 1), a town of about 150 population. It is 50 miles west by paved highway from Denver, Colo., the nearest large source of mining supplies, and 15 miles west of Idaho Springs, Colo., where limited supplies are obtainable. The nearest railhead is at Golden, Colo., 35 miles to the east.

The climate is moderate to severe in winter and spring and cool in the summer and fall. Snow and rainfall are usually light. Communications are good throughout the year and continuous operation is possible.

Water service from the local municipal system and electric power are available at reasonable rates. Limited living accommodations are available in Silver Plume and nearby towns. A few experienced miners are permanent residents but any large need for labor would have to be supplied from outside.

HISTROY AND PRODUCTION

The history of the Mendota mine begins with surface work on the outcrop high on the mountainside in 1879. Later, the Mendota tunnel was driven to cut the Mendota vein 670 feet below the outcrop. Other veins, including the North and South Frostberg and the Tishamingo veins, were explored. Later, the Mendota and North Frostberg veins were mined by winzing below the tunnel level.

Prior to 1893, high-grade lead-silver ore mined from the four veins was sorted and shipped direct to the smelter. After the panic of 1893 and resulting low metal prices, there was almost a complete

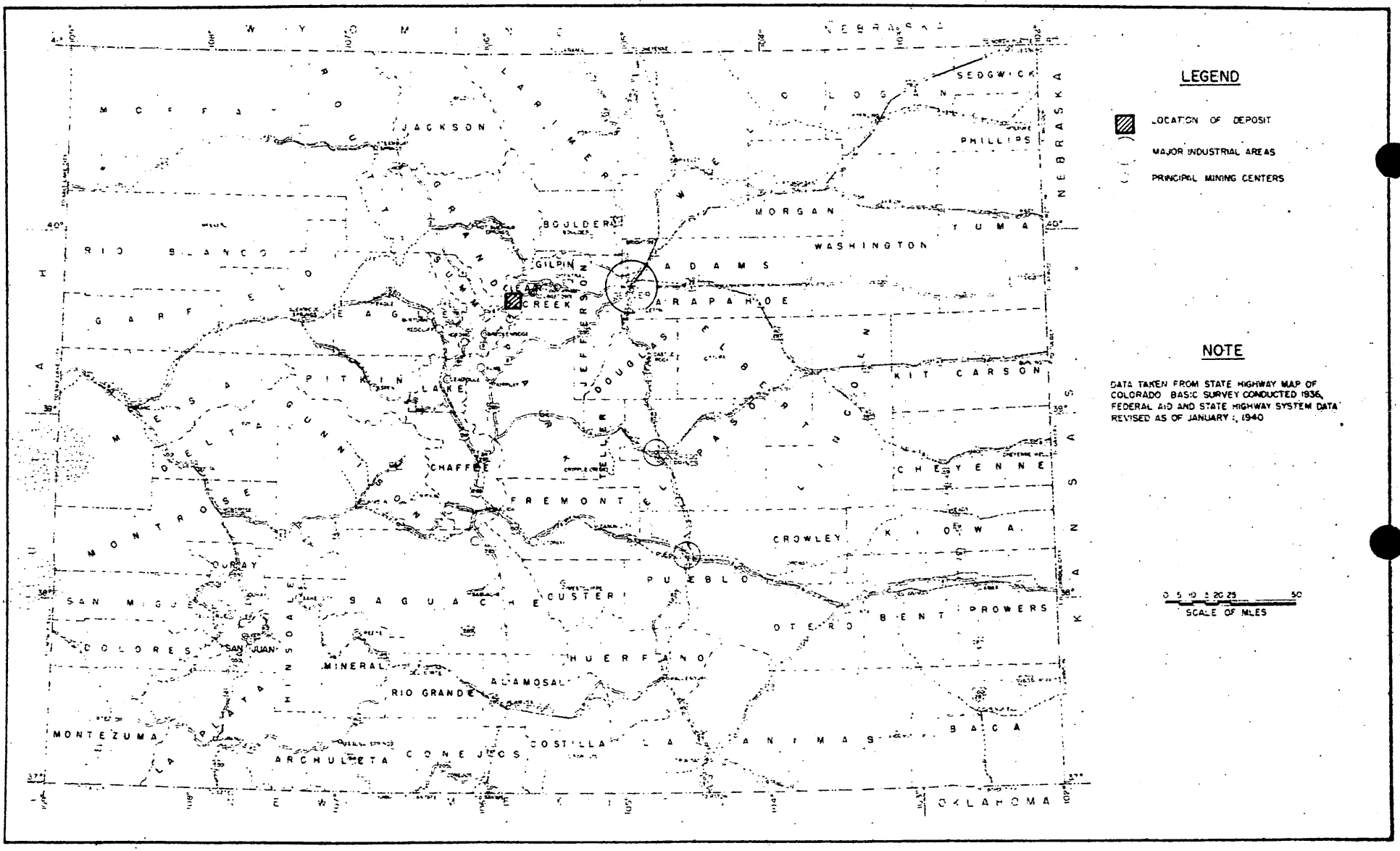


Figure 1. - Location map, Mendota mine, Mendota-Frostberg Mining Company, Clear Creek County, Colorado (DMEA 2698)

suspension of mining in the area. Thereafter, only small, short-lived operations were carried on until 1942 when demand for lead and zinc encouraged resumption of operations. W. K. Howard organized the Utze Lode Company, leased the Mendota mine, and rehabilitated the tunnel and Mendota winze, aided by a Reconstruction Finance Corporation loan. Later, as a result of a showing of lead and zinc ore in a diamond drill hole drilled by the Bureau of Mines in the course of project 1561, the North Frostberg winze was pumped out and sunk to a point 357 feet below the tunnel level.

From the work on the Mendota vein and from the North Frostberg vein below the tunnel level, the Utze Lode Company mined a reported $1,000,000.00 in lead and zinc ore. A large part of it came from the North Frostberg vein below the tunnel level.

According to figures furnished by the Statistics Branch, Economics Division, Region IV, Bureau of Mines, and data from smelter shipments of the Mendota-Frostberg Mining Company, production of the Mendota mine since 1901 has been as follows:

Year	Dry Tons	Pounds Lead	Pounds Zinc	Operator	Remarks
1901-29	160,010	12,793,677	16,707,524	John W. Old	Bureau of Mines figures
1942-46	15,008	2,013,301	2,461,866	Utze Lode Company	Bureau of Mines figures
1951-52	5,815	385,966	734,910	Mendota-Frostberg Mining Company	Smelter returns. Not Bureau of Mines figures.

The production through 1946 is not segregated and includes ore from various veins on the property. All of the production in 1951 and through August 16, 1952, was from the winze workings of the North Frostberg vein, between the 231-foot and 357-foot levels. Most of it was sold at the high metal prices prevailing in 1951 and early 1952. Calculation of smelter returns applied to crude ore production places the grade of crude ore in 1951-52 at $29.70 per ton (total gross value—$172,703.79). The average content of crude ore was 1.90 ounces gold per ton, 3.32 percent lead, and 6.32 percent zinc (recoverable metal).

OWNERSHIP AND EXTENT

The Mendota group includes thirty-one wholly owned mining claims, nine partially owned claims, one placer claim, and four millsites—all patented.

These are owned by the Jack Pine Mining Company, in care of William D. Blood, 821 Ernest and Cranmer Building, Denver, Colo. They are all included in a lease dated July 22, 1950, for a term of 15 years, expiring in 1965, with the privilege of extension for 10 years more, given to the Dumont Investment Company and later assigned to the applicant, the Mendota-Frostberg Mining Company, a joint venture of four persons—A. Cohen and S. Cohen, P. O. Box 6630, Stockyards Station, Denver, Colo., Harvey L. Tedrow, Olin Hotel, Denver, Colo., and Nora L. Scott, Central City, Colo.

Several supplemental agreements between the Jack Pine Mining Company, the Dumont Investment Company, and the Mendota-Frostberg Mining Company make the lease fully effective.

By a provision of one agreement, the Mendota-Frostberg Mining Company is obligated to apply for a Government exploration loan.

The lease calls for a flat royalty of 10 percent of the net smelter return which is defined as the net return after smelter treatment charges, freight, and hauling charges on concentrates from mill to smelter are deducted.

The North Frostberg vein is on wholly owned, patented claims and apex rights are fully covered. The property limits on the North Frostberg vein are 200 feet west of the winze and several thousand feet east, and the proposed exploration is well within these limits.

The lease requires 250 shifts of underground labor monthly. The proposed exploration work will hardly require this much labor and the applicants plan to do other mining above the tunnel level on the Tishamingo vein.

DESCRIPTION OF THE DEPOSITS

The North and South Frostberg veins occupy fault fissures in gneiss and schist of the Idaho Springs formation, trending N. 55° E. to due east and dipping steeply south, sometimes reversing to steeply north. The southeast walls of the fissures have been displaced slightly downward and to the southwest. Thus, the veins tend to be more open where they have an easterly strike and/or northerly dip. However, commercial ore is found on either dip or either strike. Gneissic wall rock appears to have been more favorable to ore deposition than schistose rock. Ore minerals are sphalerite and silver-bearing galena with pyrite and a small amount of gold in a gangue of quartz and crushed country rock. The ore may consist of

several streaks, perhaps as much as 6 inches wide, in a sheared zone of quartz and wall rock breccia, or it may be solid sulfides from a foot to 3 feet wide or even more in occasional pockets. The mineralization in the North Frostberg vein, which appears to be the main ore channel, is much stronger than in the South Frostberg where examined at tunnel level. The South Frostberg vein was not as heavy an ore producer above the tunnel level and has never been explored below the tunnel level. Relationship of the various mine workings is shown on figure 3 with the geologic report.

MINEABLE ORE RESERVES

There are no measured ore reserves in the mine.

Practically all the ore developed below the tunnel level on the North Frostberg vein has been mined except a small section now being stoped. The areas which are left are lean portions and are probably not worth mining.

Only two samples were taken by the examining team, verifying the fact that there was still ore in the sump below the 357-foot level. The record of shipments is considered the best measure of the grade of ore which might be expected below. The two samples assayed as follows:

		Ounces per Ton		Percent		
Number	Description	Gold	Silver	Copper	Lead	Zinc
S-14	6 inches across 2 streaks west end sump North Frostberg winze	0.02	0.4	0.30	2.25	31.2
S-15	6 inches cut across several streaks east end sump North Frostberg winze	0.01	6.1	0.22	24.2	31.3

See note on following page

Note: Ore streaks higher up behind the loading pockets were wider.

Referring to the longitudinal section of the North Frostberg vein (fig. 2 with the geological report), the ore mined by the applicant—5,815 dry tons plus an estimated 500 tons remaining above the west end of the 295-foot level, a total of 6,315 tons—came from an available vein area of 41,540 square feet. Thus, 6.9 square feet of vein area produced one dry ton of ore.

Because the results of any sampling in the bottom of the 357-foot level drift which may have been done by others is not available, the average value of ore to be expected below the present workings is assumed to be the same as the computed value of the 5,815 tons mined by the applicant, using data based on smelter shipments.

The area of the vein which would be developed by the proposed exploration is 52,000 square feet, or a block 100 feet in depth by 520 feet long. While a small portion of this around the present sump could be called indicated ore, in this report the entire block will be considered as inferred ore. Applying the tonnage factor of 6.9 square feet per ton of ore, the estimated amount of inferred ore in the block is $\frac{52,000}{6.9}$ or 7,536 tons, averaging 1.90 ounces silver per ton, 3.32 percent lead, and 6.32 percent zinc, all in terms of recoverable metal. At present market prices (October 20, 1952) of 14 cents per pound for lead and 12.5 cents per pound for zinc, this ore would have a gross value of about $22.00 per ton. It would furnish 498,000 pounds of recoverable lead and 948,000 pounds of recoverable zinc. No estimate is possible on ore which might be found on the South Frostberg vein.

PRESENT STATUS

Exploration and Development

The applicant is mining at present above the west end of the 295-foot winze level and on the Tishamingo vein above the tunnel level (fig. 3 in the geological report).

No exploration work is being carried on. The main Mendota winze is flooded and only the tunnel level and the North Frostberg winze workings are accessible at the present time.

The mining method used is open stoping with occasional stulls. Walls are good and stopes stand well. Shrinkage stoping has not been used successfully because of the tendency of the broken ore to pack.

Mining and Milling Equipment and Other Facilities

The mine is fully equipped for the proposed exploration and production of 25 tons daily could be made without additional equipment. Eight men are employed underground at present and would continue to be employed during the proposed exploration.

A gravity-type concentration mill on the property is not in use and is reported to be inefficient. The present operators truck ore to a custom mill at Idaho Springs where a lead and a zinc concentrate are made. H. L. Tedrow reports very good recovery at present.

The North Frostberg winze workings are practically dry and the small amount of water which collects in the sump is barely enough for drilling purposes.

At present metal prices of 14 cents per pound for lead, and 12.5 cents per pound for zinc, current operations are probably being carried on at a small loss.

PROJECT PROPOSALS, WITH COSTS

The applicant proposes to:

Sink the North Frostberg winze 100 feet at $80.00 per foot	$ 8,000.00
Prepare loading pockets below the new 457-foot level	1,000.00
Drift west 170 feet on the new 457-foot level at $38.00 per foot	6,460.00
Drift east 320 feet on the new 457-foot level at $38.00 per foot	12,160.00
Crosscut south on the 231-foot level to the South Frostberg vein 200 feet at $38.00 per foot	7,600.00
Drift on the South Frostberg vein from the end of the crosscut 100 feet at $38.00 per foot	3,800.00
Total	$39,020.00

The examining team does not consider the crosscut and drift to explore the South Frostberg vein below the tunnel level are justified, considering the appearance and past production of the vein. Instead, 600 feet of diamond drilling from the 357-foot winze level is recommended to determine if further exploration of the South Frostberg vein is warranted.

The project, with cost estimates, as proposed by the Bureau of Mines follows:

Winze sinking (estimated time—2 months)

(Labor rate underground—$1.50 per hour, with time and one-half for over 40 hours; operations—6 days per week)

Supervision, 3/4 of $400.00 per month	$ 600.00	
Hoistman, 50 shifts at $1.50 per hour, plus overtime	648.00	
Trammer, 1/2 of time for 50 shifts at $1.50 per hour, plus overtime	324.00	
Labor contract, sinking winze, $30.00 per foot	3,000.00	
Installing bucket skid, ladders, etc., 2 men, 6 shifts, at $1.50 per hour	156.00	
Timber—stulls, skids, ladders, etc., $3.00 per linear foot	300.00	
Explosives, $15.00 per round, 50 rounds	750.00	
100 feet of 2-inch air line at $0.70 per foot	70.00	
100 feet of ventilation pipe at $1.00 per foot	100.00	
Bits and drill rods at $8.00 per round	400.00	
Equipment repairs at $2.00 per day	100.00	
Machinery depreciation on 60-month basis		

	Per Month
Compressor	$ 60.00
Rock drill	20.00
Locomotive and cars	25.00
Shop equipment	20.00
	$125.00

Total for 2 months	250.00	
Compensation premium, insurance, and payroll taxes (10 percent)	472.80	
Power at $150.00 per month (pro rata)	300.00	
Total estimated cost of winze sinking		$ 7,470.80
Estimated cost per foot of winze sinking		$ 74.70

Excavation of loading pockets below 457-foot level

(estimated time—2 weeks)

24 cubic yards excavation at $12.00 per cubic yard (contract)	$ 288.00	
Timber and lagging	70.00	
Timbering, 2 men, 6 days at $1.50 per hour, plus overtime	156.00	
Supervision, 2 weeks at 3/4 of $400.00 per month	150.00	
Hoistman, 2 weeks at $1.50 per hour, plus overtime	162.00	
Trammer, 1/2 of 2 weeks at $1.50 per hour, plus overtime	81.00	
Compensation, insurance, payroll taxes	83.70	
Repairs at $2.00 per day	24.00	
Equipment depreciation at $125.00 per month	62.50	
Power, pro rata, 2 weeks	75.00	
Explosives, 5 rounds	50.00	
Rock bits and rods	25.00	
Total estimated cost of preparing loading pockets		$ 1,227.20

Lateral work on 457-foot level (estimated time—3.5 months)

Drifting west on 457-foot level	170 feet
Drifting east on 457-foot level	320
	490 feet

Contract labor, drifting, 490 feet at $200.00 per foot	$ 9,800.00
Supervision, 3/4 of $400.00 per month for 3.5 months	1,050.00
Hoistman, 3.5 months at $1.50 per hour, plus overtime	1,104.00
Trammer, 1/2 of 3.5 months at $1.50 per hour, plus overtime	552.00
Compensation, insurance, payroll taxes	1,250.00
Power (pro rata)	525.00
Explosives, 163 rounds at $12.00 per round	1,956.00
Bits and rods at $5.00 per round	815.00
Repairs, $2.00 per day	174.00
500 feet of 2-inch air line at $0.70 per foot	350.00

500 feet of ventilation pipe at $1.00 per foot	$ 500.00	
500 feet of track at $1.00 per foot	500.00	
Total estimated cost for 490 feet of drifting		$18,576.00
Estimated cost per foot of drifting		$ 37.91

Diamond drilling to South Frostberg vein

10 feet of crosscut for drill station at $38.00 per foot	$ 380.00	
600 feet of diamond drilling at $3.00 per foot	1,800.00	
Total estimated cost for diamond drilling		$ 2,180.00

Recapitulation of Costs

	Applicant's Cost Estimate	Bureau's Cost Estimate
Sinking winze 100 feet	$ 8,000.00	$ 7,470.00
Preparing loading pockets	1,000.00	1,227.20
Drifting on the 457-foot level	18,620.00	18,576.00
Crosscutting to South Frostberg vein	11,400.00	-
Diamond drilling to South Frostberg vein	-	2,180.00
Totals	$39,020.00	$29,453.20

Comparison of Costs

	Applicant's Cost Estimate	Bureau's Cost Estimate
Winzing	$80.00 per foot	$75.00 per foot
Drifting or crosscutting	$38.00 per foot	$38.00 per foot
Preparing loading pockets	$1,000.00	$1,227.20
Diamond drilling	-	$2,180.00

The applicant's time estimate for exploration is 8 months.

The Bureau of Mines time estimate for the revised plan is:

Sinking winze	2.0 months
Preparing loading pockets	.5
Drifting	3.5
Preliminary work and miscellaneous	.75
Diamond drill station	.25
Total time	7.0 months

Diamond drilling would be carried on simultaneously with the work and would not require extra time.

	Per ton
Gross value of one ton of crude ore at present value in estimated inferred ore reserve (14 cents per pound for lead and 12.5 cents per pound for zinc)	$22.00
Estimated production cost	22.85
Estimated operating loss at present prices per ton of crude ore	$ .85

Gross value of one ton of crude ore at prices prevailing in 1951 and early 1952	$29.70
Estimated production cost	22.85
Estimated operating profit at 1951 and early 1952 prices per ton of crude ore	$ 6.85

Ore produced from exploration work, subject to Government royalty, would have to be stockpiled until a mill shipment was accumulated. Allowing for the examining team's recommendation for revision of the exploration program, the applicant's estimated cost of the proposed work is reasonable and agrees fairly well with the Bureau estimate.

At present metal prices, lead at 14 cents per pound and zinc at 12.5 cents per pound, the estimated grade of ore could not be mined profitably. Therefore, the financial success of the exploration project is dependent on a better price for lead and zinc.

At metal prices prevailing in 1951 and early 1952, the estimated grade of ore would return an operating gain of about $6.85 per ton, enough to pay a Government royalty of $1.15, more or less, per ton and cover overhead expenses and net a substantial profit. Total

repayment to the Government on the estimated 7,500 tons would be $8,580.00, compared to an estimated expenditure of $14,628.00.

PROPOSED FINANCING

Members of the applicant company propose to furnish necessary capital from their own funds.

CONCLUSIONS

The proposed exploration project on the North Frostberg vein has an excellent chance of finding lead-zinc ore which could be mined profitably at metal prices prevailing in 1951 and early 1952.

On the estimated 7,500 tons of ore which might be found, a possible production of 498,000 pounds of recoverable lead and 948,000 pounds of recoverable zinc might be made.

Available information and examination of the South Frostberg vein does not appear to make the proposed crosscutting and drifting to explore this vein advisable without preliminary diamond drilling.

The mine management of the Mendota-Frostberg Mining Company is competent. Andrew Holm, the mine superintendent, is experienced and capable. A. Cohen and S. Cohen, of the company, are engaged in the feed milling business. Harvey L. Tedrow is an established mining engineer and mine manager. Nora L. Scott apparently represents Walter E. Scott, Jr., a mining engineer, of Central City, Colo.

RECOMMENDATIONS

Bearing in mind that the financial success of the exploration project depends, first, on a higher price for lead and zinc than the prevailing quotations of 14 cents per pound for lead and 12.5

cents per pound for zinc, it is recommended that an exploration loan under DMEA 2698 be approved in the amount of $29,300.00, Government participation--50 percent, or $14,650.00, for the purpose of carrying out the following proposals:

(1)	Sink the North Frostberg winze 100 feet at $75.00 per foot	$ 7,500.00
(2)	Construct loading pockets below the 457-foot level (applicant's request)	1,000.00
(3)	Drift west on the 457-foot level 170 feet at $38.00 per foot	6,460.00
(4)	Drift east on the 457-foot level 320 feet at $38.00 per foot	12,160.00
(5)	Crosscut on the 357-foot level for diamond drill station, 10 feet at $38.00 per foot	380.00
(6)	Diamond drill 600 feet (3 holes) to South Frostberg vein at $3.00 per foot	1,800.00
		$29,300.00

The Bureau engineer's investigation showed the above contract rates to be reasonable and a short form contract embodying them is suggested.

cb

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 2 1953

224 New Customhouse
Denver 2, Colorado

Reviewed by
DMEA OPERATING COMMITTEE
2-6-53
(date)

January 28, 1953

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 2698, Mendota-Frostberg Mining Co., Mendota Mine, Clear Creek County, Colorado

Enclosed are 4 copies of the final Engineering and Geologic report covering Docket DMEA-2698 and 4 copies of Engineering and Geologic Supplemental Report on the application submitted by Mendota-Frostberg Mining Company.

The applicant proposed to sink 100 feet of winze and drift 490 feet from the bottom of the winze at a cost of $27,620.00. He also proposed a crosscut to the South Frostberg vein and 100 feet of drifting on the South Frostberg vein at a cost of $11,400.00.

The project has merit and was reported on favorably by the examining engineer and geologist; however a study of the maps indicates that there is a strong possibility that the apex of the vein on which the drifting was proposed would be on the Virgin Claim. This was brought to the attention of the applicant and it was suggested that he obtain a lease on the Virgin Claim. He doubted the apex of the vein left his sideline on the strike of the vein and entered the Virgin Claim, and refused to obtain a lease on this claim.

A supplementary investigation by the Engineer and Geologist indicated that the location of the apex is doubtful and that the applicant's rights are reasonably secure to a point about 200 feet east of the winze. We do not believe that we would be justified in approving this application because it would involve an expenditure of $9,000 sinking the winze and $18,000 in drifting a limited amount which in turn would be for the benefit of a property in which we had no rights.

If we should enter into a contract to perform this work we ight become involved in a lawsuit. The old lawsuit did not determine the pex rights on the east end of the Frostberg Vein.

The applicant has a map showing a block of ground, approximately feet thick between the mapped upper workings and the lower workings cent to the Victoria Tunnel level. This map shows no raises or other

development to tie the upper workings and lower workings together on the same vein.

We have, therefore, denied this application and a copy of the letter of denial is attached.

W. H. King

W. H. King

A. H. Koschmann

A. H. Koschmann

Enclosures

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 2 1953

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

January 28, 1953

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 2698, Mendota-Frostberg Mining Co., Mendota Mine, Clear Creek County, Colorado

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

The examining engineer believes the proposal as submitted by the applicant has merit provided the Virgin Claim is included. He ran a Brunton Survey of the bottom, or fifth, level of the Howard Winze workings on the North Frostberg vein, which indicated that this vein enters the Virgin claim in a northeasterly direction.

The applicant has refused to obtain a lease on the Virgin claim. An old law suit established apex rights on the west end of the vein but apex rights were not established on the east end where according to the Brunton Survey the North Frostberg vein enters the Virgin Claim at depth. The east end of the North Frostberg vein appears to be barren toward surface and very little work has been done on it. Court action may be necessary to establish ownership, and this might involve raising to surface on an unmineralized vein, an expensive operation.

Under these circumstances we recommend that the application be denied until such time as the applicant obtains the right to mine on the Virgin Claim.

W. H. King
W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
2-6-53
(date)

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

March 2[illegible] New Customhouse
Denver 2, Colorado

January 28, 1953

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 2 1953

Mr. A. Cohen
Mendota-Frostberg Mining Co.
P. O. Box 6630 - Stockyards Station
Denver, Colorado

Re: DMEA Docket 2698

Dear Mr. Cohen:

Reference is made to your application for Government aid in exploration work on the Mendota mine.

A careful study of your property and maps leaves doubt in our minds concerning the ownership of ore which might be found after sinking a winze and driving east on the vein at the bottom of the winze.

If, at some later date, you obtain the right to mine ore on the Virgin lode mining Claim, U. S. Survey 110, and include it with your adjoining holdings we will be glad to reconsider your application.

Under the present circumstances, we regret to advise you that your application for Government 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:oc
cc: Administrator
WMTraver
Subject
Chron.
AHKoschmann (2)

Reviewed by
DMEA OPERATING COMMITTEE
2-6-53
(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 2 1953

Region IV

Building 80, Room 137
Denver Federal Center
Denver 14, Colorado
January 16, 1953

Memorandum

To: Executive Officer, Field Team, Region IV

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

Subject: DMEA 2698 (Lead-zinc), Mendota-Freeberg Mining Company (Mendota mine), Clear Creek County, Colo. - Property rights

Please find enclosed the original and eight copies of M. H. Salsbury's memorandum on the above subject. A corresponding memorandum with a revised copy of figure 3 is being prepared by D. R. MacLaren, U. S. Geological Survey participant in both field examinations.

Under the circumstances it would appear that the decision regarding preparation of a contract should be referred to the Washington level unless the applicant company is able to substantiate further its property rights to your satisfaction.

W. M. Traver, Jr.

W. M. Traver, Jr.

enclosures

WMT/mh

cc: 8
AMKoschmann
DMEA 2698
DMEA Chron.

Region IV

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
FEB 9 1953

Building 20, Room 13
Denver Federal Center
Denver 14, Colorado
January 16, 1953

Memorandum

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

From: M. H. Salsbury

Subject: DMEA 2698 (Lead-zinc), Mendota-Frostberg Mining Company (Mendota mine), Clear Creek County, Colo. - Property rights

On December 30, 1952, at the request of the Region IV Field Team, a compass survey was made of the bottom, or fifth, level of the Howard winze workings on the North Frostberg vein. The information thus obtained has been plotted on revised figure 3 of the original geological report on the Mendota. It was established that on the fifth level, and probably on the proposed sixth level, the North Frostberg vein enters the Virgin claim, U. S. survey 110, in a northeasterly direction.

The applicant under the subject docket does not have a lease on the Virgin claim and whether or not the owners of this claim have any rights to ore on the North Frostberg vein is debatable.

When the original examination was made by the Bureau engineer, the conclusion was reached that the owners of the Mendota clearly had apex rights to the North Frostberg vein. This was based, in part, on a statement by Harvey L. Tedrow, consulting engineer, representing

the applicant, to the effect that apex rights to the North Frostberg vein had been established years ago by court action.

On December 30, 1952, the date of the last examination, Tedrow produced a map made by Walter Scott, a mining engineer interested in the applicant company, showing the extent of the apex rights granted by the courts.

This map indicates that the apex rights were not established as far east as the point where the North Frostberg vein enters the Virgin claim at depth.

The east end of the North Frostberg vein appears to be barren toward surface and very little work has been done on it. A barren vein cut and drifted on on the Sherman Mountain tunnel lines up with the North Frostberg vein and is so considered. However, there are no raises through from other levels to prove this.

On the Victoria tunnel level, vein mineralization goes into the south wall of the east drift before the drift crosses into the Virgin claim. The drift actually becomes a crosscut at the east end which cuts mineralization to the north of the North Frostberg vein. This was not clear on the original map accompanying the geological report, which was reproduced from an unpublished War Minerals Report (247B), found to be inaccurate.

The North Frostberg vein is barren at the east end of the drift on the Victoria tunnel level and is not too well defined because it is somewhat broken up. However, it does not turn and go into the Virgin claim.

Thus, while the evidence appears to substantiate the claim of the Mendota owners to apex rights on the east end of the North Frostberg vein, it might be necessary to establish ownership by court action. This might possibly necessitate raising through to surface on unmineralized vein, an expensive operation.

Neither the applicant nor the owners of the Mendota want to ask the owners of the Virgin claim for a lease because they do not admit that there is any possibility that their apex rights on the North Frostberg do not extend east.

Tedrow was advised to present any other evidence he may have to support the claim to apex rights.

This memorandum will modify, to the extent explained herein, the statement in the original engineering report that the Mendota owners had, without reservation, apex rights to the North Frostberg vein. The revised figure 3 should be substituted for figure 3 with the original geologic report.

for Scott W Hagen Jr
M. H. Salsbury
Mining Engineer

MHS/amh

cc: 8

A.H. Koschmann
1/19/53

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

January 7, 1953

Memorandum

To: Mr. A. H. Koschmann

From: D. R. MacLaren, Geologist, U. S. Geological Survey

Subject: DMEA Docket 2698, Mendota Mine, Clear Creek County, Colorado.

While checking the location of claims controlled by subject applicant, the question was raised as to the possibility of the eastern portion of the work proposed for the 457 foot level, which would cross side lines into the Virginia claim (not controlled by applicant) being in jeapordy under the law of apex rights. To check on this possibility the writer, accompanied by M. H. Salsbury of the U. S. Bureau of Mines and H. L. Tedrow, consultant for the applicant, revisited the mine on December 30, 1952.

Mr. Tedrow had with him a map showing the apex of the North Frostberg vein as established by an old law suit, and its relation to the workings on the Victoria level. The east end of the apex so established protects the vein on the Victoria level for a distance of at least 50 feet east of the Howard winze (fig. 3 of the report previously submitted).

The vein has been stoped above the Victoria level for a distance of 240 feet east of the winze. As no evidence of the vein passing into either wall was noted, it is assumed that the twists and turns of the drift follow a continuous vein at least to a point about 10 feet east of the end of the stope. Here the ground becomes blocky and jointed for about 30 feet. An unmineralized shear that appears to be the continuation of the North Frostberg vein passes out of the southeast wall of the drift which was

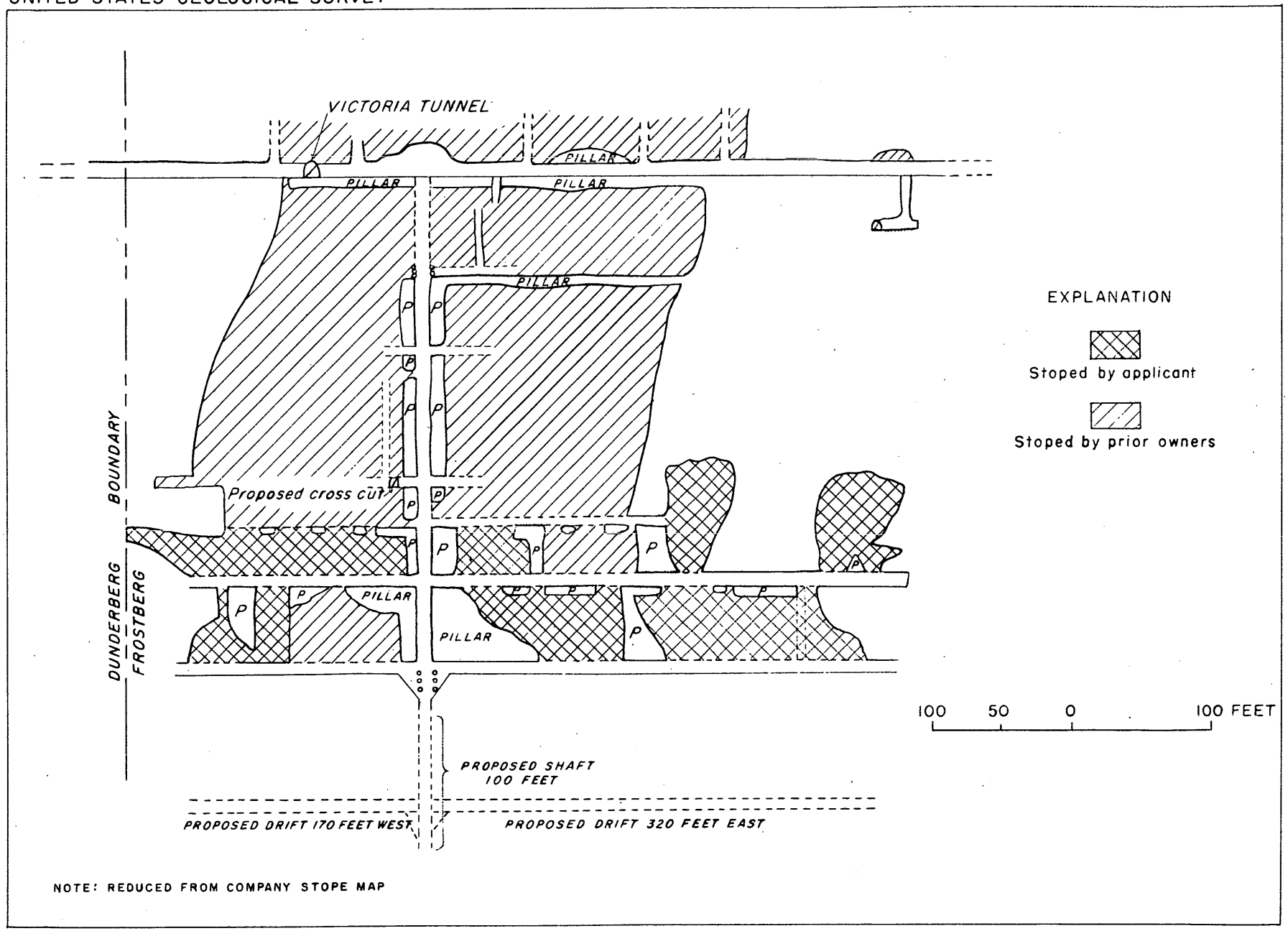
turned to the northeast and follows a partially mineralized shear for 30 feet then swings more easterly, following another vein.

On the 357 foot level the vein can be followed in the back of the drift from the winze to the stoped portion. The sharp swing of the drift to the northeast, about 150 feet east of the winze, follows a similar swing in the vein which is exposed in the back of the drift between stopes. The last 150 feet or so of the vein has been stoped. The vein, where it can be seen in pillars, and the rises that are open dip steeply north to vertical. At the east breast of the drift the vein dips 78° S. West of the winze the vein has been stoped to the breast. From the raises that are open it appears to dip from steeply north to vertical to steeply south until at the west breast the dip is 65° S.

The applicant's right to the North Frostberg vein on the Victoria level seems well established as far east as the end of the stope. His rights on the 357 foot level are reasonably secure to a point about 200 feet east of the winze. East of that point, because of the steep north to vertical dips seen on both levels, the vein would have to become much flatter than any observed dip in order to get from the drift on the 357 foot level to the drift on the Victoria level. While strikingly large swings in strike and rolls in dip have been seen in the mine, such a roll as would be necessary can not be safely postulated until a raise has been driven along the vein and connects the two levels in this region.

/s/ Donald R. MacLaren

Donald R. MacLaren



By D. R. MacLaren October 1952.

FIGURE 2–LONGITUDINAL SECTION OF NORTH FROSTBERG VEIN, SHOWING PROPOSED WINZE AND DRIFTS, MENDOTA MINE, CLEAR CREEK COUNTY, COLORADO.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Region IV

Building 20
Denver Federal Center
Denver 14, Colorado
November 28, 1952

Memorandum

To: Executive Officer, Field Team, Region IV

From: Chief, Colorado Branch, Mining Division, Region IV

Subject: DMEA 2698 (Lead-zinc), Mendota-Frostberg Mining Company (Mendota mine), Clear Creek County, Colorado

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

Salsbury concludes exploration of the North Frostberg vein by winzing 100 feet and drifting 490 feet on the 100-foot winze level is worthwhile and should result in the development of a fairly substantial reserve of lead-zinc ore. Crosscutting on the 357-foot level to explore the South Frostberg vein is not considered justified and, instead, a suitable drill station and 600 feet of diamond drilling are suggested. His recommendations are for the above work to be performed at an estimated cost of $29,300.00, the contract to be prepared with unit costs on the short form MF-200 (A).

I concur with Salsbury's conclusions and recommendations.

You will note only $3.00 per foot is allowed for diamond drilling which is much lower than we usually estimate. However, that cost is stated as the figure the applicant estimates he can do it or have it done for and it is accepted by the examining engineer.

The brochure provided by the Region IV Field Team with instructions to make a field examination is also returned herewith.

W. M. Traver, Jr.

W. M. Traver, Jr.

enclosures

WMT/amh

cc 8
DMEA 2698
DMEA Chron.

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

200 New Customhouse
Denver 2, Colorado

November 14, 1952

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 2698, Mendota Mine, Silver Plume, Clear Creek County, Colorado.

Attached are 8 copies of the geological report by D. R. MacLaren covering DMEA Docket 2698, the Mendota Mine, Silver Plume, Clear Creek County, Colorado.

The applicant proposes to explore for lead-zinc ore on the North and South Frostberg veins in the Mendota mine. Ore, now nearly mined out, has been developed to the lowest levels on the North and South Frostberg veins.

MacLaren concludes that the chances of discovering significant ore are good. He, therefore, recommends that the proposal of the applicant to sink and drift on the North Frostberg vein be approved. However, he recommends that the South Frostberg vein be diamond drilled to locate the most favorable location, before any crosscutting be approved.

I concur in this recommendation.

A. H. Koschmann

A. H. Koschmann
Supervising Geologist
Colorado-Wyoming

Enclosures (8)

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

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA 2698, Mendota-Frostberg Mining Company

Mendota Mine

Clear Creek County, Colorado

Lead-zinc

M. H. Salsbury, Mining Engineer
Bureau of Mines

D. R. MacLaren, Geologist
U. S. Geological Survey

November 25, 1952

DMEA 2698

MENDOTA-FROSTBERG MINING COMPANY
MENDOTA MINE
CLEAR CREEK COUNTY, COLORADO

Summary, Conclusions, and Recommendations

By M. H. Salsbury
Mining Engineer
Bureau of Mines

and

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

DMEA 2698

MENDOTA-FROSTBERG MINING COMPANY
MENDOTA MINE
CLEAR CREEK COUNTY, COLORADO

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By M. H. Salsbury and D. R. MacLaren

The Mendota mine was visited by M. H. Salsbury, of the Bureau of Mines, and D. R. MacLaren, of the U. S. Geological Survey, to check the information in an application under DMEA 2698 for exploration assistance. The applicant, the Mendota-Frostberg Mining Company, lessee of the property, proposes exploration work costing $39,020.00, Government participation—50 percent, or $19,510.00. A revised program is recommended by the examining team.

The North Frostberg and South Frostberg veins, where the proposed exploration projects are located, are typical fissure veins occupying faults in gneisses and schists of the Idaho Springs formation, containing sphalerite, silver-bearing galena, and very small amounts of gold in a gangue of quartz and crushed wall rock.

The mine has no measured ore reserves, and the North Frostberg vein is almost mined out down as far as the 357-foot winze level. There is still good ore showing in the winze sump, and, applying the tonnage factor of ore produced by the applicant between the 231- and 357-foot levels and using the smelter settlement values, 7,500 tons of inferred ore containing 498,000 pounds of recoverable lead and 948,000 pounds of recoverable zinc are estimated to occur in a block 100 feet in depth below the 357-foot winze level and 490 feet long, the extent of the proposed exploration.

The applicant proposes to accomplish 100 feet of winzing and 490 feet of drifting on the North Frostberg vein and 300 feet of crosscutting and drifting on the 231-foot level to explore the South Frostberg vein which has never been exposed below the Mendota adit tunnel level.

The applicant's cost figures are good and were closely checked by the Bureau engineer. The proposed exploration of the North Frostberg vein is worthwhile. The available information on the South Frostberg vein and its appearance on the tunnel level does not make the expenditure of the funds called for to explore it by crosscutting and drifting advisable. Instead, the examining team suggests 600 feet of diamond drilling from the 357-foot level to test the vein first.

The management of the Mendota-Frostberg Mining Company appears to be competent and experienced.

At present metal prices, 14 cents per pound for lead and 12.5 cents per pound for zinc, the expected grade of ore probably could not be mined profitably. However, at the prices prevailing in 1951 and early 1952, a substantial profit could be realized.

With the understanding that the ore probably could not be mined profitably at present, it is recommended that a modified exploration program be approved, requiring a loan of $29,300.00, Government participation--50 percent, or $14,650.00. A short form contract is suggested.

MENDOTA MINE

SILVER PLUME

CLEAR CREEK COUNTY, COLORADO

DMEA DOCKET 2698

Geologic Report

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

MENDOTA MINE
SILVER PLUME, CLEAR CREEK COUNTY, COLORADO

INTRODUCTION

The Mendota-Frostberg Mining Company of Denver, Colorado, has applied to the Defense Minerals Exploration Administration for assistance to explore for lead and zinc on the North and South Frostberg veins in the Mendota mine. The applicant proposes:

1. To sink the North Frostberg winze 100 feet from the 357 foot level, and to drift 170 feet west and 320 feet east on the 457 foot level.

2. To crosscut 200 feet on the 231 foot level from the North Frostberg vein to the South Frostberg vein, and to drift a total of 100 feet on the South Frostberg vein.

The applicant estimates that the total cost will be $39,020, the Government's share to be 50 percent.

The property was examined on October 20, 1952, accompanied by M. H. Salsbury of the U. S. Bureau of Mines, and Andrew Holm, superintendent for the applicant. The mine, easily accessible throughout the year, is a few hundred yards north of U. S. Highway 6, at the west edge of the town of Silver Plume, Clear Creek County, Colorado (fig. 1).

It is concluded that the chance of discovering a significant lead and zinc ore body is good. It is recommended that the proposal to sink and drift on the North Frostberg vein be approved. However, it is recommended that the South Frostberg vein be diamond drilled from the North Frostberg vein to locate the most favorable ore horizon before any crosscutting be approved.

GEOLOGY

The geology of the area has been described by Spurr, Garrey, and Ball (1908). Irregular dikes and stocklike masses of pre-Cambrian Silver Plume granite and associated pegmatites and aplites have intruded the schists and gneisses of the Idaho Springs formation. These rocks, in turn, have been intruded by Tertiary dikes of quartz monzonite porphyry and alaskite porphyry.

Two general sets of fissures, one striking northwest and the other striking northeast, afforded channels for ore deposition. The northeast-trending set of fissures, which include the North and South Frostberg veins, strike from N. 55° E. to due east and in general dip steeply south with reverses to steeply north. Movement along the fissures has displaced the southeast wall downward and to the southwest from 1 to 5 feet. This has tended to open the easterly trending and the northerly dipping portions of the fissures and to tighten the northeasterly-trending and southerly dipping portions.

The veins vary from zones of sheared or altered rock with interlacing veinlets of sphalerite and galena half an inch to 3 inches wide, to nearly solid veins of sulfides up to 3 feet or more, locally, in width. The vein minerals are sphalerite, galena, silver-bearing minerals, and pyrite in a gangue of quartz and crushed fragments of wall rock. The combined average of the lead-zinc content ranges from a few percent to 60%, of which the zinc makes up from 60% to 90%.

On the North Frostberg vein, a winze has been sunk from the Victoria tunnel level to the 357 foot level, a vertical distance of 355 feet (fig. 2). For the first 180 to 185 feet, the vein dips steeply to the south and is

only a few inches wide (fig. 3). Between 180 and 185 feet down the dip changes to steeply north and the vein widens to 3-5 feet of massive sulfides. At about 300 feet down, the vein again changes dip to the south and narrows to only a few inches. In the bottom 30 feet of the winze, the vein tends to steepen. Two samples were taken from the vein at the bottom of the winze. The sample from the east side assayed 31.3% Zn, 24.2% Pb, and 6.1 oz. Ag over a width of 6 inches; the one from the west side assayed 31.2% Zn, 2.25% Pb, and 0.4 oz. Ag, over a width of 6 inches.

The South Frostberg vein (fig. 3) has not been explored below the Victoria tunnel level. Above the level a stope 165 feet long has been nearly mined out. The vein varied from narrow stringers in a crushed zone to 4 feet of massive sulfides.

PROPOSED EXPLORATION

The applicant proposes to crosscut 200 feet south from the North Frostberg vein, to cut the South Frostberg about 225 feet below the tunnel level, and to drift 100 feet on the South Frostberg vein on that level. Considering that the ore deposition is controlled by structure and that the North Frostberg vein, only 200 feet away, has been developed on 6 levels below the lowest level on the South Frostberg, it seems much more reasonable to locate any ore zone that might exist on the South Frostberg by diamond drilling before driving a crosscut blindly (fig. 3). The possibility of drilling was suggested to Mr. Holm. He stated that he had already lined up a driller who was willing to contract the work at $2.50 per foot, but that the proposal was not acceptable to the applicant.

A second proposal is to sink the North Frostberg winze from the 357 foot level for 100 feet, and to drift 320 feet east and 170 feet west of the winze on the 457 foot level. Ore has been developed to the 357 foot level and three stopes on that level have been or are being mined.

CONCLUSIONS AND RECOMMENDATIONS

Ore has been developed to the lowest levels of the North and South Frostberg veins, and is now nearly mined out. The planes of both veins are irregular and those sections where the strike is east and west, or where the dip is north, have been the most favorable for ore deposition. There is no indication that the bottom of the zone of deposition has been reached. It is concluded that there is a good chance of finding additional ore in significant amounts below the lowest levels in each vein.

It is recommended that the proposal to sink the North Frostberg winze from the 357 foot level to the 457 foot level, and to drift 320 feet east and 170 feet west on the 457 foot level be approved. It is also recommended that the applicant be urged to reconsider diamond drilling the South Frostberg to locate the most favorable ore horizon and that this be done before any crosscutting be approved.

The cost of this exploration is estimated by the U. S. Bureau of Mines to be $29,300, the Government's share to be $14,650.

REFERENCE

Spurr, Garrey, and Ball: U. S. Geological Survey Professional Paper 63, 1908.

DMEA 2698

MENDOTA-FROSTBERG MINING COMPANY
MENDOTA MINE
CLEAR CREEK COUNTY, COLORADO

Engineering Report

By M. H. Salsbury
Mining Engineer
Bureau of Mines

DMEA 2698

MENDOTA-FROSTBERG MINING COMPANY
MENDOTA MINE
CLEAR CREEK COUNTY, COLORADO

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*See figure following Geologic Report

DMEA 2698

MENDOTA-FROSTBERG MINING COMPANY
MENDOTA MINE
CLEAR CREEK COUNTY, COLORADO

ENGINEERING REPORT

By

M. H. Salsbury

INTRODUCTION

The Mendota, or Victoria, tunnel and the North Frostberg winze workings of the Mendota mine were examined October 20, 1952, by M. H Salsbury, of the Bureau of Mines, and D. R. MacLaren, of the U. S. Geological Survey, and the information submitted under an application for exploration assistance, DMEA 2698, checked. The applicant requested a loan in amount of $39,020.00, Government participation--50 percent, or $19,510.00, to sink the North Frostberg winze 100 feet, construct loading pockets and accomplish some 790 feet of drifting and crosscutting on two levels.

ACKNOWLEDGMENTS

Information was obtained from Andrew Holm, present superintendent of the mine, and Harvey L. Tedrow, consulting engineer representing the applicant, and from several unpublished War Mineral Reports and maps in the Bureau of Mines Colorado Branch files, particularly War Minerals Report 247-B, dated July 1943.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

The Mendota, or Victoria, tunnel is located 40 feet above creek

level on the north side of a narrow, steep-walled canyon, at the western outskirts of Silver Plume, Clear Creek County, Colo. (fig. 1), a town of about 150 population. It is 50 miles west by paved highway from Denver, Colo., the nearest large source of mining supplies, and 15 miles west of Idaho Springs, Colo., where limited supplies are obtainable. The nearest railhead is at Golden, Colo., 35 miles to the east.

The climate is moderate to severe in winter and spring and cool in the summer and fall. Snow and rainfall are usually light. Communications are good throughout the year and continuous operation is possible.

Water service from the local municpal system and electric power are available at reasonable rates. Limited living accommodations are available in Silver Plume and nearby towns. A few experienced miners are permanent residents but any large need for labor would have to be supplied from outside.

HISTROY AND PRODUCTION

The history of the Mendota mine begins with surface work on the outcrop high on the mountainside in 1879. Later, the Mendota tunnel was driven to cut the Mendota vein 670 feet below the outcrop. Other veins, including the North and South Frostberg and the Tishamingo veins, were explored. Later, the Mendota and North Frostberg veins were mined by winzing below the tunnel level.

Prior to 1893, high-grade lead-silver ore mined from the four veins was sorted and shipped direct to the smelter. After the panic of 1893 and resulting low metal prices, there was almost a complete

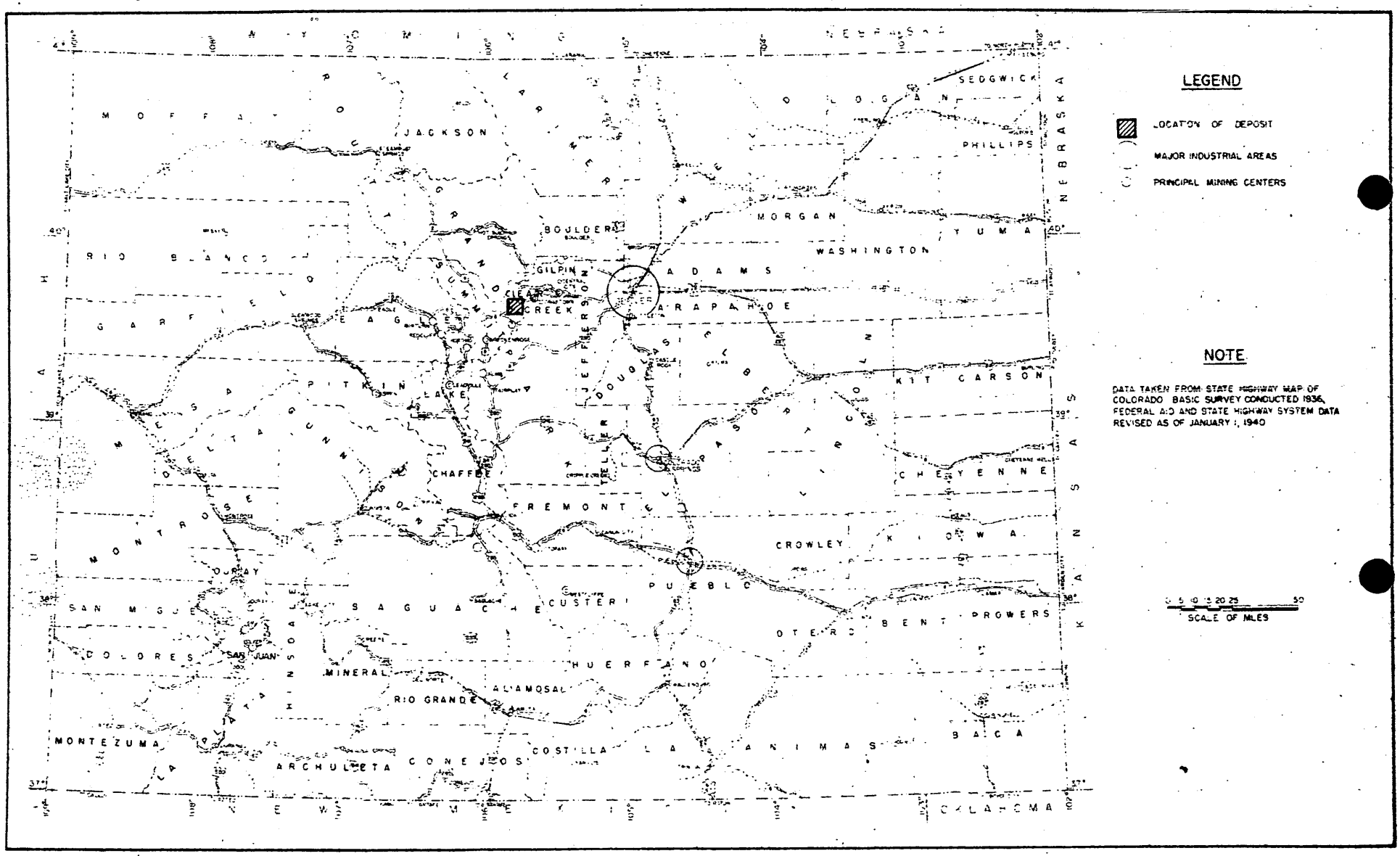

Figure 1. - Location map, Mendota mine, Mendota-Frostberg Mining Company, Clear Creek County, Colorado (DMEA 2698)

suspension of mining in the area. Thereafter, only small, short-lived operations were carried on until 1942 when demand for lead and zinc encouraged resumption of operations. W. K. Howard organized the Utze Lode Company, leased the Mendota mine, and rehabilitated the tunnel and Mendota winze, aided by a Reconstruction Finance Corporation loan. Later, as a result of a showing of lead and zinc ore in a diamond drill hole drilled by the Bureau of Mines in the course of project 1561, the North Frostberg winze was pumped out and sunk to a point 357 feet below the tunnel level.

From the work on the Mendota vein and from the North Frostberg vein below the tunnel level, the Utze Lode Company mined a reported $1,000,000.00 in lead and zinc ore. A large part of it came from the North Frostberg vein below the tunnel level.

According to figures furnished by the Statistics Branch, Economics Division, Region IV, Bureau of Mines, and data from smelter shipments of the Mendota-Frostberg Mining Company, production of the Mendota mine since 1901 has been as follows:

Year	Dry Tons	Pounds		Operator	Remarks
		Lead	Zinc		
1901-29	160,010	12,793,677	16,707,524	John W. Old	Bureau of Mines figures
1942-46	15,008	2,013,301	2,461,866	Utze Lode Company	Bureau of Mines figures
1951-52	5,815	385,966	734,910	Mendota-Frostberg Mining Company	Smelter returns. Not Bureau of Mines figures.

The production through 1946 is not segregated and includes ore from various veins on the property. All of the production in 1951 and through August 16, 1952, was from the winze workings of the North Frostberg vein, between the 231-foot and 357-foot levels. Most of it was sold at the high metal prices prevailing in 1951 and early 1952. Calculation of smelter returns applied to crude ore production places the grade of crude ore in 1951-52 at $29.70 per ton (total gross value—$172,703.79). The average content of crude ore was 1.90 ounces gold per ton, 3.32 percent lead, and 6.32 percent zinc (recoverable metal).

OWNERSHIP AND EXTENT

The Mendota group includes thirty-one wholly owned mining claims, nine partially owned claims, one placer claim, and four millsites—all patented.

These are owned by the Jack Pine Mining Company, in care of William D. Blood, 821 Ernest and Cranmer Building, Denver, Colo. They are all included in a lease dated July 22, 1950, for a term of 15 years, expiring in 1965, with the privilege of extension for 10 years more, given to the Dumont Investment Company and later assigned to the applicant, the Mendota-Frostberg Mining Company, a joint venture of four persons—A. Cohen and S. Cohen, P. O. Box 6630, Stockyards Station, Denver, Colo., Harvey L. Tedrow, Olin Hotel, Denver, Colo., and Nora L. Scott, Central City, Colo.

Several supplemental agreements between the Jack Pine Mining Company, the Dumont Investment Company, and the Mendota-Frostberg Mining Company make the lease fully effective.

By a provision of one agreement, the Mendota-Frostberg Mining Company is obligated to apply for a Government exploration loan.

The lease calls for a flat royalty of 10 percent of the net smelter return which is defined as the net return after smelter treatment charges, freight, and hauling charges on concentrates from mill to smelter are deducted.

The North Frostberg vein is on wholly owned, patented claims and apex rights are fully covered. The property limits on the North Frostberg vein are 200 feet west of the winze and several thousand feet east, and the proposed exploration is well within these limits.

The lease requires 250 shifts of underground labor monthly. The proposed exploration work will hardly require this much labor and the applicants plan to do other mining above the tunnel level on the Tishamingo vein.

DESCRIPTION OF THE DEPOSITS

The North and South Frostberg veins occupy fault fissures in gneiss and schist of the Idaho Springs formation, trending N. 55° E. to due east and dipping steeply south, sometimes reversing to steeply north. The southeast walls of the fissures have been displaced slightly downward and to the southwest. Thus, the veins tend to be more open where they have an easterly strike and/or northerly dip. However, commercial ore is found on either dip or either strike. Gneissic wall rock appears to have been more favorable to ore deposition than schistose rock. Ore minerals are sphalerite and silver-bearing galena with pyrite and a small amount of gold in a gangue of quartz and crushed country rock. The ore may consist of

several streaks, perhaps as much as 6 inches wide, in a sheared zone of quartz and wall rock breccia, or it may be solid sulfides from a foot to 3 feet wide or even more in occasional pockets. The mineralization in the North Frostberg vein, which appears to be the main ore channel, is much stronger than in the South Frostberg where examined at tunnel level. The South Frostberg vein was not as heavy an ore producer above the tunnel level and has never been explored below the tunnel level. Relationship of the various mine workings is shown on figure 3 with the geologic report.

MINEABLE ORE RESERVES

There are no measured ore reserves in the mine.

Practically all the ore developed below the tunnel level on the North Frostberg vein has been mined except a small section now being stoped. The areas which are left are lean portions and are probably not worth mining.

Only two samples were taken by the examining team, verifying the fact that there was still ore in the sump below the 357-foot level. The record of shipments is considered the best measure of the grade of ore which might be expected below. The two samples assayed as follows:

		Ounces per Ton		Percent		
Number	Description	Gold	Silver	Copper	Lead	Zinc
S-14	6 inches across 2 streaks west end sump North Frostberg winze	0.02	0.4	0.30	2.25	31.2
S-15	6 inches cut across several streaks east end sump North Frostberg winze	0.01	6.1	0.22	24.2	31.3

See note on following page.

Note: Ore streaks higher up behind the loading pockets were wider.

Referring to the longitudinal section of the North Frostberg vein (fig. 2 with the geological report), the ore mined by the applicant--5,815 dry tons plus an estimated 500 tons remaining above the west end of the 295-foot level, a total of 6,315 tons--came from an available vein area of 41,540 square feet. Thus, 6.9 square feet of vein area produced one dry ton of ore.

Because the results of any sampling in the bottom of the 357-foot level drift which may have been done by others is not available, the average value of ore to be expected below the present workings is assumed to be the same as the computed value of the 5,815 tons mined by the applicant, using data based on smelter shipments.

The area of the vein which would be developed by the proposed exploration is 52,000 square feet, or a block 100 feet in depth by 520 feet long. While a small portion of this around the present sump could be called indicated ore, in this report the entire block will be considered as inferred ore. Applying the tonnage factor of 6.9 square feet per ton of ore, the estimated amount of inferred ore in the block is $\frac{52,000}{6.9}$ or 7,536 tons, averaging 1.90 ounces silver per ton, 3.32 percent lead, and 6.32 percent zinc, all in terms of recoverable metal. At present market prices (October 20, 1952) of 14 cents per pound for lead and 12.5 cents per pound for zinc, this ore would have a gross value of about $22.00 per ton. It would furnish 498,000 pounds of recoverable lead and 948,000 pounds of recoverable zinc. No estimate is possible on ore which might be found on the South Frostberg vein.

PRESENT STATUS

Exploration and Development

The applicant is mining at present above the west end of the 295-foot winze level and on the Tishamingo vein above the tunnel level (fig. 3 in the geological report).

No exploration work is being carried on. The main Mendota winze is flooded and only the tunnel level and the North Frostberg winze workings are accessible at the present time.

The mining method used is open stoping with occasional stulls. Walls are good and stopes stand well. Shrinkage stoping has not been used successfully because of the tendency of the broken ore to pack.

Mining and Milling Equipment and Other Facilities

The mine is fully equipped for the proposed exploration and production of 25 tons daily could be made without additional equipment. Eight men are employed underground at present and would continue to be employed during the proposed exploration.

A gravity-type concentration mill on the property is not in use and is reported to be inefficient. The present operators truck ore to a custom mill at Idaho Springs where a lead and a zinc concentrate are made. H. L. Tedrow reports very good recovery at present.

The North Frostberg winze workings are practically dry and the small amount of water which collects in the sump is barely enough for drilling purposes.

At present metal prices of 14 cents per pound for lead, and 12.5 cents per pound for zinc, current operations are probably being carried on at a small loss.

PROJECT PROPOSALS, WITH COSTS

The applicant proposes to:

Sink the North Frostberg winze 100 feet at $80.00 per foot	$ 8,000.00
Prepare loading pockets below the new 457-foot level	1,000.00
Drift west 170 feet on the new 457-foot level at $38.00 per foot	6,460.00
Drift east 320 feet on the new 457-foot level at $38.00 per foot	12,160.00
Crosscut south on the 231-foot level to the South Frostberg vein 200 feet at $38.00 per foot	7,600.00
Drift on the South Frostberg vein from the end of the crosscut 100 feet at $38.00 per foot	3,800.00
Total	$39,020.00

The examining team does not consider the crosscut and drift to explore the South Frostberg vein below the tunnel level are justified, considering the appearance and past production of the vein. Instead, 600 feet of diamond drilling from the 357-foot winze level is recommended to determine if further exploration of the South Frostberg vein is warranted.

The project, with cost estimates, as proposed by the Bureau of Mines follows:

Winze sinking (estimated time--2 months)

(Labor rate underground--$1.50 per hour, with time and one-half for over 40 hours; operations--6 days per week)

Supervision, 3/4 of $400.00 per month		$ 600.00
Hoistman, 50 shifts at $1.50 per hour, plus overtime		648.00
Trammer, 1/2 of time for 50 shifts at $1.50 per hour, plus overtime		324.00
Labor, contract, sinking winze, $30.00 per foot		3,000.00
Installing bucket skid, ladders, etc., 2 men, 6 shifts, at $1.50 per hour		156.00
Timber--stulls, skids, ladders, etc., $3.00 per linear foot		300.00
Explosives, $15.00 per round, 50 rounds		750.00
100 feet of 2-inch air line at $0.70 per foot		70.00
100 feet of ventilation pipe at $1.00 per foot		100.00
Bits and drill rods at $8.00 per round		400.00
Equipment repairs at $2.00 per day		100.00
Machinery depreciation on 60-month basis		
	Per Month	
Compressor	$ 60.00	
Rock drill	20.00	
Locomotive and cars	25.00	
Shop equipment	20.00	
	$125.00	
Total for 2 months		250.00
Compensation premium, insurance, and payroll taxes (10 percent)		472.80
Power at $150.00 per month (pro rata)		300.00
Total estimated cost of winze sinking		$ 7,470.80
Estimated cost per foot of winze sinking		$ 74.70

Excavation of loading pockets below 457-foot level

(estimated time--2 weeks)

24 cubic yards excavation at $12.00 per cubic yard (contract)	$ 288.00	
Timber and lagging	70.00	
Timbering, 2 men, 6 days at $1.50 per hour, plus overtime	156.00	
Supervision, 2 weeks at 3/4 of $400.00 per month	150.00	
Hoistman, 2 weeks at $1.50 per hour, plus overtime	162.00	
Trammer, 1/2 of 2 weeks at $1.50 per hour, plus overtime	81.00	
Compensation, insurance, payroll taxes	83.70	
Repairs at $2.00 per day	24.00	
Equipment depreciation at $125.00 per month	62.50	
Power, pro rata, 2 weeks	75.00	
Explosives, 5 rounds	50.00	
Rock bits and rods	25.00	
Total estimated cost of preparing loading pockets		$ 1,227.20

Lateral work on 457-foot level (estimated time--3.5 months)

Drifting west on 457-foot level	170 feet
Drifting east on 457-foot level	320
	490 feet

Contract labor, drifting, 490 feet at $200.00 per foot	$ 9,800.00
Supervision, 3/4 of $400.00 per month for 3.5 months	1,050.00
Hoistman, 3.5 months at $1.50 per hour, plus overtime	1,104.00
Trammer, 1/2 of 3.5 months at $1.50 per hour,, plus overtime	552.00
Compensation, insurance, payroll taxes	1,250.00
Power (pro rata)	525.00
Explosives, 163 rounds at $12.00 per round	1,956.00
Bits and rods at $5.00 per round	815.00
Repairs, $2.00 per day	174.00
500 feet of 2-inch air line at $0.70 per foot	350.00

500 feet of ventilation pipe at $1.00 per foot	$ 500.00	
500 feet of track at $1.00 per foot	500.00	
Total estimated cost for 490 feet of drifting		$18,576.00
Estimated cost per foot of drifting		$ 37.91

Diamond drilling to South Frostberg vein

10 feet of crosscut for drill station at $38.00 per foot	$ 380.00	
600 feet of diamond drilling at $3.00 per foot	1,800.00	
Total estimated cost for diamond drilling		$ 2,180.00

Recapitulation of Costs

	Applicant's Cost Estimate	Bureau's Cost Estimate
Sinking winze 100 feet	$ 8,000.00	$ 7,470.00
Preparing loading pockets	1,000.00	1,227.20
Drifting on the 457-foot level	18,620.00	18,576.00
Crosscutting to South Frostberg vein	11,400.00	-
Diamond drilling to South Frostberg vein	-	2,180.00
Totals	$39,020.00	$29,453.20

Comparison of Costs

	Applicant's Cost Estimate	Bureau's Cost Estimate
Winzing	$80.00 per foot	$75.00 per foot
Drifting or crosscutting	$38.00 per foot	$38.00 per foot
Preparing loading pockets	$1,000.00	$1,227.20
Diamond drilling	-	$2,180.00

The applicant's time estimate for exploration is 8 months.

The Bureau of Mines time estimate for the revised plan is:

Sinking winze	2.0 months
Preparing loading pockets	.5
Drifting	3.5
Preliminary work and miscellaneous	.75
Diamond drill station	.25
Total time	7.0 months

Diamond drilling would be carried on simultaneously with the work and would not require extra time.

PRODUCTION PLAN

The applicant proposes to mine any ore discovered at the rate of 25 tons per day, or 625 tons per month. Using the average value in the ore estimate, the monthly production would be 41,500 pounds of lead and 79,000 pounds of zinc. At the above rate, the ore could be mined in 12 months.

The present mining system, open stoping, would be used.

Milling would be continued at Idaho Springs at a cost of $4.76 per ton unless the tonnage of ore developed should be large enough to justify renovating the Mendota mill for selective flotation.

Present hauling costs are as follows:

	Per ton
Mine to mill at Idaho Springs (crude ore)	$ 1.10
Mill to Leadville (lead concentrates)	5.50
Mill to railhead at Golden, Colo. (zinc concentrates)	3.00

Estimated Profit or Loss

Following is the estimated cost of mining per ton of crude ore, based on operating costs in 1951 and 1952:

	Per ton
Total mining charge (Bureau of Mines estimate)	$ 7.55
Hauling crude ore from mine to mill	1.10
Milling	4.76
Hauling and freight on concentrates (per ton of crude ore)	.76
Assaying, controls, etc.	.05
Royalties (on 1951 and early 1952 ore)	2.13
Cost delivered to smelter	$16.35
Smelting charges on concentrates	6.50
Total cost per ton of crude ore	$22.85

	Per ton
Gross value of one ton of crude ore at present value in estimated inferred ore reserve (14 cents per pound for lead and 12.5 cents per pound for zinc)	$22.00
Estimated production cost	22.85
Estimated operating loss at present prices per ton of crude ore	$ .85

Gross value of one ton of crude ore at prices prevailing in 1951 and early 1952	$29.70
Estimated production cost	22.85
Estimated operating profit at 1951 and early 1952 prices per ton of crude ore	$ 6.85

Ore produced from exploration work, subject to Government royalty, would have to be stockpiled until a mill shipment was accumulated. Allowing for the examining team's recommendation for revision of the exploration program, the applicant's estimated cost of the proposed work is reasonable and agrees fairly well with the Bureau estimate.

At present metal prices, lead at 14 cents per pound and zinc at 12.5 cents per pound, the estimated grade of ore could not be mined profitably. Therefore, the financial success of the exploration project is dependent on a better price for lead and zinc.

At metal prices prevailing in 1951 and early 1952, the estimated grade of ore would return an operating gain of about $6.85 per ton, enough to pay a Government royalty of $1.15, more or less, per ton and cover overhead expenses and net a substantial profit. Total

repayment to the Government on the estimated 7,500 tons would be $8,580.00, compared to an estimated expenditure of $14,628.00.

PROPOSED FINANCING

Members of the applicant company propose to furnish necessary capital from their own funds.

CONCLUSIONS

The proposed exploration project on the North Frostberg vein has an excellent chance of finding lead-zinc ore which could be mined profitably at metal prices prevailing in 1951 and early 1952.

On the estimated 7,500 tons of ore which might be found, a possible production of 498,000 pounds of recoverable lead and 948,000 pounds of recoverable zinc might be made.

Available information and examination of the South Frostberg vein does not appear to make the proposed crosscutting and drifting to explore this vein advisable without preliminary diamond drilling.

The mine management of the Mendota-Frostberg Mining Company is competent. Andrew Holm, the mine superintendent, is experienced and capable. A. Cohen and S. Cohen, of the company, are engaged in the feed milling business. Harvey L. Tedrow is an established mining engineer and mine manager. Nora L. Scott apparently represents Walter E. Scott, Jr., a mining engineer, of Central City, Colo.

RECOMMENDATIONS

Bearing in mind that the financial success of the exploration project depends, first, on a higher price for lead and zinc than the prevailing quotations of 14 cents per pound for lead and 12.5

cents per pound for zinc, it is recommended that an exploration loan under DMEA 2698 be approved in the amount of $29,300.00, Government participation--50 percent, or $14,650.00, for the purpose of carrying out the following proposals:

(1)	Sink the North Frostberg winze 100 feet at $75.00 per foot	$ 7,500.00
(2)	Construct loading pockets below the 457-foot level (applicant's request)	1,000.00
(3)	Drift west on the 457-foot level 170 feet at $38.00 per foot	6,460.00
(4)	Drift east on the 457-foot level 320 feet at $38.00 per foot	12,160.00
(5)	Crosscut on the 357-foot level for diamond drill station, 10 feet at $38.00 per foot	380.00
(6)	Diamond drill 600 feet (3 holes) to South Frostberg vein at $3.00 per foot	1,800.00
		$29,300.00

The Bureau engineer's investigation showed the above contract rates to be reasonable and a short form contract embodying them is suggested.

cb

224 New Customhouse
Denver 2, Colorado

December 10, 1952

The Mendota-Frostberg Mining Co.
P. O. Box 6630, Stockyards Station
Denver, Colorado

Re: Docket DMEA 2698

Gentlemen:

A review of your application for exploration assistance on the Mendota property indicates that you do not now have the entire Virgin claim, U.S. Survey 110, under lease.

The exploration work which you propose will be of direct benefit to the Virgin claim. All ground benefitting from exploration with DMEA funds must be subject to a royalty payment to the Government.

In order that we may prepare a contract will you please obtain a lease on the entire Virgin claim together with the owner's consent to lien.

Attached are 12 copies of Form MF-203, Owner's Consent to Lien. Six copies should be signed by owners of the Backbone Lode Claim, U.S. Survey 747; Phoenix, U.S. Survey 831; Capt. Wells, U.S. Survey 116; R.A. Miner, U.S. Survey 562; Scotia, U.S. Survey 146; Combs, U.S. Survey 60; and Frostberg, U.S. Survey 111. Six copies should be signed by the owners of the Virgin Lode Mining Claim, U.S. Survey 110.

When we have received all copies of this Form MF-203 properly executed, together with a signed copy of a lease on the Virgin claim, we may further process your contract.

Very truly yours,

HMC
HMC:jp

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

Enclosures

cc Subject
Chron
WMTraver
AHKoschmann (2)
Sec. Oper. Comm. (2)

224 New Customhouse
Denver 2, Colorado

December 10, 1952

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P. O. Box 6630, Stockyards Station
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W. H. King
Executive Officer, DMEA
Field Team, Region IV

Enclosures

cc Subject
Chron
WMTraver
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Sec. Oper. Comm. (2)

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

224 New Customhouse
Denver 2, Colorado

September 12, 1952

Memorandum

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

From: Executive Officer, Field Team, Region IV

Subject: Docketing for Exploration Assistance

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

Mendota-Frostberg Mining Co. — Dmea-2698
P. O. Box 6630
Stockyards Stadium
Denver, Colorado

H. V. George
596 North Main Street
Buffalo, Wyoming

Rio Del Monte Mines, Inc.
Saloma, Arizona

Anna Huffman
1301½ Berkeley Ave.
Pueblo, Colorado

A. R. Rhine
2550 Yarrow St.
Denver, Colorado

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
SEP 17 1952

W. H. King
W. H. King

Enclosures

MF-103
(Revised April 1952)

DEPARTMENT OF THE INTERIOR
Minerals Administration

17 352

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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

Not to be filled in by applicant

Docket No. Dmea-2698
Metal or Mineral
Date Received 9-17-52
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: MINNOTA-MIDLAND MINING CO. (A JOINT VENTURE)
P. O. BOX 6630 STOCKYARDS STATION, DENVER, COLORADO
(SEE ATTACHED PAGES 1, 2, 3, 4 & 5)

(*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

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

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

(*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 project.*—(*a*) [illegible]te the mineral or minerals for which you wi[illegible] explore .....

.....

(*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 ..... days and be completed within ..... 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.

(*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)?

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

☐ Money ☐ Use of equipment owned by you ☐ Other

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated September 11, 19[illegible]

Mendota-Frostberg Mining Co.
(Applicant)

By A. Cohen

A. Cohen

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

--1--

The partners of the Mendota-Froetberg Mining Co. are:

A. Cohen, P. O. Box 6650, Stockyards Station, Denver, Colorado

S. Cohen, " " " " " " " "

Harvey L. Tedron, Olin Hotel, Denver, Colorado

Nora L. Scott, Central City, Colorado

Copy of the Joint Venture Agreement, dated August 22, 1952 between the above parties is attached.

--3--

The property is known as the Mendota mine. It is owned by the Jack Pine Mining Company whose address is Cero, William D. Blood, 821 Ernest & Grenner Building, Denver, Colorado. The property is located at Silver Plume, Colorado.

The property is described in the Lease Agreement dated July 22, 1950, between the Jack Pine Mining Company and the Dumont Investment Company. This agreement together with the Supplemental Agreement, between the same parties, dated November 15, 1950 constitutes the rights in the property which the Dumont Investment Company assigned to the Mendota-Froetberg Mining Co. on September 8 1952. The Mendota- Froetberg Mining Co. has entered into a Supplemental Agreement with the Jack Pine Mining Company as of August 26, 1952, under which the operation of the property by the Mendota-Froetberg Mining Co. will be continued. Copies of these various agreements are attached.

The Mendota property is a well known mine in the Silver Plume area and has a substantial production over a number of years. The mine has been examined by engineers of the U. S. Bureau of Mines and geologists of the U. S. G. S. It is thought that maps, sections and other data pertaining to the property are available in their files and publications. No estimate of the ore reserves has been made by this applicant.

Access to the underground workings is through the Victoria or Mendota Tunnel which in its length cuts a number of veins including the Mendota, Cashier, Tiscamingo, South Prostberg and North Prostberg all of which have been producers of silver-lead-zinc ore. Of these veins it is thought that the Mendota has been the most productive followed by the North Prostberg and South Prosberg veins, probably in that order.

During the 2nd World War the property was operated by the Utah Lode Company which eventually deepened the present winze on the North Prostberg vein, reportedly, from the 170 Ft. level to the 337 Ft. level which is, at present, the bottom level of the workings on this vein. From the area thus opened up it is reported that the Utah Lode Company obtained a substantial tonnage of silver-lead-zinc ore having an approximate gross ~~vale~~ value of $ 1,000,000.00.

After termination of the lease on the property by the Utah Lode Company, a lease on the property was obtained by the Dumont Investment Company and operation of the property under this lease and supplemental agreement was started by the Mendota-Prostberg Mining Co. in November, 1950. These operations continued until June, 1952, and were confined to the 295 and 337 Ft. levels of the area on the North Prostberg vein formerly worked by the Utah Lode Co.

During this period, the Mondota-Frostberg Mining Co. has completed 764.5 Ft. of development work in extending these levels and sinking the winze an additional 35 feet in order to provide ore or loading pockets for the 357 Ft. level. A section map showing the workings on the North Frostberg vein is attached. From these two levels during this period, 5815 dry tons of ore were obtained and milled at the Silver Spruce mill in Idaho Springs. The lead concentrates were shipped to the A. S. & R. Smelter at Leadville and the zinc concentrate was shipped to the A. S. & R. Smelter at Amarillo, Texas. The net income to the mine from this production after milling charges freight & hauling, smelter deductions and royalty amounted to $86,721.87.

While production is continuing at present from the Richmondo vein on the Victoria Tunnel level and from the North Frostberg vein above the west end of the 295 Ft. level, it is now thought advisable to sink the winze 100 feet deeper and to drive both to the east and west on the North Frostberg vein on a new or 457 Ft. level. To open up the new level two ore or loading pockets similar to those put in on the 357 Ft. level should be constructed for the 457 Ft. level. At the same time it is proposed that a crosscut be driven south from the 231 Ft. Level a distance of 200 Ft. to explore for the South Frostberg vein at this horizon and to drive 100 Ft. on this vein when found.

The mine is easily reached as it is located practically on the main high-way a short distance west of Silver Plume.

The mine is accessible for examination and is fairly well equipped with ore-bins, power, water, mining machinery and other facillities necessary for a small going mine.

The proposed work is for the exploration of lead-zinc ore. The program consists of the following:

(1)	Sink the North Frostberg Winze	100 Feet
(2)	Prepare two ore or loading pockets for the new or 457 Ft. level to be opened up	-----
(3)	Drift west on the 457 Ft. level on the North Frostberg vein	170 Feet
(4)	Drift east on the 457 Ft. level on the North Frostberg vein	320 Feet
(5)	Crosscut south from the North Frostberg at about the 251 Ft. level to the South Frostberg vein	200 Feet
(6)	Drift ~~100~~ on South Frostberg vein from above crosscut	100 Feet
	Total	890 Feet

The work will start within ten days after the loan is approved and the time for completion of the program is estimated at 8 months.

The Mendota-Frostberg Mining Co. has had 20 months of operating experience on the property and considers that it has conducted its operations in a business and miner like manner with an efficiency consistent with conditions.

Mr. Andrew Holm who has had a number of years experience as miner, foreman and superintendent in various mines in this and other areas will be in direct charge of the work. Harvey L. Tedrow assist in the management and advise to the extent that he can spare from his other activities.

--6--

The project is estimated to cost as follows:

Item	Distance	Cost/Foot	Total Cost
Sinking North Frostberg Winze	100 Ft.	$ 80.00	$ 8,000.00
2 Loading Pockets for 457 Ft. level	------	------	1,000.00
Drift West on the 457 Ft. level	170	38.00	6,460.00
Drift East on the 457 Ft. level	320	38.00	12,160.00
Crosscut south from North Frostberg at about the 231 Ft. level to South Frostberg vein	200	38.00	7,600.00
Drift on South Frostberg vein from above crosscut	100	38.00	3,800.00
Total	890		$ 39,020.00

--7--

We are prepared to furnish our share of the above cost of the project by furnishing money and use of equipment now available on the property either owned by the company or on loan to it.

MINING LEASE

THIS LEASE, Made and entered into by and between the JACK PINE MINING COMPANY, a Colorado corporation, party of the first part, hereinafter referred to as the Lessor, and DUMONT INVESTMENT COMPANY, a Colorado corporation, party of the second part, hereinafter referred to as the Lessee;

WITNESSETH THAT:

In consideration of the payments to be made, and the undertakings to be performed by the Lessee, as hereinafter stated, the Lessor hereby leases its interest to the Lessee, with power to assign and to sublet all or any part hereof, the following described property for the period of fifteen (15) years, beginning July 22, 1950, and the Lessor hereby grants to Lessee the right and option to extend the aforesaid period of the lease for the further period of ten (10) years, provided that not less than six months before the expiration of the original fifteen-year term the Lessee gives the Lessor written notice of its election thus to extend it.

This lease is made for the purpose of exploring and mining the property, and for all related operations. The premises hereby leased, which are elsewhere herein referred to collectively as "the property", are entirely located in the Griffith Mining District, in the County of Clear Creek and State of Colorado, and are described as follows, to-wit:

> An undivided three-sevenths interest in the eastern portion of the Montezuma Lode Claim, Survey No. 916, and all interest in the said claim now owned or hereafter acquired by the Lessor;
>
> The Arbitrator Lode Claim, Survey No. 2341;
>
> The New Era Lode Claim, and the Bush Lode Claim, Survey No. 61, together with the right to use the Burleigh Tunnel in connection with the mining and operation thereof;
>
> The Capt. Wells Lode Claim, Survey No. 116;
>
> An undivided one-half interest in the Cashier Lode Claim, Survey No. 95, and all interest in the said claim now owned or hereafter acquired by the Lessors;
>
> The Combs Lode Claim, Survey No. 60;
> The Condor Lode Claim, Survey No. 2092;
>
> The east half of the Ellen Harvey Lode Claim, Survey No. 894, and all interest in the said claim now owned or hereafter acquired by the Lessors;
>
> The Eureka Lode Claim, Survey No. 2304;

The Frostburg Lode Claim, Survey No. 111;
The Fulton Lode Claim, Survey No. 834;
The Louise Lode Claim, Survey No. 959;
The Mendota Lode Claim, Survey No. 70;

The Mendota Lode Claim (also known as the East Mendota Lode Claim), Survey No. 139;

The Norman Lode Claim, Survey No. 586A;
The Paymaster Lode Claim, Survey No. 925;

An undivided one-half interest in the Savage Lode Claim, Survey No. 1136, and all interest in the said claim now owned or hereafter acquired by the Lessors;

The Silver Cloud Lode Claim, Survey No. 980;
The Silver Coinage Lode Claim, Survey No. 2133;
The Tishhomingo Lode Claim, Survey No. 1600;

An undivided one-half interest in the Annie R. Lode Claim, Survey No. 2064, and all interest in the said claim now owned or hereafter acquired by the Lessor;

An undivided one-half interest in the Hornet Lode Claim, Survey No. 5713, and all interest in the said claim now owned or hereafter acquired by the Lessor;

An undivided one-half interest in the Knickerbocker Lode Claim, Survey No. 1199, and all interest in the said claim now owned or hereafter acquired by the Lessor;

The Benton Lode Claim, Survey No. 189;

The west half, and all Lessor's interest in the east half, of the Mammoth Lode Claim, Survey No. 107;

That part of the Virgin Lode Claim, Survey No. 110, which lies west of the westerly side-line of the Sub-treasury Lode Claim, Survey No. 753, and all interest in the said claim now owned or hereafter acquired by the Lessor;

The Silver Star Lode Claim, Survey No. 1404;
The Silver Link Lode Claim, Survey No. 5706;
The Silver Cord Lode Claim, Survey No. 5838;

The Granite Placer Claim, Survey No. 19374, subject to the right of the Lessor, hereby reserved, to operate thereon a quarry for non-metalliferous stone;

Millsite, Survey No. 301, subject to recorded rights-of-way for railroad and for highway purposes;

Millsite, Survey No. 311, except the portions thereof described in deeds recorded in Book 61 at Page 529, in Book 86 at Page 412, and in Book 46 at Page 305 of the records of Clear Creek County, together with any and all rights in the above-excepted portions which are now owned or hereafter acquired by the Lessor;

An undivided one-half interest in Millsite, Survey No. 541, and all interest therein now owned or hereafter acquired by the Lessor;

A portion of Millsite, Survey No. 330, in the northeasterly corner thereof, approximately 150 feet by 368 feet in dimension, and more exactly indicated by instruments of record, and all interest in the said Millsite now owned or hereafter acquired by the Lessor;

Antelope Lode Claim, Survey No. 144;
Backbone Lode Claim, Survey No. 747;
Scotia Lode Claim, Survey No. 146;
R. A. Miner Lode Claim, Survey No. 562;
Cavalier Lode Claim, Survey No. 329;
Phoenix Lode Claim, Survey No. 831;
Greenock Lode Claim, Survey No. 343;
Maine Lode Claim, Survey No. 581;
Grenadier Lode Claim, Survey No. 576A;
Monnie Millsite, Survey No. 19610;

Together will all and singular the lodes, tunnels, tunnel sites, and millsites (patd. within N.I.T. G.D.2) locations, and veins within the lines of the said claims, and the dips, spurs, angles, ores, improvements, dumps, and rights of whatsoever character appurtenant thereto. The Lessor hereby agrees that if at any time during the life of this lease it acquires any interest in any claim or claims, or any other land or lands adjacent to any of the above-described lodes or millsites, such interest shall become a part of the property covered by this lease; and upon being so requested by the Lessee, the Lessor will thereupon execute satisfactory instruments evidencing that fact.

The Lessee agrees as follows:

1. To begin work on the property within thirty (30) days of the date of this lease, and thereafter to work it in a manner consistent with good and economical mining, development, and preservation, and thereafter to employ in mining the property not less than 125 underground mining shifts during each month during the first year of this lease, and thereafter to employ in mining the property not less than 250 underground mining shifts each month during the remaining life of this Lease or any extension thereof. The Lessee shall have the discretionary right to determine the location and the method of all mining, ore treatment, and other work done under this lease.

2. To pay to the Lessor a royalty of ten per cent (10%) of the net smelter-return value of all ore removed from the property. "Net smelter-return value", as herein used, is agreed to mean the value shown by the certificate of an ore purchaser, less the cost of transportation, and less ore purchaser's treatment charges. The said royalty for each shipment shall be due and payable upon the settlement therefor between the ore purchaser and the Lessee, and shall be made by the ore purchaser direct to the Lessor; and each royalty payment shall be accompanied by a copy of the settlement return.

If at any time during the life of this lease the Lessee shall acquire by purchase any interest belonging to any third party other than the Lessor, in any of the above named claims or millsites, the Lessor shall have the right to purchase such interest by reimbursing the Lessee for the full amount of the purchase price, plus all incidental costs and expenses disbursed for such outstanding interest by Lessee; and such reimbursement may be made by crediting such amount in lieu of payment of earned royalty as such payments become due.

3. To allow the Lessor and its properly designated agents, from time to time, to enter and to inspect any and all parts of the property.

4. To pay, before delinquent, all taxes on the property except those on account of the mill which is located upon the property throughout the term of this lease, beginning with the taxes assessed for the year 1950.

5. To keep accurate accounts of all ores extracted and mined hereunder, and during each month to render a statement which shall show for the preceding month the number of shifts worked, the amount and character of work performed, and the amount of ore extracted from the premises; and to permit the Lessors to have access at reasonable times to all records pertaining to shipments or sales of ore from the property.

6. To take out and to maintain all requisite and proper workmen's compensation insurance to protect against any liability incurred during the life of this lease to employees upon the property; and to save Lessor harmless from any liability from the Lessee's operations; and to take out and maintain property damage and public liability insurance in the amount not less than $25,000/50,000.

7. To conform to all Federal regulations or requirements governing employment and concerning deductions for social security, withholding, and other taxes.

8. To pay all indebtedness for labor within sixty (60) days after it is performed or after liability for it is established. The Lessee shall keep the property free from all mechanics, material, and labor liens or claims. The Lessor shall have the right to post upon the premises in reasonable places, to be selected by them, notices that the Lessor will not accept responsibility for any obligations incurred for labor, for materials, or otherwise, in connection with such operations.

9. Not to remove, or allow to be removed, any ore not belonging to the Lessor, through the facilities or passageways of the property.

10. To adequately maintain and repair existing improvements and equipment.

It is mutually understood and agreed that the Lessee shall be absolved and excused from any delay in operation under this lease, if such delay is caused or extended by strikes, acts of God, inevitable accidents, or any other contingency beyond Lessee's control, and not due to its fault or omission.

The Lessee agrees that it will permit the Lessor to inspect all maps and records pertaining to the property, and that upon reasonable request and proper receipt they will furnish the Lessor with either original or with copies of all such maps and records. Any additional expense connected with furnishing such maps or records shall be paid by Lessor.

Within ninety (90) days after the termination of this Lease, the Lessee may remove from the property all machinery and any and all improvements which are not replacements of existing equipment, or which may be considered part of the real estate, and all tools, equipment, supplies, etc., which they have placed thereon; provided that there shall be no such removal while the Lessee is in any manner indebted to the Lessor under the terms of this lease.

If the Lessee shall fail to do, or shall fail to do with reasonable promptness, anything which they may be lawfully required to do hereunder, the Lessor may, at its option, terminate this lease; Provided, however, that at least thirty (30) days before any such intended termination the Lessor shall given written notice of its intention to terminate the lease, and the intended date of termination, and shall specify in such notice the default of which it complains. If thereafter, prior to such intended date of termination, the Lessee shall correct the default specified in such notice, said lease shall continue in full force; but, otherwise it shall terminate upon the date sepcified, and the Lessor may thereupon take possession of the property by any lawful method. Written notices are to be sent to the Lessee at Central City Colorado with copy to Harvey L. Tedrow at the Olin Hotel, Denver 3, Colorado.

Jab. with N.L.T. A.D.R.

The Lessee may, at its election and at any time, surrender this lease. They may accomplish such surrender by serving written notice upon the Lessor of its intention to terminate the lease. The lease shall terminate thirty (30) days after such notice, and thereafter the Lessee shall not be further bound

or obligated by its terms. Written notices are to be sent to the Lessor at 507 Boston Building, Denver 2, Colorado.

The Lessor reserves from this lease the mill building and machinery which are now on the property, and right of reasonable ingress and egress to said mill; it reserves the right to sell or to lease the same to any third party; it reserves for itself, its grantees, lessees, or assigns, the right to retain the said mill upon the property, and to operate it for milling, ore-testing, or other purposes, and to remove it, or any part of it, from the property at any time, but this reservation shall not extend to the snowsheds or the mill building trestle which are part of the leased property. However, the Lessor reserves the right to use the mill building trestle and snowsheds. If the mill building trestle and a portion of the snowsheds are used jointly by the Lessor and Lessee, they nor either of them shall shall use said trestle or sheds that will in any way interfere with the operation of the other.

The Lessee shall have the right to construct ore bins and other ore handling equipment at the end of the trestle beyond the main highway in such way so as not to obstruct entrance to the mill by tramcars over the trestle.

All of the interest hereunder of each corporation that is a party to this lease shall be assignable, and all of the rights and obligations of each of them shall extend to their respective heirs, successors, legal representatives and assigns.

IN WITNESS WHEREOF, the undersigned have duly executed this instrument at Denver, Colorado, on this 22nd day of July, 1950.

JACK PINE MINING COMPANY

By James A. Guyard
President

ATTEST:

Albert D. Neal
Secretary-Treasurer

DUMONT INVESTMENT COMPANY

By Harry L. Crow
President

ATTEST:

Walter F. Scott, Jr.
Secretary-Treasurer

SUPPLEMENTAL AGREEMENT TO LEASE ON MENDOTA MINE GROUP

IN CLEAR CREEK COUNTY, COLORADO

Lease dated July 22, 1950, by and between the JACK PINE MINING COMPANY, as Lessor, and the DUMONT INVESTMENT COMPANY, as Lessee;

WHEREAS, the Lessee has failed to comply with the mining shift requirements of the said lease, and has received notice of cancellation of said lease from Lessor, because of this default, and Lessee has failed to rectify the above default complained of by Lessor in the thirty-day grace period provided for in said lease;

NOW, THEREFORE, It is agreed between the Lessor and Lessee that notwithstanding the above default, that the lease of July 22, 1950, shall be reinstated and remain in full force and effect, except as herein modified, upon the signing of this Supplemental Agreement, and that the forgiveness of said default shall not constitute a continuing or future waiver of any of the Lessee's obligations under said lease; that Lessee will perform the monthly work requirements hereafter, and in case of default, the Lessor may declare the lease forfeited upon giving thirty-day notice as more definitely set forth in the lease. It is further mutually understood and agreed that the following terms and conditions are herewith incorporated in the aforementioned lease:

1. Lessee agrees to work an additional 225 underground mining shifts over and above the shift requirements of said lease before four months have elapsed from the date of this Supplemental Agreement, and upon failure to do so, Lessor may declare the lease in default, and give a thirty-day notice of termination as provided in said lease.

2. Lessee agrees that the mine dumps belonging to the property covered in said lease are herewith turned back to Lessor, and Lessee is to have no further interest in said dumps for the period beginning May 1, 1951, and ending December 31, 1951; at which time any dumps remaining on the property again become incorporated in said lease, and Lessor shall have the right to work on said dumps only in such manner as will not unreasonably interfere with the operations of the Lessee.

3. Lessor agrees that Lessee shall have the right to use the coarse ore bin located above the jaw crusher in the Mendota Mill, and shall have the right to cut a passage-way through the highway side of the mill building so that ore can be loaded from the bin into trucks. However, at any time after April 1, 1951, Lessee agrees that upon written notice to them from the Lessor they will return the said bin to the possession of the Lessor within thirty (30) days of said notice in as good or better condition than when received; with the gates, grizzlies and chutes in good condition, so that the bin may again be used as a coarse ore bin for the Mendota Mill operation.

4. Lessee further agrees that they will, in good faith, attempt to negotiate a six-months' split check lease, ending not later than June 1, 1951, similar to standard Cripple Creek District mining practices, with George Rowe of Silver Plume, Colorado, on a certain block of ground on the Mendota vein; said block believed to contain approximately two thousand (2,000) tons of ore, and provided that George Rowe is not to use the Mendota Shaft, or interfere in any way with any operation through said shaft.

11/15/60 H.A.T. vein. gab.

Executed by the parties hereto this 15TH day of November, 1950.

JACK PINE MINING COMPANY

By James A. Gaynor
President

ATTEST:

Albert D. Moe
Secretary

DUMONT INVESTMENT COMPANY

By Harry Stedman
President

ATTEST:

Secretary

ASSIGNMENT OF MINING LEASE

WHEREAS, on July 22, 1950, a certain Mining Lease was made and entered into by and between the JACK PINE MINING COMPANY, a Colorado corporation, Lessor, and THE DUMONT INVESTMENT COMPANY, a Colorado corporation, Lessee, covering certain properties located in the Griffith Mining District in the County of Clear Creek and State of Colorado and known as the Mendota Group of Mines; and

WHEREAS, on November 15, 1950, the parties to the aforesaid Mining Lease entered into a Supplemental Agreement with respect to same;

NOW, THEREFORE, for and in consideration of One Dollar and other good and valuable considerations, receipt of which is hereby acknowledged, THE DUMONT INVESTMENT COMPANY does hereby bargain, sell, transfer, assign and convey all of its right, title and interest in the aforesaid Mining Lease and Supplemental Agreement thereto to A. COHEN, S. COHEN, HARVEY L. TEDROW and NORA L. SCOTT, doing business as MENDOTA-FROSTBURG MINING COMPANY, a joint venture.

IN WITNESS WHEREOF, THE DUMONT INVESTMENT COMPANY has caused its President and Secretary to execute this Assignment and to affix the seal of the corporation thereto on this 8th day of September, 1952.

THE DUMONT INVESTMENT COMPANY

By Harry L. Tedrow
President

ATTEST:

Secretary

SUPPLEMENTAL AGREEMENT TO LEASE OF MENDOTA MINE GROUP IN CLEAR CREEK COUNTY, COLORADO

WHEREAS a mining lease was entered into on the 22nd day of July, 1950, by and between the Jack Pine Mining Company, a Colorado Corporation, as lessor, and the Dumont Investment Company, A Colorado Corporation, as lessee, for the purpose of exploring and mining certain mining property known as the Mendota Mine Group, more specifically described in the original lease; and

WHEREAS the lessee has failed to comply with the mining shift requirements of said lease, and has, therefore, been notified of cancellation of the said lease by the lessor because of such default, and lessee has failed to rectify or correct such default within the thirty-day period provided in said original lease of the premises; and

WHEREAS the lessee has assigned all of its right, title and interest to the property acquired under the terms of the aforesaid lease to A. Cohen, S. Cohen, Nora L. Scott and Harvey L. Tedrow, doing business as Mendota - Frostburg Mining Company; and

WHEREAS the said A. Cohen, S. Cohen, Nora L. Scott and Harvey L. Tedrow, doing business as, Mendota - Frostburg Mining Company, are desirious of mining the said property and hereby covenant and agree to assume all of the obligations under the lease and mine the said property as therein provided as the lessee;

NOW, THEREFORE, It is mutually agreed between the Jack Pine Mining Company, as lessor, and the above parties doing business as the Mendota - Frostburg Mining Company, as Lessees, that notwithstanding the aforesaid default, the lease agreement dated the 22nd day of July, 1950, shall be reinstated and remain in full force and effect as between the above stated lessor and lessees except as modified by a supplemental agreement executed in November, 1950, and except as modified by the terms of this agreement as hereinafter pro-

vided; that the forgiving and waiver of the default as stated above shall not constitute a continuing or future waiver of any of the obligations of the lessees under the terms of the original lease, the supplemental agreement of November, 1950, or this supplemental agreement; that in the event of failure of the lessees to fully comply with the terms of the said lease as modified, the lessor may terminate the lease as provided in this supplemental agreement:

It is further mutually covenanted and agreed by the said lessor and lessees that the following terms and conditions are herewith incorporated into and made a part of the aforementioned lease dated the 22nd day of July, 1950:

1. Lessees shall begin work on the property not later than the first day of September, 1952, and shall employ in mining the property a minimum of 150 undergroung mining shifts during each of the months of September and October, 1952; that thereafter during each of the next ensuing calendar months, lessees shall employ not less than one hundred (100) underground mining shifts over and above the shift requirements of the said original lease until a total of five hundred and fifty (550) underground mining shifts have been completed in addition to the monthly shift requirements of the original lease; provided however, the lessees shall be permitted to apply against the above five hundred and fifty shifts all underground mining shifts performed during the months of September and October, 1952, in excess of the required one hundred and fifty (150) during each of the above months; that the provisions of the original lease concerning notice of default and granting thirty (30) days to correct such default, shall not apply to any of the terms of this paragraph; that failure of the lessees to strictly comply with the provisions of this paragraph shall give the lessor, at his option, the absolute right to terminate the said lease immediately by mailing notice of lessor's election to terminate said lease for failure to comply with the terms of this paragraph to the lessees as follows: one copy to Harvey L. Tedrow at the Olin Hotel

Denver 3, Colorado, and one copy to A. Cohen at Sunland Mills, 4555 Brighton Boulevard, Denver, Colorado; that upon mailing such notice of default and termination as provided herein, said lessor may immediately enter into possession of the mining property; provided however, the lessees may enter upon the premises for the purpose of removing machinery and equipment as provided in the original lease;

2. Lessees agree that the mine dumps belonging to the said property or situate thereon as set forth in the original lease are hereby released from the terms of the lease and are hereby returned to the lessor and lessees hereby release to the lessor all right, title and interest in and to the said dumps acquired by lessees under the terms of the original lease; and further, lessees agree that lessor shall have the right to enter onto the property to work or remove said dumps; provided however, that such work or removal shall be performed in such a manner so as not to unreasonable interfere with mining operations of the lessees;

3. Lessor hereby consents and agrees to lessees obtaining a loan from the United States Government for the mining of the property, and lessees covenant and agree that within 15 days from the date hereof they will make such application for such loan and thereafter will diligently persue through all legal means the securing of such loan for the further development of the mining property.

In the event the lessees shall fail to comply with all of the terms of the original lease, the supplemental agreement of November, 1950, or the terms of paragraphs 2 and 3 hereof, the lessor may at its option, terminate the lease by serving notice by mailing to Harvey L. Tedrow and A. Cohen at the addresses set forth hereinabove of such election to terminate; that in the event of such election by the lessor and serving of notice as set forth herein, the lease shall be terminated subject to the terms of the original lease with respect to termination.

In witness whereof the parties hereto have duly executed this agreement at Denver, Colorado, on this _____ day of August, 1952.

Jack Pine Mining Company

by Douglas V. Watrous
President

Attest:

William D. Blood
Secretary

Mendota-Frostburg Mining Company

A. Cohen
A. Cohen

S. Cohen
S. Cohen

Nora L. Scott
Nora L. Scott

Harvey L. Tedrow
Harvey L. Tedrow

JOINT VENTURE AGREEMENT

THIS AGREEMENT, made this 26th day of August, 1952, by and between Harvey L. Tedrow and Nora L. Scott, first parties, (hereinafter sometimes respectively called "Tedrow" and "Scott"), and A. Cohen and S. Cohen, second parties, (hereinafter sometimes collectively called "the Cohens"),

W I T N E S S E T H :

RECITALS:

1. The Dumont Investment Company, a Colorado corporation substantially all of the outstanding stock of which is owned by Tedrow and Scott, holds a mining lease on the Mendota Group of Mines situated in Clear Creek County, State of Colorado, which lease is hereinafter referred to as "the Mendota Lease".

2. On or prior to November 1, 1950, Tedrow and Scott orally entered into an agreement with the Cohens for the operation of the Mendota Lease, which agreement was never reduced to writing.

3. Commencing November 1, 1950, the parties actually commenced operation of the Mendota Lease as a joint venture, and carried on operations until June of 1952, when due to lack of operating capital and other factors, operations were suspended. As a result of this suspension, the lessor threatened to terminate the lease.

4. Prior to the aforesaid suspension of operations the parties began discussions with a view to reducing their oral agreement to writing. These discussions have continued and certain controversies have arisen as to the provisions of the oral agreement.

5. The parties are in agreement as to the terms of the original agreement to the following extent: Tedrow and Scott were to contribute the Mendota Lease and were to obtain certain equipment and lend same to the joint venture; the Cohens were to contribute

$15,000; Tedrow and Scott were not to be responsible to the Cohens for any losses sustained by the Cohens up to said $15,000, and the Cohens were to receive all profits until they had recovered their $15,000. The parties were unable to agree as to the manner and time in which Tedrow and Scott would be repaid for the equipment they were to obtain and lend to the joint venture. The parties were also unable to agree as to responsibility for losses which might be sustained by the Cohens should they advance to the business sums in excess of $15,000. The parties are however, in agreement that the Cohens were to recover such excess sums out of profits before Tedrow and Scott should be entitled to any share in the profits. The parties are also in agreement that after all equipment obtained by Tedrow and Scott should be paid for and after the Cohens should recover their advances out of profits the first parties and second parties should share equally in profits and losses.

6. The lessor has proposed a certain supplemental agreement which if entered into will permit the parties to resume operaations. The Cohens have obtained from outside sources a commitment for additional capital of at least $7,000, and it is also the desire of the parties to obtain a government loan of $24,000. The parties therefore desire that the supplemental agreement proposed by the lessor be entered into, that operations be resumed using the $7,000 of new capital, and that immediate steps be taken to obtain the aforesaid government loan.

7. Tedrow and Scott are willing, in consideration of the aforesaid $7,000 of new capital, to relinquish a part of the interest which they will have in the venture after equipment and the Cohens' advances have been repaid out of profits.

NOW, THEREFORE, in consideration of the above and of the covenants hereinafter contained, the parties hereto agree as follows:

1. If the lessor permits, the parties will immediately enter into the supplemental agreement proposed by him and will resume operations as joint venturers.

2. The name of the joint venture will be Mendota-Frostburg Mining Company, and its business shall be limited to the operation of the Mendota Lease.

3. As in the past, Tedrow and Scott will cause the Dumont Investment Company to permit the Mendota-Frostburg Mining Company to operate the Mendota Lease. The interest of the Dumont Investment Company in said lease will be assigned to the Mendota-Frostburg Mining Company.

4. The machinery and equipment listed in Exhibit A attached hereto is recognized as the property of Tedrow, and as having been loaned by him to the company under an arrangement for its optional purchase by the company at an agreed price. Upon the execution of this agreement the company will pay Tedrow $200 on the purchase of such equipment, and the company is also credited for $1500 heretofore paid against the agreed price. Until Tedrow received the balance of the agreed price for said equipment, it shall remain his property, and in the event of termination of this agreement or abandonment of operations, Tedrow may remove same if not paid for. Should Tedrow so remove said equipment, he may sell same, but the proceeds of such sale shall be divided between him and the Cohens in proportion to the amounts which shall have been paid by the company thereon and the amounts which shall have been paid or incurred thereon by Tedrow. If and when Tedrow is paid in full for all of such equipment, the same shall become the property of the company. The Cohens shall not withdraw any profits or other funds from the business before Tedrow is repaid for such equipment.

5. Tedrow and Scott, or either of them, shall have no liability to the Cohens on any losses to the Cohens in respect of advances heretofore made by the Cohens to the extent of $15,000. It is agreed that the question of whether Tedrow and Scott shall

have any liability to the Cohens for any losses to the Cohens in respect of advances heretofore made in excess of $15,000 shall be reserved for future determination if and when the occasion should arise, said reservation being without prejudice to the rights of any of the parties.

6. With the assistance and approval of Scott, an agreement shall be made with one Clyde Lyons in respect of a hoist and certain other equipment which was obtained from Lyons by Scott and placed upon the leased premises, to the effect that Lyons shall look to the Mendota-Frostburg Mining Company rather than to Scott individually for the satisfaction of any obligations respecting said hoist and other equipment.

7. After Tedrow shall have been paid the agreed price for the machinery and equipment listed in Exhibit A, the Cohens shall be entitled to all profits until they shall have recovered the full amount of advances which they have heretofore made to the business and until they shall have recovered the full amount of any sums hereafter advanced to the business, including the $7,000 hereinabove mentioned. After said sums have been recovered by the Cohens out of profits, all profits and assets shall belong to the parties in the ratio of three-fourths to the Cohens and one-fourth to Tedrow and Scott.

8. Neither Tedrow nor Scott shall be responsible to the Cohens for any losses which may be sustained by the Cohens in respect of any advances hereafter made to the business by the Cohens, including but not limited to the $7,000 hereinabove mentioned.

9. First parties and second parties shall have equal rights in the management of the joint venture, and major decisions shall be made only after consultation and agreement between first parties and second parties. The Cohens shall continue to manage the financial affairs of the business, and Tedrow shall be available for consultation at such times as will not unreasonably interfere with his other activities.

10. All parties shall have the right at any reasonable time to inspect all the books and records of the joint venture, and all parties will be promptly supplied with copies of any Federal or State tax returns. Monthly financial and production reports will be prepared by the Cohens and mailed to first parties.

11. The joint venture shall continue to operate on a fiscal year basis, the fiscal year beginning on November 1 and ending on October 31.

12. Either first parties or second parties may terminate this agreement by giving thirty (30) days written notice to the other parties.

IN WITNESS WHEREOF, the parties hereto have affixed their hands and seals the day and year first above written.

Harvey L. Tedrow (L.S.)
HARVEY L. TEDROW

Nora L. Scott (L.S.)
NORA L. SCOTT

First Parties

A. Cohen (L.S.)
A. COHEN

S. Cohen (L.S.)
S. COHEN

Second Parties

EXHIBIT A

Description of Equipment	Agreed Price
All equipment obtained by Tedrow from Pennsylvania Project	$ 863.94
1 electrical cable, 1200 to 1500 feet long, obtained by Tedrow from George A. Easley	1,000.00
1 storage battery locomotive, 1 battery charger, 6 Card ore cars, All as per Morse Brothers Invoice No. 26770	3,993.30
Insurance on above (required by Morse Brothers)	160.00
3 fused switches (600 v.) with renewable fuses for each, as per Morse Brothers Invoice No. 26772	121.33
1 pop valve (1½"), as per Morse Brothers Invoice No. 26771	23.61
	$6,162.18

(PMGC)

UNITED STATES
DEPARTMENT OF THE INTERIOR

U. S. BUREAU OF MINES
1012 Flood Building
870 Market Street
San Francisco 2, Calif.

OFFICIAL BUSINESS

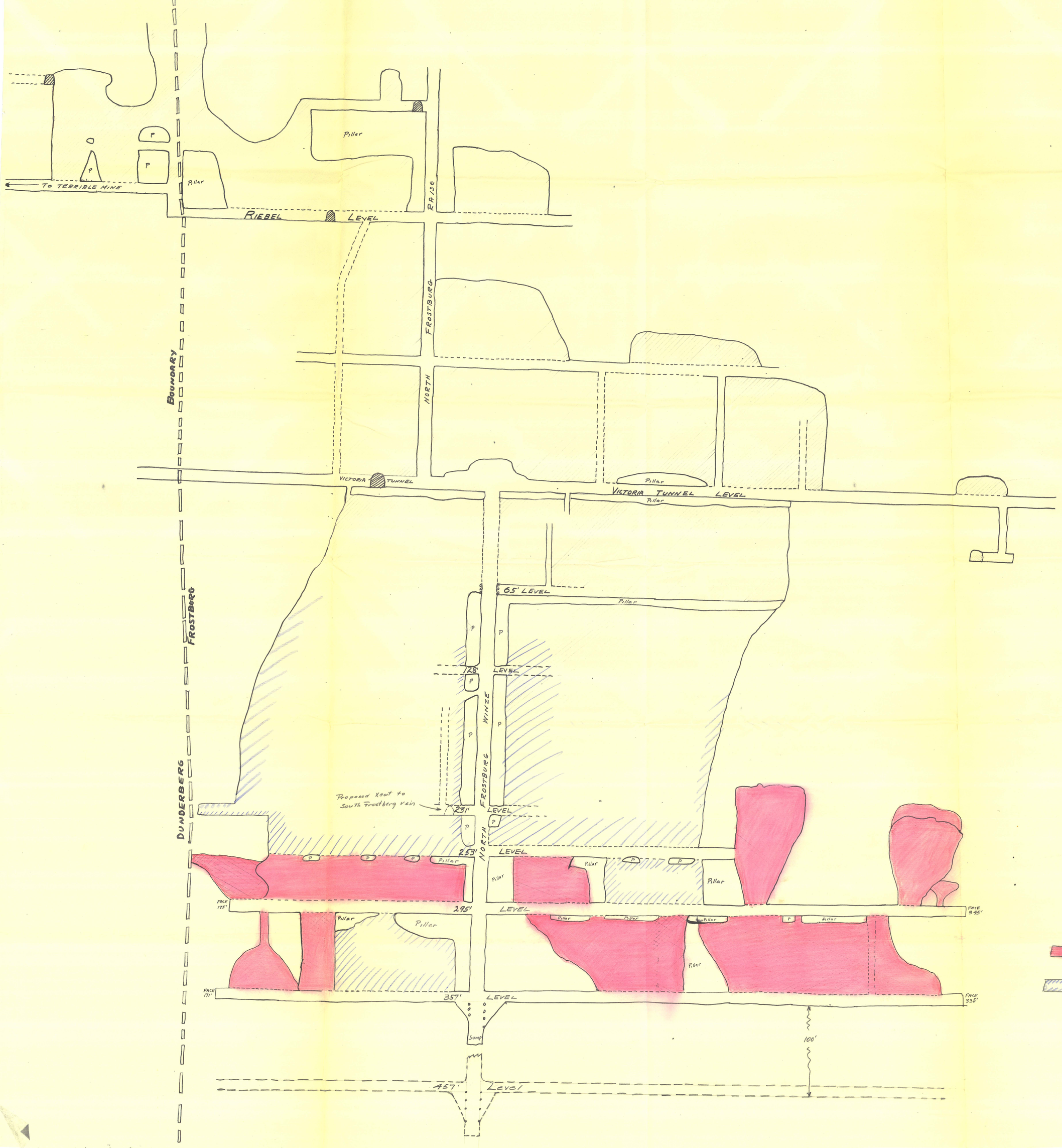
SAN FRANCISCO
SEP 12 6PM
CALIF.

DEFENSE MINERALS EXPLORATION ADMINISTRATION

INTERIOR BUILDING

WASHINGTON 25, D. C.

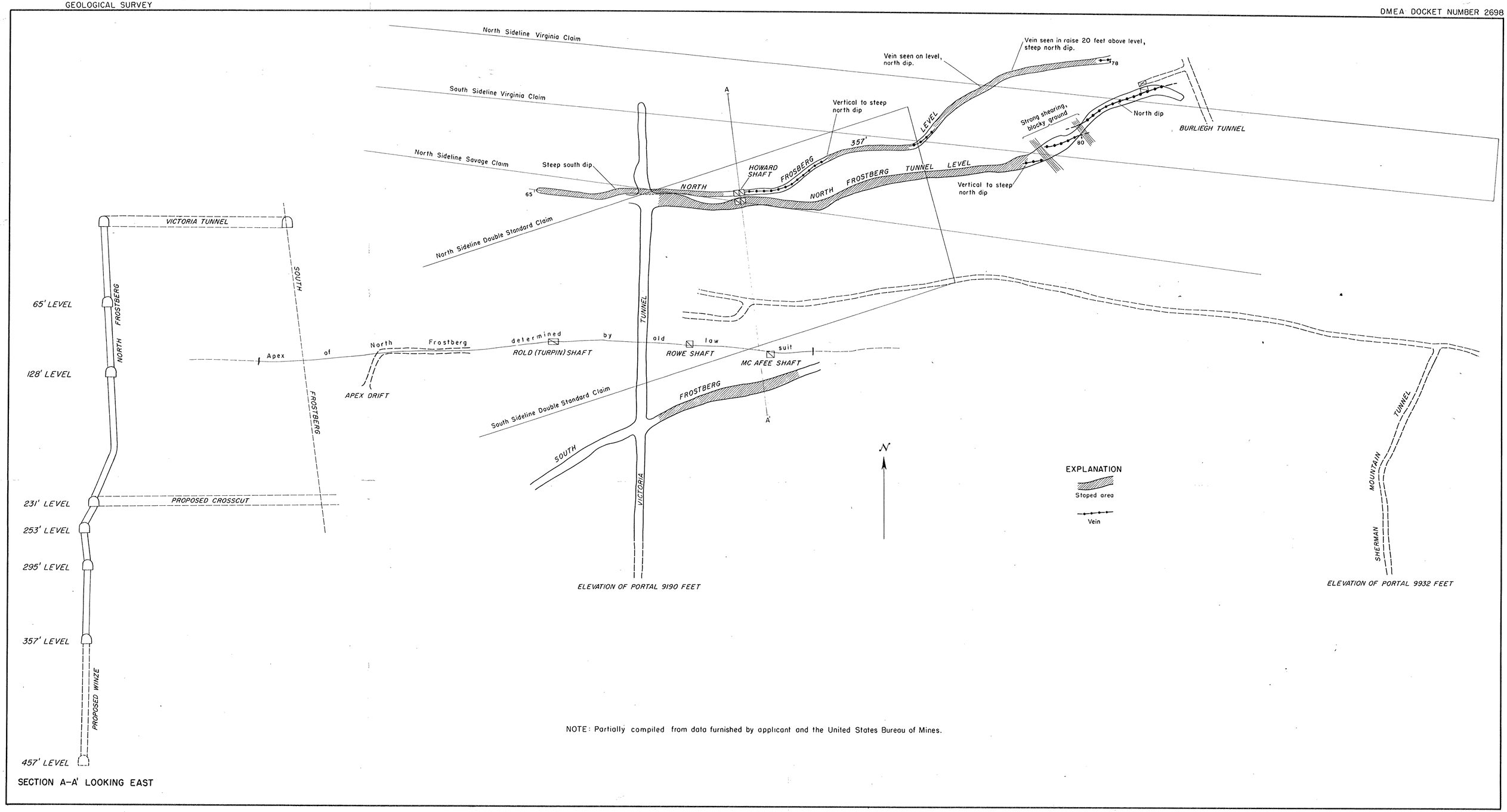
POST CLASS



WALTER E. SCOTT, JR.
MINING ENGINEER
CENTRAL CITY, COLORADO

STOPE MAP
NORTH FROSTBURG MINE

COMPILED BY WESJR	DATE Revised June 30th, 1952 October 15th 1951
SCALE 1" = 20'	MAP NO 20-1253



NOTE: Partially compiled from data furnished by applicant and the United States Bureau of Mines.

By D.R. Mac Laren
January, 1953

FIGURE 3— COMPOSITE SKETCH SHOWING PORTION OF SHERMAN MOUNTAIN AND VICTORIA TUNNEL LEVELS, APEX OF THE NORTH FROSTBERG VEIN, AND CROSS SECTION THROUGH NORTH AND SOUTH FROSTBERG VEINS, MENDOTA MINE, CLEAR CREEK COUNTY, COLORADO.

100 80 60 40 20 0 100 Feet