DMA Form 1

DEFENSE MINERALS ADMINISTRATION
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DMA Docket No. 1548X

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Routing Slip

To:	Gowen	Date	
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To:	PE Div.	Date	12/11/51
To:	Operating Com.	Date	1-7-52
To:		Date	
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FILE COPY
SURNAME:

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

MAR 2 4 1953

Hon. George W. Malone
United States Senate
Washington 25, D. C.

Re: DMA-1548X - Sylvania Mine

My dear Senator Malone:

Reference is made to your letter dated March 13, 1953 which transmitted a copy of Mr. Martin L. Reite's letter and report pertaining to his application for exploration on the Sylvania Mine, Elko County, Nevada.

Mr. Reite's letter implies that his report represents supplemental information to his original application, and suggests that the Government might wish to reconsider its previous action in light of the report. Accordingly, the application and all the supporting data have again been carefully reviewed.

The docket reveals that the report recently furnished you by Mr. Reite is an identical copy of the report he furnished with his original application. The material contained therein was given full consideration by the commodity specialists of the Bureau of Mines, the Geological Survey, and the DMEA Washington office, as well as by the engineers and geologists of the Field Team, who made an inspection of the property before a decision was reached to deny the application on January 9, 1952.

Although there has been some production in the past from surface pits on the Sylvania Claim, subsequent underground exploration for the downward extension of the ore was unsuccessful. Such orebodies as were found by this work occurred as pipes, pods, and small veins in limestone in a complex geological formation. It is the opinion of the engineers and geologists who have studied the proposed project on the ground, and of those who have again reviewed the case, that there is small probability that any appreciable amount of ore would be discovered by additional underground exploration work. One of the most important factors to be considered in passing upon applications is "the geologic probability of making a significant discovery." The decision to deny the application for exploration in this instance was made because it failed to satisfy that requirement of our regulations.

Mr. Reite's letter and accompanying report are returned. If any further information is desired, I shall be pleased to furnish it upon your request.

Sincerely yours,

C. O. Mittendorf (fw)

Administrator

Enclosures 2

EWEllis/COMittendorf/gla/fw 3-23-53
cc to: Adm. Reading File
Docket
Mr. Ellis
DMEA Field Team, Region III (2)

3/24/53

3/18/53 gla

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EUGENE D. MILLIKIN, COLO.
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United States Senate

COMMITTEE ON
INTERIOR AND INSULAR AFFAIRS

March 13, 1953

Mr. C.O. Mittendorf
Acting Administrator
Defense Minerals Exploration Administration
Bureau of Mines
Washington, D.C.

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAR 17 1953

Dear Mr. Mittendorf:

Pursuant to a telephone conversation with your office today, I am sending you information I have received from Martin L. Reite who has some mining property in Elko county, Nevada.

I would appreciate it very much if you could review this application and forward a copy of your findings to me.

Kindest personal regards.

Sincerely yours,

George W. Malone

12 pages

(*) Copy furnished by Sen. Malone returned. The report referred to was exact copy of report which was attached to the application, therefore no copy was made to attach to this letter.
Mrs.Ault

MARTIN L. REITE
Castro Valley, California
9460 Gem Avenue

Senator George W. Malone
Senate Office Building
Washington, D. C.

Docket No. DMA 1548X
Re: Sylvania Mine

Dear Senator:

Under date of May 31, 1951 I made an application for a mineral exploration loan as noted above, according to Mineral Order 5 under the Defense Production Act of 1950.

My estimated cost of development of a substantial ore body of enriched Copper-Silver-Lead was $22,908.57 and where in I asked for government participation in the amount of $11,454.24. My object was to drive an incline shaft an additional 100' on a strong substantial fissure showing increased values with the 200' already driven, and then driving 150' at right angles along a porphry break to get under at least 50,000 square feet of good looking gossan, kaolin well impregnated with manganese. This being one of three substantial ore bodies which can be developed by means of this loan.

Under date of January 9, 1952 I received a letter from Mr. C.O.Mittendorf, acting administrator, Defense Minerals Exploration Administration, Washington, stating that my request did not fulfill their requirements. This was not only very disappointing to me but equally tragic toElko as it has been stated by responsible authorities that this property, when developed, will be one of the largest mines in Elko county. For your information I am sending along a copy (*) of a report which I prepared for the application. If, after reading it, and you feel as I do, perhaps a review can be made of this loan for the purpose of reconsideration.

The very small amount requested against the tremendous potential so evident by the gossan and history of the camp indicates most strongly that the government will gladly reconsider now if the true facts are revealed.

Thanking you for your consideration of this matter and hoping for an early reply, I am

Very truly yours,

Martin L. Reite

700
FILE COPY
SURNAME:

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

Hon. George W. Malone
United States Senate
Washington 25, D. C.

Re: Docket No. DMA-1548K (Declined)
(Copper-lead-zinc)
Sylvania Mine
Elko County, Nevada

My dear Senator Malone:

This acknowledges receipt of your letter of March 13, 1953, together with a copy of Mr. Martin L. Reite's letter and report, all pertaining to the above proposed exploration project.

From said correspondence it is noted that reconsideration be given to Mr. Reite's application which, following a field examination, was denied January 9, 1952.

Accordingly, the application and all the supporting data have again been carefully reviewed. A very important factor under DMA Order-1, Section 6, criteria, is "The geological probability of making a significant discovery." While there has been some production in the past from surface pits, subsequent underground exploration failed to reveal any substantial deposits from which production could be maintained. Such ore as was found occurred in pipes, pods and small veins in limestone in a complex geological formation. Furthermore, it is the opinion of the engineers and geologists who have studied the subject proposed project and again reviewed the case, that there is small probability that any appreciable ore would be discovered by doing more work. The decision to deny exploration assistance under the Defense Minerals Exploration Administration's program, therefore, appears to be substantiated.

Mr. Reite's letter and accompanying report are returned herewith.

Sincerely yours,

Administrator

EWEllis/gla 3-19-53
cc to: Adm. Reading File
Docket
Mr. Ellis
DMEA Field Team, Region III (2)

Enclosures 2

FILE COPY
SURNAME:

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

Mr. Martin L. Reite
9460 Gem Avenue
Castro Valley, California

Re: Docket No. DMA 1548X
Sylvania Mine

Dear Mr. Reite:

With reference to your application of May 31, 1951, for exploration assistance for a project involving extension of the inclined shaft approximately 75 feet and 200 feet of drifting to explore the ground west of the open cut, the Government has made a detailed study of the data submitted by you, and also, all geological and field data presently available.

We find that prior exploration conducted in the tunnel and incline has not been successful in locating the extension of ore bodies mined by open cuts and cut off by faulting. Your proposal to further sink and drift in the area, also, does not appear to be sufficiently supported by geological or field evidence to substantiate the possibility of making a discovery which would result in a worthwhile production of base metal. Your application for exploration project assistance under Mineral Order 5 is accordingly denied.

We appreciate the opportunity to review your project in the interest of strategic mineral discovery and ultimate production, and regret that it does not fulfill the requirements for Government participation.

Sincerely yours,

1-9-52

C. O. Mittendorf (for)

Acting Administrator
Defense Minerals Exploration
Administration

DEMOULDS/hmj
1-4-52

cc to: Adm. Reading File
Mails and Files Br.
Mr. Mittendorf
Mr. Bishop
Mr. Mote
Region III (2)
Docket
Mr. Moulds

FILE C500
SURNAME:

Mould

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

January 4, 1952

Memorandum

To: Mr. C. O. Mittendorf

From: Mr. D. E. Moulds

Subject: Recommendation for denial of exploration project application, Docket No. DMA 1548X, Sylvania Mine, Elko County, Nevada.

The Property:

The property consists of six patented lode mining claims situated in Sec. 33, T.31N., R.53E., Elko County, Nevada. Property owned by Martin L. Reite.

Geology:

Country rock is limestone considerably faulted and folded indicating a complex geology. The ore bodies occur as pipes, pods, and small veins in the vicinity of an intrusive quartz porphyry contact with the limestone. Ore is replacement type of contact metamorphic origin. Mineralization is lead, silver, and copper.

Development:

Production from the Sylvania group has been approximately $500,000 during the period 1913-1917 chiefly from oxidized copper ore with minor lead-zinc associated with the copper. Mining has been mainly from two open pits approximately 30 feet in diameter which followed the ore to depths of 20 to 30 feet. Two adits 80 and 420 feet in length were driven in the vicinity of the open pits. The 420 foot adit follows a vein 12 to 18 inches wide and an inclined winze 200 feet long followed the vein in depth with approximately 100 feet of drifting done from the bottom of the winze. Other caved adits are located on the property which evidently followed low grade fissure zones.

The work done has demonstrated that the ore occurs as irregular, small chimneys, located at vein intersections. Faulting has further complicated following these intersections in depth. The main production has been from the open pits but exploration for the downward extension of these veins has been unsuccessful. A small tonnage of ore was mined from the winze

but sampling indicates the ore was, in general, low grade with 4 samples averaging 19 inches in width, 2.8% lead, 2.4% zinc and 1.9% copper.

The Project:

The proposed program includes the extension of the inclined shaft 75 feet and from the bottom, 200 feet of drifting to explore the ground west of the quarry.

This area has been explored to a certain extent by the Sylvania adit with negative results showing in the fissures encountered. The work proposed appears to be a sound program to further explore the area providing that geology and mineralogy indicated further work warranted.

Conclusion:

The property examination indicates that the possibility of finding commercial bodies of ore worthy of development has been negatively proved by extensive exploratory work previously accomplished. The ore bodies, so far discovered and mined, have been small, irregular, and low in combined grade.

The Field Team recommends that the project be denied and the data presented by the report substantiates this recommendation in the opinion of the Base Metals Branch.

D. E. Moulds

DEMoulds/hmj
1-4-52
cc to: Mr. Mittendorf
Mails and Files
Mr. Moulds
Docket

OFFICE OF THE ADMINISTRATOR

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D.C.

DEC 3 10 40 AM '51

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

1012 Flood Building
870 Market Street
San Francisco 2, Calif.

DEPARTMENT OF THE INTERIOR
RECEIVED
DEC 10 1951
Defense Minerals Administration,
Production Expansion Division.

Received by Dmea Operating Comm 12/7/51 HB.

November 28, 1951

Memorandum

To: Defense Minerals Administration, Interior Building, Washington 25, D. C.

From: Executive Officer, DMA Field Team, Region III

Subject: Docket DMA-1548X - Sylvania Mine - Martin Reite, 9460 Gem Avenue, Castro Valley, California

Reference is made to subject "Review of Application for Exploration Assistance", dated July 20, signed by Tom Lyon, Chairman, Coordinating Committee.

Attached are four copies of a report, "DMA-1548X, Sylvania Mine, Bullion Mining District, Elko County, Nevada (Lead-Zinc-Copper)", by W. T. Benson, mining engineer, U. S. Bureau of Mines, dated October 30, 1951, and four copies of a report, "Docket DMA-1548X, Sylvania Mine, Bullion Mining District, Elko County, Nevada (Copper)", by G. C. Simmons and D. C. Arnold, geologists, U. S. Geological Survey, dated October 5, 1951.

According to the engineer's and geologists' reports, the ore bodies discovered on the claim occur as pipes, pods, and small veins in limestone. The largest ore body was mined from the quarry. Exploration for the downward extension of this body was unsuccessful. A small tonnage of ore has been mined from the veins and one small pod from the inclined shaft.

Mineralization encountered in the underground workings indicate that other ore bodies which may be discovered would be small and possibly too low grade to be mined profitably. The engineer and geologists have recommended that further exploration aid for this property should be denied.

H. C. Miller
Executive Officer
DMA Field Team, Region III

Attachments (Reports and docket file)

Copy to E. H. Bailey, USGS

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

1012 Flood Building
870 Market Street
San Francisco 2, Calif.

November 28, 1951

Memorandum

To: Defense Minerals Administration, Interior Building, Washington 25, D. C.

From: Executive Officer, DMA Field Team, Region III

Subject: Docket DMA-1548X - Sylvania Mine - Martin Reite, 9460 Gem Avenue, Castro Valley, California

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H. C. MILLER

H. C. Miller
Executive Officer
DMA Field Team, Region III

Attachments

Copy to E. H. Bailey, USGS

1012 Flood Building
870 Market Street
San Francisco 2, Calif.

November 28, 1951

Memorandum

To: Defense Minerals Administration, Interior Building, Washington 25, D. C.

From: Executive Officer, DMA Field Team, Region III

Subject: Docket DMA-1548X - Sylvania Mine - Martin Reite, 9460 Gem Avenue, Castro Valley, California

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H. C. MILLER

H. C. Miller
Executive Officer
DMA Field Team, Region III

Attachments

Copy to E. H. Bailey, USGS

HCMiller:ejs
Files - Chron

Refer to	N.	Date
Answered		

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

Mr. H. C. Miller
Executive Officer, DMA Field Team
South 157 Howard Street
Spokane, Washington

JUL 20 1951

Dear Sir:

We attach "Review of Application for Exploration Assistance" on:

Docket No. 1548X

Commodity Copper

Applicant Mr. Martin L. Reite, 9460 Gem Avenue, Costro Valley, California

Please expedite the consideration of this application with particular reference to the points raised in the attached "Review."

Very truly yours,

Tom Lyon
Chairman
Coordinating Committee

Lowell B. Moon
For Bureau of Mines

Dwight M. Lemmon
For Geological Survey

DEFENSE MINERALS
ADMINISTRATION
WASHINGTON, D. C.
DEC 3 10 40 AM '51

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

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

Docket DMA-1548X, Sylvania Mine

Bullion Mining District, Elko County, Nevada

(Copper)

G. C. Simmons and D. C. Arnold, Geologists
U. S. Geological Survey

October 5, 1951

CONTENTS

	Page
Geology	1
Ore Deposits	2
Ore Reserves	3
Proposed Exploration	3
Conclusions and Recommendations	3

ILLUSTRATIONS

Figure 1. Index map showing location of Bullion Mining District, Elko County, Nevada.

Figure 2. Geologic map of Sylvania Mine, Bullion Mining District, Elko County, Nevada.

Figure 3. Cross section of Sylvania Mine, Bullion Mining District, Elko County, Nevada.

Docket DMA-1548X, Sylvania Mine

Bullion Mining District, Elko County, Nevada

GEOLOGY

The rocks of the district are light gray to black massive limestones, probably Ordovician in age. The limestone, which is intruded by granodiorite and fine-grained granite porphyry dikes, is cut by many faults of undetermined displacement.

Adjacent to the granodiorite, contact metamorphism has locally formed zones of garnet, tremolite, actinolite, calcite, and sericite in the limestone; in places along the contact sulfides are present as sphalerite, chalcopyrite and pyrite.

In the vicinity of the producing mines, garnet zones are associated with many of the ore bodies, these zones, however, are not in contact with intrusive rocks but appear to follow some of the channelways that carried the ore-bearing solutions.

The workings of the Sylvania Mine are in light gray massive limestone that has been moderately silicified and locally recrystallized to a coarse white marble. One small granite porphyry dike that strikes northwest and dips southwest is exposed in the tunnel and the inclined shaft. Many faults of variable strikes and moderate to steep dips are exposed in the workings. Although the faults do not have a dominant trend, most of the metallized faults strike northeast and dip northwest.

ORE DEPOSITS

The ore bodies discovered on the Sylvania property occur as small pipes, pods, and veins in limestone.

The largest ore body was mined from the glory hole which is approximately 120 feet in length, 70 feet in width and 40 feet in depth. A small amount of production was from veins and a small stope at the bottom of the inclined shaft. (See fig. 2.)

The principal ore minerals are secondary copper and lead containing a few ounces of silver. The copper minerals are malachite, azurite, chrysocolla, and "copper pitch". Because of the intense staining by iron oxide no lead or silver minerals were recognized. The associated gangue minerals are limonite, hematite, calcite, barite and quartz.

Records show that the major production from the property was from the glory hole. Exploration for the downward extension of the ore was attempted by driving a drift 100 feet below the bottom of the glory hole. This drift was driven southwest through limestone and encountered only faults and solution cavities partly filled with clay.

After exploration work in the tunnel level failed to find ore, an inclined shaft was put down on a small vein about 70 feet south of the portal. Small north-striking cross faults offset the vein as much as 10 feet near the bottom of the inclined shaft. A small ore body (ore body "C", fig. 2) was discovered at the intersection of the vein and one of the small cross faults. Some stoping was done on the vein above the inclined shaft, but it is doubtful if this operation was profitable because of the narrow width of the vein.

ORE RESERVES

Assays cut by the U. S. Bureau of Mines show that the ore left in the workings is marginal to sub-marginal in grade 1/. Probably a few tons of

---

1/ Assays taken by U. S. Bureau of Mines

Sample No.	% Pb	% Zn	% Cu	Ozs. Au	Ozs. Ag
1451	2.2	3.4	0.58	Tr.	1.65
1452	3.6	3.3	1.87	Tr.	2.50
1453	5.2	1.7	2.71	Tr.	10.20
1454	0.1	1.1	2.34	Tr.	Tr.

---

shipping grade ore could be mined from the inclined shaft but sorting would be necessary.

PROPOSED EXPLORATION

The exploration program outlined by the applicant proposes to explore the ground below and to the west of the glory hole. This exploration is to be done by extending the inclined shaft an additional 75 feet and then drifting 200 feet towards the west to explore the ground near the west center side line of the Sylvania Claim.

The exploration program as outlined is sound; however, the size and grade of the ore found in the underground workings indicates that further exploration is not warranted.

CONCLUSIONS AND RECOMMENDATIONS

The ore bodies discovered on the Sylvania Claim occur as pipes, pods, and small veins in limestone. The largest ore body was mined from the glory hole. Exploration for the downward extension of this body was unsuccessful. A small

tonnage of ore has been shipped from veins and one small pod in the inclined shaft. Assays taken by the U. S. Bureau of Mines show that the ore shipped from the underground workings was probably marginal to sub-marginal in grade.

Mineralization encountered in the underground workings indicates that additional ore bodies which may be found would probably be small and too low grade to be mined profitably. It is therefore recommended that the application for an exploration loan be denied.

U. S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS ADMINISTRATION
DOCKET NO. 1548-X

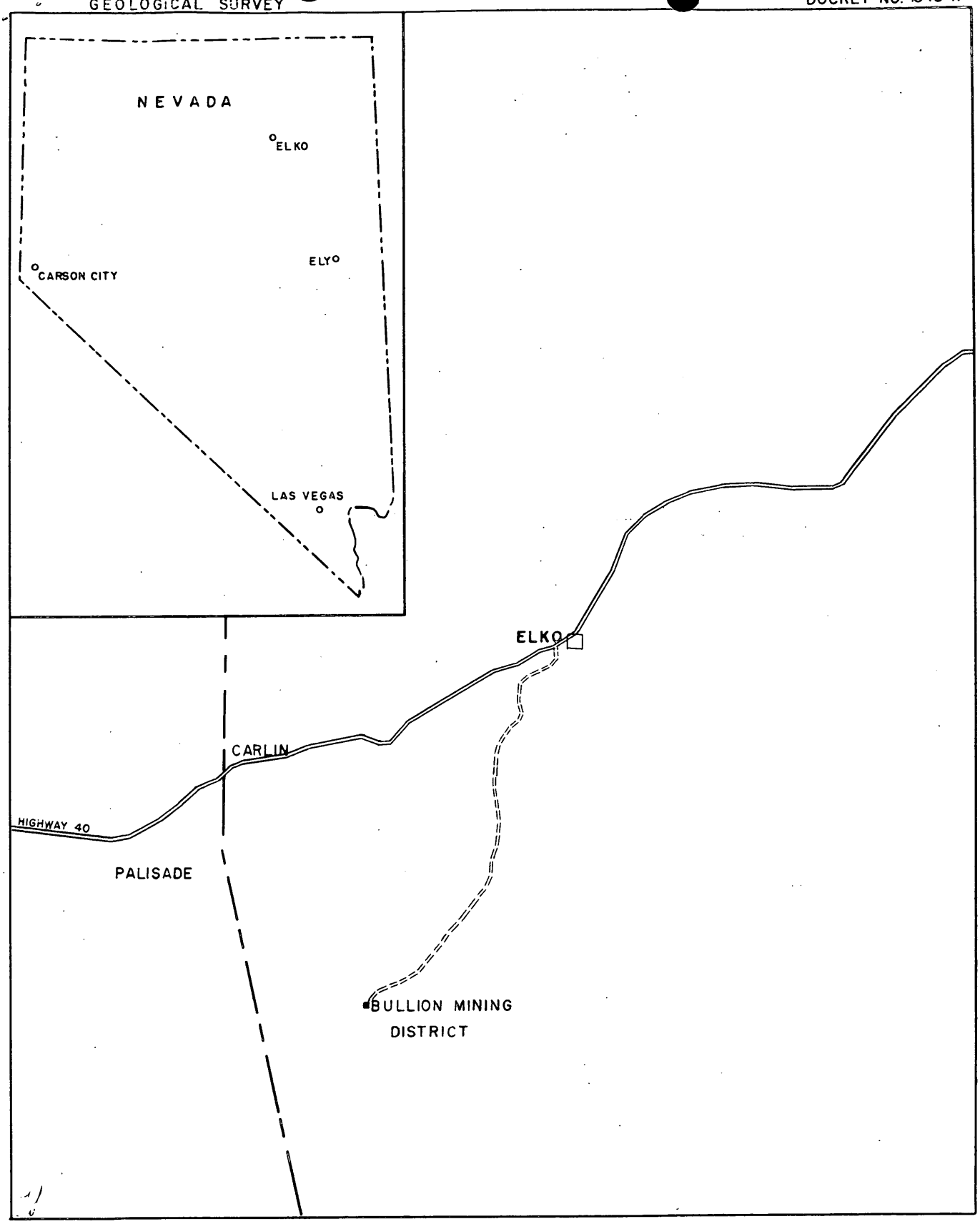


FIG. 1

INDEX MAP OF NEVADA

0 10 20 MILES
Scale

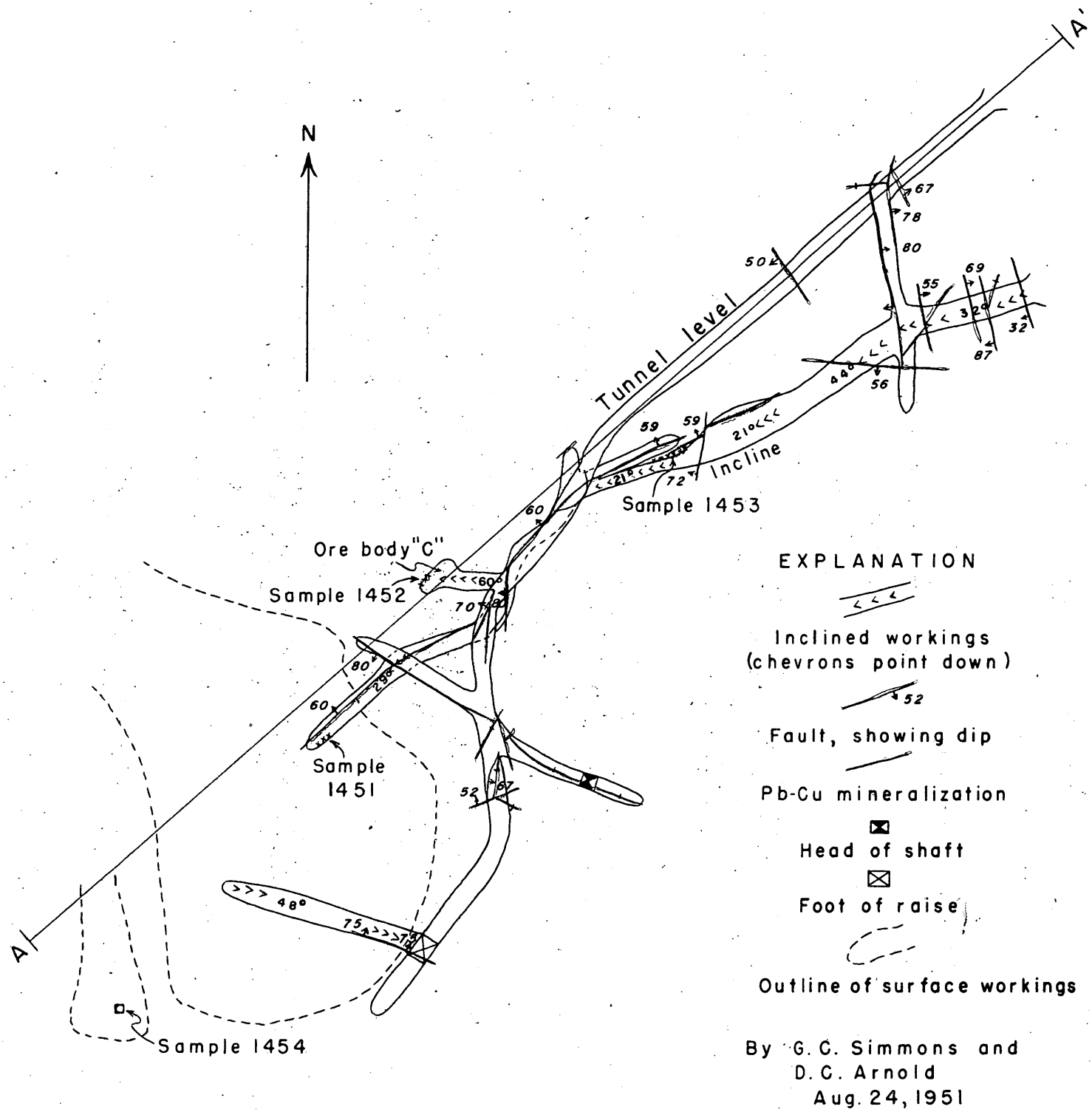
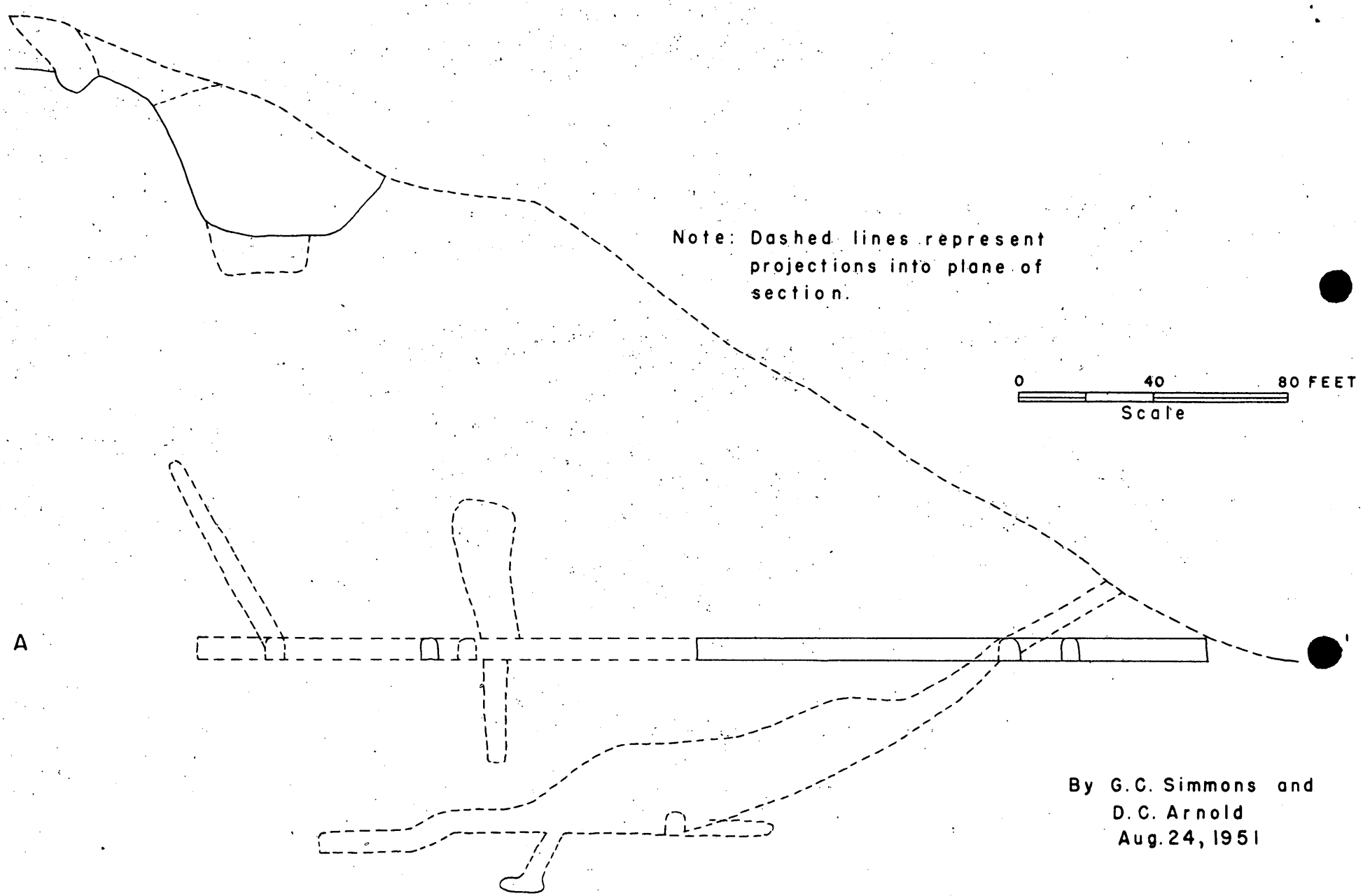


FIG. 2 GEOLOGIC MAP OF SYLVANIA MINE, BULLION MINING DISTRICT, ELKO COUNTY, NEVADA

0 40 80 FEET
Scale

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS ADMINISTRATION
DOCKET 1548-X



By G.C. Simmons and
D.C. Arnold
Aug. 24, 1951

FIG. 3 CROSS SECTION ALONG LINE A-A', SYLVANIA MINE, NEVADA

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

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

Supplement

DMA-1548X, Sylvania Mine

Bullion Mining District, Elko County, Nev.

lead-zinc-copper

W. T. Benson, Mining Engineer
U. S. Bureau of Mines

October 30, 1951

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D. C.
DEC 3 10 40 AM '51

DOCKET DMA-1548X

UNITED STATES DEPARTMENT OF THE INTERIOR - BUREAU OF MINES

SYLVANIA MINE
Bullion Mining District, Elko County, Nev.

lead-zinc, copper

SUMMARY

The Sylvania lead-zinc and copper property is situated in the Bullion Mining District, southwestern Elko County, Nev., about 32 miles southwest of Elko, the supply and shipping point on the Western and Southern Pacific Railroads.

The Bullion district is credited with a production of $3,000,000 from 1869 to 1900 and $889,000 from 1900 to the present time.

Production from the Sylvania group has been approximately $500,000; chiefly in copper with a few tons of copper-lead-zinc ore during the period 1913 to 1917. The property has not been actively worked for a number of years.

The country rock is limestone that varies from a hard gray limestone to a massive marble which is coarsely crystalline. In the vicinity of the property, the sediments have been disturbed by considerable faulting, and the abrupt changes in dip indicate complex geology.

The ore bodies discovered on the Sylvania claim occur as pipes, pods, and small veins in limestone. The largest ore body was mined from the quarry. Exploration for the downward extension of this body was unsuccessful. A small tonnage of ore has been mined from veins and one small pod in the inclined shaft.

Mineralization encountered in the underground workings indicate that other ore bodies which may be discovered would be small and too low grade to be profitably mined. It is therefore recommended that the application for an exploration loan be denied.

INTRODUCTION

In response to a request for an exploratory loan, docket DMA-1548X, Sylvania Mine, Bullion Mining District, Elko County, Nev., the property was visited during the period August 10-13, 1951 by an engineer[1/] of the Bureau of Mines accompanied by geologists of the U. S. Geological Survey.[2/]

Previously the property was examined and reported on by an engineer[1/] of the Bureau of Mines on August 27, 1948.

Purpose of the recent visit in conjunction with geologists of the U. S. Geological Survey was to determine if the property had sufficient merit to warrant a loan under the Defense Minerals Administration.

Property holdings comprise six patented lode mining claims known as the Sylvania, Kenilworth, Wide West, Vindicator Fraction, Victor Fraction, and the Valley View, which are owned by Martin L. Reite, 9460 Gem Avenue, Castro Valley, Calif., and situated in sec. 33, T. 31 N., R. 53 E., Elko County, Nev. The claims are located about 2 miles west of the old town of Bullion, which is about 28 miles southwest of Elko. A county road, in fair condition, connects Bullion with Elko, the supply and shipping point on the Southern and Western Pacific Railroads.

1/ W. T. Benson.
2/ G. C. Simmons and D. C. Arnold.

HISTORY

The district was discovered in 1869 and worked during '70 and '80 when two small smelters were in operation. Interest in the district revived in 1905; the mines were reopened in 1906; and since that time the mines in the district have been sporadically operated and developed. From six to ten companies with small acreages were active in the camp from 1869 until the demonetization of silver. Company operations then ceased and lessees carried on.

The Bullion district is credited with a production of $3,000,000 from 1869 to 1900 and $889,000 from 1900 to the present time.

Production from the Sylvania group has been approximately $500,000 chiefly in copper with a few tons of copper-lead-zinc ore during the period 1913 to 1917. The property has not been actively worked for a number of years.

PHYSICAL FEATURES

The claims are located on the east slope of the Pinon Range near the headwaters of the west fork of Dixie Creek at an altitude of about 6,800 feet. Climate in the area is temperate with cool summers and moderately severe winters accompanied by considerable snow and long periods of sub-zero weather. Water in or near the property is confined to a few small springs, sufficient only for domestic and engine needs. Juniper, mountain mahogany, scrub pine and a few groves of aspen constitute the vegetation near the property. None of these varieties have economic importance except for fire wood. No transmitted electric power is available; and for generation of power, it would be necessary to transport fuel oil in drums by truck from Elko, 32 miles northeast.

HOUSING FACILITIES AND EQUIPMENT

A small frame structure on the property is sufficient to accommodate two men.

Except for a few hand tools, there is no equipment on the property.

GEOLOGY

The country rock is limestone that varies from a hard gray limestone to a massive marble which is coarsely crystalline. In the vicinity of the property the sediments have been disturbed by considerable faulting, and the abrupt changes in dip indicate complex geology.

On the crest of the hill west of the property, the limestones are intruded by granodiorite and quartz porphyry. Where exposed, the intrusive quartz porphyry is decomposed and locally silicified.

The most important ore bodies, now mined, are replacement deposits of lead, silver, and copper ore in marbleized limestone, and copper deposits of contact-metamorphic origin.

On the Sylvania claim, the ore bodies were irregular replacement veins in limestone, which intersect to form chimneys of ore. On the west side of the property, an adit, bearing S. 65° W., follows a 4-foot fissure in limestone. In two surface quarries, 20 to 30 feet in diameter, oxidized copper ores were mined to depths of 20 to 30 feet. Recent work was confined to a vein 1 foot to 18 inches thick that strikes N. 60° W. and dips 50° S.W. This vein has been followed by a winze inclined 30° to 50° for a distance of 200 feet. Near the bottom, two small replacement ore bodies at fracture intersections were mined.

Calcite and quartz are the important gangue minerals. The principal ore minerals are lead and copper oxides and carbonates, pyrite, chalcopyrite and possibly gray copper.

DEVELOPMENT

Development openings on the Sylvania claim include the upper and lower quarries, two small pits and two adits, 80 and 420 feet in length. From the 420-foot adit, a 200-foot winze and about 100 feet of drifting off the bottom was done on a flat dipping iron filled fissure. As the fissure was followed in a southwest direction, it was lowered by a system of small block faults. Ore in the face is about 6 feet below the level of the drift. Purpose of the Sylvania adit was to undercut the large quarries which had been productive. At a point about 200 feet in from the portal, caves and fissures were encountered that were mud-filled, showing no mineralization. From this network of fissures, the adit was driven an additional 60 feet and then abandoned.

About 300 feet southwest of the quarries is an adit of considerable length that follows a 4-foot, well-defined fissure that is iron-stained carrying small amounts of lead and copper. This adit caved at portal could not be entered.

SAMPLING

A series of four samples were taken from ore sections exposed in the development openings. Their positions are shown on the plan map attached. The assay results are as follows:

Sample No.	Ounces		Percent			Description
	Au	Ag	Pb	Zn	Cu	
1451	Tr	1.65	2.2	3.4	0.58	Cut across 15" vein 3' back from face inclined drift.
1452	Tr	2.50	3.6	3.3	1.87	Cut across 18 inches face of drift off winze.
1453	Tr	10.20	5.2	1.7	2.71	Cut across 2' - 10' back from winze in east drift.
1454	Tr	Tr	0.1	1.1	2.34	Cut across 18" vein material at top of shaft in cut west of large quarry.

ORE RESERVES

There are nc blocked out ore reserves on the property. From the small showing from the face of the drift off the bottom of the winze, it is possible a few tons of shipping grade ore could be selectively mined and sorted.

PLAN OF OPERATION

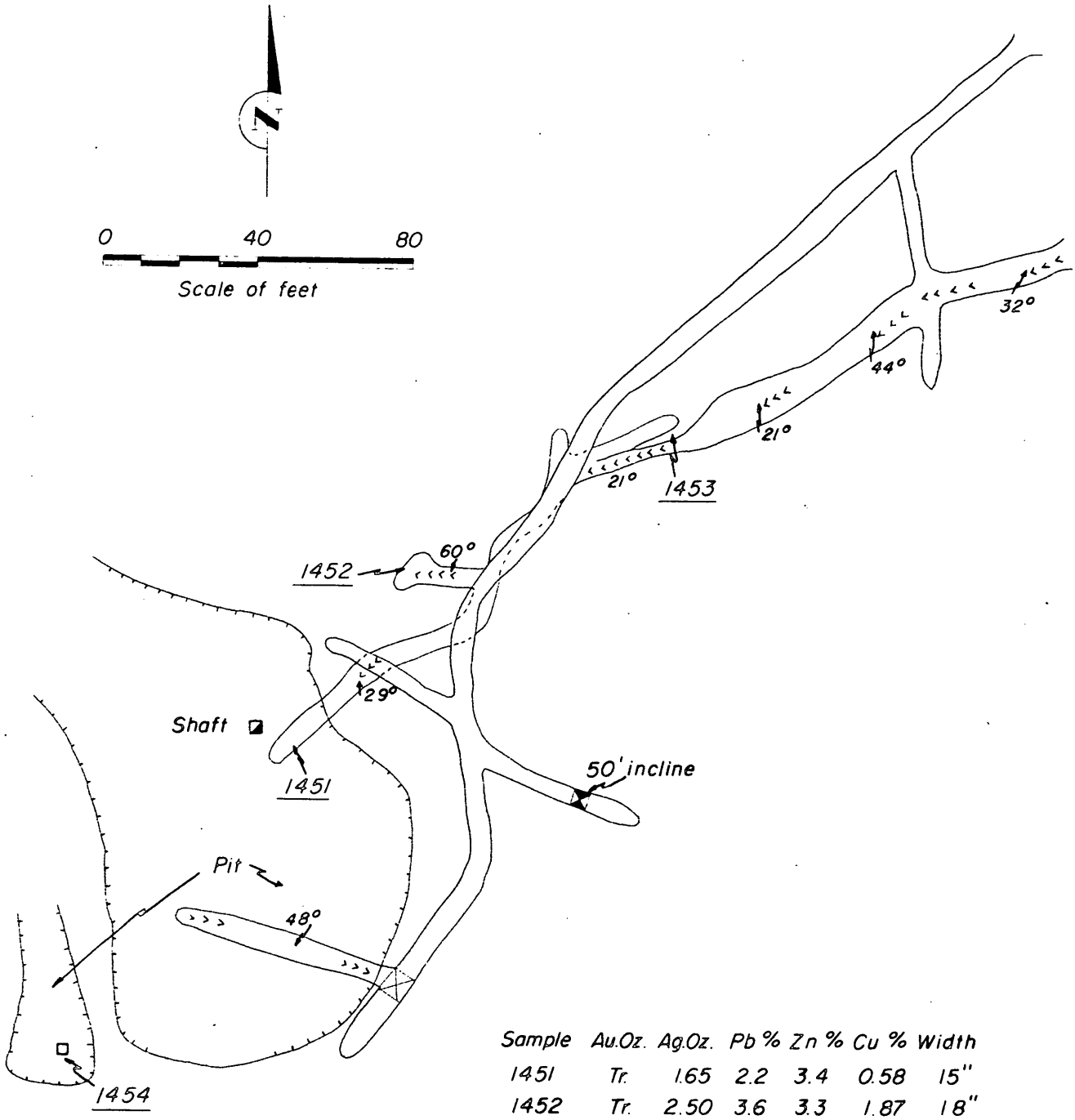
The program outlined by the applicant, proposed development of the ground below and to the west of the large quarry. The work proposed includes the extension of the incline shaft an additional 75 feet, and 200 feet of drifting to explore the ground west of the quarry.

While the proposed development program is sound, the size and grade of the ore sections developed in underground openings indicate that further development is not warranted.

CONCLUSION AND RECOMMENDATIONS

The ore bodies on the property occur as irregular replacement veins in limestone, which intersect to form chimneys of ore. The largest ore body was mined from the glory hole. Exploration for the downward extension of this ore body was unsuccessful. A small tonnage of ore was mined from irregular small bodies in the winze, but samples taken from these sections indicate the ore in general was low grade.

It is possible that other small lenses or pods may be developed with additional work, but in all liklihood they probably would be small and too low grade to be profitably mined. The application for an exploration loan is therefore not recommended by the Bureau of Mines.



Sample	Au.Oz.	Ag.Oz.	Pb %	Zn %	Cu %	Width
1451	Tr.	1.65	2.2	3.4	0.58	15"
1452	Tr.	2.50	3.6	3.3	1.87	18"
1453	Tr.	10.20	5.2	1.7	2.71	24"
1454	Tr.	Tr.	0.1	1.1	2.34	18"

After U.S.G.S map

Samples by U.S.B.M.

Figure 1 - Sketch of Sylvania mine, Elko County, Nevada

DEFENSE MINERALS
ADMINISTRATION
WASHINGTON, D. C.

DEC 3 10 40 AM '51

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

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

Supplement

DMA-1548X, Sylvania Mine

Bullion Mining District, Elko County, Nev.

lead-zinc-copper

W. T. Benson, Mining Engineer
U. S. Bureau of Mines

October 30, 1951

DOCKET DMA-1448X

UNITED STATES DEPARTMENT OF THE INTERIOR - BUREAU OF MINES

SYLVANIA MINE
Bullion Mining District, Elko County, Nev.

lead-zinc, copper

SUMMARY

The Sylvania lead-zinc and copper property is situated in the Bullion Mining District, southwestern Elko County, Nev., about 32 miles southwest of Elko, the supply and shipping point on the Western and Southern Pacific Railroads.

The Bullion district is credited with a production of $3,000,000 from 1869 to 1880 and $800,000 from 1880 to the present time.

Production from the Sylvania group has been approximately $800,000; chiefly in copper with a few tons of copper-lead-zinc ore during the period 1915 to 1917. The property has not been actively worked for a number of years.

The country rock is limestone that varies from a hard grey limestone to a massive marble which is coarsely crystalline. In the vicinity of the property, the sediments have been disturbed by considerable faulting, and the abrupt changes in dip indicate complex geology.

The ore bodies discovered on the Sylvania claim occur as pipes, pods, and small veins in limestone. The largest ore body was mined from the quarry. Exploration for the downward extension of this body was unsuccessful. A small tonnage of ore has been mined from veins and one small pod in the inclined shaft.

Mineralization encountered in the underground workings indicate that other ore bodies which may be discovered would be small and too low grade to be profitably mined. It is therefore recommended that the application for an exploration loan be denied.

INTRODUCTION

In response to a request for an exploratory loan, docket DMA-1348X, Sylvania Mine, Bullion Mining District, Elko County, Nev., the property was visited during the period August 10-13, 1951 by an engineer[1] of the Bureau of Mines accompanied by geologists of the U. S. Geological Survey.[2]

Previously the property was examined and reported on by an engineer[1] of the Bureau of Mines on August 27, 1948.

Purpose of the recent visit in conjunction with geologists of the U. S. Geological Survey was to determine if the property had sufficient merit to warrant a loan under the Defense Minerals Administration.

Property holdings comprise six patented lode mining claims known as the Sylvania, Kenilworth, Wide West, Vindicator Fraction, Victor Fraction, and the Valley View, which are owned by Martin L. Smith, 9460 Gem Avenue, Castro Valley, Calif., and situated in sec. 35, T. 31 N., R. 53 E., Elko County, Nev. The claims are located about 2 miles west of the old town of Bullion, which is about 28 miles southwest of Elko. A county road, in fair condition, connects Bullion with Elko, the supply and shipping point on the Southern and Western Pacific Railroads.

1/ W. T. Benson.
2/ G. C. Simmons and D. G. Arnold.

HISTORY

The district was discovered in 1869 and worked during '70 and '80 when two small smelters were in operation. Interest in the district revived in 1906; the mines were reopened in 1908; and since that time the mines in the district have been sporadically operated and developed. From six to ten companies with small acreages were active in the camp from 1909 until the demonetization of silver. Company operations then ceased and leasers carried on.

The Bullion district is credited with a production of $3,000,000 from 1869 to 1900 and $800,000 from 1900 to the present time.

Production from the Sylvania group has been approximately $800,000 chiefly in copper with a few tons of copper-lead-zinc ore during the period 1916 to 1917. The property has not been actively worked for a number of years.

PHYSICAL FEATURES

The claims are located on the east slope of the Pinon Range near the headwaters of the west fork of Dixie Creek at an altitude of about 6,500 feet. Climate in the area is temperate with cool summers and moderately severe winters accompanied by considerable snow and long periods of sub-zero weather. Water in or near the property is confined to a few small springs, sufficient only for domestic and engine needs. Juniper, mountain mahogany, scrub pine and a few groves of aspen constitute the vegetation near the property. None of these varieties have economic importance except for fire wood. No transmitted electric power is available; and for generation of power, it would be necessary to transport fuel oil in drums by truck from Elko, 82 miles northeast.

HOUSING FACILITIES AND EQUIPMENT

A small frame structure on the property is sufficient to accommodate two men.

Except for a few hand tools, there is no equipment on the property.

GEOLOGY

The country rock is limestone that varies from a hard gray limestone to a massive marble which is coarsely crystalline. In the vicinity of the property the sediments have been disturbed by considerable faulting, and the abrupt changes in dip indicate complex geology.

On the crest of the hill west of the property, the limestone are intruded by granodiorite and quartz porphyry. Where exposed, the intrusive quartz porphyry is decomposed and locally silicified.

The most important ore bodies, now mined, are replacement deposits of lead, silver, and copper ore in marbleized limestone, and copper deposits of contact-metamorphic origin.

On the Sylvania claim, the ore bodies were irregular replacement veins in limestone, which intersect to form chimneys of ore. On the west side of the property, an adit, bearing S. 65° W., follows a 4-foot fissure in limestone. In two surface quarries, 20 to 30 feet in diameter, oxidized copper ores were mined to depths of 20 to 30 feet. Recent work was confined to a vein 1 foot to 18 inches thick that strikes N. 60° W. and dips 50° S.W. This vein has been followed by a winze inclined 30° to 50° for a distance of 200 feet. Near the bottom, two small replacement ore bodies at fracture intersections were mined.

Calcite and quartz are the important gangue minerals. The principal ore minerals are lead and copper oxides and carbonates, pyrite, chalcopyrite and possibly gray copper.

DEVELOPMENT

Development openings on the Sylvania claim include the upper and lower quarries, two small pits and two adits, 80 and 480 feet in length. From the 480-foot adit, a 200-foot winze and about 100 feet of drifting off the bottom was done on a flat dipping iron filled fissure. As the fissure was followed in a southwest direction, it was lowered by a system of small block faults. Ore in the face is about 8 feet below the level of the drift. Purpose of the Sylvania adit was to undercut the large quarries which had been productive. At a point about 200 feet in from the portal, caves and fissures were encountered that were mud-filled, showing no mineralization. From this network of fissures, the adit was driven an additional 80 feet and then abandoned.

About 500 feet southwest of the quarries is an adit of considerable length that follows a 4-foot, well-defined fissure that is iron-stained carrying small amounts of lead and copper. This adit caved at portal could not be entered.

SAMPLING

A series of four samples were taken from ore sections exposed in the development openings. Their positions are shown on the plan map attached. The assay results are as follows:

Sample No.	Ounces Au	Ounces Ag	Percent Pb	Percent Zn	Percent Cu	Description
1451	Tr	1.85	2.2	3.4	0.58	Cut across 18" vein 3' back from face inclined drift.
1452	Tr	2.50	3.8	3.5	1.87	Cut across 18 inches face of drift off winze.
1453	Tr	10.30	5.2	1.7	2.71	Cut across 2' - 10' back from winze in east drift.
1454	Tr	Tr	0.1	1.1	2.34	Cut across 18" vein material at top of shaft in cut west of large quarry.

ORE RESERVES

There are no blocked out ore reserves on the property. From the small showing from the face of the drift off the bottom of the winze, it is possible a few tons of shipping grade ore could be selectively mined and sorted.

PLAN OF OPERATION

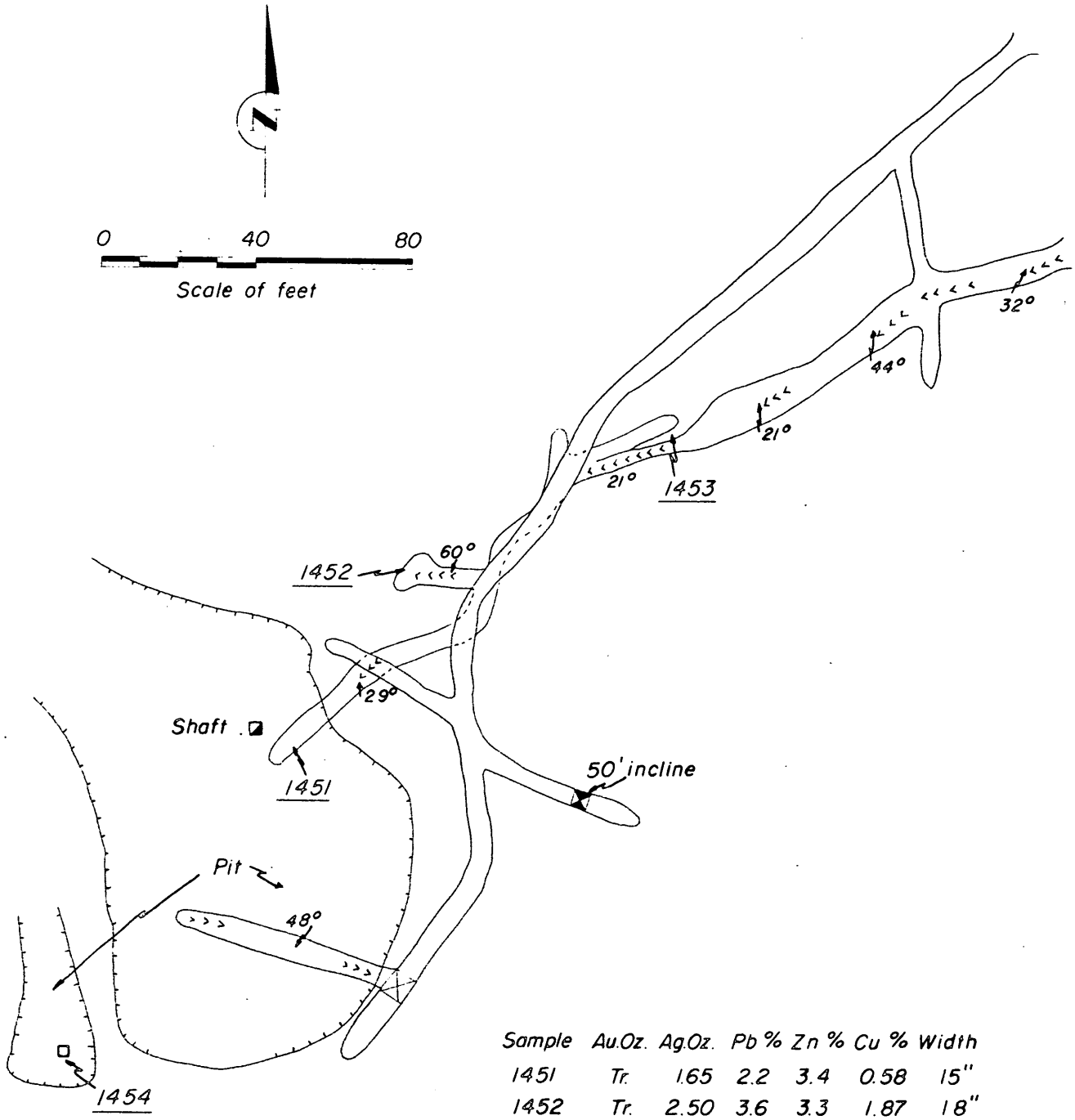
The program outlined by the applicant, proposed development of the ground below and to the west of the large quarry. The work proposed includes the extension of the incline shaft an additional 75 feet, and 200 feet of drifting to explore the ground west of the quarry.

While the proposed development program is sound, the size and grade of the ore sections developed in underground openings indicate that further development is not warranted.

CONCLUSION AND RECOMMENDATIONS

The ore bodies on the property occur as irregular replacement veins in limestone, which intersect to form chimneys of ore. The largest ore body was mined from the glory hole. Exploration for the downward extension of this ore body was unsuccessful. A small tonnage of ore was mined from irregular small bodies in the winze, but samples taken from these sections indicate the ore in general was low grade.

It is possible that other small lenses or pods may be developed with additional work, but in all liklihood they probably would be small and too low grade to be profitably mined. The application for an exploration loan is therefore not recommended by the Bureau of Mines.



Sample	Au.Oz.	Ag.Oz.	Pb %	Zn %	Cu %	Width
1451	Tr.	1.65	2.2	3.4	0.58	15"
1452	Tr.	2.50	3.6	3.3	1.87	18"
1453	Tr.	10.20	5.2	1.7	2.71	24"
1454	Tr.	Tr.	0.1	1.1	2.34	18"

After U.S.G.S map

Samples by U.S.B.M.

Figure 1 - Sketch of Sylvania mine, Elko County, Nevada

DEFENSE MINERALS
ADMINISTRATION
WASHINGTON, D. C.

DEC 3 10 40 AM '51

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

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

Docket DMA-1548X, Sylvania Mine

Bullion Mining District, Elko County, Nevada

(Copper)

G. C. Simmons and D. C. Arnold, Geologists
U. S. Geological Survey

October 5, 1951

CONTENTS

	Page
Geology	1
Ore Deposits	2
Ore Reserves	3
Proposed Exploration	3
Conclusions and Recommendations	3

ILLUSTRATIONS

Figure 1. Index map showing location of Bullion Mining District, Elko County, Nevada.

Figure 2. Geologic map of Sylvania Mine, Bullion Mining District, Elko County, Nevada.

Figure 3. Cross section of Sylvania Mine, Bullion Mining District, Elko County, Nevada.

Docket DMA-1548X, Sylvania Mine

Bullion Mining District, Elko County, Nevada

GEOLOGY

The rocks of the district are light gray to black massive limestones, probably Ordovician in age. The limestone, which is intruded by granodiorite and fine-grained granite porphyry dikes, is cut by many faults of undetermined displacement.

Adjacent to the granodiorite, contact metamorphism has locally formed zones of garnet, tremolite, actinolite, calcite, and sericite in the limestone; in places along the contact sulfides are present as sphalerite, chalcopyrite and pyrite.

In the vicinity of the producing mines, garnet zones are associated with many of the ore bodies, these zones, however, are not in contact with intrusive rocks but appear to follow some of the channelways that carried the ore-bearing solutions.

The workings of the Sylvania Mine are in light gray massive limestone that has been moderately silicified and locally recrystallized to a coarse white marble. One small granite porphyry dike that strikes northwest and dips southwest is exposed in the tunnel and the inclined shaft. Many faults of variable strikes and moderate to steep dips are exposed in the workings. Although the faults do not have a dominant trend, most of the mineralized faults strike northeast and dip northwest.

ORE DEPOSITS

The ore bodies discovered on the Sylvania property occur as small pipes, pods, and veins in limestone.

The largest ore body was mined from the glory hole which is approximately 120 feet in length, 70 feet in width and 40 feet in depth. A small amount of production was from veins and a small stope at the bottom of the inclined shaft. (See fig. 2.)

The principal ore minerals are secondary copper and lead containing a few ounces of silver. The copper minerals are malachite, azurite, chrysocolla, and "copper pitch". Because of the intense staining by iron oxide no lead or silver minerals were recognized. The associated gangue minerals are limonite, hematite, calcite, barite and quartz.

Records show that the major production from the property was from the glory hole. Exploration for the downward extension of the ore was attempted by driving a drift 100 feet below the bottom of the glory hole. This drift was driven southwest through limestone and encountered only faults and solution cavities partly filled with clay.

After exploration work in the tunnel level failed to find ore, an inclined shaft was put down on a small vein about 70 feet south of the portal. Small north-striking cross faults offset the vein as much as 10 feet near the bottom of the inclined shaft. A small ore body (ore body "C", fig. 2) was discovered at the intersection of the vein and one of the small cross faults. Some stoping was done on the vein above the inclined shaft, but it is doubtful if this operation was profitable because of the narrow width of the vein.

ORE RESERVES

Assays cut by the U. S. Bureau of Mines show that the ore left in the workings is marginal to sub-marginal in grade 1/. Probably a few tons of

---

1/ Assays taken by U. S. Bureau of Mines

Sample No.	% Pb.	% Zn.	% Cu.	Ozs. Au.	Ozs. Ag.
1451	2.2	3.4	0.58	Tr.	1.65
1452	3.6	3.3	1.87	Tr.	2.50
1453	5.2	1.7	2.71	Tr.	10.20
1454	0.1	1.1	2.34	Tr.	Tr.

---

shipping grade ore could be mined from the inclined shaft but sorting would be necessary.

PROPOSED EXPLORATION

The exploration program outlined by the applicant proposes to explore the ground below and to the west of the glory hole. This exploration is to be done by extending the inclined shaft an additional 75 feet and then drifting 200 feet towards the west to explore the ground near the west center side line of the Sylvania Claim.

The exploration program as outlined is sound; however, the size and grade of the ore found in the underground workings indicates that further exploration is not warranted.

CONCLUSIONS AND RECOMMENDATIONS

The ore bodies discovered on the Sylvania Claim occur as pipes, pods, and small veins in limestone. The largest ore body was mined from the glory hole. Exploration for the downward extension of this body was unsuccessful. A small

tonnage of ore has been shipped from veins and one small pod in the inclined shaft. Assays taken by the U. S. Bureau of Mines show that the ore shipped from the underground workings was probably marginal to sub-marginal in grade.

Mineralization encountered in the underground workings indicates that additional ore bodies which may be found would probably be small and too low grade to be mined profitably. It is therefore recommended that the application for an exploration loan be denied.

U. S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEFENSE MINERALS ADMINISTRATION
DOCKET NO. 1548-X

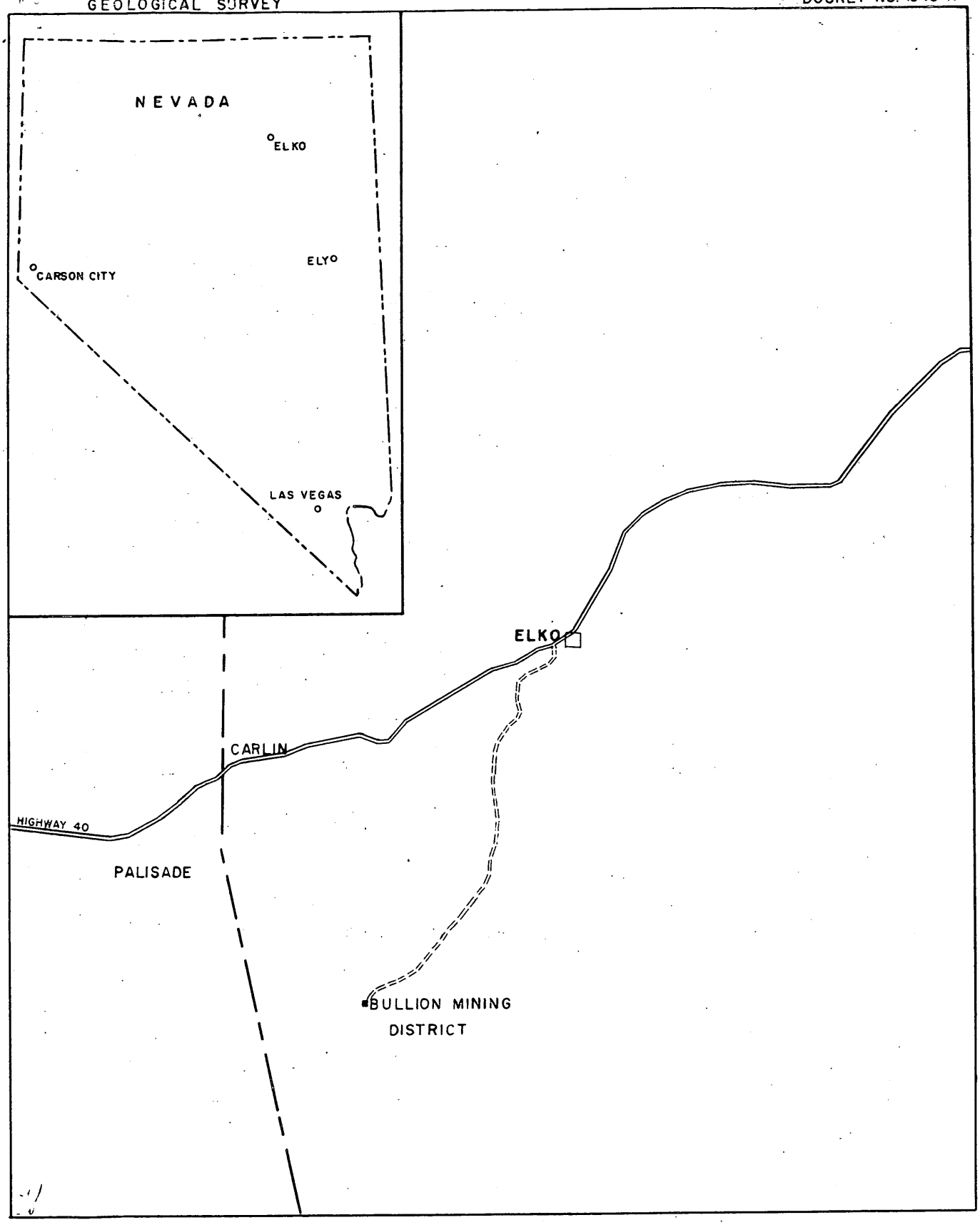


FIG. 1 INDEX MAP OF NEVADA

0 10 20 MILES
Scale

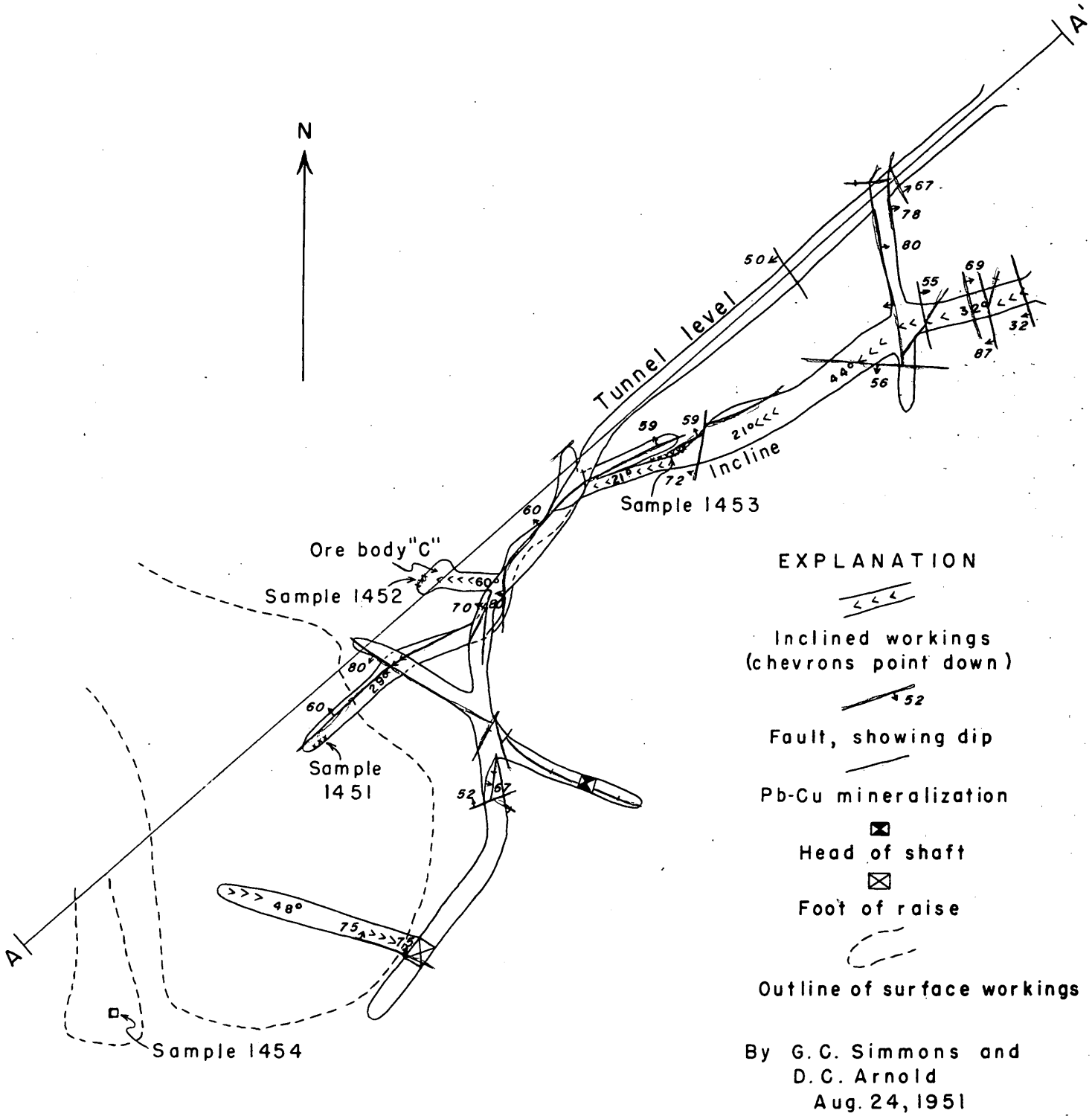


FIG. 2 GEOLOGIC MAP OF SYLVANIA MINE, BULLION MINING DISTRICT, ELKO COUNTY, NEVADA

0 40 80 FEET
Scale

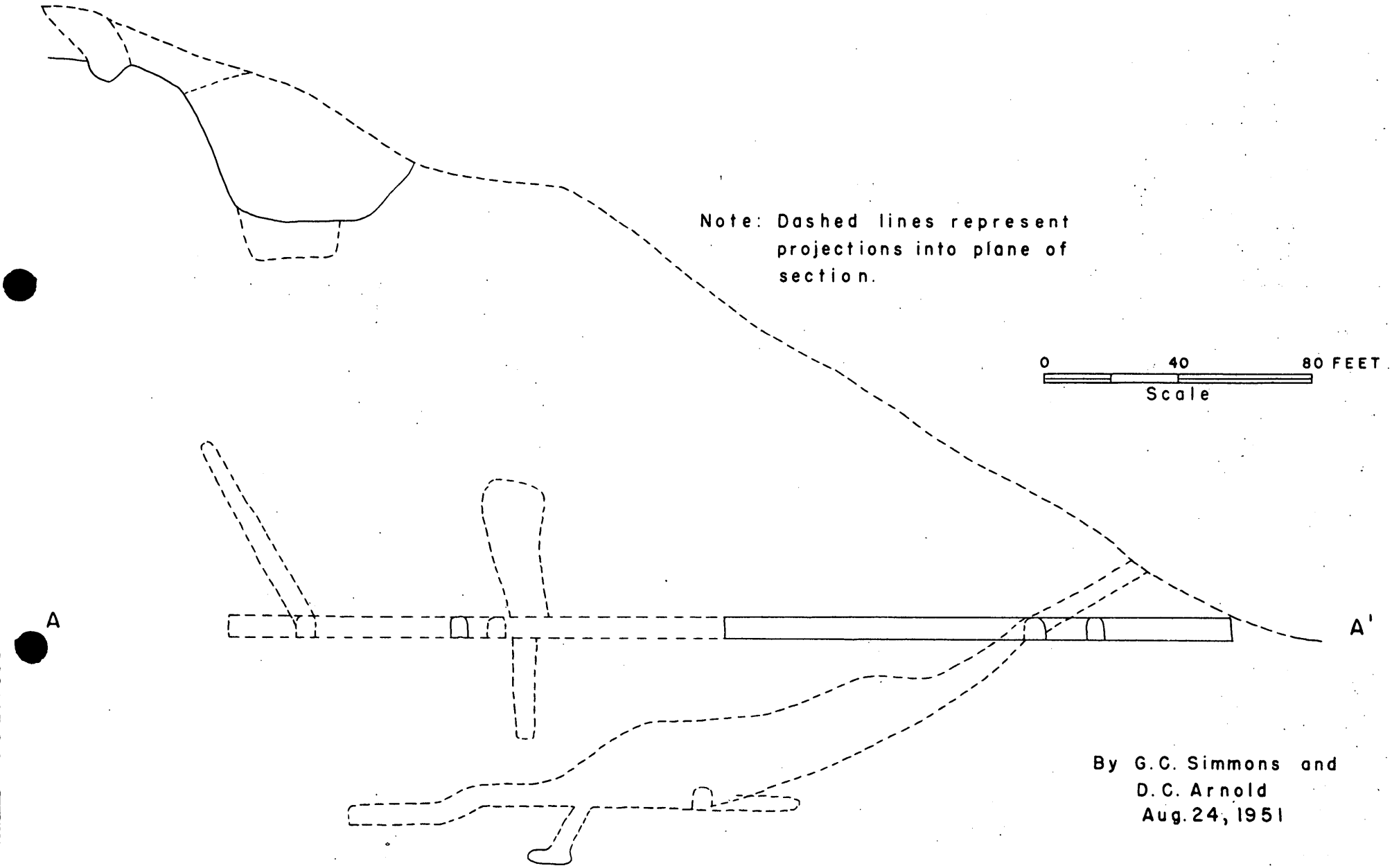


FIG. 3 CROSS SECTION ALONG LINE A-A', SYLVANIA MINE, NEVADA

6/5/51

Defense Minerals Administration

Review of Application for Exploration Assistance

Docket No. 1548 A

Commodity COPPER-SILVER-LEAD

Total Amount $22,908.47

Govt. Participation $11,454.24

1. Name and Address of Applicant MARTIN L REITE
9460 GEM AVE, CASTRO VALLEY, CALIF

2. Location of Property SECTION 4 TWP 30 N SEC 33 TWP 21 N
R 53-E MT DIABLO MERIDIAN ELKO COUNTY NEVADA

3. Mineral or metal COPPER-SILVER-LEAD Is it listed in Section 9 of MO-5? YES

If not, application will be rejected.

4. Geologic probability of discovery—based on data in application (question #16, 17, 18, 20 and 22)*

Mines or Survey reports, etc., do you rate chances:

a) Good

b) Poor

c) None

d) Don't know—needs field examination ✓

e) Is there an alternative and favorable project?
(If so, attach an explanation)

5. Is the applicant's right to the property clearly stated? YES OWNER
(question 5, 6, 7)*

6. If applicant is a lessee, is a copy of the lease attached? —

Does the lease have sufficient time to run to cover a future

productive period? —

*question numbers are those of MF-103

7. Are subordination agreements necessary? [illegible]

a) MF-201? —

b) MF-202 Yes

8. From the data presented, does the proposed project appear feasible from the point of view of:

a) Available manpower [illegible]

b) Equipment and supplies Yes
(Question 14 plus general knowledge of availability)*

c) Accessibility (question 12)* BAD IN WINTER

d) Water (question 13)* YES

e) Power (question 13)* YES

Is a field check needed on any of these points? NO

9. Does the experience of the applicant appear to be adequate to assure that he can properly conduct the proposed project? (question 4)* ? [illegible]

Is a field check needed on this point? YES

10. Exhibit A. (questions 21 and 22)*

a) Is the project adequately described? YES

If not, are there sufficient data given so that you can describe the project? — If so, attach a draft.

b) Is there an adequate map or sketch of the proposed work? Maps but not adequate

c) Is the proposed work "exploration" under the definition of Section 8, MO-5? YES

If not, what part of it is? —

Is this part a worthwhile exploration project? —

d) Are the cost estimates detailed? YES

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data? Yes. If so, attach a draft.

e) Are the cost estimates reasonable? Yes, except supervisory

f) Should more information be requested from applicant? No

g) Is a field examination necessary to complete Exhibit A? No

11. Exhibit B (question 23-d)*

a) Is it applicable? YES

b) If so, are sufficient data furnished? yes If so, attach a draft.

c) Is a field check needed? no

12. Exhibit C (question 23-e, f and g)*

a) Is it applicable? YES

b) Sufficient data? YES If so, attach a draft.

c) Are rents and charges reasonable? YES

d) Is a field check needed? No

13. Exhibit D (question 23-a, b)*

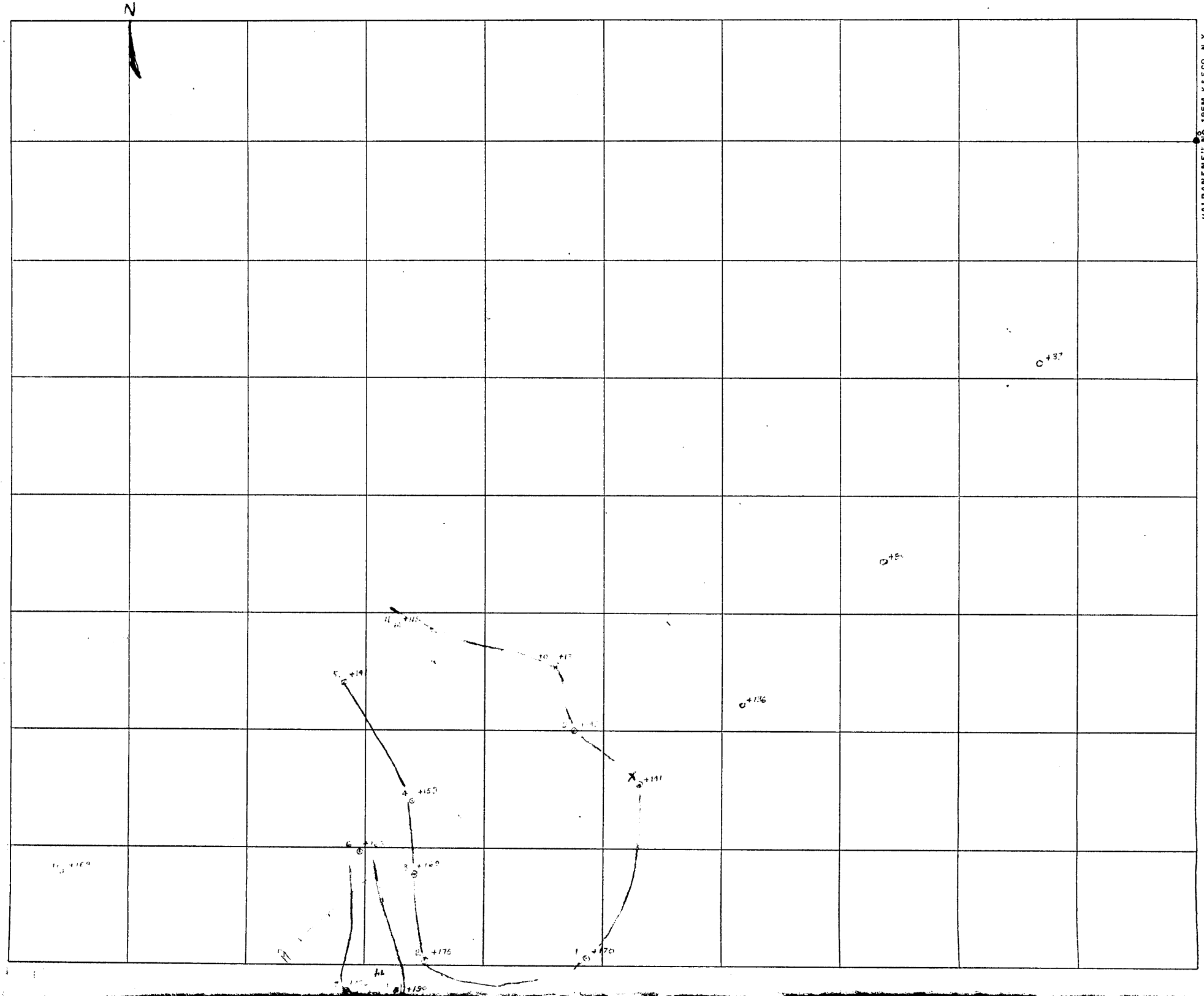
a) Are there sufficient data? YES

b) Is the schedule adequate for the work proposed? YES

c) Is the schedule excessive for the work proposed? No

d) Are the proposed wages and salaries reasonable? SUPERVISORY SALARY TO HIGH

e) Is a field check needed? No



"ALBANENE" NO. 195M K&E CO., N.Y.
REG. U.S. PAT. OFF.

14. Exhibit E (question 23-c)*

a) Is it applicable? YES

b) Sufficient data? YES

c) Reasonable? YES

d) Field check needed? No

15. In your judgment, can the proposed work be done in the proposed time? YES

(All exploration must be completed within two years)

16. If field examination is not needed, attach your recommendation.

17. If field examination is needed, do you have any special instructions for the field team not indicated by your answers to the foregoing question? Levine "500" or Solomon as manager stated he wants to get appx. two percent of sch. and. Check for possible conflict with Aladdin. (Adjoining and perhaps conflicting claims) This should be investigated together with Aladdin Mines, Docket No 872.

Reviewed by: [illegible]

[illegible]

[illegible]

Date 7/19/51 [illegible]

97692

6/5/51

Defense Minerals Administration

Review of Application for Exploration Assistance

Docket No. 1548 A

Commodity COPPER-SILVER-LEAD

Total Amount $22,908.47

Govt. Participation $11,454.24

1. Name and Address of Applicant MARTIN L. REITZ
9460 GEM AVE, CASTRO VALLEY, CALIF

2. Location of Property SECTION 4 TWP 30 N, SEC 33 TWP 31 N
R 53-E MT DIABLO MERIDIAN ELKO COUNTY NEVADA

3. Mineral or metal COPPER-SILVER-LEAD Is it listed in Section 9 of MO-5? YES

If not, application will be rejected.

4. Geologic probability of discovery—based on data in application (question #16, 17, 18, 20 and 22)*

Mines or Survey reports, etc., do you rate chances:

a) Good _____

b) Poor _____

c) None _____

d) Don't know—needs field examination ✓

e) Is there an alternative and favorable project? _____
(If so, attach an explanation)

5. Is the applicant's right to the property clearly stated? YES OWNER
(question 5, 6, 7)*

6. If applicant is a lessee, is a copy of the lease attached? —

Does the lease have sufficient time to run to cover a future

productive period? —

*question numbers are those of MF-103

7. Are subordination agreements necessary? No

a) MF-201? —

b) MF-202 —

8. From the data presented, does the proposed project appear feasible from the point of view of:

a) Available manpower YES

b) Equipment and supplies YES
(Question 14 plus general knowledge of availability)*

c) Accessibility (question 12)* Bad in Winter

d) Water (question 13)* YES

e) Power (question 13)* YES

Is a field check needed on any of these points? No

9. Does the experience of the applicant appear to be adequate to assure that he can properly conduct the proposed project? (question 4)* ?

Is a field check needed on this point? YES

10. Exhibit A. (questions 21 and 22)*

a) Is the project adequately described? YES

If not, are there sufficient data given so that you can describe the project? — If so, attach a draft.

b) Is there an adequate map or sketch of the proposed work? Maps but not adequate

c) Is the proposed work "exploration" under the definition of Section 8, MO-5? YES

If not, what part of it is? —

Is this part a worthwhile exploration project? —

d) Are the cost estimates detailed? YES

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data? yes. If so, attach a draft.

e) Are the cost estimates reasonable? YES except supervisory

f) Should more information be requested from applicant? No

g) Is a field examination necessary to complete Exhibit A? No

11. Exhibit B (question 23-d)*

a) Is it applicable? YES

b) If so, are sufficient data furnished? yes If so, attach a draft.

c) Is a field check needed? no

12. Exhibit C (question 23-e, f and g)*

a) Is it applicable? YES

b) Sufficient data? YES If so, attach a draft.

c) Are rents and charges reasonable? YES

d) Is a field check needed? No

13. Exhibit D (question 23-a, b)*

a) Are there sufficient data? YES

b) Is the schedule adequate for the work proposed? YES

c) Is the schedule excessive for the work proposed? No

d) Are the proposed wages and salaries reasonable? SUPERVISORY SALARY IS HIGH

e) Is a field check needed? No.

Exhibit A

Continue Sylvania incline shaft down same angle of approximately 45° for an additional 75' of depth, then drift to west side center stake of Sylvania claim approximately 200'. By cross cutting at the bottom of incline shaft and by drawing the potential enriched ore body beneath the west side center stake of Sylvania claim, 2 large ore bodies are expected to be opened.

LABOR $6,496.26	Supervision $3,500.00	$9996.26
REPAIRS OF BUILDINGS		825.00
INSTALLATION OF STRUCTURE		1200.00
EQUIPMENT		6582.00
RENTAL OF EQUIPMENT		1680.21
EQUIPMENT TO RENT		1225.00
FUEL		1400.00
	TOTAL	$22908.47

EXHIBIT B

INSTALLATION OF STRUCTURE - 4 TENT CABINS 20X20
WITH METAL ROOF & WOOD FLOOR @ $300.00 — $1200.00

EXHIBIT C

e. 1-8" BLOWER & PIPE	200.00
1 GAS DRIVEN HOIST NOVA 15 H.P.	1100.00
SKIP & CABLE 1T CAP	150.00
650' 16 lb. @ 5½¢ PER lb.	191.00
275 TIES	300.00
5000' TIMBER FOR SHAFT ETC. @ $200/1000'	1000.00
HEAD FRAME & PLATFORM	2500.00
DYNAMITE CAPS & FUSE	770.00
BLACKSMITH FORGE & TOOLS	75.00
ANVIL 300 lbs. @ 27¢/lb.	81.00
JACK HAMMER	265.00
TOTAL	$6582

f. AIR COMPRESSOR @ $210 RENTAL/MO. $1470.00
650' 1½" PIPE @ 32.34/100' 210.21
TOTAL $1680.21

g. TRUCK @ $75.00/MO. 525.00
TRACTOR @ 100.00/MO 44 H.P 700.00
TOTAL $1225.00

14. Exhibit E (question 23-c)*

a) Is it applicable? YES

b) Sufficient data? YES

c) Reasonable? YES

d) Field check needed? NO

15. In your judgment, can the proposed work be done in the proposed time? YES

(All exploration must be completed within two years)

16. If field examination is not needed, attach your recommendation.

17. If field examination is needed, do you have any special instructions for the field team not indicated by your answers to the foregoing question? Revise $5000 salary as manager stat. he wants to get up as the part of sch aid. Check for possible conflict with Aladdin (adjoining and possibly conflicting claims) This should be investigated together with Alladin Mines, Docket No 872

Reviewed by: R Clough
D R MacLaren
C H Gibson
J H Gower

Date 7/19/51

97692

310
FILE COPY
SURNAME:

J. Alt
Bowen
Kroon
Lemmon for Rose

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

Re: Docket No. DMA-1548K

Mr. Martin L. Reite
9460 Gem Avenue
Castro Valley, California

JUL 20 1951

Dear Mr. Reite:

This is to inform you that your application for aid for an exploration project has been referred to the field team for further study. You should hear shortly from Mr. H. C. Miller, Executive Officer, DMA Field Team, Region III, 1012 Flood Building, 870 Market Street, San Francisco 2, California.

Very truly yours,

Tom Lyon
Tom Lyon, Director
Supply Division

JWAlt:ez

Copy to: Executive Officer, DMA Field Team, Region III
Reports & Records Branch
Administrator's Reading File
Coordinating Committee
J.B. Cowen
Charles J. Johnson
D. MacLaren
Files

Bonus 1 of 48

B 258

Exhibit A

Continue Sylvania incline shaft down same angle of approximately 45° for an additional 75' of depth then drift to west side center stake of Sylvania claim approximately 200'. Lay cross cutting at the bottom of incline shaft and by drawing to potential unveiled ore body beneath the west side center stake of Sylvania claim, 2 large ore bodies are expected to be opened.

LABOR	$9996.26
REPAIRS OF BUILDINGS	875.00
INSTALLATION OF STRUCTURE	1200.00
EQUIPMENT	6552.00
RENTAL OF EQUIPMENT	1680.21
EQUIPMENT TO RENT	1225.00
FUEL	1400.00
TOTAL	$22908.47

EXHIBIT B

INSTALLATION OF STRUCTURE - 4 TENT CABINS 20X20 WITH METAL ROOF & WOOD FLOOR @ $300.00 — $1200.00

EXHIBIT C

2 18" BLOWER & PIPE	200.00
1 GAS DRIVEN HOIST NOVA 15 H.P	1100.00
SKIP & CABLE 1T CAP	100.00
650' 16 M. @ 5½¢ PER lb.	191.00
275 TIES	300.00
5000' TIMBER FOR SHAFT ETC. @ $200/1000'	1000.00
HEAD FRAME & PLATFORM	2500.00
DYNAMITE CAPS & FUSE	770.00
BLACKSMITH FORGE & TOOLS	75.00
ANVIL 300 lbs. @ 27¢/lb.	81.00
JACK HAMMER	265.00
TOTAL	$6582.00

f. AIR COMPRESSOR @ $210 RENTAL/MO. $1470.00

650' 1½" PIPE @ 32.34/100' 210.21

TOTAL $1680.21

g. TRUCK @ $75.00/MO 525.00

TRACTOR @ 100.00/MO 44 H.P 700.00

TOTAL $1225.00

Dma-1548X

~~LANDON F. STROBEL~~

Mr. Gauer

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
Region III

1415 Appraisers Bldg.
630 Sansome Street
San Francisco 11, Calif.

May 31, 1951

Memorandum

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

From: Executive Officer, DMA Field Team, Region III

Subject: Application for Aid for an Exploration Project

The attached application was received in this office on May 31, 1951.

Applicant: Martin L. Reite
9460 Gem Avenue
Castro Valley, California

Date of Application: May 24, 1951

Estimated Cost: $22,908.47

Mineral or Metal: Copper-silver-lead

Percentage of Government Participation: $11,454.24

Location of Mine: Elko County, Nevada

H. C. Miller

H. C. Miller
Executive Officer, DMA Field Team
Region III

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. Dma-1548X

Date received 6/4/51

Participation

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

DEPARTMENT OF INTERIOR
BUREAU OF MINES
REGION III
RECEIVED
MAY 31 1951
SAN FRANCISCO, CALIFORNIA

Name and address of applicant

Date May 31, 1951

FILL IN THIS BLOCK

Date of application 5/24/51

Estimated cost $ 22,908.47

Mineral or metal Copper-Silver-Lead

Percentage of Government participation $ 11,454.24

Location of mine Elko County, Nevada

Date of filing MF-100

DMA Docket Number, if available

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

SEE ATTACHED SHEET FOR ANSWERS TO QUESTIONS 1 to 24 INCLUSIVE

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.
*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.
*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.
*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.
*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.
15. State in detail how the ore could be shipped and how and where milled.
*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.
*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.
19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?
21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.
22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.
24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

(Name of company)	By [signature] (Signature of authorized official)
5/31/1951 (Date)	Owner and Manager (Title)

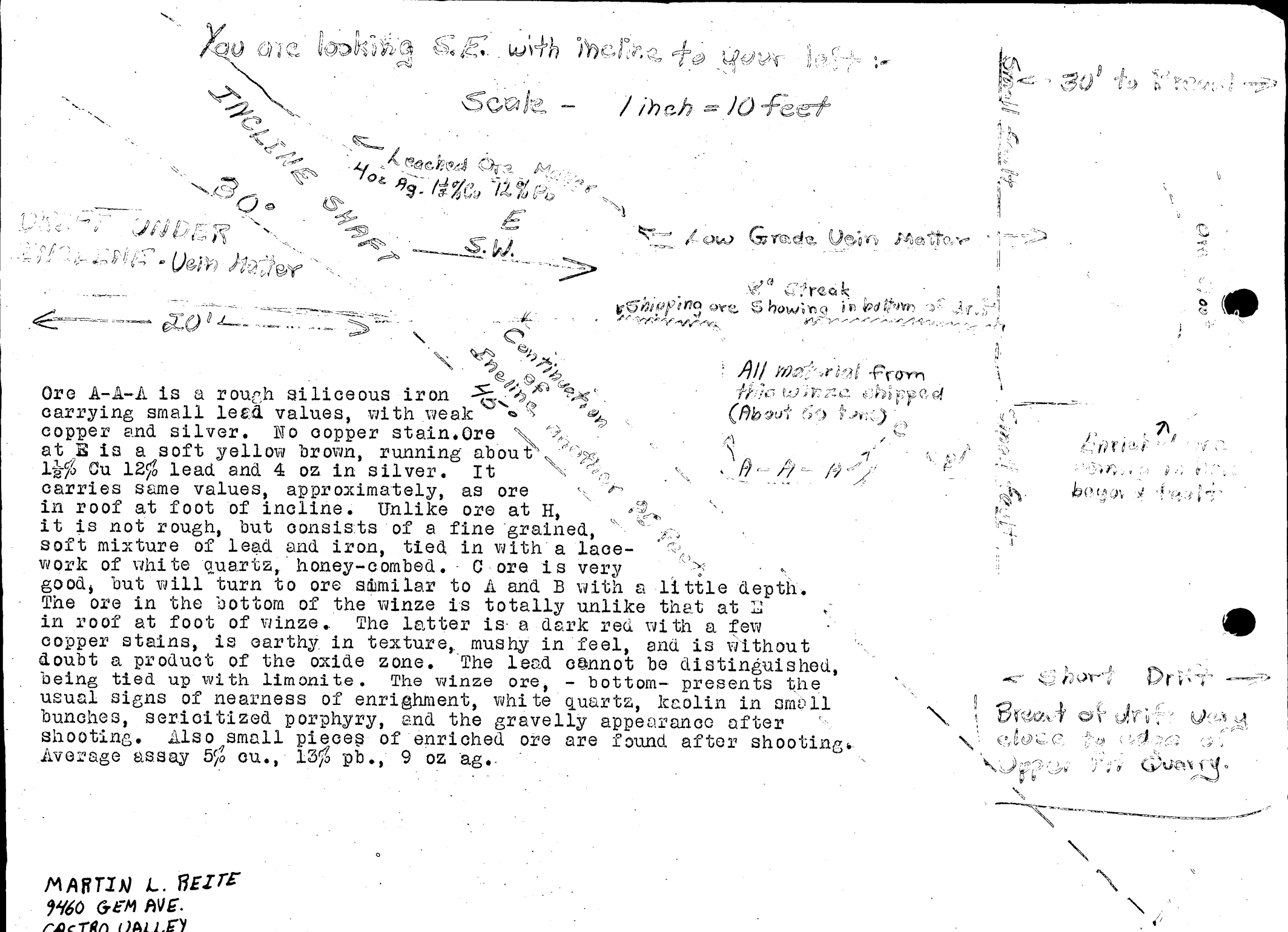
Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

You are looking S.E. with incline to your left :-

Scale - 1 inch = 10 feet



Ore A-A-A is a rough siliceous iron carrying small lead values, with weak copper and silver. No copper stain. Ore at E is a soft yellow brown, running about 1½% Cu 12% lead and 4 oz in silver. It carries same values, approximately, as ore in roof at foot of incline. Unlike ore at H, it is not rough, but consists of a fine grained, soft mixture of lead and iron, tied in with a lace-work of white quartz, honey-combed. C ore is very good, but will turn to ore similar to A and B with a little depth. The ore in the bottom of the winze is totally unlike that at E in roof at foot of winze. The latter is a dark red with a few copper stains, is earthy in texture, mushy in feel, and is without doubt a product of the oxide zone. The lead cannot be distinguished, being tied up with limonite. The winze ore, - bottom- presents the usual signs of nearness of enrichment, white quartz, kaolin in small bunches, sericitized porphyry, and the gravelly appearance after shooting. Also small pieces of enriched ore are found after shooting. Average assay 5% cu., 13% pb., 9 oz ag.

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY
CALIFORNIA

MARTIN L. REITE
9460 GEM AVE.,
CASTRO VALLEY, CALIF.

ANSWERS TO QUESTIONS IN FORM MF-103 HERETO ATTACHED

1. Applicant is an individual.

2. Not a partnership.

3. Not a corporation.

4.(a) and (b) Applicant and manager has been the sole owner of the Sylvania group of mining claims for 25 years including prospecting and managing limited development work. Manager of Eastman Gulch Mining Co., Lewiston, California, for 2 years. Limited development work with moderate production until closed for lack of funds to reach objective. Ten years owner of two collection agencies - "Reite Mercantile Agency" and University-Fraternity Adjustment Bureau" of Oakland, California, and past 5 years Employment Manager, Key System Transit Lines, Oakland, California. Competent Engineer or Geologist will be secured for purposes of consultation.

5. Owner.

6. No claims, liens or encumbrances against the property except County taxes being paid quarterly.

7. Not lessee.

8. Personal financial statement:
Mining properties, buildings and equipment, clear of all incumbrances, liens or claims.

9. Applicant is prepared to invest the following:

$5,000.00	cash
5,000.00	salary as manager
1,500.00	equipment (1 truck $500.00, 1 tractor $1,000.00)
$11,500.00	
1,125.00	pipe (1500' @ .75 per foot)
$12,625.00	

10.(a) Sylvania group of mining claims consisting of six patented lode mining claims, namely: (1) Sylvania, (2) Wide West, (3) Kenilworth, (4) Victor Traction, (5) Vindicator, and (6) Valley View. Patent survey No. 4608 Received at Carson City Land Office, Carson City, Nevada, March 12, 1928, File No. 016244. Recorded in Book 8, page 348, U. S. Land Patents Elko, Nevada. Situated in the Railroad Mining District, embracing a portion of Section 4, in township Thirty North and Section 33 in Township Thirty-one North, all in Range Fifty-three, East of the Mt. Diablo Meridian, Elko County, Nevada.

(b) Particularly the Sylvania and Vindicator Traction claims contained within and a part of the above mentioned group of mining claims.

11. Applicant has been the sole owner for the past 25 years.

12. The City of Elko, 30 miles north of the Sylvania group of

MARTIN L. [illegible]ITE
9460 GEM AVE.
CASTRO VALLEY, CaLIF.

claims is the County seat of Elko County, Nevada, and is an important main line railroad center for Southern Pacific and Western Pacific. Elko is connected with the main dump of the Sylvania tunnel by a good to fair County dirt road distant 30 miles, without any limiting grades for ore shipment.

13. Ample water at the mine year around for all domestic and mine use. Springs may need to be reopened and new pipe layed for approximately 1200 feet. Adequate supply of water for milling purposes approximately 2 miles North at the west fork of Dixie Creek year around. Own power must be developed by gas or diesel engines, for hoist, blower, air compressor and possible generator. This power unit or units can be rented at a nominal sum.

14. Two room cabin on premises needing minor repair to serve as cook shack and dining room. Blacksmith shop on Sylvania dump needing minor repair. Good iron ore car in Sylvania tunnel and track layed to bottom of Sylvania incline shaft.

15. All ore will be shipped by truck 30 miles to Elko, then dumped in ore cars and shipped by rail to smelters at Salt Lake City, Utah.

16. (a) Commencing at bottom of Page 1 and continuing on Page 2 of attached discussion. Past suspensions of operations due always to lack of funds.

(b) Commencing Page 2 in attached discussion.

(c) See same attached discussion and report.

17. Mine not in production.

18. No records except as noted in attached discussion.

19. Large area of gossan in the eruptive ground starting near the west side center of Sylvania claim and running to the portal of Hesson tunnel approximately 60,000 sq. feet or more in area; also extensive deposits of Kaolin in same area assaying 3.7% manganese and 0.1% zinc and 0.08% copper.

20. Copper, lead with silver main minerals. Types of deposits will be found as inriched deposits of secondary copper, lead and silver in porphyry beneath gossan and copper silicates, and copper, lead and silver replacement deposits in limestone.

21. Continue Sylvania incline shaft down same angle of approximately 45° for an additional 75' of depth, then drift to west side center stake of Sylvania claim approximately 200'. By cross cutting at the bottom of incline shaft and by driving to potential enriched ore body beneath the W. side center stake of Sylvania claim, 2 large ore bodies are expected to be opened, either one of which should be ample to more than pay off entire cost of development work, leaving adequate funds to later continue operations, independently, to equally large deposits in the Valley View claim adjacent to and South of Sylvania claim. Time required from 6 to 7 months.

22. Commencing Page 4 in attached discussion and report.

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

23. (a)	1 Miner @ 1.54 per hr. 48 hr. week Time and ½ Saturday -- $360.36 per. mo.	$ 2522.50
	1 Mucker @ 1.25 per hr. 48 hr. week Time and ½ Saturday -- $297.68 per mo.	2083.76
	1 Laborer 270.00 per mo.	1890.00
(b)	1 Self as Superv. & Manager 500.00 per mo.	3500.00
(c)	Repair Cabin	475.00
	Repair Blacksmith shop	350.00
(d)	4 Tent cabins 20 x 20 with metal roof and wood floor @ $300.00	1200.00
(e)	1 8" Blower and pipe	200.00
	1 Gas driven hoist Nova 15 H.P.	1100.00
	Skip & cable 1 T. cap. &	100.00
	650' 16 lb. @ 5½¢ per lb.	191.00
	275 ties	300.00
	5000' timber for timbering shaft, etc. @ $200 per 1000 ft.	1000.00
	Head frame and platform	2500.00
	Dynamite caps & fuse	770.00
	Blacksmith forge and tools	75.00
	Anvil 300 lbs. @ 27¢ per lb.	81.00
(f)	Air compressor @ $210 rental per mo.	1470.00
	650' 1½" pipe @ 32.34 per 100'	210.21
(g)	Truck @ $75.00 per mo. Tractor @ $100.00 per mo. 44 H.P.	1225.00
(h)	Jack Hammer	265.00
(i)	Fuel for power and truck	1400.00
	TOTAL COST OF PROJECT	$ 22908.47

24. Time for repairs	3 weeks
Head frame	1 week
Straighten incline shaft	1 week
Sinking incline shaft 75'	7 weeks
drifting work	4 weeks
200' drift to W. side center stake Sylvania under Gossan & black kaolin	10 weeks

TOTAL TIME REQUIRED 6 to 7 months

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

The following discussion concerns one of the older Eastern Nevada mining camps with particular reference to Sylvania Group of Mining Claims, - Bullion, Elko County, Nevada.

LOCATION AND GENERAL.

Bullion is located at the North and bleak end of the Pinon Range in the southwest corner of Elko County, twenty-eight miles south and west of Elko, the county seat, railroad and business point. A county road that may be rated as good to fair, serves as one medium of transportation. A dirt county road exists from Bullion to Raines, distance of 11 miles. Minor repairs needed. 5 miles Highway from Raines to Palisade where facilities for rail loading are available. Elevation of Elko 5060 feet above sea level, elevation of old town of Bullion at foot of range about 6200 feet, while the mineralized zone (surface) ranges in elevation from 6800 to 8000 feet. There are no limiting grades for outgoing freight.

PHYSICAL FEATURES

The physical features are typically N.E. Nevada -- rugged mountains with dry, steep gulches, scattered juniper, mountain mahogany, nut pine, and a few groves of quaking aspen, none of which is suitable for permanent mine timber. Water in or near the mineralized zone is confined to a few small springs sufficient only for domestic and engine needs. In case milling should be contemplated, water for medium operation exists at three points, any of which will not exceed a two mile haul from point of operation. While winters are far milder than those of Elko or Elko County valleys, the snow fall is excessive with tendency towards drifting due to bleak exposure and winter winds. In three winters out of five, it is impossible to keep mountain roads open, even for sled traffic, during months of January, February, March and part of April.

GEOLOGICAL FEATURES

The apparent mineralized zone of Bullion (Railroad Mining District) is roughly rectangular in shape, of width (N.W. - S.E.) three quarters of a mile, and of length (N.E. - S. W.) of one and one-half miles. The formation is a belt of ordovician limestone (W. H. Emmons) bounded on both N.W. and S.E. sides by great dykes of granodiorite. The limestone is traversed across its width by several large irregular intrusive dykes of porphyretic material, made up of quartz phenocrysts in a feldspar mat impregnated with varying amounts of lead, copper, iron, silver, a little gold, and other minerals. In addition to the dykes above mentioned, smaller intrusions are to be observed, together with masses of unknown size, of which little is known at this time, but which may have great bearing on the scheme of ore deposition. Besides the tunnels and dumps of old work, in many places can be seen old surface works, often like quarries, where surface ores have been extracted. These were the superficial ores of Bullion to which little importance was attached by the old operators, but which, it is now believed, indicate the presence of intrusive porphry and the existence of cross bearing, ore-making, fissures.

HISTORY

Bullion was discovered in the fall of 1869 by prospectors overflowing from Virginia City. Activity followed immediately. First extensive operations were on the Standing Elk Claim by an English company, followed by the Web Foot, Tripoli, and Hoffman,

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

all producers of lead-silver-copper in carbonate form. After some years attention was given to deposits of copper silicate (chrysacolla) here and there over the surface and easily found. Notable producers of this straight copper ore were Sylvania, Copper Belle or Blue Belle, Bald Mountain Chief, Hecla, Sweepstakes, Key, and Valley View. This ore, in spite of its superficial nature, produced some 20% of the total for the district. Work so progressed, with six to ten companies, all of small acreage, until the demonetization of silver, when company operations ceased and lessors carried on. In a treatise published by the University of Nevada, Bullion is credited with a $3,000,000 production from 1869 to 1890, and $889,000 from 1890 to the present day, a total in round numbers of $3,900,000. Of the $889,000, it is certain that at least 90% was extracted during the last active period of 1913-1916 inclusive.

In 1903 a consolidation of claims on East side of the district was incorporated as the Nevada-Bunker Hill Mining Co., and an exploration tunnel started for purpose of development at depth. The company is still active and operating as the Alladin Mng. Co. The tunnel, 4000 feet long, is still short of objective, but is in splendid position for future development of entire north end of district. Portal elevation 6700 feet, elevation Elk tunnel 7500 feet, Tripoli tunnel 7600 feet, and Sylvania tunnel 7300 feet. Portal of Alladin tunnel is below bad snow conditions.

Meantime small leasing operations, with a few cars shipped each year, were carried on until late in 1912 when discovery of generous deposits of lead-silver-copper carbonates in the Key claim gave impetus to new activity with result that practically all properties were under lease. Most work was around, and in, old works in a hunt for overlooked ore bodies, but, nevertheless, new valuable deposits were opened on the Key, Web Foot, Valley View, Grey Eagle, Sweepstakes and Gladstone. There has been almost no activity in the last twenty years, except recently on the Sweepstakes where interesting and profitable operations have been carried on since June, 1939.

TRANSPORTATION

Practically all ore shipped previous to 1920 was hauled West to the Eureka-Palisade Narrow Guage, thence via S.P.R. to Salt Lake Smelters.

PRODUCTION METHODS OF OPERATION - TYPES OF ORE

As previously stated, the credited production of Bullion from 1869 to the present day is $3,900,000.00.

From a knowledge of old works, values, and various sources, I am giving the following figures as a fair, but rough, apportionment of the amounts for each of three types of ores: -

carbonate lead-silver-copper	$2,900,000.-
carbonate copper silver	220,000.-
siliceous copper (no silver)	780,000.-
Total	$3,900,000.-.

In the territory shown on map accompanying this report there has been produced about 90% of the credited production.

In all operations since discovery the methods have been the same, namely, - to pick out a promising objective and drive a

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

tunnel to cut beneath. Because of the configuration it has, in nearly all cases, been most convenient, from standpoint of tunnel length and depth, to drive S.W., and therefore, at right angles to the porphyries. While the latter are mineral bearing, often present themselves as low grade ore, and are most surely the sources of high grade secondary deposits, nevertheless, the chambered deposits, making up all of the production, lay in cross fissures of general S.W. - N.E. strike. They are termed cross fissures because they strike generally at right angles to the porphyries. Because tunnels have tended to a S.W. trend, they have failed to serve as mediums of exploration. The Elk tunnel, the largest of all workings, being a little off a true S.W. course, cut three cross fissures, one of which being driven upon led to the valuable Hoffman deposits. The others were not prospected, indicating lack of appreciation, by the old operators, of the importance of fissures and water courses.

Since discovery until the present day, Bullion has been a camp of tunnels. No serious sinking was ever contemplated and the only power hoist ever in the district, an old steam affair of the 1880's, still stands at the collar of a 270 foot incline shaft in the Tripoli workings. The Standing Elk has a 100 foot and a 200 foot shaft sunk from the No. 5 level, both operated by windlass. All other sinkings were no more than winzes.

At first, following discovery, Bullion was regarded as a silver-lead district, although the ore carried strong amounts of copper. Later extraction of straight copper surface ore began, then in 1914 discovery of copper-silver carbonates on the Grey Eagle, Gladstone and Sweepstakes. This led to the assumption that lead predominates in the South East portion of the district and copper in the North West portion, an assumption now proven false. The Sylvania Group is midway between the two zones mentioned.

Bullion has justly been regarded as a high grade camp. There are no dumps of low grade ore, there were very few unmined bunches left as too low in value, except around straight copper workings from whence, in the period 1915-1916, many tons of 15% copper ore were shipped, some of which was made up of cobbings left by former workers. Since all carbonate deposits have been found in water courses, leaching action is always apparent. Small bodies of carbonate ores, and by small I suggest three feet or less in thickness, tend to weakness in values through leaching to form a soft carbonate. Larger bodies, and most of them are larger, have a core of great richness with gradually decreasing values as the outer edge is approached. Ores extracted during the company days were classified as high grade and low grade. The first was sacked and shipped to outside smelters; the second, low grade, was smelted in the Bullion smelters. In 1925 and 1926, the slag dump from the Bullion Smelters was hauled by truck to Elko at a cost of $5.00 per ton, thence by railroad to Selby Smelters in California and there retreated at a fair profit for the purchaser. The protected interior, or core portion of larger ore bodies present a little copper, a secondary galena of 50 to 60% lead content and 100 to 200 oz. and better of silver per ton. The outer portion is a hard carbonate running approximately 30% lead, 20 oz of silver and 5% to 7% copper.

An often said expression of old Bullion miners or operators was that the ore bodies always presented the "little end up". This description seems quite appropriate and it can be further said, from observations and study, that there are no isolated carbonate bodies. The presence of a small body indicates a zone, and this zone made up of a mother body with varying lesser deposits nearby.

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

It may be said, also, that, excepting the Elk, no carbonate deposits cropped at the surface.

ORE DEPOSITION

In the study of Bullion ore deposition I shall not attempt to treat on the genesis of the ore, but rather adhere to the physical features and deductions based on exhaustive study of the indications and conditions surrounding ore deposits and ore zones, and the behavior of all pathways leading to ores.

The surface of the north half of the Bullion proven zone, or the part shown on accompanying map, presents a surface of limestone, designated by Emmons as Ordovician, but by steep gulches of north, or north east, trend. Cutting across the lime in a N.W.-S.E. direction are two very strong eruptive dykes of porphyretic material 10 feet to 30 feet in thickness. One cuts across the Sylvania Claim 300 feet north of its center, and traverses also the Hecla, Sweepstakes, Hoffman and Tripoli, with a 50 deg. dip S.W. This porphyry has an important bearing on the Hecla, Sylvania, Tripoli and Hoffman ores. The second dyke, roughly parallel to the first, cuts across the northern end of the Valley View Claim and traverses the Sweepstakes, Storm King, Standing Elk, and other claims. It has important bearing on the Sweepstakes, Valley View, Web Foot, Standing Elk, and Key deposits. No. 2 Porphyry stands nearly vertical. In addition to the two porphyries so described, smaller intrusive veins of identical appearance are encountered, parallel in strike and similar dip. In the neighborhood of carbonate bodies these small intrusions appear as well mineralized low grade ores. Still another form of porphyry, also identical in structure, are masses which appear both underground and on the surface. They appear as isolated but are most probably not, being rather intrusions in lime fissures and playing an important part in the scheme of ore deposits.

Cutting across the limestones, and of strike S.W. - N.E., are an unknown number of open fissures, which, except in ore zones, seem rather insignificant. These are the ore makers of the district, with dip N.W. varying from 50 deg. to vertical. Other fissures, but parallel to the porphyries, also exist, but these are important only in the ore zones. Fissures cannot be identified on the surface, but are indicated, I believe, by surface deposits of kaolin and surface ore.

The porphyries are yellow through oxidation and are similar wherever encountered, saving extent of mineralization. They present a feldspar mass in which clear quartz phenocrysts are embedded. Mineralization exists always, but in varying degrees, either as sulphides of copper, iron, lead, a small amount of zinc, with silver and a little gold, or in the iron residue resulting from decomposition and leaching of sulphides. Near zones of rich secondary carbonate deposits they appear as kaolin with a strong copper stain throughout.

Chrysacolla, the surface ore of Bullion, has played an important role in Bullion history, has been high in grade, cheaply mined, and easily found due to certain vegetation attracted by the hydrous clay and kaolin accompanying the copper. The deposits were well distributed over the claims shown, there being no less than fifteen of which eight were on claims of the Sylvania Group. By miners they were judged freakish, and not a part of any scheme of deposit. The ore was extracted and the area forgotten.

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

A thorough study of the chrysacolla deposits, aided by the one attempt at development by a tunnel cutting beneath, reveals a definite order. The deposits are not hit or miss but line up in orderly fashion as the outcroppings of ore bearing cross fissures sometimes directly upon the cropping, at others, vertically above a dipping fissure. My theory is that in the making an intrusion of well mineralized porphyry occupied the cropping area. Then with conditions suitable for secondary deposits of copper silicate, the copper and quartz in the porphyry joined to form chrysacolla deposited against the lime contacts, while decomposition of the feldspar resulted in a kaolin that fills the interior portion of the deposit. The lead and silver in the primary sulphides have been carried downward to form secondary ores below. It has been demonstrated in recent Sweepstakes exploration that the Kaolin beds are not limited to the surface, as previously supposed, but may be encountered anywhere in the oxide zone which extends downward 600 feet, plus, below the Sylvania tunnel level or below the elevation of the Alladin tunnel, which is still in oxidized matter.

The porphyries have never been exploited. The Standing Elk did nothing at all, although the dyke presented a fine appearance of near shipping ore. The Tripoli ores lay under the Sylvania porphyry, yet no cross cut or drift was run to it. In 1916 work was carried on by drifting and raising in the Elk porphyry in or near the Web Foot claim at depth of 400 feet. Two or three cars were shipped from bunches of ore contained within the porphyry itself, which suggests to me strong possibilities of large deposits of milling sulphide ores at a lower level.

To date the source of practically all mined ore has been cross fissures which form the underground watercourses of the district. The ore, when not a silicate of copper is a carbonate form with secondary sulphides present in the interior of the mass, and is deposited in the form of chambers, chimneys, pipes and totally or partially, filled caves, usually a combination of all to form an ore zone. The values are proportional to the size, particularly the thickness of the ore body, the large bodies carrying by far the best values. Also, in the irregularities present in limestone it is found that the best ore lays in the steeper portions of the chambers. Whenever benching occurs, the ore becomes thin and weak, with horizontal portions almost without value.

The so called East Drift of the Standing Elk tunnel run in during discovery of the Hoffman ore deposits presents a splendid study of conditions leading to ores in a typical cross fissure. The Hoffman fissure crossed the Elk tunnel as a clean cut, but narrow fissure, one quarter to one half inch wide, filled with wet gravel particles. There was no sign of mineralization. After drifting one hundred feet or more, a weak copper stain and sooty manganese appeared in the fissure, then tiny bunches (an inch or two in diameter) of carbonate lead-silver-copper adjacent to the fissure. As the drift advanced, the ore bunches become larger and the lime changes to a course crystalized calcite, a secondary deposit of limestone. This is the ore zone. At this point, about 200 feet from the main Elk tunnel, there is much copper stain, sooty manganese, pink, chrystalized lime, and seams of red med. At this point, also, the drift abruptly breaks into the mother deposit, one of the richest of the camp's and ranking second in production. Little work was done below the tunnel level, but above were many chimneys extending nearly to the surface. The Hoffman deposits were not adjacent to either porphry dyke, but rather midway between. The description so given of the physical features surrounding the Hoffman ore zone may be applied to all known zones.

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

Each has its own pecularities, but in general the description applies to all including the copper silicates, the copper-silver, and the lead-silver-copper. In the copper-silicate zones, however, the crystalized lime is of much finer texture with often a case hardened, siliceous exterior, most resistent to drilling.

The Aladdin tunnel driven to open the entire north end of the district has barely penetrated the ore zone and not yet reached the Tripoli, or Sylvania, porphyry dyke. Small streaks of rich carbonate silver-lead-copper are present near the face, and the general appearance is favorable. This tunnel is of S.W. strike and therefore parallel to the ore fissures. With slight additional length it would serve well as a medium for cross qutting the entire district by driving N.W. and S.E. This tunnel now past the 400 foot mark is heading toward the S.E. corner of the Victor claim (Sylvania Group).

SWEEPSTAKES GROUP, 2 CLAIMS.

Before entering into a detailed discussion of the Sylvania Group, a few remarks concerning old and present operations of the Sweepstakes and Stwwpstakes South will aid in establishing a picture of the western portion of the district.

In the earliest period much shallow digging was done throughout the length of the two claims, resulting in shipment of an unknown tonnage of siliceous copper ore and some carbonates of silver-copper. The most extensive work was located in the south central portion of the Sweepstakes, where a depth of about 50 feet was attained and apparently righ ore extracted near surface. The lowest workings present a strongly leached condition comparable to the upper tips of Bullion carbonate ores.

In the 1890's the Hesson Tunnel was driven from the east to tap below the above described works at 230 foot level. The end of this tunnel being caved, it is impossible to comment on what might have been found, or whether the objective was reached. In 1913 and 1914 the Hesson Tunnel was driven from the point of cave south 1000 feet toward old works in the N.E. corner of the Sweepstakes south. All of the development was carried on with no attention whatever paid to fissures encountered.

More recent work on the Sweepstakes has resulted in a long tunnel also penetrating the zone under the principal surface workings from the north. This tunnel is some 1000 feet long and over 100 feet deeper than the Hesson tunnel. Present operators, working on a bond and lease, have shipped about 20 cars of silver-copper and lead ore that is probably the same body as seen at surface but with less leaching action manifest. Protected interior portions of the ore give high assay returns, as one of Jan. 28, 1940:-

0.02 oz.	gold
114.8 oz.	silver
11.83%	copper
7.92&	lead

The indications and characteristics surrounding the Sweepstakes operations of today make it seem probable that a large deposit of profitable ore exists within the zone now being exploited. One interesting feature is that kaolin beds, not reaching the surface, have been encountered at depths of 250 to 350 feet below the surface. The kaolin in this case is accompanied

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

with the usual copper ore, but silver bearing and leaning to carbonates rather than silicates. This I believe is favourable to deeper seated ore bodies.

SYLVANIA GROUP

The Sylvania Group consists of six patented mining claims: Sylvania, Vindicator, Victor, Valley View, Kenilworth and Wide West, and occupying the central position of the main producing area of the district. Production has been approximately $500,000. All silicious copper ore except a few tons of lead-silver-copper carbonate shipped from the Sylvania during the 1913-1917 period. No less than nine old producing works are seen with a maximum depth attained of 175 feet (SYLVANIA) and 150 feet (VALLEY VIEW). After exhaustion of the Upper Sylvania pits a tunnel was run to cut 100 feet below surface, but when this tunnel demonstrated only mud filled fissures and chambers descending the company ceased operations. Later work gave additional depth of 75 feet and proved the existence of a new ore zone below, and that a carbonate zone.

A brief description of the principal old works of the Sylvania Group here follows:

Sylvania Pits, upper and lower with two other quaries of lesser importance, all fitting a scheme, wherein an important N.E.-S.W. fissure and a main porphyry plus porphyry masses and veins of the same material play an important role.

The McCoy quarry and tunnel 400 feet East demonstrated another very strong S.W. ore bearing fissure, unexplored beyond extraction of surface silicious ores.

The B. and B. ore bodies under the Elk porphyry at the North end of the Valley View claim, discovered in 1915 and ores extracted to depth of deposit, approximately 60 feet. A tunnel was run the same year cutting porphyry at depth of 150 feet. The porphyry here appeared as a dyke 15 feet thick and very nearly perpendicular, kaolinized and with a strong copper stain, similar in every way to the porphyry near the Elk and Web Foot Ore bodies and similar to in every item except dip, to the porphyry exposed in the carbonate zone of the Sylvania workings 75 feet below the Sylvania tunnel.

In 1918 silicious copper ore of 40% copper content was extracted 300 feet S.W. of the B. and B. workings. This I judge to be on the same ore fissure as that of the B. and B. deposits and possibly the same as that of the main Sylvania ores.

In the N.W. corner of the Valley View are old diggings common also to the Sweepstakes from which it is evident considerable ore was extracted in the earliest days.

The foregoing outline of work on the Sylvania Group is to demonstrate the lack of exploration and the failure of old operators to associate the surface ores with the permanent carbonates below. Arthur Lake, an eminent mining geologist of thirty years ago, author of many mining works and associated for many years with the Colorado School of Mines, has this to say regarding Chrysacolla, the hydrous silicate of copper: "Chrysacolla, unworthy of being called an ore, but often leading to valuable deposits of different type." In Bullion this form of copper indicates the croppings of ore zones on important ore bearing fissures, or may be associated with other forms of ore throughout the entire oxide zone. In this discussion it must be constantly carried in mind that, excepting

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

the Elk, the apex of Bullion carbonate ores has been below the surface.

It may be said that the Sylvania Group possesses everything indicative to ore bodies that is found in the old producing area closely East or in the Sweepstakes equally close on the West. It possesses, moreover, many more worked out deposits of surface ores, thus strongly suggesting the possibility of larger ore zones.

In the matter of ore bearing fissures of S.W. - N. E. strike within the Sylvania group, two can be identified. There are strong and almost positive indications of at least two others. The powerful porphyry dykes, two in number, that play an important part in the ore deposition of the Northern portion of the district, both traverse the Sylvania Group.

DEVELOPMENT IN THE SYLVANIA TUNNEL:

The Sylvania tunnel driven S.W. about 1890, to cut under the main quarry, encountered a knife blade seam of carbonates striking south at a point 35 feet inside the portal and at 70 feet an intrusion of porphyry of S.E. trend 6 inches thick in the roof and 24 inches in the bottom. At approximately 160 feet the tunnel intersected the main porphyry dyke 10 feet thick and of dip 50 deg. to 60 deg. S.W., striking S.E. and identified as the same dyke cropping on surface above, but carrying more mineralization. The first operators paid no attention to the zones mentioned, but kept driving ahead, veering strongly to the left, however, after cutting the porphyry. The ground traversed was in a white closely grained silicified lime, altered through process of ore making in the upper and lower pits. At the 200 foot point contact was made with the zone of caves and fissures in which, 100 feet above, much valuable ore had been extracted. The caves and fissures so found extending downward from the surface pits were filled with grey and brown clay showing no signs or indications of ore. The complicated net work of mud filled caves, chimneys and fissures presented a positive water course of general dip N.W., which is normal for the district. The tunnel was driven on about 60 feet with another left swing and then abandoned.

Shortly after 1905 an Oakland group secured the property and proceeded to drive N.E. on the knife blade carbonate streak 35 feet inside the portal. At 40 feet they encountered the small porphyry intrusion that crosses the main tunnel at the 70 foot point. The porphyry appeared as a vein two feet wide, dipping S.W. parallel to the main dyke, with all the porphyry characteristics, but well mineralized and highly copper stained. I judge the gross value as $10.00 to $15.00, but not of shipping grade.

An incline shaft was sunk on the porphyry ore material downward for some 60 feet on a dip of 45 deg. to a point at which there appeared a very strong S.W. fissure of dip N.W., thus forming the intersection of two planes, one a porphyry ore of strike S.E. and dip S.W., the other an ore filled fissure of carbonate ore of strike S.W. and dip N.W., the dips being approximately identical in degree. The fissure here presents the appearance of being the tip of ores extending downward, with ore tending strongly to lead along with copper and silver and is in form of soft carbonate, which in Bullion indicates leaching of values. Some ore was shipped from this point leaving an open stope 15 to 20 feet high. Ore on top of stope 8 inches, in floor 20 inches. Since the Oakland operators flattened off the incline at this point and followed the S.W. fissure on an easier grade, it is impossible at this time to determine whether or not the porphyry filled fissure

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

outs off on contact with the S.W. fissure.

The situation as explained above is an interesting one because both fissures cut under the lower Sylvania pits which can be reached either by driving Northwesterly on the porphyry or by sinking N.W. on the ore filled fissure. The lower pits are less than 40 feet distant horizontally. The porphyry fissure, if continuous downward, would likewise pass under the upper pits; the S.W. fissure does penetrate the upper pits at a depth of 175 feet below the surface, or 75 feet below the sylvania tunnel as demonstrated in the workings.

The Oakland operators ceased work about 1907, after which various leasers carried on until 1930. The incline was sunk to 120 feet, with depth of 70 feet, then because of bad working conditions, caused by a very crooked shaft, a drift was driven 80 feet on the fissure to a point under the N.E. rim of the upper pits. As work progressed, the top or tip of the ore being followed, constantly dropped so that in the last 40 feet it appeared in the bottom of the drift only. In the last 10 feet the ore had dropped to such an extent that it was necessary to sink six feet additional to uncover the ore. Meantime the values increased in copper and silver content with lead remaining about the same, with indications very strong, however, that main chambers will be found to contain lead-copper-silver as in the Elk, Tripoli, Web Foot and Key.

The Tripoli or Sylvania porphyry dyke was encountered at the 35 foot point in the 80 foot drift and continued for 20 feet, thus indicating a 20 foot thickness, double that seen in the main tunnel. At first contact the fissure lost its identity in a kaolinized copper stained porphyry, but appeared again in the bottom of the drift at 50 feet as a strong 12 inch vein of carbonates of shipping grade. At 65 feet the ore had dropped entirely below the drift level. Sinking six feet and drifting ahead 15 feet gave the face as of today and still stronger indications of large ore bodies nearby. Furthermore the ore in the bottom near the face is the best so far found in the Sylvania carbonate zone, giving a 7/20/30 of 11.1% copper, 17.8 oz. silver and 19.8% lead.

From personal knowledge of the Standing Elk, Hoffman, Web Foot and Key ore deposits, especially of the Elk and Web Foot where the porphyry has a like position, I can say that conditions appearing in the Sylvania incline and drift are the same conditions that appeared in the fissures leading to the other deposits. First, the very strong cross ore bearing fissure followed down the incline and on to a point close to the zone of caves and chambers of the upper pits. Second, the mineralized and kaolinized dyke, in appearance identical with porphyry in other proven ore zones. Third, a tendency in the last 15 feet for ore to bunch up near fissure. Fourth, the change in the last five feet of incline drift from a fine grained white lime to a rough crystalized lime that is undoubtedly calcite and the natural casing of larger deposits. It is noted also that two open fissures, nearly vertical, appear in the face. They are water bearing and filled with red mud, a condition strongly suggesting ore chambers close by.

During the period of Sylvania Company work, the lower pits were likewise worked out to a shallow depth of about 30 feet by tunnel. At depth mentioned, the silicious copper rested on mud identical with that below the ore in the upper pits. Another interesting feature of the lower pits is in the extension of the lower pit tunnel to the porphyry. The zone between the pits and

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

the porphyry is heavily impregnated with copper, lead and silver in form of sulphides for a width of 10 or 12 feet. Assembling all the facts brought forth by work in and adjacent to the upper and lower pits, results in a picture of various details that together form a definite system of ore deposition. Both pits are key points, and it is my belief that had the old Sylvania Company chosen a tunnel site 100 feet lower, it would have been successful in opening new bodies far more valuable than those extracted.

Above and to the S.W. of the upper pits is a kaolin bed that is part of the same system. In 1915 a tunnel and shaft, which gave a total depth of about 70 feet, penetrating a zone of chalky material, heavily impregnated with manganese, identical with ore now to be seen in the Sweepstakes tunnel. This appeared as a leached ore running 6% copper but too low to ship. From knowledge since gained, it seems most probable that this black, chalky material is the apex of copper-silver-lead chambers.

Two hundred feet south of the Sylvania tunnel portal, the Sylvania or Tripoli porphyry crops boldly and decidedly pink with nearby lime of the same color. This condition is found on the surface near the Elk chamber and is regarded as highly significant by all who know Bullion.

TYPE OF ORE AND VALUES

Supporting data in shape of assay returns representing, as it would, the apex of ore bodies and consequently that portion of maximum leaching, would fail to give a true idea of Bullion ores. The history of Bullion throughout has shown all ore bodies discovered to be of shipping grade excepting the tips and horizontal portions, which make up a very small part of the whole. It is my belief that copper will predominate over lead to the extent that the ore will be handled by siliceous smelters. This applies to the Sylvania tunnel zone and the theory is based on location in respect to Sweepstakes silver-copper deposits and in part on assays covering various portions of the Sylvania incline workings. The latter follows:

No.	Cu%	Lead%	Silver oz.	Remarks
1	0.36	14.85	8.10	Ore on dump 1914 - later shipped.
2	0.77	10.7	4.28	Tip of ore 80' down shaft.
3	3.1	11.0	8.6	Bottom of Shaft.
4	7.2	28.3	17.3	Hard ore 30 feet S.W. of Shaft.
5	7.1	12.2	9.0	Soft ore 30 feet S.W. of Shaft.
6	6.8	28.4	17.3	Bottom of drift 40 feet S.W. of Shaft.
7	11.1	19.7	17.8	Face 7/20/30 2 feet of ore bottom.
8	3.58	12.8	17.70	Soft ore top 10 feet back of face (taken 5/4/39).
9	6.33	13.5	11.1	Soft ore bottom 10 feet back of face (taken 5/4/39)

Samples, all carbonates, with 4, 5, 6, 8, and 9 containing some hard carbonate. Ninety percent or better of all carbonates shipped from Bullion has been hard carbonate.

Prepared by MARTIN L. REITE, Owner of Sylvania Group of Mining Claims to best of his knowledge.

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. DMA-1548X

Date received 6/4/51

Participation

MARTIN L. REISS
9460 GEM AVE.
CASTRO VALLEY, CALIF.

Name and address of applicant

Date May 31, 1951

FILL IN THIS BLOCK

Date of application 5/24/51

Estimated cost $ 22,908.47

Mineral or metal Copper-Silver-Lead

Percentage of Government participation $ 11,454.24

Location of mine Elko County, Nevada

Date of filing MF-100

DMA Docket Number, if available

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

SEE ATTACHED SHEET FOR ANSWERS TO QUESTIONS 1 to 24 INCLUSIVE.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.
*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.

*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.

*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.

*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.

15. State in detail how the ore could be shipped and how and where milled.

*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.

19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?

21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.

24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

(Name of company) By (Signature of authorized official)

5/31/61 (Date) Owner (Title)

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.

*Same as footnote on page 1.

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MARTIN L. REITE
9460 GEM AVE.,
CASTRO VALLEY, CALIF.

ANSWERS TO QUESTIONS IN FORM MF-103 HERETO ATTACHED

1. Applicant is an individual.

2. Not a partnership.

3. Not a corporation.

4.(a) and (b) Applicant and manager has been the sole owner of the Sylvania group of mining claims for 25 years including prospecting and managing limited development work. Manager of Eastman Gulch Mining Co., Lewiston, California, for 2 years. Limited development work with moderate production until closed for lack of funds to reach objective. Ten years owner of two collection agencies - "Reite Mercantile Agency" and University-Fraternity Adjustment Bureau" of Oakland, California, and past 5 years Employment Manager, Key System Transit Lines, Oakland, California. Competent Engineer or Geologist will be secured for purposes of consultation.

5. Owner.

6. No claims, liens or encumbrances against the property except County taxes being paid quarterly.

7. Not lessee.

8. Personal financial statement:
Mining properties, buildings and equipment, clear of all incumbrances, liens or claims.

9. Applicant is prepared to invest the following:

$5,000.00	cash
5,000.00	salary as manager
1,500.00	equipment (1 truck $500.00, 1 tractor $1,000.00)
$11,500.00	
1,125.00	pipe (1500' @ .75 per foot)
$12,625.00	

10.(a) Sylvania group of mining claims consisting of six patented lode mining claims, namely: (1) Sylvania, (2) Wide West, (3) Kenilworth, (4) Victor Traction, (5) Vindicator, and (6) Valley View. Patent survey No. 4608 Received at Carson City Land Office, Carson City, Nevada, March 12, 1928, File No. 016244. Recorded in Book 8, page 348, U. S. Land Patents Elko, Nevada. Situated in the Railroad Mining District, embracing a portion of Section 4, in township Thirty North and Section 33 in Township Thirty-one North, all in Range Fifty-three, East of the Mt. Diablo Meridian, Elko County, Nevada.

(b) Particularly the Sylvania and Vindicator Traction claims contained within and a part of the above mentioned group of mining claims.

11. Applicant has been the sole owner for the past 25 years.

12. The City of Elko, 30 miles north of the Sylvania group of

MARTIN L. WHITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

claims is the County seat of Elko County, Nevada, and is an important main line railroad center for Southern Pacific and Western Pacific. Elko is connected with the main dump of the Sylvania tunnel by a good to fair County dirt road distant 30 miles, without any limiting grades for ore shipment.

13. Ample water at the mine year around for all domestic and mine use. Springs may need to be reopened and new pipe layed for approximately 1200 feet. Adequate supply of water for milling purposes approximately 2 miles North at the west fork of Dixie Creek year around. Own power must be developed by gas or diesel engines, for hoist, blower, air compressor and possible generator. This power unit or units can be rented at a nominal sum.

14. Two room cabin on premises needing minor repair to serve as cook shack and dining room. Blacksmith shop on Sylvania dump needing minor repair. Good iron ore car in Sylvania tunnel and track layed to bottom of Sylvania incline shaft.

15. All ore will be shipped by truck 30 miles to Elko, then dumped in ore cars and shipped by rail to smelters at Salt Lake City, Utah.

16. (a) Commencing at bottom of Page 1 and continuing on Page 2 of attached discussion. Past suspensions of operations due always to lack of funds.

(b) Commencing Page 2 in attached discussion.

(c) See same attached discussion and report.

17. Mine not in production.

18. No records except as noted in attached discussion.

19. Large area of gossan in the eruptive ground starting near the west side center of Sylvania claim and running to the portal of Hesson tunnel approximately 60,000 sq. feet or more in area; also extensive deposits of Kaolin in same area assaying 3.7% manganese and 0.1% zinc and 0.08% copper.

20. Copper, lead with silver main minerals. Types of deposits will be found as inriched deposits of secondary copper, lead and silver in porphyry beneath gossan and copper silicates, and copper, lead and silver replacement deposits in limestone.

21. Continue Sylvania incline shaft down same angle of approximately 45° for an additional 75' of depth, then drift to west side center stake of Sylvania claim approximately 200'. By cross cutting at the bottom of incline shaft and by driving to potential enriched ore body beneath the W. side center stake of Sylvania claim, 2 large ore bodies are expected to be opened, either one of which should be ample to more than pay off entire cost of development work, leaving adequate funds to later continue operations, independently, to equally large deposits in the Valley View claim adjacent to and South of Sylvania claim. Time required from 6 to 7 months.

22. Commencing Page 4 in attached discussion and report.

MARTIN L. RAITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

23.	(a)	1 Miner @ 1.54 per hr, 48 hr. week Time and ½ Saturday -- $360.36 per. mo.	$ 2522.50
		1 Mucker @ 1.25 per hr. 48 hr. week Time and ½ Saturday -- $297.68 per mo.	2083.76
		1 Laborer 270.00 per mo.	1890.00
	(b)	1 Self as Superv. & Manager 500.00 per mo.	3500.00
	(c)	Repair Cabin	475.00
		Repair Blacksmith shop	350.00
	(d)	4 Tent cabins 20 x 20 with metal roof and wood floor @ $300.00	1200.00
	(e)	1 8" Blower and pipe	200.00
		1 Gas driven hoist Nova 15 H.P.	1100.00
		Skip & cable 1 T. cap. &	100.00
		650' 16 lb. @ 5½¢ per lb.	191.00
		275 ties	300.00
		5000' timber for timbering shaft, etc. @ $200.00 per 1000 ft.	1000.00
		Head frame and platform	2500.00
		Dynamite caps & fuse	770.00
		Blacksmith forge and tools	75.00
		Anvil 300 lbs. @ 27¢ per lb.	81.00
	(f)	Air compressor @ $210 rental per mo.	1470.00
		650' 1½" pipe @ 32.34 per 100'	210.21
	(g)	Truck @ $75.00 per mo. Tractor @ $100.00 per mo. 44 H.P.	1225.00
	(h)	Jack Hammer	265.00
	(i)	Fuel for power and truck	1400.00
		TOTAL COST OF PROJECT	$ 22908.47

24.	Time for repairs	3 weeks
	Head frame	1 week
	Straighten incline shaft	1 week
	Sinking incline shaft 75'	7 weeks
	drifting work	4 weeks
	200' drift to W. side center stake Sylvania under Gossan & black kaolin	10 weeks

TOTAL TIME REQUIRED 6 to 7 months

MARTIN L. REIN
9460 GEM AVE.
CASTRO VALLEY, CALIF.

The following discussion concerns one of the older Eastern Nevada mining camps with particular reference to Sylvania Group of Mining Claims, - Bullion, Elko County, Nevada.

LOCATION AND GENERAL.

Bullion is located at the North and bleak end of the Pinon Range in the southwest corner of Elko County, twenty-eight miles south and west of Elko, the county seat, railroad and business point. A county road that may be rated as good to fair, serves as one medium of transportation. A dirt county road exists from Bullion to Raines, distance of 11 miles. Minor repairs needed. 5 miles Highway from Raines to Palisade where facilities for rail loading are available. Elevation of Elko 5060 feet above sea level, elevation of old town of Bullion at foot of range about 6200 feet, while the mineralized zone (surface) ranges in elevation from 6800 to 8000 feet. There are no limiting grades for outgoing freight.

PHYSICAL FEATURES

The physical features are typically N.E. Nevada -- rugged mountains with dry, steep gulches, scattered juniper, mountain mahogany, nut pine, and a few groves of quaking aspen, none of which is suitable for permanent mine timber. Water in or near the mineralized zone is confined to a few small springs sufficient only for domestic and engine needs. In case milling should be contemplated, water for medium operation exists at three points, any of which will not exceed a two mile haul from point of operation. While winters are far milder than those of Elko or Elko County valleys, the snow fall is excessive with tendency towards drifting due to bleak exposure and winter winds. In three winters out of five, it is impossible to keep mountain roads open, even for sled traffic, during months of January, February, March and part of April.

GEOLOGICAL FEATURES

The apparent mineralized zone of Bullion (Railroad Mining District) is roughly rectangular in shape, of width (N.W. - S.E.) three quarters of a mile, and of length (N.E. - S. W.) of one and one-half miles. The formation is a belt of ordovician limestone (W. H. Emmons) bounded on both N.W. and S.E. sides by great dykes of granodiorite. The limestone is traversed across its width by several large irregular intrusive dykes of porphyretic material, made up of quartz phenocrysts in a feldspar mat impregnated with varying amounts of lead, copper, iron, silver, a little gold, and other minerals. In addition to the dykes above mentioned, smaller intrusions are to be observed, together with masses of unknown size, of which little is known at this time, but which may have great bearing on the scheme of ore deposition. Besides the tunnels and dumps of old work, in many places can be seen old surface works, often like quarries, where surface ores have been extracted. These were the superficial ores of Bullion to which little importance was attached by the old operators, but which, it is now believed, indicate the presence of intrusive porphry and the existence of cross bearing, ore-making, fissures.

HISTORY

Bullion was discovered in the fall of 1869 by prospectors overflowing from Virginia City. Activity followed immediately. First extensive operations were on the Standing Elk Claim by an English company, followed by the Web Foot, Tripoli, and Hoffman,

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

all producers of lead-silver-copper in carbonate form. After some years attention was given to deposits of copper silicate (chrysacolla) here and there over the surface and easily found. Notable producers of this straight copper ore were Sylvania, Copper Belle or Blue Belle, Bald Mountain Chief, Hecla, Sweepstakes, Key, and Valley View. This one, in spite of its superficial nature, produced some 20% of the total for the district. Work so progressed, with six to ten companies, all of small acreage, until the demonetization of silver, when company operations ceased and lessors carried on. In a treatise published by the University of Nevada, Bullion is credited with a $3,000,000 production from 1869 to 1890, and $889,000 from 1890 to the present day, a total in round numbers of $3,900,000. Of the $889,000, it is certain that at least 90% was extracted during the last active period of 1913-1916 inclusive.

In 1903 a consolidation of claims on East side of the district was incorporated as the Nevada-Bunker Hill Mining Co., and an exploration tunnel started for purpose of development at depth. The company is still active and operating as the Alladin Mng. Co. The tunnel, 4000 feet long, is still short of objective, but is in splendid position for future development of entire north end of district. Portal elevation 6700 feet, elevation Elk tunnel 7500 feet, Tripoli tunnel 7600 feet, and Sylvania tunnel 7300 feet. Portal of Alladin tunnel is below bad snow conditions.

Meantime small leasing operations, with a few cars shipped each year, were carried on until late in 1912 when discovery of generous deposits of lead-silver-copper carbonates in the Key claim gave impetus to new activity with result that practically all properties were under lease. Most work was around, and in, old works in a hunt for overlooked ore bodies, but, nevertheless, new valuable deposits were opened on the Key, Web Foot, Valley View, Grey Eagle, Sweepstakes and Gladstone. There has been almost no activity in the last twenty years, except recently on the Sweepstakes where interesting and profitable operations have been carried on since June, 1939.

TRANSPORTATION

Practically all ore shipped previous to 1920 was hauled West to the Eureka-Palisade Narrow Guage, thence via S.P.R. to Salt Lake Smelters.

PRODUCTION METHODS OF OPERATION - TYPES OF ORE

As previously stated, the credited production of Bullion from 1869 to the present day is $3,900,000.00.

From a knowledge of old works, values, and various sources, I am giving the following figures as a fair, but rough, apportionment of the amounts for each of three types of ores: -

carbonate lead-silver-copper	$2,900,000.-
carbonate copper silver	220,000.-
siliceous copper (no silver)	780,000.-
Total	$3,900,000.-.

In the territory shown on map accompanying this report there has been produced about 90% of the credited production.

In all operations since discovery the methods have been the same, namely, - to pick out a promising objective and drive a

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

tunnel to cut beneath. Because of the configuration it has, in nearly all cases, been most convenient, from standpoint of tunnel length and depth, to drive S.W., and therefore, at right angles to the porphyries. While the latter are mineral bearing, often present themselves as low grade ore, and are most surely the sources of high grade secondary deposits, nevertheless, the chambered deposits, making up all of the production, lay in cross fissures of general S.W. - N.E. strike. They are termed cross fissures because they strike generally at right angles to the porphyries. Because tunnels have tended to a S.W. trend, they have failed to serve as mediums of exploration. The Elk tunnel, the largest of all workings, being a little off a true S.W. course, cut three cross fissures, one of which being driven upon led to the valuable Hoffman deposits. The others were not prospected, indicating lack of appreciation, by the old operators, of the importance of fissures and water courses.

Since discovery until the present day, Bullion has been a camp of tunnels. No serious sinking was ever contemplated and the only power hoist ever in the district, an old steam affair of the 1880's, still stands at the collar of a 270 foot incline shaft in the Tripoli workings. The Standing Elk has a 100 foot and a 200 foot shaft sunk from the No. 5 level, both operated by windlass. All other sinkings were no more than winzes.

At first, following discovery, Bullion was regarded as a silver-lead district, although the ore carried strong amounts of copper. Later extraction of straight copper surface ore began, then in 1914 discovery of copper-silver carbonates on the Grey Eagle, Gladstone and Sweepstakes. This led to the assumption that lead predominates in the South East portion of the district and copper in the North West portion, an assumption now proven false. The Sylvania Group is midway between the two zones mentioned.

Bullion has justly been regarded as a high grade camp. There are no dumps of low grade ore, there were very few unmined bunches left as too low in value, except around straight copper workings from whence, in the period 1915-1916, many tons of 15% copper ore were shipped, some of which was made up of cobbings left by former workers. Since all carbonate deposits have been found in water courses, leaching action is always apparent. Small bodies of carbonate ores, and by small I suggest three feet or less in thickness, tend to weakness in values through leaching to form a soft carbonate. Larger bodies, and most of them are larger, have a core of great richness with gradually decreasing values as the outer edge is approached. Ores extracted during the company days were classified as high grade and low grade. The first was sacked and shipped to outside smelters; the second, low grade, was smelted in the Bullion smelters. In 1925 and 1926, the slag dump from the Bullion Smelters was hauled by truck to Elko at a cost of $5.00 per ton, thence by railroad to Selby Smelters in California and there retreated at a fair profit for the purchaser. The protected interior, or core portion of larger ore bodies present a little copper, a secondary galena of 50 to 60% lead content and 100 to 200 oz. and better of silver per ton. The outer portion is a hard carbonate running approximately 30% lead, 20 oz of silver and 5% to 7% copper.

An often said expression of old Bullion miners or operators was that the ore bodies always presented the "little end up". This description seems quite appropriate and it can be further said, from observations and study, that there are no isolated carbonate bodies. The presence of a small body indicates a zone, and this zone made up of a mother body with varying lesser deposits nearby.

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

It may be said, also, that, excepting the Elk, no carbonate deposits cropped at the surface.

ORE DEPOSITION

In the study of Bullion ore deposition I shall not attempt to treat on the genesis of the ore, but rather adhere to the physical features and deductions based on exhaustive study of the indications and conditions surrounding ore deposits and ore zones, and the behavior of all pathways leading to ores.

The surface of the north half of the Bullion proven zone, or the part shown on accompanying map, presents a surface of limestone, designated by Emmons as Ordovician, but by steep gulches of north, or north east, trend. Cutting across the lime in a N.W.-S.E. direction are two very strong eruptive dykes of porphyretic material 10 feet to 30 feet in thickness. One cuts across the Sylvania Claim 300 feet north of its center, and traverses also the Hecla, Sweepstakes, Hoffman and Tripoli, with a 50 deg. dip S.W. This porphyry has an important bearing on the Hecla, Sylvania, Tripoli and Hoffman ores. The second dyke, roughly parallel to the first, cuts across the northern end of the Valley View Claim and traverses the Sweepstakes, Storm King, Standing Elk, and other claims. It has important bearing on the Sweepstakes, Valley View, Web Foot, Standing Elk, and Key deposits. No. 2 Porphyry stands nearly vertical. In addition to the two porphyries so described, smaller intrusive veins of identical appearance are encountered, parallel in strike and similar dip. In the neighborhood of carbonate bodies these small intrusions appear as well mineralized low grade ores. Still another form of porphyry, also identical in structure, are masses which appear both underground and on the surface. They appear as isolated but are most probably not, being rather intrusions in lime fissures and playing an important part in the scheme of ore deposits.

Cutting across the limestones, and of strike S.W. - N.E., are an unknown number of open fissures, which, except in ore zones, seem rather insignificant. These are the ore makers of the district, with dip N.W. varying from 50 deg. to vertical. Other fissures, but parallel to the porphyries, also exist, but these are important only in the ore zones. Fissures cannot be identified on the surface, but are indicated, I believe, by surface deposits of kaolin and surface ore.

The porphyries are yellow through oxidation and are similar wherever encountered, saving extent of mineralization. They present a feldspar mass in which clear quartz phenocrysts are embedded. Mineralization exists always, but in varying degrees, either as sulphides of copper, iron, lead, a small amount of zinc, with silver and a little gold, or in the iron residue resulting from decomposition and leaching of sulphides. Near zones of rich secondary carbonate deposits they appear as kaolin with a strong copper stain throughout.

Chrysacolla, the surface ore of Bullion, has played an important role in Bullion history, has been high in grade, cheaply mined, and easily found due to certain vegetation attracted by the hydrous clay and kaolin accompanying the copper. The deposits were well distributed over the claims shown, there being no less than fifteen of which eight were on claims of the Sylvania Group. By miners they were judged freakish, and not a part of any scheme of deposit. The ore was extracted and the area forgotten.

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

A thorough study of the chrysacolla deposits, aided by the one attempt at development by a tunnel cutting beneath, reveals a definite order. The deposits are not hit or miss but line up in orderly fashion as the outcroppings of ore bearing cross fissures sometimes directly upon the cropping, at others, vertically above a dipping fissure. My theory is that in the making an intrusion of well mineralized porphyry occupied the cropping area. Then with conditions suitable for secondary deposits of copper silicate, the copper and quartz in the porphyry joined to form chrysacolla deposited against the lime contacts, while decomposition of the feldspar resulted in a kaolin that fills the interior portion of the deposit. The lead and silver in the primary sulphides have been carried downward to form secondary ores below. It has been demonstrated in recent Sweepstakes exploration that the Kaolin beds are not limited to the surface, as previously supposed, but may be encountered anywhere in the oxide zone which extends downward 600 feet, plus, below the Sylvania tunnel level or below the elevation of the Alladin tunnel, which is still in oxidized matter.

The porphyries have never been exploited. The Standing Elk did nothing at all, although the dyke presented a fine appearance of near shipping ore. The Tripoli ores lay under the Sylvania porphyry, yet no cross cut or drift was run to it. In 1916 work was carried on by drifting and raising in the Elk porphyry in or near the Web Foot claim at depth of 400 feet. Two or three cars were shipped from bunches of ore contained within the porphyry itself, which suggests to me strong possibilities of large deposits of milling sulphide ores at a lower level.

To date the source of practically all mined ore has been cross fissures which form the underground watercourses of the district. The ore, when not a silicate of copper is a carbonate form with secondary sulphides present in the interior of the mass, and is deposited in the form of chambers, chimneys, pipes and totally or partially, filled caves, usually a combination of all to form an ore zone. The values are proportional to the size, particularly the thickness of the ore body, the large bodies carrying by far the best values. Also, in the irregularities present in limestone it is found that the best ore lays in the steeper portions of the chambers. Whenever benching occurs, the ore becomes thin and weak, with horizontal portions almost without value.

The so called East Drift of the Standing Elk tunnel run in during discovery of the Hoffman ore deposits presents a splendid study of conditions leading to ores in a typical cross fissure. The Hoffman fissure crossed the Elk tunnel as a clean cut, but narrow fissure, one quarter to one half inch wide, filled with wet gravel particles. There was no sign of mineralization. After drifting one hundred feet or more, a weak copper stain and sooty manganese appeared in the fissure, then tiny bunches (an inch or two in diameter) of carbonate lead-silver-copper adjacent to the fissure. As the drift advanced, the ore bunches become larger and the lime changes to a course crystalized calcite, a secondary deposit of limestone. This is the ore zone. At this point, about 200 feet from the main Elk tunnel, there is much copper stain, sooty manganese, pink, chrystalized lime, and seams of red med. At this point, also, the drift abruptly breaks into the mother deposit, one of the richest of the camp's and ranking second in production. Little work was done below the tunnel level, but above were many chimneys extending nearly to the surface. The Hoffman deposits were not adjacent to either porphry dyke, but rather midway between. The description so given of the physical features surrounding the Hoffman ore zone may be applied to all known zones.

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

Each has its own peculiarities, but in general the description applies to all including the copper silicates, the copper-silver, and the lead-silver-copper. In the copper-silicate zones, however, the crystalized lime is of much finer texture with often a case hardened, siliceous exterior, most resistent to drilling.

The Aladdin tunnel driven to open the entire north end of the district has barely penetrated the ore zone and not yet reached the Tripoli, or Sylvania, porphyry dyke. Small streaks of rich carbonate silver-lead-copper are present near the face, and the general appearance is favorable. This tunnel is of S.W. strike and therefore parallel to the ore fissures. With slight additional length it would serve well as a medium for cross cutting the entire district by driving N.W. and S.E. This tunnel now past the 400 foot mark is heading toward the S.E. corner of the Victor claim (Sylvania Group).

SWEEPSTAKES GROUP, 2 CLAIMS.

Before entering into a detailed discussion of the Sylvania Group, a few remarks concerning old and present operations of the Sweepstakes and Stwwpstakes South will aid in establishing a picture of the western portion of the district.

In the earliest period much shallow digging was done throughout the length of the two claims, resulting in shipment of an unknown tonnage of siliceous copper ore and some carbonates of silver-copper. The most extensive work was located in the south central portion of the Sweepstakes, where a depth of about 50 feet was attained and apparently righ ore extracted near surface. The lowest workings present a strongly leached condition comparable to the upper tips of Bullion carbonate ores.

In the 1890's the Hesson Tunnel was driven from the east to tap below the above described works at 230 foot level. The end of this tunnel being caved, it is impossible to comment on what might have been found, or whether the objective was reached. In 1913 and 1914 the Hesson Tunnel was driven from the point of cave south 1000 feet toward old works in the N.E. corner of the Sweepstakes south. All of the development was carried on with no attention whatever paid to fissures encountered.

More recent work on the Sweepstakes has resulted in a long tunnel also penetrating the zone under the principal surface workings from the north. This tunnel is some 1000 feet long and over 100 feet deeper than the Hesson tunnel. Present operators, working on a bond and lease, have shipped about 20 cars of silver-copper and lead ore that is probably the same body as seen at surface but with less leaching action manifest. Protected interior portions of the ore give high assay returns, as one of Jan. 28, 1940:-

0.02 oz.	gold
114.8 oz.	silver
11.83%	copper
7.92%	lead

The indications and characteristics surrounding the Sweepstakes operations of today make it seem probable that a large deposit of profitable ore exists within the zone now being exploited. One interesting feature is that kaolin beds, not reaching the surface, have been encountered at depths of 250 to 350 feet below the surface. The kaolin in this case is accompanied

MARTIN L. REITH
9460 GEM AVE.
CASTRO VALLEY, CALIF.

with the usual copper ore, but silver bearing and leaning to carbonates rather than silicates. This I believe is favourable to deeper seated ore bodies.

SYLVANIA GROUP

The Sylvania Group consists of six patented mining claims: Sylvania, Vindicator, Victor, Valley View, Kenilworth and Wide West, and occupying the central position of the main producing area of the district. Production has been approximately $500,000. All silicious copper ore except a few tons of lead-silver-copper carbonate shipped from the Sylvania during the 1913-1917 period. No less than nine old producing works are seen with a maximum depth attained of 175 feet (SYLVANIA) and 150 feet (VALLEY VIEW). After exhaustion of the Upper Sylvania pits a tunnel was run to out 100 feet below surface, but when this tunnel demonstrated only mud filled fissures and chambers descending the company ceased operations. Later work gave additional depth of 75 feet and proved the existence of a new ore zone below, and that a carbonate zone.

A brief description of the principal old works of the Sylvania Group here follows:

Sylvania Pits, upper and lower with two other quaries of lesser importance, all fitting a scheme, wherein an important N.E.-S.W. fissure and a main porphyry plus porphyry masses and veins of the same material play an important role.

The McCoy quarry and tunnel 400 feet East demonstrated another very strong S.W. ore bearing fissure, unexplored beyond extraction of surface silicious ores.

The B. and B. ore bodies under the Elk porphyry at the North end of the Valley View claim, discovered in 1915 and ores extracted to depth of deposit, approximately 60 feet. A tunnel was run the same year cutting porphyry at depth of 150 feet. The porphyry here appeared as a dyke 15 feet thick and very nearly perpendicular, kaolinized and with a strong copper stain, similar in every way to the porphyry near the Elk and Web Foot Ore bodies and similar to in every item except dip, to the porphyry exposed in the carbonate zone of the Sylvania workings 75 feet below the Sylvania tunnel.

In 1918 silicious copper ore of 40% copper content was extracted 300 feet S.W. of the B. and B. workings. This I judge to be on the same ore fissure as that of the B. and B. deposits and possibly the same as that of the main Sylvania ores.

In the N.W. corner of the Valley View are old diggings common also to the Sweepstakes from which it is evident considerable ore was extracted in the earliest days.

The foregoing outline of work on the Sylvania Group is to demonstrate the lack of exploration and the failure of old operators to associate the surface ores with the permanent carbonates below. Arthur Lake, an eminent mining geologist of thirty years ago, author of many mining works and associated for many years with the Colorado School of Mines, has this to say regarding Chrysacolla, the hydrous silicate of copper: "Chrysacolla, unworthy of being called an ore, but often leading to valuable deposits of different type." In Bullion this form of copper indicates the croppings of ore zones on important ore bearing fissures, or may be associated with other forms of ore throughout the entire oxide zone. In this discussion it must be constantly carried in mind that, excepting

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

the Elk, the apex of Bullion carbonate ores has been below the surface.

It may be said that the Sylvania Group possesses everything indicative to ore bodies that is found in the old producing area closely East or in the Sweepstakes equally close on the West. It possesses, moreover, many more worked out deposits of surface ores, thus strongly suggesting the possibility of larger ore zones.

In the matter of ore bearing fissures of S.W. - N. E. strike within the Sylvania group, two can be identified. There are strong and almost positive indications of at least two others. The powerful porphyry dykes, two in number, that play an important part in the ore deposition of the Northern portion of the district, both traverse the Sylvania Group.

DEVELOPMENT IN THE SYLVANIA TUNNEL:

The Sylvania tunnel driven S.W. about 1890, to cut under the main quarry, encountered a knife blade seam of carbonates striking south at a point 35 feet inside the portal and at 70 feet an intrusion of porphyry of S.E. trend 6 inches thick in the roof and 24 inches in the bottom. At approximately 160 feet the tunnel intersected the main porphyry dyke 10 feet thick and of dip 50 deg. to 60 deg. S.W., striking S.E. and identified as the same dyke cropping on surface above, but carrying more mineralization. The first operators paid no attention to the zones mentioned, but kept driving ahead, veering strongly to the left, however, after cutting the porphyry. The ground traversed was in a white closely grained silicified lime, altered through process of ore making in the upper and lower pits. At the 200 foot point contact was made with the zone of caves and fissures in which, 100 feet above, much valuable ore had been extracted. The caves and fissures so found extending downward from the surface pits were filled with grey and brown clay showing no signs or indications of ore. The complicated net work of mud filled caves, chimneys and fissures presented a positive water course of general dip N.W., which is normal for the district. The tunnel was driven on about 60 feet with another left swing and then abandoned.

Shortly after 1905 an Oakland group secured the property and proceeded to drive N.E. on the knife blade carbonate streak 35 feet inside the portal. At 40 feet they encountered the small porphyry intrusion that crosses the main tunnel at the 70 foot point. The porphyry appeared as a vein two feet wide, dipping S.W. parallel to the main dyke, with all the porphyry characteristics, but well mineralized and highly copper stained. I judge the gross value as $10.00 to $15.00, but not of shipping grade.

An incline shaft was sunk on the porphyry ore material downward for some 60 feet on a dip of 45 deg. to a point at which there appeared a very strong S.W. fissure of dip N.W., thus forming the intersection of two planes, one a porphyry ore of strike S.E. and dip S.W., the other an ore filled fissure of carbonate ore of strike S.W. and dip N.W., the dips being approximately identical in degree. The fissure here presents the appearance of being the tip of ores extending downward, with ore tending strongly to lead along with copper and silver and is in form of soft carbonate, which in Bullion indicates leaching of values. Some ore was shipped from this point leaving an open stope 15 to 20 feet high. Ore on top of stope 8 inches, in floor 20 inches. Since the Oakland operators flattened off the incline at this point and followed the S.W. fissure on an easier grade, it is impossible at this time to determine whether or not the porphyry filled fissure

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

1 cuts off on contact with the S.W. fissure.

2 The situation as explained above is an interesting one be-
cause both fissures out under the lower Sylvania pits which can
3 be reached either by driving Northwesterly on the porphyry or by
sinking N.W. on the ore filled fissure. The lower pits are less
4 than 40 feet distant horizontally. The porphyry fissure, if con-
tinuous downward, would likewise pass under the upper pits; the
5 S.W. fissure does penetrate the upper pits at a depth of 175 feet
below the surface, or 75 feet below the sylvania tunnel as demon-
6 strated in the workings.

7 The Oakland operators ceased work about 1907, after which
various leasers carried on until 1930. The incline was sunk to
8 120 feet, with depth of 70 feet, then because of bad working con-
ditions, caused by a very crooked shaft, a drift was driven 80
9 feet on the fissure to a point under the N.E. rim of the upper
pits. As work progressed, the top or tip of the ore being follow-
10 ed, constantly dropped so that in the last 40 feet it appeared in
the bottom of the drift only. In the last 10 feet the ore had
11 dropped to such an extent that it was necessary to sink six feet
additional to uncover the ore. Meantime the values increased in
12 copper and silver content with lead remaining about the same, with
indications very strong, however, that main chambers will be
13 found to contain lead-copper-silver as in the Elk, Tripoli, Web
Foot and Key.

14

The Tripoli or Sylvania porphyry dyke was encountered at the
15 35 foot point in the 80 foot drift and continued for 20 feet,
thus indicating a 20 foot thickness, double that seen in the main
16 tunnel. At first contact the fissure lost its identity in a
kaolinized copper stained porphyry, but appeared again in the bottom
17 of the drift at 50 feet as a strong 12 inch vein of carbonates of
shipping grade. At 65 feet the ore had dropped entirely below the
18 drift level. Sinking six feet and drifting ahead 15 feet gave
the face as of today and still stronger indications of large ore
19 bodies nearby. Furthermore the ore in the bottom near the face
is the best so far found in the Sylvania carbonate zone, giving a
20 7/20/30 of 11.1% copper, 17.8 oz. silver and 19.8% lead.

21 From personal knowledge of the Standing Elk, Hoffman, Web
Foot and Key ore deposits, especially of the Elk and Web Foot
22 where the porphyry has a like position, I can say that conditions
appearing in the Sylvania incline and drift are the same conditions
23 that appeared in the fissures leading to the other deposits.
First, the very strong cross ore bearing fissure followed down
24 the incline and on to a point close to the zone of caves and
chambers of the upper pits. Second, the mineralized and kaolin-
25 ized dyke, in appearance identical with porphyry in other proven
ore zones. Third, a tendency in the last 15 feet for ore to
26 bunch up near fissure. Fourth, the change in the last five feet
of incline drift from a fine grained white lime to a rough
27 crystalized lime that is undoubtedly calcite and the natural cas-
ing of larger deposits. It is noted also that two open fissures,
28 nearly vertical, appear in the face. They are water bearing and
filled with red mud, a condition strongly suggesting ore chambers
29 close by.

30 During the period of Sylvania Company work, the lower pits
were likewise worked out to a shallow depth of about 30 feet by
31 tunnel. At depth mentioned, the silicious copper rested on mud
identical with that below the ore in the upper pits. Another
32 interesting feature of the lower pits is in the extension of the
lower pit tunnel to the porphyry. The zone between the pits and

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

the porphyry is heavily impregnated with copper, lead and silver in form of sulphides for a width of 10 or 12 feet. Assembling all the facts brought forth by work in and adjacent to the upper and lower pits, results in a picture of various details that together form a definite system of ore deposition. Both pits are key points, and it is my belief that had the old Sylvania Company chosen a tunnel site 100 feet lower, it would have been successful in opening new bodies far more valuable than those extracted.

Above and to the S.W. of the upper pits is a kaolin bed that is part of the same system. In 1915 a tunnel and shaft, which gave a total depth of about 70 feet, penetrating a zone of chalky material, heavily impregnated with manganese, identical with ore now to be seen in the Sweepstakes tunnel. This appeared as a leached ore running 6% copper but too low to ship. From knowledge since gained, it seems most probable that this black, chalky material is the apex of copper-silver-lead chambers.

Two hundred feet south of the Sylvania tunnel portal, the Sylvania or Tripoli porphyry crops boldly and decidedly pink with nearby lime of the same color. This condition is found on the surface near the Elk chamber and is regarded as highly significant by all who know Bullion.

TYPE OF ORE AND VALUES

Supporting data in shape of assay returns representing, as it would, the apex of ore bodies and consequently that portion of maximum leaching, would fail to give a true idea of Bullion ores. The history of Bullion throughout has shown all ore bodies discovered to be of shipping grade excepting the tips and horizontal portions, which make up a very small part of the whole. It is my belief that copper will predominate over lead to the extent that the ore will be handled by siliceous smelters. This applies to the Sylvania tunnel zone and the theory is based on location in respect to Sweepstakes silver-copper deposits and in part on assays covering various portions of the Sylvania incline workings. The latter follows:

No.	Cu%	Lead%	Silver oz.	Remarks
1	0.36	14.85	8.10	Ore on dump 1914 - later shipped.
2	0.77	10.7	4.28	Tip of ore 80' down shaft.
3	3.1	11.0	8.6	Bottom of Shaft.
4	7.2	28.3	17.3	Hard ore 30 feet S.W. of Shaft.
5	7.1	12.2	9.0	Soft ore 30 feet S.W. of Shaft.
6	6.8	28.4	17.3	Bottom of drift 40 feet S.W. of Shaft.
7	11.1	19.7	17.8	Face 7/20/30 2 feet of ore bottom.
8	3.58	12.8	17.70	Soft ore top 10 feet back of face (taken 5/4/39).
9	6.33	13.5	11.1	Soft ore bottom 10 feet back of face (taken 5/4/39)

Samples, all carbonates, with 4, 5, 6, 8, and 9 containing some hard carbonate. Ninety percent or better of all carbonates shipped from Bullion has been hard carbonate.

Prepared by MARTIN L. REITE, Owner of Sylvania Group of Mining Claims to best of his knowledge.

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. Dma-1548X

Date received 6/4/51

Participation

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

Name and address of applicant

Date May 31, 1951

FILL IN THIS BLOCK

Date of application 5/24/51

Estimated cost $ 22,908.47

Mineral or metal Copper-Silver-Lead

Percentage of Government participation $ 11,454.24

Location of mine Elko County, Nevada

Date of filing MF-100

DMA Docket Number, if available

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

SEE ATTACHED SHEET FOR ANSWERS TO QUESTIONS 1 to 24 INCLUSIVE

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.
*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.
*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.
*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.
*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.
15. State in detail how the ore could be shipped and how and where milled.
*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.
*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.
19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?
21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.
22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.
24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

(Name of company)	By [signature] (Signature of authorized official)
5/31/51 (Date)	Owner (Title)

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.

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

MARTIN L. WHITE
9460 GEM AVE.,
CASTRO VALLEY, CALIF.

ANSWERS TO QUESTIONS IN FORM MF-103 HERETO ATTACHED

1. Applicant is an individual.

2. Not a partnership.

3. Not a corporation.

4.(a) and (b) Applicant and manager has been the sole owner of the Sylvania group of mining claims for 25 years including prospecting and managing limited development work. Manager of Eastman Gulch Mining Co., Lewiston, California, for 2 years. Limited development work with moderate production until closed for lack of funds to reach objective. Ten years owner of two collection agencies - "Reite Mercantile Agency" and University-Fraternity Adjustment Bureau" of Oakland, California, and past 5 years Employment Manager, Key System Transit Lines, Oakland, California. Competent Engineer or Geologist will be secured for purposes of consultation.

5. Owner.

6. No claims, liens or encumbrances against the property except County taxes being paid quarterly.

7. Not lessee.

8. Personal financial statement:
Mining properties, buildings and equipment, clear of all incumbrances, liens or claims.

9. Applicant is prepared to invest the following:

$5,000.00	cash
5,000.00	salary as manager
1,500.00	equipment (1 truck $500.00, 1 tractor $1,000.00)
$11,500.00	
1,125.00	pipe (1500' @ .75 per foot)
$12,625.00	

10.(a) Sylvania group of mining claims consisting of six patented lode mining claims, namely: (1) Sylvania, (2) Wide West, (3) Kenilworth, (4) Victor Traction, (5) Vindicator, and (6) Valley View. Patent survey No. 4608 Received at Carson City Land Office, Carson City, Nevada, March 12, 1928, File No. 016244. Recorded in Book 8, page 348, U. S. Land Patents Elko, Nevada. Situated in the Railroad Mining District, embracing a portion of Section 4, in township Thirty North and Section 33 in Township Thirty-one North, all in Range Fifty-three, East of the Mt. Diablo Meridian, Elko County, Nevada.

(b) Particularly the Sylvania and Vindicator Traction claims contained within and a part of the above mentioned group of mining claims.

11. Applicant has been the sole owner for the past 25 years.

12. The City of Elko, 30 miles north of the Sylvania group of

MARTIN L. [illegible]TE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

claims is the County seat of Elko County, Nevada, and is an important main line railroad center for Southern Pacific and Western Pacific. Elko is connected with the main dump of the Sylvania tunnel by a good to fair County dirt road distant 30 miles, without any limiting grades for ore shipment.

13. Ample water at the mine year around for all domestic and mine use. Springs may need to be reopened and new pipe layed for approximately 1200 feet. Adequate supply of water for milling purposes approximately 2 miles North at the west fork of Dixie Creek year around. Own power must be developed by gas or diesel engines, for hoist, blower, air compressor and possible generator. This power unit or units can be rented at a nominal sum.

14. Two room cabin on premises needing minor repair to serve as cook shack and dining room. Blacksmith shop on Sylvania dump needing minor repair. Good iron ore car in Sylvania tunnel and track layed to bottom of Sylvania incline shaft.

15. All ore will be shipped by truck 30 miles to Elko, then dumped in ore cars and shipped by rail to smelters at Salt Lake City, Utah.

16. (a) Commencing at bottom of Page 1 and continuing on Page 2 of attached discussion. Past suspensions of operations due always to lack of funds.

(b) Commencing Page 2 in attached discussion.

(c) See same attached discussion and report.

17. Mine not in production.

18. No records except as noted in attached discussion.

19. Large area of gossan in the eruptive ground starting near the west side center of Sylvania claim and running to the portal of Hesson tunnel approximately 60,000 sq. feet or more in area; also extensive deposits of Kaolin in same area assaying 3.7% manganese and 0.1% zinc and 0.08% copper.

20. Copper, lead with silver main minerals. Types of deposits will be found as inriched deposits of secondary copper, lead and silver in porphyry beneath gossan and copper silicates, and copper, lead and silver replacement deposits in limestone.

21. Continue Sylvania incline shaft down same angle of approximately 45° for an additional 75' of depth, then drift to west side center stake of Sylvania claim approximately 200'. By cross cutting at the bottom of incline shaft and by driving to potential enriched ore body beneath the W. side center stake of Sylvania claim, 2 large ore bodies are expected to be opened, either one of which should be ample to more than pay off entire cost of development work, leaving adequate funds to later continue operations, independently, to equally large deposits in the Valley View claim adjacent to and South of Sylvania claim. Time required from 6 to 7 months.

22. Commencing Page 4 in attached discussion and report.

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

23.	(a)	1 Miner @ 1.54 per hr. 48 hr. week Time and ½ Saturday -- $360.36 per. mo.	$ 2522.50
		1 Mucker @ 1.25 per hr. 48 hr. week Time and ½ Saturday -- $297.68 per mo.	2085.76
		1 Laborer 270.00 per mo.	1890.00
	(b)	1 Self as Superv. & Manager 500.00 per mo.	3500.00
	(c)	Repair Cabin	475.00
		Repair Blacksmith shop	350.00
	(d)	4 Tent cabins 20 x 20 with metal roof and wood floor @ $300.00	1200.00
	(e)	1 8" Blower and pipe	200.00
		1 Gas driven hoist Nova 15 H.P.	1100.00
		Skip & cable 1 T. cap. &	100.00
		650' 16 lb. @ 5½¢ per lb.	191.00
		275 ties	300.00
		5000' timber for timbering shaft, etc. @ $200 per 1000 ft.	1000.00
		Head frame and platform	2500.00
		Dynamite caps & fuse	770.00
		Blacksmith forge and tools	75.00
		Anvil 300 lbs. @ 27¢ per lb.	81.00
	(f)	Air compressor @ $210 rental per mo.	1470.00
		650' 1½" pipe @ 32.34 per 100'	210.21
	(g)	Truck @ $75.00 per mo. Tractor @ $100.00 per mo. 44 H.P.	1225.00
	(h)	Jack Hammer	265.00
	(i)	Fuel for power and truck	1400.00
		TOTAL COST OF PROJECT	$ 22908.47

24.	Time for repairs	3 weeks
	Head frame	1 week
	Straighten incline shaft	1 week
	Sinking incline shaft 75'	7 weeks
	drifting work	4 weeks
	200' drift to W. side center stake Sylvania under Gossan & black kaolin	10 weeks

TOTAL TIME REQUIRED 6 to 7 months

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

The following discussion concerns one of the older Eastern Nevada mining camps with particular reference to Sylvania Group of Mining Claims, - Bullion, Elko County, Nevada.

LOCATION AND GENERAL.

Bullion is located at the North and bleak end of the Pinon Range in the southwest corner of Elko County, twenty-eight miles south and west of Elko, the county seat, railroad and business point. A county road that may be rated as good to fair, serves as one medium of transportation. A dirt county road exists from Bullion to Raines, distance of 11 miles. Minor repairs needed. 5 miles Highway from Raines to Palisade where facilities for rail loading are available. Elevation of Elko 5060 feet above sea level, elevation of old town of Bullion at foot of range about 6200 feet, while the mineralized zone (surface) ranges in elevation from 6800 to 8000 feet. There are no limiting grades for outgoing freight.

PHYSICAL FEATURES

The physical features are typically N.E. Nevada -- rugged mountains with dry, steep gulches, scattered juniper, mountain mahogany, nut pine, and a few groves of quaking aspen, none of which is suitable for permanent mine timber. Water in or near the mineralized zone is confined to a few small springs sufficient only for domestic and engine needs. In case milling should be contemplated, water for medium operation exists at three points, any of which will not exceed a two mile haul from point of operation. While winters are far milder than those of Elko or Elko County valleys, the snow fall is excessive with tendency towards drifting due to bleak exposure and winter winds. In three winters out of five, it is impossible to keep mountain roads open, even for sled traffic, during months of January, February, March and part of April.

GEOLOGICAL FEATURES

The apparent mineralized zone of Bullion (Railroad Mining District) is roughly rectangular in shape, of width (N.W. - S.E.) three quarters of a mile, and of length (N.E. - S. W.) of one and one-half miles. The formation is a belt of ordovician limestone (W. H. Emmons) bounded on both N.W. and S.E. sides by great dykes of granodiorite. The limestone is traversed across its width by several large irregular intrusive dykes of porphyretic material, made up of quartz phenocrysts in a feldspar mat impregnated with varying amounts of lead, copper, iron, silver, a little gold, and other minerals. In addition to the dykes above mentioned, smaller intrusions are to be observed, together with masses of unknown size, of which little is known at this time, but which may have great bearing on the scheme of ore deposition. Besides the tunnels and dumps of old work, in many places can be seen old surface works, often like quarries, where surface ores have been extracted. These were the superficial ores of Bullion to which little importance was attached by the old operators, but which, it is now believed, indicate the presence of intrusive porphry and the existence of cross bearing, ore-making, fissures.

HISTORY

Bullion was discovered in the fall of 1869 by prospectors overflowing from Virginia City. Activity followed immediately. First extensive operations were on the Standing Elk Claim by an English company, followed by the Web Foot, Tripoli, and Hoffman,

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

all producers of lead-silver-copper in carbonate form. After some years attention was given to deposits of copper silicate (chrysacolla) here and there over the surface and easily found. Notable producers of this straight copper ore were Sylvania, Copper Belle or Blue Belle, Bald Mountain Chief, Hecla, Sweepstakes, Key, and Valley View. This ore, in spite of its superficial nature, produced some 20% of the total for the district. Work so progressed, with six to ten companies, all of small acreage, until the demonetization of silver, when company operations ceased and lessors carried on. In a treatise published by the University of Nevada, Bullion is credited with a $3,000,000 production from 1869 to 1890, and $889,000 from 1890 to the present day, a total in round numbers of $3,900,000. Of the $889,000, it is certain that at least 90% was extracted during the last active period of 1913-1916 inclusive.

In 1903 a consolidation of claims on East side of the district was incorporated as the Nevada-Bunker Hill Mining Co., and an exploration tunnel started for purpose of development at depth. The company is still active and operating as the Alladin Mng. Co. The tunnel, 4000 feet long, is still short of objective, but is in splendid position for future development of entire north end of district. Portal elevation 6700 feet, elevation Elk tunnel 7500 feet, Tripoli tunnel 7600 feet, and Sylvania tunnel 7300 feet. Portal of Alladin tunnel is below bad snow conditions.

Meantime small leasing operations, with a few cars shipped each year, were carried on until late in 1912 when discovery of generous deposits of lead-silver-copper carbonates in the Key claim gave impetus to new activity with result that practically all properties were under lease. Most work was around, and in, old works in a hunt for overlooked ore bodies, but, nevertheless, new valuable deposits were opened on the Key, Web Foot, Valley View, Grey Eagle, Sweepstakes and Gladstone. There has been almost no activity in the last twenty years, except recently on the Sweepstakes where interesting and profitable operations have been carried on since June, 1939.

TRANSPORTATION

Practically all ore shipped previous to 1920 was hauled West to the Eureka-Palisade Narrow Guage, thence via S.P.R. to Salt Lake Smelters.

PRODUCTION METHODS OF OPERATION - TYPES OF ORE

As previously stated, the credited production of Bullion from 1869 to the present day is $3,900,000.00.

From a knowledge of old works, values, and various sources, I am giving the following figures as a fair, but rough, apportionment of the amounts for each of three types of ores: -

carbonate lead-silver-copper	$2,900,000.-
carbonate copper silver	220,000.-
siliceous copper (no silver)	780,000.-
Total	$3,900,000.-.

In the territory shown on map accompanying this report there has been produced about 90% of the credited production.

In all operations since discovery the methods have been the same, namely, - to pick out a promising objective and drive a

MARTIN L. RUTH
9460 GEM AVE.
CASTRO VALLEY, CALIF.

tunnel to cut beneath. Because of the configuration it has, in nearly all cases, been most convenient, from standpoint of tunnel length and depth, to drive S.W., and therefore, at right angles to the porphyries. While the latter are mineral bearing, often present themselves as low grade ore, and are most surely the sources of high grade secondary deposits, nevertheless, the chambered deposits, making up all of the production, lay in cross fissures of general S.W. - N.E. strike. They are termed cross fissures because they strike generally at right angles to the porphyries. Because tunnels have tended to a S.W. trend, they have failed to serve as mediums of exploration. The Elk tunnel, the largest of all workings, being a little off a true S.W. course, cut three cross fissures, one of which being driven upon led to the valuable Hoffman deposits. The others were not prospected, indicating lack of appreciation, by the old operators, of the importance of fissures and water courses.

Since discovery until the present day, Bullion has been a camp of tunnels. No serious sinking was ever contemplated and the only power hoist ever in the district, an old steam affair of the 1880's, still stands at the collar of a 270 foot incline shaft in the Tripoli workings. The Standing Elk has a 100 foot and a 200 foot shaft sunk from the No. 5 level, both operated by windlass. All other sinkings were no more than winzes.

At first, following discovery, Bullion was regarded as a silver-lead district, although the ore carried strong amounts of copper. Later extraction of straight copper surface ore began, then in 1914 discovery of copper-silver carbonates on the Grey Eagle, Gladstone and Sweepstakes. This led to the assumption that lead predominates in the South East portion of the district and copper in the North West portion, an assumption now proven false. The Sylvania Group is midway between the two zones mentioned.

Bullion has justly been regarded as a high grade camp. There are no dumps of low grade ore, there were very few unmined bunches left as too low in value, except around straight copper workings from whence, in the period 1915-1916, many tons of 15% copper ore were shipped, some of which was made up of cobbings left by former workers. Since all carbonate deposits have been found in water courses, leaching action is always apparent. Small bodies of carbonate ores, and by small I suggest three feet or less in thickness, tend to weakness in values through leaching to form a soft carbonate. Larger bodies, and most of them are larger, have a core of great richness with gradually decreasing values as the outer edge is approached. Ores extracted during the camping days were classified as high grade and low grade. The first was sacked and shipped to outside smelters; the second, low grade, was smelted in the Bullion smelters. In 1925 and 1926, the slag dump from the Bullion Smelters was hauled by truck to Elko at a cost of $5.00 per ton, thence by railroad to Selby Smelters in California and there retreated at a fair profit for the purchaser. The protected interior, or core portion of larger ore bodies present a little copper, a secondary galena of 50 to 60% lead content and 100 to 200 oz. and better of silver per ton. The outer portion is a hard carbonate running approximately 30% lead, 20 oz of silver and 5% to 7% copper.

An often said expression of old Bullion miners or operators was that the ore bodies always presented the "little end up". This description seems quite appropriate and it can be further said, from observations and study, that there are no isolated carbonate bodies. The presence of a small body indicates a zone, and this zone made up of a mother body with varying lesser deposits nearby.

MARTIN L. REITH
9460 GEM AVE.
CASTRO VALLEY, CALIF.

It may be said, also, that, excepting the Elk, no carbonate deposits cropped at the surface.

ORE DEPOSITION

In the study of Bullion ore deposition I shall not attempt to treat on the genesis of the ore, but rather adhere to the physical features and deductions based on exhaustive study of the indications and conditions surrounding ore deposits and ore zones, and the behavior of all pathways leading to ores.

The surface of the north half of the Bullion proven zone, or the part shown on accompanying map, presents a surface of limestone, designated by Emmons as Ordovician, but by steep gulches of north, or north east, trend. Cutting across the lime in a N.W.-S.E. direction are two very strong eruptive dykes of porphyretic material 10 feet to 30 feet in thickness. One cuts across the Sylvania Claim 300 feet north of its center, and traverses also the Hecla, Sweepstakes, Hoffman and Tripoli, with a 50 deg. dip S.W. This porphyry has an important bearing on the Hecla, Sylvania, Tripoli and Hoffman ores. The second dyke, roughly parallel to the first, cuts across the northern end of the Valley View Claim and traverses the Sweepstakes, Storm King, Standing Elk, and other claims. It has important bearing on the Sweepstakes, Valley View, Web Foot, Standing Elk, and Key deposits. No. 2 Porphyry stands nearly vertical. In addition to the two porphyries so described, smaller intrusive veins of identical appearance are encountered, parallel in strike and similar dip. In the neighborhood of carbonate bodies these small intrusions appear as well mineralized low grade ores. Still another form of porphyry, also identical in structure, are masses which appear both underground and on the surface. They appear as isolated but are most probably not, being rather intrusions in lime fissures and playing an important part in the scheme of ore deposits.

Cutting across the limestones, and of strike S.W. - N.E., are an unknown number of open fissures, which, except in ore zones, seem rather insignificant. These are the ore makers of the district, with dip N.W. varying from 50 deg. to vertical. Other fissures, but parallel to the porphyries, also exist, but these are important only in the ore zones. Fissures cannot be identified on the surface, but are indicated, I believe, by surface deposits of kaolin and surface ore.

The porphyries are yellow through oxidation and are similar wherever encountered, saving extent of mineralization. They present a feldspar mass in which clear quartz phenocrysts are embedded. Mineralization exists always, but in varying degrees, either as sulphides of copper, iron, lead, a small amount of zinc, with silver and a little gold, or in the iron residue resulting from decomposition and leaching of sulphides. Near zones of rich secondary carbonate deposits they appear as kaolin with a strong copper stain throughout.

Chrysacolla, the surface ore of Bullion, has played an important role in Bullion history, has been high in grade, cheaply mined, and easily found due to certain vegetation attracted by the hydrous clay and kaolin accompanying the copper. The deposits were well distributed over the claims shown, there being no less than fifteen of which eight were on claims of the Sylvania Group. By miners they were judged freakish, and not a part of any scheme of deposit. The ore was extracted and the area forgotten.

MARTIN L. REITZ
9460 GEM AVE.
CASTRO VALLEY, CALIF.

A thorough study of the chrysacolla deposits, aided by the one attempt at development by a tunnel cutting beneath, reveals a definite order. The deposits are not hit or miss but line up in orderly fashion as the outcroppings of ore bearing cross fissures sometimes directly upon the cropping, at others, vertically above a dipping fissure. My theory is that in the making an intrusion of well mineralized porphyry occupied the cropping area. Then with conditions suitable for secondary deposits of copper silicate, the copper and quartz in the porphyry joined to form chrysacolla deposited against the lime contacts, while decomposition of the feldspar resulted in a kaolin that fills the interior portion of the deposit. The lead and silver in the primary sulphides have been carried downward to form secondary ores below. It has been demonstrated in recent Sweepstakes exploration that the Kaolin beds are not limited to the surface, as previously supposed, but may be encountered anywhere in the oxide zone which extends downward 600 feet, plus, below the Sylvania tunnel level or below the elevation of the Alladin tunnel, which is still in oxidized matter.

The porphyries have never been exploited. The Standing Elk did nothing at all, although the dyke presented a fine appearance of near shipping ore. The Tripoli ores lay under the Sylvania porphyry, yet no cross cut or drift was run to it. In 1916 work was carried on by drifting and raising in the Elk porphyry in or near the Web foot claim at depth of 400 feet. Two or three cars were shipped from bunches of ore contained within the porphyry itself, which suggests to me strong possibilities of large deposits of milling sulphide ores at a lower level.

To date the source of practically all mined ore has been cross fissures which form the underground watercourses of the district. The ore, when not a silicate of copper is a carbonate form with secondary sulphides present in the interior of the mass, and is deposited in the form of chambers, chimneys, pipes and totally or partially, filled caves, usually a combination of all to form an ore zone. The values are proportional to the size, particularly the thickness of the ore body, the large bodies carrying by far the best values. Also, in the irregularities present in limestone it is found that the best ore lays in the steeper portions of the chambers. Whenever benching occurs, the ore becomes thin and weak, with horizontal portions almost without value.

The so called East Drift of the Standing Elk tunnel run in during discovery of the Hoffman ore deposits presents a splendid study of conditions leading to ores in a typical cross fissure. The Hoffman fissure crossed the Elk tunnel as a clean cut, but narrow fissure, one quarter to one half inch wide, filled with wet gravel particles. There was no sign of mineralization. After drifting one hundred feet or more, a weak copper stain and sooty manganese appeared in the fissure, then tiny bunches (an inch or two in diameter) of carbonate lead-silver-copper adjacent to the fissure. As the drift advanced, the ore bunches become larger and the lime changes to a course crystalized calcite, a secondary deposit of limestone. This is the ore zone. At this point, about 200 feet from the main Elk tunnel, there is much copper stain, sooty manganese, pink, chrystalized lime, and seams of red med. At this point, also, the drift abruptly breaks into the mother deposit, one of the richest of the camp's and ranking second in production. Little work was done below the tunnel level, but above were many chimneys extending nearly to the surface. The Hoffman deposits were not adjacent to either porphry dyke, but rather midway between. The description so given of the physical features surrounding the Hoffman ore zone may be applied to all known zones.

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

Each has its own pecularities, but in general the description applies to all including the copper silicates, the copper-silver, and the lead-silver-copper. In the copper-silicate zones, however, the crystalized lime is of much finer texture with often a case hardened, siliceous exterior, most resistent to drilling.

The Aladdin tunnel driven to open the entire north end of the district has barely penetrated the ore zone and not yet reached the Tripoli, or Sylvania, porphyry dyke. Small streaks of rich carbonate silver-lead-copper are present near the face, and the general appearance is favorable. This tunnel is of S.W. strike and therefore parallel to the ore fissures. With slight additional length it would serve well as a medium for cross cutting the entire district by driving N.W. and S.E. This tunnel now past the 400 foot mark is heading toward the S.E. corner of the Victor claim (Sylvania Group).

SWEEPSTAKES GROUP, 2 CLAIMS.

Before entering into a detailed discussion of the Sylvania Group, a few remarks concerning old and present operations of the Sweepstakes and Stwwpstakes South will aid in establishing a picture of the western portion of the district.

In the earliest period much shallow digging was done throughout the length of the two claims, resulting in shipment of an unknown tonnage of siliceous copper ore and some carbonates of silver-copper. The most extensive work was located in the south central portion of the Sweepstakes, where a depth of about 50 feet was attained and apparently righ ore extracted near surface. The lowest workings present a strongly leached condition comparable to the upper tips of Bullion carbonate ores.

In the 1890's the Hesson Tunnel was driven from the east to tap below the above described works at 230 foot level. The end of this tunnel being caved, it is impossible to comment on what might have been found, or whether the objective was reached. In 1913 and 1914 the Hesson Tunnel was driven from the point of cave south 1000 feet toward old works in the N.E. corner of the Sweepstakes south. All of the development was carried on with no attention whatever paid to fissures encountered.

More recent work on the Sweepstakes has resulted in a long tunnel also penetrating the zone under the principal surface workings from the north. This tunnel is some 1000 feet long and over 100 feet deeper than the Hesson tunnel. Present operators, working on a bond and lease, have shipped about 20 cars of silver-copper and lead ore that is probably the same body as seen at surface but with less leaching action manifest. Protected interior portions of the ore give high assay returns, as one of Jan. 28, 1940:-

0.02 oz.	gold
114.8 oz.	silver
11.83%	copper
7.92%	lead

The indications and characteristics surrounding the Sweepstakes operations of today make it seem probable that a large deposit of profitable ore exists within the zone now being exploited. One interesting feature is that kaolin beds, not reaching the surface, have been encountered at depths of 250 to 350 feet below the surface. The kaolin in this case is accompanied

MARTIN L. WHITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

with the usual copper ore, but silver bearing and leaning to carbonates rather than silicates. This I believe is favourable to deeper seated ore bodies.

SYLVANIA GROUP

The Sylvania Group consists of six patented mining claims: Sylvania, Vindicator, Victor, Valley View, Kenilworth and Wide West, and occupying the central position of the main producing area of the district. Production has been approximately $500,000. All silicious copper ore except a few tons of lead-silver-copper carbonate shipped from the Sylvania during the 1913-1917 period. No less than nine old producing works are seen with a maximum depth attained of 175 feet (SYLVANIA) and 150 feet (VALLEY VIEW). After exhaustion of the Upper Sylvania pits a tunnel was run to cut 100 feet below surface, but when this tunnel demonstrated only mud filled fissures and chambers descending the company ceased operations. Later work gave additional depth of 75 feet and proved the existence of a new ore zone below, and that a carbonate zone.

A brief description of the principal old works of the Sylvania Group here follows:

Sylvania Pits, upper and lower with two other quaries of lesser importance, all fitting a scheme, wherein an important N.E.-S.W. fissure and a main porphyry plus porphyry masses and veins of the same material play an important role.

The McCoy quarry and tunnel 400 feet East demonstrated another very strong S.W. ore bearing fissure, unexplored beyond extraction of surface silicious ores.

The B. and B. ore bodies under the Elk porphyry at the North end of the Valley View claim, discovered in 1915 and ores extracted to depth of deposit, approximately 60 feet. A tunnel was run the same year cutting porphyry at depth of 150 feet. The porphyry here appeared as a dyke 15 feet thick and very nearly perpendicular, kaolinized and with a strong copper stain, similar in every way to the porphyry near the Elk and Web Foot Ore bodies and similar to in every item except dip, to the porphyry exposed in the carbonate zone of the Sylvania workings 75 feet below the Sylvania tunnel.

In 1918 silicious copper ore of 40% copper content was extracted 300 feet S.W. of the B. and B. workings. This I judge to be on the same ore fissure as that of the B. and B. deposits and possibly the same as that of the main Sylvania ores.

In the N.W. corner of the Valley View are old diggings common also to the Sweepstakes from which it is evident considerable ore was extracted in the earliest days.

The foregoing outline of work on the Sylvania Group is to demonstrate the lack of exploration and the failure of old operators to associate the surface ores with the permanent carbonates below. Arthur Lakes, an eminent mining geologist of thirty years ago, author of many mining works and associated for many years with the Colorado School of Mines, has this to say regarding Chrysacolla, the hydrous silicate of copper: "Chrysacolla, unworthy of being called an ore, but often leading to valuable deposits of different type." In Bullion this form of copper indicates the croppings of ore zones on important ore bearing fissures, or may be associated with other forms of ore throughout the entire oxide zone. In this discussion it must be constantly carried in mind that, excepting

MARTIN L. REITH
9460 GEM AVE.
CASTRO VALLEY, CALIF.

the Elk, the apex of Bullion carbonate ores has been below the surface.

It may be said that the Sylvania Group possesses everything indicative to ore bodies that is found in the old producing area closely East or in the Sweepstakes equally close on the West. It possesses, moreover, many more worked out deposits of surface ores, thus strongly suggesting the possibility of larger ore zones.

In the matter of ore bearing fissures of S.W. - N. E. strike within the Sylvania group, two can be identified. There are strong and almost positive indications of at least two others. The powerful porphyry dykes, two in number, that play an important part in the ore deposition of the Northern portion of the district, both traverse the Sylvania Group.

DEVELOPMENT IN THE SYLVANIA TUNNEL:

The Sylvania tunnel driven S.W. about 1890, to cut under the main quarry, encountered a knife blade seam of carbonates striking south at a point 35 feet inside the portal and at 70 feet an intrusion of porphyry of S.E. trend 6 inches thick in the roof and 24 inches in the bottom. At approximately 160 feet the tunnel intersected the main porphyry dyke 10 feet thick and of dip 50 deg. to 60 deg. S.W., striking S.E. and identified as the same dyke cropping on surface above, but carrying more mineralization. The first operators paid no attention to the zones mentioned, but kept driving ahead, veering strongly to the left, however, after cutting the porphyry. The ground traversed was in a white closely grained silicified lime, altered through process of ore making in the upper and lower pits. At the 200 foot point contact was made with the zone of caves and fissures in which, 100 feet above, much valuable ore had been extracted. The caves and fissures so found extending downward from the surface pits were filled with grey and brown clay showing no signs or indications of ore. The complicated net work of mud filled caves, chimneys and fissures presented a positive water course of general dip N.W., which is normal for the district. The tunnel was driven on about 60 feet with another left swing and then abandoned.

Shortly after 1905 an Oakland group secured the property and proceeded to drive N.E. on the knife blade carbonate streak 35 feet inside the portal. At 40 feet they encountered the small porphyry intrusion that crosses the main tunnel at the 70 foot point. The porphyry appeared as a vein two feet wide, dipping S.W. parallel to the main dyke, with all the porphyry characteristics, but well mineralized and highly copper stained. I judge the gross value as $10.00 to $15.00, but not of shipping grade.

An incline shaft was sunk on the porphyry ore material downward for some 60 feet on a dip of 45 deg. to a point at which there appeared a very strong S.W. fissure of dip N.W., thus forming the intersection of two planes, one a porphyry ore of strike S.E. and dip S.W., the other an ore filled fissure of carbonate ore of strike S.W. and dip N.W., the dips being approximately identical in degree. The fissure here presents the appearance of being the tip of ores extending downward, with ore tending strongly to lead along with copper and silver and is in form of soft carbonate, which in Bullion indicates leaching of values. Some ore was shipped from this point leaving an open stope 15 to 20 feet high. Ore on top of stope 8 inches, in floor 20 inches. Since the Oakland operators flattened off the incline at this point and followed the S.W. fissure on an easier grade, it is impossible at this time to determine whether or not the porphyry filled fissure

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

cuts off on contact with the S.W. fissure.

The situation as explained above is an interesting one because both fissures cut under the lower Sylvania pits which can be reached either by driving Northwesterly on the porphyry or by sinking N.W. on the ore filled fissure. The lower pits are less than 40 feet distant horizontally. The porphyry fissure, if continuous downward, would likewise pass under the upper pits; the S.W. fissure does penetrate the upper pits at a depth of 175 feet below the surface, or 75 feet below the sylvania tunnel as demonstrated in the workings.

The Oakland operators ceased work about 1907, after which various leasers carried on until 1930. The incline was sunk to 120 feet, with depth of 70 feet, then because of bad working conditions, caused by a very crooked shaft, a drift was driven 80 feet on the fissure to a point under the N.E. rim of the upper pits. As work progressed, the top or tip of the ore being followed, constantly dropped so that in the last 40 feet it appeared in the bottom of the drift only. In the last 10 feet the ore had dropped to such an extent that it was necessary to sink six feet additional to uncover the ore. Meantime the values increased in copper and silver content with lead remaining about the same, with indications very strong, however, that main chambers will be found to contain lead-copper-silver as in the Elk, Tripoli, Web Foot and Key.

The Tripoli or Sylvania porphyry dyke was encountered at the 35 foot point in the 80 foot drift and continued for 20 feet, thus indicating a 20 foot thickness, double that seen in the main tunnel. At first contact the fissure lost its identity in a kaolinized copper stained porphyry, but appeared again in the bottom of the drift at 50 feet as a strong 12 inch vein of carbonates of shipping grade. At 65 feet the ore had dropped entirely below the drift level. Sinking six feet and drifting ahead 15 feet gave the face as of today and still stronger indications of large ore bodies nearby. Furthermore the ore in the bottom near the face is the best so far found in the Sylvania carbonate zone, giving a 7/20/30 of 11.1% copper, 17.8 oz. silver and 19.8% lead.

From personal knowledge of the Standing Elk, Hoffman, Web Foot and Key ore deposits, especially of the Elk and Web Foot where the porphyry has a like position, I can say that conditions appearing in the Sylvania incline and drift are the same conditions that appeared in the fissures leading to the other deposits. First, the very strong cross ore bearing fissure followed down the incline and on to a point close to the zone of caves and chambers of the upper pits. Second, the mineralized and kaolinized dyke, in appearance identical with porphyry in other proven ore zones. Third, a tendency in the last 15 feet for ore to bunch up near fissure. Fourth, the change in the last five feet of incline drift from a fine grained white lime to a rough crystalized lime that is undoubtedly calcite and the natural casing of larger deposits. It is noted also that two open fissures, nearly vertical, appear in the face. They are water bearing and filled with red mud, a condition strongly suggesting ore chambers close by.

During the period of Sylvania Company work, the lower pits were likewise worked out to a shallow depth of about 30 feet by tunnel. At depth mentioned, the silicious copper rested on mud identical with that below the ore in the upper pits. Another interesting feature of the lower pits is in the extension of the lower pit tunnel to the porphyry. The zone between the pits and

Form MF-103
(April 1951)

U. DEPARTMENT OF THE INTERI
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. Dma-1548X

Date received 6/4/51

Participation

MARTIN L. REITE
9460 GEE AVE.
CASTRO VALLEY, CALIF.

Name and address of applicant

Date May 31, 1951

FILL IN THIS BLOCK

Date of application 5/24/51

Estimated cost $ 22,908.47

Mineral or metal Copper-Silver-Lead

Percentage of Government participation $ 11,454.24

Location of mine Elko County, Nevada

Date of filing MF-100

DMA Docket Number, if available

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

SEE ATTACHED SHEET FOR ANSWERS TO QUESTIONS 1 to 24 INCLUSIVE

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.
*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.

(*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.

*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.

*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.

*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.

15. State in detail how the ore could be shipped and how and where milled.

*16. History:

(*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.

(*b*) State briefly the known history and production of adjoining and neighboring properties.

(*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

*17. Production:

(*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)

(*a*) Describe the ore or mineral deposits briefly.

(*b*) Submit available maps and assay data.

(*c*) Give estimated tonnage and grade of each class of ore reserves.

19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?

21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

NOTE.—The Government will not participate in a project that will require more than 2 years to complete.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:

(*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.

(*b*) Supervisors, by numbers and positions, with salaries of each.

(*c*) Cost of necessary repairs to existing facilities, structures, and buildings.

(*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.

(*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.

(*f*) Cost of rental for equipment which the operator proposes to rent.

(*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.

(*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.

(*i*) Cost of power, water, utilities, and any other items not provided for above.

24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

(Name of company) By (Signature of authorized official)

5/31/51 (Date) (Title)

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.

*Same as footnote on page 1.

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MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

the porphyry is heavily impregnated with copper, lead and silver in form of sulphides for a width of 10 or 12 feet. Assembling all the facts brought forth by work in and adjacent to the upper and lower pits, results in a picture of various details that together form a definite system of ore deposition. Both pits are key points, and it is my belief that had the old Sylvania Company chosen a tunnel site 100 feet lower, it would have been successful in opening new bodies far more valuable than those extracted.

Above and to the S.W. of the upper pits is a kaolin bed that is part of the same system. In 1915 a tunnel and shaft, which gave a total depth of about 70 feet, penetrating a zone of chalky material, heavily impregnated with manganese, identical with ore now to be seen in the Sweepstakes tunnel. This appeared as a leached ore running 6% copper but too low to ship. From knowledge since gained, it seems most probable that this black, chalky material is the apex of copper-silver-lead chambers.

Two hundred feet south of the Sylvania tunnel portal, the Sylvania or Tripoli porphyry crops boldly and decidedly pink with nearby lime of the same color. This condition is found on the surface near the Elk chamber and is regarded as highly significant by all who know Bullion.

TYPE OF ORE AND VALUES

Supporting data in shape of assay returns representing, as it would, the apex of ore bodies and consequently that portion of maximum leaching, would fail to give a true idea of Bullion ores. The history of Bullion throughout has shown all ore bodies discovered to be of shipping grade excepting the tips and horizontal portions, which make up a very small part of the whole. It is my belief that copper will predominate over lead to the extent that the ore will be handled by siliceous smelters. This applies to the Sylvania tunnel zone and the theory is based on location in respect to Sweepstakes silver-copper deposits and in part on assays covering various portions of the Sylvania incline workings. The latter follows:

No.	Cu%	Lead%	Silver oz.	Remarks
1	0.36	14.85	8.10	Ore on dump 1914 - later shipped.
2	0.77	10.7	4.28	Tip of ore 80' down shaft.
3	3.1	11.0	8.6	Bottom of Shaft.
4	7.2	28.3	17.3	Hard ore 30 feet S.W. of Shaft.
5	7.1	12.2	9.0	Soft ore 30 feet S.W. of Shaft.
6	6.8	28.4	17.3	Bottom of drift 40 feet S.W. of Shaft.
7	11.1	19.7	17.8	Face 7/20/30 2 feet of ore bottom.
8	3.58	12.8	17.70	Soft ore top 10 feet back of face (taken 5/4/39).
9	6.33	13.5	11.1	Soft ore bottom 10 feet back of face (taken 5/4/39)

Samples, all carbonates, with 4, 5, 6, 8, and 9 containing some hard carbonate. Ninety percent or better of all carbonates shipped from Bullion has been hard carbonate.

Prepared by MARTIN L. REITE, Owner of Sylvania Group of Mining Claims to best of his knowledge.

MARTIN L. R[illegible]E
9460 GEM AVE.,
CASTRO VALLEY, CALIF.

ANSWERS TO QUESTIONS IN FORM MF-103 HERETO ATTACHED

1. Applicant is an individual.

2. Not a partnership.

3. Not a corporation.

4.(a) and (b) Applicant and manager has been the sole owner of the Sylvania group of mining claims for 25 years including prospecting and managing limited development work. Manager of Eastman Gulch Mining Co., Lewiston, California, for 2 years. Limited development work with moderate production until closed for lack of funds to reach objective. Ten years owner of two collection agencies - "Reite Mercantile Agency" and University-Fraternity Adjustment Bureau" of Oakland, California, and past 5 years Employment Manager, Key System Transit Lines, Oakland, California. Competent Engineer or Geologist will be secured for purposes of consultation.

5. Owner.

6. No claims, liens or encumbrances against the property except County taxes being paid quarterly.

7. Not lessee.

8. Personal financial statement:
Mining properties, buildings and equipment, clear of all incumbrances, liens or claims.

9. Applicant is prepared to invest the following:

$5,000.00	cash
5,000.00	salary as manager
1,500.00	equipment (1 truck $500.00, 1 tractor $1,000.00)
$11,500.00	
1,125.00	pipe (1500' @ .75 per foot)
$12,625.00	

10.(a) Sylvania group of mining claims consisting of six patented lode mining claims, namely: (1) Sylvania, (2) Wide West, (3) Kenilworth, (4) Victor Traction, (5) Vindicator, and (6) Valley View. Patent survey No. 4608 Received at Carson City Land Office, Carson City, Nevada, March 12, 1928, File No. 016244. Recorded in Book 8, page 348, U. S. Land Patents Elko, Nevada. Situated in the Railroad Mining District, embracing a portion of Section 4, in township Thirty North and Section 33 in Township Thirty-one North, all in Range Fifty-three, East of the Mt. Diablo Meridian, Elko County, Nevada.

(b) Particularly the Sylvania and Vindicator Traction claims contained within and a part of the above mentioned group of mining claims.

11. Applicant has been the sole owner for the past 25 years.

12. The City of Elko, 30 miles north of the Sylvania group of

MARTIN L. R[illegible]
9460 GEM AVE.
CASTRO VALLEY, CALIF.

claims is the County seat of Elko County, Nevada, and is an important main line railroad center for Southern Pacific and Western Pacific. Elko is connected with the main dump of the Sylvania tunnel by a good to fair County dirt road distant 30 miles, without any limiting grades for ore shipment.

13. Ample water at the mine year around for all domestic and mine use. Springs may need to be reopened and new pipe layed for approximately 1200 feet. Adequate supply of water for milling purposes approximately 2 miles North at the west fork of Dixie Creek year around. Own power must be developed by gas or diesel engines, for hoist, blower, air compressor and possible generator. This power unit or units can be rented at a nominal sum.

14. Two room cabin on premises needing minor repair to serve as cook shack and dining room. Blacksmith shop on Sylvania dump needing minor repair. Good iron ore car in Sylvania tunnel and track layed to bottom of Sylvania incline shaft.

15. All ore will be shipped by truck 30 miles to Elko, then dumped in ore cars and shipped by rail to smelters at Salt Lake City, Utah.

16. (a) Commencing at bottom of Page 1 and continuing on Page 2 of attached discussion. Past suspensions of operations due always to lack of funds.

(b) Commencing Page 2 in attached discussion.

(c) See same attached discussion and report.

17. Mine not in production.

18. No records except as noted in attached discussion.

19. Large area of gossan in the eruptive ground starting near the west side center of Sylvania claim and running to the portal of Hesson tunnel approximately 60,000 sq. feet or more in area; also extensive deposits of Kaolin in same area assaying 3.7% manganese and 0.1% zinc and 0.08% copper.

20. Copper, lead with silver main minerals. Types of deposits will be found as inriched deposits of secondary copper, lead and silver in porphyry beneath gossan and copper silicates, and copper, lead and silver replacement deposits in limestone.

21. Continue Sylvania incline shaft down same angle of approximately 45° for an additional 75' of depth, then drift to west side center stake of Sylvania claim approximately 200'. By cross cutting at the bottom of incline shaft and by driving to potential enriched ore body beneath the W. side center stake of Sylvania claim, 2 large ore bodies are expected to be opened, either one of which should be ample to more than pay off entire cost of development work, leaving adequate funds to later continue operations, independently, to equally large deposits in the Valley View claim adjacent to and South of Sylvania claim. Time required from 6 to 7 months.

22. Commencing Page 4 in attached discussion and report.

MARTIN L. WHITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

23. (a)	1 Miner @ 1.54 per hr. 48 hr. week Time and ½ Saturday -- $360.36 per. mo.	$ 2522.50
	1 Mucker @ 1.25 per hr. 48 hr. week Time and ½ Saturday -- $297.68 per mo.	2083.76
	1 Laborer 270.00 per mo.	1890.00
(b)	1 Self as Superv. & Manager 500.00 per mo.	3500.00
(c)	Repair Cabin	475.00
	Repair Blacksmith shop	350.00
(d)	4 Tent cabins 20 x 20 with metal roof and wood floor @ $300.00	1200.00
(e)	1 8" Blower and pipe	200.00
	1 Gas driven hoist Nova 15 H.P.	1100.00
	Skip & cable 1 T. cap. &	100.00
	650' 16 lb. @ 5½¢ per lb.	191.00
	275 ties	300.00
	5000' timber for timbering shaft, etc. @ $200.00 per 1000 ft.	1000.00
	Head frame and platform	2500.00
	Dynamite caps & fuse	770.00
	Blacksmith forge and tools	75.00
	Anvil 300 lbs. @ 27¢ per lb.	81.00
(f)	Air compressor @ $210 rental per mo.	1470.00
	650' 1½" pipe @ 32.34 per 100'	210.21
(g)	Truck @ $75.00 per mo.	
	Tractor @ $100.00 per mo. 44 H.P.	1225.00
(h)	Jack Hammer	265.00
(i)	Fuel for power and truck	1400.00
	TOTAL COST OF PROJECT	$ 22908.47

24.	Time for repairs	3 weeks
	Head frame	1 week
	Straighten incline shaft	1 week
	Sinking incline shaft 75'	7 weeks
	drifting work	4 weeks
	200' drift to W. side center stake Sylvania under Gossan & black kaolin	10 weeks

TOTAL TIME REQUIRED 6 to 7 months

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

The following discussion concerns one of the older Eastern Nevada mining camps with particular reference to Sylvania Group of Mining Claims, - Bullion, Elko County, Nevada.

LOCATION AND GENERAL.

Bullion is located at the North and bleak end of the Pinon Range in the southwest corner of Elko County, twenty-eight miles south and west of Elko, the county seat, railroad and business point. A county road that may be rated as good to fair, serves as one medium of transportation. A dirt county road exists from Bullion to Raines, distance of 11 miles. Minor repairs needed. 5 miles Highway from Raines to Palisade where facilities for rail loading are available. Elevation of Elko 5060 feet above sea level, elevation of old town of Bullion at foot of range about 6200 feet, while the mineralized zone (surface) ranges in elevation from 6800 to 8000 feet. There are no limiting grades for outgoing freight.

PHYSICAL FEATURES

The physical features are typically N.E. Nevada -- rugged mountains with dry, steep gulches, scattered juniper, mountain mahogany, nut pine, and a few groves of quaking aspen, none of which is suitable for permanent mine timber. Water in or near the mineralized zone is confined to a few small springs sufficient only for domestic and engine needs. In case milling should be contemplated, water for medium operation exists at three points, any of which will not exceed a two mile haul from point of operation. While winters are far milder than those of Elko or Elko County valleys, the snow fall is excessive with tendency towards drifting due to bleak exposure and winter winds. In three winters out of five, it is impossible to keep mountain roads open, even for sled traffic, during months of January, February, March and part of April.

GEOLOGICAL FEATURES

The apparent mineralized zone of Bullion (Railroad Mining District) is roughly rectangular in shape, of width (N.W. - S.E.) three quarters of a mile, and of length (N.E. - S. W.) of one and one-half miles. The formation is a belt of ordovician limestone (W. H. Emmons) bounded on both N.W. and S.E. sides by great dykes of granodiorite. The limestone is traversed across its width by several large irregular intrusive dykes of porphyretic material, made up of quartz phenocrysts in a feldspar mat impregnated with varying amounts of lead, copper, iron, silver, a little gold, and other minerals. In addition to the dykes above mentioned, smaller intrusions are to be observed, together with masses of unknown size, of which little is known at this time, but which may have great bearing on the scheme of ore deposition. Besides the tunnels and dumps of old work, in many places can be seen old surface works, often like quarries, where surface ores have been extracted. These were the superficial ores of Bullion to which little importance was attached by the old operators, but which, it is now believed, indicate the presence of intrusive porphry and the existence of cross bearing, ore-making, fissures.

HISTORY

Bullion was discovered in the fall of 1869 by prospectors overflowing from Virginia City. Activity followed immediately. First extensive operations were on the Standing Elk Claim by an English company, followed by the Web Foot, Tripoli, and Hoffman,

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

all producers of lead-silver-copper in carbonate form. After some years attention was given to deposits of copper silicate (chrysacolla) here and there over the surface and easily found. Notable producers of this straight copper ore were Sylvania, Copper Belle or Blue Belle, Bald Mountain Chief, Hecla, Sweepstakes, Key, and Valley View. This ore, in spite of its superficial nature, produced some 20% of the total for the district. Work so progressed, with six to ten companies, all of small acreage, until the demonetization of silver, when company operations ceased and lessors carried on. In a treatise published by the University of Nevada, Bullion is credited with a $3,000,000 production from 1869 to 1890, and $889,000 from 1890 to the present day, a total in round numbers of $3,900,000. Of the $889,000, it is certain that at least 90% was extracted during the last active period of 1913-1916 inclusive.

In 1903 a consolidation of claims on East side of the district was incorporated as the Nevada-Bunker Hill Mining Co., and an exploration tunnel started for purpose of development at depth. The company is still active and operating as the Alladin Mng. Co. The tunnel, 4000 feet long, is still short of objective, but is in splendid position for future development of entire north end of district. Portal elevation 6700 feet, elevation Elk tunnel 7500 feet, Tripoli tunnel 7600 feet, and Sylvania tunnel 7300 feet. Portal of Alladin tunnel is below bad snow conditions.

Meantime small leasing operations, with a few cars shipped each year, were carried on until late in 1912 when discovery of generous deposits of lead-silver-copper carbonates in the Key claim gave impetus to new activity with result that practically all properties were under lease. Most work was around, and in, old works in a hunt for overlooked ore bodies, but, nevertheless, new valuable deposits were opened on the Key, Web Foot, Valley View, Grey Eagle, Sweepstakes and Gladstone. There has been almost no activity in the last twenty years, except recently on the Sweepstakes where interesting and profitable operations have been carried on since June, 1939.

TRANSPORTATION

Practically all ore shipped previous to 1920 was hauled West to the Eureka-Palisade Narrow Guage, thence via S.P.R. to Salt Lake Smelters.

PRODUCTION METHODS OF OPERATION - TYPES OF ORE

As previously stated, the credited production of Bullion from 1869 to the present day is $3,900,000.00.

From a knowledge of old works, values, and various sources, I am giving the following figures as a fair, but rough, apportionment of the amounts for each of three types of ores: -

carbonate lead-silver-copper	$2,900,000.-
carbonate copper silver	220,000.-
siliceous copper (no silver)	780,000.-
Total	$3,900,000.-.

In the territory shown on map accompanying this report there has been produced about 90% of the credited production.

In all operations since discovery the methods have been the same, namely, - to pick out a promising objective and drive a

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

tunnel to cut beneath. Because of the configuration it has, in nearly all cases, been most convenient, from standpoint of tunnel length and depth, to drive S.W., and therefore, at right angles to the porphyries. While the latter are mineral bearing, often present themselves as low grade ore, and are most surely the sources of high grade secondary deposits, nevertheless, the chambered deposits, making up all of the production, lay in cross fissures of general S.W. - N.E. strike. They are termed cross fissures because they strike generally at right angles to the porphyries. Because tunnels have tended to a S.W. trend, they have failed to serve as mediums of exploration. The Elk tunnel, the largest of all workings, being a little off a true S.W. course, cut three cross fissures, one of which being driven upon led to the valuable Hoffman deposits. The others were not prospected, indicating lack of appreciation, by the old operators, of the importance of fissures and water courses.

Since discovery until the present day, Bullion has been a camp of tunnels. No serious sinking was ever contemplated and the only power hoist ever in the district, an old steam affair of the 1880's, still stands at the collar of a 270 foot incline shaft in the Tripoli workings. The Standing Elk has a 100 foot and a 200 foot shaft sunk from the No. 5 level, both operated by windlass. All other sinkings were no more than winzes.

At first, following discovery, Bullion was regarded as a silver-lead district, although the ore carried strong amounts of copper. Later extraction of straight copper surface ore began, then in 1914 discovery of copper-silver carbonates on the Grey Eagle, Gladstone and Sweepstakes. This led to the assumption that lead predominates in the South East portion of the district and copper in the North West portion, an assumption now proven false. The Sylvania Group is midway between the two zones mentioned.

Bullion has justly been regarded as a high grade camp. There are no dumps of low grade ore, there were very few unmined bunches left as too low in value, except around straight copper workings from whence, in the period 1915-1916, many tons of 15% copper ore were shipped, some of which was made up of cobbings left by former workers. Since all carbonate deposits have been found in water courses, leaching action is always apparent. Small bodies of carbonate ores, and by small I suggest three feet or less in thickness, tend to weakness in values through leaching to form a soft carbonate. Larger bodies, and most of them are larger, have a core of great richness with gradually decreasing values as the outer edge is approached. Ores extracted during the company days were classified as high grade and low grade. The first was sacked and shipped to outside smelters; the second, low grade, was smelted in the Bullion smelters. In 1925 and 1926, the slag dump from the Bullion Smelters was hauled by truck to Elko at a cost of $5.00 per ton, thence by railroad to Selby Smelters in California and there retreated at a fair profit for the purchaser. The protected interior, or core portion of larger ore bodies present a little copper, a secondary galena of 50 to 60% lead content and 100 to 200 oz. and better of silver per ton. The outer portion is a hard carbonate running approximately 30% lead, 20 oz of silver and 5% to 7% copper.

An often said expression of old Bullion miners or operators was that the ore bodies always presented the "little end up". This description seems quite appropriate and it can be further said, from observations and study, that there are no isolated carbonate bodies. The presence of a small body indicates a zone, and this zone made up of a mother body with varying lesser deposits nearby.

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

It may be said, also, that, excepting the Elk, no carbonate deposits cropped at the surface.

ORE DEPOSITION

In the study of Bullion ore deposition I shall not attempt to treat on the genesis of the ore, but rather adhere to the physical features and deductions based on exhaustive study of the indications and conditions surrounding ore deposits and ore zones, and the behavior of all pathways leading to ores.

The surface of the north half of the Bullion proven zone, or the part shown on accompanying map, presents a surface of limestone, designated by Emmons as Ordovician, but by steep gulches of north, or north east, trend. Cutting across the lime in a N.W.-S.E. direction are two very strong eruptive dykes of porphyretic material 10 feet to 30 feet in thickness. One cuts across the Sylvania Claim 300 feet north of its center, and traverses also the Hecla, Sweepstakes, Hoffman and Tripoli, with a 50 deg. dip S.W. This porphyry has an important bearing on the Hecla, Sylvania, Tripoli and Hoffman ores. The second dyke, roughly parallel to the first, cuts across the northern end of the Valley View Claim and traverses the Sweepstakes, Storm King, Standing Elk, and other claims. It has important bearing on the Sweepstakes, Valley View, Web Foot, Standing Elk, and Key deposits. No. 2 Porphyry stands nearly vertical. In addition to the two porphyries so described, smaller intrusive veins of identical appearance are encountered, parallel in strike and similar dip. In the neighborhood of carbonate bodies these small intrusions appear as well mineralized low grade ores. Still another form of porphyry, also identical in structure, are masses which appear both underground and on the surface. They appear as isolated but are most probably not, being rather intrusions in lime fissures and playing an important part in the scheme of ore deposits.

Cutting across the limestones, and of strike S.W. - N.E., are an unknown number of open fissures, which, except in ore zones, seem rather insignificant. These are the ore makers of the district, with dip N.W. varying from 50 deg. to vertical. Other fissures, but parallel to the porphyries, also exist, but these are important only in the ore zones. Fissures cannot be identified on the surface, but are indicated, I believe, by surface deposits of kaolin and surface ore.

The porphyries are yellow through oxidation and are similar wherever encountered, saving extent of mineralization. They present a feldspar mass in which clear quartz phenocrysts are embedded. Mineralization exists always, but in varying degrees, either as sulphides of copper, iron, lead, a small amount of zinc, with silver and a little gold, or in the iron residue resulting from decomposition and leaching of sulphides. Near zones of rich secondary carbonate deposits they appear as kaolin with a strong copper stain throughout.

Chrysacolla, the surface ore of Bullion, has played an important role in Bullion history, has been high in grade, cheaply mined, and easily found due to certain vegetation attracted by the hydrous clay and kaolin accompanying the copper. The deposits were well distributed over the claims shown, there being no less than fifteen of which eight were on claims of the Sylvania Group. By miners they were judged freakish, and not a part of any scheme of deposit. The ore was extracted and the area forgotten.

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

A thorough study of the chrysacolla deposits, aided by the one attempt at development by a tunnel cutting beneath, reveals a definite order. The deposits are not hit or miss but line up in orderly fashion as the outcroppings of ore bearing cross fissures sometimes directly upon the cropping, at others, vertically above a dipping fissure. My theory is that in the making an intrusion of well mineralized porphyry occupied the cropping area. Then with conditions suitable for secondary deposits of copper silicate, the copper and quartz in the porphyry joined to form chrysacolla deposited against the lime contacts, while decomposition of the feldspar resulted in a kaolin that fills the interior portion of the deposit. The lead and silver in the primary sulphides have been carried downward to form secondary ores below. It has been demonstrated in recent Sweepstakes exploration that the Kaolin beds are not limited to the surface, as previously supposed, but may be encountered anywhere in the oxide zone which extends downward 600 feet, plus, below the Sylvania tunnel level or below the elevation of the Alladin tunnel, which is still in oxidized matter.

The porphyries have never been exploited. The Standing Elk did nothing at all, although the dyke presented a fine appearance of near shipping ore. The Tripoli ores lay under the Sylvania porphyry, yet no cross cut or drift was run to it. In 1916 work was carried on by drifting and raising in the Elk porphyry in or near the Web Foot claim at depth of 400 feet. Two or three cars were shipped from bunches of ore contained within the porphyry itself, which suggests to me strong possibilities of large deposits of milling sulphide ores at a lower level.

To date the source of practically all mined ore has been cross fissures which form the underground watercourses of the district. The ore, when not a silicate of copper is a carbonate form with secondary sulphides present in the interior of the mass, and is deposited in the form of chambers, chimneys, pipes and totally or partially, filled caves, usually a combination of all to form an ore zone. The values are proportional to the size, particularly the thickness of the ore body, the large bodies carrying by far the best values. Also, in the irregularities present in limestone it is found that the best ore lays in the steeper portions of the chambers. Whenever benching occurs, the ore becomes thin and weak, with horizontal portions almost without value.

The so called East Drift of the Standing Elk tunnel run in during discovery of the Hoffman ore deposits presents a splendid study of conditions leading to ores in a typical cross fissure. The Hoffman fissure crossed the Elk tunnel as a clean cut, but narrow fissure, one quarter to one half inch wide, filled with wet gravel particles. There was no sign of mineralization. After drifting one hundred feet or more, a weak copper stain and sooty manganese appeared in the fissure, then tiny bunches (an inch or two in diameter) of carbonate lead-silver-copper adjacent to the fissure. As the drift advanced, the ore bunches become larger and the lime changes to a course crystalized calcite, a secondary deposit of limestone. This is the ore zone. At this point, about 200 feet from the main Elk tunnel, there is much copper stain, sooty manganese, pink, chrystalized lime, and seams of red med. At this point, also, the drift abruptly breaks into the mother deposit, one of the richest of the camp's and ranking second in production. Little work was done below the tunnel level, but above were many chimneys extending nearly to the surface. The Hoffman deposits were not adjacent to either porphry dyke, but rather midway between. The description so given of the physical features surrounding the Hoffman ore zone may be applied to all known zones.

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

Each has its own peculiarities, but in general the description applies to all including the copper silicates, the copper-silver, and the lead-silver-copper. In the copper-silicate zones, however, the crystalized lime is of much finer texture with often a case hardened, siliceous exterior, most resistent to drilling.

The Aladdin tunnel driven to open the entire north end of the district has barely penetrated the ore zone and not yet reached the Tripoli, or Sylvania, porphyry dyke. Small streaks of rich carbonate silver-lead-copper are present near the face, and the general appearance is favorable. This tunnel is of S.W. strike and therefore parallel to the ore fissures. With slight additional length it would serve well as a medium for cross cutting the entire district by driving N.W. and S.E. This tunnel now past the 400 foot mark is heading toward the S.E. corner of the Victor claim (Sylvania Group).

SWEEPSTAKES GROUP, 2 CLAIMS.

Before entering into a detailed discussion of the Sylvania Group, a few remarks concerning old and present operations of the Sweepstakes and Stwwpstakes South will aid in establishing a picture of the western portion of the district.

In the earliest period much shallow digging was done throughout the length of the two claims, resulting in shipment of an unknown tonnage of siliceous copper ore and some carbonates of silver-copper. The most extensive work was located in the south central portion of the Sweepstakes, where a depth of about 50 feet was attained and apparently righ ore extracted near surface. The lowest workings present a strongly leached condition comparable to the upper tips of Bullion carbonate ores.

In the 1890's the Hesson Tunnel was driven from the east to tap below the above described works at 230 foot level. The end of this tunnel being caved, it is impossible to comment on what might have been found, or whether the objective was reached. In 1913 and 1914 the Hesson Tunnel was driven from the point of cave south 1000 feet toward old works in the N.E. corner of the Sweepstakes south. All of the development was carried on with no attention whatever paid to fissures encountered.

More recent work on the Sweepstakes has resulted in a long tunnel also penetrating the zone under the principal surface workings from the north. This tunnel is some 1000 feet long and over 100 feet deeper than the Hesson tunnel. Present operators, working on a bond and lease, have shipped about 20 cars of silver-copper and lead ore that is probably the same body as seen at surface but with less leaching action manifest. Protected interior portions of the ore give high assay returns, as one of Jan. 28, 1940:-

0.02 oz.	gold
114.8 oz.	silver
11.83%	copper
7.92%	lead

The indications and characteristics surrounding the Sweepstakes operations of today make it seem probable that a large deposit of profitable ore exists within the zone now being exploited. One interesting feature is that kaolin beds, not reaching the surface, have been encountered at depths of 250 to 350 feet below the surface. The kaolin in this case is accompanied

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

with the usual copper ore, but silver bearing and leaning to carbonates rather than silicates. This I believe is favourable to deeper seated ore bodies.

SYLVANIA GROUP

The Sylvania Group consists of six patented mining claims: Sylvania, Vindicator, Victor, Valley View, Kenilworth and Wide West, and occupying the central position of the main producing area of the district. Production has been approximately $500,000. All silicious copper ore except a few tons of lead-silver-copper carbonate shipped from the Sylvania during the 1913-1917 period. No less than nine old producing works are seen with a maximum depth attained of 175 feet (SYLVANIA) and 150 feet (VALLEY VIEW). After exhaustion of the Upper Sylvania pits a tunnel was run to cut 100 feet below surface, but when this tunnel demonstrated only mud filled fissures and chambers descending the company ceased operations. Later work gave additional depth of 75 feet and proved the existence of a new ore zone below, and that a carbonate zone.

A brief description of the principal old works of the Sylvania Group here follows:

Sylvania Pits, upper and lower with two other quaries of lesser importance, all fitting a scheme, wherein an important N.E.-S.W. fissure and a main porphyry plus porphyry masses and veins of the same material play an important role.

The McCoy quarry and tunnel 400 feet East demonstrated another very strong S.W. ore bearing fissure, unexplored beyond extraction of surface silicious ores.

The B. and B. ore bodies under the Elk porphyry at the North end of the Valley View claim, discovered in 1915 and ores extracted to depth of deposit, approximately 60 feet. A tunnel was run the same year cutting porphyry at depth of 150 feet. The porphyry here appeared as a dyke 15 feet thick and very nearly perpendicular, kaolinized and with a strong copper stain, similar in every way to the porphyry near the Elk and Web Foot Ore bodies and similar to in every item except dip, to the porphyry exposed in the carbonate zone of the Sylvania workings 75 feet below the Sylvania tunnel.

In 1918 silicious copper ore of 40% copper content was extracted 600 feet S.W. of the B. and B. workings. This I judge to be on the same ore fissure as that of the B. and B. deposits and possibly the same as that of the main Sylvania ores.

In the N.W. corner of the Valley View are old diggings common also to the Sweepstakes from which it is evident considerable ore was extracted in the earliest days.

The foregoing outline of work on the Sylvania Group is to demonstrate the lack of exploration and the failure of old operators to associate the surface ores with the permanent carbonates below. Arthur Lake, an eminent mining geologist of thirty years ago, author of many mining works and associated for many years with the Colorado School of Mines, has this to say regarding Chrysacolla, the hydrous silicate of copper: "Chrysacolla, unworthy of being called an ore, but often leading to valuable deposits of different type." In Bullion this form of copper indicates the croppings of ore zones on important ore bearing fissures, or may be associated with other forms of ore throughout the entire oxide zone. In this discussion it must be constantly carried in mind that, excepting

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

the Elk, the apex of Bullion carbonate ores has been below the surface.

It may be said that the Sylvania Group possesses everything indicative to ore bodies that is found in the old producing area closely East or in the Sweepstakes equally close on the West. It possesses, moreover, many more worked out deposits of surface ores, thus strongly suggesting the possibility of larger ore zones.

In the matter of ore bearing fissures of S.W. - N. E. strike within the Sylvania group, two can be identified. There are strong and almost positive indications of at least two others. The powerful porphyry dykes, two in number, that play an important part in the ore deposition of the Northern portion of the district, both traverse the Sylvania Group.

DEVELOPMENT IN THE SYLVANIA TUNNEL:

The Sylvania tunnel driven S.W. about 1890, to cut under the main quarry, encountered a knife blade seam of carbonates striking south at a point 35 feet inside the portal and at 70 feet an intrusion of porphyry of S.E. trend 6 inches thick in the roof and 24 inches in the bottom. At approximately 160 feet the tunnel intersected the main porphyry dyke 10 feet thick and of dip 50 deg. to 60 deg. S.W., striking S.E. and identified as the same dyke cropping on surface above, but carrying more mineralization. The first operators paid no attention to the zones mentioned, but kept driving ahead, veering strongly to the left, however, after cutting the porphyry. The ground traversed was in a white closely grained silicified lime, altered through process of ore making in the upper and lower pits. At the 200 foot point contact was made with the zone of caves and fissures in which, 100 feet above, much valuable ore had been extracted. The caves and fissures so found extending downward from the surface pits were filled with grey and brown clay showing no signs or indications of ore. The complicated net work of mud filled caves, chimneys and fissures presented a positive water course of general dip N.W., which is normal for the district. The tunnel was driven on about 60 feet with another left swing and then abandoned.

Shortly after 1905 an Oakland group secured the property and proceeded to drive N.E. on the knife blade carbonate streak 35 feet inside the portal. At 40 feet they encountered the small porphyry intrusion that crosses the main tunnel at the 70 foot point. The porphyry appeared as a vein two feet wide, dipping S.W. parallel to the main dyke, with all the porphyry characteristics, but well mineralized and highly copper stained. I judge the gross value as $10.00 to $15.00, but not of shipping grade.

An incline shaft was sunk on the porphyry ore material downward for some 60 feet on a dip of 45 deg. to a point at which there appeared a very strong S.W. fissure of dip N.W., thus forming the intersection of two planes, one a porphyry ore of strike S.E. and dip S.W., the other an ore filled fissure of carbonate ore of strike S.W. and dip N.W., the dips being approximately identical in degree. The fissure here presents the appearance of being the tip of ores extending downward, with ore tending strongly to lead along with copper and silver and is in form of soft carbonate, which in Bullion indicates leaching of values. Some ore was shipped from this point leaving an open stope 15 to 20 feet high. Ore on top of stope 8 inches, in floor 20 inches. Since the Oakland operators flattened off the incline at this point and followed the S.W. fissure on an easier grade, it is impossible at this time to determine whether or not the porphyry filled fissure

MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY, CALIF.

outs off on contact with the S.W. fissure.

The situation as explained above is an interesting one because both fissures cut under the lower Sylvania pits which can be reached either by driving Northwesterly on the porphyry or by sinking N.W. on the ore filled fissure. The lower pits are less than 40 feet distant horizontally. The porphyry fissure, if continuous downward, would likewise pass under the upper pits; the S.W. fissure does penetrate the upper pits at a depth of 175 feet below the surface, or 75 feet below the sylvania tunnel as demonstrated in the workings.

The Oakland operators ceased work about 1907, after which various leasers carried on until 1930. The incline was sunk to 120 feet, with depth of 70 feet, then because of bad working conditions, caused by a very crooked shaft, a drift was driven 80 feet on the fissure to a point under the N.E. rim of the upper pits. As work progressed, the top or tip of the ore being followed, constantly dropped so that in the last 40 feet it appeared in the bottom of the drift only. In the last 10 feet the ore had dropped to such an extent that it was necessary to sink six feet additional to uncover the ore. Meantime the values increased in copper and silver content with lead remaining about the same, with indications very strong, however, that main chambers will be found to contain lead-copper-silver as in the Elk, Tripoli, Web Foot and Key.

The Tripoli or Sylvania porphyry dyke was encountered at the 35 foot point in the 80 foot drift and continued for 20 feet, thus indicating a 20 foot thickness, double that seen in the main tunnel. At first contact the fissure lost its identity in a kaolinized copper stained porphyry, but appeared again in the bottom of the drift at 50 feet as a strong 12 inch vein of carbonates of shipping grade. At 65 feet the ore had dropped entirely below the drift level. Sinking six feet and drifting ahead 15 feet gave the face as of today and still stronger indications of large ore bodies nearby. Furthermore the ore in the bottom near the face is the best so far found in the Sylvania carbonate zone, giving a 7/20/30 of 11.1% copper, 17.8 oz. silver and 19.8% lead.

From personal knowledge of the Standing Elk, Hoffman, Web Foot and Key ore deposits, especially of the Elk and Web Foot where the porphyry has a like position, I can say that conditions appearing in the Sylvania incline and drift are the same conditions that appeared in the fissures leading to the other deposits. First, the very strong cross ore bearing fissure followed down the incline and on to a point close to the zone of caves and chambers of the upper pits. Second, the mineralized and kaolinized dyke, in appearance identical with porphyry in other proven ore zones. Third, a tendency in the last 15 feet for ore to bunch up near fissure. Fourth, the change in the last five feet of incline drift from a fine grained white lime to a rough crystalized lime that is undoubtedly calcite and the natural casing of larger deposits. It is noted also that two open fissures, nearly vertical, appear in the face. They are water bearing and filled with red mud, a condition strongly suggesting ore chambers close by.

During the period of Sylvania Company work, the lower pits were likewise worked out to a shallow depth of about 30 feet by tunnel. At depth mentioned, the silicious copper rested on mud identical with that below the ore in the upper pits. Another interesting feature of the lower pits is in the extension of the lower pit tunnel to the porphyry. The zone between the pits and

MARTIN L. REITE
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the porphyry is heavily impregnated with copper, lead and silver in form of sulphides for a width of 10 or 12 feet. Assembling all the facts brought forth by work in and adjacent to the upper and lower pits, results in a picture of various details that together form a definite system of ore deposition. Both pits are key points, and it is my belief that had the old Sylvania Company chosen a tunnel site 100 feet lower, it would have been successful in opening new bodies far more valuable than those extracted.

Above and to the S.W. of the upper pits is a kaolin bed that is part of the same system. In 1915 a tunnel and shaft, which gave a total depth of about 70 feet, penetrating a zone of chalky material, heavily impregnated with manganese, identical with ore now to be seen in the Sweepstakes tunnel. This appeared as a leached ore running 6% copper but too low to ship. From knowledge since gained, it seems most probable that this black, chalky material is the apex of copper-silver-lead chambers.

Two hundred feet south of the Sylvania tunnel portal, the Sylvania or Tripoli porphyry crops boldly and decidedly pink with nearby lime of the same color. This condition is found on the surface near the Elk chamber and is regarded as highly significant by all who know Bullion.

TYPE OF ORE AND VALUES

Supporting data in shape of assay returns representing, as it would, the apex of ore bodies and consequently that portion of maximum leaching, would fail to give a true idea of Bullion ores. The history of Bullion throughout has shown all ore bodies discovered to be of shipping grade excepting the tips and horizontal portions, which make up a very small part of the whole. It is my belief that copper will predominate over lead to the extent that the ore will be handled by siliceous smelters. This applies to the Sylvania tunnel zone and the theory is based on location in respect to Sweepstakes silver-copper deposits and in part on assays covering various portions of the Sylvania incline workings. The latter follows:

No.	Cu%	Lead%	Silver oz.	Remarks
1	0.36	14.85	8.10	Ore on dump 1914 - later shipped.
2	0.77	10.7	4.28	Tip of ore 80' down shaft.
3	3.1	11.0	8.6	Bottom of Shaft.
4	7.2	28.3	17.3	Hard ore 30 feet S.W. of Shaft.
5	7.1	12.2	9.0	Soft ore 30 feet S.W. of Shaft.
6	6.8	28.4	17.3	Bottom of drift 40 feet S.W. of Shaft.
7	11.1	19.7	17.8	Face 7/20/30 2 feet of ore bottom.
8	3.58	12.8	17.70	Soft ore top 10 feet back of face (taken 5/4/39).
9	6.33	13.5	11.1	Soft ore bottom 10 feet back of face (taken 5/4/39)

Samples, all carbonates, with 4, 5, 6, 8, and 9 containing some hard carbonate. Ninety percent or better of all carbonates shipped from Bullion has been hard carbonate.

Prepared by MARTIN L. REITE, Owner of Sylvania Group of Mining Claims to best of his knowledge.

You are looking S.E. with incline to your left.

Scale – 1 Inch = 10 feet.

INCLINE SHAFT

30°

← Leached Ore Matter
4 oz Ag 1½% Cu. 12% Pb
E.

← Low Grade Vein Matter

S.W.

DRIFT UNDER INCLINE - Vein Matter

← 30' →

Continuation of incline another 25 feet

8" Streak
Shipping Ore Showing in bottom of drift

All material from this winze shipped.
(About 60 tons)

C

B

A – A – A

Small Fault

← 30' to Breast →

Ore shoot

Small Fault

enriched ore coming in here beyond fault

← Short Drift →
Breast of drift very close to near edge of Upper Pit Quarry

Ore A-A-A is a rough siliceous iron carrying small lead values, with weak copper and silver. No copper stain. Ore at E is a soft yellow brown, running about 1½% Cu 12% lead and 4 oz in silver. It carries same values, approximately, as ore in roof at foot of incline. Unlike ore at H, it is not rough, but consists of a fine grained, soft mixture of lead and iron, tied in with a lace-work of white quartz, honey-combed. C ore is very good, but will turn to ore similar to A and B with a little depth. The ore in the bottom of the winze is totally unlike that at E in roof at foot of winze. The latter is a dark red with a few copper stains, is earthy in texture, mushy in feel, and is without doubt a product of the oxide zone. The lead cannot be distinguished, being tied up with limonite. The winze ore, - bottom- presents the usual signs of nearness of enrichment, white quartz, kaolin in small bunches, sericitized porphyry, and the gravelly appearance after shooting. Also small pieces of enriched ore are found after shooting. Average assay 5% cu., 13% pb., 9 oz ag.

MARTIN L. REITE
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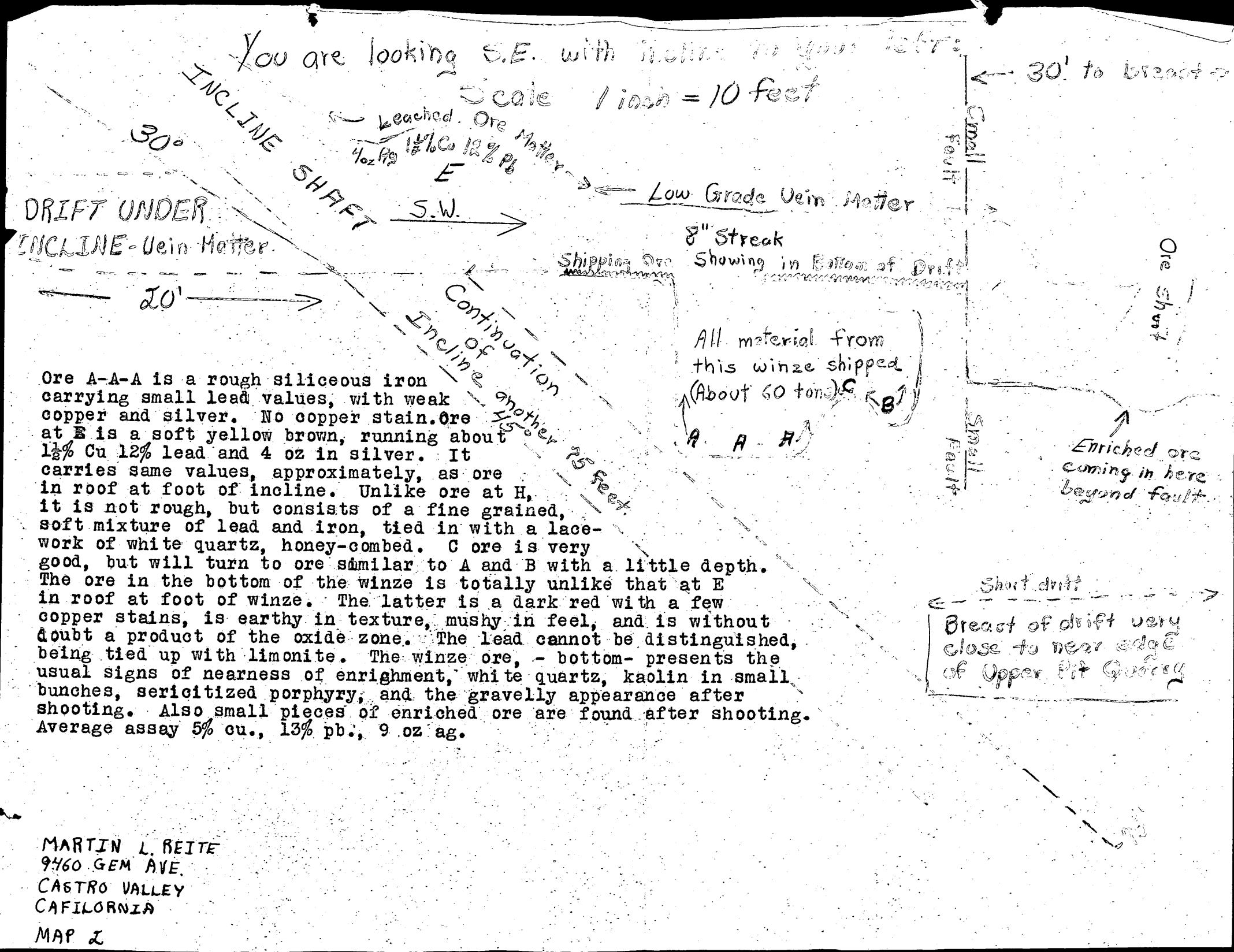
CALIFORNIA



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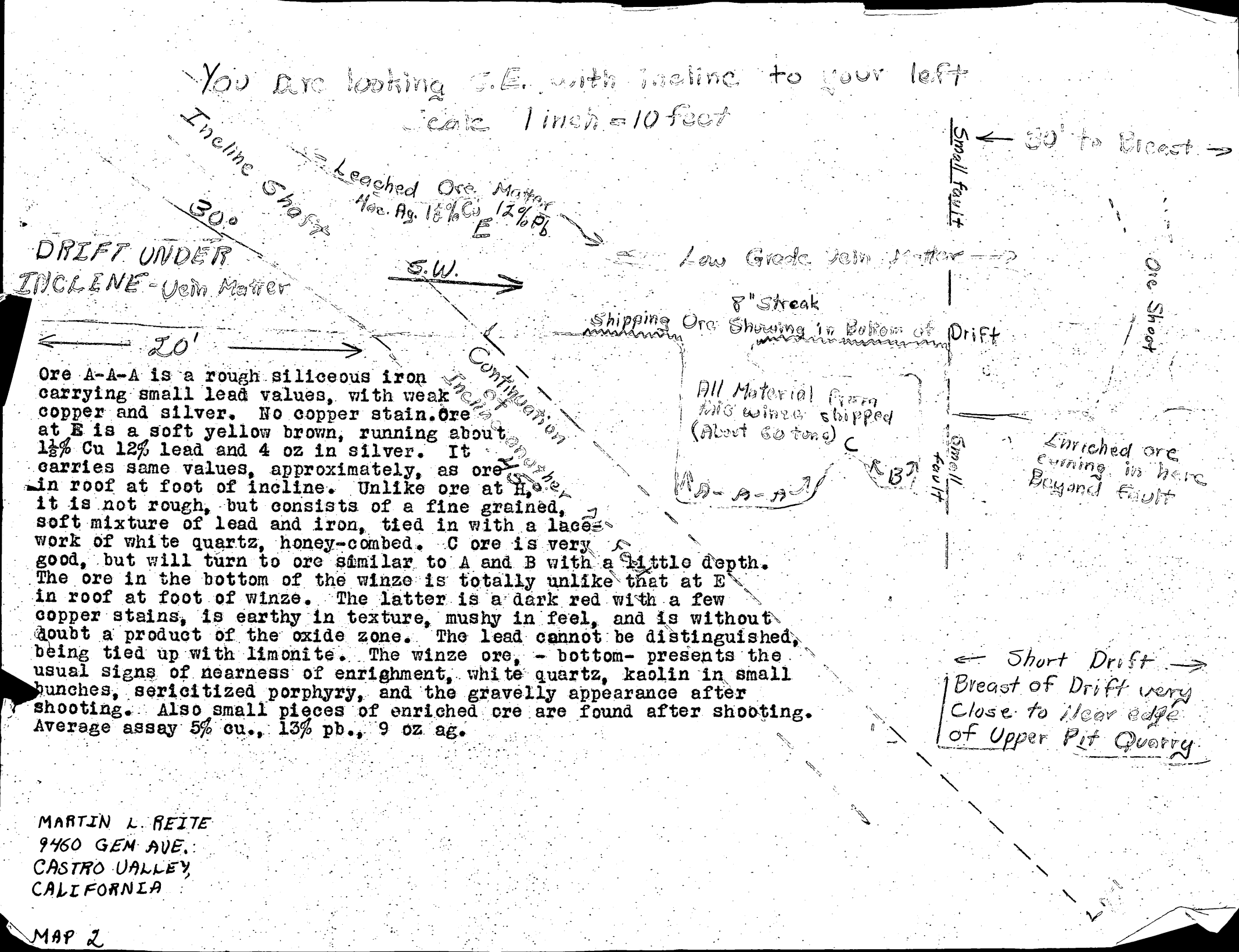
CASTRO VALLEY
CAFILORNIA

MAP 2



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MARTIN L. REITE
9460 GEM AVE.
CASTRO VALLEY,
CALIFORNIA

MAP 2

Refer to	Noted	Date
Answered		

MARTIN L. REITE
~~XXXXXXXXXXXXXXXX~~
CASTRO VALLEY, CALIFORNIA
9460 Gem Avenue

May 31, 1951

DEPARTMENT OF INTERIOR
BUREAU OF MINES
REGION III
RECEIVED
MAY 31 1951
SAN FRANCISCO, CALIFORNIA

Defense Minerals Administration
1415 Appraisers Bldg.
San Francisco, Calif.

Gentlemen:

You will please find enclosed 4 copies of your form MF-103, Application for Aid for an Exploration Project pursuant to Mineral Order 5, also 4 copies of general report on the property in discussion with map of the property showing claims, ore bodies and workings.

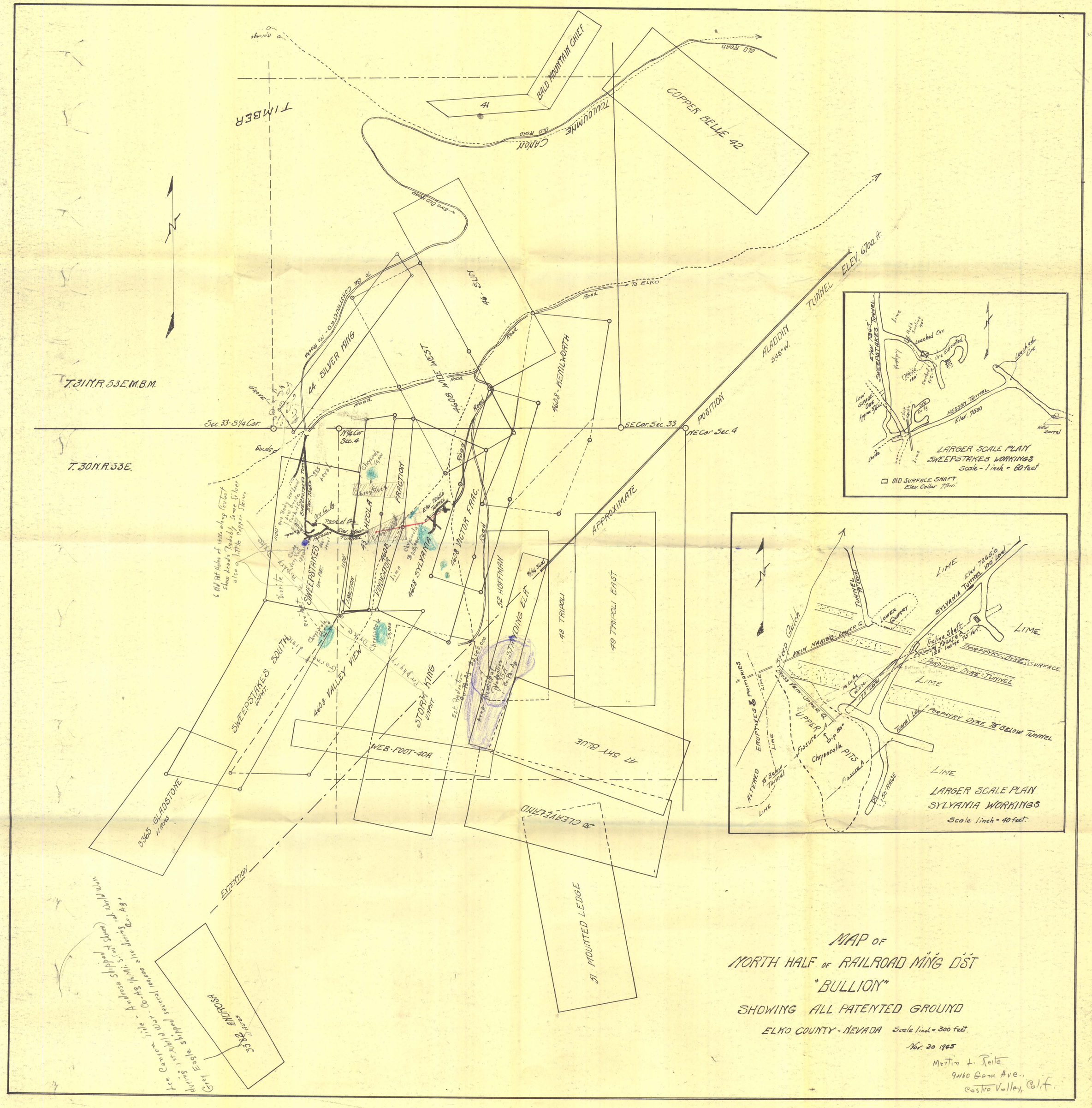
I trust that it will meet with your approval to make certain adjustments should this application not meet with your entire satisfaction. The property has not been visited as yet this year; however, an inspection is being planned with a competent engineer within the next two weeks, after which a more detailed report can be made.

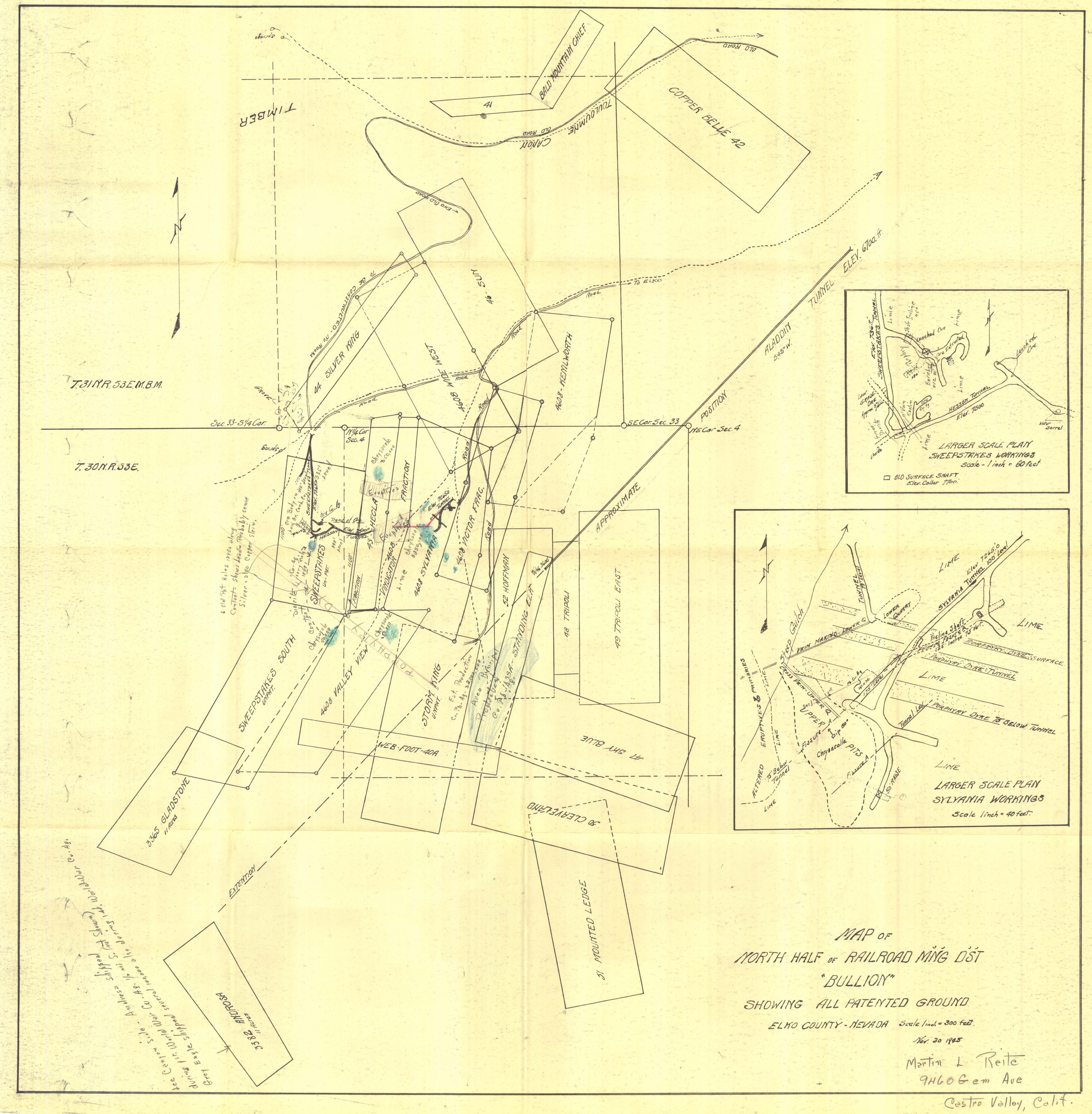
Thanking you for your very careful consideration in this matter, I remain

Very truly ~~yours~~,

MARTIN L. REITE

MLR:EL
Enc.


BALD MOUNTAIN CHIEF
41
COPPER BELLE 42
TIMBER
TOULOUMNE
CAÑON
OLD ROAD
END OLD ROAD
TO ELKO
Road
46 - SUN
44 SILVER KING
4608 WIDE WEST
4608 - KENILWORTH
ALADDIN
TUNNEL ELEV. 6700 ft.
S.45° W.
POSITION
APPROXIMATE
T.31 N. R. 53 E. M.B.M.
T. 30 N. R. 53 E.
Sec. 33-5 1/4 Cor.
N 1/4 Cor Sec. 4
SE Cor. Sec. 33
NE Cor. Sec. 4
SPRING
GROVE
SWEEPSTAKES
SWEEPSTAKES TUNNEL
ELEV. 7365
Ore Cut
Trend of Ore
Chrysocolla
Eruptives
4608 HECOLA
FRACTION
4608 VICTOR FRAC.
ELEV. 7050 TUNNEL
4608 VINDICATOR
4608 SYLVANIA
52 HOFFMAN
STANDING ELK
48 TRIPOLI
49 TRIPOLI EAST
SWEEPSTAKES SOUTH
UNPAT.
4608 VALLEY VIEW
STORM KING
UNPAT.
WEB-FOOT-40A
47 SKY BLUE
3365 GLADSTONE
11 Acres
30 CLEAVELAND
31 MOUNTED LEDGE
EXTENTION
3382 ANNIROSA
11 Acres
LARGER SCALE PLAN
SWEEPSTAKES WORKINGS
Scale - 1 inch = 60 feet
OLD SURFACE SHAFT
Elev. Collar 7700'
Leached Ore
Ore Extracted
Elev. 7365' Tunnel
Hesson Tunnel
Elev. 7500
Water Barrel
LARGER SCALE PLAN
SYLVANIA WORKINGS
Scale 1 inch = 40 feet
LIME
Elev. 7265'
SYLVANIA TUNNEL 100' level
TUNNEL 75' level
LOWER QUARRY
Steep Gulch
VEIN MAKING
LOWER Q
Incline Shaft
Following Fissure A
125' Incline 75' level
PORPHYRY DYKE SURFACE
PORPHYRY DYKE TUNNEL
Tunnel Level
PORPHYRY DYKE 75' BELOW TUNNEL
CROSS VEIN
UPPER Q
UPPER A
Fissure A
Dip 80°
Chrysocolla PITS
ERUPTIVES & PORPHYRIES
ALTERED
75' Below Tunnel
50' RAISE
MAP OF
NORTH HALF OF RAILROAD MING DIST
"BULLION"
SHOWING ALL PATENTED GROUND
ELKO COUNTY - NEVADA Scale 1 inch = 300 feet.
Nov. 20 1945
Martin L. Reite
9460 Gem Ave.,
Castro Valley, Calif.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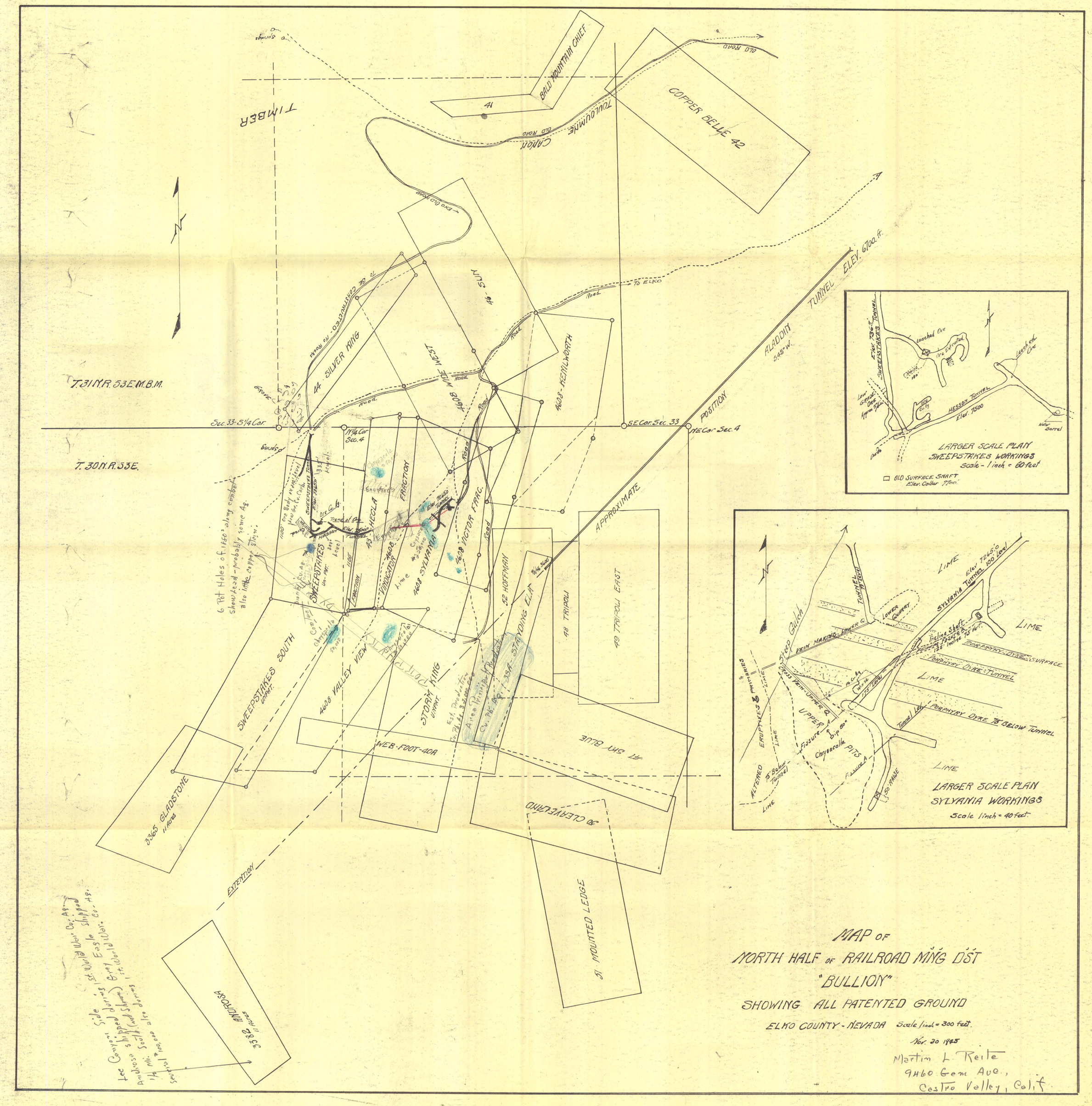
T.31N.R.53E.M.B.M.
T.30N.R.53E.
TIMBER
BALD MOUNTAIN CHIEF
41
COPPER BELLE 42
TOULOUMNE
CANON
OLD ROAD
To ELKO
Road
44 SILVER KING
46 SUN
4608 WIDE WEST
4608 - KENILWORTH
ALADDIN TUNNEL ELEV. 6700 ft.
S45°W.
POSITION
APPROXIMATE
Sec. 33-5 1/4 Cor.
N 1/4 Cor Sec. 4
SE Cor. Sec. 33
NE Cor. Sec. 4
4608 HECLA FRACTION
4608 VICTOR FRAC.
4608 SYLVANIA
4608 VALLEY VIEW
SWEEPSTAKES
SWEEPSTAKES SOUTH UNPAT.
STORY KING UNPAT.
52 HOFFMAN
48 TRIPOLI
49 TRIPOLI EAST
47 SKY BLUE
50 CLEAVELAND
51 MOUNTED LEDGE
WEB-FOOT-40A
3365 GLADSTONE 11 Acres
3382 AMBROSIA 11 Acres
EXTENTION
LARGER SCALE PLAN
SWEEPSTAKES WORKINGS
Scale - 1 inch = 60 feet
OLD SURFACE SHAFT
Elev. Collar 7700.
Elev 7365.0 Tunnel
SWEEPSTAKES TUNNEL
Hesson Tunnel
Elev. 7500
Leached Ore
Lime
Low Grade Ore
Barrel
LARGER SCALE PLAN
SYLVANIA WORKINGS
Scale 1 inch = 40 feet.
Elev 7265.0
SYLVANIA TUNNEL 100 level
Step Gulch
VEIN MAKING
LOWER QUARRY
Incline Shaft
Following Fissure A
Incline 75 Vert.
PORPHYRY DYKE SURFACE
PORPHYRY DYKE TUNNEL
Tunnel Level
PORPHYRY DYKE 75' BELOW TUNNEL
Cross Vein - Upper
UPPER
Fissure A
Dip 80°
Chrysocolla PITS
ALTERED ERUPTIVES
75' Below Tunnel
50' RAISE
LIME
See Century Site - Analyses Shipped Co. Ag. 1.7 oz. Shipped Sources also during 1.
Bring 1.5 oz. Gold Also Eagle Shipped Sources also during 1.



MAP OF NORTH HALF OF RAILROAD MNG DST "BULLION"

SHOWING ALL PATENTED GROUND

ELKO COUNTY - NEVADA Scale 1 inch = 300 feet.

Nov 30 1945

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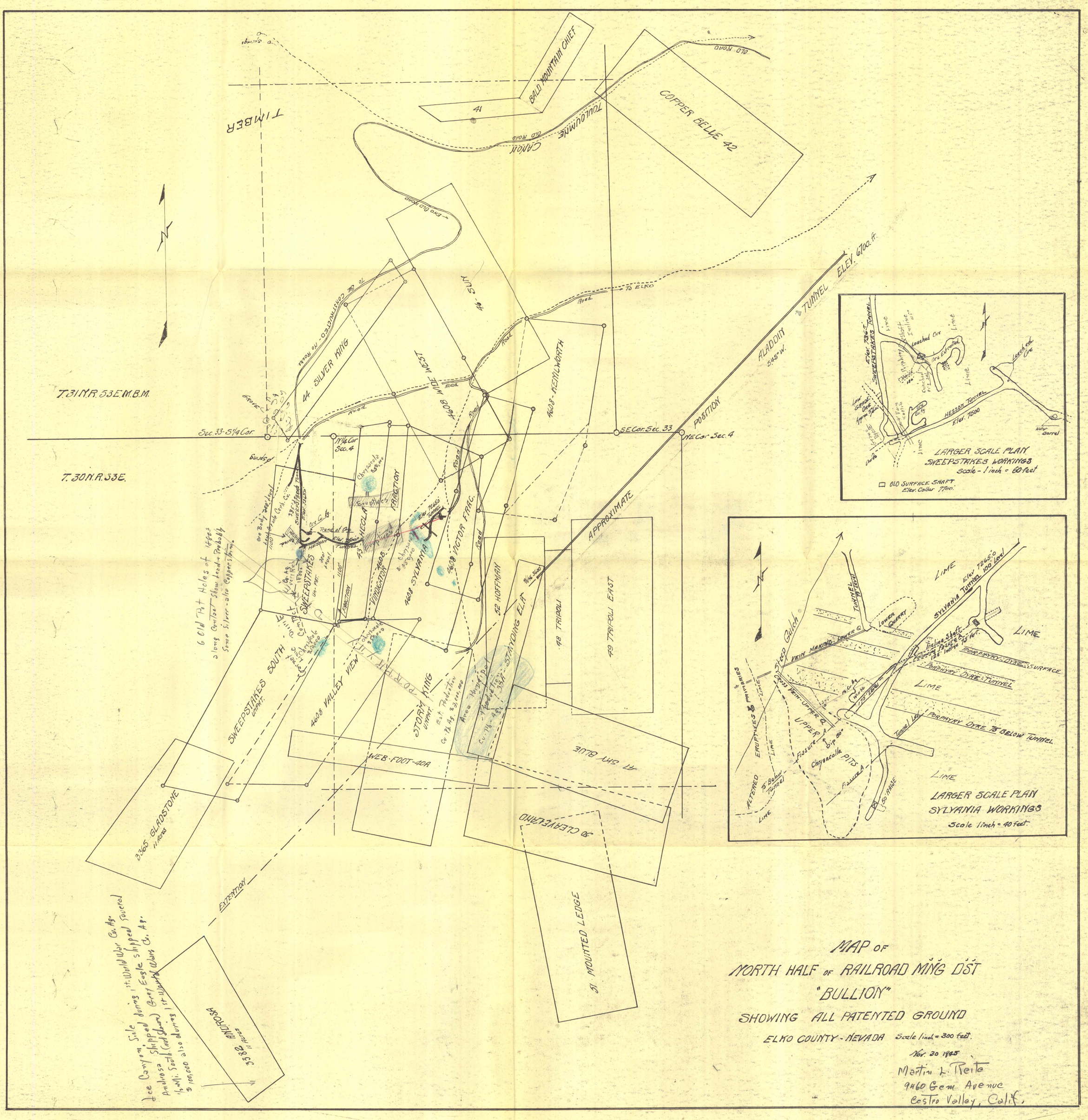
9460 Gem Ave.,
Castro Valley, Calif.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NORTH HALF OF RAILROAD MING DIST
"BULLION"
SHOWING ALL PATENTED GROUND
ELKO COUNTY - NEVADA Scale 1 inch = 300 feet.
Nov. 30 1945
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9460 Gem Avenue
Castro Valley, Calif.
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POSITION
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TUNNEL ELEV. 6700 ft.
ALADDIN S45°W.
TIMBER
BALD MOUNTAIN CHIEF
COPPER BELLE 42
CANON
TOLLOMINE
OLD ROAD
TO ELKO
TO BE CONTINUED - NO ROAD
44 SILVER KING
4608 SUN
4608 SUN WEST
4608 KENILWORTH
4608 HECLA
4608 VICTOR FRAC.
4608 SYLVANIA
4608 VINCINTOR
4608 VALLEY VIEW
SWEEPSTAKES
SWEEPSTAKES SOUTH
STORM KING
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48 TRIPOLI
49 TRIPOLI EAST
47 SKY BLUE
WEB-FOOT-40A
3365 GLADSTONE
EXTENTION
51 MOUNTED LEDGE
50 CLEVELAND
3382 HYDROSA
Lee Canyon Sale during 1st World War Co. Mg. Shipped Sorted
Andiosa (not shown) Great Eagle Shipped
1/4 Mi. South (not shown) 1st World War Co. Ag.
$ 100,000 a ton during 1st World War
6 Old Pot Holes of 1890s along Contact Show Lead + Probably Some Silver - also Copper Stains.
Chrysocolla
Eruptives
Trend of Ore
Ore Cut Up
Hesson Tunnel
Elev. 7500
Elev. 7650 Tunnel
Sweepstakes Tunnel
Elev. 7650
Ore Body 300' level
Lead Copper Cap. Cut
Un-Pat.
Fraction
Lime
Leached Ore
Ore Extracted
Sweepstakes Tunnel
Elev. 7350
Hesson Tunnel
Elev. 7500
Water Barrel
Sylvania Tunnel 100' Level
Elev 7265.0
Lower Quarry
Tunnel 1st Level
Step Gulch
Vein Making - Lower Q
Cross Vein - Upper Q
Upper A
Fissure A
Dip 80°
Chrysocolla Pits
Fissure A
Tunnel Level
Porphyry Dyke 75' Below Tunnel
Porphyry Dyke - Surface
Porphyry Dyke - Tunnel
Inclined Shaft
Following Fissure A
Eruptives
Altered
75' Below Tunnel
50' Face
Water
Surface