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

224 New Customhouse
Denver 2, Colorado

July 23, 1953.

Memorandum

To: Administrator, Defense Minerals Exploration Administration

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 3064 (Copper-Zinc), Mountain States Metals Company, Copper World Mine, Mohave County, Arizona.

The application for Government assistance in exploration work estimated to cost $29,745.00 has been approved by us and a contract is being prepared.

Government participation will be 50 percent, or $14,872.50.

Four copies of the Final Report will be forwarded when the contract is executed. Two copies of Form 3b are attached.

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

Enclosures

RMC:cwm

cc: WRStorms w/copy of Final Report
RERobinson w/copy of Final Report
AHKoschmann w/copy of Final Report
DMEA w/copy of Final Report
Mining Division w/copy of Final Report
Subject
AHKoschmann (2)
Chron.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

July 23, 1953.

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 3064 (Copper-Zinc), Mountain States Metals Company, Copper World Mine, Mohave County, Arizona.

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

The applicant requested $29,745.00 for sinking 165 feet of winze and 400 feet of drifting.

The engineer examiner recommends the applicant's exploration proposal and estimated costs.

We concur in this recommendation.

W. H. King

W. H. King

Enclosures

SOUTHWEST EXPERIMENT STATION
Box 4097
UNIVERSITY STATION

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
MINING DIVISION
REGION IV

Mining Division
Date Rec'd.
JUL 20 1953
BUREAU OF MINES
TUCSON, ARIZONA
Denver, Colorado

July 15, 1953

Memorandum

To : W. H. King, Chief, Mining Division, Region IV

From : Chief, Mining Methods Br., Mining Div., Region IV

Subject : Report on Docket DMEA-3064, Mountain States Metals Co.'s Copper World Copper-Zinc Mine, Cedar Valley Mining District, Mohave County, Ariz.

Enclosed are original and 8 copies of the section on Summary, Conclusions and Recommendations by R. F. Robinson of the Geological Survey, and M. J. Elsing and J. H. Soule' of the Bureau of Mines, and the section on Engineering by Elsing and Soule' for the above report. A separate section on Geology already has been submitted by the Geological Survey.

The applicant proposes to sink a 165-foot winze below the 500-foot adit level, then drift for 400 feet along the vein for a total cost of $29,745.00. The examiners believe that a substantial quantity of new ore will be discovered by this work, so recommend a loan to the company. I concur with this recommendation.

Brochure is enclosed.

Walter R. Storms

Walter R. Storms

CC W. H. King (8)
R. F. Robinson
DMEA-3064
DF

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

July 6, 1953

Memorandum

To: DMEA Field Team, Region IV

From: A. H. Koschmann

Subject: DMEA Docket 3064 (Copper-Zinc), Mountain States Metals Company, Copper World Mine, Mohave County, Arizona

Enclosed are the original and eight copies of the geologic report by Raymond F. Robinson of the U. S. Geological Survey covering the above docket.

It has been recommended that the loan be approved.

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

Enclosures (9)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
P.O. Box 4126, University Station
Tucson 5, Arizona

July 2, 1953

Memorandum

To: A. H. Koschmann, Denver, Colorado

From: R. F. Robinson, Tucson, Arizona

Subject: Docket DMEA 3064 (Copper-Zinc), Mountain States Metals Co., Copper World Mine, Mohave County, Arizona

Enclosed please find the original and eight copies of the geologic report on the subject docket. The writer is of the opinion that the majority of the geologic and economic factors involved with this property indicate that a DMEA loan is warranted.

It is suggested that consideration be given to increasing the applicant's program to insure exploration of a new ore shoot recently disclosed which may be beyond the limits of his proposed program of drifting.

Raymond F. Robinson

Raymond F. Robinson
Acting District Supervisor
Arizona - New Mexico

Enclosures 9

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA-3064, Mountain States Metals Co.'s Copper World Copper-Zinc Mine

Cedar Valley Mining District

Mohave County, Arizona

R. F. Robinson, Geologist
U. S. Geological Survey

M. J. Elsing, Consulting Mining Engineer
U. S. Bureau of Mines

J. H. Soule', Mining Engineer
U. S. Bureau of Mines

July 1953

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

R. F. Robinson[1], M. J. Elsing[2], and J. H. Soule'[3]

On June 16, 1953, the Field Team, Region IV, Defense Minerals Exploration Administration, requested that an examination and report be made on the feasibility of an exploration project at the Copper World mine, Cedar Valley Mining District, Mohave County, Ariz. The project is for the exploration of copper and zinc and is estimated to cost $29,745, of which the Government's share will be $14,872.50. The property is owned by Dye and Bathrick of Kingman, Ariz. and is under lease and bond to the Mountain States Metals Co., G. A. Freeman, manager.

On June 23, 1953, M. J. Elsing, J. H. Soule' and R. F. Robinson went to Kingman, Ariz. where they met G. A. Freeman, examined the mine on June 24, 1953, and thoroughly discussed the proposed project with him. The present examination and report supplement a report entitled "DMPA-2352, Mountain States Metals Co.'s Copper World Mine" made by M. J. Elsing and T. M. Romslo in April 1952.

If the application is approved Freeman states that he would be able to get the "Owners Consent to Lien" agreement from Dye and Bathrick. Furthermore, he agreed to make the entire production of the mine subject to royalty instead of that portion actually covered by the exploration.

The mine is reached from Kingman by following U. S. Highway 66 southwesterly to Yucca, which is located on the Santa Fe Railroad.

1/ Geologist, U. S. Geological Survey
2/ Consulting Mining Engineer, U. S. Bureau of Mines
3/ Mining Engineer, U. S. Bureau of Mines

At Yucca the paved highway is left by turning to the southeast and following a desert road easterly for nearly 17 miles. This road is well signed and is good for the first 15 miles. The last 2 miles is over a mountain road with sharp turns and steep grades.

The accessible workings consist of the 250, 300, 350, 400, and 500 levels. The 500 level is the bottom level of the mine, is an adit, and is the haulage level to the mill.

The ore is localized within a strongly sheared biotite schist which is contained between thick massive bands of gneiss. The formations and the veins stand nearly vertical and strike N. 35° E. The veins have been formed primarily by replacement of the schist by the ore minerals which consist of chalcopyrite, sphalerite with minor amounts of bornite, chalcocite, galena and a little scheelite. Gangue is pyrite, pyrrhotite, quartz, and wall rock.

The ore occurs in several distinct shoots which differ from each other in the tenor of the ore and the ratio of the copper to zinc. In the main shoot the ore has shown remarkable continuity of grade from the surface to the 500 level, and averaged close to 3.0 percent copper and 10.0 percent zinc. Diamond drilling indicated that both the copper and zinc content increases below the 500 level.

Post-mineral movement along a major fault has interrupted the continuity of the oreshoots. The amount of displacement is not known, but appears not to be too excessive. Exploration work below the fault has not been extensive enough to locate the faulted segments of all the oreshoots known above the fault so a number of good targets exist other than those contemplated by the operator under the proposed development plan.

Since the April 1952 DMPA examination, the drift on the 500 level has been extended 250 feet to the northeast. A new oreshoot has been discovered in the vein. This shoot is 100 feet long and approximately 4.5 feet wide. The grade of the ore as shown by mill shipments averages 4.8 percent copper and 6.0 percent zinc. Recent exploration on the 350 level to the northeast has opened 70 feet of ore of a similar width and grade. It may be too soon to say that the new shoot on the 500 level is the downward extension of the 350 level shoot. However, both showings occur in and along a pegmatite dike which is believed to extend from the 500 level to a point above the 250 level. The ore is very similar in appearance and grade on both levels. If the tentative correlation between the levels is correct this shoot exhibits a flat northeasterly rake. This may bring the downward extension of the shoot beyond the limits of the exploration work contemplated on the 650 level and additional drifting may be warranted to explore it.

Another recent development is the drilling of 3 diamond drill holes from the main crosscut adit. One of these holes is directly below the adit. It intersects the vein, which is nearly vertical, at 100 feet below the adit. Holes on each side of this first hole intersect the vein 100 feet below the adit and 100 feet either side of the first hole. Good ore was found in each of these holes which makes it rather certain the main oreshoot extends for at least 100 feet below the 500 adit level.

On the basis of geologic evidence, past development of the mine and production records, it is estimated that about 29,900 tons of indicated ore exists in the main vein and in the new oreshoot above the 650 level. This total tonnage probably will average about 3.9 percent copper and 8.1 percent zinc. It is expected that the oreshoots will extend well beyond the limits of the proposed exploration.

In order to explore this downward extension of the vein the applicant proposes to sink a 2-compartment winze from the adit to a depth of 165 feet. At a depth of 150 feet below the level it is proposed to do 400 feet of drifting along the vein. The applicant will expend approximately $10,000 of its funds in preparing for sinking and also will supply the equipment and other facilities. A crosscut from the winze at the 650 level to the vein is included in the company performed work.

The applicant proposes to do the winking at $93.00 per foot and the drifting at $36.00 per foot. These prices are fair and might be low if appreciable amounts of water are encountered.

According to data supplied by the operator, the Mountain States Metals Co. from September 1951 to June 15, 1953 had mined and milled 17,434 tons of ore from the Copper World mine averaging approximately 3.5 percent copper and 8.5 percent zinc. The past operation of the Copper World mine has shown very little profit. This is due to numerous reasons, including the excessive cost of starting the project, the breaking in of a new mill, the drop in the price of zinc, and the shutdown period for diamond drilling and drifting.

Freeman estimates that the present ore reserves and those that will be found by the proposed work will be approximately as follows:

	Tons	Copper, percent	Zinc, Percent
Old workings above the 500 level	18,000	3.0	10.0
New 500 level oreshoot	5,400	4.5	4.5
Section between the 500-650 levels	14,700	4.5	4.5
Total and average	38,100	3.8	7.1

The new 500 level oreshoot and the diamond drilling below the 500 level indicate that the amount of copper and zinc in the ore is increasing. The new ore body to the northeast shows an increase in the quantity of copper and a decrease in the quantity of zinc. The higher grade copper and a steadier production will contribute to a more profitable operation. The profit probably will continue to be small but it should be sufficient to permit continuous operation and the repayment of the loan.

Therefore, it is recommended that the project of the Mountain States Metals Co. be approved on the basis of 165 feet of 2-compartment winze from the 500 adit level, and 400 feet of drifting from the winze on the 650 level. The unit costs of this work will be $93.00 per foot of winze and $36.00 per foot of drifting. The total expenditure will be $29,745.00, of which the Government's share will be $14,872.50.

MOUNTAIN STATES METALS CO.
COPPER-WORLD MINE
MOHAVE COUNTY
ARIZONA
DMEA 3064

COPPER-ZINC

Geology

By
Raymond F. Robinson
Geologist, U. S. Geological Survey

MOUNTAIN STATES METALS CO.
COPPER WORLD MINE
MOHAVE COUNTY
ARIZONA
DMEA 3064

COPPER-ZINC

CONTENTS

	Page
INTRODUCTION	1
LOCATION AND ACCESSIBILITY	1
GEOLOGY	2
Faulting	3
Mineralization	3
Veins	4
ORE SHOOTS	5
PRODUCTION AND GRADE	6
ORE RESERVES	7
PROPOSED EXPLORATION	9
CONCLUSIONS	10
RECOMMENDATIONS	11

ILLUSTRATIONS

	Following Page
Figure 1 Longitudinal Section in Plane of Vein	2

INTRODUCTION

The Copper World Mine (DMEA 3064) was visited on June 24 by the writer and Messrs. M. J. Elsing and J. Soulé of the U. S. Bureau of Mines in order to process the Company's application for a DMEA exploration loan. Mr. George Freeman, general superintendent, conducted the examiners about the property and was very cooperative in providing information pertinent to the processing of the application. Due to the late date at which the application was submitted and received by the examiners, only a brief examination of the mine was feasible in order to allow a report to be submitted to the Field Team by June 30. A more detailed examination would have been desirable. This mine had been examined previously by Mr. Elsing and Mr. Romslo on March 13, 1952, in connection with the owners' application for a DMPA loan. A loan of $15,000 was recommended by the examiners. Workings which had been previously examined by Mr. Elsing were not inspected during the present examination.

LOCATION AND ACCESSIBILITY

The Copper World Mine is located in the Cedar Valley mining district of Mohave County, Arizona, and in section 25, T. 18 N., R. 16 W. It lies in the canyon of an intermittent stream on the west slope of the rugged Hualapai Mountains, at an elevation of about 4600 feet. It lies approximately 17 miles east of U. S. Highway 66 and Yucca, Arizona, a station on the Atchison, Topeka, and Santa Fe Railroad. It is accessible by means of a fair trucking road from Highway 66 to the mine.

GEOLOGY

The country rock at the mine is a thick schist-gneiss complex which trends obliquely at a low angle to the strike of the vein systems of the mine. The complex stands on edge, nearly vertical. The principle vein is localized within a biotite schist zone which is 4 to 10 feet thick and is contained between two massive thick quartzitic gneiss bands.

On the south side of the mine a band of amphibolite has been particularly amenable to mineralization. It appears to consist largely of crystalline amphibole of the actinolite-tremolite series.

On the north end of the mine a fairly large pegmatite dike crosses the schist zone and gneissic banding at a large angle. The dike appears to have continuity along its dip through the 250, 350, and 500 levels as shown on figure 1. When the dike was seen on freshly broken surfaces, Mr. Freeman said that it appeared to cut across the vein shear and to have been emplaced after vein fracturing but prior to sulfide mineralization. The dike does contain a portion of an ore shoot on the 350 and 500 levels where the ore occurs as massive replacement of the dike. If the vein shear occurred in the dike, it was not apparent to the examiner. The dike does not offset the vein fracture. The dike on the 500 level also contains some ore. This dike may be closely associated with ore emplacement.

The rock is strongly jointed in several systems. Flat joints are particularly well formed and facilitate sloughing of the wall rock along the vein. This is an undesirable feature which may cause considerable dilution of the ore, especially where the vein

is narrow. It is believed that wall bolting, which is being initiated, will do much to eliminate or at least minimize extensive sloughing with mining.

Faulting

A strong fault extends through the mine workings and in effect divides the mine into two sections as shown by its trace on the longitudinal section figure 1. The fault strikes N. 55° to 60° W. and dips generally 45° northeast. Above the 400 level it loops and branches as shown. Below the 400 level it consists of one main strand and several feet of shear and shattering. The fault appears to have a small right throw on the vein shear of about 10-30 feet (maximum). The amount of dip slip is not apparent and it may be larger than the throw. The fault may have been pre-mineral in origin but the latest movement has been post-mineral. Good mineralization occurs right up the main fault gouge on the 350,400, and 500 levels. Rotational movement on the fault is suggested by the fact that the vein on the hanging wall dips steeply SE while the footwall dips steeply NW.

Mineralization

The principle ore minerals in the mine are chalcopyrite and sphalerite. Minor amounts of bornite, chalcocite, and galena are sporadically present. Small amounts of fine grained scheelite are present in some of the ore but its importance is insignificant and its occurrence was not investigated at this time. Gangue consists of pyrite, pyrrhotite, and quartz together with considerable amounts of wall rock and biotite.

Veins

The largest and principle vein in the mine strikes North 35-40 degrees east. It dips steeply and irregularly to the southeast in the hanging wall of the fault and steeply NW in the footwall of the fault. It varies in width from a few inches to ten feet and probably averages about 4 to 5 feet. While it is spoken of as a vein, it is in reality a series of replacement zones in the biotite schist. Several lean to barren zones occur in the schist and separate the ore shoots on the "vein." It maintains a rather constant appearance above and below the fault although the copper ratio to zinc is larger above than below.

On the south side of the mine, the northwest wall of the vein is intersected by a series of east-westerly mineralized fractures which occur in the amphibolite band which has been previously mentioned. The area of intersection is the loci of a pipe-like replacement ore shoot which was one of the best in the mine. The location of this shoot is shown on the longitudinal section figure 1. It extended from above the 250 level down to the fault between the 300 and 350 levels and exhibited a steep plunge to the southwest. It has not yet been disclosed below this fault to date. On the lower levels exploration has partially opened up the area which is on the projection of the shoot along its plunge from the upper levels. Since the fault has had post-mineral movement of unknown magnitude, it is quite probable that the scattered high grade stringers and low grade disseminated

mineralization found as the result of this work do not represent the downward extension of the pipe. Supporting evidence for this is the fact that the amphibolite band in which the pipe occurred above the fault has not been found below it.

ORE SHOOTS

Several separate and distinct ore shoots occur in the mine and are shown on figure 1. These have not been explored, developed, or mined to the same extent and some of them are relatively unimportant at the present stage of mine development. Little attention has been paid to the search for faulted segments of some of the ore shoots disclosed on the upper levels. Naturally, most recent work has been done on the number two and the new number five shoot; however, much deserving work could be done on the southwest end of the mine where it is probable that more ore will be found when exploration is done there.

Ore shoots #1 and #2 are faulted segments of the same shoot. They are very similar in appearance and grade of ore. They appear to plunge steeply northeast. Number 1 shoot is bottomed by the major fault and #2 shoot is topped by the same fault. Three diamond drill holes were drilled from the main crosscut on the 500 level and intersected the #2 shoot in three places at 100 feet below the level as shown on figure 1. Ore was thus indicated down to this level. Ore shoot #3, the "pipe" described above, has been mined as indicated on figure 1. It exhibits a southwest plunge and is cut off by the major fault between the 300 and 350 levels. It has not been located below the fault to date.

Ore shoot #4 has not been mined below the 200 level. Although it was small, it contained some of the richest copper ore in the mine and, according to Mr. Freeman, averaged 8.25% copper. It has been partially exposed on the 250 level but has not been found below the major fault as yet.

Work on the #5 ore shoot has not progressed to a stage where the size and shape or trend can be actually determined. The tentative boundaries shown on figure 1 are based on available information. The flat northeasterly plunge of the southwest side appears to be controlled by the pegmatite dike which dips flatly to the northeast. The northeast side is defined only by the barren faces of the 350 and 500 drifts which may represent local barren blocks of unknown size within the vein structure.

PRODUCTION AND GRADE

According to the available data, ore shoots 1, 3, and 4 have produced a total of 34,318 tons of ore from the major fault to the surface as follows:

	Tons	% Cu	% Zn	Year
Dye-Battrick	13,990	3.6	11.2	1943-46
Mountain States Metal Co.	8,920	3.1	11.2	1951-52
Mountain States Metal Co.	11,408	3.5	8.5	To present
Total	34,318	3.4	10.3	

The production from ore shoot #2 according to available data is as follows:

Omega Metals	2500	3.0	10.5	1948-49

Dye-Battrick	1200	Unknown grade	1949-51
Total	3700	Estimated 3.0 Cu and 10.5 Zn	

Diamond drilling beneath the 500 level intersected the vein and #2 ore shoot at 100 feet below the level. Actual intersection widths must be corrected to true widths because the intersections were not made at right angles to the vein which dips steeply to the north below the faults instead of steeply to the southeast as above the fault.

No.	Intersection	T.W.	% Cu	% Zn
DDH A-1	7.0'	4.0'	5.3	13.0
" A-4	6.5'	4.5'	5.1	25.4
" A-3	14.0'	11.0'	3.2	3.8

Ore shoot #5 has produced 1070 tons of ore between the 500 and 350 levels and this production is all development ore. This averaged 4.8% copper and 6.0% zinc.

In general the grade of the ore from the 1, 2, 3, and 4 ore shoots has been very constant from the surface to the 500 level. It appears to have averaged very close to 3.0% copper and 10% zinc. Diamond drilling indicates that both the copper content and especially the zinc content will increase with depth in the main or #2 shoot. In contrast to this, the #5 shoot has shown an increase of copper content over zinc.

ORE RESERVES

The operator has given the following estimate of measured ore above the 500 level on the main vein or #1 and 2 ore shoots:

18,000 tons of 3.0% copper, 10.0% zinc.

This tonnage is contained in the unstoped areas as shown on figure 1. He estimates that he has 5400 tons of indicated ore averaging 4.5% copper and 4.5% zinc between the 350 and 500 levels on the #5 shoot. He also estimates 14,700 tons of indicated ore below the 500 level on the #2 shoot which will average about the same.

The writer is of the opinion that there is a larger tonnage of about average grade ore (3.0% Cu-10.0% Zn) above the 500 level than the operator has estimated. Some of this is not considered by the operator to be mineable by the present methods and it is indicated on figure 1. The operator said that he would not desire to mine this ore which is in the vicinity of the major fault because the broken character of the ground creates excessive dilution. One attempt to mine in this area resulted in a mine grade of only 2.9% copper and 2.6% zinc. It is possible that better mining methods will make this tonnage of ore available in the future. It is estimated that about 4800 tons are in the operator's category of unmineable ore. The writer is of the opinion that the indicated ore on the #2 shoot from the 500 level to the 650 level is 16,200 tons, which will average between 3.0% copper and 10.5% zinc (past production) and 4.1% copper and 10.6% zinc (diamond drill core assay). This is indicated on figure 1.

It is estimated that about 6300 tons of ore are conservatively indicated between the 300 and 500 levels on the number 5 shoot which will average 4.8% copper and 6.0% zinc (the grade of development ore).

This ore shoot should easily extend to the 650 level and an additional 7425 tons of ore are indicated which will probably be of about the same grade as above.

No estimates of inferred ore are made at this time because of the limited time spent on the property. It is, however, believed that the ore on this property will extend well below the 650 level and that there are good potential ore-bearing areas along the vein structure and in the walls both to the northeast and southwest of the present mine workings.

PROPOSED EXPLORATION

The applicant's exploration plan is shown on figure 1. He proposes to sink a two compartment vertical shaft from the footwall of the vein on the 500 level at distance of 165 feet, allowing 15 feet for sump and pocket. On the 650 level he proposes to drift 290 feet northeast and 110 feet southwest. Crosscutting and station cutting will be done at his own expense.

This work is designed to explore the main vein below the intersections which diamond drilling secured and which are shown on figure 1. It is also intended to get beneath the new number 5 shoot. This work is well conceived to explore the main vein shoot (number 2) but it is very likely inadequate to penetrate the downward extension of the number 5 shoot. The indicated plunge of this is much flatter than the operator considered when planning his exploration and the throw of the fault on this shoot is not known. It is also very possible

that the barren interval between the two shoots will materially increase at depth. It is quite possible that the operator could stand the expense of this additional work but in view of the barren interval through which he will have to advance and the uncertainty of the fault relationship to the ore, governmental participation in the risks would be encouraging to the operation and, in view of the conditions described in this report, quite warranted.

CONCLUSIONS

Conditions, both geologic and economic, at the Copper World Mine indicate that a significant amount of ore will be found by exploration. The ore which has been mined, according to available records, has created a margin of profit for the operators although it has not been large.

The ore on the new ore shoot (number 5) and on the extension of the main vein ore shoot below the 500 level is higher in copper than that previously mined. The zinc increases with depth on the latter and the overall zinc content of the former is lower than the mine average. Thus the overall value of the indicated ore is greater than that which has been produced in the past.

The nature of the ore shoots in this mine is that the vertical extent has been at least twice that of the strike length. It is practically assured that the ore shoots will extend to the exploration horizon, or 650 level.

The operator has not adequately explored below the major fault for faulted segments of all ore shoots known to exist above it. Therefore, a number of exploration targets exist in the mine area

other than those contemplated by the operator in the proposed program. This further increases the chances for repayment of the exploration loan since the operator has agreed to subordinate all mine production if the loan is granted.

The operator's plan for exploration should be expanded to allow for sufficient drifting to the northeast to cut the downward extension of the new number 5 shoot. The indicated plunge of this shoot is much less than he considered in planning the program.

RECOMMENDATIONS

The Copper World Mine is well deserving of a DMEA exploration loan and it is recommended that it be granted along the lines suggested by the operator, except that some consideration be given to increasing the amount of drifting to the northeast to allow for a plunge of the number five ore shoot. The indicated plunge is flatter than the operator considered in planning his program.

DMEA-3064, MOUNTAIN STATES METALS CO.'S COPPER WORLD COPPER-ZINC MINE
CEDAR VALLEY MINING DISTRICT
MOHAVE COUNTY, ARIZONA

Engineering Report

By M. J. Elsing, Consulting Mining Engineer
U. S. Bureau of Mines

J. H. Soule', Mining Engineer
U. S. Bureau of Mines

July 1953

DMEA-3064, MOUNTAIN STATES METALS CO.'S COPPER WORLD COPPER-ZINC MINE
CEDAR VALLEY MINING DISTRICT
MOHAVE COUNTY, ARIZONA

CONTENTS

Engineering report — Page

Introduction ---------- 1
Acknowledgments ---------- 1
Location, topography and physical features -- 2
History and production ---------- 3
Ownership and extent ---------- 6
Description of the deposits ---------- 7
Minable ore reserves ---------- 8
Present status ---------- 10
Project proposals with costs ---------- 12
Production plan ---------- 13
Conclusions ---------- 15
Recommendations ---------- 17

TABLES

Number		Page
I	Total RecordedCopper World Production	5
II	Ore milled in the Copper World mill	6
III	Copper World ore estimates	8
IV	Diamond drilling results	11
V	Estimated costs of proposed project	13
VI	Operating costs per ton of ore	15

ILLUSTRATIONS

Figure		Following page
1	Location map	2
2	Longitudinal projection	10
3	Plan of mine workings	10

INTRODUCTION

On June 16, 1953, the Field Team of Region IV, Defense Minerals Exploration Administration, requested that an examination and report be made on the feasibility of an exploration project at the Copper World mine, Cedar Valley Mining District, Mohave County, Ariz. The project is for the exploration of copper and zinc and is estimated to cost $29,745 of which the Government's share will be $14,872.50. The property is owned by Dye and Bathrick of Kingman, Ariz. and is under lease and bond to the Mountain States Metals Co., G. A. Freeman, manager.

On June 23, 1953, M. J. Elsing and J. H. Soule' of the Bureau of Mines and R. F. Robinson of the Geological Survey went to Kingman where they met G. A. Freeman. Together with him they examined the mine on June 24, 1953 and thoroughly discussed the proposed project with him. The present examination and report supplement a report entitled "DMPA-2352, Mountain States Metals Co.'s Copper World Mine" made by M. J. Elsing and T. M. Romslo in April 1952.

ACKNOWLEDGMENTS

Acknowledgments are due George A. Freeman, president and general manager of the Mountain States Metals Co., for his courtesy in showing the examining team through the Copper World mine and for furnishing records of production and other data pertinent to the property and the proposed project.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

The Copper World mine is situated in sec. 25, T. 18 N., R. 16 W. in the Cedar Valley Mining District, Mohave County, Ariz. as shown in figure 1. The mine is 16.2 miles by good to fair dirt road east of the town of Yucca, Ariz., a pumping station on the Atchison, Topeka and Santa Fe Railroad. Yucca also in the nearest rail loading and unloading point for the mine.

The mine is reached by travelling westerly, thence southerly from Kingman, Ariz. on U. S. Highway 66 for 23,8 miles to Yucca. At Yucca, turn off the paved highway to the left or southwest on a dirt road for 2 miles, take the left branch and continue easterly, then northeasterly for 14.2 miles to the mine. The road forks are well marked by signs.

The property is situated in a rugged area of the Hualpai Mountains at an altitude of about 5,200 feet. The mine workings vary from an altitude of a little over 5,000 feet on the lowest level to more than 5,400 feet in the upper workings. Steep rocky slopes are characteristic of the terrain. There are no permanent streams in the area and all water for mine, mill, and camp use is pumped from a well within 2 miles of the mine. The mine make a very small amount of water. The average annual precipitation is about 12 inches of which nearly one half falls during the winter months and about one third as summer thunder showers that create flash floods. Winter snowfall usually is light.

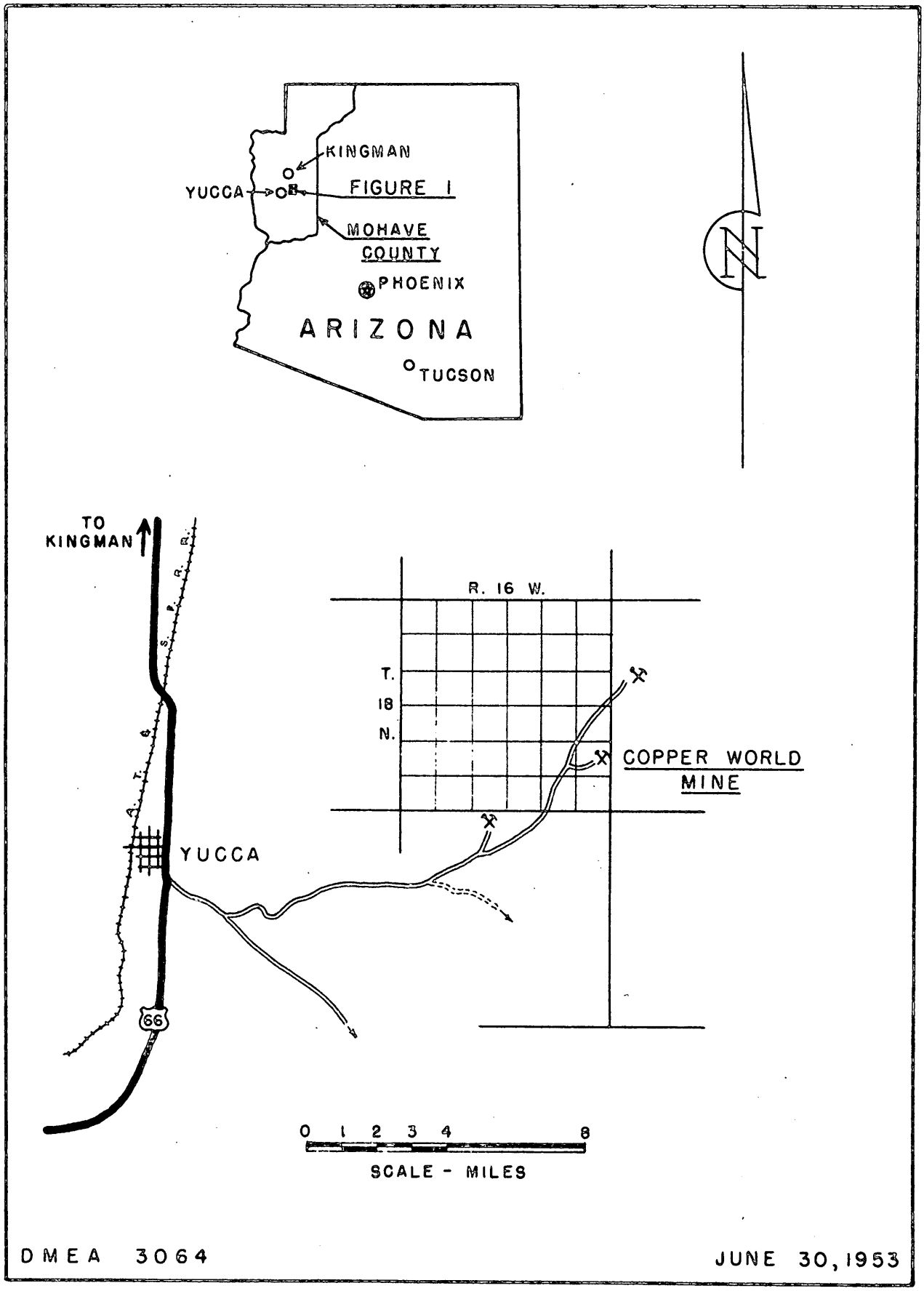

FIGURE 1. - LOCATION MAP - COPPER WORLD MINE
MOHAVE COUNTY, ARIZONA

The vegetation is typical of the higher altitudes of the desert, and is abundant. There is no timber suitable for mine use at the property. Temperatures range from hot in the summer to cool in the winters. The hot weather usually is not uncomfortable at the altitude of the mine, and winters and freezing temperatures raraly are severe.

Primitive accommodations exist at the mine to care for the operating personnel. Ordinary mine supplies and communication services are available at Kingman, some 40 miles by road to the north. Phoenix, Ariz. is the nearest supply point for major mining equipment and is about 240 miles southeast of the mine by the shortest good road. The mine is serviced by a power line that can supply 750 KVA at 44,000 volts.

HISTORY AND PRODUCTION

The Copper World claim was located in 1882. The property was acquired some time later by James Douglas for the Phelps Dodge Corp. Some prospect work was done and the claim patented in 1889. In the early nineties, several hundred feet of exploration was done and a few cars of high grade sorted ore were packed out and shipped. During World War 1, lessees shipped one lot of ore. In April 1943, Dye and Bathrick acquired a lease from Phelps Dodge Corp. With the aid of a Class "C" loan from the Reconstruction Finance Corporation, the mine was reopened and sampled. Following this an additional loan was obtained for equipping and developing the mine.

From 1943 through 1946, Dye and Bathrick mined 13,990 tons of ore with an average grade of 3.62 percent copper and 11.2 percent zinc. After the expiration of the premium price plan the property was shut down. The Reconstruction Finance Corporation loans were repaid in full.

In 1948 the Omega Metals Co. obtained a lease and bond from Dye and Bathrick by the payment of $10,000 in cash. This payment was turned over to the Phelps Dodge Corp. as the purchase price of the mine. Dye and Bathrick then took title to the property. Omega Metals Co. operated until some time in 1949 when the drop in the price of metals forced the company to suspend operations and relinquish its option after having spent $115,000.

Dye and Bathrick operated the property for a short time, then gave a bond and lease to the Mountain States Metals Co. The price of the property was $100,000. For this bond and lease, the Mountain States Metals Co. paid $15,000 in cash and an interest-bearing note for $5,000. The balance of the $100,000 is to be paid by 10 percent royalty on the net smelter returns. The minimum royalty is $700 per month. In the event that the price of metals drops so that profitable operations are impossible, the option can be kept in good standing by the payment of $350 per month. Royalties are paid directly to Dye and Bathrick by the smelter.

In early 1952, the Mountain States Metals Co. applied to the Defense Materials Procurement Agency for a loan, totalling $75,000 which was to have been repaid from production. About $60,000 of this sum was to be used to retire notes and other indebtedness against the property. The remaining nearly $15,000 was to be used to purchase necessary equipment, rehabilitate the camp, and repair parts of the road. The examining team recommended denial of the $60,000 to repay indebtedness and approved the

sum of $15,000 for equipment and rehabilitation. They also recommended that a floor price of 24.5 cents per pound of copper and 19.5 cents per pound of zinc be established.

The Mountain States Metals Co. constructed a mill in 1951 and operated almost continuously until December 1952. Development work, consisting of drifting and diamond drilling, was started in December 1952, and more or less regular mill operation started in March 1953 and continued to the present time (July 1953).

The production of the Copper World mine prior to the Dye and Bahtrick operation is unknown but it was small. A few cars of ore were shipped from the gossan outcrop. This was a direct smelting oxidized copper ore with little or no zinc.

The production of the Copper World mine from 1943 to date by the various operators is as follows:

TABLE I. Total Recorded Copper World Production 1943 to June 15, 1953.

Operator	Tons	Grade, percent Copper	Grade, percent Zinc	Remarks
Dye and Bathrick	13,990	3.62	11.2	Above 250 level, 1943-46
Omega Metals Co.	2,500	3.0	10.5	400-500 levels, 1948-49
Dye and Bathrick	1,200	?	?	400-500 levels, milled at Antler mill.
Mountain States Metals Co.	17,434	3.5	8.5	Copper World Mill, 1951 to June 15, 1953
Total and average	35,124	3.5	9.8	

Erection of the Copper World mill was started in January 1951 and milling was started in September of the same year. Milling has been fairly continuous since that date except for the period of December 1952 to March 1953. The following tonnages have been milled in the Copper World mill. Data were furnished by George A. Freeman, manager:

TABLE II. Ore Milled in the Copper World Mill September 1951 to June 15, 1953.

Date	Tons	Grade, percent Copper	Grade, percent Zinc
1951			
September to November 30.	4,100	3.7	9.2
December	400	?	?
Total and average, 1951	4,500	3.7	9.2
1952			
January	1,268	?	?
February	1,609	3.2	11.2
March	1,543	2.8	9.4
April	1,042	3.1	7.9
May	980	3.2	8.8
June	870	3.4	9.1
July	990	3.2	10.6
August	792	4.3	6.3
September	603	5.1	7.1
October	491	4.1	11.2
November	250	3.2	7.9
December	—		
Total and average, 1952	10,438	3.4	9.2
1953			
Januaryand February	—		
March	290	4.6	5.2
April	780	4.8	6.1
May	970	2.9	2.6
June 1 to June 15	456	2.9	3.8
Total and average to June 15, 1953	2,496	3.7	4.7
Grand total and average	17,434	3.5	8.5

OWNERSHIP AND EXTENT

The Copper World mining property consists of 1 patented mining claim, 3 unpatented mining claims, and 71.28 acres of grazing land leased from the owner. The patented claim, the Copper World, Mineral Survey No. 203, Certificate No. 903, was located in 1882. The patent was recorded in the office of the County Recorder of Mohave County, Ariz., on July 22, 1892, in book 10 of Deeds on page 733 (affixed to this real property are rail, air and water lines in place and approximately 25,000 feet of timber and ties.).

Two of the unpatented claims, known as Copper World No. 1 and Copper World No. 2, have their location notices recorded in Book 3-X of Mines on pages 400, 401 and 402 in the office of the County Recorder of Mohave County, Ariz. The location notice of the third unpatented mining claim, known as the Helen Ruth, is recorded in Book 3M of Mines on page 431, and Book YY of Mines on page 707 (affixed to this real property is certain well equipment used to pump water from the "Boriana Wells").

The mining claims are owned by Dye and Bathrick of Kingman, Ariz. and now are under lease to the Mountain States Metals Co.

Dye and Bathrick have a lease on 71.28 acres of grazing land adjoining the Copper World claim from the owner, J. H. Herridge. This lease has 10 years to run from October 26, 1950 and has been transferred to the Mountain States Metals Co.

The manager of the applicant company stated that the "Owners Consent to Lien" would be obtainable from the owners should the proposed project be approved.

DESCRIPTION OF THE DEPOSITS

The ore is localized within a strongly sheared biotite schist which is contained between thick massive bands of gneiss. The formations and the veins stand nearly vertical and strike N. 35° E. The veins have been formed primarily by replacement of the schist by the ore minerals which consist of chalcopyrite, sphalerite, and minor amounts of bornite, chalcocite, galena, and a little scheelite.

The ore occurs in several distinct shoots which differ from each other in the tenor of the ore and the ratio of the copper to zinc. In the main shoot the ore has shown remarkable continuity of grade from the surface to the 500 level, and averaged close to 3.0 percent copper and 10.0 percent zinc. Diamond drilling indicated that both the copper and the zinc content increased below the 500 level.

Post-mineral movement along a major fault has interrupted the continuity of the oreshoots. The amount of displacement is not known but appears not to be too excessive. Exploration work below the fault has not been extensive enough to locate the faulted segments of all the oreshoots known above the fault so a number of good targets exist other than those contemplated by the operator under the proposed development plan.

MINABLE ORE RESERVES

The applicant has estimated ore reserves slightly in excess of 38,000 tons. This approximates tonnage estimates made in early 1952 and indicates that the discovery of new ore is equaling the depletion of the reserves. The recent ore reserves are shown in the following table and include reserves expected to be found by the proposed exploration.

TABLE III. Copper World Ore Estimates
June 24, 1953

Description	Tons	Grade, percent	
		Copper	Zinc
Old workings above the 500 level	18,000	3.0	10.0
New 500 level ore shoot	5,400	4.5	4.5
Section between 500 and 650 levels	14,700	4.5	4.5
Total and average	38,100	3.8	7.1

Most of the above reserves can be classified as indicated and the remainder as inferred. There is very little measured ore in the mine. Success of the proposed project would convert most of the inferred ore into the indicated category, and possibly add to the reserves an appreciable tonnage of inferred ore below the 650 level. A rough check of the reserves indicates that they are reasonable. R. F. Robinson, the Geological Survey member of the examining team, estimates indicated reserves on the order of 29,900 tons (see figure 1, Geologic report).

Because of the erratic nature of the oresheets, channel sampling does not seem reliable. Mined ore sent to the mill evidently is a more accurate gauge of the quality of the ore. That the above grade estimates are reasonable is shown by past production of the mine. Ore mined from above the 500 level during 1952 averaged 3.4 percent copper and 9.2 percent zinc. The remaining ore in the same part of the mine is estimated to contain 3.0 percent copper and 10.0 percent zinc as noted in table III. That the grade estimates of 4.5 percent copper and 4.5 percent zinc are reasonable is shown for the months of March and April 1953 when ore from the development of the new oreshoots was sent to the mill. The ore for March contained 4.6 percent copper and 5.2 percent zinc while that of April contained 4.8 percent copper and 6.1 percent zinc.

The applicant's manager has agreed to subject all ore mined after the date of the contract to a royalty to repay the Government's share of the proposed exploratory project. During 1951 and 1952, the ore returned a little over $20.00 per ton based on the net smelter returns.

Assuming a similar price schedule in the future, the Government would realize slightly over $1.00 royalty per ton of ore and the 38,100 tons of ore would more than repay the Government's share of the $14,872.50 of the proposed project.

PRESENT STATUS

The upper workings of the mine were developed by adit levels with some intermediate work. A winze was sunk from the 200 level to the 250 level. From the 250 level a diamond drill hole was drilled in the vein for a depth of 213 feet. There was sufficient ore in this hole to warrant driving a new crosscut adit which cut the vein on the 500 level. This adit is 703 feet in length and serves as the main haulageway to the mill bins. Exploration and development includes 350 feet of shafts and winzes, over 1,200 feet of drifts and crosscuts, 1,030 feet of adits, and over 250 feet of raises (see figures 2 and 3).

The mine is depleted above the 250 level, excepting any unknown oreshoots. Some ore remains between the 250 and 500 levels in the developed part of the mine. Additional ore is suggested below the developed zone, and new ore has been found by drifting to the northeast on the 500 level. The pipe oreshoot mined above the flat fault and above the 350 level has not been found beneath the fault, probably because of insufficient exploration.

The mine is completely equipped with sufficient machinery for the modest operation being performed. A few additional items such as a small battery locomotive for tramming the ore on the 500 adit level would assist in operations. The mill is a complete and seemingly well-designed plant having a rated capacity of 25 tons per 8-hour shift.

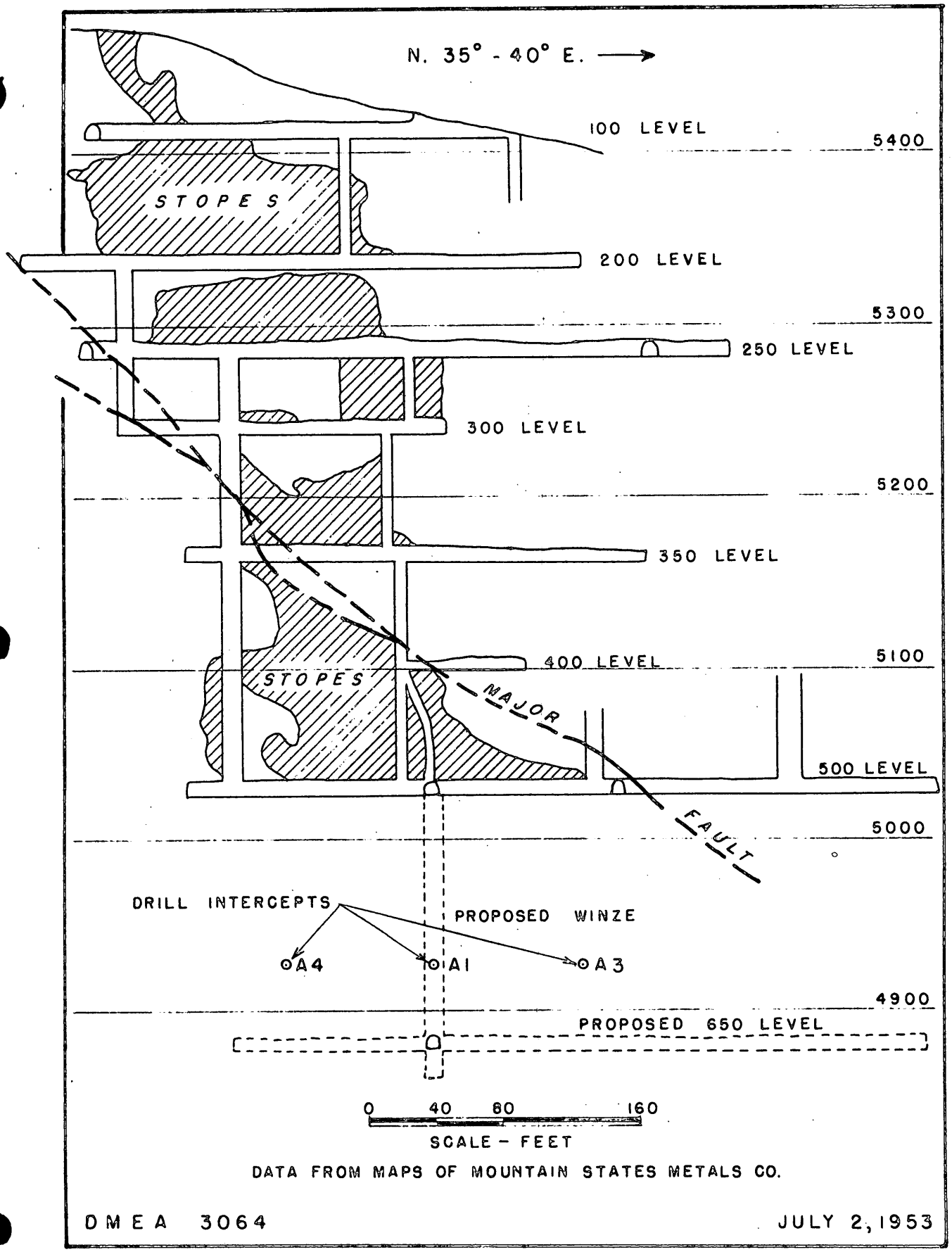

FIGURE 2.- LONGITUDINAL PROJECTION OF WORKINGS COPPER WORLD MINE

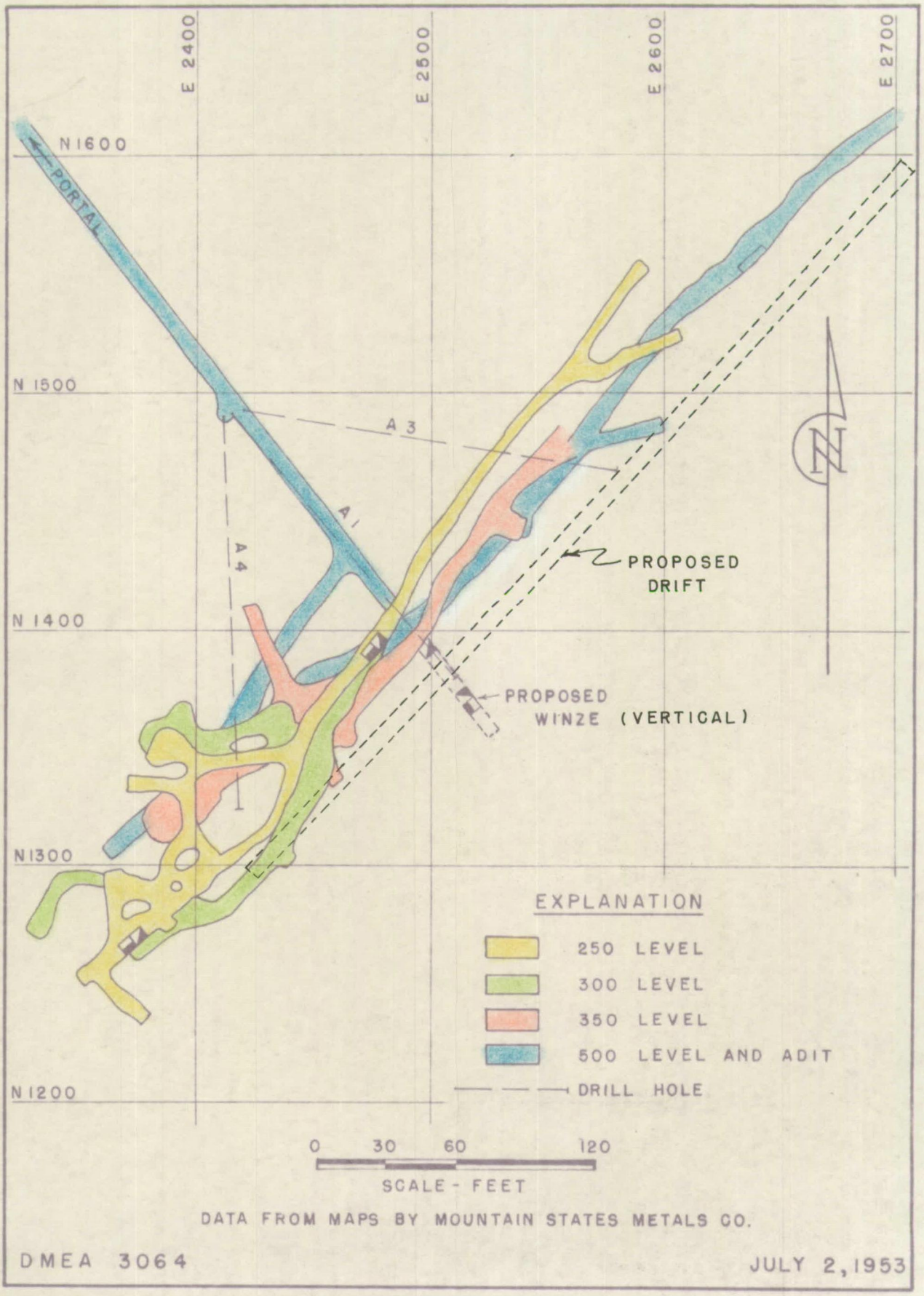

FIGURE 3. - LEVEL PLAN, COPPER WORLD MINE

The Mountain States Metals Co. has operated the Copper World mine almost continuously since milling started in September 1951. No ore was produced during December 1952, and January and February 1953, but development work consisting of drifting and diamond drilling was done. The drifting consisted of driving northeasterly on the 250, 350, and 500 levels. Ore was found in each of the drift extensions.

Three important diamond drill holes were completed. These were drilled from a station in the 500 level adit and intersected the ore-bearing structure at 3 points approximately 100 feet below the 500 adit level. One hole was directly beneath the intersection of the adit and the 500 level drift. The other 2 holes flanked this one, approximately 100 feet on each side. Each of the holes intercepted interesting mineralization (see figure 3).

TABLE IV. Diamond Drilling Results.

Description	Interval, ft. From	Interval, ft. To	Core or Sludge	Assay, Oz. Silver	Assays, Percent Copper	Assays, Percent Zinc
A4, Under Adit	128	133	2.5 ft.C	0.20	4.5	6.10
Ditto	128	133	Sludge	0.20	3.5	5.70
Ditto	133	138	4.5 ft.C	0.20	5.85	16.80
A3,100 ft. NE	143	149.5	Good,Core	1.4	3.50	1.90
Ditto	149.5	157	Good Core	1.6	2.9	5.50
A4, 100 ft. SW	145	147	Good Core	0.60	6.25	3.1
Ditto	147	151.5	Good Core	0.60	4.6	35.4

The above results indicate an extension of the ore zone below the 500 level. It must be noted that the drill intervals given above do not represent the true thickness of the ore zone. The actual thicknesses will be somewhat less when the corrections for dip and lateral angular intersections are applied. The proposed project will explore this inferred

extension of the ore zone to the 650 level and laterally for 400 feet. It might be mentioned in passing that other places remain in the mine where exploration also could be done to good advantage.

PROJECT PROPOSALS WITH COSTS

The applicant has proposed an exploration project consisting of sinking a winze to a depth of 165 feet below the 500 adit level, then to do 400 feet of drifting on the 650 level 150 feet below the 500 adit, as shown on figures 2 and 3. The crosscut extension of the 500 adit to prepare for the winze collar, the furnishing and installing a hoist, the headworks and dumping arrangement, and the short crosscut on the 650 level from the winze to the vein will be done at company expense. This work is estimated to cost $10,000.

For the part of the project in which Government participation is desired, only the 165 feet of winze and the 400 feet of drifting on the 650 level would be considered. The winze is to be 2 compartments and will be timbered throughout. The drift, judging by the 500 level, will be timbered for most, if not all of its length. The applicant estimates the costs to be $93.00 per foot of winze and $36.00 per foot of drifting. These costs are very reasonable, and therefore acceptable to the Government. It is believed that these costs probably will be exceeded a little unless water or other unfavorable condition is encountered which would tend to greatly increase the estimated costs.

TABLE V. Estimated Costs of Proposed Project Copper World Mine.

Work	Feet	Unit Cost	Total Cost
Winze	165	$93.00	$15,345.00
Drifting	400	36.00	14,400.00
		Total	$29,745.00

As previously mentioned, the manager of the applicant company stated that they were willing that royalties be taken from all ore mined after the date of the contract until the Government's share in the participation in the project was repaid.

All equipment necessary for the project is on hand or readily available. Sufficient water for the mine and mill is available from the company leased Boriana well. During protracted periods of drouth, the supply of water may be curtailed. Sufficient manpower is available and it may be that additional labor would not be employed for the project.

PRODUCTION PLAN

The mine, and therefore the mill, wax not operated during the first 2 months of 1953 when attention was concentrated on development work. At the present time the mill, after starting operations in March 1953, has milled nearly 1,000 tons of ore per month. This is below its rated capacity and below the maximum milled in February 1952, when 1,609 tons was milled. It is likely that the reason for the reduced capacity lies in the mine, where although ore is available, steping methods seem unable to fulfill the mill requirements of ore.

The company plans to mine the new ore body to the northeast on the 500 level by shrinkage methods, using roof bolts and headboards to hold the walls. It is doubted that this method will be successful for the following reasons. The first, and probably the most serious, would be in the tying up of large quantities of ore in the stopes which could be ill afforded in a small operation of this type. Secondly, oxidation of the ore held in the stopes could adversely affect the metallurgy. Thirdly, it seems that sorting of the ore in the stopes and more selective mining would be advantageous to the operation of the property. This cannot be done by the suggested mining method. Lastly, it is felt that the use of roof bolts in such narrow stopes would result in no economy. A rough calculation indicated that stulls and headboards would be cheaper and possibly more satisfactory in the shrinkage stopes. Some method of wall support is mandatory to prevent excessive dilution of the ore with the slabby walls. It is probable that top-slicing, or cut-and-fill stoping would be the least expensive in the long run. Although the cost per ton of stoping might be higher, the greater selectivity of the method, the higher grade of ore resulting from less dilution, and the greater recovery of ore would result in a lower cost per pound of metal produced.

The Copper World mill has a rated capacity of approximately 75 tons per 24 hours. The mill seems well designed and constructed. It probably is efficient. Although it does not contain some refinements that would be an aid to the operation, it does contain all of the necessary equipment. Mill costs seem reasonable, and together with mining costs, are tabulated as follows. There are not sufficient data to analyse these costs fully (these costs were supplied by the company manager).

TABLE VI. Operating Costs, Per ton of Ore
Mountain States Metals Co. Copper World Mine.

Year	Mining	Milling	Development	Overhead	Total	Tons Mined
1951	$8.95	$3.81	$3.10	$2.23	$18.09	4,120 1/
1952	8.21	3.86	2.60	1.90	16.57	9,236 1/
1953, to June	6.85	3.12	2.00	1.91	13.88	2,040 2/
Average	$8.23	$3.75	$2.65	$1.99	$16.62	

1/ Does not agree with total in Table II
2/ Does not contain 456 tons mined after June 1 as shown in Table II.

A rough analysis of the costs indicates that a small profit is being made, and barring a slump in the price of copper, a profit should continue to be shown. It could be increased with an increase in the efficiency of operations. A large profit is not likely unless bonanza ore is encountered, or the prices of copper and zinc greatly increase without an increase in the costs of labor and supplies. The small profit being made at the present time should encourage the operators to continue with operations, barring an economic slump.

CONCLUSIONS

The following conclusions were derived from an examination of the Copper World mine and from an analysis of the data pertaining thereto:

(1) The Copper World mine is a small mine and in the last 10 years has produced appreciable copper and zinc ores. Total production exceeds 35,000 tons that contained approximately 3.5 percent copper and 9.8 percent zinc, plus a little silver.

(2) The mine contains estimated ore reserves, both indicated and inferred, of approximate 38,000 tons. The royalty on this ore, based on past production and assuming a similar price schedule for

the future, would be more than enough to repay the Government for its share in the project participation. The company manager has agreed to make all of the ore mined after the date of the contract subject to royalty.

(3) A significant discover of copper-zinc ore by the proposed project is highly probable. In addition, it will open up a new level where additional exploration by the operators is likely to result in still larger reserves of important copper and zinc ores.

(4) The Mountain States Metals Co. has operated the mine, with only short periods of nonproductiveness, since 1950. Although the management may be criticized for not conducting its operations in the most efficient manner, the efficiency is acceptable considering the isolated location of the mine, the relative inefficiency of labor available for small operations of this type, and the youth of the operation. The applicant has the necessary personnel, both as labor and supervisory, to capably conduct the project in which the Government is asked to contribute.

(5) The project proposed by the applicant company is to consist of 165 feet of winze and 400 feet of drifting from the 650 level. All preparatory work and equipment is to be furnished by the operator. Costs were estimated to be $93.00 per foot of winze and $36.00 per foot of drift. The whole project isreasonable and the costs are deemed very fair.

(6) All of the labor, supplies, and equipment are available or on hand for the use of the project.

(7) Although the mine is relatively isolated, it is readily accessible by a good to fair road from Kingman, Ariz., some 40 miles by road to the north.

RECOMMENDATIONS

Based on the foregoing conclusions, it is recommended that the application for Government aid in exploring the Copper World mine by the Mountain States Metals Co., Docket DMEA-3064, be approved. The work will consist of 165 feet of 2-compartment winze from near the face of the 500 level adit, and 400 feet of drifting from the winze on or near the 650 level, or 150 feet below the collar of the winze. The drift will extend both northeasterly and southwesterly from the winze and on the vein. The drift will be timbered where necessary. All preparatory work, consisting of preparation of the hoisting station, installation of the hoist, preparation of the dumping and loading pockets, and the crosscut from the 650 level of the winze to the vein, will be done by the applicant without Government assistance. The costs are estimated to be $93.00 per foot of winze and $36.00 per foot of drift. These costs are acceptable and are tabulated as follows:

Winze, 165 feet at $93.00 per foot 1/ ----------	$15,345.00
Drifting, 400 feet at $36.00 per foot ----------	14,400.00
Total	$29,745.00

It is recommended that these costs be applied to the project work.

1/ Winze will be vertical.

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

DMEA
DEPARTMENT OF THE INTERIOR
SEP 10 1956
REGION III
DENVER, COLORADO

SEP 7 1956

Mr. W. R. Remmers
Wee Burn Lane
Darien, Connecticut

Dear Mr. Remmers:

This is with reference to the letter, dated August 30, 1956, that Mr. W. M. Traver, Executive Officer, DMEA Field Team, Region III, wrote to you regarding the submission of an application for Government exploration assistance.

We cannot transfer the application of the Mountain States Metals Company (Copper World mine), Docket No. DMEA-3064, to your Company, the Bobcat Mining Company.

In order to apply for exploration assistance it will be necessary for you to complete in quadruplicate Form MF-103. For your convenience we are enclosing five copies of this form, one to be retained for your files, and the others to be submitted to:

Mr. W. M. Traver
Executive Officer
DMEA Field Team, Region III
224 New Customhouse Building
Denver 2, Colorado

We are also enclosing a copy of DMEA Order-1, Amended, with Amendments Nos. 1, 2, and 3, and a pamphlet entitled "The Defense Minerals Exploration Program".

Sincerely yours,

Frank E. Johnson

ACTING Administrator

Enclosures

JWAlt/er 9/7/56
Copy to: Docket
Admr R File
Op. Committee
Base Metals
Mr. Bishop, USBM
Mr. Kiilsgaard, USGS
Region III (2)
Chron.

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

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Region III (2)
Chron.

224 New Customhouse
Denver 2, Colorado

August 30, 1956

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA 3064 (Copper-Zinc), Mountain States Metals Company (Copper World mine), Mohave County, Arizona

Enclosed are two photostatic copies of a letter addressed to the Executive Officer, DMEA Field Team, Region III, regarding the submission of a new application on the subject docket, and two copies of the reply referring the writer to the Administrator.

Please furnish this office with copies of the Administrator's reply to make our files on the docket complete.

W. M. Traver

W. M. Traver

Enclosures

WMT:prl

cc: Harshman - w/copy of Applicant's letter
Docket 3064
Chron.

224 New Customhouse
Denver 2, Colorado

August 30, 1956

Mr. W. E. Remmers
Wee Burn Lane
Darien, Connecticut

Re: Docket DMEA 3064 (Copper-Zinc)
Mountain States Metals Company
(Copper World mine)
Mohave County, Arizona

Dear Mr. Remmers:

Receipt of your letter of August 28, 1956 concerning the captioned DMEA docket is acknowledged.

An application for Government aid in an exploration project was submitted on the Copper World mine under date of May 20, 1953 by the Mountain States Metals Company, G. A. Freeman, Manager. A field examination of the property was made on June 24, 1953 and resulting Reports of Examination submitted to the DMEA Washington Office on July 23, 1953. Subsequently, the Applicant failed to present copies of his Sales Agreement with the owners or Consent to Lien forms, and the application was placed in the inactive files.

Your letter is being referred to C. O. Mittendorf, Administrator, DMEA, Department of the Interior, Interior Building, Washington 25, D. C. He will inform you directly concerning submission of a new application, which will be required in this case.

Very truly yours,

W. M. Traver

W. M. Traver
Executive Officer, DMEA
Field Team, Region III

WMT:prl
cc: Secretary to the Oper. Comm. (2) - w/copy of Remmer's letter.
Docket 3064
Harshman - w/copy of Remmer's letter
Chron.

Docket file

Wee Burn Lane
Darien, Connecticut
August 28, 1956

Mr. W. M. Traver
Executive Officer, DMEA Field Team
224 New Customhouse
Denver 2, Colorado

DMEA
DEPARTMENT OF THE INTERIOR
AUG 30 1956
REGION III
DENVER, COLORADO

Dear Mr. Traver:

The Bobcat Mining Company is completing negotiations for a permit to explore, with an option to lease, the copper-zinc property east of Yucca, Arizona, known heretofore as the Copper World Mine. These negotiations will be complete by September 1, 1956. The prior operator, the Mountain States Metals Company, had applied for a DMEA loan for exploration of the ore body at a lower level, by sinking a shaft, cross-cutting and drifting. The reference is DMEA DOCKET #3064.

We understand that the loan was approved, but the work was never done. I am writing to inquire what procedure is necessary for us to request reactivation and transfer of the loan approval to the Bobcat Mining Company. The mine is in the same condition as when it was examined by the Bureau engineers, and Bobcat Company intends to do the same amount of work, involving the same expenditure as proposed in the original application.

Our Arizona address is:

Bobcat Mining Company
c/o Alexander Grant & Company
First National Bank Building
411 North Central Avenue
Phoenix, Arizona
Attention: Mr. Richard Burgess

For the convenience of the Partners, will you please forward to me, at Wee Burn Lane, Darien, Connecticut, the forms or instructions for applying for the transfer mentioned above?

Yours very truly,

W. E. Remmers, Partner
m.c.r.

wer/mcr

W. E. Remmers, Partner

(3)

Walter E. Remmers
Wee Burn Lane
Darien, Connecticut

Return Address on the envelope

Mining Division
Date Rec'd.
SEP 23 1953
BUREAU OF MINES
Denver, Colorado
TUCSON, ARIZONA

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

OUTHWEST EXPERIMENT STATION
Box 4097
UNIVERSITY STATION

MINING DIVISION
REGION IV

September 22, 1953

Air Mail

Memorandum

To : W. H. King, Chief, Mining Division, Region IV

From : Chief, Mining Methods Br., Mining Div., Region IV

Subject : Docket DMEA-3064, Mountain States Metals Co.'s Copper World Mine, Mohave County, Ariz.

In regard to your memorandum of August 10, we wrote to George Freeman, Manager of Mountain States Metals Co. on August 12 and asked him for information about the Herridge lease, but didn't hear from him. On September 16, I wrote again and as per attached letter, he says he never got my August letter.

Enclosed are 9 copies of the claim map with 500 haulage adit shown on it and borders of Herridge lease; also enclosed are 9 copies of a claim and topographic map which now shows claim name and outline of mine workings.

Walter R. Storms

Walter R. Storms

CC DMEA-3064
DF

FOR VICTORY
BUY UNITED STATES SAVINGS BONDS AND STAMPS

Mountain States Metals Company

BOX 851
~~YUCCA~~, ARIZONA
KINGMAN,

19 September 1953

Mr. Walter R. Storms, Chief
Mining Methods Branch
Mining Division, Region IV

Re: Docket DMEA 3064
Copper World Mine
Mohave County, Ariz.

Dear Mr. Storms:

I do not know where the letter could have been missent but was not received by me. I am certainly sorry for this delay as we have been awaiting some word from Denver office on the contract.

In regard to the 500-foot level haulage adit, 400 feet of the crosscut-adit is on the Herridge Lease (71.28 acres), also the mill and camp are both located on the Herridge Lease. None of the workings are on railroad land.

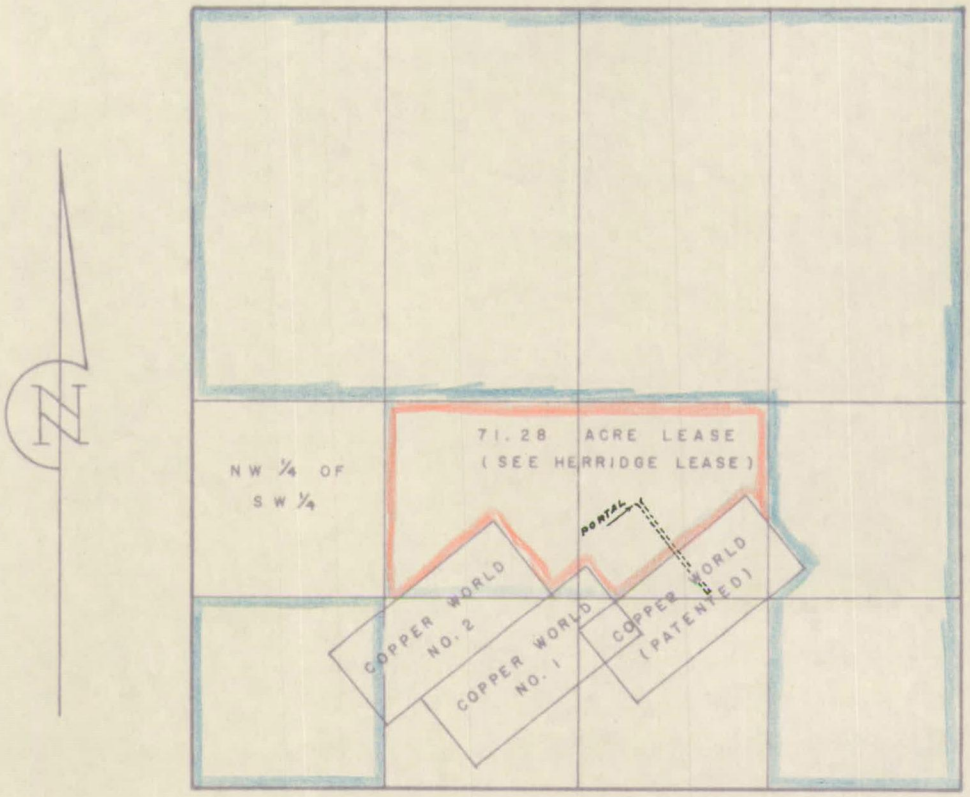
I am sorry for the delay and thank you for any expediated attention.

Very truly yours,

George A. Freeman

George A. Freeman
Mountain States Metals Co.
Kingman, Arizona

U. S. BUREAU OF MINES
MINING DIVISION
SEP 21 1953
TUCSON, ARIZONA



SECTION 25 - T. 18 N. - R. 16 W.

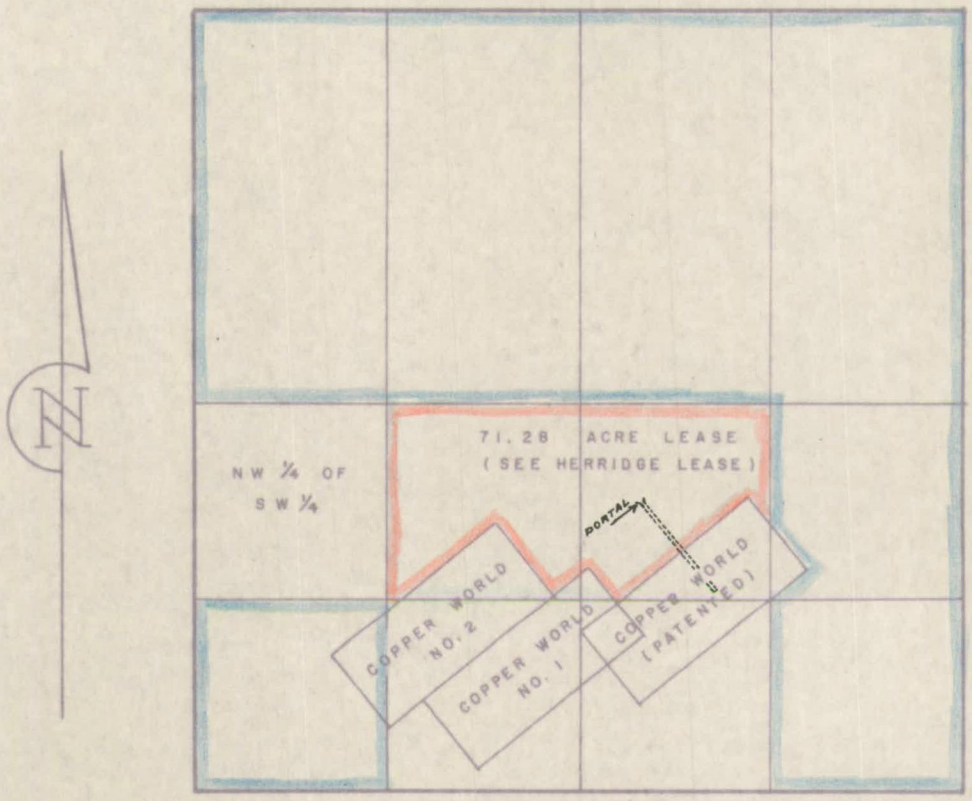
R. R. LAND (LEASED)

SCALE - 1" = 1320'

DMEA 3064

CLAIM MAP - COPPER WORLD MINE

MOHAVE COUNTY, ARIZONA



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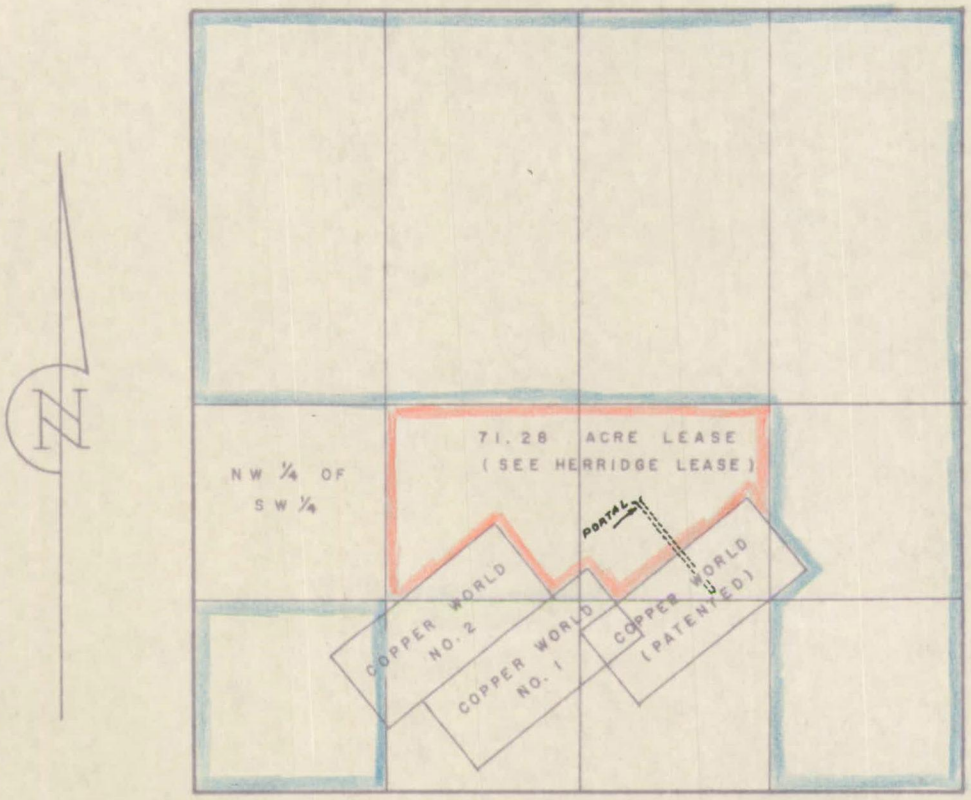

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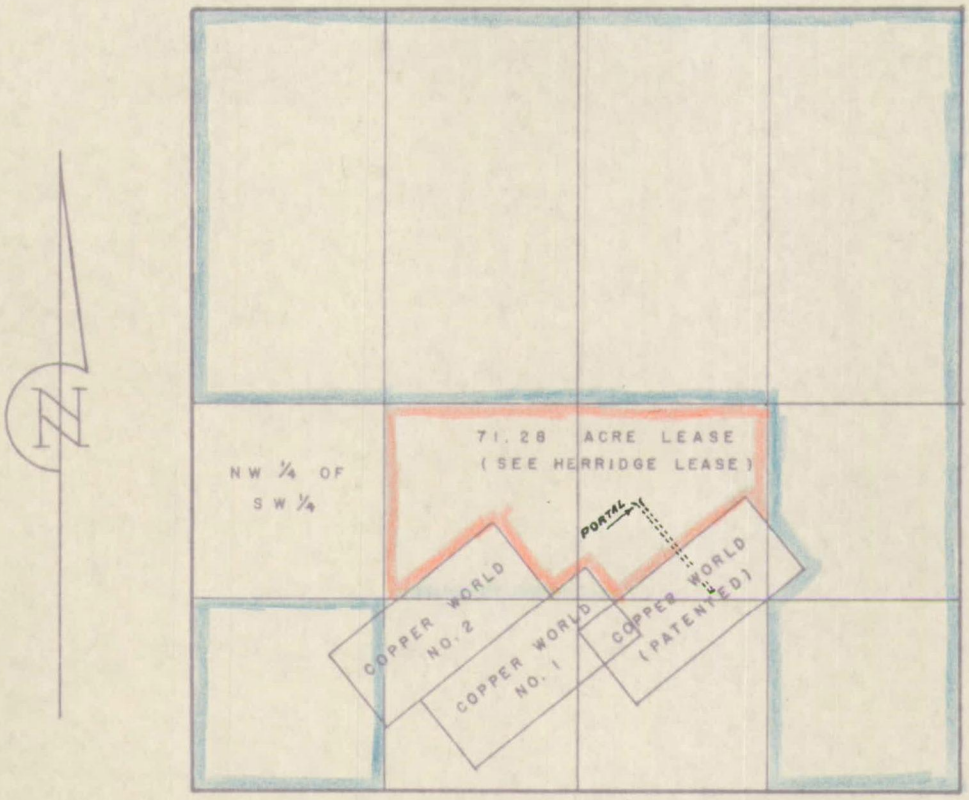

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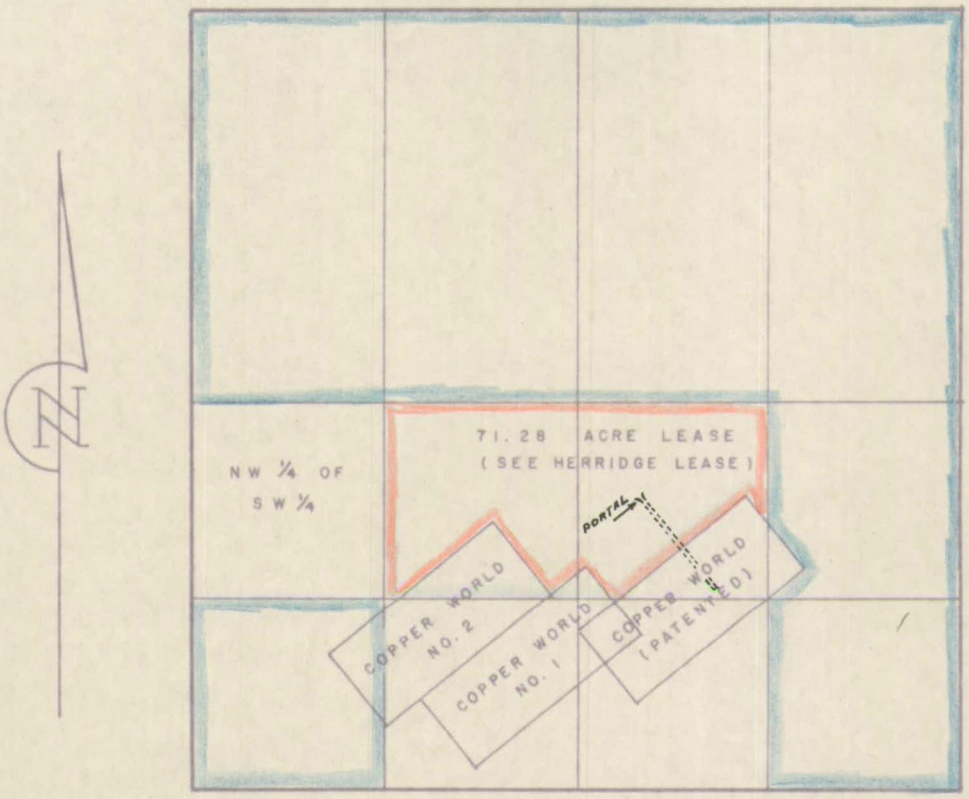

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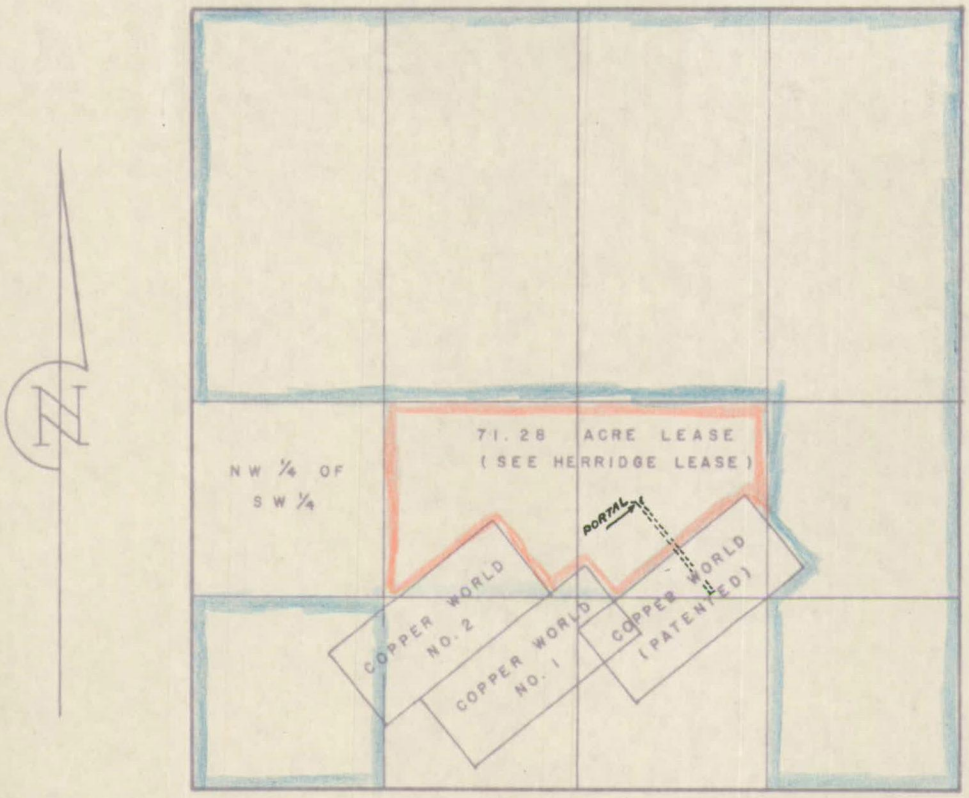

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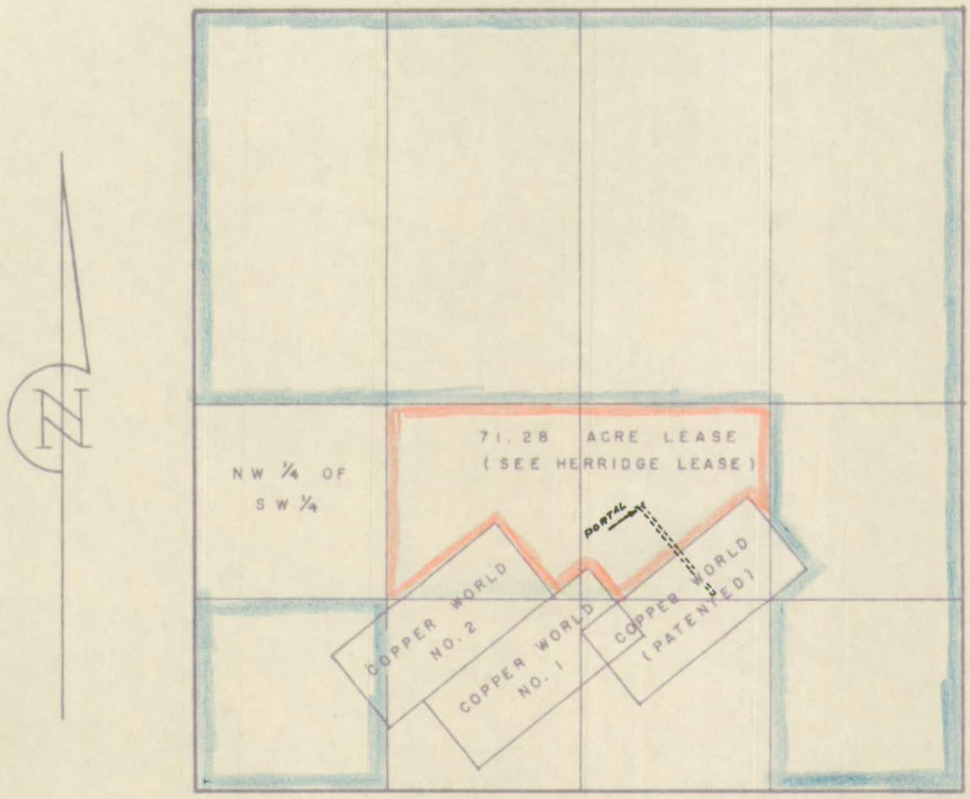
MOHAVE COUNTY, ARIZONA



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DMEA 3064

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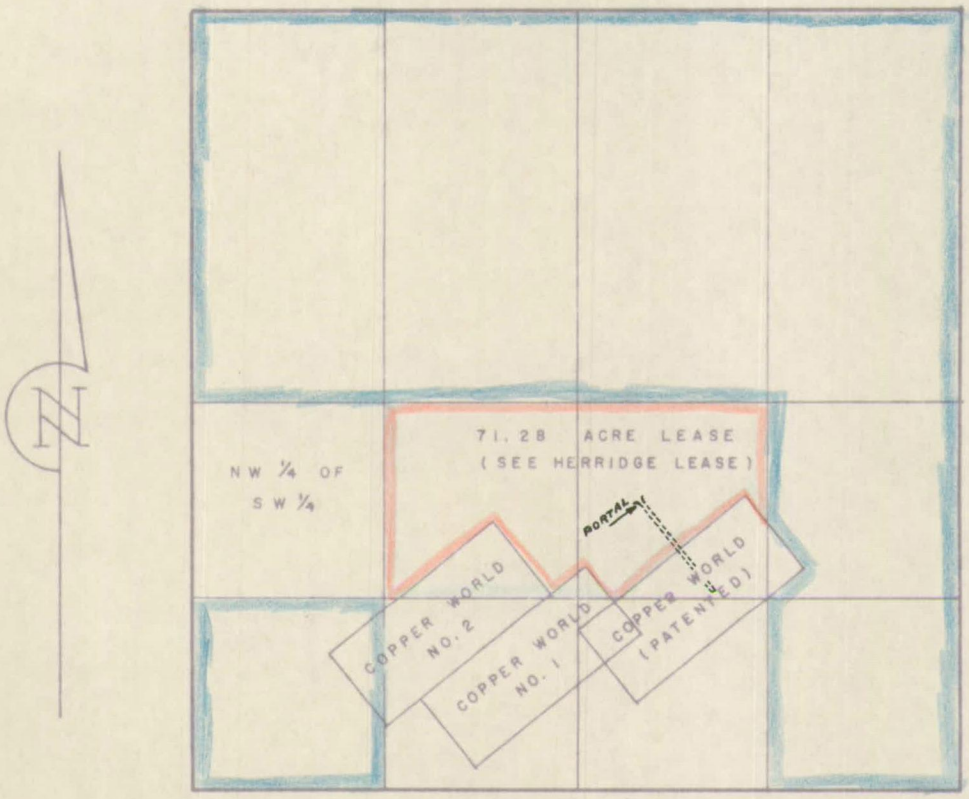
MOHAVE COUNTY, ARIZONA



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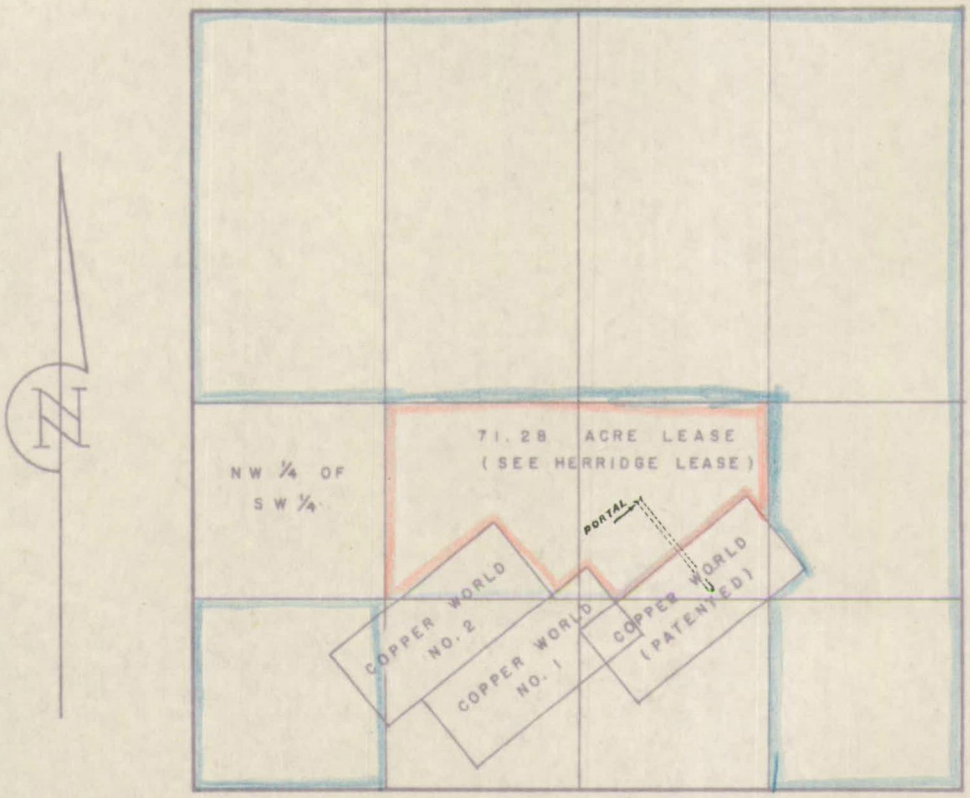
MOHAVE COUNTY, ARIZONA



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R. R. LAND (LEASED)

SCALE - 1" = 1320'

DMEA 3064

CLAIM MAP - COPPER WORLD MINE
MOHAVE COUNTY, ARIZONA

(1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

Mining Division
Date Rec'd
JUN 1 - 1952
BUREAU OF MINES
Denver, Colorado

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

Not to be filled in by applicant

Docket No. DMEA-3064
Metal or Mineral
Date Received
Estimated Cost
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Mountain States Metals Co., Box 851, Kingman, Arizona
Incorporated in Arizona in 1951
President - B. T. Whitaker, 315 E. 36th St., Tucson, Arizona
V. Pres. - M. Ginter " " " " " "
Sec.Treas.- J. Himmler " " " " " "

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract The Copper World (a patented claim) Copper World #1(an unpatented mining claim) and Copper World #2 (an unpatented mining claim)
Mohave County, Arizona

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

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Purchaser under "Sales Agreement" with Dye and Bathrick, a partnership

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property. A copy of the agreement between Mt. States Metals Co. aand Dye & Bathrick was sent to your office with application for loan in Dec., 1951. The copy has not been returned. We will have another made if you don't have it.

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

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. A full description of claims is shown in contract mentioned above

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

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

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

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

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

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Copper and Zinc

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

(*c*) The work will start within 120 days and be completed within 18 months from the date of an exploration project contract.

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

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

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

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

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

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

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

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

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

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

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

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

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

☐ Money ☐ Use of equipment owned by you ☐ Other

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated May 20, 1953

Mountain States Metals Co.
(Applicant)

By G. A. Freeman, Mgr.

G. A. Freeman

S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any depart- United States as to any matter within its jurisdiction.

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

Mountain States Metals Company

Box// 851

Kingman, Arizona

May 20, 1953

ATTACHED SHEET TO APPLICATION (form MF-103)

4. (a) This mine was worked from 1942-1946 by Dye and Bathrick, a partnership. Their mining was done between the 190'-250' level. The 60 foot vertical distance that they mined produced a total tonnage of 13,990 tons of crude ore that averaged 3.62% Cu and 11.2% Zn. Since they did not have a mill, this tonnage was shipped to custom mills. Most of it was shipped to Shattuck Denn in Bisbee, Arizona.

The mine was under lease and option to Omega Metals Co. from 1948-1949. They did considerable development work on the property and had just gotten into operation when metal prices dropped in 1949. When Omega Metals Co. took over the property, the lowest level was the 250 foot. Most of the known ore was stoped out above this level. A 250 foot vertical diamond drill hole was drilled, starting in the ore, on the 250 foot level and it remained in ore to the 500 foot level. Due to a steep side hill slope, the ore zone on 500 foot level could be reached by a 730 foot crosscut adit. During the time that Omega Metalls Co. held the property, they run this crosscut to the ore zone and drifted 120 feet each way on the ore. They also started a vertical raise from the 500 foot level to the 250 foot level. This was started on the diamond drill hole. The ore from this development plus a small tonnage from stoping was milled at Soriana Mill. They milled about 2500 tons of ore from the development that averaged 3.0% Cu and 10.5% Zn.

When the present company, Mt. States Metals Co., took over, they completed the main #1 raise to the 250 foot level and developed two main sub-levels between the 250' -500' level. They have drifted a total of 290 feet to the northeast from the main crosscut and haulage on the 500' level and 145 ft to the southwest from crosscut. There were two main ore chutes encountered in this drifting (see colored maps for ore zones) The ore chute over the main cross-cut is the only one that any mining has been done on to date. The ore zone to the NE is being developed at this time for mining. The sub-level development is also shown on maps.

The mine is in good shape and all workings are accessible for examination purposes.

All of the development below the 250 foot level shown on maps has been done by Mt.States Metals Co., other than that mentioned above done by Omega Metals Co.. They also extended the 250 foot level 182' feet to the NE.

Mt. States Metals Co.
Box 851
Kingman, Arizona

4.(cont.)
(b)

Through Dec. 31, 1952 there has been mined and milled 28,240 tons of crude ore, averaging 3.47% Cu and 9.8% Zn. From ore zones shown on maps we have calculated a remaining ore reserve above 500 level of 22,000 tons averaging 3.9% Cu and 6.1% Zn. The reason for the higher copper average is that the NE ore body, from development work, has averaged higher in Cu.. To date, this ore body has averaged 4.4% Cu and 4.7% Zn.

(c) The ore occurs in the weaker schist zones. This schist, for the main part has gneiss as a footwall and pegmatite and gneiss as hanging wall. The vein, however, dips nearly vertical.

The ore zone on the 500 foot level has been as large as the zones on the upper levels and the grades nearly the same. The copper values have increased in proportion at lower levels. Geologically, there is no reason why the ore will not continue to a depth of the proposed 150 foot shaft and further.

Mr. Romslo and Mr. Elsing of the Bureau of Mines, at the Univ. of Ariz. in Tucson have examined the property previously and the proposed work was discussed briefly with them. However, we have developed more ore to the NE than we had at the time of their examination.

(d) The mine and mill is 16 miles from Yucca, Arizona and shipping point. There is a good graded road to the property. The camp and boarding house is located at the mine and mill.

(e) There is a 44,000 volt power line to the property and we have 750 KVA available at the mine and mill.
We have the Boriana Wells that supplies water for the 100 ton selective flotation plant.

5. (b) The Exploration Project we would like to participate in is to sink a shaft 165 feet vertically below the 500 ft level on the footwall side of the ore, 15 foot of this to be for a sump and pocket. Then drift 290 feet to the Northeast and 110 feet to the Southwest from this shaft. (see enclosed maps showing proposed shaft and drifting).

In addition to the above work it will be necessary to run a short crosscut to the start of the shaft and we would also have to build an ore pocket on the 500 ft level and at the bottom of proposed shaft. We are prepared to do this work ourselves and also furnish the hoist and install it. All other equipment is available at the property.

(d) The writer, G. A. Freeman, will be in charge of such exploration work. I worked for E. I. DuPont between 1937-1940 incharge of magnotometer survey doing geophysical work on Titanium. From 1941-1949 I was employed by Coronado Copper and Zinc Co.(Harvey Mudd interests) as chief chemist and mill supt.. Since that time I have been employed by Mt. States Metals Co. as General Manager . Member A.I.M.E.

Mt. States Metals Co.
Box 851
Kingman, Arizona

6. We would like to enter into a contract at a cost per foot of sinkingand cost per foot of drifting and Mt. States Metals Co.. furnish all necessary equipment, supplies, etc..

Our cost per foot for drifting, to date, has been $36.00 and our estimated cost for shaft sinking is $93.00.

The part of the project that we would like to have assistance on is the actual drifting and sinking footage. As mentioned above, we would do the necessary preparatory work and furnish equipment.

As per drawing, there would be 165 feet of shaft and 400 feet of drift. The drift to be 5'x 7'. The shaft to be a 2 compartment (2 - 5'x 5') one compartment for a skip and one for ladders and pipe.

I am sending,under separate cover, two copies of maps indicating the proposed exploration work and also showing the ore zones and detail above the 500 level. If you need extra copies of these I will have some made up. The Bureau of Mines office in Tucson, Arizona have a complete set also.

Total cost of DMEA participation:

400 feet of drifting	at $36.00	per ft -	$ 14,400.00
165 feet of shaft	at 93.00	" " -	15,345.00
		TOTAL --	$ 29,745.00

If you wish to make inquiry as to the merit of the property, please call Mr. Romslo of the Bureau of Mines in Tucson, Arizona.

Mountain States Metals Co.
Box 851
Kingman, Arizona

Cost Breakdown - Sinking Vertical Shaft
(2 compartments - 5' x 5')

Sinking Crew - Labor	—	$ 47.00	per	foot
Explosives	—	4.90	"	"
Timber	—	14.80	"	"
Compressed Air	—	2.10	"	"
Hoisting	—	6.80	"	"
Air and Water Lines	—	2.00	"	"
Tramming	—	5.80	"	"
Insurance and Taxes (compensation insurance)	—	6.70	"	"
Overhead (including Supervision)	—	3.30	"	"
TOTAL -		$ 93.00	per	foot

Cost Breakdown - Drifting 5' x 7'

Drifting Crew Labor	—	$ 12.00	per	foot
Explosives	—	2.80	"	"
Timber and Labor for Timber (figured on basis of ½ of drift requiring timber)	—	2.40	"	"
Air and Water Lines	—	1.90	"	"
Compressed Air	—	2.10	"	"
Track - 16# (incl. labor)	—	2.10	"	"
Hoisting to 500' Haulage Level	—	1.90	"	"
Insurance and Taxes (compensation insurance)	—	3.25	"	"
Overhead (including supervision)	—	2.85	"	"
TOTAL -		$36.00	"	"

224 New Customhouse
Denver 2, Colorado

October 29, 1953.

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Field Team, Region IV

Subject: Report of Examination - DMEA Docket 3064 (Copper-Zinc), Copper World Mine, Mohave County, Arizona.

Enclosed are four copies of the Report of Examination on the subject docket.

The applicant has failed to submit Owner's Consent to Lien and a copy of his sales agreement with Rye and Rathrick which we requested July 22, 1953 and September 23, 1953.

We assume that the applicant has lost interest in the exploration work so the docket has been closed.

W H King
W. H. King

E.M. Hawkman
for A. H. Koschmann

Enclosures

HMC:cwm

cc: Docket
AHKoschmann (2)
WRStorms
Chron.

224 New Customhouse
Denver 2, Colorado

July 23, 1954

Mr. B. T. Whitaker, President
Whitaker Construction Company
315 East 36th Street
Tucson, Arizona

Re: Docket No. DMEA 3064

Dear Mr. Whitaker:

This will acknowledge receipt of your letter dated July 19, 1954 requesting that we make information available on application Docket No. DMEA 3064 to Mr. J. C. Carlile.

On July 22, 1953 and on September 23, 1953, we requested the applicant to submit Owner's Consent to Lien and a copy of his sales agreement with Dye and Bathrik. In our letter to Mr. Freeman dated September 23, we informed him that if this information was not received within thirty days, we would assume that the applicant was no longer interested in the project, and we would close the docket. On October 29, the information has not been received and the docket was closed.

Information assembled by the Bureau of Mines and the Geological Survey during their examinations is of confidential nature for use of the Government only. This information can not be made available by this office to anyone, including the applicant.

In case you wish to do so, you might write Mr. C. O. Mittendorf, Administrator, DMEA, Department of Interior, Interior Building, Washington 25, D. C, and request information from that office.

Very truly yours,

W H King

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

WHK:es

cc: Subject
Chron.
Mittendorf, w/enc.
Storms w/enc.

WHITAKER
SWIMMING
POOLS

TELEPHONES—OFFICE 3-9245 YARD 3-5502

WHITAKER CONSTRUCTION COMPANY
315 EAST 36TH STREET
TUCSON, ARIZONA

July 19, 1954

U. S. Bureau of Mines
Denver, Colorado

Dear Sirs:

Please extend to Mr. J. C. Carlile any information or records that you have on the Copper World Mine, Mohave County, Arizona.

Mr. Carlile is representing our interests in the Copper World Mine at this time and we would appreciate any and all courtesies you might be able to extend to him.

Yours very truly,

Mountain States Metals Co.

B. T. Whitaker

B. T. Whitaker, Pres.

btw/ryg
copy to J. C. Carlile

224 New Customhouse
Denver 2, Colorado

September 23, 1953

Mr. G. A. Freeman, Manager
Mountain States Metals Company
P. O. Box 851
Kingman, Arizona

Re: Docket No. DMEA 3064

Dear Mr. Freeman:

Reference is made to our letter of July 22, 1953, in which we enclosed six copies of Form MF-203, Owner's Consent to Lien, to be signed by the owners and returned to this office. We also requested a signed copy or photostat of a signed copy of your sales agreement with Dye and Bathrick.

Today we received maps showing the location of the portal of your 500 foot level haulage adit, and when we receive from you the six copies of the Owner's Consent to Lien, and the signed copy or photostat of the signed copy of your sales agreement with Dye and Bathrick, we will continue to process your contract.

If this information is not received in this office within thirty days, we will assume that you are no longer interested in this exploration project, and will close the docket.

Very truly yours,

W. H. KING

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

HMC:es

cc: Docket
Chron.
Storms
Connors
Koschmann (2)

MF-200 (A)
(February 1952)

DOCKET NO. DMEA 3064

COMMODITY Copper

UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

EXPLORATION PROJECT CONTRACT[1]
(Short Form)

IT IS AGREED this ..... day of ....., 195..., between the United States of America, acting through the Department of the Interior, Defense Minerals Exploration Administration, hereinafter called the "Government," and[2] Mountain States Metals Co., Incorporated in Arizona
Box 851
Kingman, Arizona
hereinafter called the "Operator," as follows:

ARTICLE 1. *Authority for contract.*—This agreement is entered into under the authority of the Defense Production Act of 1950, as amended, pursuant to DMEA Order 1 entitled "Government Aid in Defense Exploration Projects."

ARTICLE 2. *Operator's property rights.*—With respect to that certain land situated in the State of Arizona, County of Mohave, described as follows:[3] Copper World Mineral Survey #203, two unpatented claims, Copper World #1 and Copper World #2 recorded in Book 3-X of Mines on pages 400, 401, and 402 in the office of the County Recorder of Mohave County, Ariz.
the Operator represents and undertakes:[4]

(*a*) ~~That the Operator is the owner, in possession and entitled to possession, and that the property is subject only to the following claims, liens, or encumbrances as to each of which the subordination agreement of the holder is attached:~~

(Rec. 64.)

(*b*) That the Operator is a lessee, in possession and entitled to possession, and the Owner's Consent to Lien is attached.

The Operator shall devote the land and all existing improvements, facilities, buildings, installations, and appurtenances to the purposes of the exploration project without any allowance for the use, rental value, depreciation, depletion, or other cost of acquiring, owning, or holding possession thereof.

ARTICLE 3. *Exploration project.*—The Operator, within Sixty (60) days from the date of this contract shall commence work on a project of exploration for[5] Copper
in or upon the described land; and shall bring the project to completion within a period of twenty months from the date of this contract. The work to be performed is more fully described in Exhibit "A" attached hereto, which, with any maps or drawings thereto attached, are made a part of this contract. The Government will contribute to the cost of this work as hereafter provided. The work shall be performed by the Operator or by independent contractor or contractors efficiently, expertly, in a workmanlike manner, in accordance with good mining standards and State regulations for health and safety and for workmen's compensation and employers' liability insurance, with suitable and adequate equipment, materials, and labor, to bring the project to completion within the time fixed. The Government shall have the right to enter and observe and inspect the work at all reasonable times, and the Operator shall provide the Government with all available means for doing so. The Government may consult with and advise the Operator on all phases of the work.

ARTICLE 4. *Costs of the project.*—The agreed, estimated costs of performing the work, expressed in terms of units of work to be performed (per foot of drifting, per foot of drilling, per cubic yard of material to be moved, etc.) are set forth in Exhibit "A," attached hereto. The Government will pay fifty (50) percent of these agreed, estimated costs, as they accrue, for units of work actually performed that conform with the description or specifications for the work set forth in this contract, in an aggregate total amount not in excess of $14,872.50, which is 50 percent of $29,745, the agreed, estimated total cost of the project in which the Government will participate: *Provided,* That until the Operator's final report and final accounting have been rendered to the Government and any final check or auditing required by the Government has been made, and a final settlement of the contract has been made, the Government may withhold from the last voucher or vouchers such sums as it sees fit not in excess of ten (10) percent of the maximum total which the Government might have been called upon to pay under the terms of the contract. The Government may, as it sees fit, make payments direct to the Operator's independent contractors, if any, for the account of the Operator, rather than to the Operator.

ARTICLE 5. *Reports, accounts, audits.*—(*a*) *Progress reports.* The Operator shall provide the Government with monthly reports of units of work performed under the contract, in quintuplicate (five copies), upon forms provided by the Government. These progress reports shall be certified by the Operator, and shall constitute both the Operator's invoice of units of work performed on the project during the period covered by the report and his voucher for repayment by the Government, unless the Government requires the use of a standard voucher form with invoice attached. Progress reports shall include surface and/or underground engineering-geological maps or sketches showing the progress of the exploration, with assay-reports on samples taken concurrently with the advance in mineralized ground.

[1] If sufficient space is not provided in any blank, use an extra sheet of paper and refer to it in the blank.
[2] State name, address, and nature of organization if any.
[3] Give legal description or enough to identify the property, particularly excluding any land or interest therein to which the Government's lien is not to attach or the production from which is not to be subject to the Government's percentage royalty.
[4] Strike out the provision not applicable.
[5] Name of mineral or minerals.

(*b*) *Final report.*—Upon completion of the exploration work or termination of the contract the Operator shall provide the Government with an adequate geological and engineering report, in quintuplicate (five copies), including an estimate of ore reserves resulting from the exploration work.

(*c*) *Compliance with requirements.*—If, in the opinion of the Government, any of the Operator's reports are insufficient or incomplete, the Government may procure the making or completion of such reports and attachments as an expense of the exploration work; and the Government may withhold approval and payment of any vouchers depending upon insufficient or incomplete reports.

(*d*) *Accounts and audits.*—The Operator shall keep suitable records and accounts of the units of work performed, which the Government may inspect and audit at any time. The Government may at any time require a check of the work performed and an audit of the Operator's records and accounts, by a certified public accountant or otherwise, the cost thereof to be treated as a cost of the project. The Operator shall keep and preserve said records and accounts for at least 3 years after the completion of the project or the termination of this contract. Upon the completion of the project or termination of the contract the Operator shall render a final account and statement of work performed to accompany his final report.

ARTICLE 6. *Repayment by Operator.*—(*a*) If, at any time, the Government considers that a discovery or a development from which production may be made has resulted from the exploration work, the Government, at any time not later than 6 months after the Operator has rendered the required final report and final account, may so certify in writing to the Operator. The certification shall describe broadly or indicate the nature of the discovery or development. In the event of such certification, any minerals mined or produced from the land described in Article 2 within 10 years from the date of this contract, including any mined or produced before the certification, shall be subject to a percentage royalty which the Operator or his successor in interest shall pay to the Government, upon the net smelter returns, the net concentrator returns, or other net amounts realized from the sale or other disposition of any such production, in whatever form disposed of, including ore, concentrates, or metal, until the total amount contributed by the Government, without interest, is fully repaid, or said 10 years have elapsed, whichever occurs first, as follows:

(1) One and one-half (1½) percent of any such net amounts not in excess of eight dollars ($8.00) per ton.

(2) One and one-half (1½) percent of any such net amounts, plus one-half (½) percent of such net amounts for each additional full fifty cents ($0.50) by which such net amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) percent of such net amounts.

(For instance: The percentage royalty on a net amount of five dollars ($5.00) per ton, would be one and one-half (1½) percent; on a net amount of ten dollars ($10.00) per ton, three and one-half (3½) percent.)

(*b*) As here used, "net smelter returns," "net concentrator returns," and "other net amounts realized from the sale or other disposition," mean gross revenue from sales, or if not sold, the market value of the material after it is mined in the form in which and the place where it is held. In the case of integrated operations in which the material is not disposed of as such, these terms mean what is or would be the gross income from mining operations for percentage depletion purposes in income-tax determination.

(*c*) To secure the payment of its percentage royalty, the Government shall have and is hereby granted a lien upon the land described in Article 2 and upon any production of minerals therefrom, until the royalty claim is extinguished by lapse of time or is fully paid.

(*d*) This article is not to be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any mining or production operations.

ARTICLE 7. *Assignment, transfer, or loss of Operator's interest.*—Without the written consent of the Government, the Operator shall not assign or otherwise transfer or hypothecate this contract or any rights thereunder. The Operator shall not make any voluntary nor permit any involuntary transfer or conveyance of the Operator's rights in the land described in Article 2, without making suitable provision for the preservation of the Government's right to a percentage royalty on production and lien for the payment thereof; *Provided*, that mere failure by the Operator to maintain the Operator's rights in the land, without any consideration running to the Operator other than relief from the cost of maintaining such rights (as by surrender of a leasehold, failure to perform assessment work, or failure to exercise an option), coupled with complete abandonment by the Operator of all interest in or operations on the land for a period of 10 years from the date of this contract, shall not constitute such a transfer or conveyance. Should the Operator make or permit any transfer or conveyance in violation of this provision, the Operator shall be and remain liable for payment to the Government of the same amounts, at the same times, as would have been paid under the terms of the percentage royalty on production. If for any reason the net smelter returns, net concentrator returns, or other net amounts realized from the sale or other disposition of such production are not available as a means of measuring the amount of the Operator's liability, the amount thereof shall be estimated as well as may be, and in the event of dispute as to such estimates, the determination thereof by the Administrator of Defense Minerals Exploration Administration or by his successor shall be final and binding upon the Operator.

ARTICLE 8. *Termination and completion.*—The Government may, at any time, by written notice to the Operator, terminate this contract: (*a*) If the Operator fails to provide his share of the money necessary to prosecute operations pursuant to the terms of the contract; (*b*) if the Operator, in the opinion of the Government, fails to prosecute operations pursuant to the terms of the contract; or (*c*) if, in the opinion of the Government, operations up to the time of the notice have not indicated the probability of making any worth while discovery and in the opinion of the Government further operations are not justified.

ARTICLE 9. *Changes and added provisions* .....

.....

.....

.....

.....

Executed in sextuplicate the day and year first above written.

THE UNITED STATES OF AMERICA

.....
(Operator)

By .....
Executive Officer, DMEA
Field Team Region IV

By .....

I, , certify that I am the secretary of the corporation named as Operator herein; that , who signed this contract on behalf of the Operator, was then of said corporation; that said contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

..... [CORPORATE SEAL]

U. S. GOVERNMENT PRINTING OFFICE 16—66329-1

Exhibit A

Description of the Work.

The work will consist of sinking 165 feet of vertical 2-compartment winze from a point near the face of the 500 level adit as shown on Figure 2 which is attached and made a part of Exhibit A. From a point 150 feet below the collar of the winze drifts will extend both northeastern and southwestern from the winze and on the vein a total distance of 400 feet. The distance of drifting in each direction must have the prior written approval of the DMEA representative. The winze will be timbered throughout and the drift will be timbered where necessary. All preparatory work including hoisting station, hoist installation, loading pockets, and the crosscut from the 650 level of the winze to the vein, will be done at operators expense without Government assistance.

The location of the proposed work in relation to the property lines is shown in Figure

Estimated Costs of the Project

Vertical winze, 165 feet at $93.00 per foot — $15,345.00
Drifting, 400 feet at $36.00 per foot — $14,400.00
Total Cost — $29,745.00
Government participation at 50% — 14,872.50

The above costs include all preparatory work, hoisting station, hoist, skip, loading pocket, crosscut from the 650 level of the winze to the vein, ventilation and all other costs incurred in the completion of the work.

224 New Customhouse
Denver 2, Colorado

September 15, 1953

Mr. George A. Freeman
Mountain States Metals Company
Box 851
Kingman, Arizona

Re: Docket No. DMEA 3064
Copper World Mine

Dear Mr. Freeman

On August 12, 1953, information was requested from you concerning the ownership of land where the portal of your 500 foot level haulage adit is located. We also need to know the land which is railroad land, and the land which is owned by Kerridge, in order to prepare a contract.

This information has not been received in this office and we presume that you are no longer interested in this exploration project, therefore we will close this docket in 30 days if the requested information has not been received by that time.

Very truly yours,

W. H. KING

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

HMC:jp
cc Subject
Chron
WRSterns
AHKoschmann
CCMittendorf (2)
HMConnors

224 New Customhouse
Denver 2, Colorado

July 22, 1953

Mr. G. A. Freeman, Manager
Mountain States Metals Company
Box 851
Kingman, Arizona

Re: Docket No. DMEA-3064

Dear Mr. Freeman:

Enclosed are six copies of Form MF-203 Owner's Consent to Lien. Please have all copies signed by the owners and returned to this office.

We will also need a signed copy, or a photostat of a signed copy, of your sales agreement with Dye and Bathrick. The one you forwarded with your DMPA Docket 2352 was retained by the Washington office of DMPA.

When we receive the above data we will continue to process your contract.

Very truly yours,

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

Enclosures

See other Memo

HMC:jp
cc Subject
Chron
WRStorms
AHKoschmann
HMConnors

224 New Customhouse
Denver 2, Colorado

July 22, 1953

Memorandum

To: W. R. Storms

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA-3064 (Copper), Mountain States Metals Company, Copper World Mine, Mohave County, Arizona

Please forward nine copies of Figure 2 shown in the final engineering report, together with nine copies of a claim map showing the Copper World, Copper World No. 1, Copper World No. 2 claims, and also showing the proposed work with relation to the property lines.

These maps are needed for the contract.

W. H. King

HMC:jp
cc Subject
Chron
AHKoschmann
HMConnors

MF-203
(Revised July 1, 1953)

OWNER'S CONSENT TO LIEN

WHEREAS, the undersigned, as owner, co-owner, lessor, or seller has an interest in certain property in the State of Arizona, County of Mohave, described as follows:1/ Copper World Mineral Survey No. 203; Two unpatented claims, Copper World No. 1 and Copper World No. 2 recorded in Book 13-X of Mines on pages 400, 401 and 402 in the office of the County Recorder of Mohave County, Arizona

which is the subject of a proposed exploration project contract, hereinafter called the "contract", between the United States of America, hereinafter called the "Government", and

2/ Mountain State Metals Co., Incorporated in Arizona
Box 851
Kingman, Arizona

hereinafter called the "Operator"; and

WHEREAS, under the provisions of said contract the Government is entitled to a percentage royalty on production (as set forth on the reverse side hereof) and to other rights and equities which do or may conflict with or be adverse to the rights of the undersigned:

NOW THEREFORE, the undersigned, in consideration of said contract and as an inducement to the Government to enter into same, undertakes and agrees as follows:

1. The Government's equity in and right to dismantle, sever, take possession of, and remove and dispose of facilities, buildings, fixtures, equipment, or other items as provided in the contract, or any amendment thereof, shall prevail over and be prior and superior to any conflicting or adverse rights of the undersigned, and the Government is authorized to enter upon the land for such purposes.

2. To secure the payment to the Government of the percentage royalty on production3/ provided for under the terms of said exploration project contract, or any amendment thereof, there is hereby granted to the Government a lien upon the land above referred to and upon any production of minerals therefrom, until said royalty is fully paid or ten years have elapsed from the date of the contract, whichever occurs first.

3. The undersigned shall commit no act nor assert any claim that may contravene or conflict with the lien, claim, or rights of the Government under the provisions of said contract. This agreement shall be binding upon the heirs, executors, administrators, successors, and assigns of the undersigned.

4. Changes and added provisions _____

_____

_____

_____

Dated this _____ day of _____, 195__.

_____ [Seal]

_____ [Seal]

_____ [Seal]

1/ Either (a) insert the legal description of the land, or (b) strike out the words "as follows" and insert "in a lease [or contract, deed, or other document] dated _____, and recorded in book _____ page _____ official records of said county." If (b) is used, the book and page of recordation cannot be dispensed with. If the space provided is insufficient, use an Annex, and refer to the Annex in the space.

2/ Insert the name of the Operator as it will appear in the exploration project contract.

3/ Mining or production from the land is not required, and in the absence of production there is no obligation to repay the Government.

RELEVANT CONTRACT PROVISIONS

Repayment by Operator.--a. Certification.--If at any time the Government considers that a discovery or development from which production may be made has resulted from the exploration work, the Government, at any time not later than six months after the Operator has rendered the final report and final account, may so certify in writing to the Operator. Such certification shall describe broadly or indicate the nature of the discovery or development.

b. Percentage royalty.--The Operator, or his successor in interest, shall pay to the Government a royalty on all minerals mined or produced from the land described in Article 2,--(1) regardless of any certification of discovery or development, from the date of the contract until the lapse of the time within which the Government may make such certification of discovery or development, or until the total net amount contributed by the Government, without interest, is fully repaid, whichever occurs first, unless the Government waives its right to a royalty; or (2) if the Government makes a certification of discovery or development, for a period of ten years (or other period fixed by the contract) from the date of the contract, or until the total net amount contributed by the Government, without interest, is fully repaid, whichever occurs first. Said royalty shall be a percentage of the net smelter returns, the net concentrator returns, or other net amounts realized from the sale or other disposition of any such production, in whatever form disposed of, including ore, concentrates, or metal, as follows:

(a) One and one-half (1½) per cent of any such net amounts not in excess of eight dollars ($8.00) per ton.

(b) One and one-half (1½) per cent of any such net amounts, plus one-half (½) per cent of such net amounts for each additional full fifty cents ($0.50) by which such net amounts exceed eight dollars ($8.00) per ton, but not in excess of five (5) per cent of such net amounts.

(For instance: the percentage royalty on a net amount of five dollars ($5.00) per ton, would be one and one-half (1½) per cent; on a net amount of ten dollars ($10.00) per ton, three and one-half (3½) per cent.)

c. Definitions.--As here used, "net smelter returns", "net concentrator returns", and "other net amounts realized from the sale or other disposition", mean gross revenue from sales; or if not sold, the market value of the material after it is mined in the form in which and the place where it is held. In the case of integrated operations in which the material is not disposed of as such, these terms mean what is or would be gross income from mining operations for percentage depletion purposes in income tax determination.

d. Lien for Payment.--To secure the payment of its percentage royalty, the Government shall have and is hereby granted a lien upon the land described in Article 2 and upon any production of minerals therefrom, until the royalty claim is extinguished by lapse of time or is fully paid.

e. Notice to Purchasers.--The Operator shall notify any purchaser of the production of the Government's royalty interest, and shall authorize and direct the purchaser to pay the royalty directly to the Government and to furnish the Government with copies of the settlement sheets; but failure or refusal by the purchaser to comply shall not relieve the Operator of liability to pay any royalty falling due.

f. No Obligation to Produce.--This article is not to be construed as imposing any obligation on the Operator or the Operator's successor in interest to engage in any mining or production operations.

add Fig 2

Add Fig.

add OCR.

W. H. K.

MINING DIVISION
REGION IV

Mining Division
Date Rec'd
SEP 18 1953
BUREAU OF MINES
Denver, Colorado

September 16, 1953

Air Mail

Mr. George A. Freeman
Mountain States Metals Co.
Box 851
Kingman, Ariz.

Re: Docket DMEA 3064,
Copper World Mine,
Mohave County, Ariz.

My dear Mr. Freeman:

On August 12 I wrote to you, requesting additional information regarding your leased land, but on my return from a short vacation I find that no answer has been received. As it seems possible that you did not receive my last letter, I will repeat it.

In regard to the small claim map that you sent to me on July 28 and which I returned to you on August 5, our Denver office now has brought up a question about the ownership of the land where the portal of your 500-foot level haulage adit is located. It is on the 71.28 acre Herridge lease, but according to your map, this also is railroad land. Will you please tell me which is railroad land and which is land owned by Herridge? Our Denver office must have this information before it can prepare your contract.

Sincerely yours,

Walter R. Storms

Walter R. Storms, Chief
Mining Methods Branch
Mining Division, Region IV

CC W. H. King
DMEA-3064, Contract
DF

WRStorms:frj

W.H.K. & Pc Hme

Mining Division
Date Rec'd
AUG 14 1953
BUREAU OF MINES
Denver, Colorado

MINING DIVISION
REGION IV

August 12, 1953

Mr. George A. Freeman
Mountain States Metals Co.
Box 851
Kingman, Ariz.

Re: Docket DMEA-3064
Copper World Mine
Mohave County, Ariz.

Air mail

My dear Mr. Freeman:

In regard to the small claim map that you sent to me on July 28 and which I returned to you on August 5, our Denver office now has brought up a question about the ownership of the land where the portal of your 500-foot level haulage adit is located. It is on the 71.28 acre Herridge lease but according to your map, this also is railroad land. Will you please tell me which is railroad land and which is land owned by Herridge? Our Denver office must have this information before it can prepare your contract.

Sincerely yours,

Walter R. Storms, Chief
Mining Methods Branch
Mining Division, Region IV

CC W. H. King
DMEA-3064, Contract
DF

WRStorms:frj

W.H.K.

Mining Division
Date Rec'd
JUL 27 1953
BUREAU OF MINES
Denver, Colorado

MINING DIVISION
REGION IV

July 24, 1953

Mr. George A. Freeman
Mountain States Metals Co.
Box 851
Kingman, Ariz.

Re: Docket DMEA-3064
Copper World Mine
Mohave County, Ariz.

My dear Mr. Freeman:

In order that an exploration project contract may be made, our Denver office requires a claim map showing the Copper World, Copper World No. 1, and Copper World No. 2 claims, and also showing the proposed exploration work and mine workings with relation to the property lines.

As we do not have a claim map here will you please send us a small one with location of the mine on it? We then will make up a tracing here and send the required number of copies of the claim map to Denver.

Sincerely yours,

Walter R. Storms, Chief
Mining Methods Branch
Mining Division, Region IV

CC W. H. King
DMEA-3064
DF

WRStorms:frj

R.A.B.

224 New Customhouse
Denver 2, Coloredo

August 10, 1953

Memorandum

To: W. R. Storms

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 3064 (Copper) Mountain States Metals Company's Copper World Mine, Mohave County, Arizona

Returned herewith are nine copies of a Claim Map showing the three Copper World claims and nine copies of a Claim and Topographical Map which shows one claim with no indication of the claim name and the 500 haulage level extending beyond the sideline.

In order to prepare a contract, definite information is necessary. Will you please have the claim name affixed to the Claim and Topographical Map. Also, please locate on the Claim Map, the 500 haulage level and portal so that we may determine what other ground is involved.

The notation on the Claim Map, "71.28 acre lease(see Herridge lease)", is not shown separate from the land held under leased railroad land. It is possible that this 71.28 acres is that part of the NE quarter of SW quarter and NW quarter of the SE quarter of Section 25 not covered by the patented Copper World claim, and may include the portal and 500 haulage level.

Will you please clarify the attached maps and return them to this office so that we may prepare a contract.

W. H. King

W. H. King

Enclosures

HMC:es

cc: Docket
Chron.
Koschmann (2)
Connors

Mining Division
Log Sheet

AUG 7 - 1953

BUREAU OF MINES
Denver, Colorado

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

SOUTHWEST EXPERIMENT STATION
Box 4097
UNIVERSITY STATION

MINING DIVISION
REGION IV

TUCSON, ARIZONA

August 5, 1953

Memorandum

To : W. H. King, Chief, Mining Division, Region IV

From : Chief, Mining Methods Br., Mining Div., Region IV

Subject : Docket DMEA-3064, Mountain States Metals Co.'s Copper World Copper Mine, Mohave County, Ariz.

In answer to your memorandum of July 22, asking for 9 copies of Figure 2 and 9 copies of a claim map showing proposed work, we are enclosing

(1) 9 copies of Figure 2;

(2) 9 copies of a claim map showing the 3 Copper World claims and their relation to leased land;

(3) 9 copies of a map of the Copper World claim showing present and proposed workings.

We had no claim map of this property so had to ask the company for one, hence the long delay.

Walter R. Storms

Walter R. Storms

CC DMEA-3064
DF

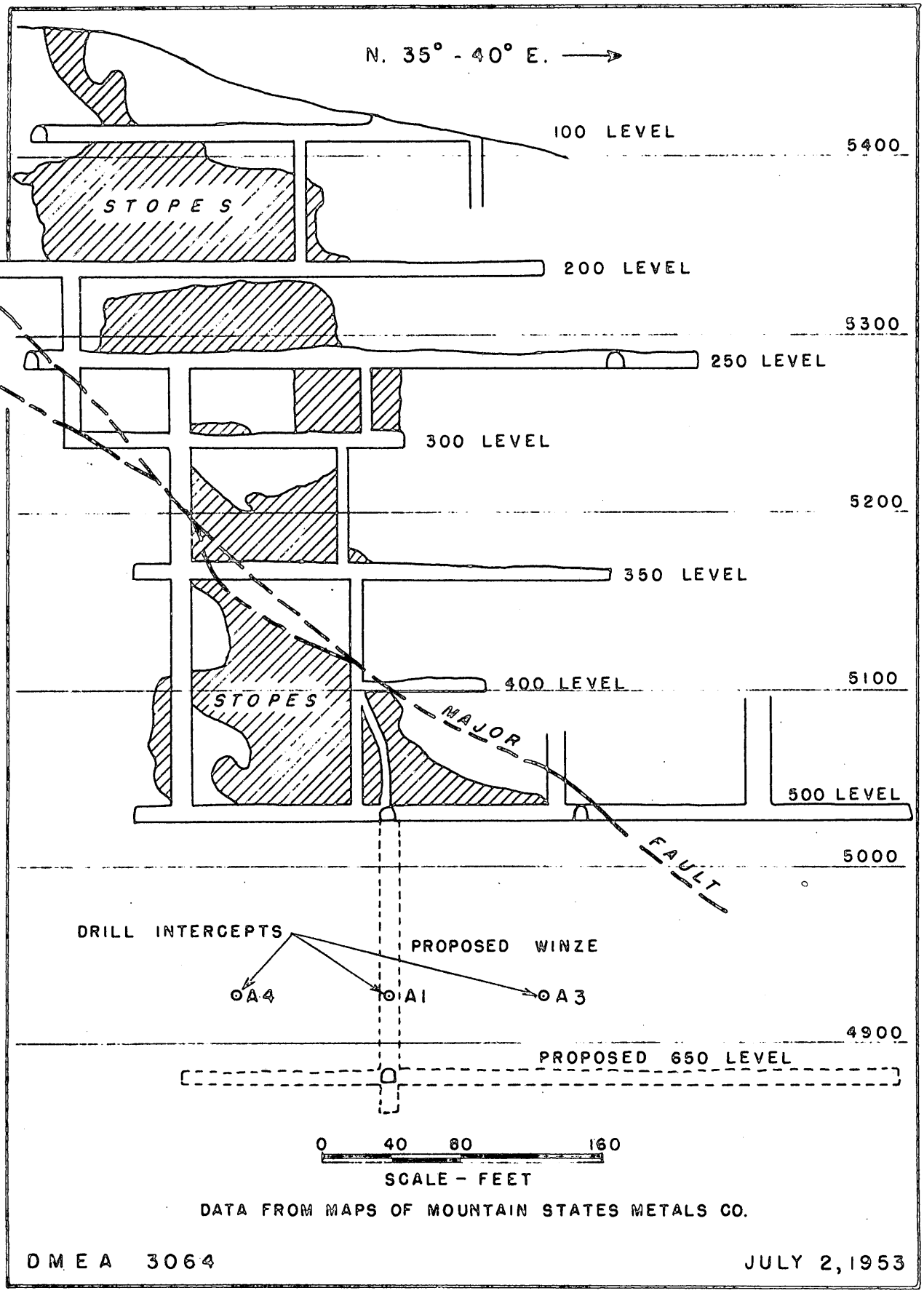
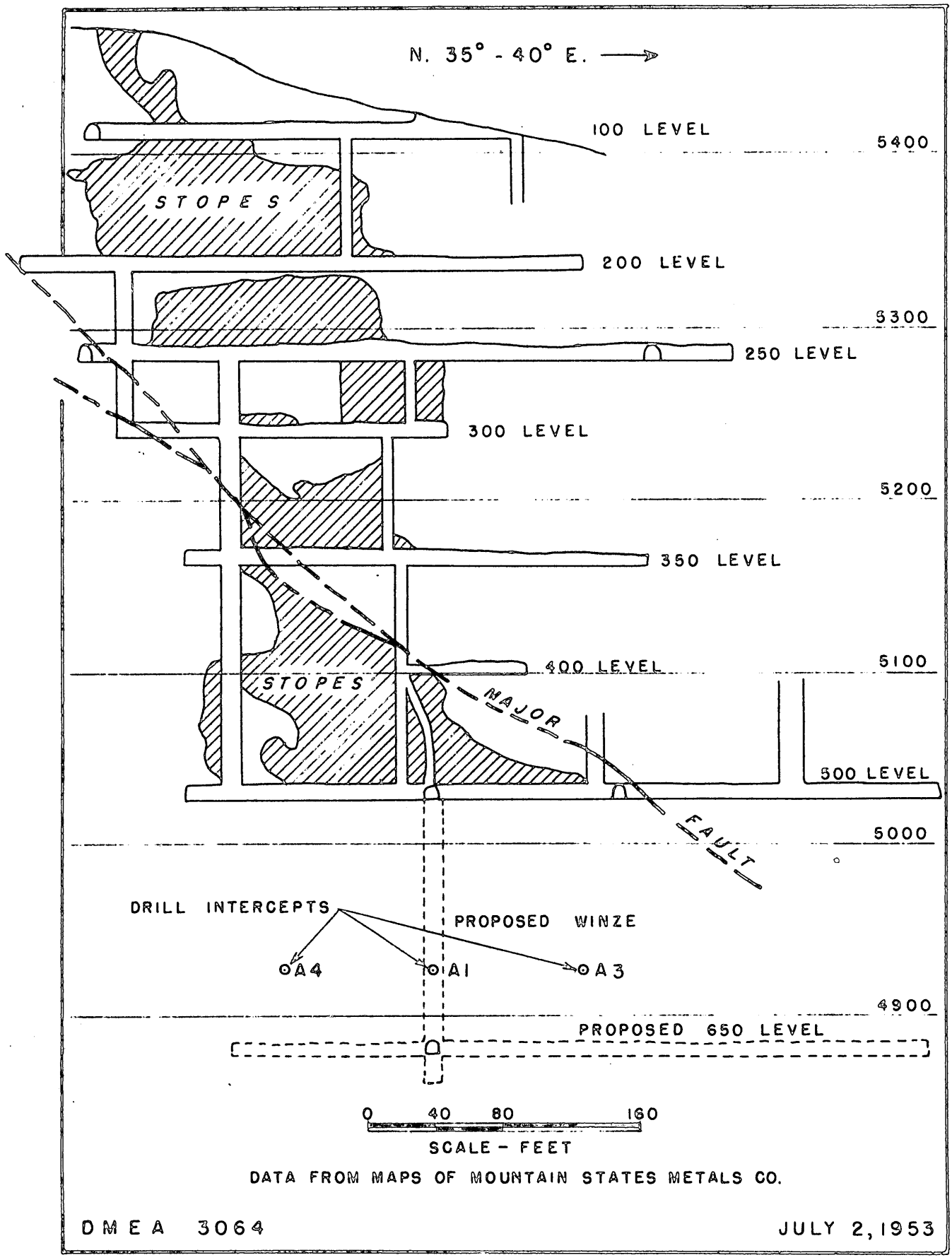


FIGURE 2.- LONGITUDINAL PROJECTION OF WORKINGS
COPPER WORLD MINE



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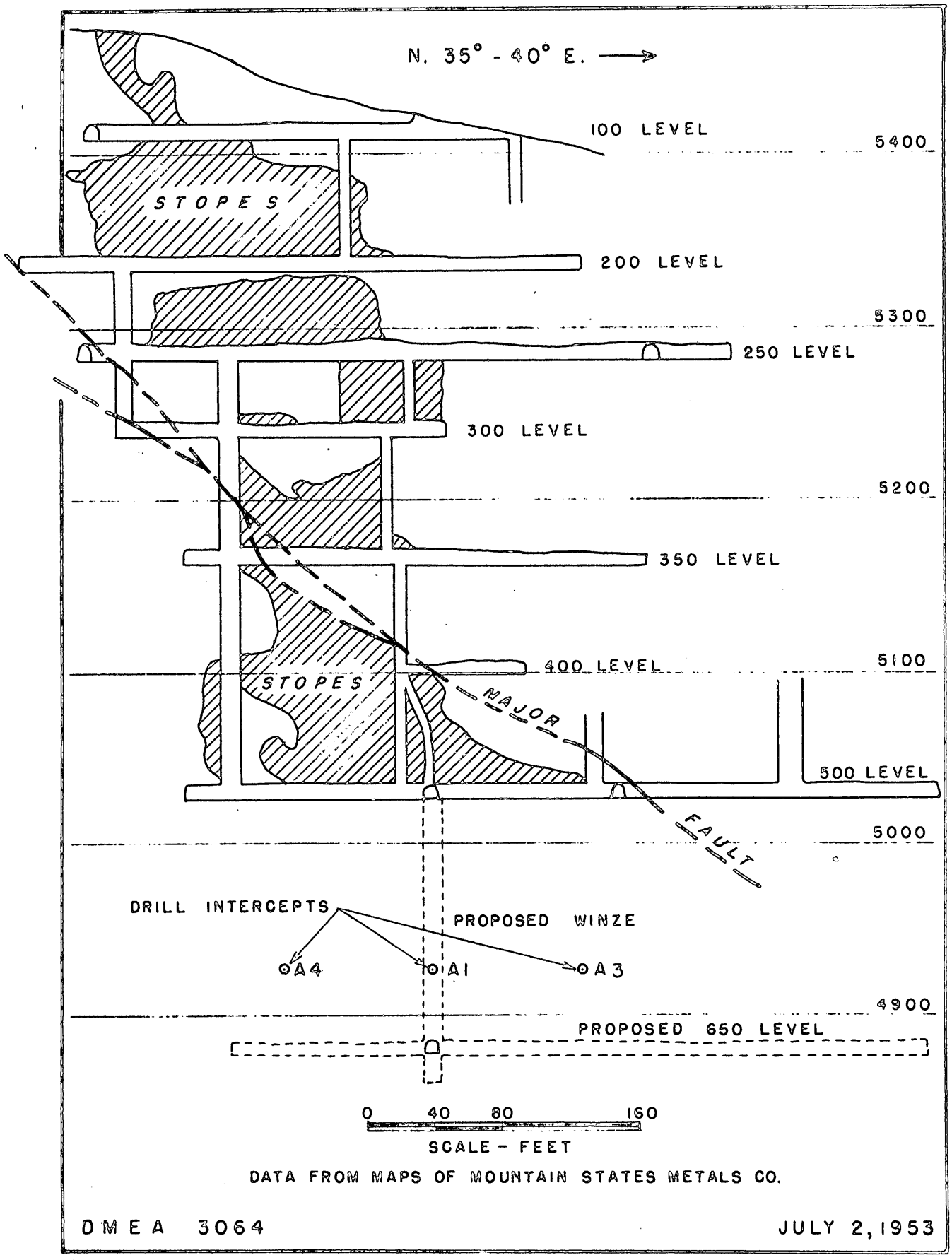
COPPER WORLD MINE



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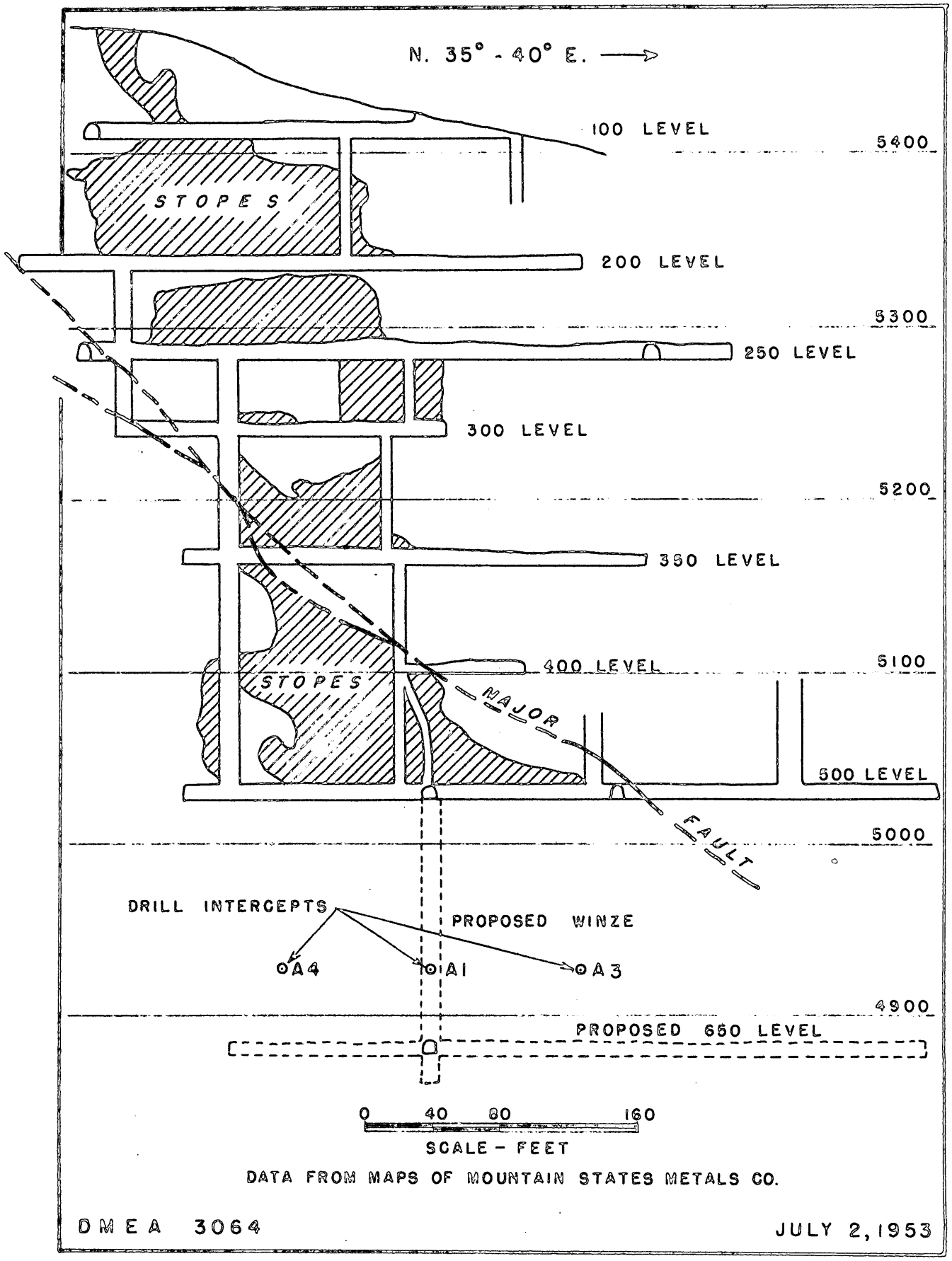
COPPER WORLD MINE



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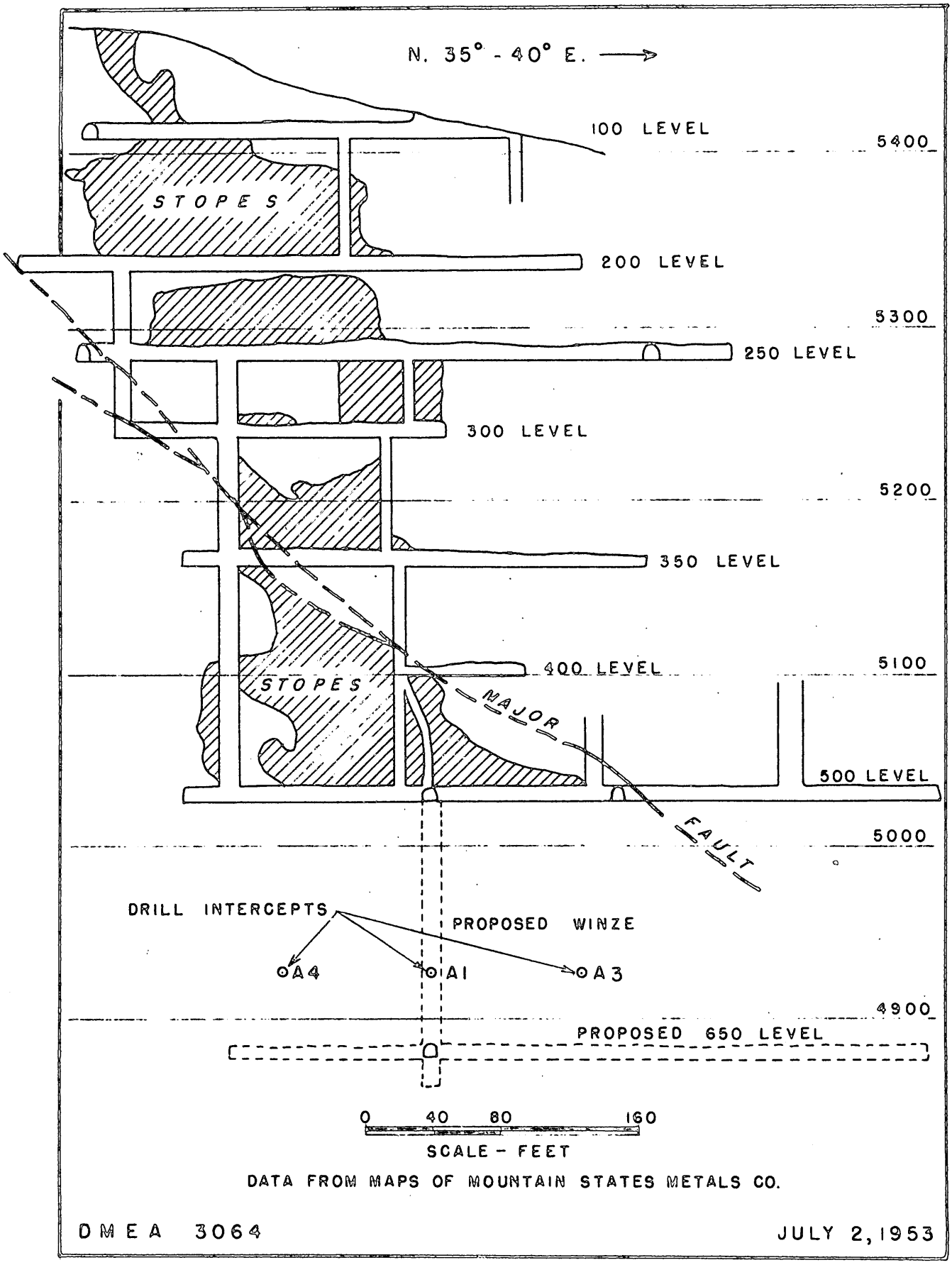

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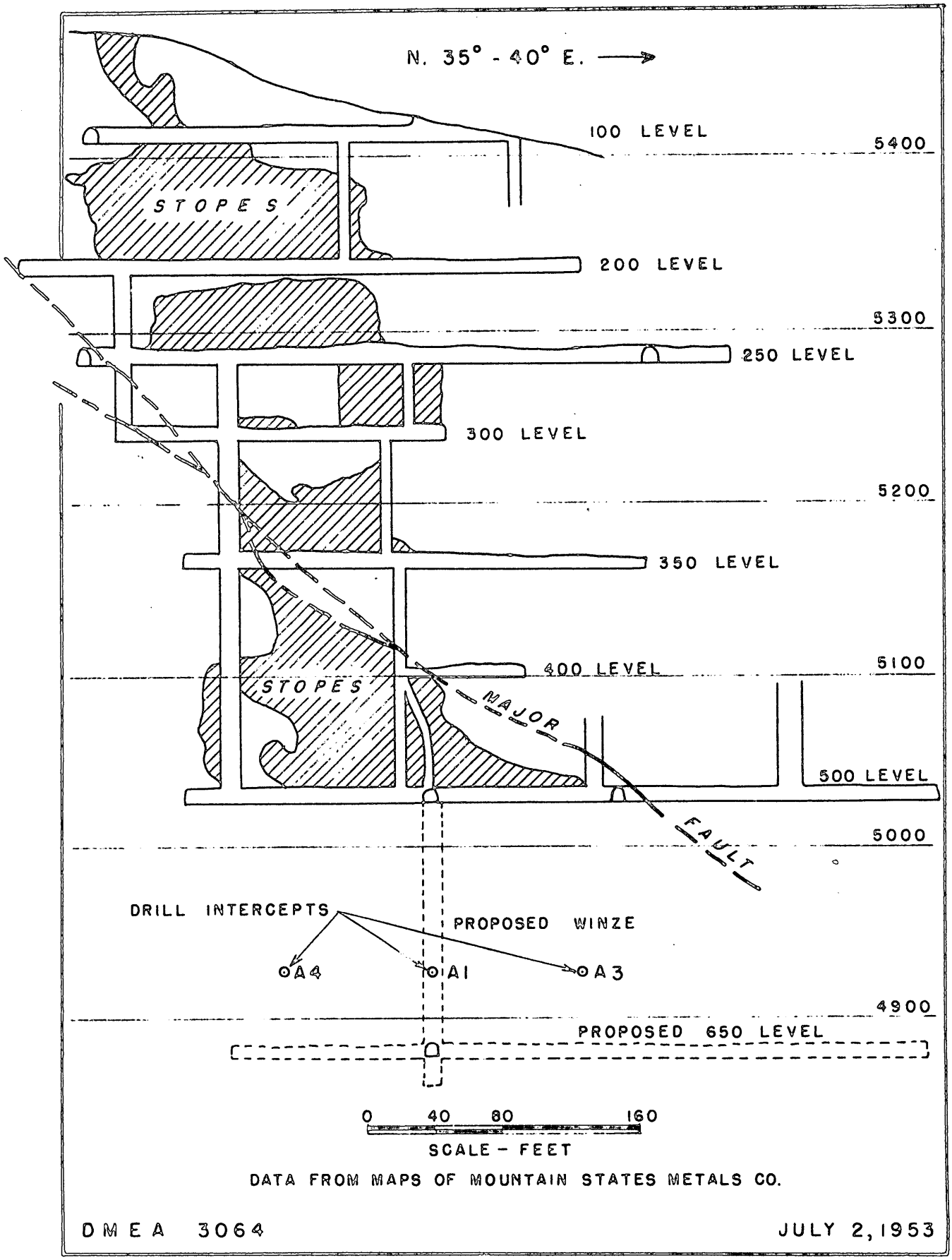

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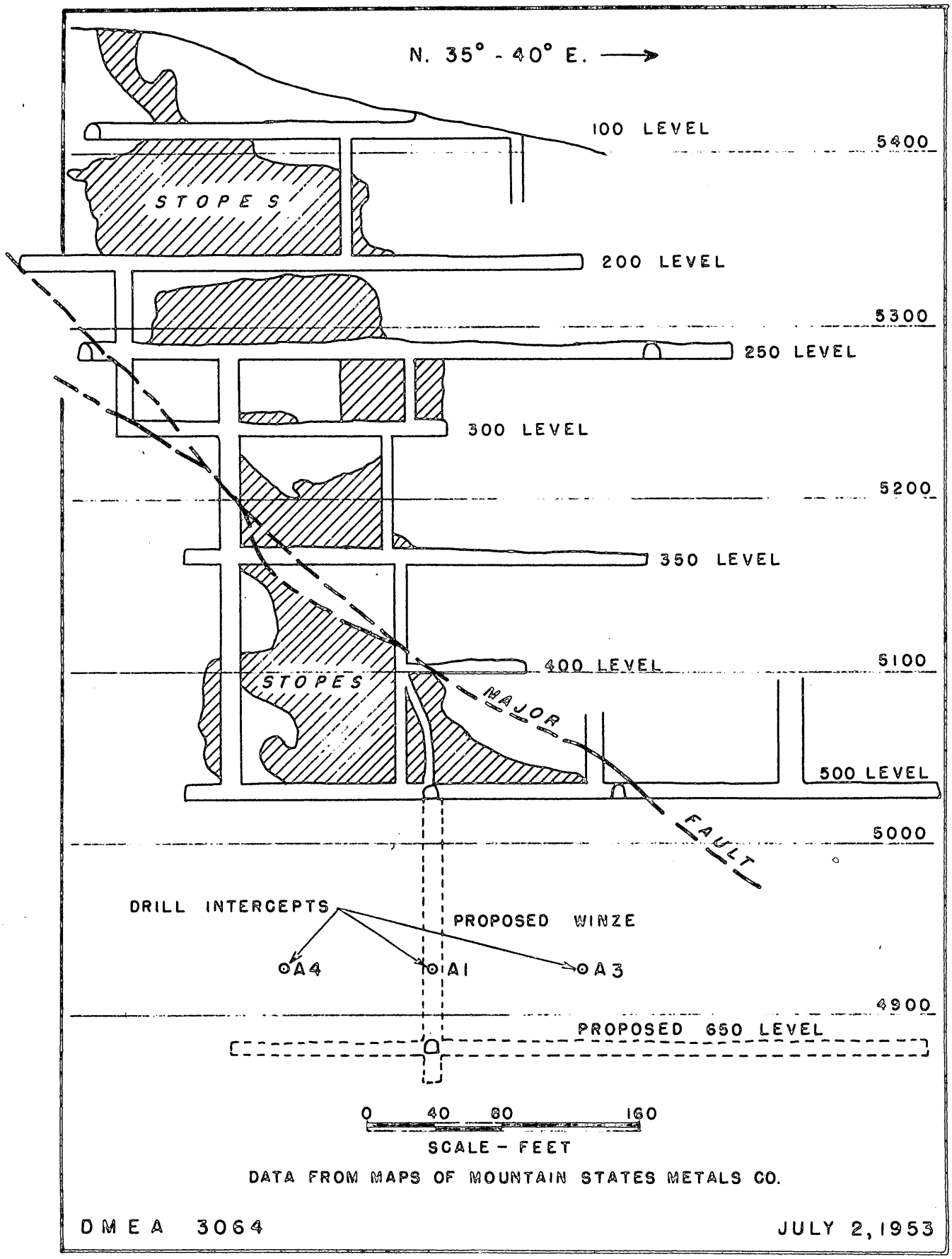

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COPPER WORLD MINE

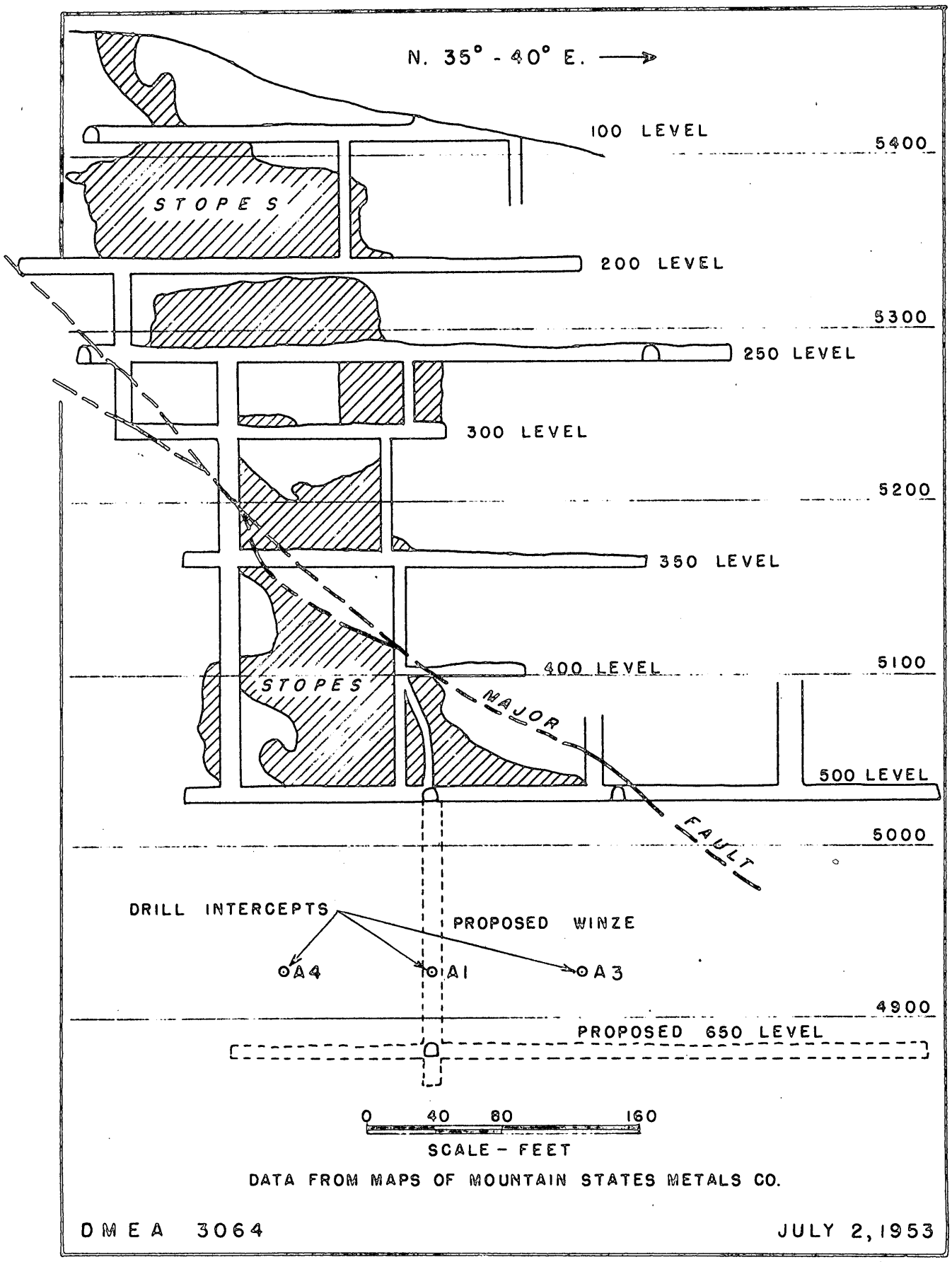


FIGURE 2.- LONGITUDINAL PROJECTION OF WORKINGS COPPER WORLD MINE

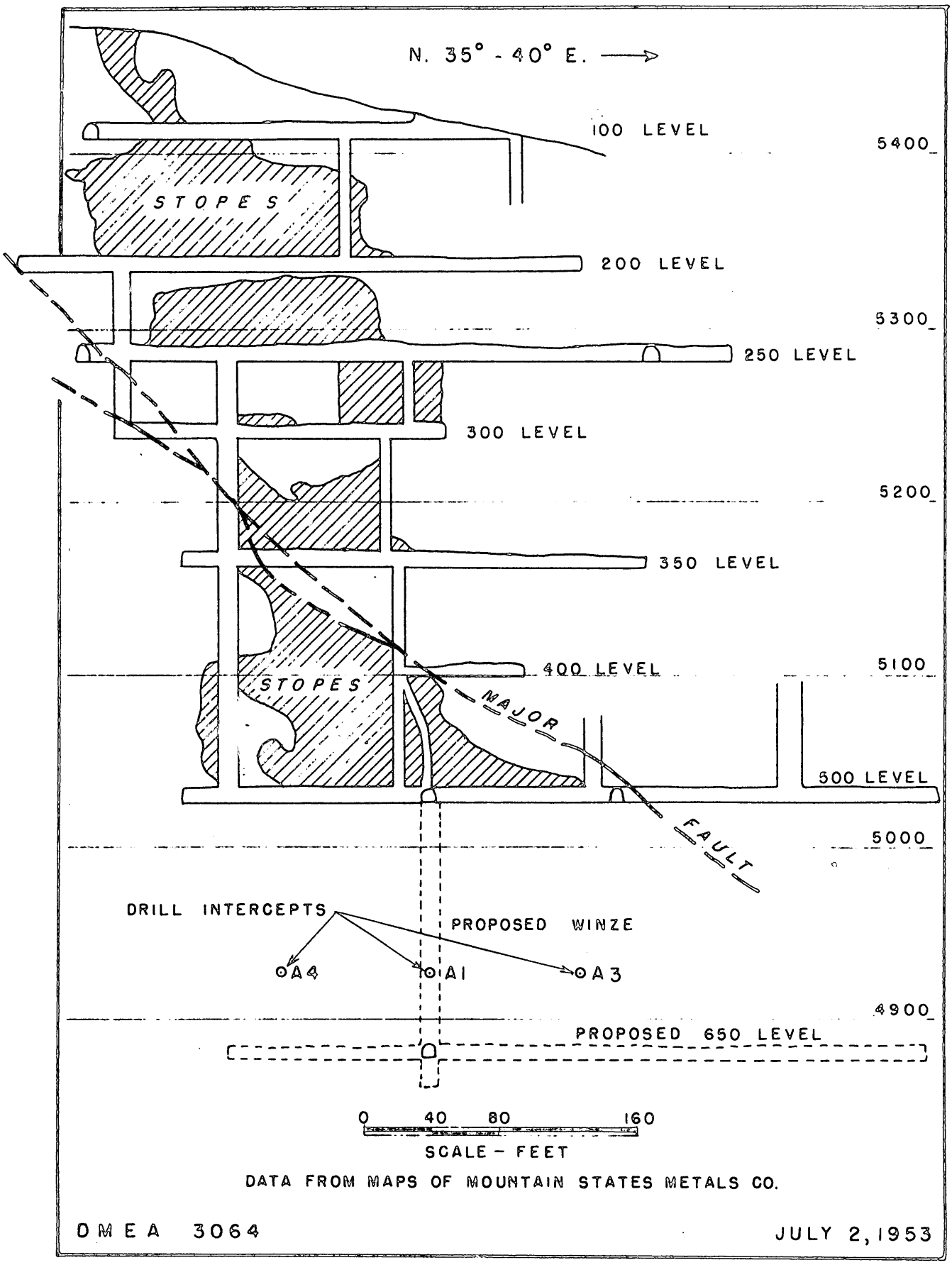


FIGURE 2.- LONGITUDINAL PROJECTION OF WORKINGS COPPER WORLD MINE

224 New Customhouse
Denver 2, Colorado

September 23, 1953

Mr. G. A. Freeman, Manager
Mountain States Metals Company
P. O. Box 851
Kingman, Arizona

Re: Docket No. DMRA 3064

Dear Mr. Freeman:

Reference is made to our letter of July 22, 1953, in which we enclosed six copies of Form MF-203, Owner's Consent to Lien, to be signed by the owners and returned to this office. We also requested a signed copy or photostat of a signed copy of your sales agreement with Dye and Bathrick.

Today we received maps showing the location of the portal of your 500 foot level haulage adit, and when we receive from you the six copies of the Owner's Consent to Lien, and the signed copy or photostat of the signed copy of your sales agreement with Dye and Bathrick, we will continue to process your contract.

If this information is not received in this office within thirty days, we will assume that you are no longer interested in this exploration project, and will close the docket.

Very truly yours,

W. H. King

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

HMC:es

cc: Docket
Chron.
Storms
Connors
Koschmann (2)

224 New Customhouse
Denver 2, Colorado

September 15, 1953

Mr. George A. Freeman
Mountain States Metals Company
Box 851
Kingman, Arizona

Re: Docket No. DMEA 3064
Copper World Mine

Dear Mr. Freeman

On August 12, 1953, information was requested from you concerning the ownership of land where the portal of your 500 foot level haulage adit is located. We also need to know the land which is railroad land, and the land which is owned by Berridge, in order to prepare a contract.

This information has not been received in this office and we presume that you are no longer interested in this exploration project, therefore we will close this docket in 30 days if the requested information has not been received by that time.

Very truly yours,

W. H. King

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

HMC:jp
cc Subject
Chron
WRStorms
AHKoschmann
COMittendorf (2)
HMConnors

224 New Customhouse
Denver 2, Colorado

August 10, 1953

Memorandum

To: W. R. Storms

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket DMEA 3064 (Copper) Mountain States Metals Company's Copper World Mine, Mohave County, Arizona

Returned herewith are nine copies of a Claim Map showing the three Copper World claims and nine copies of a Claim and Topographical Map which shows one claim with no indication of the claim name and the 500 haulage level extending beyond the sideline.

In order to prepare a contract, definite information is necessary. Will you please have the claim name affixed to the Claim and Topographical Map. Also, please locate on the Claim Map, the 500 haulage level and portal so that we may determine what other ground is involved.

The notation on the Claim Map, "71.28 acre lease(see Herridge lease)", is not shown separate from the land held under leased railroad land. It is possible that this 71.28 acres is that part of the NE quarter of SW quarter and NW quarter of the SE quarter of Section 25 not covered by the patented Copper World claim, and may include the portal and 500 haulage level.

Will you please clarify the attached maps and return them to this office so that we may prepare a contract.

W. H. King
W. H. King

Enclosures

HMC:es

cc: Docket
Chron.
Koschmann (2)
Connors

Mining Division
Date Rec'd
AUG 7 - 1953
BUREAU OF MINES
Denver, Colorado

MINING DIVISION
REGION IV

August 5, 1953

Mr. G. A. Freeman
Mountain States Metals Co.
Box 851
Kingman, Ariz.

Re: Docket DMEA-3064
Copper World Mine
Mohave County, Ariz.

My dear Mr. Freeman:

Thanks very much for your letter of July 28 with the claim maps. We have traced these maps and sent prints of them to our Denver office, so I assume the contract will be sent to you within a short time for signature.

Enclosed are your two maps.

Sincerely yours,

Walter R. Storms, Chief
Mining Methods Branch
Mining Division, Region IV

CC W. H. King

DMEA-3064
DF

WRStorms:frj

224 New Customhouse
Denver 2, Colorado

July 22, 1953

Mr. G. A. Freeman, Manager
Mountain States Metals Company
Box 851
Kingman, Arizona

Re: Docket No. DMEA-3064

Dear Mr. Freeman:

Enclosed are six copies of Form MF-203 Owner's Consent to Lien. Please have all copies signed by the owners and returned to this office.

We will also need a signed copy, or a photostat of a signed copy, of your sales agreement with Dye and Bathrick. The one you forwarded with your DMPA Docket 2352 was retained by the Washington office of DMPA.

When we receive the above data we will continue to process your contract.

Very truly yours,

W. H. King

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

Enclosures

HMC:jp
cc Subject
Chron
WRStorms
AHKoschmann
HMConnors

224 New Customhouse
Denver 2, Colorado

July 22, 1953

Memorandum

To: W. R. Storms

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docket No. DMEA-3064 (Copper), Mountain States Metals Company, Copper World Mine, Mohave County, Arizona

Please forward nine copies of Figure 2 shown in the final engineering report, together with nine copies of a claim map showing the Copper World, Copper World No. 1, Copper World No. 2 claims, and also showing the proposed work with relation to the property lines.

These maps are needed for the contract.

W. H. King

W. H. King

HMC

HMC:jp
cc Subject
Chron
AHKoschmann
HMConnors

Mining Division
Region IV

July 23, 1953.

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 3064 (Copper-Zinc), Mountain States Metals Company, Copper World Mine, Mohave County, Arizona.

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

The applicant requested $29,745.00 for sinking 165 feet of winze and 400 feet of drifting.

The engineer examiner recommends the applicant's exploration proposal and estimated costs.

We concur in this recommendation.

W. H. King

W. H. King

Enclosures

HMC:cwm

cc: Subject
AHKoschmann (2)
Chron.

254 New Customhouse
Denver 2, Colorado

July 23, 1953.

Memorandum

To: Administrator, Defense Minerals Exploration Administration

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 3064 (Copper-Zinc), Mountain States Metals Company, Copper World Mine, Mohave County, Arizona.

The application for Government assistance in exploration work estimated to cost $29,745.00 has been approved by us and a contract is being prepared.

Government participation will be 50 percent, or $14,872.50.

Four copies of the Final Report will be forwarded when the contract is executed. Two copies of Form 3b are attached.

W. H. King
W. H. King

A. H. Koschmann
A. H. Koschmann

W.H.K.

Enclosures

HMC:cwm

cc: WRStorms w/copy of Final Report
RFRobinson w/copy of Final Report
AHKoschmann w/copy of Final Report
DMEA w/copy of Final Report
Mining Division w/copy of Final Report
Subject
AHKoschmann (2)
Chron.

DMEA Form 3b
(Revised)

DEFENSE MINERALS EXPLORATION ADMINISTRATION

CONTROLLED DOCUMENT
Revised Abstract

DMEA Docket No. 3064

Name of Applicant Mountain States Metals Company

Change:	From		To	
	III 1	☐	III 1	☒ 7-22-53
	III 2	☐	III 2	☐
	III 3	☐	III 3	☐
	III 4	☒	III 4	☐
	III 5	☐	III 5	☐
			III 6	☐
			III 7	☐

Add:

II 7 $ 29,745.00

II 8 $ 29,745.00

II 8a % 50

II 9 $

Remarks:

Initials of person preparing sheet HMC

Date sheet prepared 7-22-53

33978

STANDARD FORM No. 14
APPROVED BY THE PRESIDENT
MARCH 10, 1926

TELEGRAM

OFFICIAL BUSINESS—GOVERNMENT RATES

FROM Walter R. Storms

BUREAU of Mines

CHG. APPROPRIATION Day Letter DMA

Tucson, Arizona, June 19, 1953

U. S. GOVERNMENT PRINTING OFFICE 10—1723

Phoned 3 p.m. frj

Mr. George A. Freeman
Mountain States Metals Co.
Box 851
Kingman, Ariz.

Regarding your loan application DMEA 3064, Elsing of Bureau of Mines and Robinson of Geological Survey will arrive Kingman Tuesday evening June 30 and stop at Wallapai Court. Expect to examine Copper World Wednesday.

Walter R. Storms

CC Confirmation (air mail)
W. H. King
DMEA-3064
TS (2)
DF

WRStorms,frj

Mining Division
Date Rec'd.
JUN 22 1953
BUREAU OF MINES
Denver, Colorado

224 New Customhouse
Denver 2, Colorado

June 16, 1953

Memorandum

To: W. R. Storms (with brochure)
R. F. Robinson

From: Field Team, Region IV

Subject: Docket DMEA 3064 (Copper-Zinc), Mountain States Metals Co., Copper-World Mine, Mohave County, Arizona

Enclosed herewith is the subject application for Government assistance in exploration work estimated to cost $29,745.00.

The brochure consists of:

1. MF-103, complete
2. Map of 350 level
3. Map of 300 level
4. Map of 250 level
5. Map of 500 level
6. Longitudinal section of Copper-World Mine

A field examination is required.

W. H. King
W. H. King

W.H.K.

A.H. Koschmann
A. H. Koschmann

Enclosure

HMC
HMC:fwo

cc Subject
Chron
Koschmann

F-103
(April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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

Not to be filled in by applicant

Docket No. 3064
Metal or Mineral
Date Received 6/8/53
Estimated Cost
Participation (Government %)

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Mountain States Metals Co., Box 851, Kingman, Arizona
Incorporated in Arizona in 1951
President - B. T. Whiteker, 315 E. 36th St., Tucson, Arizona
V. Pres. - M. Ginter " " " " " "
Sec.Treas.- J. Himmler " " " " " "

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract The Copper World (a patented claim) Copper World #1(an unpatented mining claim) and Copper World #2 (an unpatented mining claim)
Mohave Co., Ariz.

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

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Purchaser under "Sales Agreement" with Dye and Bethrick, a partnership

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property. A copy of the agreement between Mt. States Metals Co. and Dye & Bethrick was sent to your office with application for loan on Dec., 1951. The copy has not been returned. We will have another made if you don't have it.

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

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. A full description of claims is shown in contract mentioned above

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

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

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

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

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

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Copper and Zinc

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

(*c*) The work will start within 120 days and be completed within 18 months from the date of an exploration project contract.

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

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

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

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

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

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

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

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

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

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

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

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

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

☐ Money ☐ Use of equipment owned by you ☐ Other

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated May 20, 1953

Mountain States Metals Co.
(Applicant)

By G. A. Freeman, Mgr.

G. A. Freeman

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

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

Mountain States Metals Company

Box // 851

Kingman, Arizona

May 20, 1953

ATTACHED SHEET TO APPLICATION (form MF-103)

4. (a) This mine was worked from 1942-1946 by Dye and Bathrick, a partnership. Their mining was done between the 190'-250' level. The 60 foot vertical distance that they mined produced a total tonnage of 13,990 tons of crude ore that averaged 3.62% Cu and 11.2% Zn. Since they did not have a mill, this tonnage was shipped to custom mills. Most of it was shipped to Shattuck Denn in Bisbee, Arizona.

The mine was under lease and option to Omega Metals Co. from 1948-1949. They did considerable development work on the property and had just gotten into operation when metal prices dropped in 1949. When Omega Metals Co. took over the property, the lowest level was the 250 foot. Most of the known ore was stoped out above this level. A 250 foot vertical diamond drill hole was drilled, starting in the ore, on the 250 foot level and it remained in ore to the 500 foot level. Due to a steep side hill slope, the ore zone on 500 foot level could be reached by a 730 foot crosscut adit. During the time that Omega Metalls Co. held the property, they run this crosscut to the ore zone and drifted 120 feet each way on the ore. They also started a vertical raise from the 500 foot level to the 250 foot level. This was started on the diamond drill hole. The ore from this development plus a small tonnage from stoping was milled at Boriana Mill. They milled about 2500 tons of ore from the development that averaged 3.0% Cu and 10.5% Zn.

When the present company, Mt. States Metals Co., took over, they completed the main #1 raise to the 250 foot level and developed two main sub-levels between the 250' -500' level. They have drifted a total of 290 feet to the northeast from the main crosscut and haulage on the 500' level and 145 ft to the southwest from crosscut. There were two main ore chutes encountered in this drifting (see colored maps for ore zones) The ore chute over the main cross-cut is the only one that any mining has been done on to date. The ore zone to the NE is being developed at this time for mining. The sub-level development is also shown on maps.

The mine is in good shape and all workings are accessible for examination purposes.

All of the development below the 250 foot level shown on maps has been done by Mt.States Metals Co., other than that mentioned above done by Omega Metals Co.. They also extended the 250 foot level 182' feet to the NE.

Mt. States Metals Co.
Box 851
Kingman, Arizona

4.(cont.)
(b)

Through Dec. 31, 1952 there has been mined and milled 28,240 tons of crude ore, averaging 3.47% Cu and 9.8% Zn. From ore zones shown on maps we have calculated a remaining ore reserve above 500 level of 22,000 tons averaging 3.9% Cu and 6.1% Zn. The reason for the higher copper average is that the NE ore body, from development work, has averaged higher in Cu.. To date, this ore body has averaged 4.4% Cu and 4.7% Zn.

(c) The ore occurs in the weaker schist zones. This schist, for the main part has gneiss as a footwall and pegmatite and gneiss as hanging wall. The vein, however, dips nearly vertical.

The ore zone on the 500 foot level has been as large as the zones on the upper levels and the grades nearly the same. The copper values have increased in proportion at lower levels. Geologically, there is no reason why the ore will not continue to a depth of the proposed 150 foot shaft and further.

Mr. Romslo and Mr. Elsing of the Bureau of Mines, at the Univ. of Ariz. in Tucson have examined the property previously and the proposed work was discussed briefly with them. However, we have developed more ore to the NE than we had at the time of their examination.

(d) The mine and mill is 16 miles from Yucca, Arizona and shipping point. There is a good graded road to the property. The camp and boarding house is located at the mine and mill.

(e) There is a 44,000 volt power line to the property and we have 750 KVA available at the mine and mill.
We have the Boriana Wells that supplies water for the 100 ton selective flotation plant.

5. (b) The Exploration Project we would like to participate in is to sink a shaft 165 feet vertically below the 500 ft level on the footwall side of the ore, 15 foot of this to be for a sump and pocket. Then drift 290 feet to the Northeast and 110 feet to the Southwest from this shaft. (see enclosed maps showing proposed shaft and drifting).

In addition to the above work it will be necessary to run a short crosscut to the start of the shaft and we would also have to build an ore pocket on the 500 ft level and at the bottom of proposed shaft. We are prepared to do this work ourselves and also furnish the hoist and install it. All other equipment is available at the property.

(d) The writer, G. A, Freeman, will be in charge of such exploration work. I worked for E. I. DuPont between 1937-1940 incharge of magnotometer survey doing geophysical work on Titanium. From 1941-1949 I was employed by Coronado Copper and Zinc Co.(Harvey Mudd interests) as chief chemist and mill supt.. Since that time I have been employed by Mt. States Metals Co. as General Manager . Member A.I.M.E.

Mt. States Metals Co.
Box 851
Kingman, Arizona

6. We would like to enter into a contract at a cost per foot of sinking and cost per foot of drifting and Mt. States Metals Co.. furnish all necessary equipment, supplies, etc..

Our cost per foot for drifting, to date, has been $36.00 and our estimated cost for shaft sinking is $93.00.

The part of the project that we would like to have assistance on is the actual drifting and sinking footage. As mentioned above, we would do the necessary preparatory work and furnish equipment.

As per drawing, there would be 165 feet of shaft and 400 feet of drift. The drift to be 5'x 7'. The shaft to be a 2 compartment (2 - 5'x 5') one compartment for a skip and one for ladders and pipe.

I am sending, under separate cover, two copies of maps indicating the proposed exploration work and also showing the ore zones and detail above the 500 level. If you need extra copies of these I will have some made up. The Bureau of Mines office in Tucson, Arizona have a complete set also.

Total cost of DMEA participation:

400 feet of drifting	at $36.00 per ft -	$ 14,400.00
165 feet of shaft	at 93.00 " " -	15,345.00
	TOTAL --	$ 29,745.00

If you wish to make inquiry as to the merit of the property, please call Mr. Romslo of the Bureau of Mines in Tucson, Arizona.

224 New Customhouse
Denver 2, Colorado

June 2, 1953

Mr. G.A. Freeman, Manager
Mountain States Metals Company
Box 851
Kingman, Arizona

Dear Mr. Freeman:

This will acknowledge receipt of your application for aid in an exploration project on the Copper World mine.

Will you please break down your estimate of costs as underlined in red on the attached Form MF-103 to complete the application. When we receive this information in quadruplicate we will be pleased to continue to process your application.

The copy of the agreement between Mountain States Metals Company and Dye & Bathrick, which you mentioned as having been sent to this office with your application for a DMPA loan in December 1951, was retained by the Washington office. Before a contract could be made it will be necessary for us to have a copy of this agreement.

Very truly yours,

W. H. King

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

Enclosure

HMC:jp
cc Subject
Chron

224 New Customhouse
Denver 2, Colorado

June 5, 1953.

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: Code 200

From: Executive Officer, DMEA Field Team, Region IV

Subject: Docketing for Exploration Assistance

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

B & H Mining Company, Inc.
236 Brotherhood Bldg.
Kansas City, Kansas

Darrel G. Hafen
712 South 11th East
Salt Lake City, Utah

Mountain States Metals Co.
Box 851
Kingman, Arizona

Nielson, Keele & Nielson
Blanding
Utah

Timco, Inc.
c/o Karl Maxwell
1895 Carter Drive, Reno, Nevada

Verne W. Young
Green River
Utah

W. E. King

Enclosures

cwm

cc: Code 200 file
AHKoschmann (2)
Chron.

Docket (B & H Mining Co.)
Docket (Darrel G. Hafen)
Docket (Mountain States Metals Co.)
Docket (Nielson, Keele & Nielson)
Docket (Timco, Inc.)
Docket (Verne W. Young)

DMEA Form 3a
(Revised)

DEFENSE MINERALS EXPLORATION ADMINISTRATION

CONTROLLED DOCUMENT
Abstract

I. 3

II. Fill in each item:

1. _____ 2. _____

3. Mountain States Metals Co.

Box 851 Kingman, Arizona

_____ (Code) _____

4. Copper World Mine

5. State Arizona County Mohave

_____ (Code) _____ (Code)

6. Copper

7. $ 29,745.00

8. $ _____ 8a. % 50

III. Check one:

1 ☐ 2 ☐ 3 ☐ 4 ☒

Remarks:

Initials of person preparing sheet HMC

Date sheet prepared 6-6-53

17367

Mountain States Metals Company

BOX ~~X~~ 851
~~YUCCA~~, ARIZONA
Kingman

June 5, 1953

Mining Division
Date Rec'd
JUN 11 1953
BUREAU OF MINES
Denver, Colorado

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

Dear Mr. King:

In answer to your letter of June 2, 1953, I am enclosing a breakdown of costs for sinking of the proposed shaft and drifting therefrom.

Very truly yours,

G. A. Freeman, Mgr.

Mountain States Metals Co.
Box 851
Kingman, Arizona

Cost Breakdown - Sinking Vertical Shaft
(2 compartments - 5' x 5')

Sinking Crew - Labor	----	$ 47.00	per foot
Explosives	--	4.50	" "
Timber	--	14.60	" "
Compressed Air	--	2.10	" "
Hoisting	--	6.80	" "
Air and Water Lines	--	2.00	" "
Tramming	--	5.80	" "
Insurance and Taxes (compensation insurance)	--	6.70	" "
Overhead (including supervision)	--	3.30	" "
TOTAL -		$ 93.00	per foot

Cost Breakdown - Drifting 5' x 7'

Drifting Crew Labor	--	$ 12.00	per foot
Explosives	--	2.80	" "
Timber and Labor for Timber (figured on basis of ¼ of drift requiring timber)	--	2.40	" "
Air and Water Lines	--	1.90	" "
Compressed Air	--	2.10	" "
Track - 16# (incl. labor)	--	2.10	" "
Hoisting to 500' Haulage Level	--	1.90	" "
Insurance and Taxes (compensation insurance)	--	3.25	" "
Overhead (including supervision)	--	2.85	" "
TOTAL -		$36.00	" "

Mountain States Metals Co.
Box 851
Kingman, Arizona

Cost Breakdown - Sinking Vertical Shaft
(2 compartments - 5' x 5')

Sinking Crew - Labor	----	$ 47.00	per	foot
Explosives	--	4.50	"	"
Timber	--	14.80	"	"
Compressed Air	--	2.10	"	"
Hoisting	--	6.80	"	"
Air and Water Lines	--	2.00	"	"
Tramming	--	5.80	"	"
Insurance and Taxes(compensation insurance)	--	6.70	"	"
Overhead (including Supervision)	--	3.30	"	"
TOTAL -		$ 93.00	per	foot

Cost Breakdown - Drifting 5' x 7'

Drifting Crew Labor	--	$ 12.00	per	foot
Explosives	--	2.80	"	"
Timber and Labor for Timber (figured on basis of ¼ of drift requiring timber)	--	2.40	"	"
Air and Water Lines	--	1.90	"	"
Compressed Air	--	2.10	"	"
Track - 16# (incl. labor)	--	2.10	"	"
Hoisting to 500' Haulage Level	--	1.90	"	"
Insurance and Taxes (compensation insurance)	--	3.25	"	"
Overhead (including supervision)	--	2.85	"	"
TOTAL -		$36.00	"	"

Mountain States Metals Co.
Box 851
Kingman, Arizona

Cost Breakdown - Sinking Vertical Shaft
(2 compartments - 5' x 5')

Sinking Crew - Labor	----	$ 47.00	per foot
Explosives	--	4.50	" "
Timber	--	14.80	" "
Compressed Air	--	2.10	" "
Hoisting	--	6.80	" "
Air and Water Lines	--	2.00	" "
Tramming	--	5.00	" "
Insurance and Taxes(compensation insurance)	--	6.70	" "
Overhead (including Supervision)	--	3.30	" "
TOTAL -		$ 93.00	per foot

Cost Breakdown - Drifting 5' x 7'

Drifting Crew Labor	--	$ 12.00	per foot
Explosives	--	2.80	" "
Timber and Labor for Timber (figured on basis of ¼ of drift requiring timber)	--	2.40	" "
Air and Water Lines	--	1.90	" "
Compressed Air	--	2.10	" "
Track - 16# (incl. labor)	--	2.10	" "
Hoisting to 500' Haulage Level	--	1.90	" "
Insurance and Taxes (compensation insurance)	--	3.25	" "
Overhead (including supervision)	--	2.85	" "
TOTAL -		$36.00	" "

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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

Not to be filled in by applicant

Docket No. .....
Metal or Mineral .....
Date Received .....
Estimated Cost .....
Participation (Government %) .....

INSTRUCTIONS

1. *Name of applicant.*—(*a*) State here your full legal name, in the form in which you will wish to contract, and your mailing address: Mountain States Metals Co., Box 851, Kingman, Arizona
Incorporated in Arizona in 1951
President - B. T. Whitaker, 315 E. 36th St., Tucson, Arizona
V. Pres. - M. Ginter " " " " " "
Sec.Treas.- J. Himmler " " " " " "

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

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

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

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

3. *Applicant's property rights.*—(*a*) State the legal description of the land upon which you wish to explore, including all land which you possess or control that may be benefited by the exploration, and excluding any land or interest in land which is not to be included in the exploration project contract The Copper World (a patented claim)
Copper World #1(an unpatented mining claim) and Copper World #2
(an unpatented mining claim)
Mohave Co, Ariz.

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

(*c*) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise Purchaser
under "Sales Agreement" with Dye and Bathrick, a partnership

(*d*) If you are not the owner, submit with this application a copy of the lease, contract, or other document under which you control the property. A copy of the agreement between Mt. States Metals Co. aand
Dye & Bathrick was sent to your office with application for loan on
Dec., 1951. The copy has not been
returned. We will have another made if you don't have it.

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

(*f*) If the land consists of unpatented claims, add to the description above, the book and page numbers for each recorded location notice. A full description of claims is shown in contract mentioned above

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

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

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

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

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

5. *The exploration project.*—(*a*) State the mineral or minerals for which you wish to explore Copper and Zinc

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

(*c*) The work will start within 120 days and be completed within 18 months from the date of an exploration project contract.

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

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

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

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

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

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

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

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

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

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

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

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

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

☐ Money ☐ Use of equipment owned by you ☐ Other

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated May 20, 1953

Mountain States Metals Co.
(Applicant)

By G. A. Freeman, Mgr.

G. A. Freeman

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

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

Mountain States Metals Company

Box // 851

Kingman, Arizona

May 20, 1953

ATTACHED SHEET TO APPLICATION (form MF-103)

4. (a) This mine was worked from 1942-1946 by Dye and Bathrick, a partnership. Their mining was done between the 190'-250' level. The 60 foot vertical distance that they mined produced a total tonnage of 13,990 tons of crude ore that averaged 3.62% Cu and 11.2% Zn. Since they did not have a mill, this tonnage was shipped to custom mills. Most of it was shipped to Shattuck Denn in Bisbee, Arizona.

The mine was under lease and option to Omega Metals Co. from 1948-1949. They did considerable development work on the property and had just gotten into operation when metal prices dropped in 1949. When Omega Metals Co. took over the property, the lowest level was the 250 foot. Most of the known ore was stoped out above this level. A 250 foot vertical diamond drill hole was drilled, starting in the ore, on the 250 foot level and it remained in ore to the 500 foot level. Due to a steep side hill slope, the ore zone on 500 foot level could be reached by a 730 foot crosscut adit. During the time that Omega Metalls Co. held the property, they run this crosscut to the ore zone and drifted 120 feet each way on the ore. They also started a vertical raise from the 500 foot level to the 250 foot level. This was started on the diamond drill hole. The ore from this development plus a small tonnage from stoping was milled at Boriana Mill. They milled about 2500 tons of ore from the development that averaged 3.0% Cu and 10.5% Zn.

When the present company, Mt. States Metals Co., took over, they completed the main #1 raise to the 250 foot level and developed two main sub-levels between the 250' -500' level. They have drifted a total of 290 feet to the northeast from the main crosscut and haulage on the 500' level and 145 ft to the southwest from crosscut. There were two main ore chutes encountered in this drifting (see colored maps for ore zones) The ore chute over the main cross-cut is the only one that any mining has been done on to date. The ore zone to the NE is being developed at this time for mining. The sub-level development is also shown on maps.

The mine is in good shape and all workings are accessible for examination purposes.

All of the development below the 250 foot level shown on maps has been done by Mt.States Metals Co., other than that mentioned above done by Omega Metals Co.. They also extended the 250 foot level 182' feet to the NE.

Mt. States Metals Co.
Box 851
Kingman, Arizona

4.(cont.)
(b)
Through Dec. 31, 1952 there has been mined and milled 28,240 tons of crude ore, averaging 3.47% Cu and 9.8% Zn. From ore zones shown on maps we have calculated a remaining ore reserve above 500 level of 22,000 tons averaging 3.9% Cu and 6.1% Zn. The reason for the higher copper average is that the NE ore body, from development work, has averaged higher in Cu.. To date, this ore body has averaged 4.4% Cu and 4.7% Zn.

(c) The ore occurs in the weaker schist zones. This schist, for the main part has gneiss as a footwall and pegmatite and gneiss as hanging wall. The vein, however, dips nearly vertical.

The ore zone on the 500 foot level has been as large as the zones on the upper levels and the grades nearly the same. The copper values have increased in proportion at lower levels. Geologically, there is no reason why the ore will not continue to a depth of the proposed 150 foot shaft and further.

Mr. Romslo and Mr. Elsing of the Bureau of Mines, at the Univ. of Ariz. in Tucson have examined the property previously and the proposed work was discussed briefly with them. However, we have developed more ore to the NE than we had at the time of their examination.

(d) The mine and mill is 16 miles from Yucca, Arizona and shipping point. There is a good graded road to the property. The camp and boarding house is located at the mine and mill.

(e) There is a 44,000 volt power line to the property and we have 750 KVA available at the mine and mill.
We have the Boriana Wells that supplies water for the 100 ton selective flotation plant.

5. (b) The Exploration Project we would like to participate in is to sink a shaft 165 feet vertically below the 500 ft level on the footwall side of the ore, 15 foot of this to be for a sump and pocket. Then drift 290 feet to the Northeast and 110 feet to the Southwest from this shaft. (see enclosed maps showing proposed shaft and drifting).

In addition to the above work it will be necessary to run a short crosscut to the start of the shaft and we would also have to build an ore pocket on the 500 ft level and at the bottom of proposed shaft. We are prepared to do this work ourselves and also furnish the hoist and install it. All other equipment is available at the property.

(d) The writer, G. A, Freeman, will be in charge of such exploration work. I worked for E. I. DuPont between 1937-1940 incharge of magnotometer survey doing geophysical work on Titanium. From 1941-1949 I was employed by Coronado Copper and Zinc Co.(Harvey Mudd interests) as chief chemist and mill supt.. Since that time I have been employed by Mt. States Metals Co. as General Manager . Member A.I.M.E.

Mt. States Metals Co.
Box 851
Kingman, Arizona

6. We would like to enter into a contract at a cost per foot of sinking and cost per foot of drifting and Mt. States Metals Co.. furnish all necessary equipment, supplies, etc..

Our cost per foot for drifting, to date, has been $36.00 and our estimated cost for shaft sinking is $93.00.

The part of the project that we would like to have assistance on is the actual drifting and sinking footage. As mentioned above, we would do the necessary preparatory work and furnish equipment.

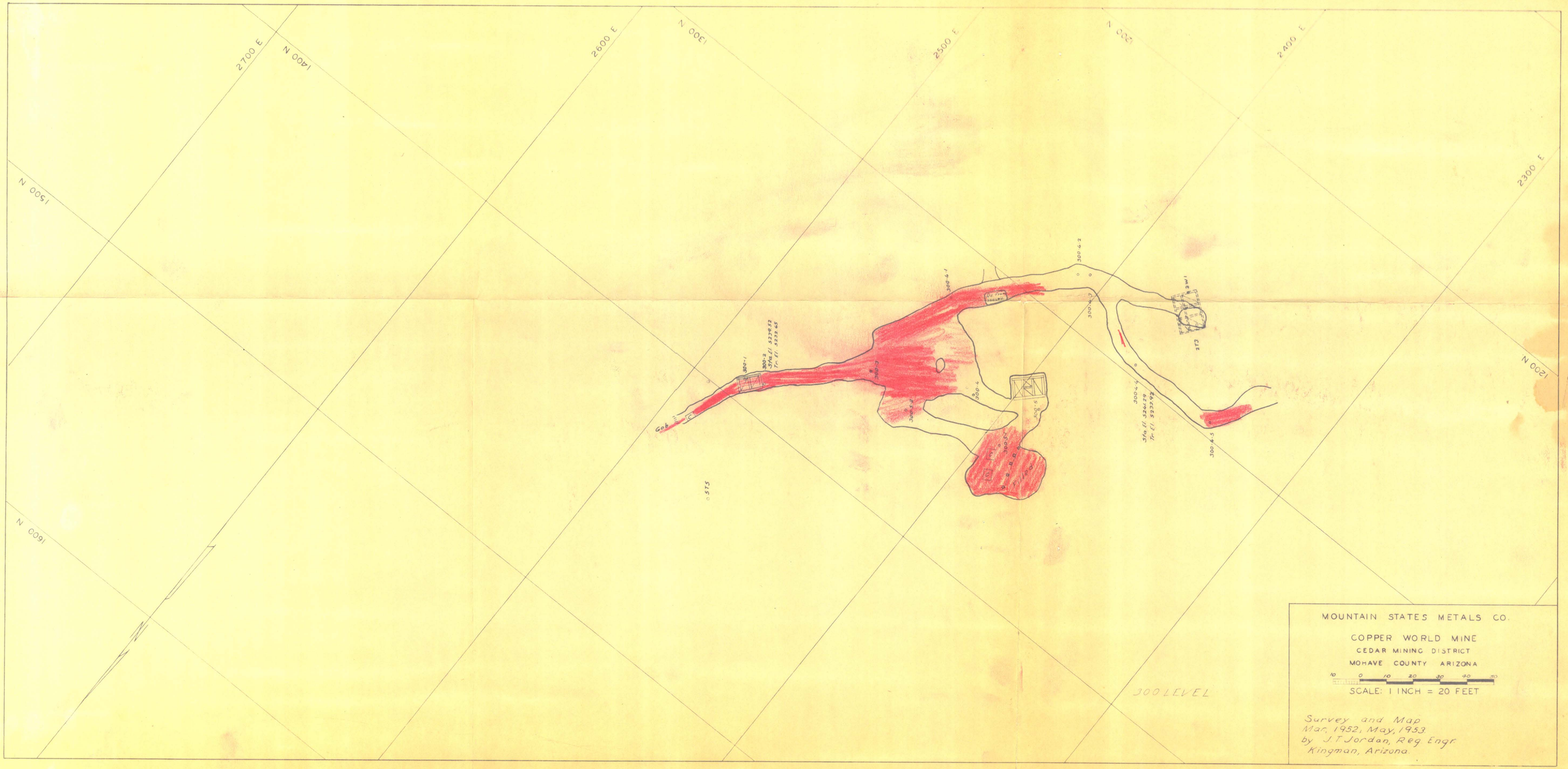
As per drawing, there would be 165 feet of shaft and 400 feet of drift. The drift to be 5'x 7'. The shaft to be a 2 compartment (2 - 5'x 5') one compartment for a skip and one for ladders and pipe.

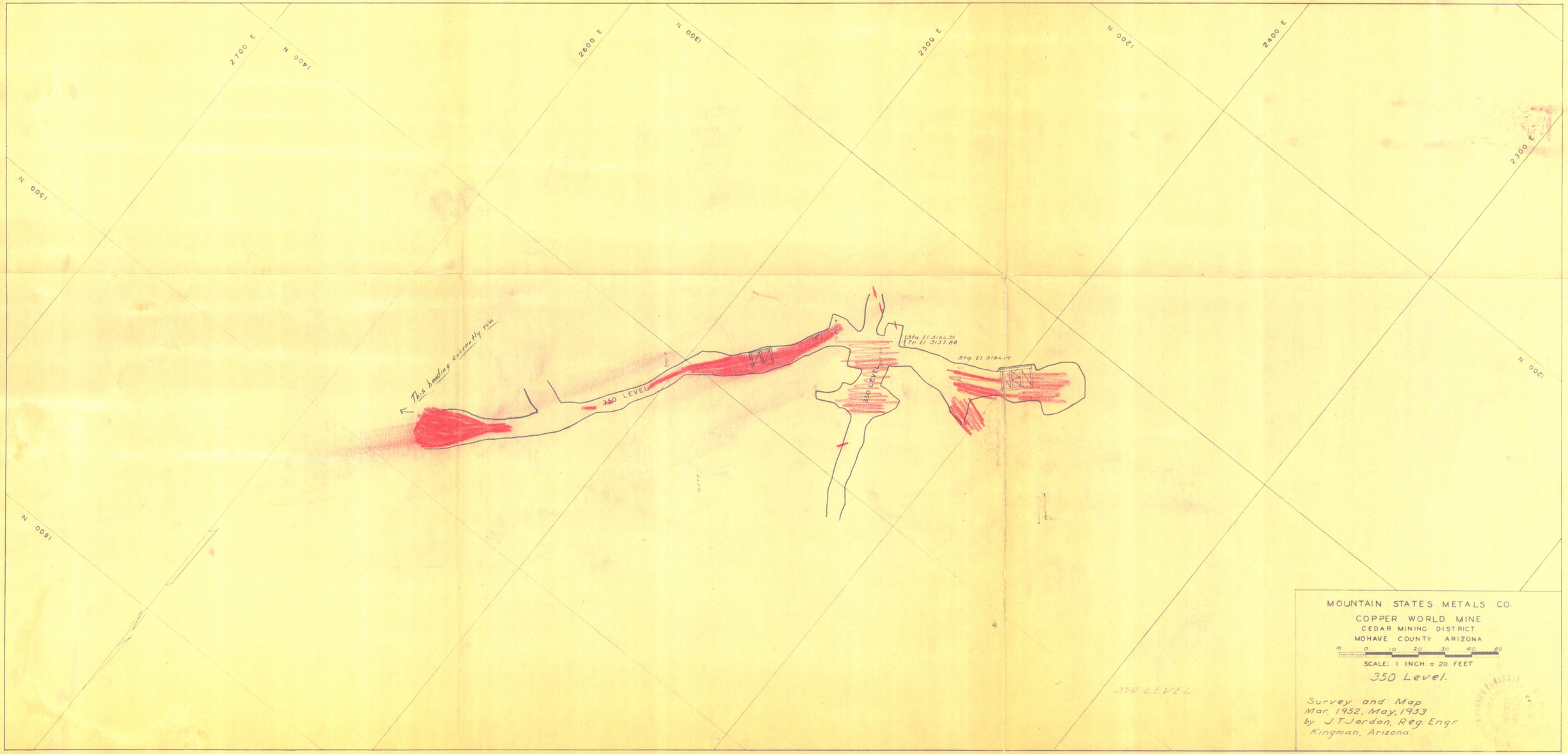
I am sending, under separate cover, two copies of maps indicating the proposed exploration work and also showing the ore zones and detail above the 500 level. If you need extra copies of these I will have some made up. The Bureau of Mines office in Tucson, Arizona have a complete set also.

Total cost of DMEA participation:

400 feet of drifting	at $36.00	per ft -	$ 14,400.00
165 feet of shaft	at 93.00	" " -	15,345.00
		TOTAL --	$ 29,745.00

If you wish to make inquiry as to the merit of the property, please call Mr. Romslo of the Bureau of Mines in Tucson, Arizona.


2700 E
1400 N
2600 E
1300 N
2500 E
1200 N
2400 E
2300 E
1500 N
1600 N
N
300 LEVEL
MOUNTAIN STATES METALS CO.
COPPER WORLD MINE
CEDAR MINING DISTRICT
MOHAVE COUNTY ARIZONA
10 0 10 20 30 40 50
SCALE: 1 INCH = 20 FEET
Survey and Map
Mar. 1952, May, 1953
by J.T. Jordan, Reg. Engr.
Kingman, Arizona.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2600 E
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2500 E
1200 N
2400 E
2300 E
1500 N
1200 N
1600 N
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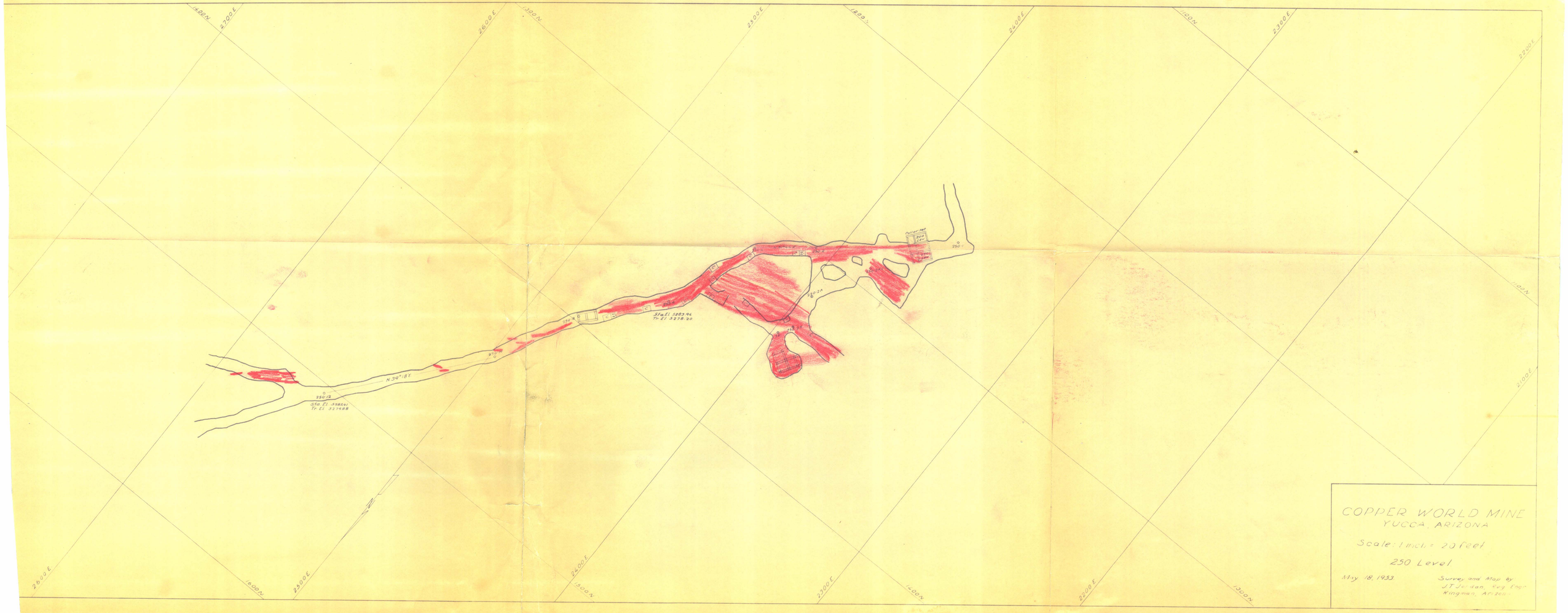
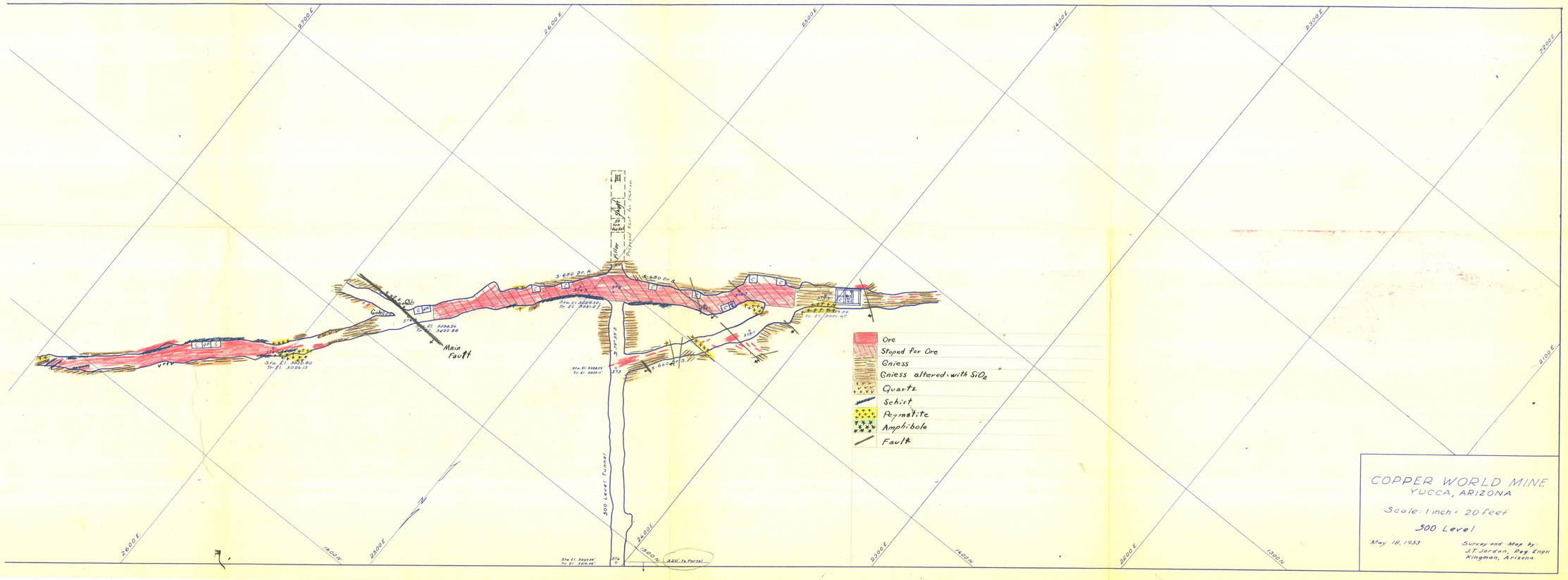
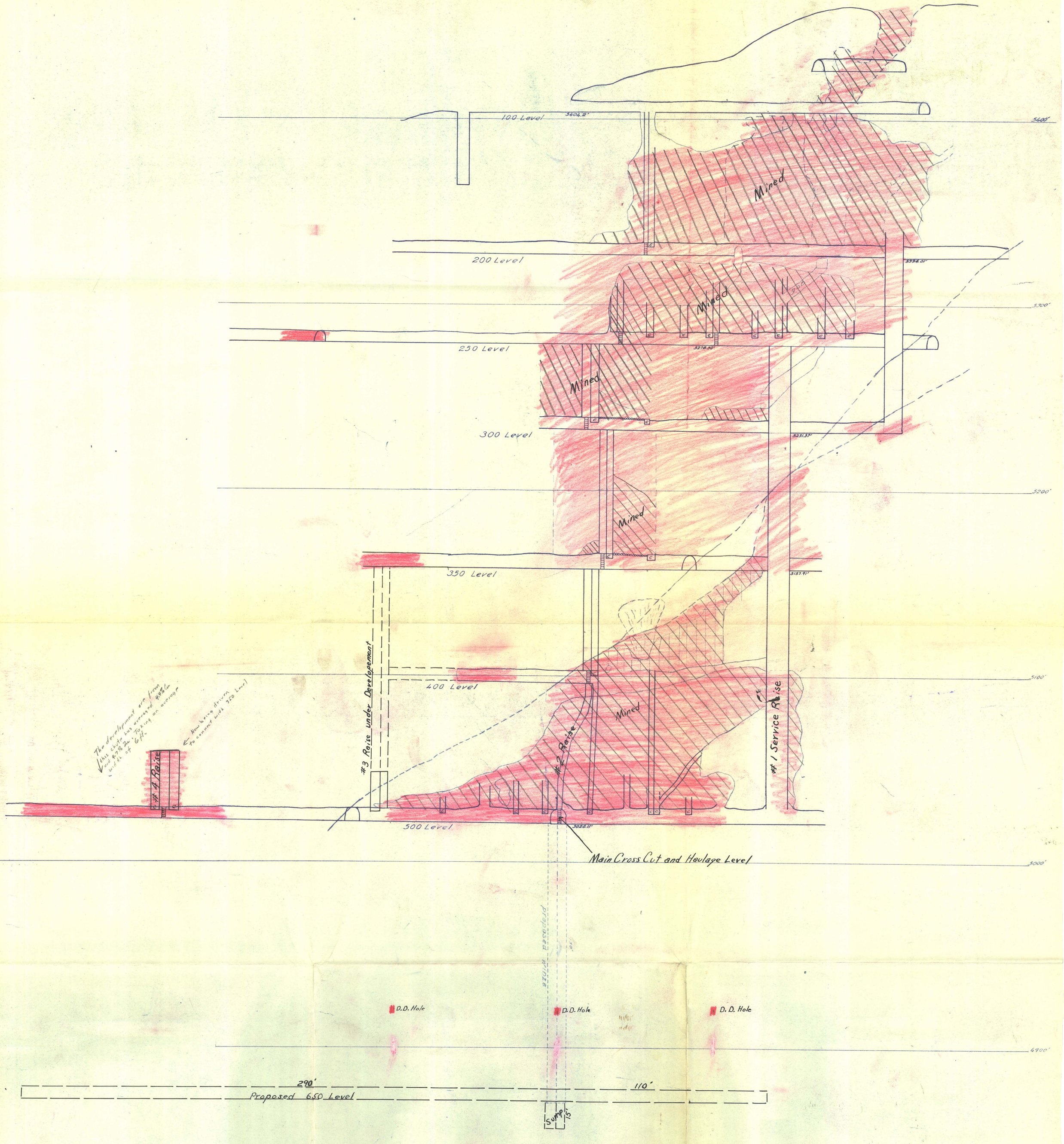
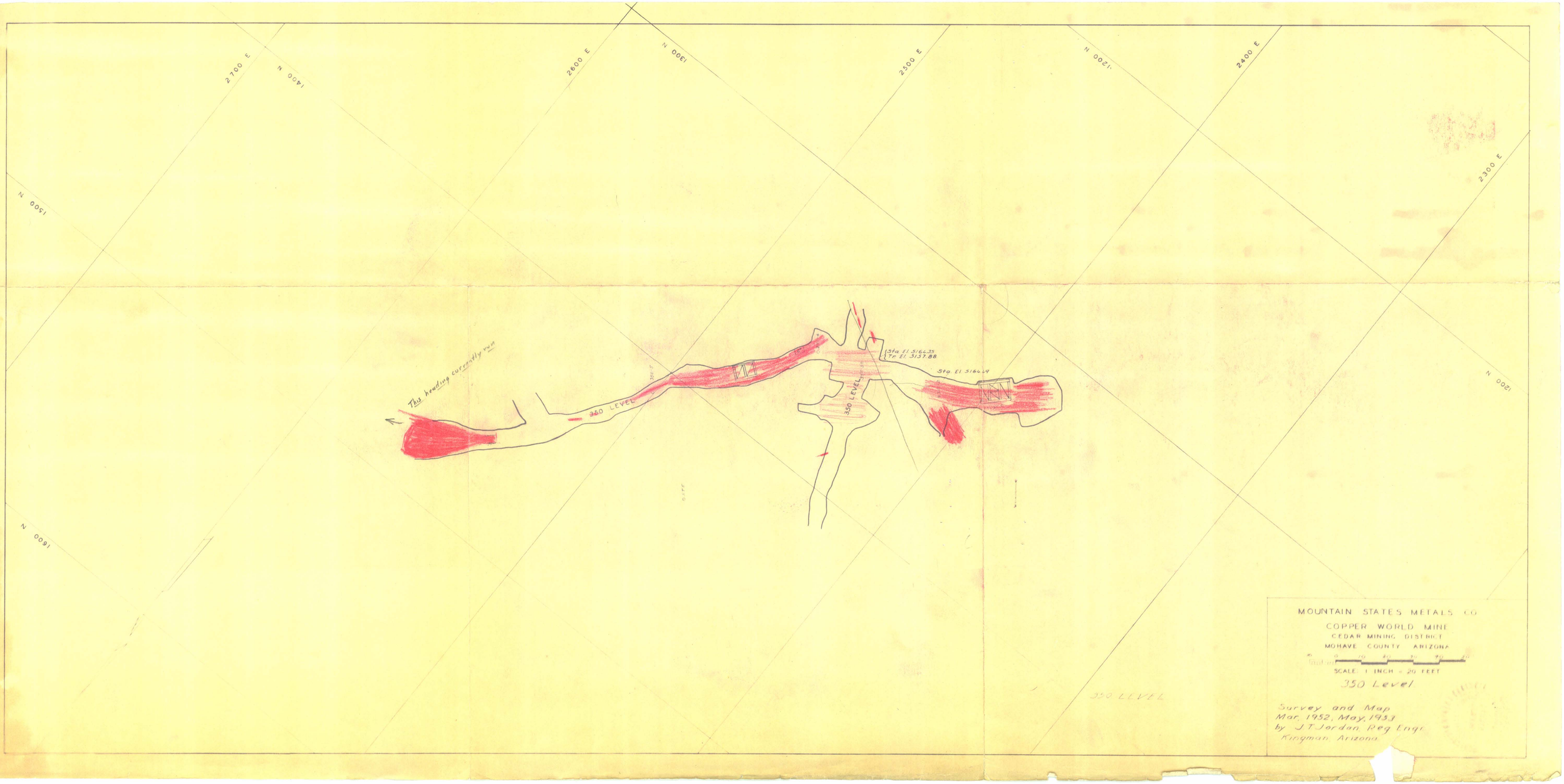
Sta El 3166.35
Tr El 3137.88
Sta. El 3166.19
350 LEVEL
350 LEVEL
MOUNTAIN STATES METALS CO.
COPPER WORLD MINE
CEDAR MINING DISTRICT
MOHAVE COUNTY ARIZONA
10 0 10 20 30 40 50
SCALE: 1 INCH = 20 FEET
350 Level.
Survey and Map
Mar. 1952, May, 1953
by J.T. Jordan, Reg. Engr.
Kingman, Arizona


COPPER WORLD MINE
YUCCA, ARIZONA
Scale: 1 inch = 20 feet
250 Level
May 18, 1933
Survey and Map by
J.T. Jordan, Eng. Engr.
Kingman, Arizona
N 34° 18' E
250'13
Sta El 3282.61
Tr El 3279.88
Sta El 3283.96
Tr El 3278.20
250'10
250'0
250'0
250'0
250'0
250'0
250'0
250'0
Ceiling 1947
Floor 1947
Floor 1947
2600 E
2700 E
2800 E
2900 E
2300 E
2400 E
2200 E
2100 E
1400 N
1500 N
1600 N
1300 N
1200 N
1100 N


2200 E
2100 E
2000 E
1900 E
1800 E
1700 E
1600 N
1500 N
1400 N
1300 N
Main Fault
Gabbro
Pillar
Proposed Rail Haulage
300 Level Tunnel
Ore
Stoped for Ore
Gniess
Gniess altered with SiO_2
Quartz
Schist
Pegmatite
Amphibole
Fault
COPPER WORLD MINE
YUCCA, ARIZONA
Scale: 1 inch = 20 feet
300 Level
May 18, 1953
Survey and Map by:
J.T. Jordan, Reg. Engr.
Kingman, Arizona



Mountain States Metals Co.
Copper World Mine
Longitudinal Section
Scale - 1" = 20'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1400 N
2600 E
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2500 E
1200 N
2400 E
2300 E
1500 N
1200 N
1600 N
This heading currently run
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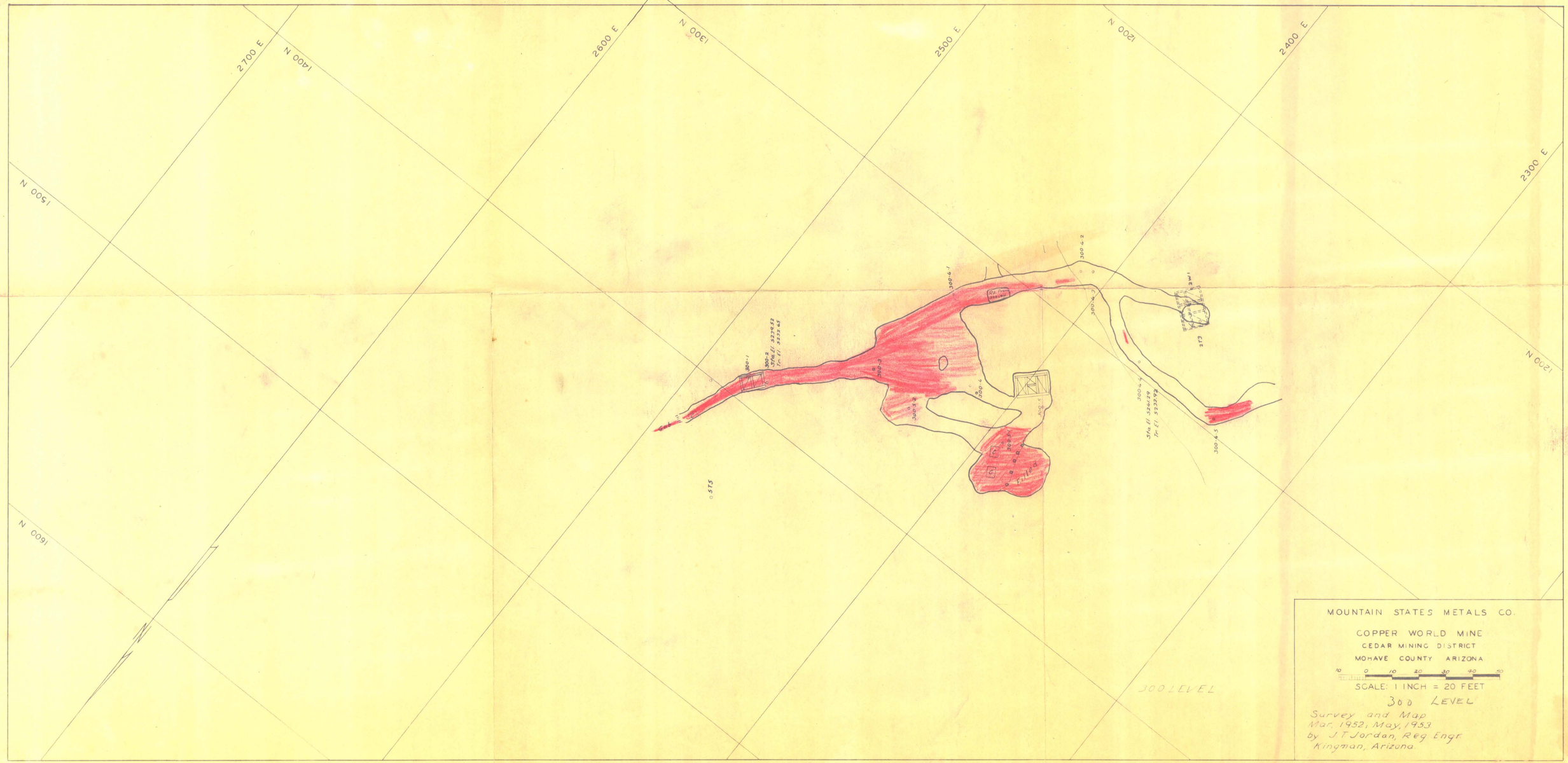
Sta El 5166.35
Tr El 5137.88
Sta El 5166.49
350 LEVEL
350 LEVEL
MOUNTAIN STATES METALS CO
COPPER WORLD MINE
CEDAR MINING DISTRICT
MOHAVE COUNTY ARIZONA
SCALE 1 INCH = 20 FEET
350 Level
Survey and Map
Mar. 1952, May, 1953
by J.T. Jordan Reg Engr
Kingman Arizona



MOUNTAIN STATES METALS CO.

COPPER WORLD MINE

CEDAR MINING DISTRICT

MOHAVE COUNTY ARIZONA

10 0 10 20 30 40 50

SCALE: 1 INCH = 20 FEET

300 LEVEL

Survey and Map
Mar. 1952, May, 1953
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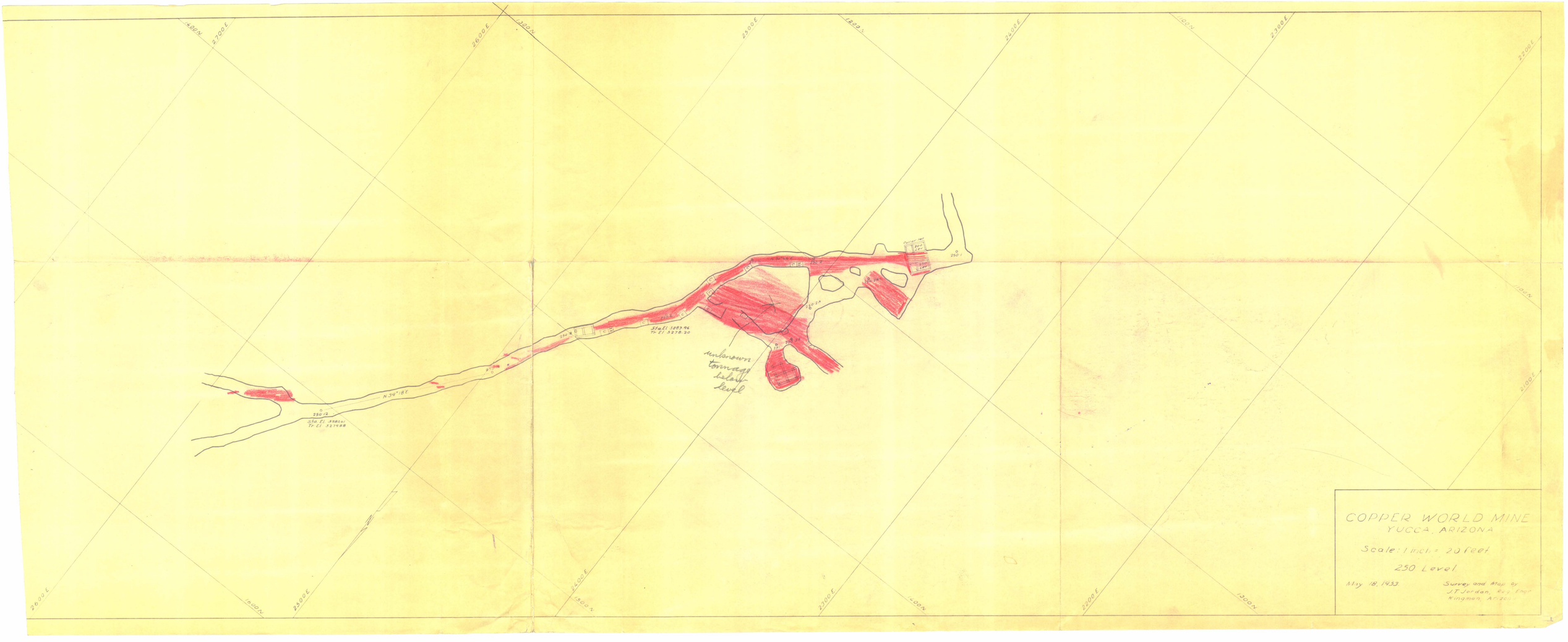
Kingman, Arizona


COPPER WORLD MINE
YUCCA, ARIZONA
Scale: 1 inch = 20 feet
250 Level
May 18, 1953
Survey and Map by
J.T. Jordan, Reg. Engr.
Kingman, Ariz.
N 39°18' E
250 12
Sta El 3288.41
Tr El 3279.88
Sta El 3283.96
Tr El 3278.30
unknown tonnage below level
Pump Room
250 1
2600 E
2700 E
2500 E
2400 E
2300 E
2200 E
2100 E
1000 N
1500 N
1200 N
1300 N
1400 N

COPPER WORLD MINE
YUCCA, ARIZONA
Scale: 1 inch = 20 feet
500 Level
May 18, 1953
Survey and Map by:
J.T. Jordan, Reg. Engr.
Kingman, Arizona
500 Level Tunnel
S 39°59' E
5-680 Dr. N.
5-680 Dr. S.
5-640 Dr. S.
Pillar
Shaft
50 Ton Pocket
Proposed x-cut for Station
520' To Portal
ST4
Sta. El. 5027.58'
Tr. El. 5019.09'
ST5
Sta. El. 5028.79'
Tr. El. 5020.11'
ST6
ST6-1
ST6-2
ST6-3
ST5-1
ST5-3
Sta. El. 5029.50
Tr. El. 5021.2
Sta. El. 5029.32
Tr. El. 5021.47
ST6-4
Sta. El. 5030.24
Tr. El. 5022.88
ST6-6
Sta. El. 5030.80
Tr. El. 5024.15
2100 E.
2200 E.
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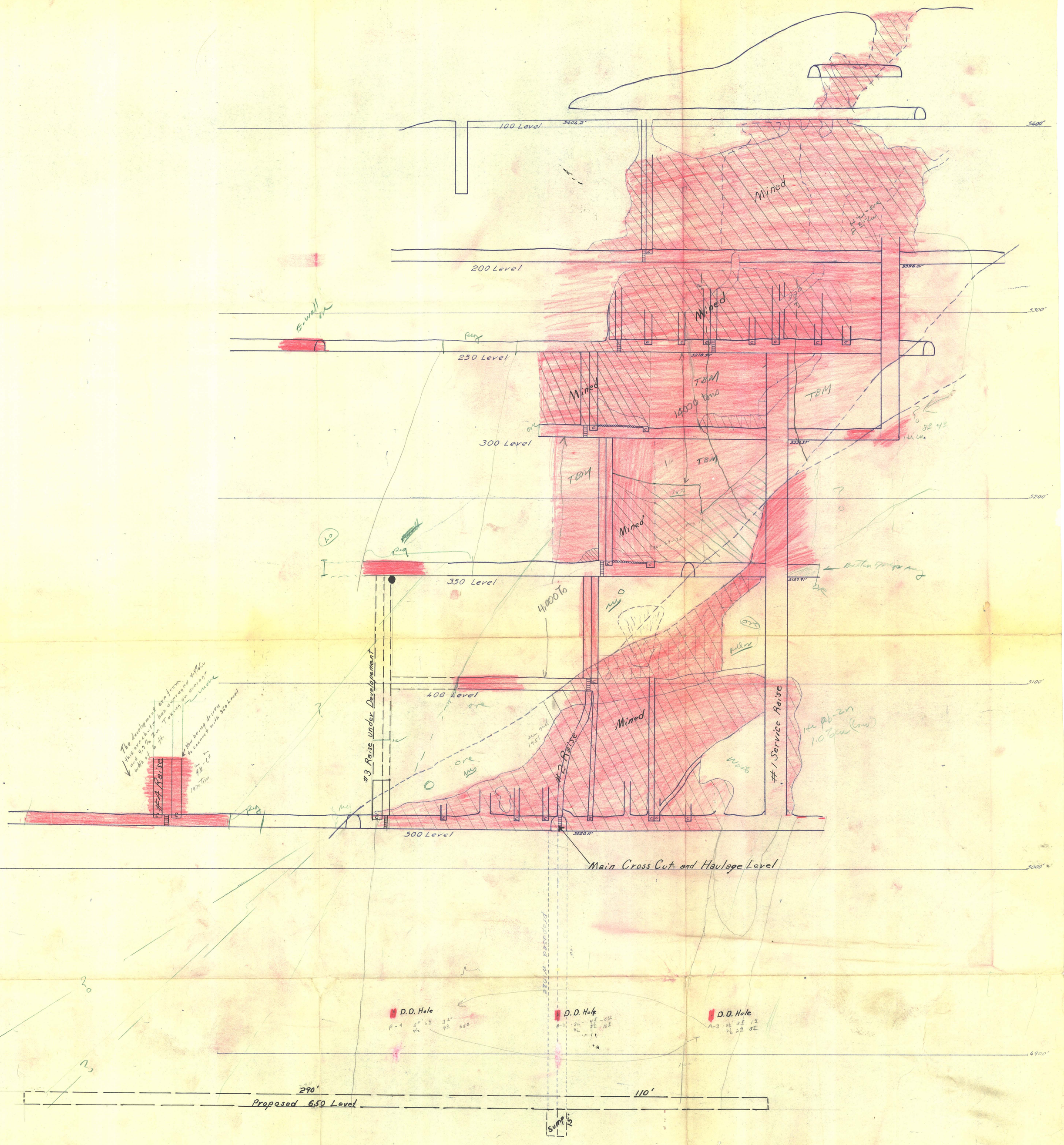
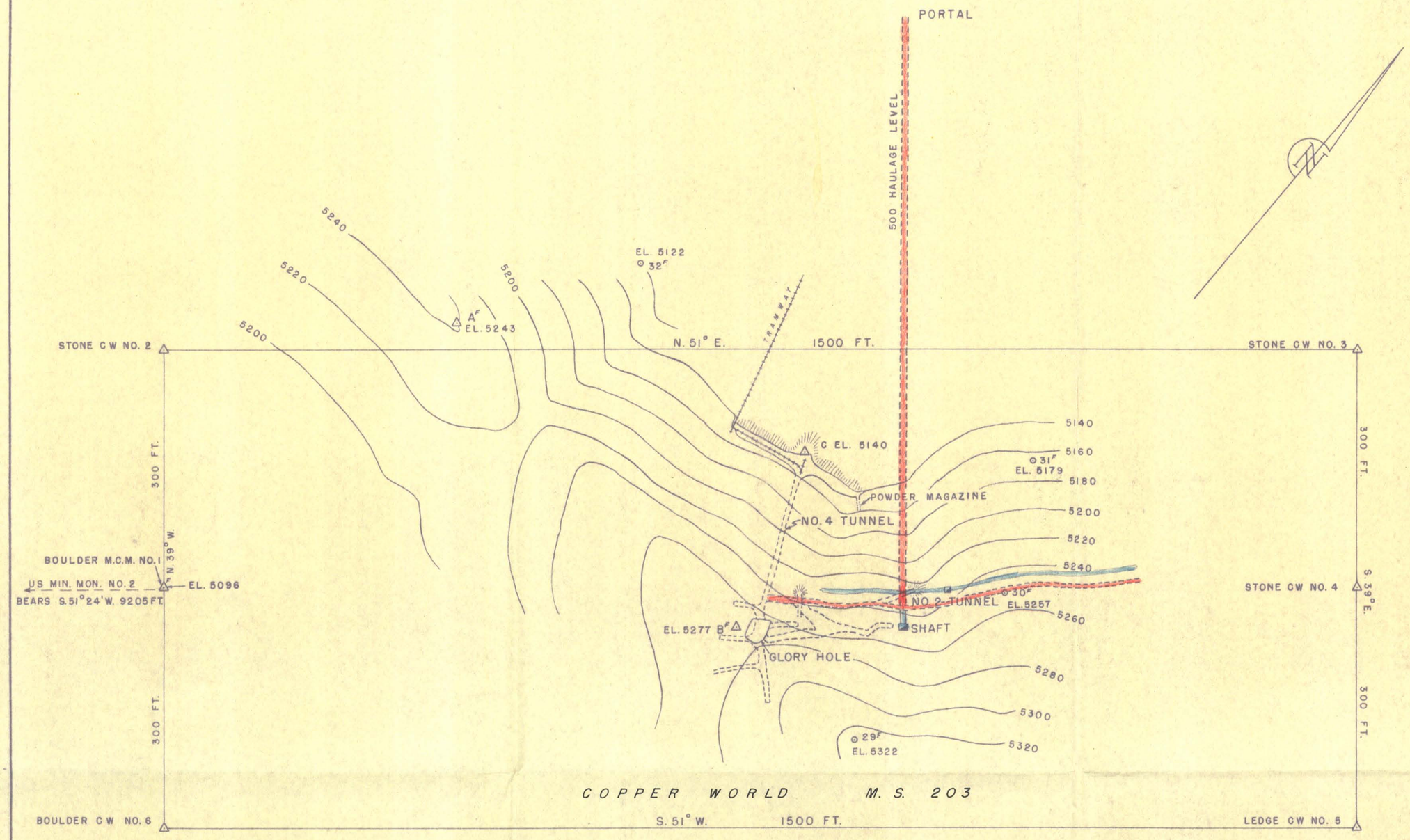
N



Mountain States Metals Co.
Copper World Mine
Longitudinal Section
Scale - 1" = 20'



DMEA 3064

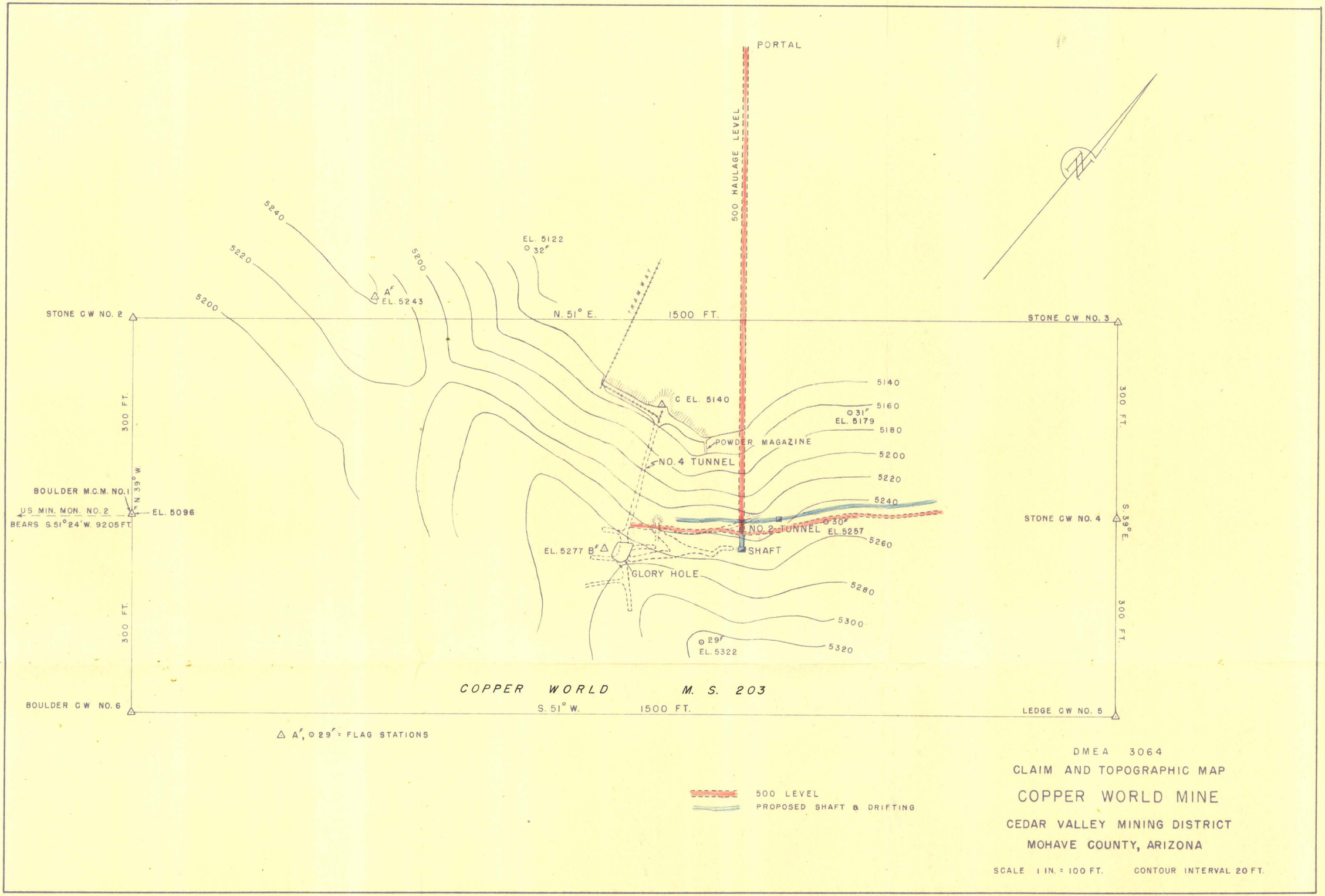
CLAIM AND TOPOGRAPHIC MAP

COPPER WORLD MINE

CEDAR VALLEY MINING DISTRICT

MOHAVE COUNTY, ARIZONA

SCALE 1 IN. = 100 FT. CONTOUR INTERVAL 20 FT.



DMEA 3064

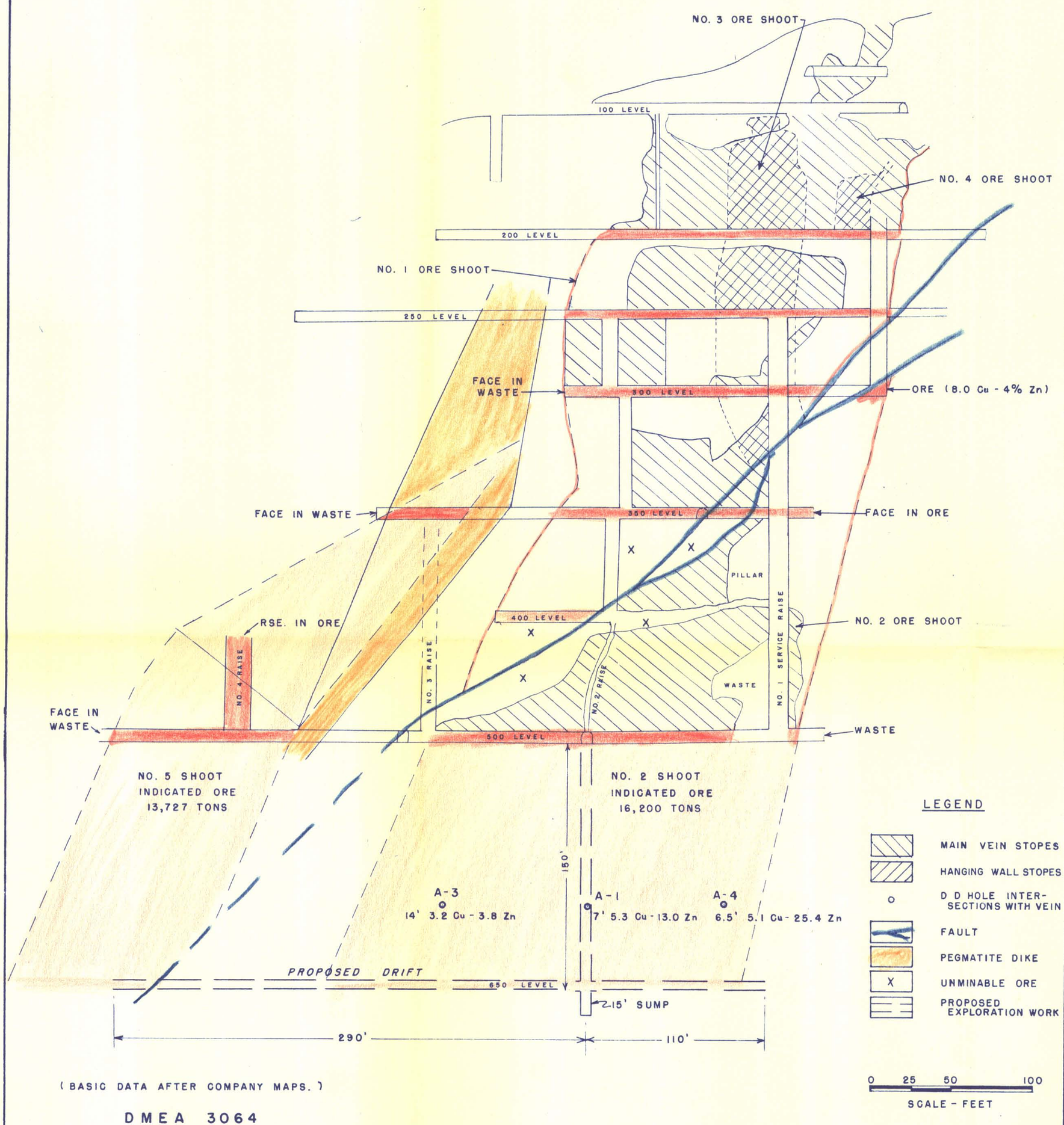
CLAIM AND TOPOGRAPHIC MAP

COPPER WORLD MINE

CEDAR VALLEY MINING DISTRICT

MOHAVE COUNTY, ARIZONA

SCALE 1 IN. = 100 FT. CONTOUR INTERVAL 20 FT.



(BASIC DATA AFTER COMPANY MAPS.)

DMEA 3064

FIGURE I. - LONGITUDINAL SECTION IN PLANE OF VEIN (LOOKING S. 45° E.)

COPPER WORLD MINE CEDAR VALLEY MINING DISTRICT MOHAVE COUNTY, ARIZONA