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

224 New Customhouse
Denver 2, Colorado

August 25, 1953.

Memorandum

To: Administrator, Defense Minerals Exploration Administration
Attention: 200

From: Field Team, Region IV

Subject: Final Report, DMEA Docket 3040 (Copper), Grants Mining and Leaching Trust, Mirabal Mine, Valencia County, New Mexico.

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

W. H. King
W. H. King

E. M. Harshman
for A. H. Koschmann

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
9-4-53
(date)

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

224 New Customhouse
Denver 2, Colorado

August 25, 1953.

Mr. Gus F. Ingwersen
1434 Forest Street
Denver, Colorado
and
Mr. Frank J. Dechant
1205 Eudora Street
Denver, Colorado

Re: Docket DMEA-3040

Gentlemen:

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

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

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

Very truly yours,

W. H. King

W. H. King
Field Team, Region IV

E. N. Haschmann
for A. H. Koschmann
Field Team, Region IV

HMC:cwm

cc: Docket
Administrator, DMEA
WRStorms
RFRobinson
AHKoschmann (2)
Chron.

Reviewed by
DMEA OPERATING COMMITTEE
9-4-53
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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

August 25, 1953.

Memorandum

To: Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: Final Report, DMEA Docket 3040 (Copper), Grants Mining and Leaching Trust, Mirabal Copper Mine, Valencia County, New Mexico.

Enclosed are nine copies of the final report on the subject docket. The Geological Survey did not participate in the field examination.

The applicant requested $13,587.60 to build a road, acquire right of way and diamond drill a total of 1,000 feet.

The engineer examiners concur in the belief that the proposed work as outlined by the applicant is not warranted. They recommend that the application be denied.

We concur in this recommendation.

W. H. King
W. H. King

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
9-4-53
(date)

MINING DIVISION
REGION IV

August 6, 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-3040, Grants Mining & Leaching Trust, Mirabal Copper Mine, Copper Hill Mining District, Valencia County, N. Mex.

Enclosed are original and 8 copies of a report on the above property by M. J. Elsing and J.F. Haynes of the Bureau of Mines. The Geological Survey did not participate in this examination so will not submit a report.

Since most of the proposed project is for production and since further exploration probably would not uncover additional quantities of ore, the examiners recommend that the loan be denied. I concur with their recommendations.

Brochure is enclosed.

Walter R. Storms

Walter R. Storms

CC W. H. King (8)
R. F. Robinson
DMEA-3040
DF

WRStorms:frj

Reviewed by
DMEA OPERATING COMMITTEE
9-4-53
(Date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION OF THE
MEXICO M

DMEA-3040, Grants Mining & Leaching Trust, Grants Copper Mine

Copper Hill Mining District, Valencia County, New Mexico

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

J. E. Haynes, Mining Engineer
U. S. Bureau of Mines

Reviewed by
DMEA OPERATING COMMITTEE
9-4-53
(date)

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

A. J. Rising[1] and J. F. Haynes[2]

On May 25, 1953 the Field Team, Region IV, of the Defense Minerals Exploration Administration requested that an examination and report be made on the Mirabal copper mine, Copper Hill Mining District, Valencia County, N. Mex. The application was given Docket DMEA-3040 (copper). The applicants were Gus F. Ingwersen and Frank J. Mechant, operating as the Grants Mining and Leaching Trust. The cost of the project was to be $13,587.60.

On June 3, 1953, A. J. Rising and J. F. Haynes met Ingwersen, and with A. Mirabal of Grants, they visited the property which is owned by Mirabal and under lease to the Grants Mining and Leaching Trust.

The property is in the Zuni Mountains 26 miles southwest of Grants. It is reached from Grants by a road going up Zuni Canyon until a Forest Service road is reached. From this point, Forest Service signs showing the direction to the Mirabal mine are followed.

Mirabal has owned this group of claims since 1918. During his ownership he has intermittently worked the claims and has mined and shipped some 700 tons of copper ore. He has given numerous options to various individuals and companies. In 1951 he gave a lease to the Copper Hill Mining Co. This company attempted to work the property on a comparatively large scale with bulldozers and a power shovel. After

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1/ Consulting Mining Engineer, U. S. Bureau of Mines
2/ Mining Engineer, U. S. Bureau of Mines

shipping 12 cars of ore it gave up its option. Either this company or some one else did a limited amount of wagon drilling. The applicant, the Grants Mining and Leaching Trust, proposes to erect a 10-ton test leaching plant in which Ingwersen proposes to leach ore by an ammonia leaching process.

The Mirabal or Copper Mountain ore body is a typical so-called "red bed" sandstone copper deposit. The principal copper minerals are malachite and chrysocolla which occur as a filling between the sandstone grains, and also as a stain on fracture planes in the sandstone. The ore bed has a gentle dip and in places is exposed to the surface or may be covered with only a few feet of sandstone or alluvium. The ore bed may be as much as 5 or 6 feet in thickness. It is rarely solid ore of shipping grade. Richer portions occur as flat lenses surrounded by large areas of low-grade malachite-stained sandstone. Shipping ore, averaging 5 or 6 percent copper, is obtained only by selective mining and close sorting. The Mirabal deposit does not contain as much of the so-called "tree copper" as many of these "red bed" deposits in other localities. The "tree copper" is a chalcocite replacement of leaves, twigs, limbs and sometimes the trucks of trees.

The principal showings are in an area some 2,000 feet long by 1,000 feet wide. Exploration has been largely by open pits, the largest of which is 50 by 100 feet. There are 2 or 3 short caved adits and one shaft reported to be 50 feet deep. The dump of this shaft consists of pre-Cambrian schist which probably underlies the mineralized area.

There are no minable ore reserves. Actually there is not a single face of ore in any one of the pits which was sufficiently high grade to mine for shipment. This is not surprising as Miraoal appeared to be a very competent small lease operator, and he and later operators have overlooked no good ore.

Ingwersen estimated this project would cost $13,587.60. Some 90 percent of this cost consists of development work rather than exploration. The mine is served by a Forest Service road and the new road presently being built by Ingwersen is not a legitimate charge to exploration, The right of way cost $1,000 and road construction $4,000. These expenditures probably have been made by now and therefore this is a second reason why they could not be charged to the project.

The drilling proposed under this project comprises 1,000 feet and could be completed in 4 or 5 days by Ayers Drilling Company. Having completed the drilling, Ingwersen proposed to "strip some of the overburden, fix up our water supply by a small dam, clear out the crosscuts and shafts and get everything in readiness for production". The main purpose of the project is to get the property into production to supply a 10-ton experimental leaching plant which will use an ammonia leaching process developed by Ingwersen.

The property has two possibilities of becoming a profitable operation. One is to produce 4 to 6 percent silica fluxing ore for smelting. The second possibility is to supply leaching ore for a plant on the property. Neither of these possibilities is attractive at the present time.

This deposit or the score or more of similar "red bed" sandstone copper deposits should not be entirely written off as a possible source of copper for the future. Most of them are small except those in northeastern Arizona. Some day metallurgical advances and a satisfactory copper price most likely will bring them into production. That day is quite distant and it does not seem necessary or expedient to attempt exploration at this time.

Since Ingwersen's and Dechant's request for Government assistance is mainly for the purpose of preparing the Mirabal mine for production, it is recommended that their application for assistance in a project to cost $13,587.00 be denied.

DMEA-3040, GRANTS MINING & LEACHING TRUST, MIRABAL COPPER MINE
COPPER HILL MINING DISTRICT, VALENCIA COUNTY, NEW MEXICO

Engineering Report

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

J. F. Haynes
Mining Engineer
U. S. Bureau of Mines

August 1953

DMEA-3040, GRANTS MINING & LEACHING TRUST, MIRABAL COPPER MINE
COPPER HILL MINING DISTRICT, VALENCIA COUNTY, NEW MEXICO

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INTRODUCTION

On May 25, 1953, the Field Team of Region IV, Defense Minerals Exploration Administration, requested that an examination and report be made on the Mirabal copper mine, Copper Hill Mining District, Valencia County, N. Mex. The application was given Docket number DMEA-3040 (copper). The applicants were Gus F. Ingwersen and Frank J. Dechant operating as the Grants Mining and Leaching Trust. The cost of the project was to be $13,587.60.

On June 3, 1953, M. J. Elsing and J. F. Haynes met Ingwersen and with M. Mirabal of Grants they visited the property. It is owned by Mirabal and under lease to the Grants Mining and Leaching Trust.

ACKNOWLEDGMENTS

Acknowledgments are due to Ingwersen for accompanying the examiners to the property and to Mirabal. The latter has owned the property since 1918 and was able to give some information regarding its history and production.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

The property is located in the Copper Hill Mining District in the Zuni Mountains 26 miles by road southwest of Grants in section 6 and 7, T. 11N., R. 12 W., in Valencia County, N. Mex. (see figure 1). The property is approximately 4 miles west of Mount Sedgewick. From Grants the property is reached by a road going up Zuni Canyon until a Forest Service road is reached. From this point, Forest Service signs showing the direction to the Mirabal mine are followed. The road is a good mountain road with many curves and a few steep grades.

Ingversen and Deschant are building a new short cut road from Blue Water on the Santa Fe Railroad to the mine. The new road will reduce the distance to the railroad to 12 miles. It has a more or less uniform gradient and will be free of sharp curves. The road has been cleared to the mine. Ingversen advised that a bulldozer was operating and that the road would be completed in 3 weeks.

The mine is located at an altitude of approximately 8,000 feet in a beautiful virgin pine forest. The seven claims cover the top of a flat-top mountain known as Copper Mountain. Spring water for domestic use is available at a short distance from the mine workings.

HISTORY AND PRODUCTION

Mirabal stated that he had located these claims in 1918 and that he had held them ever since that date. He has worked them at numerous times and has probably shipped about 700 tons of ore but he was unable to give the grade. He has given numerous leases and options on the property. A lease was given to the Copper Hill Mining Co. in 1951. Ore occurs at or near the surface in an almost flat sandstone bed with a coarse conglomerate below it. The Copper Hill Mining Co. attempted to operate on a large scale. It brought in bulldozers and a power shovel. It shipped some 12 cars of ore and then gave up its option but not before doing some wagon drilling, the results of which are not known.

On August 1, 1952, Ingwersen and Dechant took a 10-year lease on the property from Mirabal.

OWNERSHIP AND EXTENT

The Mirabal mine is owned by Moises Mirabal and Sarah Mirabal, his wife. The property includes 7 unpatented lode mining claims known as the Copper View, Sunshine, Hillside No. 15, Bluebell, Tam O'Shanter, Lone Star and Baston (see figure 2). The applicant does not have the book and page number of the filing of the location notices but states that the claims are located in the Southwest Quarter of sec. 6 and the Northwest Quarter of sec. 7, T. 11 N., R. 12 W., Valencia County, N. Mex.

On August 1, 1952, Mirabal gave Dechant and Ingwersen a 10-year lease on the property with renewal periods of 10 years each as long as the terms and conditions are complied with. The royalty is 10 percent of the net returns. To obtain the lease, Dechant and Ingwersen paid Mirabal $2,000 in advance royalty payments. The lease agreement was recorded in the Office of the County Recorder of Valencia County, N. Mex., on September 22, 1952 in Book A-5 at page 63.

DESCRIPTION OF THE DEPOSIT

The Mirabal copper ore body is one of the so-called "Red Bed" sandstone deposits which occur at numerous places in New Mexico. The examiner has seen a number of these deposits, all of which have certain characteristics in common. They are secondary in origin with malachite and chrysocolla as the most important copper minerals with sometimes a little azurite and chalcocite. The beds areusually more or less horizontal.

The minable ore is usually not more than 5 to 6 feet in thickness. The ore is in a rather coarse sandstone and occurs in lenses or local concentrations. The ore is nearly always siliceous and most of the production of the "Red Beds" has been treated as a silica fluxing ore which has received preferential smelting rates. While most of the copper occurs as malachite and chrysocolla, one of the typical characteristics of these deposits is the presence of "tree copper" which takes the form of a chalcocite replacement of leaves, twigs, branches, limbs, and sometimes the trunks of trees.

These deposits are usually at or near the surface and often can be mined in open cuts. One of the most successful of these operations is located near Pastura, N. Mex., south of Santa Rosa on the Southern Pacific Railroad. This deposit outcropped but the dip was sufficiently steep to require underground mining by the room and pillar method.

With a few exceptions the horizontal dimension of a minable lense is not more than 200 by 300 feet with the area of mineralization several to many times this size. The average thickness of ore is generally 5 to 6 feet. The oxidized copper minerals usually fill the interstices between the grains of sand forming the sandstone, and therefore the grade cannot be high except for small areas where there might be an exceptional amount of "tree copper". An average grade of ore shipped might be 5 to 6 percent copper and such a grade could be obtained only by selective mining and careful hand sorting. Nearly all of these general characteristics are present in the ore deposits of the Mirabal mine. "Tree Copper" occurs only in minor amounts.

The attempt of the Copper Hill Mining Co. in 1951 to mine on a large scale with mechanical equipment has left the largest open pit in bad shape. No systematic plan was followed. The pit is filled with broken waste, and piles of mixed ore and waste. There are no faces where shipping ore can be produced. None of the faces in the other smaller pits show minable ore.

There is evidence that the sandstone is overlying pre-Cambrian schist. It is of interest to note that immediately above the mineralized sandstone there is a thin layer of decomposed shale.

MINABLE ORE RESERVES

There are no minable ore reserves. This is a type of ore deposit where it would be nearly impossible to block out shipping ore, 4 to 6 percent copper, either by drilling, drifting or shallow prospect shafts. The work mentioned might indicate a comparatively small tonnage of 0.5 to 1.0 percent material but such a grade is not commercial.

In a report recently written for Ingwersen, Wilbur H. Brinton, mining engineer, stated "the tonnage of ore available appears to be of sufficient quantity to keep a mill operating for many years. Assuming that the area explored (2,300 ft. by 1,000 ft.) averages 6 feet of thickness of ore, there would be a tonnage of 766,000 tons and at 5 percent copper this tonnage at present prices would have a value of $19,000,000.00". Brinton then stated "This tonnage and value of the ore could be determined at a small cost by drilling the ore bed with a wagon or core drill".

Brinton's suggested ore reserves are fantastic as he has no grounds on which to make such an estimate. The scores of openings through the ore bed from one end of the property to the other indicate only very

low-grade material. Drilling the few holes suggested by Brinton and requested in Ingwersen's application would probably add very little to the present information regarding the grade of the ore.

If the main open pit were cleaned out and new faces mined it is possible a little shipping ore could be produced. In the many years that Mirabal has owned and shipped ore from this property he must have a very good idea of the possibilities of production. The fact that he has leased the property and accepted $2,000 in advanced royalty payments is rather strong proof that he is not very much impressed with the possibilities of producing direct shipping ore. He has trucks and has agreed to do the hauling of the ore for 10 cents per ton-mile over the old 26-mile road to Grants.

Ingwersen is primarily a chemist and is interested in putting up a 10-ton test mill for leaching ore by an ammonia process which he has developed. There is available at the mine plenty of low-grade ore at the various workings to supply 10 tons per day. Until the success of his process has been demonstrated there seems no need of drilling additional low-grade areas, particularly when there are no possibilities of the development of a potentially large deposit.

PRESENT STATUS

Exploration and Development

The most important evidence of copper mineralization has been shown by some 5 open pits (see figure 2). There are several shallow shafts and 2 or 3 short adits which are caved. One of the shafts must have penetrated the schist which apparently underlies the sandstone at

shallow depth. There also is evidence that some exploration has been done by wagon hole drilling. The amount could not be determined but it probably was not of great importance.

Mining, Milling and Other Facilities

There are no facilities of any description on the property. Ingwersen seems determined to erect a 10-ton leaching plant on the property and to establish a small camp. At the time of visit a truck was bringing in cement cinder blocks for building construction. He claimed that the blocks were cheaper building material than timber.

PROJECT PROPOSALS

Ingwersen and Dechant have presented the following estimate of the cost of the proposed exploration:

Item No.	Purpose of Expenditure	Cost
1	Road-cost of right of way	$1,000.00
2	Road grading, blasting, etc.	4,000.00
3	1,000 feet of core drilling @ $1.00 per ft.	1,000.00
4	500 assays @ $1.00 each	500.00
5	Labor, 3 men @ $1.70 per hour, 8-hour day, 6 days per week, 12 weeks	2,937.60
6	Supervision, 3 months @ $500	1,500.00
7	Consultant mining engineer about	500.00
8	Cement for dam	250.00
9	Gravel and sand delivered	200.00
10	Powder, fuse, etc.	50.00
11	Tent, stove, utensils	100.00
12	Small truck, if possible, about	600.00
13	Fixing old cabin	150.00
14	New buildings and pipe line to millsite	500.00
15	Small tools	150.00
16	Contingencies	150.00
	Total	$13,587.60

The applicants state "we propose to core drill the property, sixteen holes as shown on map, balance to be drilled after checking and sampling first sixteen holes, strip some of the overburden, fix up our water supply by a small dam, clear out the crosscuts and shafts and get everything in readiness for production".

It is quite evident that the applicants do not know the difference between a production loan and an exploration loan. They propose to do 1,000 feet of drilling. In all probability the W. T. Myers Company could do this drilling in 4 or 5 days. The drilling company does not need a new road or the other things set up for the project. Besides contract drilling, the only items that would fit into an exploration project would be assaying and some small supervisory costs.

CONCLUSIONS

The following conclusions are based on the examination of the Mirabal mine and other "Red Bed" copper deposits in New Mexico:

(1) The Mirabal mine is similar to numerous "Red Bed" sandstone copper deposits in New Mexico. Only one of these deposits is known to the writer to have been operated profitably in a small way during the premium price plan of World War II. The deposit was close to the railroad and not far from El Paso. Some production also was made prior to and since the war.

(2) The Mirabal mine has produced copper ore at various times during the past 35 years. According to Mirabal, who has owned the property since 1918, the total production has been approximately 1,200 tons, the grade of which he was unable to give. The last production consisted of 12 cars of ore shipped in 1951.

(3) The profitable operation of the mine on the basis of shipping a 4 to 5 percent fluxing ore to El Paso does not seem at all likely. It is a very difficult deposit to sample and drilling it would give unsatisfactory results. Actual mining of the mineralized bed is

the most satisfactory method of exploration. It is not likely that it will be done but a series of regularly spaced pits could be sunk and ore could be sorted into the three classes, shipping ore, leaching ore, and waste. Records of these operations would be of value in determining the possibility of the property. It is not recommended that such a procedure be followed at this time.

(4) It also is believed that the drilling proposed by the applicants should not be done. In the first place the drilling is too deep and holes are spaced too far apart. Consideration has been given to stripping the project of its development phases and making it solely an exploration project. No revised plan or no exploration will show ore of any different character or grade than that already developed. It is likely that additional copper mineralization in the sandstone beds can be proven, but the ore will be submarginal and therefore no production will result. The applicants plan is not sufficiently comprehensive to make a worthwhile contribution to the knowledge and characteristics of this type of deposit.

(5) If the applicants erect a leaching plant they will have ample ore to operate at 10 tons per day for a long time. There is considerable low-grade ore already broken and in dumps which would serve for testing purposes. The success or failure of this operation is independent of the exploration program. If the mill were successful the applicants next step would be to mine ore.

(6) There is no real need for exploration at this time. The applicants are apparently aware of this as shown by their request for aid in the amount of some $13,600. Most of the items making up this sum are for development work rather than exploration. An exploration project could not include $1,000 paid or to be paid for the right of way for a new road and $4,000 for road construction, particularly when the property is presently served by a good Forest Service road. Except for $1,000 for drilling and $500 for assaying of drill holes, the other items are for the preparation of the mine for production.

RECOMMENDATIONS

The Government assistance requested by Ingwersen and Dechant is mainly for the purpose of preparing the mine for the production of ore for a small leaching plant which it is proposed to erect. Therefore it is recommended that their application for Government assistance in a project on the Mirabal mine to cost $13,387.60 be denied on the basis that the proposed work is largely development rather than exploration.

OFFICE OF THE ADMINISTRATOR

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

C
O
P
Y

August 25, 1953

224 New Customhouse
Denver 2, Colorado

Re: Docket DMEA-3040

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1434 Forest Street
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and
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Projects approved by the Defense Minerals Exploration Administration must, in its judgment, show definite promise of yielding material of acceptable grade, and in quantities that will significantly improve the mineral supply position for the National Defense Program.

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

Very truly yours,

W. H. King
Field Team, Region IV

/s/E. N. Harshman for
A. H. Koschmann
Field Team, Region IV

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DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

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The engineer examiners concur in the belief that the proposed work as outlined by the applicant is not warranted. They recommend that the application be denied.

We concur in this recommendation.

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Enclosures

MINING DIVISION
REGION IV

August 6, 1953

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Brochure is enclosed.

Walter R. Storms

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CC W. H. King (8)
R. F. Robinson
DMEA-3040
DF

WRStorms:frj

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMEA-3040, Grants Mining & Leaching Trust, Mirabal Copper Mine

Copper Hill Mining District, Valencia County, New Mexico

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

J. F. Haynes, Mining Engineer
U. S. Bureau of Mines

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

M. J. Elsing[1] and J. F. Haynes[2]

On May 25, 1953 the Field Team, Region IV, of the Defense Minerals Exploration Administration requested that an examination and report be made on the Mirabal copper mine, Copper Hill Mining District, Valencia County, N. Mex. The application was given Docket DMEA-3040 (copper). The applicants were Gus F. Ingwersen and Frank J. Dechant, operating as the Grants Mining and Leaching Trust. The cost of the project was to be $13,587.60.

On June 3, 1953, M. J. Elsing and J. F. Haynes met Ingwersen, and with M. Mirabal of Grants, they visited the property which is owned by Mirabal and under lease to the Grants Mining and Leaching Trust.

The property is in the Zuni Mountains 26 miles southwest of Grants. It is reached from Grants by a road going up Zuni Canyon until a Forest Service road is reached. From this point, Forest Service signs showing the direction to the Mirabal mine are followed.

Mirabal has owned this group of claims since 1918. During his ownership he has intermittently worked the claims and has mined and shipped some 700 tons of copper ore. He has given numerous options to various individuals and companies. In 1951 he gave a lease to the Copper Hill Mining Co. This company attempted to work the property on a comparatively large scale with bulldozers and a power shovel. After

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The Mirabal or Copper Mountain ore body is a typical so-called "Red Bed" sandstone copper deposit. The principal copper minerals are malachite and chrysocolla which occur as a filling between the sandstone grains, and also as a stain on fracture planes in the sandstone. The ore bed has a gentle dip and in places is exposed to the surface or may be covered with only a few feet of sandstone or alluvium. The ore bed may be as much as 5 or 6 feet in thickness. It is rarely solid ore of shipping grade. Richer portions occur as flat lenses surrounded by large areas of low-grade malachite-stained sandstone. Shipping ore, averaging 5 or 6 percent copper, is obtained only by selective mining and close sorting. The Mirabal deposit does not contain as much of the so-called "tree copper" as many of these "Red Bed" deposits in other localities. The "tree copper" is a chalcocite replacement of leaves, twigs, limbs and sometimes the trucks of trees.

The principal showings are in an area some 2,000 feet long by 1,000 feet wide. Exploration has been largely by open pits, the largest of which is 50 by 100 feet. There are 2 or 3 short caved adits and one shaft reported to be 50 feet deep. The dump of this shaft consists of pre-Cambrian schist which probably underlies the mineralized area.

There are no minable ore reserves. Actually there is not a single face of ore in any one of the pits which was sufficiently high grade to mine for shipment. This is not surprising as Mirabal appeared to be a very competent small lease operator, and he and later operators have overlooked no good ore.

Ingwersen estimated this project would cost $13,587.60. Some 90 percent of this cost consists of development work rather than exploration. The mine is served by a Forest Service road and the new road presently being built by Ingwersen is not a legitimate charge to exploration. The right of way cost $1,000 and road construction $4,000. These expenditures probably have been made by now and therefore this is a second reason why they could not be charged to the project.

The drilling proposed under this project comprises 1,000 feet and could be completed in 4 or 5 days by Myers Drilling Company. Having completed the drilling, Ingwersen proposed to "strip some of the overburden, fix up our water supply by a small dam, clear out the crosscuts and shafts and get everything in readiness for production". The main purpose of the project is to get the property into production to supply a 10-ton experimental leaching plant which will use an ammonia leaching process developed by Ingwersen.

The property has two possibilities of becoming a profitable operation. One is to produce 4 to 6 percent silica fluxing ore for smelting. The second possibility is to supply leaching ore for a plant on the property. Neither of these possibilities is attractive at the present time.

This deposit or the score or more of similar "Red Bed" sandstone copper deposits should not be entirely written off as a possible source of copper for the future. Most of them are small except those in northeastern Arizona. Some day metallurgical advances and a satisfactory copper price most likely will bring them into production. That day is quite distant and it does not seem necessary or expedient to attempt exploration at this time.

Since Ingwersen's and Dechant's request for Government assistance is mainly for the purpose of preparing the Mirabal mine for production, it is recommended that their application for assistance in a project to cost $13,587.60 be denied.

DMEA-3040, GRANTS MINING & LEACHING TRUST, MIRABAL COPPER MINE
COPPER HILL MINING DISTRICT, VALENIA COUNTY, NEW MEXICO

Engineering Report

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

J. F. Haynes
Mining Engineer
U. S. Bureau of Mines

August 1953

DMEA-3040, GRANTS MINING & LEACHING TRUST, MIRABAL COPPER MINE
COPPER HILL MINING DISTRICT, VALENCIA COUNTY, NEW MEXICO

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INTRODUCTION

On May 25, 1953, the Field Team of Region IV, Defense Minerals Exploration Administration, requested that an examination and report be made on the Mirabal copper mine, Copper Hill Mining District, Valencia County, N. Mex. The application was given Docket number DMEA-3040 (copper). The applicants were Gus F. Ingwersen and Frank J. Dechant operating as the Grants Mining and Leaching Trust. The cost of the project was to be $13,587.60.

On June 3, 1953, M. J. Elsing and J. F. Haynes met Ingwersen and with M. Mirabal of Grants they visited the property. It is owned by Mirabal and under lease to the Grants Mining and Leaching Trust.

ACKNOWLEDGMENTS

Acknowledgments are due to Ingwersen for accompanying the examiners to the property and to Mirabal. The latter has owned the property since 1918 and was able to give some information regarding its history and production.

LOCATION, TOPOGRAPHY AND PHYSICAL FEATURES

The property is located in the Copper Hill Mining District in the Zuni Mountains 26 miles by road southwest of Grants in section 6 and 7, T. 11N., R. 12 W., in Valencia County, N. Mex. (see figure 1). The property is approximately 4 miles west of Mount Sedgewick. From Grants the property is reached by a road going up Zuni Canyon until a Forest Service road is reached. From this point, Forest Service signs showing the direction to the Mirabal mine are followed. The road is a good mountain road with many curves and a few steep grades.

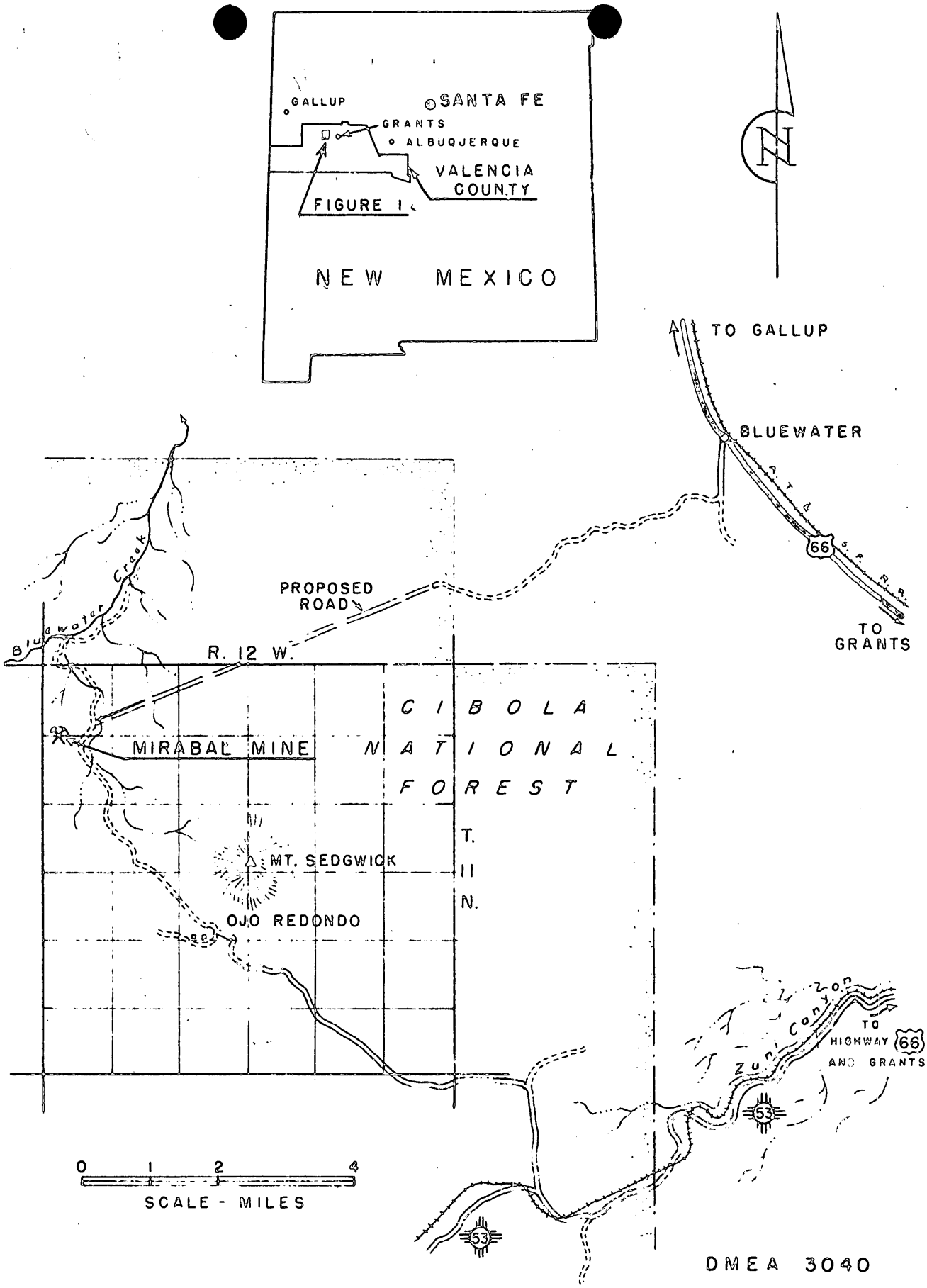


FIGURE 1. - LOCATION MAP - MIRABAL CLAIMS
COPPER HILL MINING DISTRICT - VALENCIA COUNTY, NEW MEXICO

Ingwersen and Deschant are building a new short cut road from Blue Water on the Santa Fe Railroad to the mine. The new road will reduce the distance to the railroad to 12 miles. It has a more or less uniform gradient and will be free of sharp curves. The road has been cleared to the mine. Ingwersen advised that a bulldozer was operating and that the road would be completed in 3 weeks.

The mine is located at an altitude of approximately 8,000 feet in a beautiful virgin pine forest. The seven claims cover the top of a flat-top mountain known as Copper Mountain. Spring water for domestic use is available at a short distance from the mine workings.

HISTORY AND PRODUCTION

Mirabal stated that he had located these claims in 1918 and that he had held them ever since that date. He has worked them at numerous times and has probably shipped about 700 tons of ore but he was unable to give the grade. He has given numerous leases and options on the property. A lease was given to the Copper Hill Mining Co. in 1951. Ore occurs at or near the surface in an almost flat sandstone bed with a coarse conglomerate below it. The Copper Hill Mining Co. attempted to operate on a large scale. It brought in bulldozers and a power shovel. It shipped some 12 cars of ore and then gave up its option but not before doing some wagon drilling, the results of which are not known.

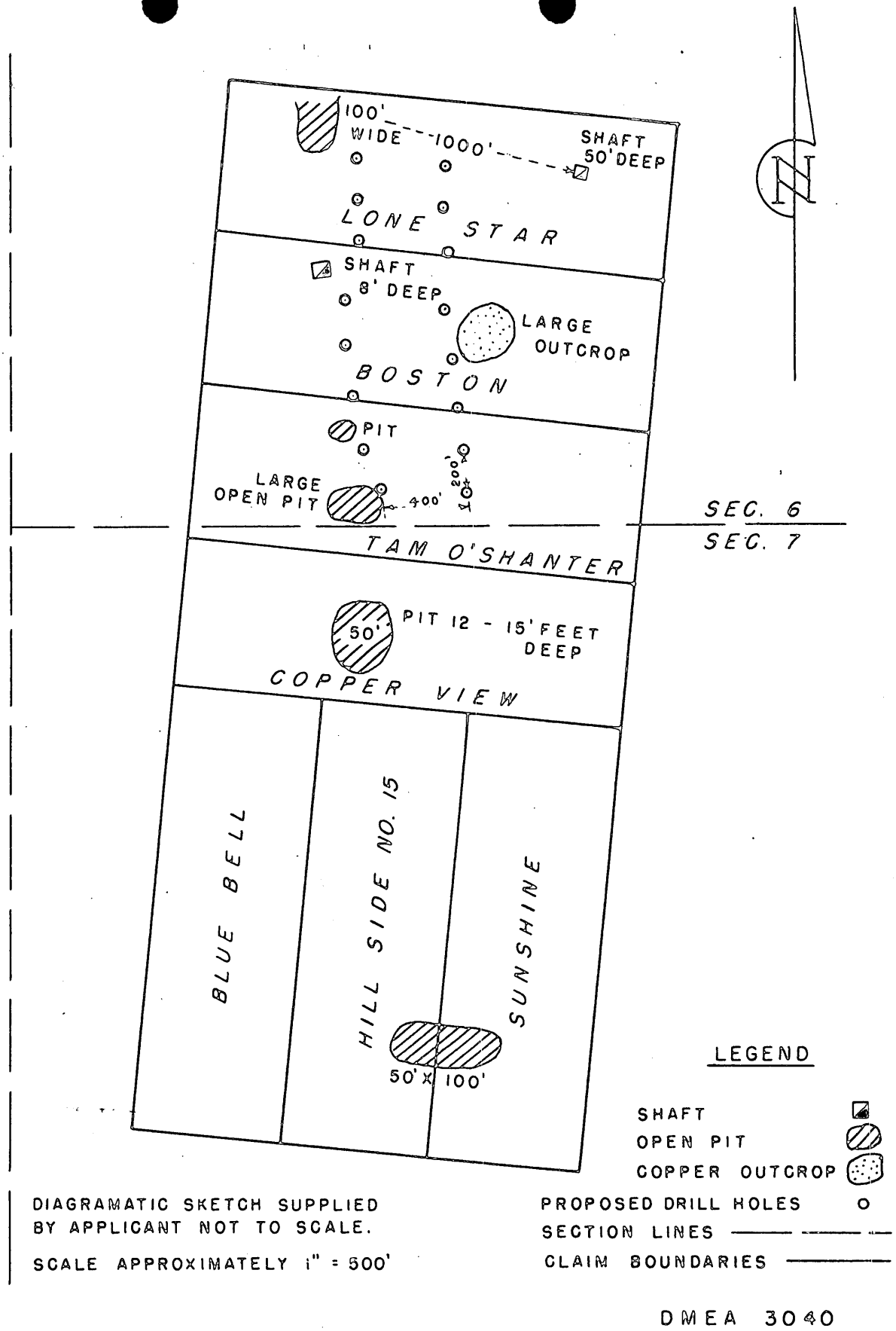


FIGURE 2.- PLAN OF MIRABAL CLAIMS

COPPER HILL MINING DISTRICT - VALENCIA COUNTY, NEW MEXICO

The minable ore is usually not more than 5 to 6 feet in thickness. The ore is in a rather coarse sandstone and occurs in lenses or local concentrations. The ore is nearly always siliceous and most of the production of the "Red Beds" has been treated as a silica fluxing ore which has received preferential smelting rates. While most of the copper occurs as malachite and chrysocolla, one of the typical characteristics of these deposits is the presence of "tree copper" which takes the form of a chalcocite replacement of leaves, twigs, branches, limbs, and sometimes the trunks of trees.

These deposits are usually at or near the surface and often can be mined in open cuts. One of the most successful of these operations is located near Pastura, N. Mex., south of Santa Rosa on the Southern Pacific Railroad. This deposit outcropped but the dip was sufficiently steep to require underground mining by the room and pillar method.

With a few exceptions the horizontal dimension ofa minable lense is not more than 200 by 300 feet with the area of mineralization several to many times this size. The average thickness of ore is generally 5 to 6 feet. The oxidized copper minerals usually fill the interstices between the grains of sand forming the sandstone, and therefore the grade cannot be high except for small areas where there might be an exceptional amount of "tree copper". An average grade of ore shipped might be 5 to 6 percent copper and such a grade could be obtained only by selective mining and careful hand sorting. Nearly all of these general characteristics are present in the ore deposits of the Mirabal mine. "Tree Copper" occurs only in minor amounts.

The attempt of the Copper Hill Mining Co. in 1951 to mine on a large scale with mechanical equipment has left the largest open pit in bad shape. No systematic plan was followed. The pit is filled with broken waste, and piles of mixed ore and waste. There are no faces where shipping ore can be produced. None of the faces in the other smaller pits show minable ore.

There is evidence that the sandstone is overlying pre-Cambrian schist. It is of interest to note that immediately above the mineralized sandstone there is a thin layer of decomposed shale.

MINABLE ORE RESERVES

There are no minable ore reserves. This is a type of ore deposit where it would be nearly impossible to block out shipping ore, 4 to 6 percent copper, either by drilling, drifting or shallow prospect shafts. The work mentioned might indicate a comparatively small tonnage of 0.5 to 1.0 percent material but such a grade is not commercial.

In a report recently written for Ingwersen, Wilbur H. Brinton, mining engineer, stated "the tonnage of ore available appears to be of sufficient quantity to keep a mill operating for many years. Assuming that the area explored (2,300 ft. by 1,000 ft.) averages 6 feet of thickness of ore, there would be a tonnage of 766,000 tons and at 5 percent copper this tonnage at present prices would have a value of $19,000,000.00". Brinton then stated "This tonnage and value of the ore could be determined at a small cost by drilling the ore bed with a wagon or core drill".

Brinton's suggested ore reserves are fantastic as he has no grounds on which to make such an estimate. The scores of openings through the ore bed from one end of the property to the other indicate only very

low-grade material. Drilling the few holes suggested by Brinton and requested in Ingwersen's application would probably add very little to the present information regarding the grade of the ore.

If the main open pit were cleaned out and new faces mined it is possible a little shipping ore could be produced. In the many years that Mirabal has owned and shipped ore from this property he must have a very good idea of the possibilities of production. The fact that he has leased the property and accepted $2,000 in advanced royalty payments is rather strong proof that he is not very much impressed with the possibilities of producing direct shipping ore. He has trucks and has agreed to do the hauling of the ore for 10 cents per ton-mile over the old 26-mile road to Grants.

Ingwersen is primarily a chemist and is interested in putting up a 10-ton test mill for leaching ore by an ammonia process which he has developed. There is available at the mine plenty of low-grade ore at the various workings to supply 10 tons per day. Until the success of his process has been demonstrated there seems no need of drilling additional low-grade areas, particularly when there are no possibilities of the development of a potentially large deposit.

PRESENT STATUS

Exploration and Development

The most important evidence of copper mineralization has been shown by some 5 open pits (see figure 2). There are several shallow shafts and 2 or 3 short adits which are caved. One of the shafts must have penetrated the schist which apparently underlies the sandstone at

Shallow depth. There also is evidence that some exploration has been done by wagon hole drilling. The amount could not be determined but it probably was not of great importance.

Mining, Milling and Other Facilities

There are no facilities of any description on the property. Ingwersen seems determined to erect a 10-ton leaching plant on the property and to establish a small camp. At the time of visit a truck was bringing in cement cinder blocks for building construction. He claimed that the blocks were cheaper building material than timber.

PROJECT PROPOSALS

Ingwersen and Dechant have presented the following estimate of the cost of the proposed exploration:

Item No.	Purpose of Expenditure	Cost
1	Road-cost of right of way	$1,000.00
2	Road grading, blasting, etc.	4,000.00
3	1,000 feet of core drilling @ $1.00 per ft.	1,000.00
4	500 assays @ $1.00 each	500.00
5	Labor, 3 men @ $1.70 per hour, 8-hour day, 6 days per week, 12 weeks	2,937.60
6	Supervision, 3 months @ $500	1,500.00
7	Consultant mining engineer about	500.00
8	Cement for dam	250.00
9	Gravel and sand delivered	200.00
10	Powder, fuse, etc.	50.00
11	Tent, stove, utensils	100.00
12	Small truck, if possible, about	600.00
13	Fixing old cabin	150.00
14	New buildings and pipe line to millsite	500.00
15	Small tools	150.00
16	Contingencies	150.00
	Total	$13,587.60

The applicants state "we propose to core drill the property, sixteen holes as shown on map, balance to be drilled after checking and sampling first sixteen holes, strip some of the overburden, fix up our water supply by a small dam, clear out the crosscuts and shafts and get everything in readiness for production".

It is quite evident that the applicants do not know the difference between a production loan and an exploration loan. They propose to do 1,000 feet of drilling. In all probability the W. T. Myers Company could do this drilling in 4 or 5 days. The drilling company does not need a new road or the other things set up for the project. Besides contract drilling, the only items that would fit into an exploration project would be assaying and some small supervisory costs.

CONCLUSIONS

The following conclusions are based on the examination of the Mirabal mine and other "Red Bed" copper deposits in New Mexico:

(1) The Mirabal mine is similar to numerous "Red Bed" sandstone copper deposits in New Mexico. Only one of these deposits is known to the writer to have been operated profitably in a small way during the premium price plan of World War II. The deposit was close to the railroad and not far from El Paso. Some production also was made prior to and since the war.

(2) The Mirabal mine has produced copper ore at various times during the past 35 years. According to Mirabal, who has owned the property since 1918, the total production has been approximately 1,200 tons, the grade of which he was unable to give. The last production consisted of 12 cars of ore shipped in 1951.

(3) The profitable operation of the mine on the basis of shipping a 4 to 5 percent fluxing ore to El Paso does not seem at all likely. It is a very difficult deposit to sample and drilling it would give unsatisfactory results. Actual mining of the mineralized bed is

the most satisfactory method of exploration. It is not likely that it will be done but a series of regularly spaced pits could be sunk and ore could be sorted into the three classes, shipping ore, leaching ore, and waste. Records of these operations would be of value in determining the possibility of the property. It is not recommended that such a procedure be followed at this time.

(4) It also is believed that the drilling proposed by the applicants should not be done. In the first place the drilling is too deep and holes are spaced too far apart. Consideration has been given to stripping the project of its development phases and making it solely an exploration project. No revised plan or no exploration will show ore of any different character or grade than that already developed. It is likely that additional copper mineralization in the sandstone beds can be proven, but the ore will be submarginal and therefore no production will result. The applicants plan is not sufficiently comprehensive to make a worthwhile contribution to the knowledge and characteristics of this type of deposit.

(5) If the applicants erect a leaching plant they will have ample ore to operate at 10 tons per day for a long time. There is considerable low-grade ore already broken and in dumps which would serve for testing purposes. The success or failure of this operation is independent of the exploration program. If the mill were successful the applicants next step would be to mine ore.

(6) There is no real need for exploration at this time. The applicants are apparently aware of this as shown by their request for aid in the amount of some $13,600. Most of the items making up this sum are for development work rather than exploration. An exploration project could not include $1,000 paid or to be paid for the right of way for a new road and $4,000 for road construction, particularly when the property is presently served by a good Forest Service road. Except for $1,000 for drilling and $500 for assaying of drill holes, the other items are for the preparation of the mine for production.

RECOMMENDATIONS

The Government assistance requested by Ingwersen and Dechant is mainly for the purpose of preparing the mine for the production of ore for a small leaching plant which it is proposed to erect. Therefore it is recommended that their application for Government assistance in a project on the Mirabal mine to cost $13,587.60 be denied on the basis that the proposed work is largely development rather than exploration.

GUS F. INGWERSEN
TRUSTEE AND PRODUCTION MANAGER
1434 FOREST STREET
DENVER, COLORADO

FRANK J. DECHANT
TRUSTEE AND BUSINESS MANAGER
1205 EUDORA STREET
DENVER, COLORADO

GRANTS MINING AND LEACHING TRUST

POST OFFICE BOX

DENVER, COLORADO

May 8,1953

Defense Minerals Exploration Administration
Department of the Interior
Washington 25, D.C.

Gentlemen:

We are enclosing, for your consideration and processing, four (4) copies of Form MF-103, An Application for Aid in an Exploration Project, pursuant to DMEA Order 1 under Defense Production Act of 1950, located at Grants, New Mexico.

Attached to this application you will find answers to all of the questions on Form MF-103, a copy of the lease held by us, a map showing the various workings on the claims and an engineer's report.

We hope that you will find this application in proper order, and we will appreciate your earliest consideration of same.

Yours very truly,

By Gus. F. Ingwersen.
Owner and Production Manager

By Frank J. Dechant
Owner and Business Manager

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

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED

MAY 18 1953

Not to be filled in by applicant

Docket No. DMEA-3040
Metal or Mineral
Date Received 5/18/53
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: Gus F. Ingwersen, 1434 Forest Street and Frank J. Dechant, 1205 Eudora St. both of Denver, Colo., also known as Grants Mining & Leaching Trust.

Answers to all questions in this application hereto attached

(*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

See attached answers

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

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

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

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

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

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

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

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

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

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

16—66551-1

Answers to above questions are hereto attached

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

☐ Money ☐ Use of equipment owned by you ☐ Other

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated May 8th., 1953

Grants Minin & Leaching Trust
(Applicant)

By Gus F. Ingwersen.
1434 Forest St. Denver, Colo.

By Frank J. Dechant
1205 Eudora St. Denver, Colo.

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

MF-103
Attached to and made a part of Application for Aid in an Exploration Project.

1 Name: Gus F. Ingwersen, 1434 Forest Street and Frank J. Dechant, 1205 Eudora Street, Denver, Colorado; also known as the GRANTS MINING & LEACHING TRUST

3 Applicants, Property Rights

Seven (7) claims not patented, all assessment work kept up - for description see attached lease

B - Copper Mountain Mine, also MIRABAL COPPER MINE

C - Lessee - Leased for 10 years with privilege of renewal

D - Lease attached

E - No liens or encumbrance

F - Unpatented, claims recorded in Valencia County, New Mexico - do not know book and page but will obtain information if required

4 Physical Description - The property is located 26 miles South West of Grants, New Mexico on top of Copper Mountain. The old road is very rough and in bad shape and we are now starting to build a new road from Blue Water, New Mexico which will cut the distance from the railroad from 26 miles to 12 miles. Mining and exploration work has been done on this property for a number of years, however the property has not been core drilled, which we propose to do.

B - See Mining Engineer's Report attached - as to the grade of ore, samples were taken from all of the different workings on the claims as shown on the map.. The total weight of the samples taken was 1900 lbs. Numerous assays were made showing the

f following results:

2½%-5%-6%-14%-16%-21%-28%-30%-31%-34% and 37½%

C - See Mining Engineer's report and map of property.

D - We can now get to the property over the old road, however, it is rough and a distance of 26 miles, when we get the new road built, we will be 12 miles from an oiled highway and railroad with an easy grade and smooth road.

E - We have the manpower necessary for our operation ourselves. We have most of the necessary equipment; water is available from two small streams - one on each side of the property - other supplies may be had at Grants, New Mexico.

5 COPPER

B - See map attached. We propose to core drill the property, sixteen holes as shown on map - balance to be drilled after checking and sampling first sixteen holes, strip some of the overburden, fix up our water supply by a small dam, clear out the cross cuts and shafts and get everything in readiness for production

C - Work will start within 10 days and be completed within three months from the date of an exploration project contract.

D - Experience of operators:

Gus F. Ingwersen, general production manager, has been interested in mining and its technical problems for a number of years, he operated a mine for Senator Lovin of Arizona in 1915-16-17, he operated 2 mines at Leadville, Colorado, and a mine at Idaho Springs, Colorado, and has been an assayor of ore for many years.

Experience of operators - continued

Frank J. Dechant, general business manager, was in the banking business from 1919 to 1933 and with the Trea. Department office of Comptroller as a Receiver of a closed bank from 1933 to 1935; from 1935 to 1939 he developed several mining properties in Chaffee County, Colorado and is now an accountant with a business firm in Denver, Colorado

6 Estimate of Cost:

A - Independent Contracts	
Road - Cost of right of way	$ 1000.00
Grading, Blasting, Building Cattle Guards and finishing	$ 4000.00
Core drilling 20 holes 50' deep @1.00 per foot	$ 1000.00
Assays will be taken from every two feet of hole drilled or about 500 assays average of $1.00 each	$ 500.00
B - Labor, supervision, consultants	
Labor, 3 men @1.70 per hour, 8 hours a day, 6 days a week for 12 weeks	$ 2937.60
Supervision - one man @500.00 a month	$ 1500.00
Consultant - Mining Engineer, about	$ 500.00
C - Operating Materials & supplies	
Cement for dam	$ 250.00
Gravel & sand delivered	$ 200.00
Powder, Fuse, etc.	$ 50.00

D - Operating Equipment

Tent, stove and utensils	$ 100.00
A small truck if possible, about	$ 600.00

E - Rehabilitation and Repairs

Repairing and fixing up an old cabin now on the property	$ 150.00

F - New buildings, improvements, installations

Water pipe to pipe the water from the dam to the mill site	$ 500.00

G - Miscellaneous

Small tools such as shovels, picks, hammers, saws, wrenches, naile, etc.	$ 150.00

H - Contingencies

Should not exceed	$ 150.00
	$ 13,587.60

7 A - Yes

B - First by labor and supervision, second by equipment we have such as compressor, etc. and third the difference by money which we will supply.

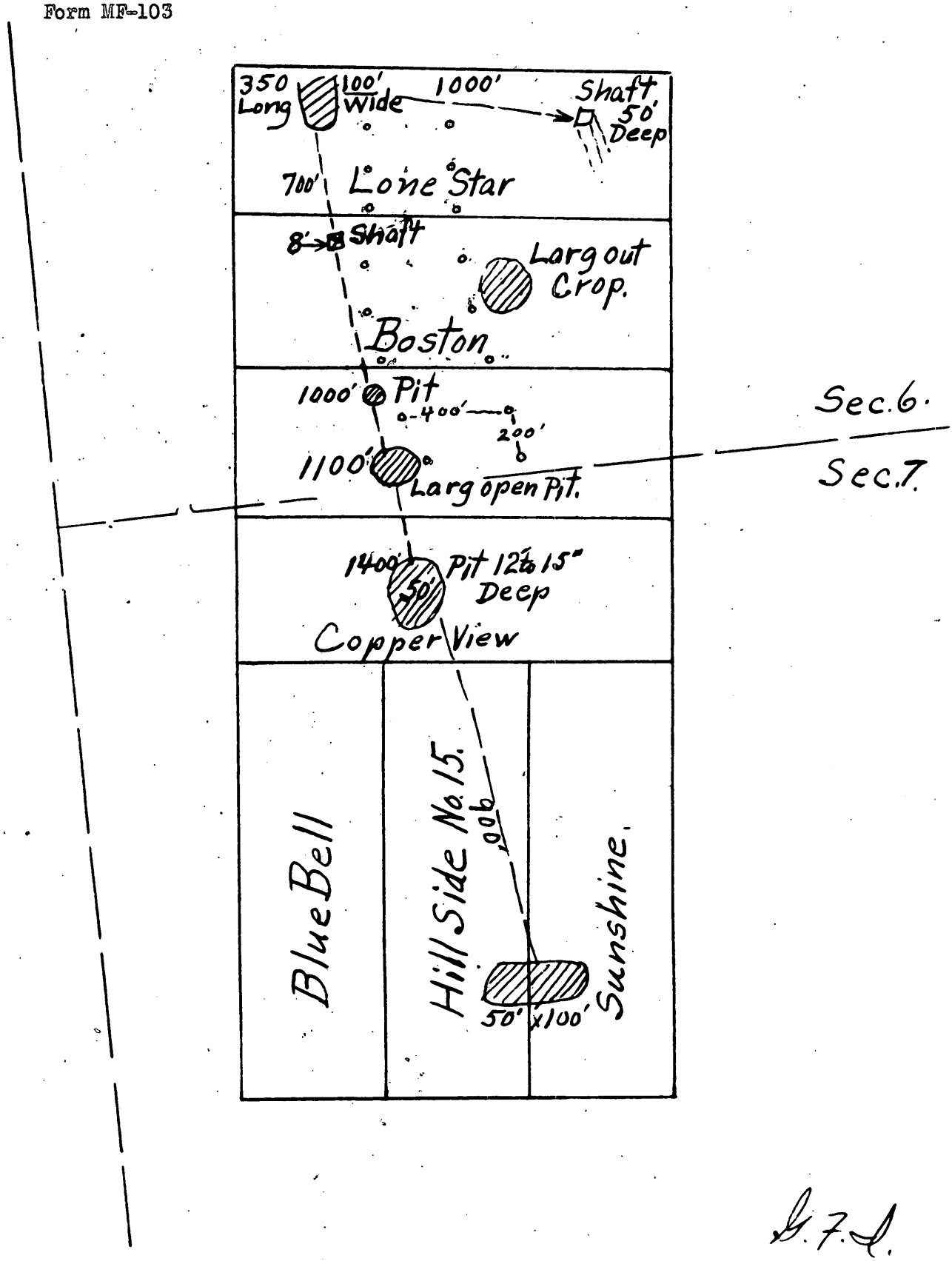
GRANTS MINING & LEACHING TRUST

By Gus F. Ingwersen.

By Frank J. Dechant

Gus F. Ingwersen, 1434 Forest St. Denver, Colo.
Frank J. Dechant, 1205 Eudora St. Denver, Colo.

Form MF-103



G.F.I.

Gus F. [illegible]versen, 1434 Forest St. Denver, [illegible]olo.
Frank J. Dechant, 1205 Eudora St. Denver, Colo.

Form MF-103

COPPER MOUNTAIN MINE
Valencia County, New Mexico

Location

The Copper Mountain Mine is located about 12 miles west of Blue Water, in Section 6 and 7, T 11 N., R 12 W., Valencia County, New Mexico. The mining property covers a flat mesa which is at an altitude of 8000 feet. The present road which leads to the property from Grants circles the mountain on which the mine is located before reaching the mine, a distance of 26 miles of mountain road. An old timber road which leaves the oiled highway at Blue Water goes past the mine and the distance to the mine from Blue Water is 12 miles. All but 5 miles of this road is now passable and with very little work this road could be put in good condition for a mine road and it is a gradual grade from the highway to the mine.

Mining Property and Ore Occurance

The Copper Mountain Mining property consists of the seven unpatented lode mining claims, Sunshine, Hill Side No. 15, Blue Bell, Tom O'Connor, Lone Star, Copper View and Boston.

Sedimentary formations cover the mesa, the bed dip at a slight angle to the north. The copper ore occurs in a sand stone bed, above the sandstone is a shale bed which varies in thickness from a few inches to several feet. The shale carries copper minerals in some places. A sandstone cap rock of about 3 feet in thickness lies above the shale. Granite and gniess seems to lay under the copper ore, but all of the cuts where ore had been mined were partly filled with soil and grave which had been washed in by rains, this prevented the study of the formation under the ore.

Large pine trees are scattered over the mesa which would give a supply of timber sufficient for all mining and milling uses.

Ore and Exploration Work

The minerals found on this property are secondary minerals copper carbonates, copper silicates, and copper oxides. Very little has been done on this property to determine the tonnage of ore and the grade of the ore. At least 12 feet of thickness of ore was exposed in the large cut made in mining ore. Six large cuts have been made over an area 2300 feet in length and 1000 feet in width and bulldozer cuts have exposed ore in several other places. The largest cut made in mining ore is 250 feet in length and 100 feet in width. all the mining work done has been done to mine high grade ore which could be shipped direct to a smelter. (The closest smelter is the American Smelting and Refining Company at El Paso, Texas, a distance of 350 miles, from Grants). Nothing has been done to determine the amount of mill grade ore. Mr. Moses Merabal, the owner of the property, states that the hand sorted ore which he has shipped to the smelter has averaged 12% copper and the better of the ore which was not sorted, ran about 6% copper. A profit cannot be made on this ore shipping it to the smelter due to smelter treatment cost, freight charges over a great distance and hauling from the mine to the railroad over mountain roads. The copper minerals found here cannot be concentrated by the usual method of flotation or gravity concentration, it is therefore necessary to perfect a new method of treatment to make a profitable operation.

The tonnage of ore available appears to be of sufficient quantity to keep a mill operating for many years. Assuming that the area explored (2300 ft. by 1000 ft.) averaged 6 feet of thickness of ore, there would be a tonnage of 766,000 tons and at 5% copper this tonnage at present prices would have a value of $19,000,000.00. This tonnage and value of the ore could be determined at a small cost by drilling the ore bed with a wagon drill or a core drill, the cap rock above the ore appears to be from 3 feet to 15 feet in thickness. There is enough ore in sight to justify building a small mill to leach the copper ore and work out the leaching process on a commercial scale. Mr. G. F. Ingwersen has perfected a leaching process for the recovery of copper and has figured cost of a small mill which I think would solve the milling problem.

Wilder H. Brinton, Mining Engineer
520 North Street, Boulder, Colorado.

No. 90. MINING LEASE—Short Form.—The Bradford-Robinson Ptg. Co., Mfrs. Robinson's Legal Blanks, 1846 Stout St., Denver, Colo.

THIS INDENTURE, Made this First day of August in the year of our Lord one thousand nine hundred and Fifty Two between Moises Mirabal and Sarah Mirabal his wife Grants, Valencia County, New Mexico. Party of the first part, and Frank J. Dechant and G. F. Ingwersen City and County of Denver, State of Colorado. Party

of the second part, WITNESSETH, that the said party of the first part, for and in consideration of the rents, covenants and agreements hereinafter expressed to be paid, kept and performed by the said parties of the second part, has leased, let and demised, and by these presents does lease, let and demise unto the said parties of the second part, the following described premises, situate, lying and being in Grants, New Mexico Mining District, in the County of Valencia and State of New Mexico, to-wit: Seven Mining Claims as follows:-

COPPER VIEW, SUNSHINE, HILLSIDE NO. 15, BLUEBELL, TAM O SHANTER, LONE STAR AND BOSTON, all unpatented locations and located in the Southwest Quarter (SW¼) of Section Six (6) and the Northwest Quarter (NW¼) of Section (7) all in Township Eleven (T-11) N Range Twelve (R-12) West, Valencia County, New Mexico.

TO HAVE AND TO HOLD THE SAME, for the purpose of mining, for the term of Ten years subject to renewal for additional periods of Ten years, as long as said premises are continuously and profitably operated. from the date hereof, unless sooner terminated under any of the provisions herein contained, with no power to assign this lease or any interest thereunder, or to sublet the whole or any part of said premises except upon the written consent of the party of the first part however permission is hereby granted to assign this lease to a duly created organization without any changes in this agreement.

And the said parties of the second part, for and in consideration of the leasing of said premises, covenant and agree with said party of the first part to commence work on said premises as soon as an organization is perfected but not later than sixty days from date. hereof and thereafter to work the same continuously, in a thorough and workmanlike manner, employing at least three men underground, in actual mining, milling, ore extracting or any other work necessary in the best interest of this project.

MINING LEASE

FROM

TO

STATE OF NEW MEXICO
County of Valencia } ss.

I hereby certify that this instrument was filed for record in my office, at 1:08 o'clock P M, on the 22nd. day of September, A D. 19 52, and is duly recorded in book A-5, page 63

Bernie Tapia
Recorder.

By Emilia Matz Asst.
Deputy.

Fees, $

Compared

By E. M.

By L. C.

7-51 THE BRADFORD-ROBINSON PTG. CO., DENVER

ACKNOWLEDGMENT

State of, New Mexico)
ss
County of, Valencia)

BE IT REMEMBERED, That on this 2nd day of August, 1952, before me, a Notary Public in and for said County and State, personally appeared.

Moises Mirabal and wife, Sarah Mirabal, Frank J. Dechant and G. F. Ingwersen

to me known to be the identical persons described in and who executed the within and foregoing instrument and acknowledged to me that theyexecuted the same as their free and voluntary act and deed for the uses and purposes therein set forth.

In Witness Whereof, I have hereunto set my official signature and affixed my notarial seal, the day and year first above written.

My commission expires Feby. 1, 1956 Mary Fidel Notary Public

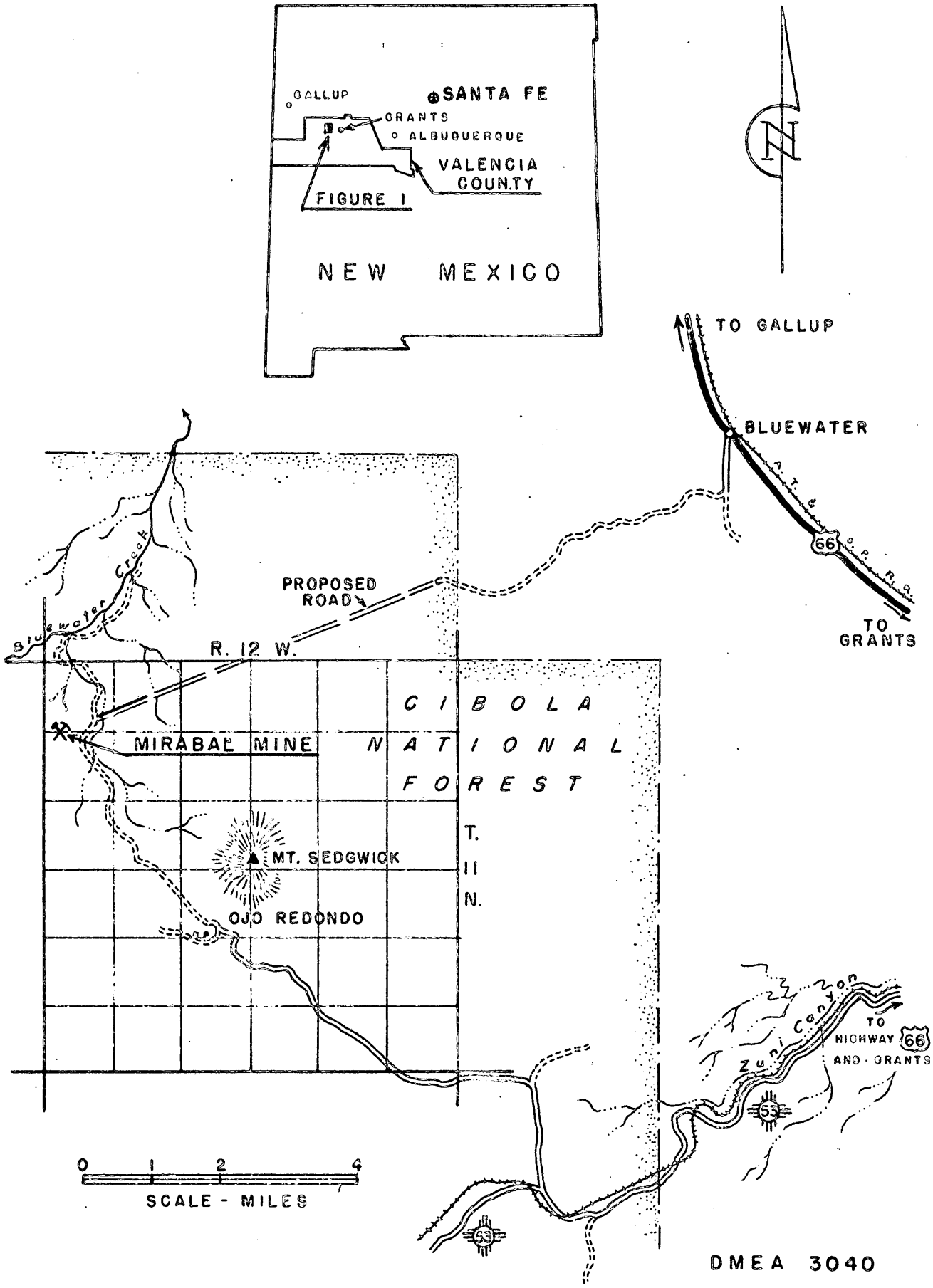
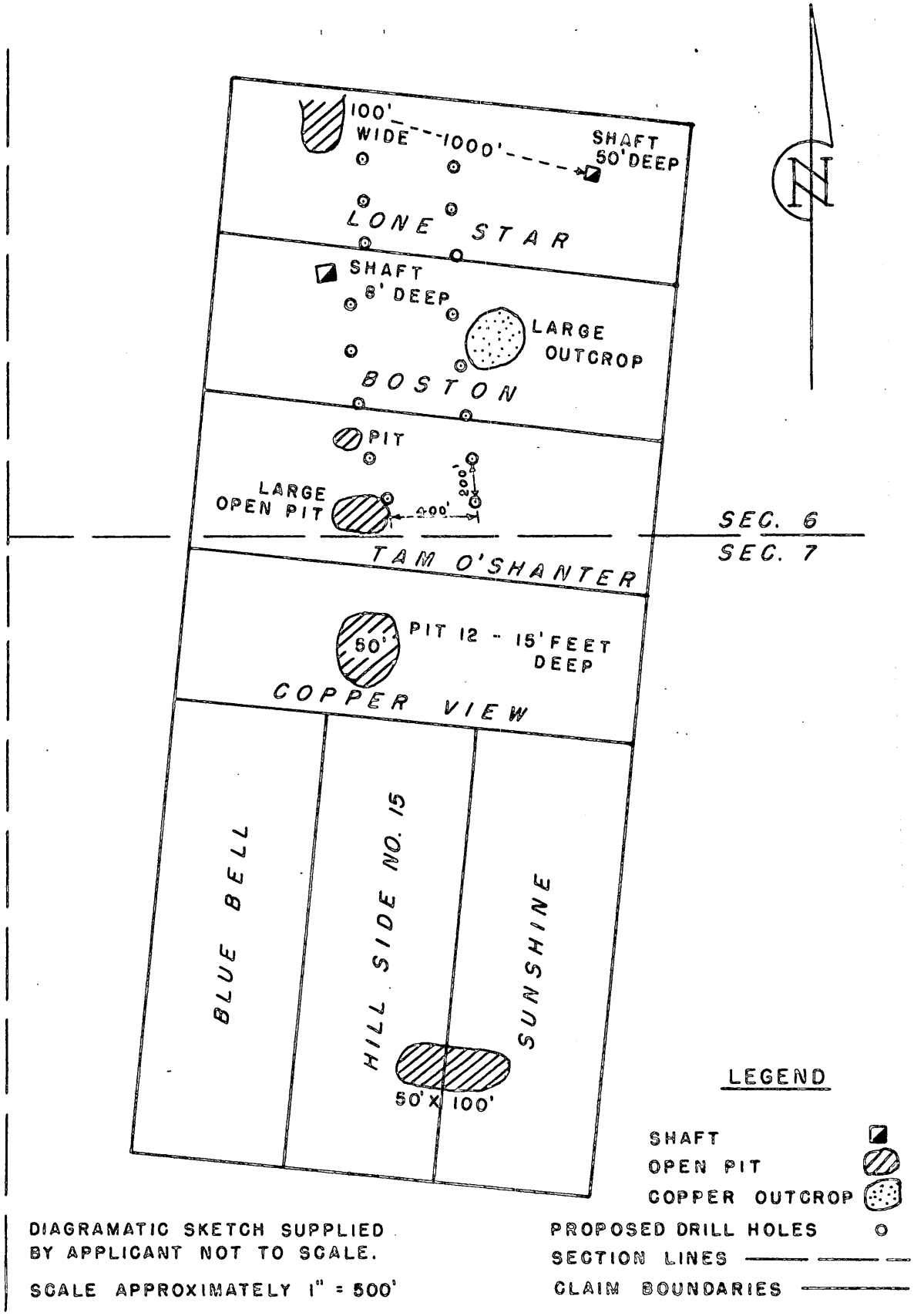


FIGURE 1. - LOCATION MAP - MIRABAL CLAIMS
COPPER HILL MINING DISTRICT - VALENCIA COUNTY, NEW MEXICO



DIAGRAMATIC SKETCH SUPPLIED BY APPLICANT NOT TO SCALE.

SCALE APPROXIMATELY 1" = 500'

DMEA 3040

FIGURE 2.- PLAN OF MIRABAL CLAIMS

COPPER HILL MINING DISTRICT - VALENCIA COUNTY, NEW MEXICO