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Williams
Selfridge
Yeppman

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

MAR 22 1956

Mr. H. C. Kern
Box 296
Ajo, Arizona

Re: Docket No. DMEA-4116 (Copper)
H. C. Kern and Lee Daffern
Copper Valley Claims
Pima County, Arizona

Dear Mr. Kern:

Your application for aid for an exploration project and other reports available to us in Washington concerning your application have been reviewed.

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

Careful study of all our information, although noting a small amount of copper mineralization on your claims, indicates to us that the probability of disclosing significant ore reserves is not sufficiently promising to justify Government participation. We regret to advise you, under these circumstances, that your application for exploration assistance is denied.

We wish to thank you for your interest in the Defense Minerals Program and for bringing your property to our attention.

Sincerely yours,

Administrator

JWAlt/er 3/21/56
Copy to: Docket
Admr R File
Op. Committee
Base Metals
Mr. Pennington, USBM
Mr. Kiilsgaard, USGS
Region III (2)
Chron.

R.C.G.

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

March 20, 1956

Memorandum

To: The Administrator

From: Chief, Base Metals Division

Subject: Denial of Application, Docket No. DMEA-4116 (Copper), H. C. Kern and Leo Daffern, Copper Valley Claims, Pima County, Arizona

The cited application, dated January 4, 1956, was forwarded by the Executive Officer, DMEA Field Team, Region III, and was received by this office on January 9.

The Applicant stated that the proposed exploratory project involved diamond drilling to depths of 300 feet at various locations for an approximate total of 6,600 feet. The total estimated cost of the project was $45,250.00.

The property was examined by the Field Team on February 20, 1956, and we received their report on March 16.

Exploration on the property so far consisted of sinking a 20-foot shaft and two 70-foot drill holes, as well as the excavation of several shallow pits. About 12 tons of selectively mined ore containing 2.1 per cent copper were trucked to Ajo and sold to the Phelps Dodge Corporation. This represents the only known production from the property.

The Field Team states: "The copper mineralization on the Copper Valley claims is distributed sporadically in deposits that generally do not contain more than a few tons. The geology of the claim area is such that improvement of the deposits with depth is not expected. In view of these facts we recommend that the request for DMEA participation in exploration be denied."

We concur with the recommendations of the Field Team and the commodity members of the USBM and USGS that this application be denied.

W. R. Griswold

W. R. Griswold

File Copy
Surname J. Alt.

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

March 20, 1956

Memorandum

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We concur with the recommendations of the Field Team and the commodity members of the USBM and USGS that this application be denied.

W. R. Griswold

W. R. Griswold

JWAlt/er
Copy to: Docket
Base Metals
Chron.

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

RECEIVED
MAR 19 1956

March 16, 1956

Re: DMEA 4116
H. C. Kern and Leo Daffern
Copper Valley claims
Pima County, Arizona
$45,250.00 - Copper

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of Field Team report.

The applicants requested assistance in drilling a number of small discontinuous shear zones showing copper bearing material. Twelve tons of such material assaying, after sorting, 2.1% copper was shipped to the Ajo plant of Phelps Dodge Corporation, and about 20 tons are stockpiled on the property.

The estimated cost of the exploration is $45,250.00.

The examiners conclude the small occurrences represent roots rather than tops of possible ore bodies, a conclusion supported by the geologic and structural controls of the district as determined by detailed geologic mapping.

Denial of the application is recommended by the examiners and the Field Team.

I concur with that recommendation.

N. E. Nelson

N. E. Nelson

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

RECEIVED
MAR 19 1956

March 16, 1956

Re: DMEA 4116
E. C. Kern and Leo Duffern
Copper Valley claims
Pima County, Arizona
$45,250.00 - Copper

Memorandum

To: W. E. Griswold, Defense Minerals Exploration Administration

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of Field Team report.

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Denial of the application is recommended by the examiners and the Field Team.

I concur with that recommendation.

N. E. Nelson

N. E. Nelson

NENelson:iml
G-3/16/56
cc: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
H. M. Meyer, 3623

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

RECEIVED
MAR 16 1956

March 16, 1956

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: J. W. Pennington, Branch of Base Metals

Subject: Review of Examination Report, Docket No. DMEA 4116 (copper) H. C. Kern and Leo Daffern, Copper Valley Claims, Pima County, Arizona, $45,250.00

The Examination Report of this property by Leonid Bryner, Geological Survey and T. M. Romslo, Bureau of Mines, has been reviewed and found adequate.

Prior exploration of the property consisted of one 20-foot shaft, two 70-foot churn drill holes, and several shallow pits. Production has totaled about 12 tons of 2.1 percent copper-bearing material.

It was proposed to explore the property by 6,000 feet of diamond drilling at an estimated cost of $45,250.00.

However, examination of the property revealed that the copper mineralization was weak and occurred in small discontinuous shear zones. Moreover, the geological conditions of the area do not indicate extensive copper mineralization.

I agree with the recommendations of the Field Team that the application for exploration assistance be denied.

J. W. Pennington

Copy to: Division of Minerals
Branch of Base Metals (2)
Thor Kiilsgaard, U.S.G.S.
R. W. Geehan
Files

RECEIVED
MAR 16 1956

March 16, 1956

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: J. W. Pennington, Branch of Base Metals

Subject: Review of Examination Report, Docket No. DMEA 4116 (copper) H. C. Kern and Leo Daffern, Copper Valley Claims, Pima County, Arizona, $45,250.00

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Copy to: Division of Minerals
Branch of Base Metals (2)
Thor Kiilsgaard, U.S.G.S.
R. W. Geehan
F i l e s

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

RECEIVED MAR 12 1956

March 7, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Joint Report of Examination, Docket DMEA 4116 (Copper), H. C. Kern and Leo Daffern, Copper Valley Claims, Pima County, Arizona.

Enclosed are the original and three copies of the joint engineering and geologic report on the subject docket.

The field examiners conclude that exploration of this property would not result in finding a significant amount of copper ore. They recommend that the application be denied, and we concur in this recommendation.

DMEA Field Team, Region III

By W. M. Traver
Executive Officer

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE
3-16-56
(date)

TRANSMITTED

RECEIVED MAR 12 1956

DMEA
Date Rec'd.
MAR 2 1956
BUREAU OF MINES
Denver, Colorado

MAR 7 1956

February 28, 1956

Memorandum

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

Through : E. N. Harshman, U. S. Geological Survey, Building 25, Denver Federal Center, Denver, Colorado

From : Superintendent, Southwest Experiment Station

Subject : Field Examination Report Docket DMEA-4116, H. C. Kern & Lee Baffern, Copper Valley Copper Claims, Pima County, Ariz.

Enclosed are original and 8 copies of a joint report on the above property by Leonid Bryner of the Geological Survey and T. M. Beasley of the Bureau of Mines. The DMEA examiners recommend denial of Government exploration assistance because they believe discovery of a significant amount of ore would not be made. I concur with their recommendation.

Brochure is enclosed.

Walter R. Storms

Walter R. Storms

CC W. M. Traver (8)
J. F. Shaw
J. N. Faick (with report)
DMEA-4116
DF

WRStorms:frj

Reviewed by
DMEA OPERATING COMMITTEE
3-16-56
(Date)

RECEIVED
MAR 12 1956

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

TRANSMITTED
MAR 7 1956

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

DMEA-4116, H. C. Kern and Leo Daffern

Copper Valley Claims (Copper)

Pima County, Arizona

Leonid Bryner, Geologist
U. S. Geological Survey

T. M. Romslo, Mining Engineer
U. S. Bureau of Mines

February 1956

Reviewed by
DMEA OPERATING COMMITTEE
3-16-56
(Date)

RECEIVED MAR 12 1956 TRANSMITTED MAR 7 1956

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By Leonid Bryner[1] and T. M. Romslo[2]

H. C. Kern and Leo Daffern, both of Ajo, Ariz., applied for aid in exploring for copper at their Copper Valley claims in Pima County, Ariz. Their application, docketed as DMEA-4116, was for approximately 6,600 feet of diamond drilling at an estimated total cost of $45,250. The property was examined on February 20, 1956 by the writers.

Exploration on the property has so far consisted of sinking a 20-foot shaft and two 70-foot churn drill holes, as well as in the excavation of several shallow pits. About 12 tons of selectively mined and sorted ore containing 2.1 percent copper were trucked to Ajo and sold to the Phelps Dodge Corp. This represents the only known production from the property.

Copper mineralization is mostly confined to minor discontinuous shear zones in the pre-Cambrian Cardigan gneiss. Copper occurs mainly as oxides, although chalcocite probably accounts for some of the values obtained in assays. A detailed study of the district by James Gilluly of the U. S. Geological Survey indicates that the Copper Valley claims are in ground that is geologically unfavorable to the occurrence of ore deposits. In view of this fact and

---

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

because of the very limited and sporadic nature of the known copper mineralization, it is recommended that the request for DMEA participation in exploration of the Copper Valley claims be denied.

DMEA-4116, H. C. KERN AND LEO DAFFERN
COPPER VALLEY CLAIMS (COPPER)
PIMA COUNTY, ARIZONA

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General geology	3
Geology of the Copper Valley claims	4
Reserves	7
Conclusions and Recommendations	7

ILLUSTRATIONS

Figure		
1	Location and claim map	1
2	Geologic map	3

INTRODUCTION

H. C. Kern and Leo Daffern, both of Ajo, Ariz., applied for aid in an exploration project for copper at their Copper Valley claims in Pima County, Ariz. The application was received by the Defense Minerals Exploration Administration early in January 1956. It was docketed as DMEA-4116, reviewed by the Operating Committee, and forwarded to the Field Team, Region III, for an examination of the property.

The applicant stated that the proposed exploratory project involved diamond drilling to depths of 300 feet at various locations for an approximate total of 6,600 feet. The estimated total cost of the project was $45,250.00.

The property was examined on February 20, 1956 by Leonid Bryner, geologist, U. S. Geological Survey, and T. M. Romslo, mining engineer, U. S. Bureau of Mines. They were accompanied by H. C. Kern, one of the owners of the property.

LOCATION AND ACCESSIBILITY

The Copper Valley claims are about 4 air miles northwest of Ajo, Ariz. in sec. 7, T. 12 S., R. 6 W. and sec. 13, T. 12 S., R. 7 W., Pima County, Ariz. (figure 1). The town of Ajo is almost wholly owned by the Phelps Dodge Corp. and is the site of one of the corporation's large open-pit mines and smelter. It is on State Highway 85 and is the southern terminus of the Tucson, Cornelia and Gila Bend railroad.

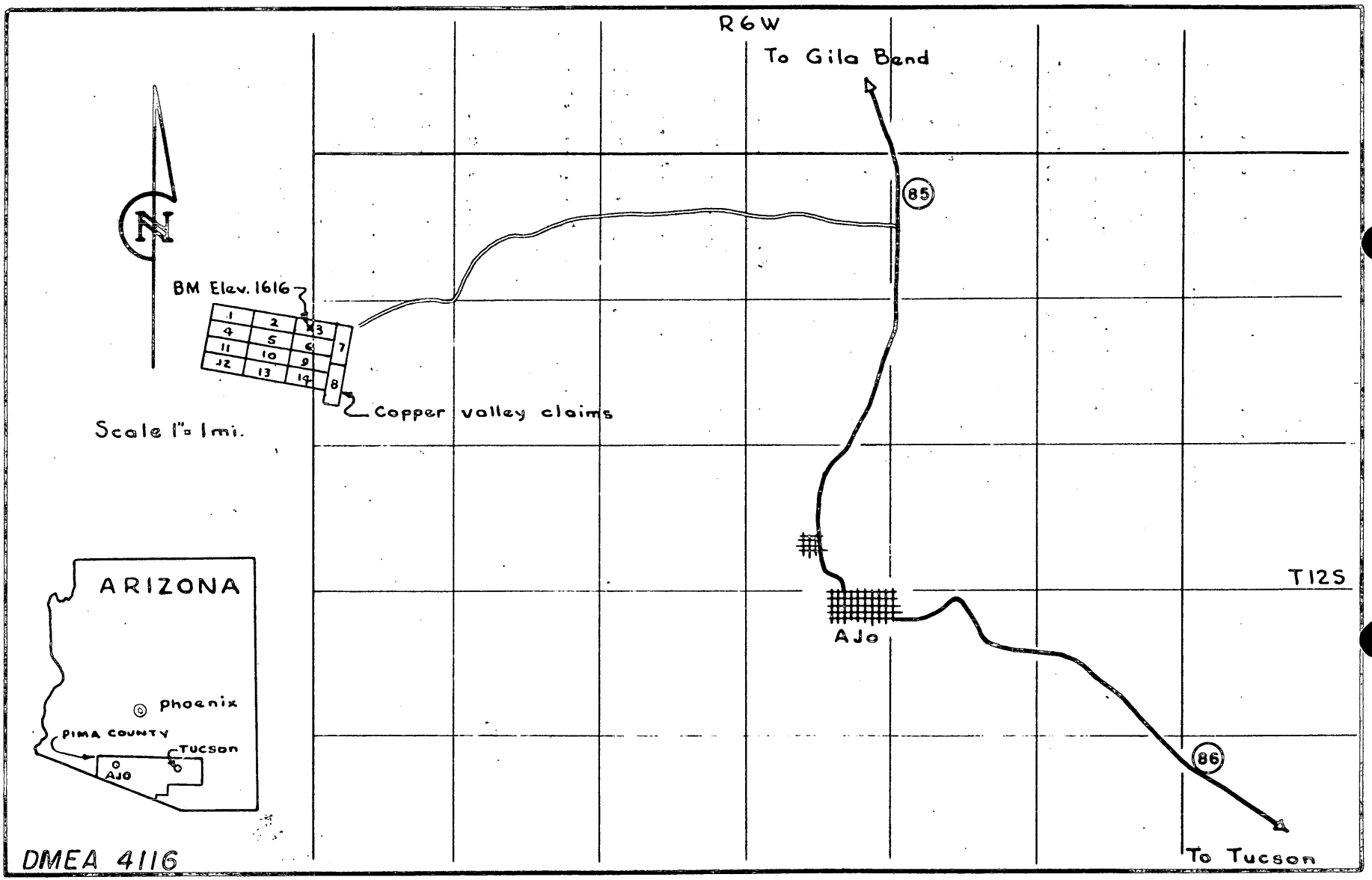

FIG.- 1 - LOCATION & CLAIM MAP, H.C. KERN & LEO DAFFERN
PIMA COUNTY, ARIZONA

The claims may be reached from Ajo by traveling north for 3.4 miles on State Highway 85, thence 3.9 miles westerly on a graded desert road to a road that branches to the south. Proceed about 0.25 mile on the latter road to the open cut and shallow shaft of claim No. 6.

TOPOGRAPHY, PHYSICAL FEATURES AND CLIMATE

The Copper Valley claims are at an average altitude of about 1,700 feet in an area of gently rolling hills of low relief. Prominent nearby physiographic features are Childs Mountains and the Little Ajo Mountains at about one-half mile to the north and south, respectively.

The climate and vegetation are typical of the southwestern desert at intermediate altitudes. Temperatures range from 17 to 115 degrees; annual precipitation averages about 9.25 inches. Vegetation consists of cacti and a variety of desert bushes.

HISTORY AND PRODUCTION

According to Mr. H. C. Kern, 4 or 5 of the present group of 14 claims were located first by Tom Childs. Mr. Childs and his sons held the property to 1953 when they were acquired by Leo Daffern. During this period, 2 holes were churn-drilled to depths of about 70 feet each, an 18 to 20-foot shaft was sunk, and several shallow pits were dug. As far as known no ore was produced.

During 1954, Mr. Kern obtained a nine-tenths interest in the property from Leo Daffern. The interest was obtained by building roads and cleaning out most of the old workings. Since then, activity has been confined to assessment work and the selective mining of about 30 tons of ore from the largest excavation. About 12 tons of this ore containing 2.1 percent copper, traces of gold and silver, and 67 percent silica was trucked to Ajo and sold to the Phelps Dodge Corp.

At present the property is idle and contains no buildings or mining equipment.

EXTENT AND OWNERSHIP OF PROPERTY

The property comprises a group of 14 lode mining claims, the Copper Valley Nos. 1 to 14 (figure 2).

Mr. H. C. Kern reported that he owns a nine-tenths interest in the property and that the remaining one-tenth interest is owned by Leo Daffern. The address of both these men is General Delivery, Ajo, Ariz.

GENERAL ~~DELIVERY~~ Geology

The area under consideration is included in the Ajo Mining District, described by James Gilluly in U. S. Geological Survey Professional Paper 209, and the following summary of the general geology is based on Gilluly's paper. The NewCornelia deposit, one of the great porphyry copper deposits of the Southwest, is in an

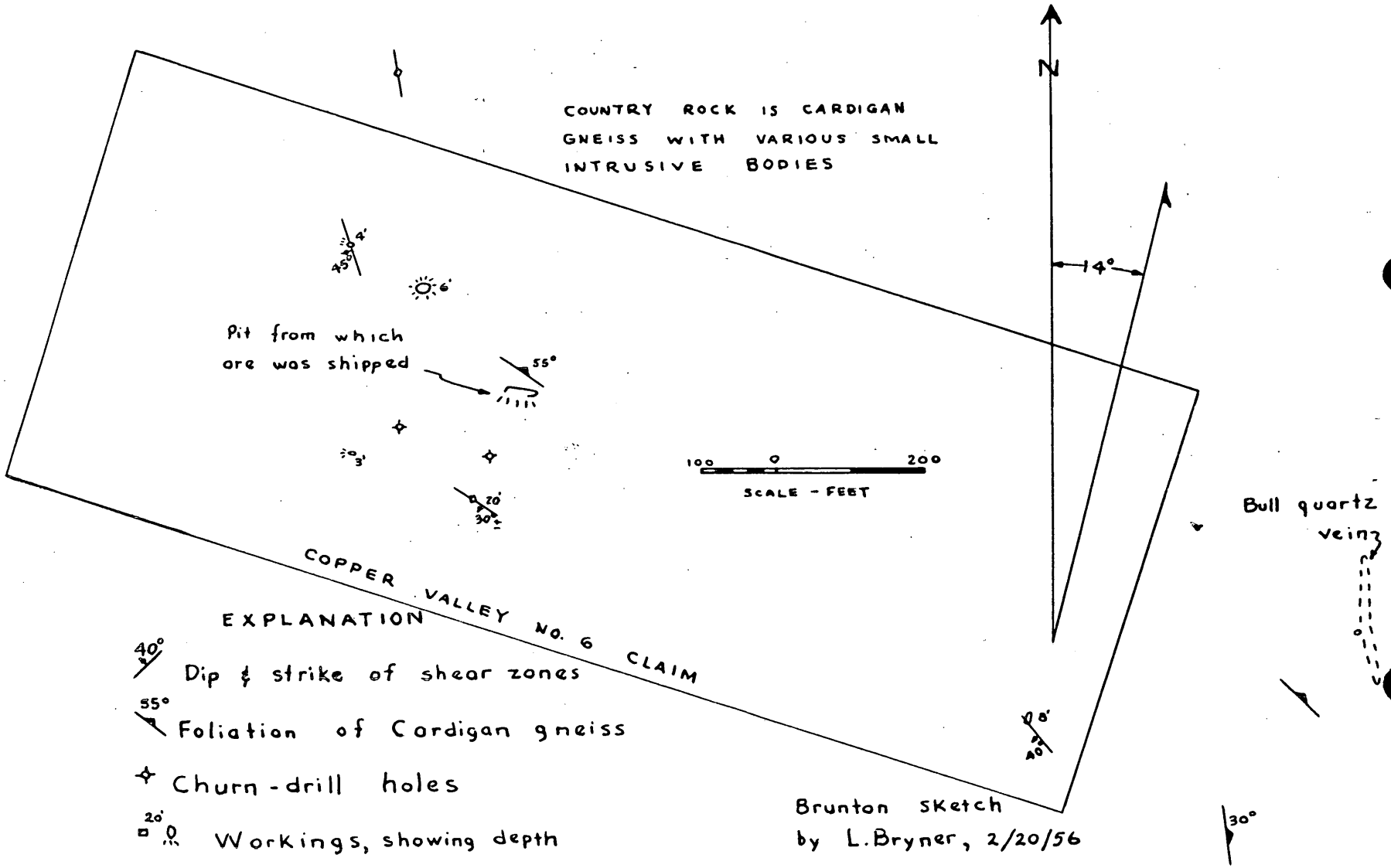

FIG. 2 - GEOLOGIC SKETCH OF MAIN MINERALIZED AREA COPPER VALLEY CLAIMS, PIMA COUNTY, ARIZONA

DMEA-4116

eastern, downfaulted block of the Tertiary (?) New Cornelia quartz monzonite stock. This block, representing an apical part of the stock, was dropped several thousand feet in relation to the rest of the stock along the northerly-trending Gibson Arroyo fault. The ore deposit had formed in this part of the stock prior to faulting and in its lower ~~portion~~ position east of the Gibson Arroyo fault was preserved from erosion. Another major fault of the district is the Little Ajo Mountains fault, just north of the stock and trending about N. 60° W. Displacement along this fault, according to Gilluly, may exceed 10,000 feet. The movement was such as to relatively elevate the entire stock and surrounding ground, and to tilt this ground about 50 degrees southward. The Little Ajo Mountains fault post-dates the Gibson Arroyo fault, and is considerably later than the copper mineralization.

GEOLOGY OF THE COPPER VALLEY CLAIMS

The Copper Valley claims are in the northern foothills of the Little Ajo Mountains in the upraised block south of the Little Ajo Mountains fault and west of the Gibson Arroyo fault. This is about 4½ miles airline, northwest of the NewCornelia pit. Gilluly's map shows Cardigan gneiss of PreCambrian age in the area of the Copper Valley claims. The gneiss consists mainly of quartz, albite and chlorite, and is one of the rocks intruded by the New Cornelia quartz monzonite stock. Even in the small area examined, the gneiss

displays considerable variation. Some of it is very coarse and strongly banded and some of it is a relatively fine-grained, homogeneous rock. Foliation in the gneiss strikes from nearly due north to nearly due west, and dips vertically to about 30 degrees northeast. On and near claim No. 6, to which most of the examination was confined, the gneiss is intruded by a variety of small, fine-grained, porphyritic bodies, most of which can be classed as rhyolites. The gneiss also contains irregular bodies of barren bull quartz. The largest of those noted is about 300 feet beyond the east endline of the No. 6 claim. It is about 200 feet long and 10 to 15 feet wide, and conforms with the foliation of the enclosing gneiss.

Thin, discontinuous shear zones in the gneiss and other rocks strike generally northwest and dip moderately southwest. Copper mineralization where present appears to be associated with these shears.

Most of the workings and the best showings, according to Kern, are on claim No. 6. The workings on this claim are shown in figure 2. They consist of a 20-foot shaft, and about half a dozen small cuts or pits.

The copper minerals seen in the field are almost all malachite and other oxides. The only other copper minerals seen were a few specks of chalcopyrite in one of the shears and a coating of chalcocite and covellite in a specimen picked up from the dump.

Possibly chalcocite accounts for some of the high assays obtained by the applicant. Limonite stain is present with the copper oxides mostly as fracture coatings. But several of the weak shears contained equidimensional dark brown limonitic grains. Some of these grains resembled pyritohedrons, suggesting that the iron oxides are derived from pyrite.

The copper minerals and the iron oxides associated with them occur in or near the weak shear zones, mostly in the Cardigan gneiss but also in some of the porphyry dikes. The zones of copper mineralization along the shear zones are generally less than six inches thick. Showings that occur independently of any recognizable shear zone appear to be localized along random fractures in the rock. Most of the copper oxides, in fact, whether associated with shears or not, occur as fracture coatings and represent a relatively minute volume of the rock within any one of the mineralized blocks of ground represented by the separate showings.

The presence of the New Cornelia ore deposit in the district immediately brings to mind the question of whether other important deposits may be present. Gilluly suggests some possibilities in the immediate vicinity of the pit and east of the Gibson Arroyo fault, but also states (pp. 108,109) that "the entire northern border of the Little Ajos seems to be poor prospecting ground, for . . . . the monzonite exposed there south of the (Little Ajo Mountain) fault was originally at a deep level in the intrusive stock where sufficient concentration of mineralizing solutions to form ore bodies would not be expected." In other words, the part of the stock exposed nearest

to the Copper Valley claims has been greatly elevated along the Little Ajo Mountains fault and then deeply truncated by erosion so that the weak copper mineralization there more likely represents the remnant roots of a deposit than the roof of one.

RESERVES

Kern has an assay certificate for 14 samples; one from each of his 14 claims. These assays range from 0.02 to 3.02 percent copper. The higher assays probably represent what might be obtained in a few tons selectively mined and sorted from the various claims. Also, considering that about 12 tons of 2.1 percent copper ore have been shipped from the No. 6 claim and about 20 more tons are stockpiled on the No. 6 claim, it is possible that there are a few tens of tons of 2 percent ore remaining in the claim area. There is no basis, however, either in exposed mineralization or in the known geology of the deposit, for estimating reserves.

CONCLUSIONS AND RECOMMENDATIONS

The copper mineralization on the Copper Valley claims is distributed sporadically in deposits that generally do not contain more than a few tons. The geology of the claim area is such that improvement of the deposits with depth is not expected. In view of these facts we recommend that the request for DMEA participation in exploration be denied.

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

March 7, 1956

224 New Customhouse
Denver 2, Colorado

RECEIVED
MAR 12 1956

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Field Team, Region III

Subject: Joint Report of Examination, Docket DMEA 4116 (Copper), H. C. Kern and Leo Daffern, Copper Valley Claims, Pima County, Arizona

Enclosed are the original and three copies of the joint engineering and geologic report on the subject docket.

The field examiners conclude that exploration of this property would not result in finding a significant amount of copper ore. They recommend that the application be denied, and we concur in this recommendation.

DMEA Field Team, Region III

W. M. Traver

By W. M. Traver
Executive Officer

Enclosures

Reviewed by
DMEA OPERATING COMMITTEE

(date)

TRANSMITTED

MAR 7 1956

RECEIVED
MAR 12 1956

DMEA
Date Rec'd.
MAR 2 1956
BUREAU OF MINES
Denver, Colorado

February 28, 1956

Memorandum

To : W. M. Tanner, Executive Officer, DMEA Field Team, Region III

Through : E. N. Harshman, U. S. Geological Survey, Building 25, Denver Federal Center, Denver, Colorado

From : Superintendent, Southwest Experiment Station

Subject : Field Examination Report Docket DMEA-4116, H. C. Kern & Lee Ruffers, Copper Valley Copper Claims, Pima County, Ariz.

Enclosed are original and 8 copies of a joint report on the above property by Leonid Bryner of the Geological Survey and T. M. Romslo of the Bureau of Mines. The DMEA examiners recommend denial of Government exploration assistance because they believe discovery of a significant amount of ore would not be made. I concur with their recommendation.

Brochure is enclosed.

Walter R. Storms

Walter R. Storms

CC W. M. Tanner (8)
J. F. Shaw
J. H. Faick (with report)
DMEA-4116
RF

WRStorms:frj

Reviewed by
NMI DURANGO OFFICE

TRANSMITTED

MAR 7 1956

UNITED STATES
DEPARTMENT OF THE INTERIOR
DOUGLAS McKAY, SECRETARY

DEFENSE MINERALS EXPLORATION ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION III

RECEIVED
MAR 12 1956

DMEA-4116, H. C. Kerr and Leo Daffern

Copper Valley Claims (Copper)

Pima County, Arizona

Leonid Heymer, Geologist
U. S. Geological Survey

T. M. Romslo, Mining Engineer
U. S. Bureau of Mines

February 1956

RECEIVED BY
DMEA OPERATING HEADQUARTERS

TRANSMITTED
MAR 7 1956

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By Leonid Enzner[1] and T. M. Romslo[2]

RECEIVED
MAR 12 1956

H. C. Kern and Leo Daffern, both of Ajo, Ariz., applied for aid in exploring for copper at their Copper Valley claims in Pima County, Ariz. Their application, docketed as DMEA-4115, was for approximately 6,000 feet of diamond drilling at an estimated total cost of $45,250. The property was examined on February 20, 1956 by the writers.

Exploration on the property has so far consisted of sinking a 20-foot shaft and two 70-foot churn drill holes, as well as in the excavation of several shallow pits. About 12 tons of selectively mined and sorted ore containing 2.1 percent copper were trucked to Ajo and sold to the Phelps Dodge Corp. This represents the only known production from the property.

Copper mineralization is mostly confined to minor discontinuous shear zones in the pre-Cambrian Cardigan gneiss. Copper occurs mainly as oxides, although chalcocite probably accounts for some of the values obtained in assays. A detailed study of the district by James Gillnly of the U. S. Geological Survey indicates that the Copper Valley claims are in ground that is geologically unfavorable to the occurrence of ore deposits. In view of this fact and

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

because of the very limited and sporadic nature of the known copper mineralization, it is recommended that the request for DMEA participation in exploration of the Copper Valley claims be denied.

DMEA-4116, H. C. KERN AND LEO BAFFERN
COPPER VALLEY CLAIMS (COPPER)
PIMA COUNTY, ARIZONA

RECEIVED
MAR 12 1956

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ILLUSTRATIONS

Figure		
1	Location and claim map	1
2	Geologic map	3

RECEIVED
MAR 12 1956

INTRODUCTION

H. C. Kern and Lee Dufferm, both of Ajo, Ariz., applied for aid in an exploration project for copper at their Copper Valley claims in Pima County, Ariz. The application was received by the Defense Minerals Exploration Administration early in January 1956. It was docketed as DMEA-4114, reviewed by the Operating Committee, and forwarded to the Field Team, Region III, for an examination of the property.

The applicant stated that the proposed exploratory project involved diamond drilling to depths of 300 feet at various locations for an approximate total of 6,600 feet. The estimated total cost of the project was $44,320.00.

The property was examined on February 28, 1956 by Leonid Dryzgar, geologist, U. S. Geological Survey, and T. M. Ramsle, mining engineer, U. S. Bureau of Mines. They were accompanied by H. C. Kern, one of the owners of the property.

LOCATION AND ACCESSIBILITY

The Copper Valley claims are about 4 air miles northeast of Ajo, Ariz. in sec. 7, T. 12 S., R. 6 W. and sec. 13, T. 12 S., R. 7 W., Pima County, Ariz. (figure 1). The town of Ajo is almost wholly owned by the Phelps Dodge Corp. and is the site of one of the corporation's large open-pit mines and smelter. It is on State Highway 85 and is the southern terminus of the Tucson, Cornelia and Gila Bend railroad.

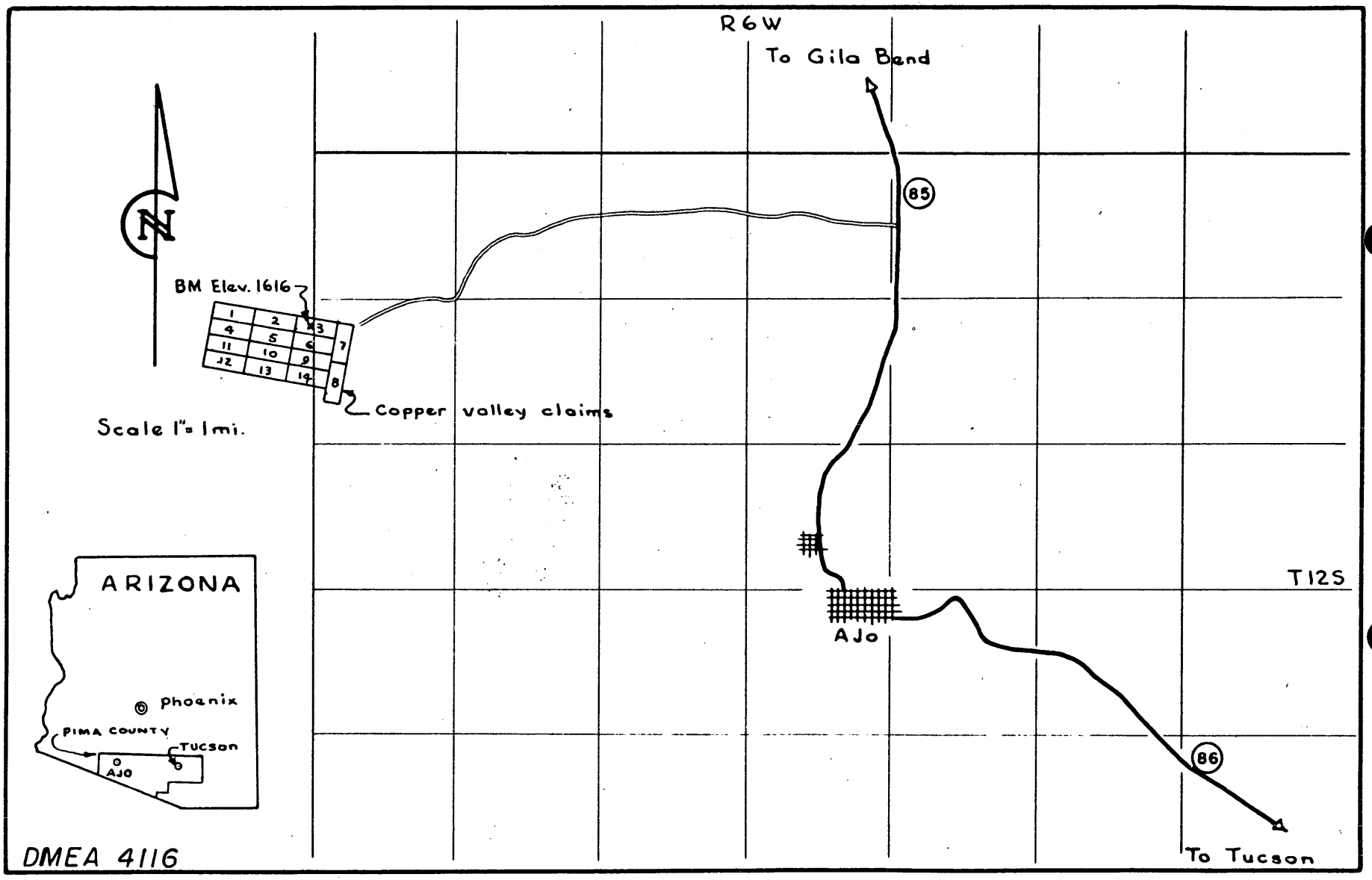

FIG.- 1 - LOCATION & CLAIM MAP, H.C. KERN & LEO DAFFERN
PIMA COUNTY, ARIZONA

The claims may be reached from Ajo by traveling north for 3.4 miles on State Highway 85, thence 3.9 miles westerly on a graded desert road to a road that branches to the south. Proceed about 0.25 mile on the latter road to the open cut and shallow shaft of claim No. 6.

TOPOGRAPHY, PHYSICAL FEATURES AND CLIMATE

The Copper Valley claims are at an average altitude of about 1,700 feet in an area of gently rolling hills of low relief. Prominent nearby physiographic features are Childs Mountains and the Little Ajo Mountains at about one-half mile to the north and south, respectively.

The climate and vegetation are typical of the southwestern desert at intermediate altitudes. Temperatures range from 17 to 115 degrees; annual precipitation averages about 9.25 inches. Vegetation consists of cacti and a variety of desert brushes.

HISTORY AND PRODUCTION

According to Mr. H. C. Kunz, 4 or 5 of the present group of 14 claims were located first by Tom Childs. Mr. Childs and his sons held the property to 1952 when they were acquired by Lee Duffahn. During this period, 2 holes were churn-drilled to depths of about 70 feet each, an 18 to 20-foot shaft was sunk, and several shallow pits were dug. As far as known no ore was produced.

During 1954, Mr. Kern obtained a nine-tenths interest in the property from Leo Ruffum. The interest was obtained by building roads and cleaning out most of the old workings. Since then, activity has been confined to assessment work and the selective mining of about 30 tons of ore from the largest excavation. About 12 tons of this ore containing 2.1 percent copper, traces of gold and silver, and 67 percent silica was trucked to Ajo and sold to the Phelps Dodge Corp.

At present the property is idle and contains no buildings or mining equipment.

EXTENT AND OWNERSHIP OF PROPERTY

The property comprises a group of 14 lode mining claims, the Copper Valley Nos. 1 to 14 (figure 2).

Mr. H. C. Kern reported that he owns a nine-tenths interest in the property and that the remaining one-tenth interest is owned by Leo Ruffum. The address of both these men is General Delivery, Ajo, Ariz.

GENERAL GEOLOGY

The area under consideration is included in the Ajo Mining District, described by James Gilluly in U. S. Geological Survey Professional Paper 200, and the following summary of the general geology is based on Gilluly's paper. The MacDonald deposit, one of the great porphyry copper deposits of the Southwest, is in an

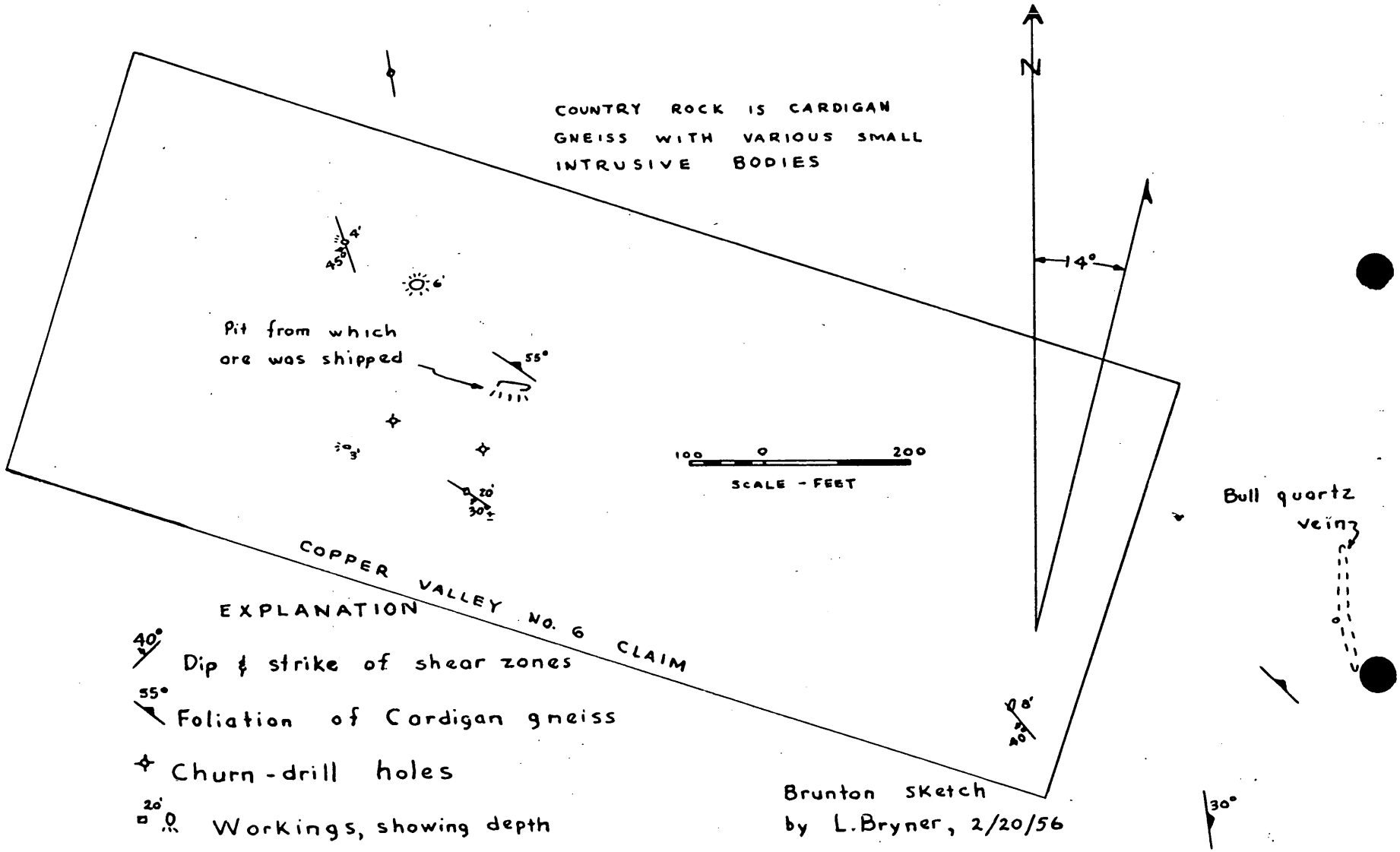

FIG. 2 - GEOLOGIC SKETCH OF MAIN MINERALIZED AREA COPPER VALLEY CLAIMS, PIMA COUNTY, ARIZONA

DMEA-4116

eastern, downfaulted block of the Tertiary (?) New Cornelia quartz monzonite stock. This block, representing an apical part of the stock, was dropped several thousand feet in relation to the rest of the stock along the northerly-trending Gibson Arroyo fault. The ore deposit had formed in this part of the stock prior to faulting and in its lower position east of the Gibson Arroyo fault was preserved from erosion. Another major fault of the district is the Little Ajo Mountains fault, just north of the stock and trending about N. 60° W. Displacement along this fault, according to Gilluly, may exceed 10,000 feet. The movement was such as to relatively elevate the entire stock and surrounding ground, and to tilt this ground about 50 degrees southward. The Little Ajo Mountains fault post-dates the Gibson Arroyo fault, and is considerably later than the copper mineralization.

GEOLOGY OF THE COPPER VALLEY CLAIMS

The Copper Valley claims are in the northern foothills of the Little Ajo Mountains in the upraised block south of the Little Ajo Mountains fault and west of the Gibson Arroyo fault. This is about 4½ miles airline, northwest of the NewCornelia pit. Gilluly's map shows Cardigan gneiss of Pre-Cambrian age in the area of the Copper Valley claims. The gneiss consists mainly of quartz, albite and chlorite, and is one of the rocks intruded by the New Cornelia quartz monzonite stock. Even in the small area examined, the gneiss

displays considerable variation. Some of it is very coarse and strongly banded and some of it is a relatively fine-grained, homogeneous rock. Foliation in the gneiss strikes from nearly due north to nearly due west, and dips vertically to about 30 degrees northeast. On and near claim No. 6, to which most of the examination was confined, the gneiss is intruded by a variety of small, fine-grained, porphyritic bodies, most of which can be classed as rhyolites. The gneiss also contains irregular bodies of barren bull quartz. The largest of those noted is about 300 feet beyond the east endline of the No. 6 claim. It is about 200 feet long and 10 to 15 feet wide, and conforms with the foliation of the enclosing gneiss.

Thin, discontinuous shear zones in the gneiss and other rocks strike generally northwest and dip moderately southwest. Copper mineralization where present appears to be associated with these shears.

Most of the workings and the best showings, according to Kern, are on claim No. 6. The workings on this claim are shown in figure 2. They consist of a 20-foot shaft, and about half a dozen small cuts or pits.

The copper minerals seen in the field are almost all malachite and other oxides. The only other copper minerals seen were a few specks of chalcopyrite in one of the shears and a coating of chalcocite and covellite in a specimen picked up from the dump.

Possibly chalcocite accounts for some of the high assays obtained by the applicant. Limonite stain is present with the copper oxides mostly as fracture coatings. But several of the weak shears contained equidimensional dark brown limonitic grains. Some of these grains resembled pyritohedrons, suggesting that the iron oxides are derived from pyrite.

The copper minerals and the iron oxides associated with them occur in or near the weak shear zones, mostly in the Cardigan gneiss but also in some of the porphyry dikes. The zones of copper mineralization along the shear zones are generally less than six inches thick. Showings that occur independently of any recognizable shear zone appear to be localized along random fractures in the rock. Most of the copper oxides, in fact, whether associated with shears or not, occur as fracture coatings and represent a relatively minute volume of the rock within any one of the mineralized blocks of ground represented by the separate showings.

The presence of the New Cornelia ore deposit in the district immediately brings to mind the question of whether other important deposits may be present. Silluly suggests some possibilities in the immediate vicinity of the pit and east of the Gibson Arroyo fault, but also states (pp. 108,109) that "the entire northern border of the Little Ajos seems to be poor prospecting ground, for . . . . the monzonite exposed there south of the (Little Ajo Mountain) fault was originally at a deep level in the intrusive stock where sufficient concentration of mineralizing solutions to form ore bodies would not be expected." In other words, the part of the stock exposed nearest

to the Copper Valley claims has been greatly elevated along the Little Ajo Mountains fault and then deeply truncated by erosion so that the weak copper mineralization there more likely represents the remnant roots of a deposit than the roof of one.

RESERVES

Kern has an assay certificate for 14 samples; one from each of his 14 claims. These assays range from 0.02 to 3.02 percent copper. The higher assays probably represent what might be obtained in a few tons selectively mined and sorted from the various claims. Also, considering that about 12 tons of 2.1 percent copper ore have been shipped from the No. 6 claim and about 20 more tons are stockpiled on the No. 6 claim, it is possible that there are a few tens of tons of 2 percent ore remaining in the claim area. There is no basis, however, either in exposed mineralization or in the known geology of the deposit, for estimating reserves.

CONCLUSIONS AND RECOMMENDATIONS

The copper mineralization on the Copper Valley claims is distributed sporadically in deposits that generally do not contain more than a few tons. The geology of the claim area is such that improvement of the deposits with depth is not expected. In view of these facts we recommend that the request for DMEA participation in exploration be denied.

DMEA
Date Rec'd
JAN 27 1956

RECEIVED
JAN 30 1956

BUREAU OF MINES
Denver, Colorado

January 26, 1956

Docket

Memorandum

To: W. R. Storms

From: Superintendent, Denver Experiment Station, Reg. III

Subject: Docket DMEA 4116 (Copper), H. C. Kern and Leo Daffern, Copper Valley claims, Pima County, Arizona

The subject application in the amount of $45,250.00 is enclosed.

A field examination and suitable report are required. The completed report should be sent directly to the Executive Officer with a copy of the memorandum of transmittal to this office.

JOHN F. SHAW

John F. Shaw

Enclosures

cc: W. M. Traver (3)
E. N. Harshman
J. W. Faick
Sec. Op. Com (2)

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

RECEIVED
JAN 26 1956

January 24, 1956

Betty

224 New Customhouse
Denver 2, Colorado

Docket

Memorandum

To: J. F. Shaw (With brochure)
J. N. Faick

From: Executive Officer, DMEA Field Team, Region III

Subject: Docket DMEA 4116 (Copper), H. C. Kern and Leo Daffern, Copper Valley claims, Pima County, Arizona

Enclosed is the subject application in the amount of $45,250.00. A field examination and suitable report are requested.

The enclosed copy of a letter from the Chairman of the Operating Committee dated January 20, 1956 and attached memoranda of review by the Commodity members point out meager information submitted by the applicants, and we believe that only through the benefit of a field examination will we be able to obtain the necessary factual data.

In the event that you recommend an exploration project on this property, will you please determine if the applicants are the owners of these mining claims by right of location and if there are any liens or encumbrances on these claims.

W. M. TRAVER,

W. M. Traver

Enclosures

HMC:ab

cc: Sec. Op. Comm. (2)
Docket 4116
Harshman
Chron.

File Copy
Surname
Alt
Selfridge
JWAlt

UNITED STATES 500
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

JAN 20 1956

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

Re: Docket No. DMEA-4116 (Copper)
H. C. Karn and Leo Daffern
Copper Valley Claims
Pima County, Arizona

Dear Mr. Traver:

The cited application for exploration assistance is being referred to your office for consideration, a field examination of the property if warranted, and recommendation.

We realize that the information contained in the application is very meager, but in this particular case we believe it best that the field contact the applicants for further additional data if necessary.

Copies of memoranda dated January 11, 1956, by N. E. Nelson, Geological Survey, and J. W. Pennington, Bureau of Mines, relating to the project are enclosed for your information.

Sincerely yours,

George C. Selfridge
Chairman, Operating Committee (JWB)

Enclosures

JWAlt/bjl (rewritten 1/20/56)

APPROVED:

/s/ Robert W. Geehan (JWB)
Member, Bureau of Mines

Thor H. Kiilsgaard (JWB)
Member, Geological Survey

Copy to: Docket
Admr. R. File
Op. Committee
Base Metals
Mr. Pennington
Mr. Kiilsgaard
Chron.

FileCopy
Surname

All
Brownell
Graham
Kilsgaard
Selfridge
Johnson

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

JAN 20 1956

Mr. H. C. Kern
Box 296
Ajo, Arizona

Re: Docket No. DMEA-4116 (Copper)
H. C. Kern and Leo Daffern
Copper Valley Claims
Pima County, Arizona

Dear Mr. Kern:

Your application for Government assistance to explore the cited property has been reviewed by the Base Metals Division of the Defense Minerals Exploration Administration and has been referred to:

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

If the Field Team requires additional information concerning your application, they will contact you at an early date.

Sincerely yours,

J. O. Kinnear
(by 257)
Administrator

JWAlt/bjl (1/19/56)

Copy to: Docket
Admr. R. File
Op. Committee
Base Metals
Mr. Pennington
Mr. Kiilsgaard
Region III (2)
Chron.

R.G.S.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

RECEIVED
JAN 11 1956

January 11, 1956

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: J. W. Pennington, Branch of Base Metals

Subject: Review of application, Docket No. DMEA 4116 (copper)
H. C. Kern and Leo Daffern, Copper Valley Mining Claims,
Pima County, Arizona, $45,250.00

The applicant proposes to explore this property by approximately 6,600 feet of core drilling at an estimated cost of $45,250.00.

However, he has not furnished sufficient information to evaluate the proposal. No data are given on the area represented by the sampling, the geologic structure of the property, the justification of the drilling locations and similar pertinent information.

Either the applicant should provide the necessary data or a Field Team examination should be made of the property. I believe that the applicant should provide the required information.

The area appears too favorable to deny the application and I recommend that sufficient information be obtained either from the applicant or from a Field Team examination.

J. W. Pennington

Copy to: Division of Minerals
Branch of Base Metals
J. W. Pennington
R. W. Geehan
Thor Kiilsgaard, U.S.G.S.
F i l e s

RECEIVED
JAN 11 1956

January 11, 1956

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: J. W. Pennington, Branch of Base Metals

Subject: Review of application, Contract No. DMEA 4126 (copper)
E. E. Kern and Lee Bufkin, Copper Valley Mining Claims,
Pima County, Arizona, $45,250.00

The applicant proposes to explore this property by approximately 6,500 feet of core drilling at an estimated cost of $45,250.00.

However, he has not furnished sufficient information to evaluate the proposal. No data are given on the area represented by the sampling, the geologic structure of the property, the justification of the drilling locations and similar pertinent information.

Either the applicant should provide the necessary data or a Field Team examination should be made of the property. I believe that the applicant should provide the required information.

The area appears too favorable to deny the application and I recommend that sufficient information be obtained either from the applicant or from a Field Team examination.

J. W. Pennington

J. W. Pennington

JWPennington/vr

Copy to: Division of Minerals
Branch of Base Metals
J. W. Pennington
E. W. Shaber
Thor Kilingsmo, U.S.G.S.
Files

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

RECEIVED
JAN 12 1956

January 11, 1956

Re: DMEA 4116
H. C. Kern and Leo Daffern
Copper Valley claims
Pima Co., Arizona
$45,250.00 - Copper

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of application.

The applicants request assistance in diamond drilling a group of claims underlain by copper-bearing schist. The group consists of 14 claims on all of which there is claimed to be at least one surface showing of copper minerals, and from one of the showings a small shipment, 12 tons, was made.

As outlined, holes would be drilled on all claims at the surface showings. The total drilling would total 6,600 feet at an estimated cost of $6.25 per foot, or $41,250.00. The cost of engineers' services, assays, etc., is estimated at $4,000.00.

The brief application fails to identify the property, but the location given and the mention of schist place it 4½ miles northwest of the New Cornelia pit, and the schist in which the copper occurs is probably Cardigan gneiss. James Gilluly, 1946, The Aho Mining District, U.S.G.S. Professional Paper 209, makes no mention of prospects in that rock and does not recommend the areas underlain by the gneiss for prospecting. He does say, " . . . It (Cardigan gneiss) is perhaps the least resistant to erosion of the bedrock formations and, on the whole, is the least well exposed."

A field examination is suggested. Referral to the Field Team is recommended.

N. E. Nelson

N. E. Nelson

IN REPLY REFER TO:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

RECEIVED
JAN 12 1956

January 11, 1956

Re: DMEA 4116
H. C. Kern and Leo Daffern
Copper Valley claims
Pima Co., Arizona
$45,250.00 - Copper

Memorandum

To: W. R. Griswold, Defense Minerals Exploration Administration

From: N. E. Nelson, U. S. Geological Survey

Subject: Review of application.

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A field examination is suggested. Referral to the Field Team is recommended.

N. E. Nelson

N. E. Nelson

NENelson:iml
G-1/11/56
cc: Director's reading, 4212
Branch reading, 4212
DMEA (3)
Docket file
H. M. Meyer, 3623

January 10, 1956
Subject: DMEA-4116
Re: Exploration Assistance
Copper Valley Claims

Mr. H. C. Kern
Box 296
Ajo, Arizona

My dear Mr. Kern:

The receipt of your application dated January 4, 1956, for exploration assistance under the Defense Production Act of 1950, as amended, is hereby acknowledged.

Your application has been assigned Docket Number DMEA-4116 and referred to the Base Metals Division.

Kindly identify all future correspondence relating to your application by this docket number.

Sincerely yours,

Robert E. Adams, Chief
Operations Control and
Statistics Division

January 10, 1956

Memorandum

To: Executive Officer, DMEA Field Team, Region III

From: Chief, Operation's Control and Statistics Division

Subject: Assignment of Docket Number

There is listed below the assigned docket number to an application recently received from Region III

DMEA - H. C. Kern & Leo Daffern - DMEA-4116

Robert E. Adams
Chief, Operation's Control
and Statistics Division

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

January 6, 1956

224 New Customhouse
Denver 2, Colorado

Memorandum

To: Secretary to the Operating Committee, DMEA

From: Executive Officer, DMEA Field Team, Region III

Subject: Application for DMEA Aid (Copper), H. C. Kern and Leo Daffern, Copper Valley Claims, Pima County, Arizona

Enclosed are three copies of the subject application in the amount of $45,250.00. One copy of the application is being retained in our files.

W. M. Traver

W. M. Traver

Enclosures

RECEIVED
JAN 9 1956

DMEA
Date Rec'd.
JAN 9 1956

MF-103
(Revised April 1952)

UNITED STATES DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

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

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-4116
Metal or Mineral Copper
Date Received 1-9-56
Estimated Cost $45,250.00
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:

H.C.KERN BOX 296 AJO, ARIZONA

LEO DAFFERN GEN DEL AJO, ARIZONA.

(*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 Portion Sec 12-13., T 12 S., R 7W
Copper Valey mining claims No 1 to 14as recorded in book 856
page 431 to 444, record of mines, Tucson, pima co., Ariz.,

(*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
Mining claims

(*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.

RECEIVED
JAN 9 1956

16—66551-1

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

(*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 15 days and be completed within 12 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)? Yes

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

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

Explain in detail on acompanying paper.

CERTIFICATION

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

Dated Jan 4, 1956, 195__

Hetrn (Applicant)

By Hetrn

H.C.KERN

Leo Daffern

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

A. V. HERR LABORATORY

ASSAYERS AND CHEMISTS
SINCE 1902
LABORATORY 5176 HOLLYWOOD BLVD. PHONE NO. 4-5052

CERTIFICATE **No** 16446

HOLLYWOOD 27, CALIFORNIA, Sept, 12, 1955

WE HEREBY CERTIFY THAT THE SAMPLES ASSAYED FOR Mr. A.A. Studler (H.C.Kern)
GAVE THE FOLLOWING RESULTS:

OWNER'S MARK	GOLD Oz. PER TON	SILVER Oz. PER TON	Copper					VALUE PER TON
4-19-55 E. Mine, Big Sack, ---	0.01	2.30	0.07%	1				$2.42
Feet Wall, --	trace	0.30	0.05%	2				$0.27
Hanging Wall,-	0.01	0.20						$0.53
			2.8%	6				$16.80
Main Ledge, --	0.17	0.50						$6.40
			1.0%	3				$6.00
Dump, ---------	trace	0.30						$0.27
			2.6%	5				$15.60
Small Vein,----	0.01	0.30						$0.62
			3.1%	6				$18.00
5.24.55 No Mark, ------	trace	2.40						$2.16
			3.5%	7				$21.00
6.9.55 #1, ----------	0.03	0.70						$1.68
			trace	8				----
#2, ----------	0.02	0.30						$1.07
			trace					----
#6, ----------	0.01	0.30						$0.62
			trace					----
#7, ----------	0.01	0.20						$0.53
			0.06%	4				----
#8, ----------	0.02	0.30						$0.97
			65.7%	6				$394.20

GOLD @ $ 35.00 PER OZ.

SILVER @ $ .90 PER OZ. CHARGES $ Pd.

ASSAYER

Copper $0.30 lb

ADDENDUM TO APPLICATION

(4) a- All necessary discovery work has been done on these claims, with assay reports ranging from .6 to 3.5% Copper, from a trace to 0.17 oz gold per ton and o.20 to 2.40 silver per ton. one pocket of ore of approximately 500 # assayed 65.7 % copper. there are approximately 50 ton ore on the dump of #6 claim., 12 ton were sold to the Phelps Dodge smelter in Ajo., which assayed 2.1o copper, and 62% silica, for which we were penalized. a road is built to the mining property.

c- The claimd lie in a valley, against the foothills of the range now being operated by Phelps Dodge Corp., Schist formation, heavy with silica,the copper outcroppings are on the surface, and I would like to core drill this property as I believe it will develope into a large open pit mining operation.

d -a graded dirt road goes directly on the property which is 4 miles from Ajo, Ariz.

e - All man power, supplies and materials are available in Ajo.

(5) b- It is my desire to core drill at various places as indicated on the enclosed map, at depths up to 300 feet if the core assays warrant it as the work progresses

d- I have had considerable experience in mining in Calif., also core drilling., and intend to employ a co mpetant engineer as the work progresses.

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ESTIMATE OF COST.

(A)

NONE

There is a total of approximately 6600 feet of core drilling in this project with an estimated cost of $6.25 per foot. this price to includ replacement of Bortz bits, steel, water hauling, drill operator, helper, moving from site to site, and caretaker. -$41,250.00

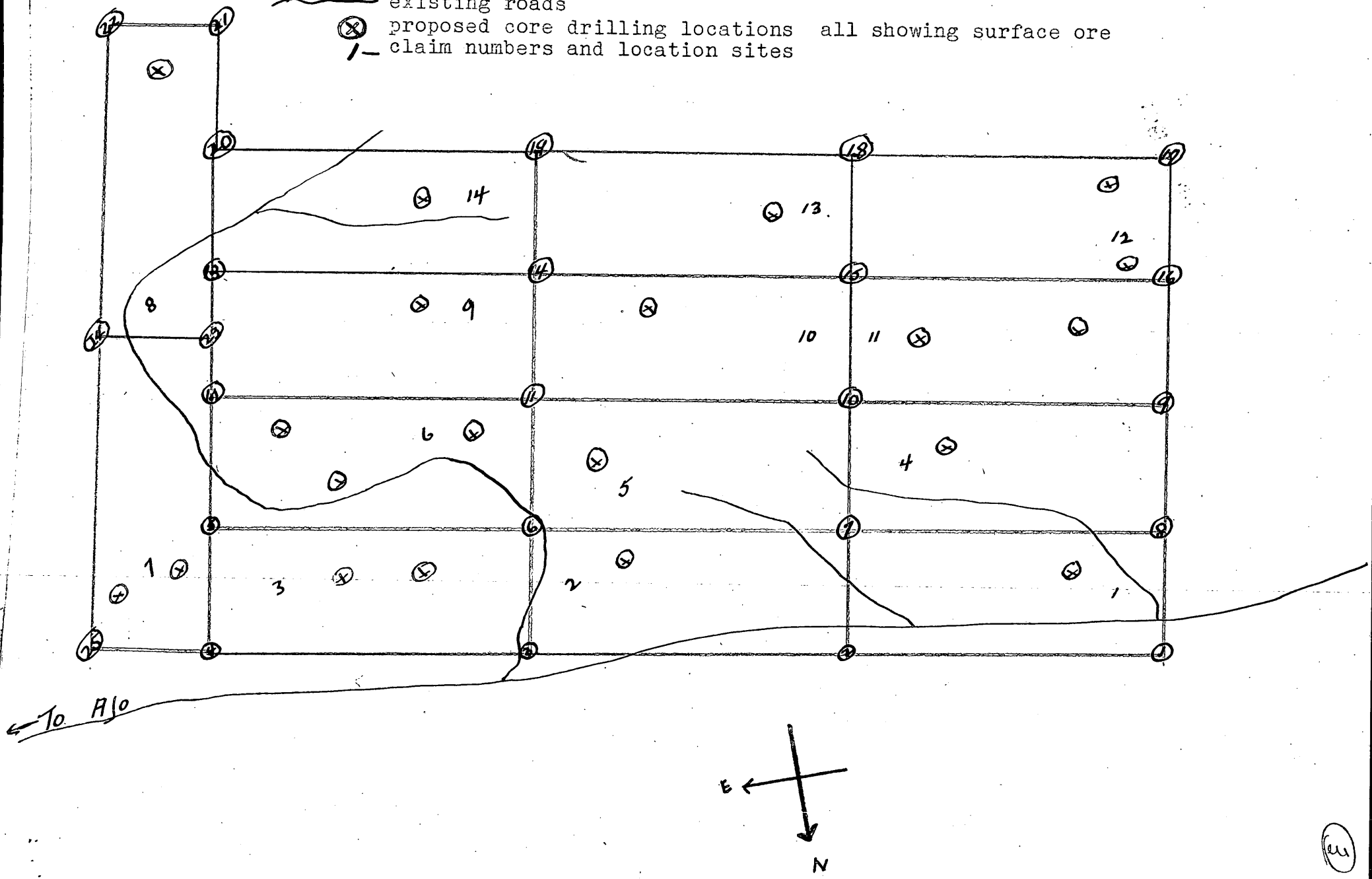
(B) Engineers services, assays, 4.000.00

$ 45.250.00

Legend:

(1)—Claim corners, 4x4 post, numbered with metal marker

existing roads

⊗ proposed core drilling locations all showing surface ore

1— claim numbers and location sites