August 13, 1952

Memorandum

To: Executive Secretary, Defense Minerals Administration

From: DMA Field Team, Region IV

Subject: DMA Docket L2145, Scorpio Junior Copper Project, Twin Buttes (Pima) Mining District, Pima County, Arizona

Enclosed are the brochure and original and two copies of the report on the above docket.

We concur with the committee team and recommend that the application for a loan of $10,000 be denied.

J. E. Burk, Jr.

A. H. Koschmann

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

224 NEW CUSTOMHOUSE
DENVER 2, COLORADO

August 13, 1951

Memorandum

To: DMA Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: DMA Docket 1310X, Scorpio Annex Copper Project, Twin Buttes (Pima) Mining District, Pima County, Arizona

We concur with the examining team in recommending a denial of the above application for a loan of $10,000.

Paul T. Allsman

Paul T. Allsman

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Arizona-New Mexico Branch
[redacted]
Box 4097
UNIVERSITY STATION

MINING DIVISION
REGION IV

Mining Division
Date Rec'd.
AUG 9 1951
BUREAU OF MINES
Denver, Colorado

TUCSON, ARIZONA

August 6, 1951

Memorandum

To: Paul T. Allsman, Denver, Colorado

From: Chief, Arizona-New Mexico Br., Mining Div., Region IV

Subject: Final Report, DMA Docket 1310X, Scorpio Annex Copper Project, Twin Buttes (Pima) Mining District, Pima County, Ariz.

Enclosed are original and 7 copies of the section on Summary, Conclusions and Recommendations by John N. Faick of the Geological Survey and Grant R. Rubly of the Bureau of Mines, and the section on Engineering by Rubly. The brochure for this docket also is inclosed.

The report has my approval.

Walter R. Storms

Walter R. Storms

CC P.T. Allsman (7)
C. A. Anderson
DMA 1310X
DF

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Defense Minerals Administration
200 New Customhouse
Denver 2, Colorado

August 9, 1951

Memorandum

To: DMA Field Team, Region IV

From: A. H. Koschmann

Subject: DMA Docket 1310X, Scorpio Annex Claim (Gus Gavin), Twin Buttes District, Pima County, Arizona

Enclosed are the original and 7 copies of the geologic report by J. N. Faick of the Geological Survey covering the above docket.

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

Enclosures (8)

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

August 6, 1951

Memorandum

To: Mr. A. H. Koschmann, Denver, Colorado

From: Mr. A. F. Shride, Tucson, Arizona

Subject: Geologic Report, DMA 1310X, Scorpio Annex Claim (Gus Gavin), Twin Buttes District, Pima County, Arizona

Enclosed are the original and 7 copies of the above report by J. N. Faick of the Geological Survey. This report and the recommendations that an exploration loan be denied, because of the geologic improbability of finding ore, have my approval.

A. F. Shride

A. F. Shride
Acting District Supervisor
Arizona-New Mexico

Enclosures 8

AUG 1951
RECEIVED
U.S. Geological Survey
Mineral Deposits Branch
Denver

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

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMA-1310X, Scorpio Annex, Copper Project

Twin Buttes (Pima) Mining District

Pima County, Arizona

John N. Faick, Geologist
U. S. Geological Survey

Grant R. Rubly, Mining Engineer
U. S. Bureau of Mines

August 1951

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

By John N. Faick[1] and Grant R. Rubly[2]

On May 19, 1951, Gus Gavin filed an application for aid with the Defense Minerals Administration in the amount of $10,000 for an exploration loan pursuant to Mineral Order 5 under the Defense Production Act of 1950. This application, as DMA Docket 1310X, was reviewed and referred to the Fueld Team of Region IV for further investigation. The applicant proposed to sink a shaft and crosscut limestone beds in search of a copper-zinc deposit on the Scorpio Annex Claim.

Limestone beds, dipping about 60° to the north, crop out on the Scorpio Annex Claim. The limestone has been altered to white marble. Very small cross-breaks occur in this limestone, and some iron and manganese minerals are present in small quantities. Garnet zones, which seem to be normally associated with the productive zones of the Twin Buttes area, are lacking.

A 30-foot shaft on the Scorpio Annex Claim, a trench exposing steeply tilted limestone beds on the Well No. 2 Claim, and a 400-foot churn drill hole on the Well Claim, together with some location holes, represent the extent of the work done on the property.

The possibility of finding ore in this area is very remote as geologic conditions are very unfavorable.

It is recommended that the loan be denied.

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

Geology

SCORPIO ANNEX CLAIM, COPPER PROJECT
TWIN BUTTES MINING DISTRICT
PIMA COUNTY, ARIZONA

Geology

By John N. Faick
Geologist, U. S. Geological Survey

SCORPIO ANNEX CLAIM, COPPER PROJECT
TWIN BUTTES MINING DISTRICT
PIMA COUNTY, ARIZONA

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INTRODUCTION

The Scorpio Annex claim, for which Mr. Gus Gavin made application for an exploration loan, is in the Twin Buttes district located on the east side of the Sierrita Mountains about 30 miles south of Tucson. This area has been the subject of three short papers listed below:

Twin Buttes Camp, Pima County, Arizona: War Minerals Report 47, 1943

Wilson, Eldred D., Pima District: Univ. Ariz., Ariz. Bur. Mines Bull. No. 31, pp. 39-50, 1950.

Cummings, J. B. and Romslo, T. D., Investigation of Twin Buttes Copper Mines, Pima County, Arizona: U. S. Bureau of Mines R. I. 4732, 1950.

In addition to these brief papers which have been very useful, there is in the office of the Arizona Bureau of Mines an excellent geologic map of the area prepared by Eldred Wilson, Geologist of the Arizona Bureau of Mines. This map proved to be valuable in making the examination and in preparing this report.

GENERAL GEOLOGY

In the Twin Buttes area a thick series of sediments have been folded, faulted, and intruded by granitic igneous rocks. The sedimentary rocks represent nearly all of the Paleozoic, with the exception of those of the Ordovician and Silurian which are not present. These formations are overlain by Upper Cretaceous sedimentary beds and volcanics. The formations of greatest importance to this investigation are the Devonian Martin limestone, Mississippian Escabrosa limestone and the Pennsylvanian Naco limestones.

The principal host rocks for ore in the Twin Buttes area appear to be the Escabrosa and Naco limestones. The Escabrosa formation is a

massive, granular, relatively pure, light gray to white limestone reported to be about 375 feet thick. This formation is overlain with the Naco limestone; a thin bedded cherty limestone interstratified with thin shale. This formation is about 1300 feet thick at Twin Buttes.

The structure of the Twin Buttes area is exceedingly complex. The Paleozoic limestone formations are folded into tight isoclinal folds that strike about N. 60° W. and dip between 45 and 80 degrees to the northeast. This structure has been further complicated by low-angle faults and by steeply dipping faults in northeasterly, northwesterly, and easterly trending systems.

The folded strata have been intruded by coarse-textured igneous rocks ranging in composition from granite to quartz monzonite and granodiorite. These granitic rocks underlie a very large part of the Sierrita Mountains west of the Twin Buttes district and are found at several places within the district. Intrusion of the granite has caused widespread metamorphism of the sediments, resulting principally in the forming of great quantities of garnet along the contacts. The ores of the district apparently are genetically related to the granitic intrusion and associated metamorphism.

ORE OCCURRENCE

There are many small mines in the district, and contact metamorphic, limestone replacement deposits, and vein types of deposits are represented. The contact metamorphic type deposit is most common and several mines in the vicinity have exploited this type of ore. The ores are dominantly copper, but in some mines zinc is important. The ore minerals are chalcopyrite and sphalerite, and these usually occur on the limestone side of massive garnet that commonly lies along the contact between the limestone and granite. No important ore bodies

have been discovered at the surface, and these developed were discovered by sinking on small fissure veins to the contact zone. The ores are most commonly associated with faults and fractures of the northeast and east systems. Small fissures that intersect the contact and cut the limestones appear to have been controlling factors in ore deposition.

The Minnie, Copper Butte, Copper King, Copper Queen, Copper Glance, and Copper Bullion deposits are of the contact metamorphic type and are along a single contact about 1000 feet north of the Gavin prospect. They lie along the north side of an east-west ridge that is thought to be completely surrounded by granite. The claims containing these mines lie end to end, their sidelines roughly parallel a nearly east-west segment of the granite-limestone contact that is about 8000 feet long. The position of this contact has been determined underground at intervals for about 6000 feet and was found to dip steeply to the south.

THE GAVIN PROSPECT

The Gavin prospect lies about 1000 feet south of the mineralized east-west contact zone mentioned above. The prospect is completely outside of the contact zone along which the known ore bodies are localized. The prospect is in massive to thick-bedded, coarse crystalline, light gray and white limestone. The prospect where Gavin proposes to do his exploration work has been opened by a vertical shaft 30 feet deep in limestone. Near the collar of the shaft a very narrow fracture dips steeply to the south. A small amount of iron and manganese stain is localized along this fracture. It was this small iron and manganese stained fracture that encouraged Gavin to sink the shaft, and he was unduly influenced by the fact that the important ore bodies of the

district did not crop out, but were found by sinking on small mineralized fractures near the granite-limestone contact. Gavin is of the opinion that he might find ore by the same method, i.e. by sinking and crosscutting. This is a very unlikely possibility, however, because the prospect is not near a favorable contact.

At the Gavin prospect the formations strike N. 70° W. and dip 60° NE. The limestone has appreciable thickness and the contact with the granite which is thought to underlie the area must be at a depth of at least several hundred feet. This is partly substantiated by a 400 feet churn drill hole that was drilled 200 or 300 feet south of the prospect and found only unaltered limestone extending to that depth. About 500 feet southeast of this prospect is a small trench that exposed some copper stained thin-bedded limestones. This is about the only mineralization of any importance exposed on Gavin's Scorpio-Well group of claims, and it is doubtful if this occurrence of mineralization justifies exploration. The mineralization is weak, and Gavin is not interested in exploring this area.

CONCLUSIONS

Gavin's prospect on the Scorpio Annex claim lies about 1000 feet south of the mineralized contact along which is located several formerly productive min es including the Copper Queen, Copper Glance and other mines. The prospect is on a narrow, steeply dipping fracture containing manganese and iron stain in a massive barren limestone. There is no ore exposed at the mine and no geological reason to expect any. It is therefore recommended that the application for a loan be denied.

SCORPIO ANNEX COPPER PROJECT
TWIN BUTTES (PIMA) MINING DISTRICT
PIMA COUNTY, ARIZONA
RMA DOCKET 1310X

Engineering Report

By Grant R. Rubly
Mining Engineer
U.S. Bureau of Mines

August 1951

Engineering

SCORPIO ANNEX COPPER PROJECT
TWIN BUTTES(PIMA)MINING DISTRICT
PIMA COUNTY, ARIZONA
DMA DOCKET 1310X

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Engineering report

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INTRODUCTION

On May 19, 1951, Gus Gavin filed an application for aid with the Defense Minerals Administration for an exploration loan pursuant to Mineral Order 5 under the Defense Production Act of 1950. This application, as DMA Docket 1310X, was reviewed, then referred to the Defense Minerals Administration Field Team of Region IV for further investigation.

The applicant requested aid amounting to $10,000 to cover cost of exploring for copper and zinc ores on the Scorpio Annex Claim of the Scorpio-Well group of claims in the Twin Buttes District, (Pima Mining District), Pima County, Arizona. The proposed work comprises sinking and cross cutting to delimit copper-zinc ore which occurs on the surface.

Since this is a copper-zinc project the costs would be shared on a 50-50 basis by the applicant and the Government.

ACKNOWLEDGEMENTS

The examining engineers are indebted to Gus Gavin for his assistance and the courtesies which he extended during the examination.

LOCATION, TOPOGRAPHY AND CLIMATE

The Scorpio-Well group of claims is in the Twin Buttes district, a part of the Pima Mining District, 28 miles south of Tucson, Arizona. A graded road about nine miles in length connects the claims with Sahuarita. Sahuarita is on the Nogales branch of the Southern Pacific Railroad, and on paved highway U.S. 89 (Fig. 1).

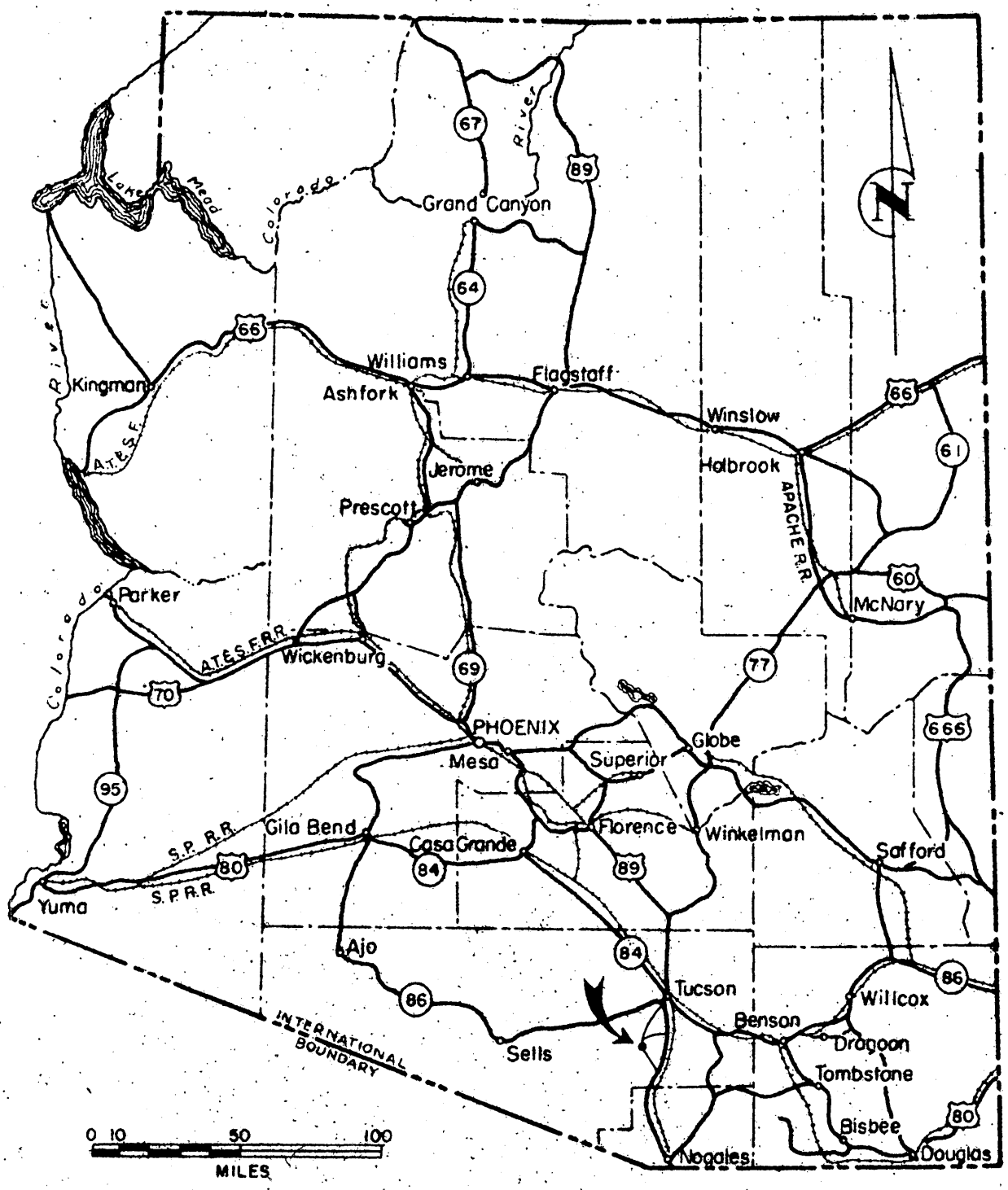

FIG. 1 – LOCATION MAP
SCORPIO ANNEX GROUP
TWIN BUTTES DISTRICT
PIMA COUNTY, ARIZONA

DMA 1310 X AUG 1951

The Scorpio-Well group of claims lies just south and adjacent to the Copper Queen and Copper Glance mines of the Twin Buttes claims.[1] The Twin Buttes mines are credited with a production of over 48,000,000 pounds of copper.

Topographic relief is not great. The altitude is about 3,500 feet. The climate is characteristic of Southern Arizona, with hot summers and mild winters. Vegetation is of the desert variety. Water is obtained from three old prospect shafts in the Twin Buttes area and from deep wells on the Gavin Homestead.

HISTORY

The first mining claims in the district are said to have been located in 1876. The Scorpio-Well group of claims has been held by Gavin for over twenty years. There has been no production of any kind from these claims.

OWNERSHIP AND EXTENT

The 10 lode mining claims comprising the Scorpio-Well group are held by location by the applicant and lie within his homestead. There is considerable over-lapping of claims. The Scorpio Annex is not a full sized claim.

DESCRIPTION OF DEPOSITS

The Scorpio Annex claim, on which the Gavin prospect is located, lies about 1,000 feet south of the Copper Queen mine. The prospect is on a narrow, steeply dipping fracture in massive limestone on

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1/ Cummings, Jos. B. & Romslo, T.M., Investigation of Twin Buttes Copper Mines, Pima County, Arizona, Bur. of Mines. Report of Investigations 4732.

which are localized thin films of iron and manganese oxides. These oxides are reported to assay about one percent copper, although no copper could be seen. No ore is exposed at the prospect, and there is no geological reason to expect any as tactite zones with which most of the ore in this locality are associated are absent on the Scorpio Annex Claim.

ORE RESERVES

There are no ore reserves, measured, indicated or inferred.

PRESENT STATUS

A 30-foot shaft was sunk on the Scorpio Annex claims for assessment work, and a slightly mineralized zone in the limestone was opened. However, mineralization does not continue to depth. The assay of a sample taken in 1945 showed 1.2 per cent copper and no zinc. The copper is probably in the form of cuprite with hematite, as no staining is visible. A trench about 50 feet long has been dug through a couple of feet of valley fill. This trench exposes steeply dipping shaly limestones, with a little copper staining.

On the Well claim, a churn drill hole some 400 feet deep was sunk to prospect for water. The hole is reported to have been in limestone at that depth. No water was found.

The work noted above, along with a few location holes, represents the extent of any exploration done thus far on these claims.

PROPOSED EXPLORATION PROGRAM

The applicant proposed to sink the shaft on the Scorpio Annex claim for another 70 feet or more, and then do some crosscutting through the limestone beds. In view of the fact that there is no geologic evidence to indicate that any mineralization may be found, such work would be a waste of money. The applicant still is faced

with annual assessment work in order to hold the claims so he may do some of this sinking himself.

PROPOSED FINANCING

The applicant is financially able and willing to conduct an exploration program.

CONCLUSIONS

Since geologic evidence is such that probably no orebodies will be found by exploration in this area, any money spent in additional shaft sinking would be wasted. The same conclusions would apply to a proposed diamond drilling program.

RECOMMENDATIONS

It is recommended that the loan for exploration be denied because geological conditions are entirely unfavorable.