UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

OFFICE OF
REGIONAL DIRECTOR

REGION IV

224 NEW CUSTOMHOUSE
DENVER 2, COLORADO

August 1, 1952

Memorandum

To: Landen Strobel, Executive Secretary
Defense Minerals Administration

From: DMA Field Team, Region IV

Subject: DMA Docket 260, F. D. Hesse, McMahon and Victory Copper Claims, Yavapai County, Arizona

We are forwarding herewith original and two copies of the above report on Docket 260.

We concur with the examining team and recommend that the application be denied.

The brochure is returned herewith.

F. T. Allman, Alternate

A. H. Koschmann

A. H. Koschmann

Enclosures
One copy by Air Mail
Two copies by Regular Mail

ld
cc: DMA

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

Mining Division
Region IV

224 NEW CUSTOMHOUSE
DENVER 2, COLORADO

August 1, 1951

Memorandum

To: DMA Field Team, Region IV

From: Chief, Mining Division, Region IV

Subject: DMA Docket 260, P. D. Hesse, McMahon and Victory Copper Claims, Yavapai County, Arizona

The examining team recommends denial of the application in the subject docket for a development loan of $250,000, due to inadequacy of the reserves, with which we concur.

The applicant is financially unable to participate in an exploration project.

P. T. Allsman

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

200 New Customhouse
Denver 2, Colorado

July 30, 1951

Memorandum

To: DMA Field Team, Region IV

From: A. H. Koschmann

Subject: Geologic Report, DMA Docket 260, P. D. Hesse Copper Property, Yavapai County, Arizona

Enclosed are the original and 7 copies of the above report by C. A. Anderson.

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

July 23, 1951

Registered Mail
Return Receipt Requested

Memorandum

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

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

Subject: Geologic Report, DMA Docket 260, P. D. Hesse Copper Property, Yavapai County, Arizona

Enclosed are the original and 7 copies of the above report by C. A. Anderson. This report and the recommendation that a production loan be denied because known reserves are small have our approval. An exploration loan cannot be recommended because the indications of mineralization are not promising; also the applicant is not financially able to participate in an exploration program.

A. F. Shride

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

Enclosures 8

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

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

TUCSON, ARIZONA

Mining Division
Field,
JUL 26 1951
BUREAU OF MINES
Denver, Colorado

July 20, 1951

Memorandum

To : Paul T. Allsman, Denver, Colorado

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

Subject : Final Report, DMA Docket 260, P. D. Hesse's Copper Property, Yavapai County, Ariz.

Enclosed are original and 7 copies of the section on Summary, Conclusions and Recommendations by L. A. Stewart of the Bureau of Mines and C. A. Anderson of the Geological Survey, and the Engineering Report by Stewart on the above property.

This report has my approval.

Walter R. Storms

Walter R. Storms

CC P. T. Allsman (7)
C. A. Anderson
DMA 260
DF

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

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
REGION IV

DMA-260, P. D. Hesse's Copper Property

Yavapai County, Ariz.

Lincoln A. Stewart
U. S. Bureau of Mines

C. A. Anderson
U. S. Geological Survey

July 1951

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

By Lincoln A. Stewart[1] and C. A. Anderson[2]

On December 15, 1951, F. D. Hesse made application to the Defense Minerals Administration (docket 260) for Government assistance to increase production of copper from the McMahan group of claims in Yavapai County, Ariz. The Operating Committee of DMA, by letter of February 6, 1951, requested the Field Team of Region IV to have an examination made of this property. On February 15, before the Tucson DMA office had received the brochure, the Region IV Field Team was informed by the Chief of the Copper Branch to delay field investigation, as the McMahan property had been identified as the Zenia mine on which a trenching and diamond drilling project had been done by the Bureau of Mines late in 1942. Further study of the application resulted in a rejection of the loan on February 19, 1951.

By letter of April 18, Hesse stated that he had terminated his purchase agreement with the McMahan interests and that he wished consideration of a similar plan to produce copper from the Victory group to the south of the McMahan group.

On May 17 the Coordinating Committee requested a field examination to be made covering the following points:

1/ Mining Engineer, Bureau of Mines

2/ Geologist, Geological Survey

"1. Has he developed any additional tonnage on the McMahan property since the Bureau of Mines drilled the property in 1940-43 not indicated to Lincoln A. Stewart when he visited the property in December 1950.

"2. Has he developed sufficient tonnage on his claim to justify a mill loan.

"3. Should he submit a request for a 50% Government participation exploratory project. If so, has he the resources for his 50% share."

Also under date of May 17, Hesse requested that all details of Docket 260 be changed from the McMahan group to the Victory group. The original application was for the sum of $250,000, detailed as follows: land acquisition, $50,000; building construction, $20,000; Machinery and equipment $100,000; working capital $80,000.

Lincoln A. Stewart and William T. Griswold, engineers of the Bureau of Mines, and C. A. Andersen of the U. S. Geological Survey, visited the Victory group on July 10 in company with P. D. Hesse and Charles H. Brown.

The deposits on the Victory group are similar to those on the McMahan group and consist of zones of weakly mineralized schist impregnated with malachite, chrysocolla, and minor amounts of azurite. In the late 1920's shallow trenches had been dug across the two mineralized zone by the Hammon Copper Co. Apparently the only work performed by Hesse on the Victory group has been to clean out the longest and best looking trench.

This trench was sampled by the examining team. Two samples across the 27-foot zone of best mineralization averaged 1.50 percent copper; a sample of the remaining 50 feet of trench assayed 0.14 percent.

Owing to the shallow character of the workings no ore reserves can be estimated. The lateral extent and depth of the mineralized rock can be determined only by additional exploration. The applicant was willing, but financially unable, to participate in a 50 percent Government exploratory project. However, the poor surface showings do not indicate that the Victory group is worthy of an exploration project.

It is recommended that the application of P. D. Hesse for financial assistance at the Victory group be denied.

P. D. HERSE COPPER PROPERTY
YAVAPAI COUNTY, ARIZONA

Geology

Geology

By Charles A. Anderson
Geologist, U. S. Geological Survey

P. D. HESSE COPPER PROPERTY
YAVAPAI COUNTY, ARIZONA

CONTENTS

	Page
Geology and Ore Reserves	1
General Geologic Setting	1
Occurrence of Ore	1
Ore Reserves	4
Conclusions	4

ILLUSTRATIONS

Fig. 1 Claim map of the Victory, and adjacent groups — See Engineering Report

GEOLOGY AND ORE RESERVES

GENERAL GEOLOGIC SETTING

The P. D. Hesse property (Victory group of claims) is in a region of pre-Cambrian rocks, consisting of various types of schist and intrusive rocks. The schist is similar to the widespread Yavapai schist, exposed to the east in the Bradshaw Mountains, and diorite and granite are similar to the intrusive rocks in the Bradshaw Mountains.

The higher ridges and peaks in the area of the Victory group, are capped by Tertiary basaltic flows, locally underlain by gravels and sandstone.

OCCURRENCE OF ORE

The copper-bearing rocks on the Victory and adjacent groups of claims is quartz-muscovite schist that was originally quartz porphyry. Relict quartz phenocrysts are well preserved but the groundmass has recrystallized to a foliated aggregate of muscovite and quartz. Quartz porphyry intrusive bodies are common in the pre-Cambrian terrane in Yavapai County, and it is presumed that the quartz porphyry in the Victory group is of intrusive origin.

The foliation in the schistose quartz porphyry strikes N. 30°-35° E. and dips 80° NW on the Victory group. On the McMahon and Zonia groups to the north, the strike of the foliation is more easterly and the dip less steep.1/

1/ Stewart, L. A., Zonia (Gillingham) Copper Group, Yavapai County, Arizona, U. S. Bureau of Mines Report, January, 1951.

The foliated quartz porphyry is cut by random quartz veins, averaging about 1/4 of an inch in width, and ranges from minute veinlets to veins 2 inches wide. Most of the quartz veins transect the foliation, but some are essentially parallel to the foliation. Box work of limonite in the quartz veins indicate that the veins originally contained pyrite and a little chalcopyrite, partly replaced by chalcocite. Presumably the copper was deposited originally as chalcopyrite in these veins.

The only copper minerals that can be observed at the surface are malachite, chrysocolla, and minor amounts of azurite. These minerals coat fracture and foliation planes in the foliated quartz porphyry. Apparently the higher grade copper-bearing rock is localized where the foliation planes are closely spaced.

The mineralized rock forms zones parallel to the foliation and ranging from a few feet to 85 feet in width. Two zones were observed on the Victory group; one in the Victory No. 1 claim and the other in the Victory claim (see Fig. 1). These two zones have been partially explored by shallow trenches but only one trench on the Victory No. 1 claim has been cleaned out recently to expose clearly the oxide copper minerals. This trench reveals that the distribution of the oxide copper minerals is erratic through the mineralized zone.

A shaft, now caved and reported to be 60 feet deep, was sunk along the side line of the Victory claim (Fig. 1). Fresh pyrite and chalcopyrite are present in quartz veinlets on the dump, indicating that at this location, sulfide minerals are fairly close to the surface. This shaft is located near a ravine and is about 150 feet lower elevation than the trenches exposing the oxide copper minerals.

On the Plancha del Cobre claim (Fig. 1) a small amount of high grade oxide ore is exposed along a low dipping fault zone. The ore ranges from 3 inches to a feet in width, and consists largely of black copper pitch ore. Charles H. Brown reported that about 20 tons of hand sorted ore had been shipped, ranging from 10 to 30 percent copper. A vertical fault apparently cuts off the low dipping mineralized zone.

The origin of the oxide copper on the Victory group is presumed to be the same as that on the McMahon and Zonia groups where more extensive exploration has yielded much information.2/ The oxide copper at and near the surface is similar on all three groups of claims. At the McMahon and Zonia groups, the upper 100 to 200 feet of the mineralized zones contains oxide copper, ranging from 1 to 2 percent copper, and below this zone the grade dropped appreciably, and the grade is low in the sulfide zone. The best explanation for the concentration of higher grade oxide copper is that a blanket of secondary chalcocite formed prior to the outpouring of the Tertiary lavas, and subsequent to the uplift and erosion of the lavas, the chalcocite blanket was oxidized to malachite, chrysocolla, and azurite.

By analogy to the deposits on the McMahon and Zonia groups, a similar origin is indicated for the oxidized copper in the mineralized zones on the Victory group. A depth of 100 to 200 feet of oxidized copper minerals can be anticipated, grading downward into a leached and sulfide zone of low grade copper content.

2/ See report by L. A. Stewart and U. S. Bureau of Mines R. I. 4023, Zonia copper mine, Yavapai County, by Charles A. Kunke.

ORE RESERVES

The amount of exploration on the Victory group is too limited to make any estimate of ore reserves. The shallow trenches merely demonstrate the erratic distribution of oxide copper minerals in two mineralized zones. The surface indications are less favorable than the outcrops on the McMahon and Zenia groups where extensive drilling and sampling indicates 350,000 tons of slightly more than 1 percent copper.[3/] There is no indication that a better grade or higher tonnage could be developed on the Victory group. A small tonnage of hand sorted shipping ore may be produced from the Plancha del Cobre claim from the mineralized fault zone, but the amount will probably be inconsequential.

CONCLUSIONS

Exploration is needed to determine the lateral extent and depth of the mineralized zones on the Victory group, but by comparison with the McMahon and Zenia groups, the showings on the Victory group are not sufficiently promising to encourage this exploration. The applicant, F. D. Hesse, is willing but financially unable to participate in a 50 percent Government exploratory program. The request for Government assistance must therefore be denied.

3/ U. S. Bureau of Mines R. I. 4023, Confidential Section.

P. D. HESSE'S COPPER PROPERTY
YAVAPAI COUNTY, ARIZ.
DMA-260

Engineering Report

By Lincoln A. Stewart
Mining Engineer
U. S. Bureau of Mines

July 1951

Engineering

P. D. HESSE'S COPPER PROPERTY
YAVAPAI COUNTY, ARIZ.
BMA-260

CONTENTS

	Page
Engineering Report	
Introduction	1
Location and accessibility	2
Ownership and extent	3
History and production	3
Description of deposits	4
Present status of development and exploration	5
Conclusions and recommendations	6

ILLUSTRATIONS

Figure		Following Page
1	Claim map, Victory and adjacent groups	3

INTRODUCTION

A request for an examination of the McMahan copper property in Yavapai County, Ariz., DMA-260, was received by the Field Team, Region IV, Defense Minerals Administration, about February 8, 1951. Before the request was forwarded to the Tucson office, the field team was requested to delay a field investigation as the McMahan property had been identified as the Zonia mine on which a trenching and diamond drilling project had been done by the Bureau of Mines during the period of November 1942 through January 1943.[1/] Further study of the application resulted in a rejection of the loan by the Copper Commodity Committee of DMA, on Feb. 19, 1951. Upon receipt of the rejection notice, Hesse terminated the purchase agreement with the McMahan interests. He then started a new series of letters to the Defense Minerals Administration in which he stated he had acquired a number of claims to the south of the McMahan group and that these new claims contained more and much better ore. Later he identified the new property as the Victory group and asked consideration of a plan similar to that previously requested for the McMahan group.

On May 17 the Coordinating Committee requested that a field examination be made covering the following points:

"1. Has he developed any additional tonnage on the McMahan property since the Bureau of Mines drilled the property in 1940-43 not indicated to Linceln A. Stewart when he visited the property in December 1950.

1/ Kumke, Chas. A., Zonia Copper Mine, Yavapai County, Ariz., Bureau of Mines Report of Investigation 4023, 1947.

"2. Has he developed sufficient tonnage on his claim to justify a mill loan.

"3. Should he submit a request for a 50% Government participation exploratory project. If so, has he the resources for his 50% share."

Accordingly, on July 10, 1951, Lincoln A. Stewart and W. T. Griswold, engineers of the Bureau of Mines, and C. A. Anderson, geologist, U. S. Geological Survey, examined the Victory group in company with P. D. Hesse and Chas. H. Brown.

The application was for a development loan in the sums of $250,000, detailed only as follows:

Land Acquisition	$50,000
Building construction	20,000
Machinery and equipment	100,000
Working capital	80,000

LOCATION AND ACCESSIBILITY

The Victory group is situated in sec. 14, T. 11 N., R. 4 W., Yavapai County, Arizona. It lies about 8 miles southeast of Kirkland junction which is 22 miles south of Prescott on paved U. S. Highway 89. The road from the highway is fair except of the last mile which is a narrow, steep truck trail.

The property occupies steep ridges and rolling foothills with an average altitude of 4,500 feet. Most of the surface is covered with a light growth of scrub oak, juniper, and mesquite.

The only water available in the immediate area is in the old McMahan shaft on the adjoining property.

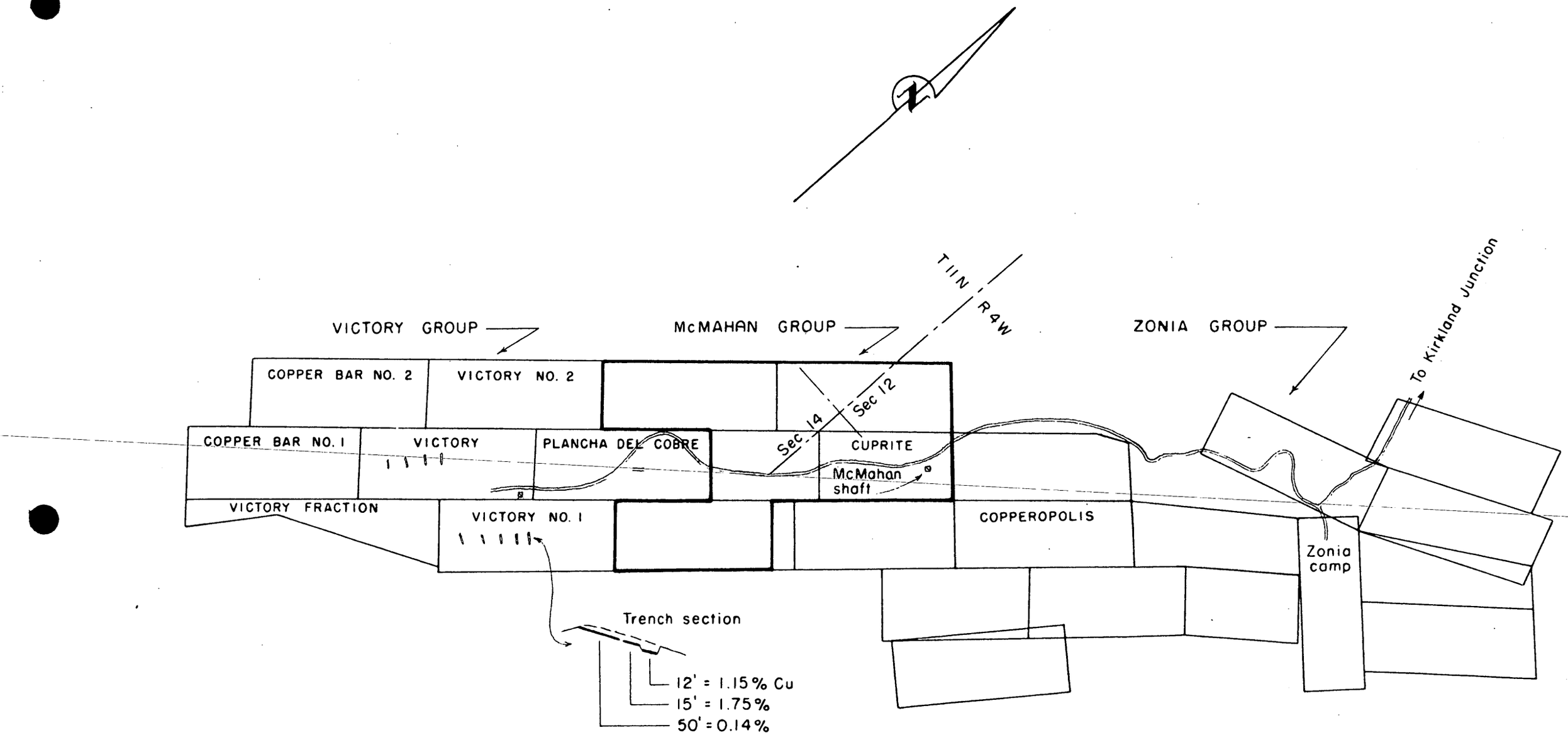
OWNERSHIP AND EXTENT

The Victory group consists of 7 unpatented mining claims, one of which is a fraction. They are a relocation of claims that originally were located about 50 years ago. The present group is owned by P. D. Hesse and Chas. H. Brown. The former is a physical therapist in Prescott and the latter, according to local information, is an indefatigable locator.

HISTORY AND PRODUCTION

The earliest recorded activity in this area, known as the Walnut Grove mining district, occurred during the latter part of 1880-1890 decade. The deepest and most intensely explored deposit is on the Cuprite claim of the McMahan group (figure 1), where over 7,000 feet of workings have been extended in various levels from a shaft 874 feet deep. The Zonia group, adjacent to the McMahan property on the northeast, has been explored to a lesser extent. Very little exploration work has been done on any of the other properties of the district.

Statistics on production from this district prior to 1948 are not available, but it is possible that a few hundred tons, mostly of selectively mined or hand sorted ore, may have been produced. In 1948 a lessee mined and shipped 600 tons of ore that averaged 2.86 percent copper from the 210 level of the McMahan shaft. Hesse furnished smelter sheets that showed he and Brown had sold a total of 78 tons of hand sorted ore, varying from 4 to 15 percent copper, averaging 5 percent, from various trenches on the McMahan property.



Scale 1" = 1000'

Map furnished by P. D. Hesse

Trench locations approximate

DMA DOCKET No. 260

July 1951

Figure 1. - Claim Map, Victory & Adjacent Groups, Yavapai County, Arizona

On the Victory group, there are no workings that would indicate that any appreciable tonnage had been produced. Hesse furnished a settlement sheet showing that 3.4 tons of hand-sorted and cobbed ore from his Plancha del Cobre claim assayed 11.85 percent copper. Brown states that a total of about 20 tons was shipped from this claim. He also said that he had sold a couple of tons from the Victory claim, but a later dump now obscures this location.

DESCRIPTION OF DEPOSITS

In general, the area comprising the Victory group is schistose in character. Two zones of mineralization 15 to 85 feet wide follow the strike of the schistosity. The claims have been laid out parallel to this direction. A mineralized zone outcrops along a ridge on the Victory No. 1, and another shows on the hillside of the Victory claim. These two zones are lightly mineralized with malachite, chrysocolla, and minor amounts of azurite. The minerals are sparsely distributed through the rock in small seams, and more commonly as a stain along fracture planes of the schist.

These zones are similar to, and may be extensions of the zones of mineralization that appear on the McMahan and Zonia groups to the northeast,[2] but are narrower and of lower overall grade.

2/ Stewart, Lincoln A., Bureau of Mines, Supplemental Examination Report on Zonia (Gillingham) Copper Group, Jan. 1951, page 7.

PRESENT STATUS OF DEVELOPMENT AND EXPLORATION

Very little exploration work has been done by the applicant on the Victory group. During the period 1926-1930 the Hammon Copper Co. did extensive surface trenching along the mineralized zones of the district. Five of these old trenches can be seen on the Victory No. 1 and four on the Victory. One of the trenches on the former claim has been cleaned out by the applicant. It is the longest and shows better mineralization than any of the other trenches. Three samples were cut by one of the examining engineers along the north wall near the bottom of the trench. Starting from the west end of the trench, a 1½-foot sample assayed 1.15 percent, the next 15 feet, 1.75 percent, and the remaining 50 feet, 0.14 percent copper.

Other trenches were not sampled for the reason that they were in poor condition to get fair samples. The sides had sloughed or the trenches were partially filled with debris washed in during the 25 years since they had been dug. However, none of the other trenches showed the mineralized zone to be as wide or as good as one trench that was sampled.

The dump of an old, caved shaft near the northeast corner of the Victory claim was examined. The shaft was reported to have been 60 feet deep, put down by "old timers" in search of gold ore. Several pieces of quartz containing small amounts of pyrite and chalcopyrite were found, indicating that the sulfide zone is relatively close to the surface.

A shallow, elongated pit on the Plancha del Cobre claim exposed a quartz stringer associated with a low-angle fault zone. The massive quartz, from 4 to 12 inches in width, contained lenticular bodies of fair ore consisting of chrysocolla, some malachite and azurite, and a black copper oxide. By careful sorting and hand cobbing, a 10 to 30 percent ore was obtained from this cut, but it is not thought that this locality can produce much ore as the low-angle fault zone apparently is cut off by a vertical fault.

CONCLUSIONS AND RECOMMENDATIONS

When Hesse applied for Government assistance on the McMahan mine, a development loan was indicated as there is a block of reserve ore present, shown by mine and surface workings. Bureau trenching, diamond drilling, and mine sampling showed an estimated ore reserve of 350,000 tons of 1.05 percent copper.[3] A later Bureau report has shown that a copper price of above 33 cents per pound would be required to profitably work this deposit.[4] On the basis of these reports the Copper Commodity Committee of DMA rejected the application.

Hesse then asked consideration of a plan for mining ore on the Victory group, similar to that previously requested for the McMahan property. Investigation revealed that the applicant had made no attempt to explore or develop the Victory group. In fact, the basis of claims of large tonnages was predicated on the scant work done

3/ Kumke, Chas. A., Bureau of Mines Report of Investigations 4023, Confidential Section, Zonia Copper Mine, Yavapai County, Ariz.,1947.

4/ Kumke, Chas. A., Bureau of Mines Expansion of Mineral Supply Report, Zonia Copper District, 1950.

years ago by other owners. Surface indications show narrower mineralized zones of lesser length than the explored area of the McMahan property.

Owing to the shallow character of these workings, no ore reserves can be estimated, consequently the application for a development loan was ill-advised.

The examining team explained to Hesse that all elements necessary for a development loan were lacking, and that only additional exploration could determine the lateral extent and depth of the mineralized rock. He stated that he was willing but financially unable to participate in a 50 percent Government exploratory project.

The examining team concurs in the opinion that the poor surface showings of the Victory group indicate that no further consideration be given to this property.

It is, therefore, recommended that the application of P.D. Hesse for Government aid on the Victory group be denied.