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EASTERN AREA REMAPPED IN DETAIL AT 1" = 500'

1" = 2000'

EXPLANATION			
	younger alluvium		1-3% sulfide gooson
	older alluvium		1.3-5% sulfide gooson
	orange alluvium		Fault (dashed where approximate)
	conglomerate		Quartzite Minerals Corp. location
	conglomerate-aggglomerate		Geochem check sample
	quartz feldspar porphyry		Copper oxide
	granite	DRILLING	
	volcanic		Validation hole
	flow breccia		Exploration hole
	lava		Cerro Corp. location
	pyroclastics-tuff		Geochemical Surveys Inc. location
	pyroclastics-aggglomerate		New Jersey Zinc location
	pyroclastics-breccia		Ogilby Norton location
	diabase		D.B.G. Mining Co. location
	pegmatite		Bear Creek Mining Co. location
	schist		Quintana Minerals Corp. location
	gneiss		

RECONNAISSANCE GEOLOGY
(AFTER CERRO CORPORATION)
BLACK MOUNTAIN PROJECT
MOHAVE COUNTY, ARIZONA



John E. Kinnison
Tucson, Arizona

December 18, 1972

John Sandy
Tucson, Arizona

File
Blue
J. J. Durek

Black Mountain Prospect
Photo Interpretation Discussion

Rather than prepare another overlay of the Black Mountain photo as suggested in my memo of 24 November, I will only discuss Durek's interpretation. In general, I think that most of the delineated circular or dome features are not "real." In stereoscopic examination (which I believe was not done in Oakland) most of the "domes" appear as pseudo-domal features caused by joint sets and coincidental drainage.

Specifically, point by point from Durek's memo of 16 November, I offer the following discussion:

- (1) Arcuate schist-gneiss (?) boundary three miles west of the claim group; this is only superficially arcuate. The contact goes under alluvium, and appears to be arcuate, but is actually quite straight in a North-South direction with local zig-zags. Looking at this feature in relation to the surrounding photographs also tends to "straighten" the contact. Therefore, the basic premise that this is the western edge of a large dome is probably erroneous.
- (2) Buried hill to the northeast of the claim area; this may be a "real" rise, or slightly domed area in the alluvium, but, again, in stereo there are many more of these possible rises all along this alluvial slope.
- (3) The circular zone in the south central part of the photo is not "intrusive-looking" in stereo. There are joint sets forming "peaked" ridges in this area and the major set is truncated by a north-flowing drainage net and a west-flowing drainage net giving the appearance of a dome.

The only domes that look "real" are these immediately north and immediately east of the claim group. Of these two, the northerly one, in volcanics, looks the best in stereo.

Color photographs of this area would yield much more information, especially if they were at a good scale of about 1:24,000 or larger. The volcanics would probably be very distinct from the gneisses and shists on color alone, and contacts could be drawn with confidence. If we are seriously considering further work on this prospect, I recommend obtaining large-scale, vertical color photographs.

/fn

J. E. K.

NOV 29 1972

INTER-OFFICE MEMORANDUM

TO
AT

File
Tucson, Arizona

DATE November 27, 1972

FROM John Sandy *J.S.*
AT Tucson, Arizona

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SUBJECT COPPER-ARIZONA
file - Black Mountain Prospect -
Comments

Began a study of the photos. My first impression is that most of the circular features delineated by Durek are not "real", i.e. they are pseudo-anomalies caused by coincidental jointing shadows, drainage patterns, etc. One "real" circular anomaly was not delineated.

I will prepare an overlay with my interpretation of structure to compare with Durek's and write a "discussion" memo.

J. E. K.

DEC 13 1972

*There was a brief discussion on
you suggested -- particularly the lack of
evidence for the "Major dome" with
a western edge centering on the area
east of the main group*

J.E.K.

*Answered with a "discussion memo
27 Dec. 72.*

J.S.

leads. Of passing interest, I noted that an apparently unmineralized limestone ridge had been extensively drilled by Newmont; the basis for this activity is unknown.

2. Gila County, Arizona:

I spent four days on a general reconnaissance in Gila County for purposes of general information. No follow-up is planned.

3. Cochise County:

Mr. Sandy has begun reconnaissance in Cochise County to bring us up to date on activity by other companies in the various mineralized districts, and to review possibilities for KEM activity.

DEFERRED PROJECTS

You and I visited the Cholla Mountain Copper Prospect near Poston Butte, and are in agreement that due to the complex land situation this property should remain on a deferred standing.

The Ajo region, including the Copper Mountain property, was again deferred.

PROPERTY SUBMITTALS

Black Mountain Copper Prospect: Harry Downey, a geologist who has worked on his own for some years, presented a copper prospect in Mohave County, which he has been drilled by six different exploration companies without success. The general tenor of primary mineralization is about .03% Cu and .02% MoS₂. Chalcocite enrichment has been very feeble over most of the deposit. Part of the strong alteration appears to front gravel cover on the east and south, and the zone is covered by post-mineral volcanics on the northwest. Three holes which penetrated the volcanics suggest that the chalcocite zone is there 200-300 feet, grading generally less than .2% Cu. The chalcocite zone is thicker in this direction than elsewhere, and there is a possibility that lateral zoning might be determined by field work. It is permissible to speculate that an area of better primary, and consequently better chalcocite, might be found to the northwest, where volcanic cover has preserved a thickened zone of secondary enrichment. Our initial reconnaissance has confirmed the strong alteration of the zone as a whole, and work will be directed towards the possibility of lateral extensions.

No other submittals were offered.

JJK/zn

J. J. Durek
Oakland, California

September 29, 1972

John E. Kinnison
Tucson, Arizona

File
Blue

Monthly Report -
September 1972

TUCSON OFFICE GENERAL

Mrs. Frances Norman has replaced Brigitta Ludgate as secretary.

CONTINUED ACTIVITIES

1. Maricopa - Mohave Copper Program:

With the exception of a few days, the work in the Vulture region was deferred in favor of other activities.

2. Edwards Property:

Following contact with George Edwards, from whom I secured some new data related to drilling on adjacent ground, his land in the Pima mining district has taken on a different aspect. It appears that a new and relatively unexplored copper center is in the footwall of the San Xavier fault and that this zone probably extends on to the land currently held by Edwards. A report has been forwarded from this office recommending that we proceed with the property unless legal entanglements seem insurmountable. The target would be primary mineralization at considerable depth and exploration by drilling will be expensive.

3. Black Mountain Property:

Mr. Strobel was asked to gather a grid work of samples for geo-chemical analysis, and for classification, by Mr. Richardson and myself. Review and synthesis of data available--principally old drill holes--is complete, and a report is in preparation. This synthesis, together with the results of Mr. Strobel's work, indicates that a molybdenum anomaly is "open" and undelineated by drilling to the northwest beneath volcanic cover. The thickest sections of chalcocite so far known on the property also occur in the area of the northwesternmost drill holes. A report and recommendations will be presented next month.

4. Mariquita Project:

As an outgrowth of entry problems for our staff into Mexico,

J. E. K.

NOV 29 1972

INTER-OFFICE MEMORANDUM

DN
TO File
AT Tucson, Arizona

DATE November 27, 1972

FROM John Sandy *J.S.*
AT Tucson, Arizona

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SUBJECT COPPER-ARIZONA
file - Black Mountain Prospect -
Comments

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east of the main group*

JK

*Answered with a "discussion memo
27 Dec. 72*

J.S.

INTER-OFFICE MEMORANDUM

TO John E. Kinnison
AT Tucson, Arizona

DATE November 16, 1972

J. E. K.

FROM Joseph J. Durek
AT Oakland, 2026 KJ

NOV 22 1972

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SUBJECT COPPER-ARIZONA
Black Mountain
Prospect-Comments

The aerial photographs for the Black Mountain area are being returned by separate mail. I have left my grease pencil markings on the main photo, but please consider all of these as speculations intended only to stimulate ideas about a possible target.

A conspicuous feature is the arcuate schist-gneiss (?) tone and texture boundary three miles west of the claim group. If this reflects the edge of a dome, it is centered near the highway in the gravels east of the area of maximum alteration. This is where Quintana drilled, and I believe it was a good try.

The results of the Quintana holes were unexpectedly poor for so short an offset, and they cause doubts that the drill sites were correctly located to test for continuation of the exposed alteration and mineralization.

The regularity of the western part of the inferred dome implies only vertical displacements of interior faults, or subsidence of the domed area. However, strike-slip faults could be present south and east of the claim group, and there might be lateral displacement of the pediment or basin floors in these gravel-covered areas. This is not generally expected of northwest-striking faults, but even if normal faulting is present, an extension of the horst block (?) on which the claim group is located would dictate a drill location a mile north of the Quintana sites. Although drainage on the gravels is being modified by changing debris load from the source areas, a buried hill may be reflected in the gravels east of the highway at the northern access road turnoff. This may mark the northern limit of the gneiss ridge. This is wholly speculative, of course, but it could be tested by an IP survey on the pediment and parallel to the highway. A limited survey might have been done by Quintana, but their drill sites suggest that a narrow zone was being tested.

The case for interest in the eastern pediment would be circumstantial. There is an increase in rock alteration and

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porphyry outcrops toward the east, and a possible large dome is centered east of the claim group. Quintana appears to have tested this eastern area, but the reported results would require a rapid decline in alteration and mineralization. (I do not have a map of their sites, and may be underestimating their distance from the foothills.)

The arcuate volcanic hills we observed to the east are balanced by a semi-circular volcanic mass in the adjacent part of Nevada. Therefore, a large volcanic field may have been centered in this area from Cretaceous into Tertiary time.

I propose only that this idea be reviewed, and that an effort be made to determine if IP has been tried and if coverage was sufficient. The reason for Quintana's site locations could be informative if it was more than an offset from maximum alteration. Consider also the gravel to the south, and a possible intrusive in the circular zone marked in the south-central part of the photograph. I would guess that in local influence of minor intrusives and shear zones will make a coherent zoning model impossible.

JJD:1a