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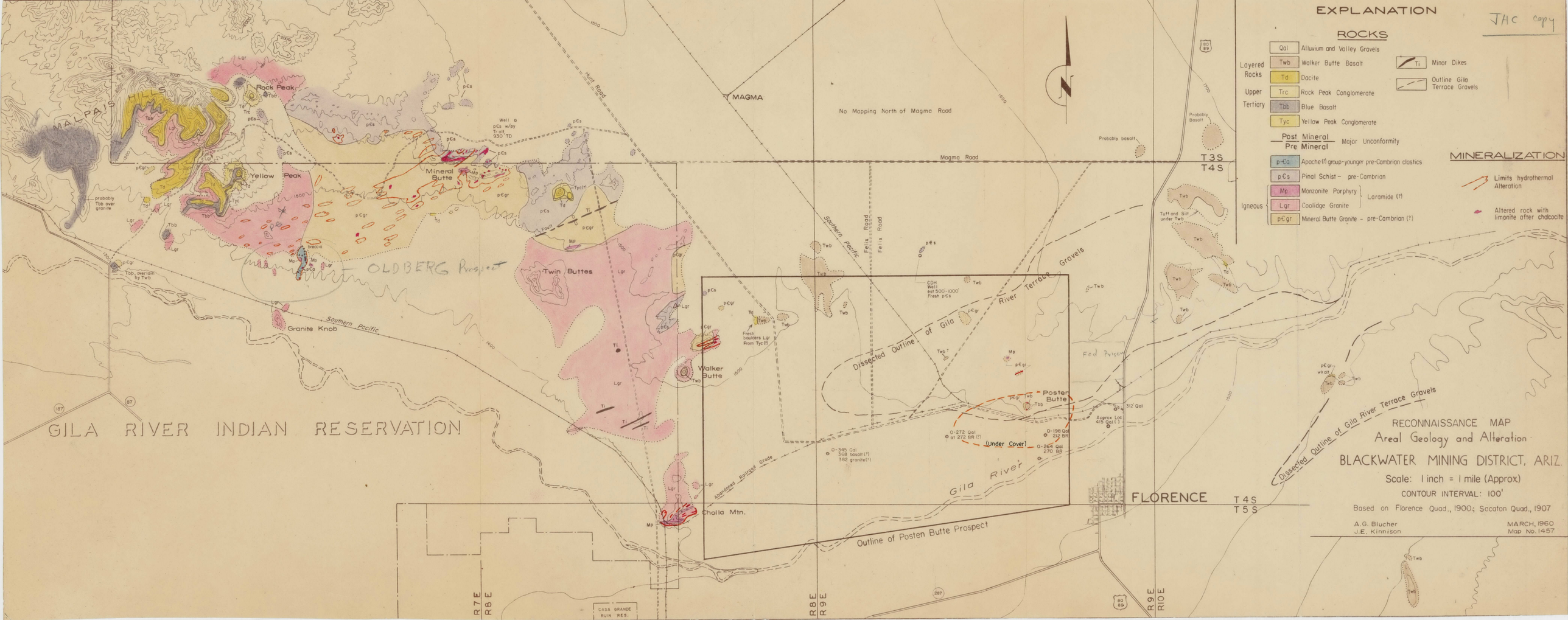
EXPLANATION
JHC copy
ROCKS
Qal Alluvium and Valley Gravels
Layered Rocks
Twb Walker Butte Basalt
Td Dacite
Upper Tertiary
Trc Rock Peak Conglomerate
Tbb Blue Basalt
Tyc Yellow Peak Conglomerate
Ti Minor Dikes
Outline Gila Terrace Gravels
Post Mineral / Pre Mineral Major Unconformity
p€a Apache(?) group-younger pre-Cambrian clastics
p€s Pinal Schist – pre-Cambrian
Igneous
Mp Monzonite Porphyry
Laramide (?)
Lgr Coolidge Granite
p€gr Mineral Butte Granite – pre-Cambrian (?)
MINERALIZATION
Limits hydrothermal Alteration
Altered rock with limonite after chalcocite
RECONNAISSANCE MAP
Areal Geology and Alteration
BLACKWATER MINING DISTRICT, ARIZ.
Scale: 1 inch = 1 mile (Approx)
CONTOUR INTERVAL: 100'
Based on Florence Quad., 1900; Sacaton Quad., 1907
A.G. Blucher
J.E. Kinnison
MARCH, 1960
Map No. 1457
MAGMA
No Mapping North of Magma Road
Magma Road
Hunt Road
Felix Road
Southern Pacific
Rock Peak
Yellow Peak
Mineral Butte
Twin Buttes
Walker Butte
Granite Knob
Cholla Mtn.
Poston Butte
OLDBERG Prospect
Dissected Outline of Gila River Terrace Gravels
Outline of Posten Butte Prospect
Gila River
Abandoned Railroad Grade
GILA RIVER INDIAN RESERVATION
FLORENCE
CASA GRANDE RUIN RES.
T3S
T4S
T5S
R7E
R8E
R9E
R10E

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

April 28, 1953

MEMORANDUM FOR MR. WILSON

SACATON MINE
Blackwater Mng. Dist.
Pinal County, Ariz.

Mr. F. C. Merrell of Eloy recently obtained permission from the tribal council of the Indians on the Gila River Reservation to examine and lease some copper property thereon. He had mentioned several times that he thought there were possibilities of a considerable tonnage of siliceous copper-bearing ore which might be of interest to the smelter.

On Friday, March 27th, Mr. Welch and I met Mr. Merrell and Mr. Richard Dic Kard near Eloy and drove over to the property which is west of Florence in the Sacaton Mountains in section 1, T4S, R7E and section 6, T4S, R8E. This is presumably the old Sacaton Mine from which it is reported that some 30 cars of ore running from 6% to 8% Cu were mined and shipped to the Magma smelter at Superior in the late twenties, under the Pomeroy lease. The U. S. B. M. Mineral Resources records the following activity in the Sacaton (Blackwater) mining district:

1929. About 300 feet of tunnel work was done at the Sacaton property 10 miles west of Florence and the operators shipped several hundred tons of oxidized copper ore to Hayden for smelting.

1930. Nearly 1200 tons of oxidized copper ore were shipped from the Sacaton property 10 miles west of Florence. Early in 1931, however, the property was closed on account of market conditions.

The records at the Hayden smelter show that Peterson and Pomeroy made the following shipments from Magma, which is the shipping point for this property:

1929	Tons	Ag	Cu	Insol.	SiO_2	Fe	CaO	Al_2O_3	S
	140	- -	3.14	58.1	46.7	8.3	3.6	15.1	0.1
	85	- -	3.07	56.6	47.2	8.0	1.7	16.2	1.1
	141	.09	3.32	57.0	45.6	8.1	2.3	17.0	0.5
	165	.004	4.36	54.4	45.8	8.0	2.0	18.0	0.6
	80	.04	4.42	56.2	45.0	7.8	1.6	19.3	0.5
	229	.07	3.47	58.6	45.5	7.7	1.5	17.4	0.3
	840								
1930	242	.07	3.02	62.0	47.0	8.8	2.5	16.0	0.4
	547	.02	3.21	56.4	45.6	7.3	1.5	17.2	0.4
	265	- -	3.56	57.6	46.6	7.4	1.5	16.8	0.3
	130	- -	3.04	58.2	45.2	8.1	1.5	17.3	0.3
	1184								

The country rock is granite which in places is somewhat schisted. Dikes of diabase appear to occupy short shear or fracture zones which have a general NW-SE

Memorandum for Mr. Wilson

trend. Copper mineralization is associated with these dikes and is found in the form of chrysocolla and melaconite. No sulphides were noted although evidence of their former existence is to be found in the small quartz veinlets at or near these shear zones. It is also quite possible that the diabase dikes themselves contain a minute amount of chalcopyrite.

The copper mineralization is the result of secondary enrichment by meteoric waters and is found in short shear zones to a limited depth. While there is some rock alteration in the immediate vicinity of the mineralized shear, the wall rock is otherwise practically unaltered.

The most extensive development on the property appears to be an inclined shaft some 75-80 feet deep which has been sunk on one of the mineralized dikes at an angle of about 45°. Drifts were run on the 75-foot level 100 feet NW and 75 feet SE. Two small stopes were carried up from the NW drift and one from the SE drift. A thirty-foot winze was sunk at the end of the SE drift where the mineralized dike appears to have split up.

Mr. Dic Kard told me that he has seen the logs of three churn drill holes put down by Magma. He said that most of the assays were around .03% copper. The logs are in the possession of the Indian tribal council.

The deposit is not considered of Company interest, since the tonnage possibilities are decidedly limited.

Original Signed By
F. M. Stephens

FMStur

F. M. STEPHENS

cc: WRLandwehr, April 28, 1953

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

J. H. C.

February 27, 1967

FEB 28 1967

Mineral Battle
Sec. 36, T3S, R7E
final & Sec. 1, T4S. R7E
Sec. 6. T4S. R8E
See map

File Memorandum

Arizona, ~~Gila~~ County
Blackwater Area

Recently Mr. James W. Sharp, President of Western Equipment Sales Corp., 6316 W. Van Buren, Phoenix 85005, whom Mr. Watson had met in Ajo, called Mr. Watson to see if we would be interested in claims he had adjoining the Gila Indian Reservation which were adjacent to where Duval was drilling with two rigs, with more said to be coming.

As we were not sure just where Duval was working, I arranged to meet Mr. Sharp near Chandler on February 17, and he took me out to the property. The area proved to be the Blackwater area which we investigated in 1960 and 1961, and which Bear Creek had drilled in 1962 and 1963. Mr. Sharp had taken a lease on the Rodney group of claims on the strength of the fact that Duval was doing close spaced drilling on the Reservation..

Duval has two drills working, and has laid out drill sites on what appears to be 300 foot equilateral triangles in an area west and southwest of the easterly of the two buttes in an area where our earlier mapping showed the most oxide copper on the surface. The north edge of this area is about a quarter of a mile south of the Reservation line. Practically no oxide copper is evident on the Rodney-Sharp ground.

Mr. Sharp has been told that we are not interested at this time.

S. I. Bowditch

SIB:bam
cc: JHCourtright ✓

J. H. C.

FEB 28 1967

February 27, 1967

Mr. James W. Sharp
Western Equipment Sales Corp.
P. O. Box 6516
Phoenix, Arizona 85005

Bl. subject
Arizona, Pinal County
Blackwater Area

Dear Mr. Sharp:

Thank you for sending me the map of the Rodney claims and the reports by Donald P. McCarthy and Vance N. Bacon. They help round out the picture.

I have talked the situation over with our people here and am sorry to have to tell you that Duval's apparently successful efforts to develop a body of oxidized copper ore on the Indian Reservation across the fence from the Rodney claims has not made us any more anxious to test your claims than we were after Bear Creek finished its work there.

I am sure that, after our conversation in the field, this decision does not surprise you, however, I do want to thank you again for calling thisarea to our attention, and to tell you how much I enjoyed our trip into the field.

With best wishes for your success in this venture.

Sincerely,

S. I. Bowditch

SIB:bam
Blcc: JHCourtright

J H Courtright

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

March 14, 1963

J. H. C.
MAR 22 1963

Mr. C. P. Pollock, Exploration Manager
American Smelting and Refining Company
120 Broadway
New York 5, New York

BLACKWATER PROSPECT
PINAL COUNTY, ARIZONA

Dear Sir:

The attached file memorandum by Mr. Saegart indicates that Bear Creek has finally acquired all of the property they need and have started drilling. We will attempt to keep track of where their holes are drilled. By studying the sequence and pattern of their drilling, we may learn something about the correctness or error in some of our own geological and geophysical interpretations.

You will recall that we had an I.P. anomaly extending northeastward under alluvium, but we backed off because we could not make reasonable deals with Vance or Ellsworth. Possibly we were overly cautious in our thinking at that stage of the game.

Yours very truly,

KENYON RICHARD

KR/kw
Attachment
cc: DJPope, w/att.

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

March 14, 1963

FILE MEMORANDUM

BLACKWATER PROSPECT
PINAL COUNTY, ARIZONA

I learned the following information in a conversation with a Bear Creek Mining Co. geophysicist last Saturday.

Bear Creek has now acquired options on all the claims and privately owned land of Messrs. Vance and Rodney (presumably also the Ellsworth land) in the subject district. Bear Creek has completed an induced polarization survey of the area and recently moved two drill rigs on to their holdings. They plan to drill on the Indian Reservation as well as their claims and private options to the north. The results of their I.P. survey were "very encouraging."

W. E. SAESART

WES/kw
cc: 6 extra


AMERICAN SMELTING AND REFINING COMPANY
BLACK WATER MINING DISTRICT
Pinal County, Arizona
SCALE 1" = 1000'
O. D. Evans
June, 1954
Map No. 1241
GILA RIVER INDIAN RESERVATION BOUNDARY LINE
R8E
R7E
T3S
T4S
Schist
Shallow Alluvium
APPROXIMATE CONTACT
MINERAL BUTTE
SCHIST
GRANITE
Diabase Dike
Diabase Dikes
Cultivated Soil
Fresh Granite
Granite
Schist
LIMIT OF ALTERATION ZONE
bands of weak, discontinuous alteration for 2 miles
Monzonite
CDH #1
CDH #3
CDH #4
CDH #5
1750
1500
BW 73
BW 74
BW 75
BW 76
BW 77
BW 78
BW 79
BW 80
BW 36
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CHURN DRILL RECORD
5
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1
3
2
225' NO SAMPLES
GRANITE
205' 0.014 % CU
125' 0.016 % CU
SCHIST
555'
110' 0.027 % CU
115' 0.178 % CU
86' 0.044 % CU
311'
170' 0.03 % CU
310' 0.168 % CU
580'
350' NO SAMPLES
380' TR-0.03 % CU
450' 0.051 % CU
110' 0.060 % CU
215' 0.019 % CU
1505'
TR CU
715' 0.037 % CU
1315'
Base of Oxidation
Base of Enriched Zone
100'
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
Compiled from churn drill records of Sacaton Copper Company, Magma, Arizona – 1922

Please return to JHC

ENT UNITS

systems of units. In the text the
neasurement in English units is
abbreviated using the notations
English units by multiplying by

English unit	*To obtain*
Inches (in.).	
Feet (ft).	
Miles (mi).	

ius (°C) to degrees Farenheit (°F)
67, Handbook of Chemistry and
Co., p. F100–F101.

CONTRIBUTIONS TO GEOCHEMICAL PROSPECTING FOR MINERALS

GEOCHEMICAL EXPLORATION TECHNIQUES BASED ON DISTRIBUTION OF SELECTED ELEMENTS IN ROCKS, SOILS, AND PLANTS, MINERAL BUTTE COPPER DEPOSIT, PINAL COUNTY, ARIZONA

By MAURICE A. CHAFFEE

ABSTRACT

A geochemical study was made of rock, soil, and plant samples collected in the vicinity of the Mineral Butte copper deposit in Pinal County, Ariz. This deposit is in a Precambrian granite host rock near its contact with a small Upper Cretaceous biotite quartz monzonite stock. Of the potentially economic minerals only secondary copper minerals are present in bedrock exposures.

Bedrock and residual-soil samples were collected on a 150-metre (500-foot) grid. Two soil fractions were separated for analysis: a 1–2 millimetre coarse fraction and a <0.063 millimetre fine fraction. Leaf and stem samples from four plant species (mesquite, catclaw acacia, blue paloverde, and ironwood) were collected from plants growing in stream channels in the area of the deposit.

The rock and soil samples were analyzed for 39 elements. The soil samples were also analyzed for soil pH. The analyses of 31 elements did not provide sufficient information, and these were not evaluated further. Eight elements provided sufficient useful analyses; cobalt, fluorine, gold, lead, molybdenum, silver, and zinc are thought to be geochemically associated with copper and are discussed in this report.

Anomalously low pH values were found in soil samples collected near the Mineral Butte deposit. The areal extent of these low values seems to be related to areas of silicified Precambrian granite. This distribution of low values might also represent a halo around the copper-rich area, thereby providing a larger exploration target than that of the copper geochemical anomaly.

The distributions of concentrations of cobalt, copper, gold, molybdenum, silver, and zinc in bedrock samples yield positive anomalies. The areal extent of the cobalt anomaly most closely matches that of copper. The distributions of concentrations of

fluorine and lead in bedrock samples yield what appear to be negative anomalies that also coincide closely with the copper anomaly. Another interpretation of the fluorine and lead data suggests that these two elements show a positive aureole around the copper anomaly. A more regional geochemical sampling program is needed in order to interpret better the anomalies of these two elements.

In contrast to many other copper districts, there does not seem to be a close association between the distributions of copper and molybdenum in the Mineral Butte area.

The distributions of anomalies of cobalt and gold in soil samples most closely match the known copper anomaly. For copper, cobalt, gold, and molybdenum, samples of the fine-soil fraction provide more widespread and (or) more easily interpreted anomalies than do samples of either rock or the coarse-soil fraction. For these elements, at least, a regional reconnaissance sampling program using a fine-soil fraction should be considered.

Physical and chemical data from this study indicate that eolian contamination of soil samples is not a serious problem to consider in anomaly interpretation in the Mineral Butte area.

Ash from the leaves and stems of the four plant species was analyzed for 38 elements. The analyses of most of these elements did not provide sufficient information. This report describes the results for copper, zinc, and molybdenum. Examination of the geochemical data for these three elements indicates that the concentrations of these elements in plant ash vary according to the particular species and plant part sampled. Those plant-element populations that produced the greatest spread of analytical values also produced the most useful vegetation maps.

Of the three elements studied in samples of plant ash, copper clearly provided the most consistent and meaningful information for locating the known deposit. Molybdenum was not as useful. No spatial correlation was found between zinc anomalies in rock and soil samples and zinc anomalies in the ash of any of the plant species studied.

The copper deposit was best located using analyses of mesquite samples. Those of blue paloverde and catclaw acacia were almost as effective. In general, those samples that contain anomalous metal concentrations in both plant parts, rather than in just one part, are likely to represent the most significant anomalies.

Deep-rooted plants can be an effective regional reconnaissance sample medium for geochemical surveys in arid lands, especially in the search for metal deposits buried under a thin layer of overburden.

INTRODUCTION AND ACKNOWLEDGMENTS

A geochemical study has been made of rock, soil, and plant samples collected in the vicinity of the Mineral Butte copper deposit, Pinal County, Ariz. This study has a threefold purpose. The first is to provide basic information on the abundances of many elements in a variety of sample types collected in the vicinity of a known copper deposit. The second is to determine, by evaluation and comparison of the different sample types, the optimum type(s) to use. The third is to identify those elements in the different sample types that would be most useful in the search for copper deposits in similar environments. Emphasis in this investigation has been to determine in different sample media what elements, if any, would characterize the copper deposit as

well as, or better tha
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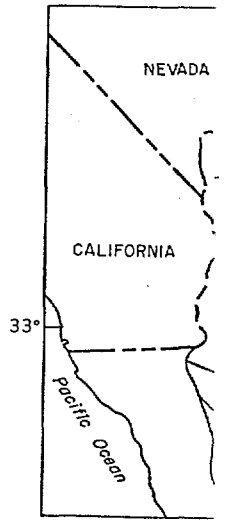
on a truly regional s

The Mineral Butte
mining district, Pina
of the town of Coolid
from 581 m (1,907 ft)



FIGUR

The climate and flor
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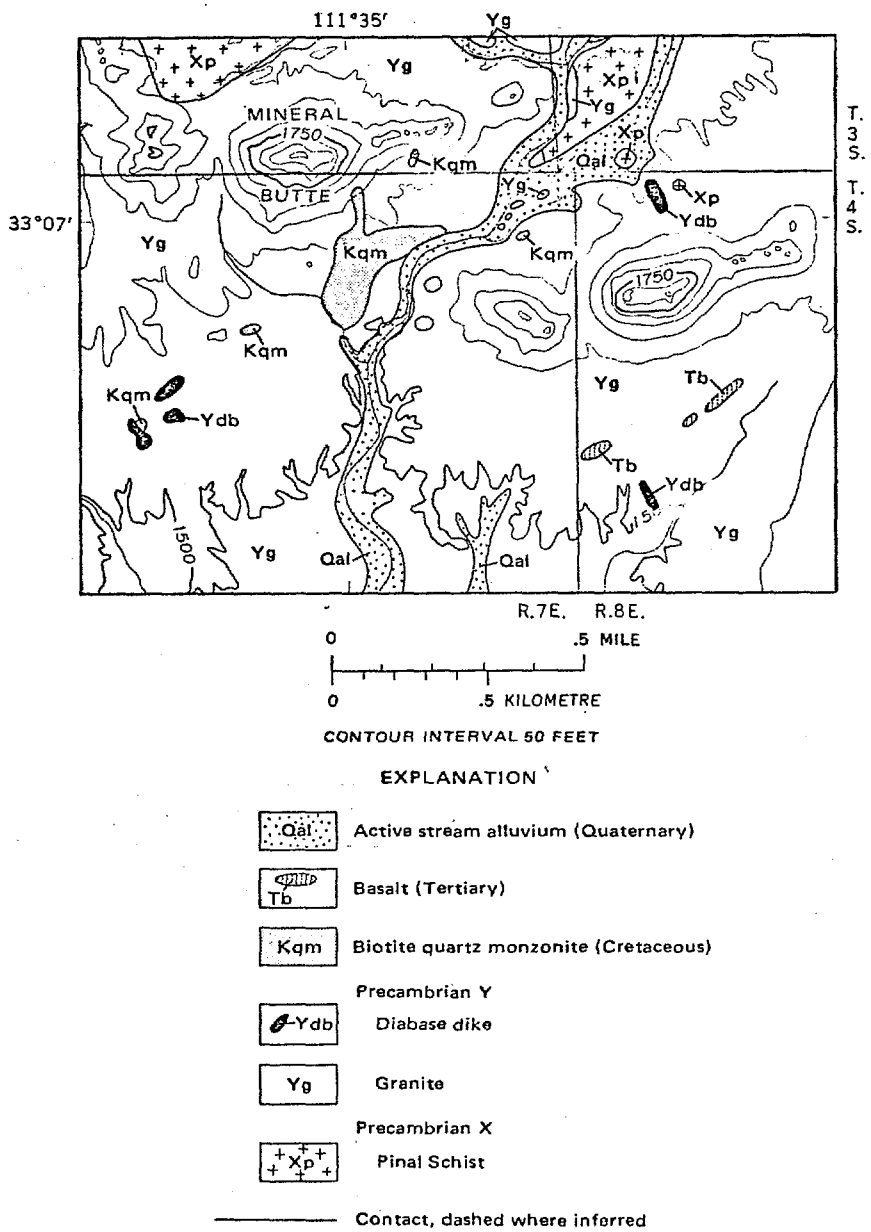

FIGURE 2. — Geology of the Mineral Butte area.

units exposed in the study area and is the host rock for most of the copper minerals. Topographic relief in the granite suggests that at least 120 m (400 ft) of granite may have been eroded from the top of the present surface of the copper deposit. A few dikes of diabase cut

quently, as many as 30 population might be probably less than 5 o be anomalous. ed in combination with the distributions of order to determine the lue, to be used for each 0th percentile (median) The concentrations for otted on base maps and old value as the contour

BEDROCK AMPLES

samples were collected n concerning the eight table 1. nite and the Cretaceous or this report. Approxi- collected from granite percent of the samples not show any strong hat could be attributed ently, the differences in uting the information

L pH

ermined in the fine-soil desert soils are unusual; ound (median) pH value les in the study area are

te are generally found in (fig. 3). Field investiga- e been silicified and that he presence of silica, the to weathering than the therefore, are higher ve not been silicified. In s, pyrite is occasionally ich has been differential-

TABLE 1. — *Statistical data for soil pH and selected elements in samples of bedrock and residual soil, Mineral Butte area, Pinal County, Ariz.*

[All values in parts per million except for pH. L means detected but at concentrations below the limit of detection shown in parenthesis; N means not detected at the limit of detection shown in parenthesis; leaders (...) indicate no data]

	Sample type	Range of values	Background (median) value	Threshold value	Anomaly contrast value	Average low-calcium granite[1]
pH	<0.063 mm soil fraction	5.0-8.2	7.2	7.0	......	......
Copper	Bedrock	5-23,000	45	120	2.67	10
	1-2 mm soil fraction	20-7,500	60	130	2.17	......
	<0.063 mm soil fraction	5-3,000	100	150	1.50	......
Cobalt	Bedrock	N(5)-70	L(5)	7	>1.40	1.0
	1-2 mm soil fraction	L(5)-30	7	10	1.43	......
	<0.063 mm soil fraction	5-70	15	20	1.33	......
Fluorine	Bedrock	60-1,360	400	200	.50	850
	1-2 mm soil fraction	90-950	350	230	.66	......
	<0.063 mm soil fraction	200-1,600	450	350	.78	......
Gold	Bedrock	L(.02)-.10	L(.02)	.02	......	.004
	1-2 mm soil fraction	L(.02)-.28	L(.02)	.02	......	......
	<0.063 mm soil fraction	L(.02)-.15	L(.02)	.02	......	......
Lead	Bedrock	N(10)-300	20	10	.50	19
	1-2 mm soil fraction	10-100	30	20	.66	......
	<0.063 mm soil fraction	15-100	40	30	.75	......
Molybdenum	Bedrock	N(5)-100	L(5)	5	......	1.3
	1-2 mm soil fraction	N(5)-50	L(5)	5	......	......
	<0.063 mm soil fraction	N(5)-50	L(5)	5	......	......
Silver	Bedrock	N(.5)-20	N(.5)	.5	......	.037
	1-2 mm soil fraction	N(.5)-2.0	N(.5)	.5	......	......
	<0.063 mm soil fraction	N(.5)-1.5	N(.5)	.5	......	......
Zinc	Bedrock	.5-300	5	10	2.00	39
	1-2 mm soil fraction	5-130	20	40	2.00	......
	<0.063 mm soil fraction	30-140	50	70	1.40	......

[1]Data from Turekian and Wedepohl (1961).

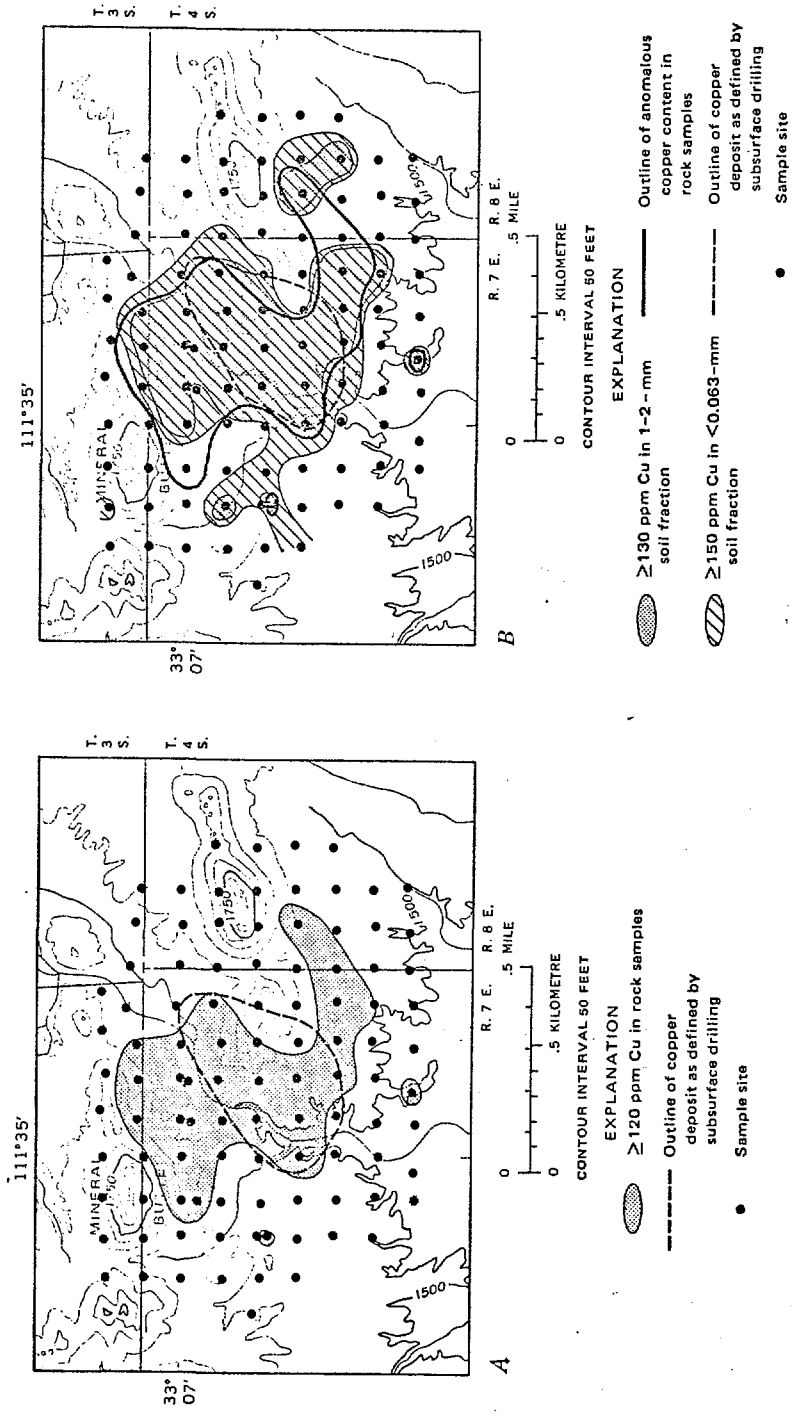

FIGURE 4. — Distributions of copper in (*A*) rock samples and in (*B*) soil fractions, Mineral Butte area.

bedrock (primary di
fractions (secondary
migration of copper

Cobalt. — The b
Mineral Butte rock
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Comparison of cob
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fractions; only 3 per
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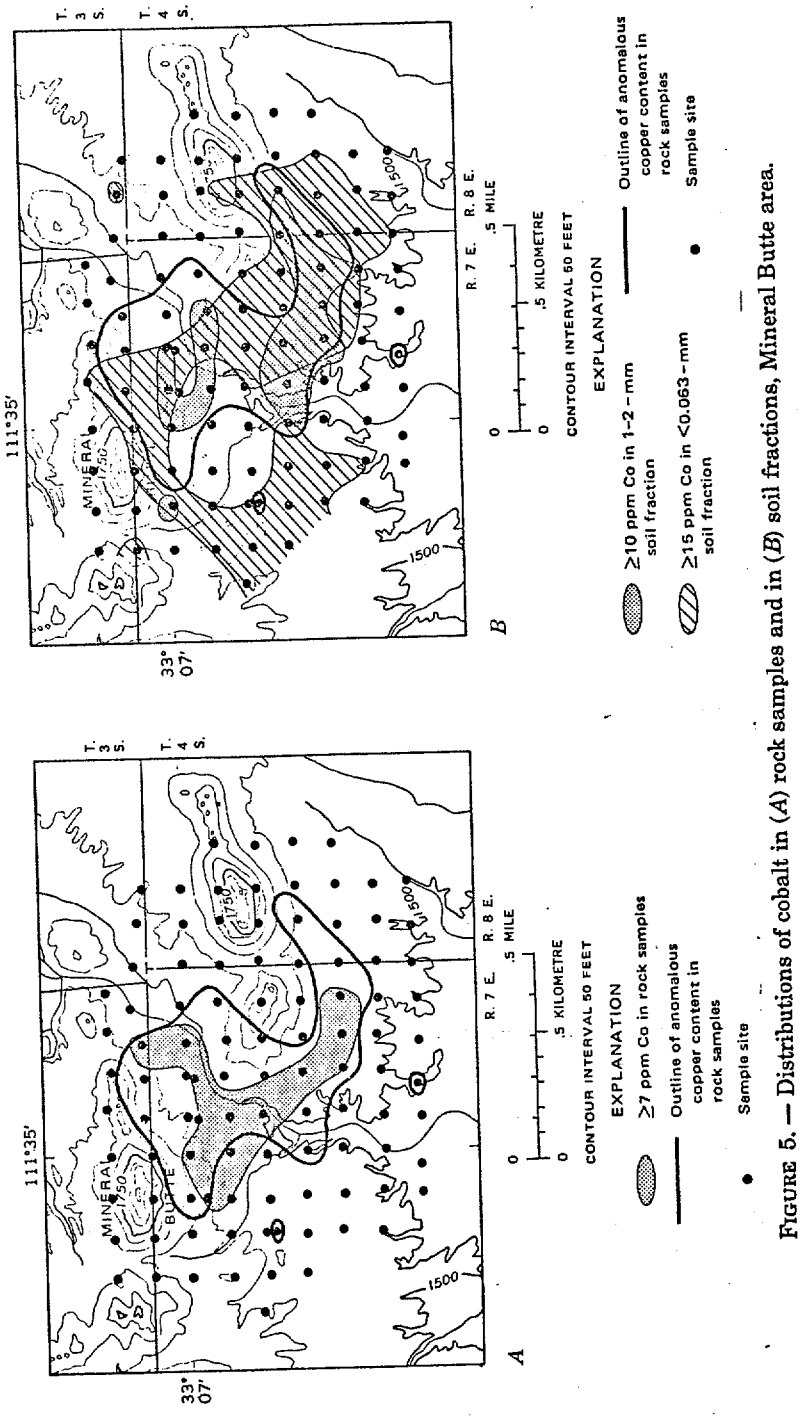

FIGURE 5. — Distributions of cobalt in (*A*) rock samples and in (*B*) soil fractions, Mineral Butte area.

in the coarse fraction, a
concentration of fluorin

In comparison to th
anomaly contrast valu
fine-soil fraction, and th
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This apparent negat
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On the basis of figu
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Gold. — Gold is one
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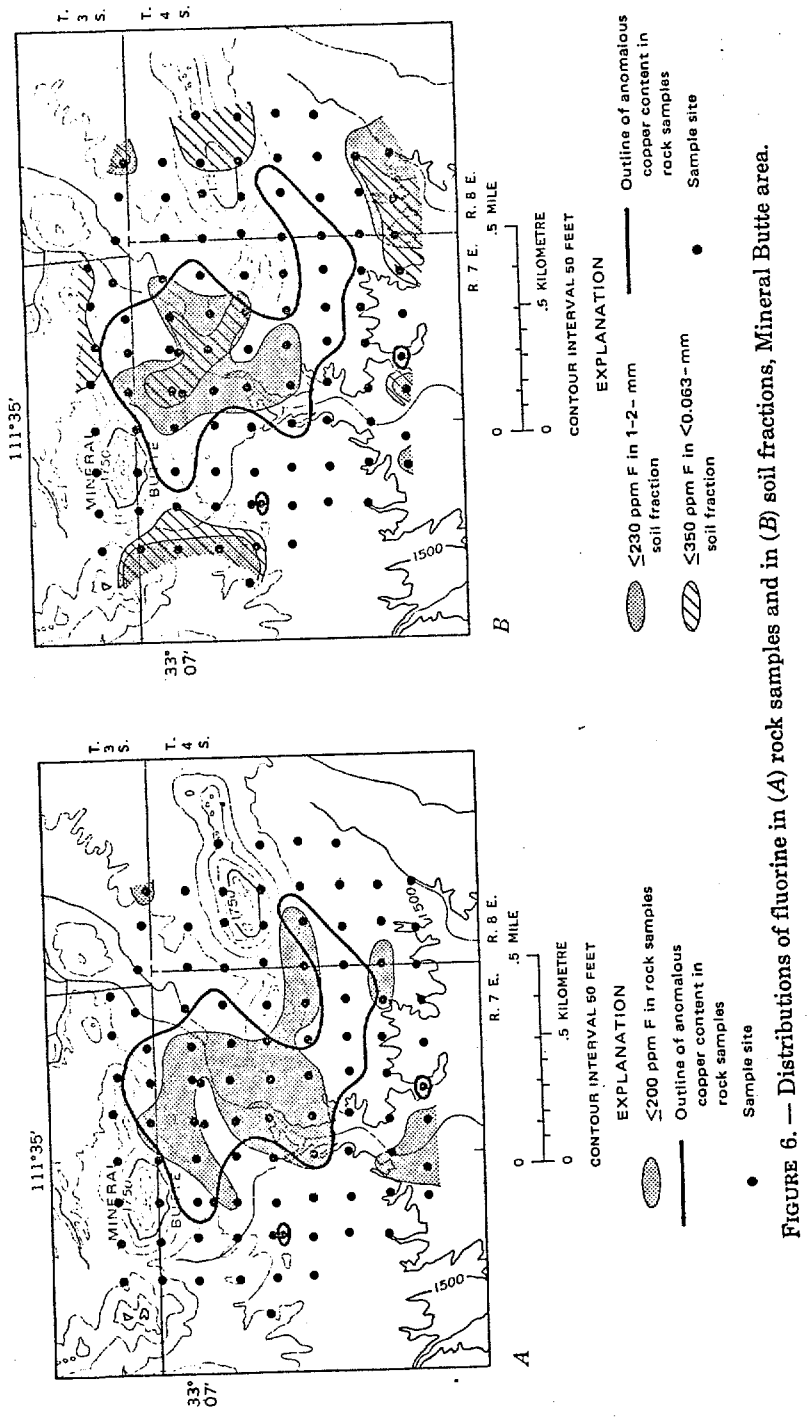

FIGURE 6. — Distributions of fluorine in (*A*) rock samples and in (*B*) soil fractions, Mineral Butte area.

variation to be expect
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percent have a highe
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content, mainly bec
concentrations excee
the basis of the prece
preferentially conce
weathering processe
predominantly as ve

The map illustrati
samples (fig. 7*A*) sh
lower analytical det
enough to reveal th
anomalies thought t
contrast, the map ill
in soils (fig. 7*B*) sh
fractions. The exten
almost identical; th

The possibility th
with the correspon
together with (1) the
have the higher gold
suggests that, in t
may have migrated
processes.

Lead. — The bac
Mineral Butte rock
Wedepohl (1961) f
background and th
progressively enric
confirmed by the d
percent of the pair

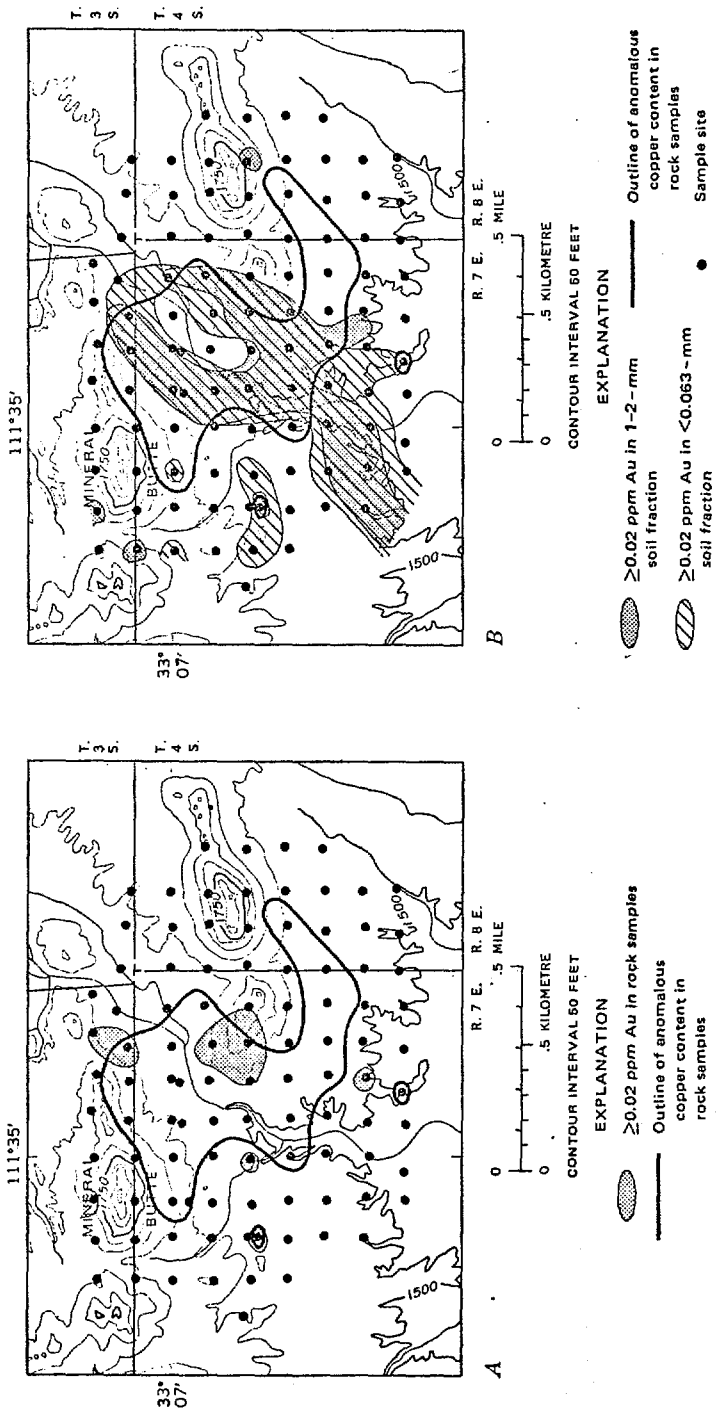


FIGURE 7. — Distributions of gold in (*A*) rock samples and in (*B*) soil fractions, Mineral Butte area.

fraction; only 12 percer
fraction. The lead con
pairs.

The map showing
samples (fig. 8*A*) revea
the apparent negative
6*A*). This lead anoma
positive copper anom
was the case for the
reversal in ranking
values of less than u
populations based
predominantly positi
example, then, the ma
should provide the bc
and 8*B* suggest that

The lead anomalies
Specifically, either
associated with the
the bedrock map, fig.
the copper anomaly (
8*B*). Again, regional
be necessary to inter
seems to be, empiric
concentrations direct
area of relatively hig
lead may be a usef
copper deposits in si

Molybdenum. — M
for which the lower d
(5 ppm) is higher th
probably somewhere
and Wedepohl (1961)
1). As was the case fo
or above the 5 ppm l
The low levels of re
introduce the possi
Interpretations of m
possibility in mind.

The background a
same for all three sa
values can be com
contrast values ca
should provide the n

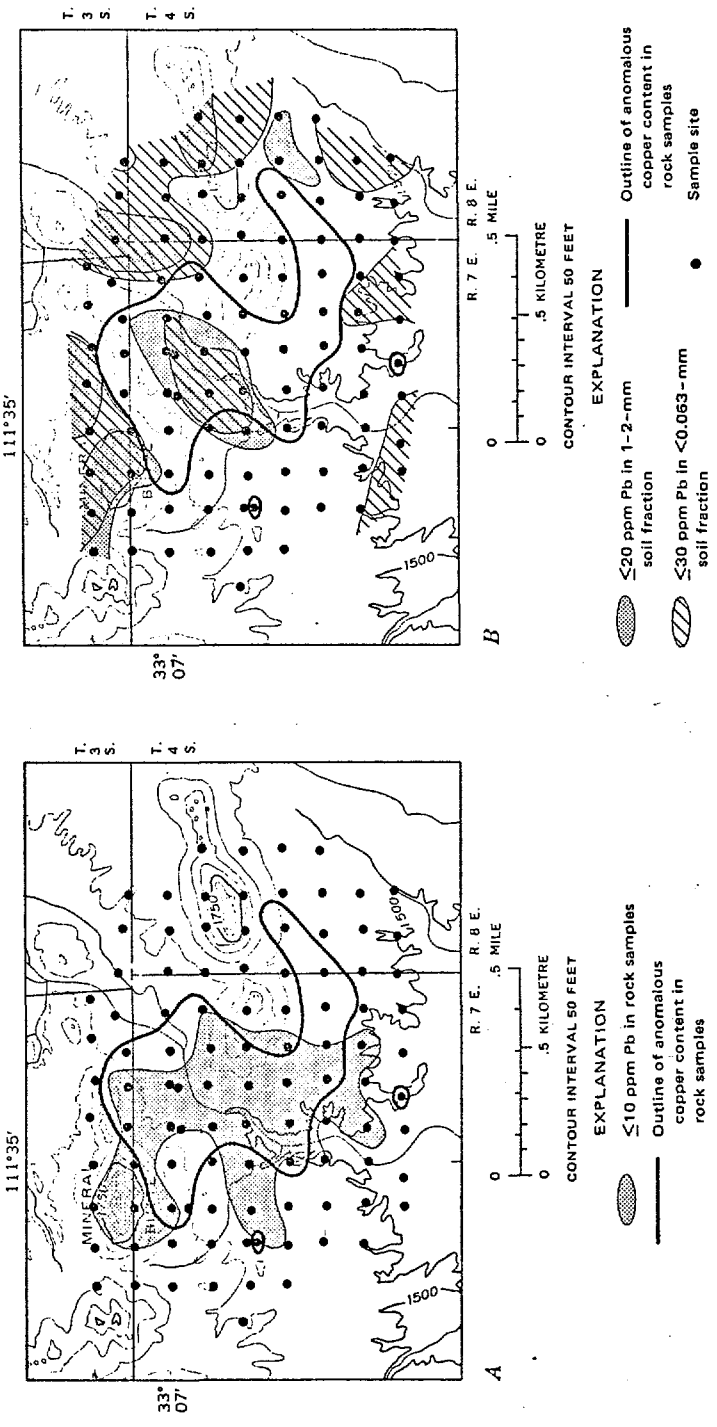


FIGURE 8. — Distributions of lead in (*A*) rock samples and in (*B*) soil fractions, Mineral Butte area.

Because of the low level
the lower detection lim
trend of molybdenum
size. Only 15 percent of
of molybdenum in the f
of the pairs show highe
fraction. A majority (
molybdenum concentra
pairs molybdenum was

In contrast to the dist
elements, the anomali
samples seem to be offs
samples contain anom
this offset is not kn
molybdenum might be p
around the copper-enr
regional contact betwe
Schist in the vicini
molybdenum anomalie
summary, sampling
understand better th
copper.

The distributions o
fractions are more
anomalous molybdenu
spatial relationship of
at Mineral Butte is not
soil geochemical maps
geochemical map is nc

Silver. — Silver is th
report for which the lo
used (0.5 ppm) is hig
which is probably som
Turekian and Wedepo
(table 1). Again, any
"noise" was once m
analyses.

As was the case for
threshold values for si
(table 1). Thus, beca
computed for silver, su
type that should pro
silver.

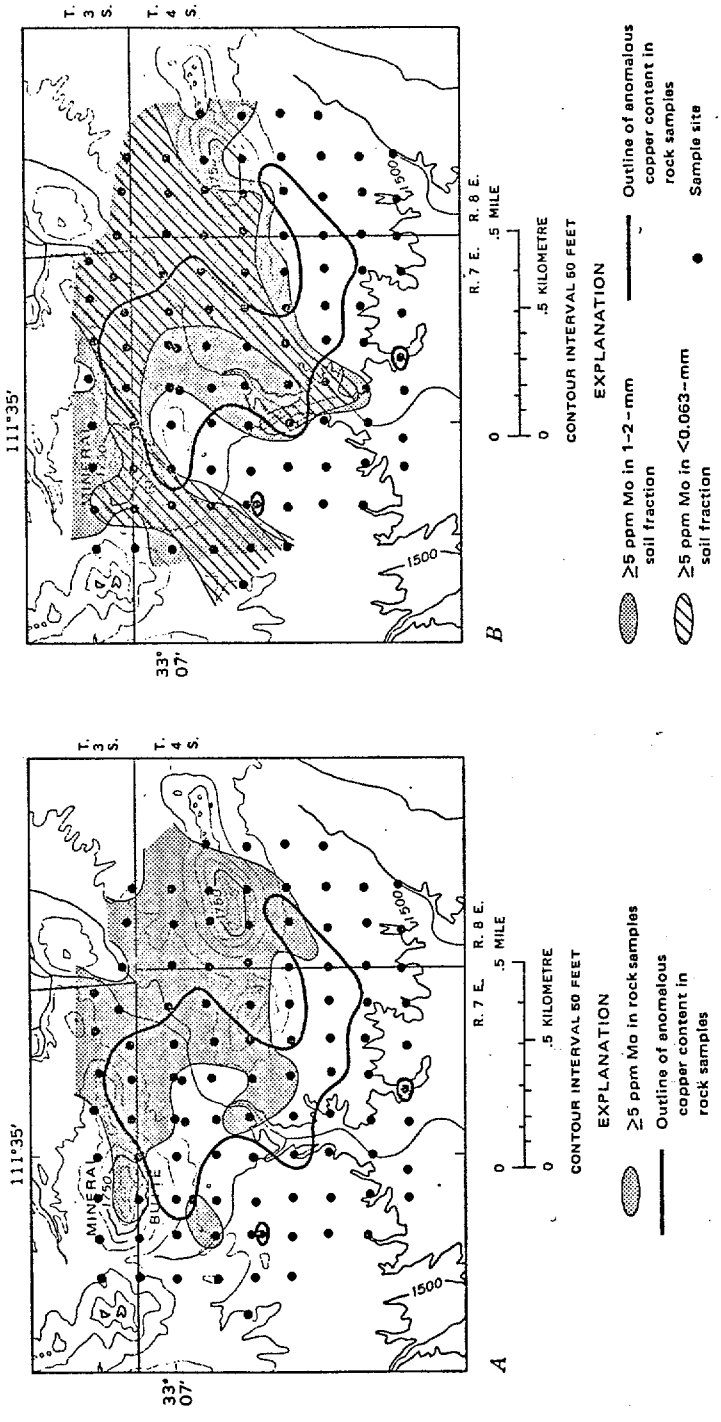


FIGURE 9. — Distributions of molybdenum in (*A*) rock samples and in (*B*) soil fractions, Mineral Butte area.

Table 1 provides no
preferentially concentr
Unfortunately, the stu
evidence either, mainly
equal values. In 14 perce
is higher in the fine fract
the coarse fraction. Sixt
silver value reported for
was not detected in eith

The map illustrating
bedrock samples (fig. 1C
silver and copper anoma
more widespread. The
anomalies in the two s
very close spatial relatic
the anomaly for coppe
could, therefore, be inter
A more sensitive analyt
geochemical informatic

Zinc. — Zinc, like cop
all three sample types.
Mineral Butte rocks is
Wedepohl (1961) for zin
background concentrat
from the Precambrian
within the area studie
leached. The anomaly
types (table 1) show th
coarse soil but show a
compared to the other t
coarser material, prob
geochemical map for z

The background and
progressive concentrat
tion change is clearl
background and thres

Comparison of zinc
fine-soil fractions from
have a higher concen
percent of the pairs h
fraction. Of the selec
strong tendency for e

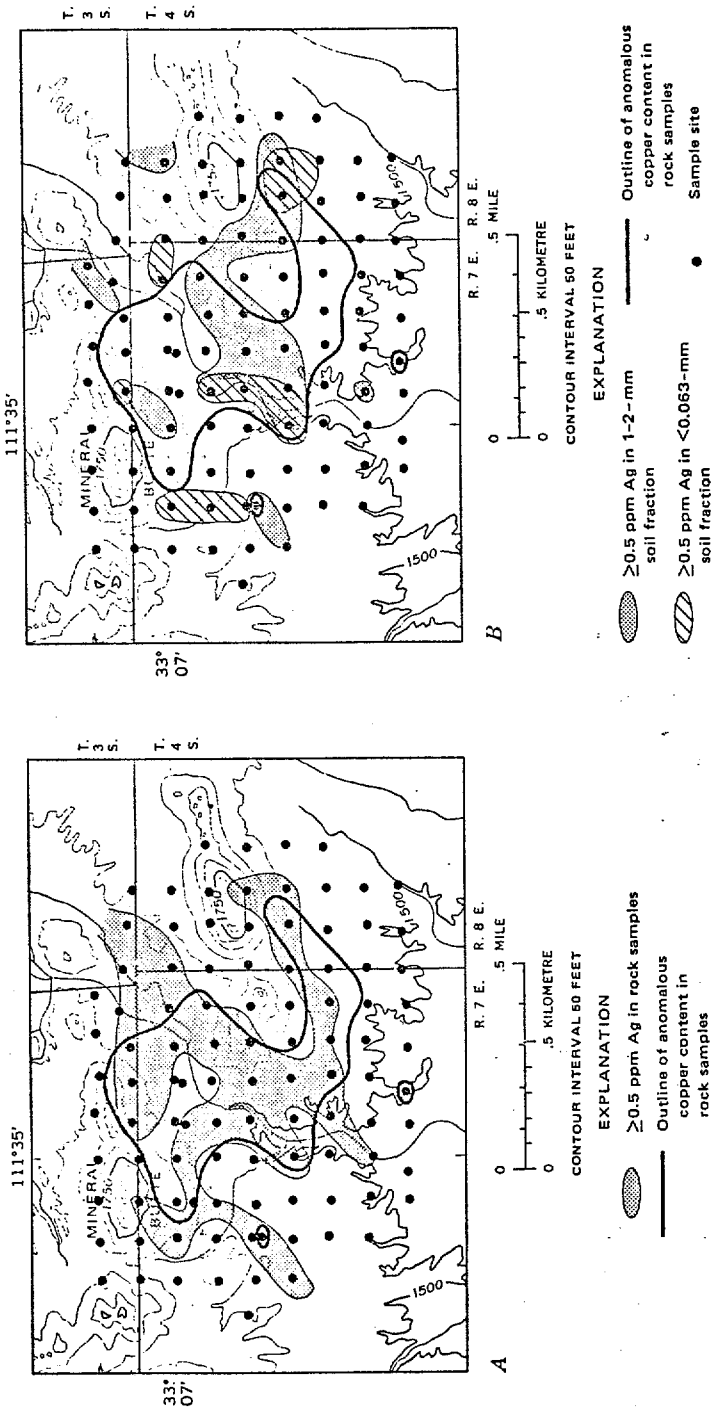


FIGURE 10. — Distributions of silver in (*A*) rock samples and in (*B*) soil fractions, Mineral Butte area.

The distribution of a
samples (fig. 11*A*) show
of the copper anomaly
also extends generally
The highest zinc conce
The distributions of zin
11*B*) are more restricted
not coincide very well w
of bedrock samples.

There seems to be
containing anomalous
11*B*) and the area of hi
suggests the possibility
low soil-pH values and
areas of high soil-pH
anomalies of zinc in roc
soil-pH values; consequ
and has migrated, the
also been affected.

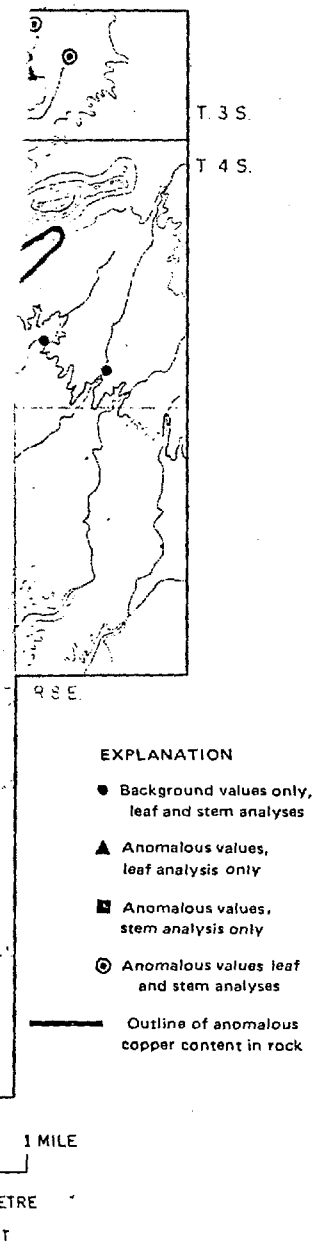
Zinc- and copper-em
most Arizona copper de
patterns at Mineral Bu
originally present in th
represent the addition
secondary zinc, to zinc

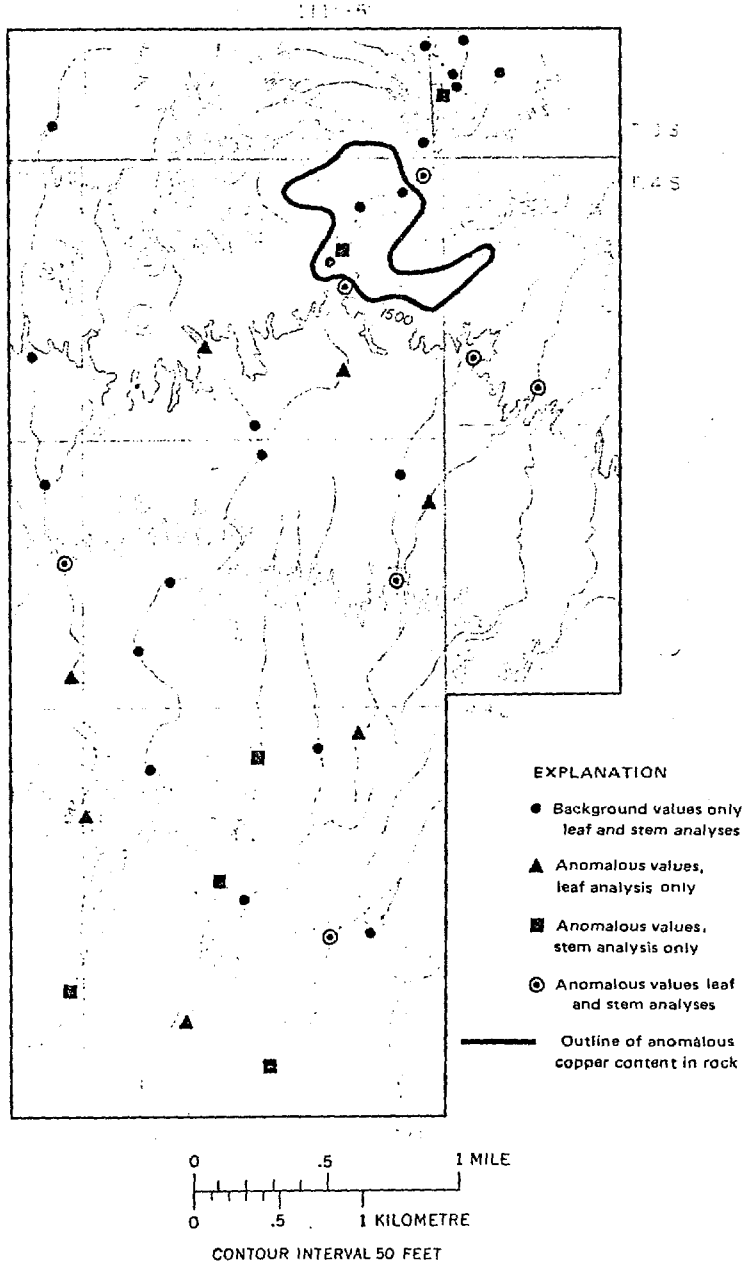
ANALYTICA

This section descril
molybdenum in the as
species that commonly
with the number of sa
parentheses, are mesq
(27), and ironwood (36)
analyses used in prep
table 2.

Figures 12-14 sho
molybdenum anomalie
and stems.

Copper. — A compa
ash of mesquite leave
samples from each of





e leaf and stem ash, Mineral

FIGURE 13. — Distribution of zinc in mesquite leaf and stem ash, Mineral Butte area.

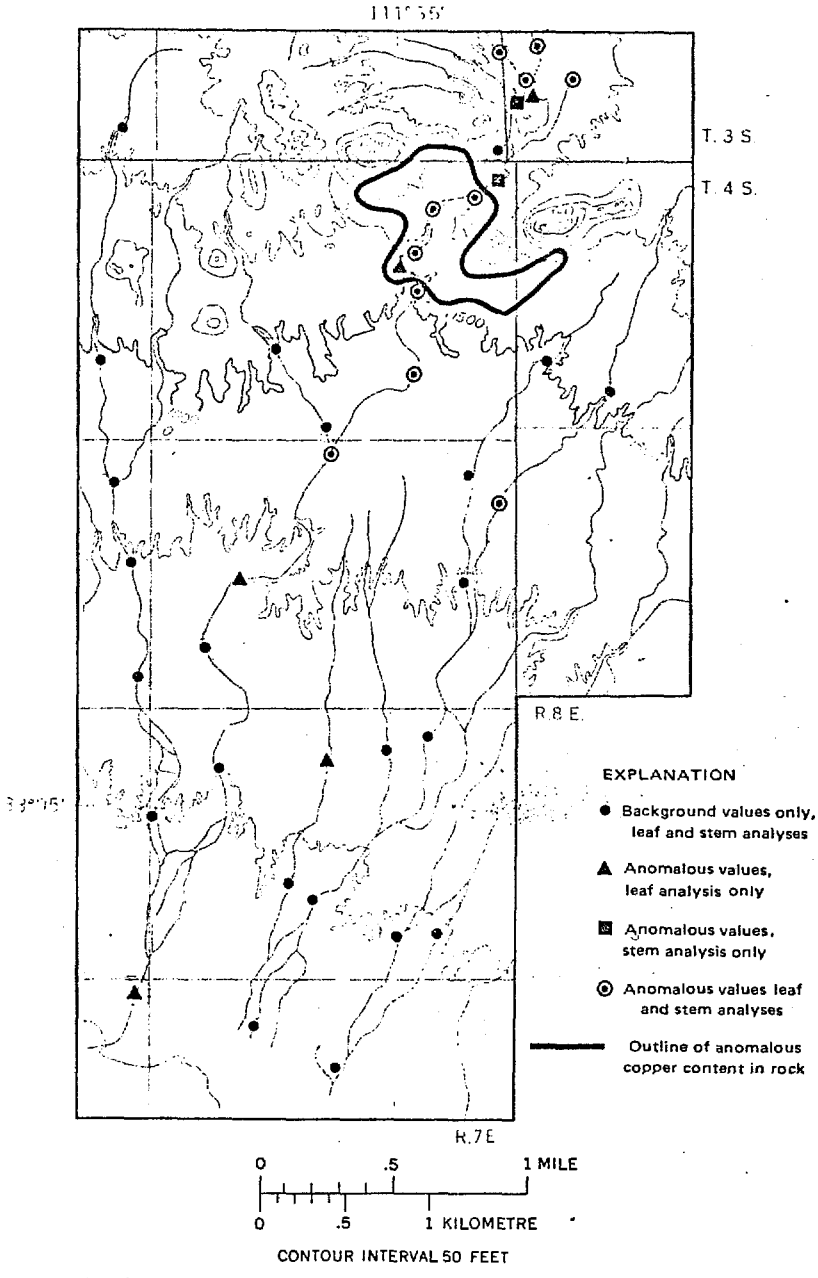


FIGURE 12. — Distribution of copper in mesquite leaf and stem ash, Mineral Butte area.

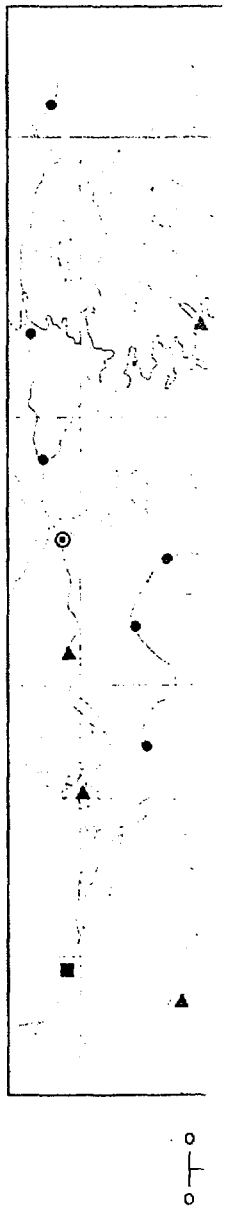


FIGURE 13. — Distributio

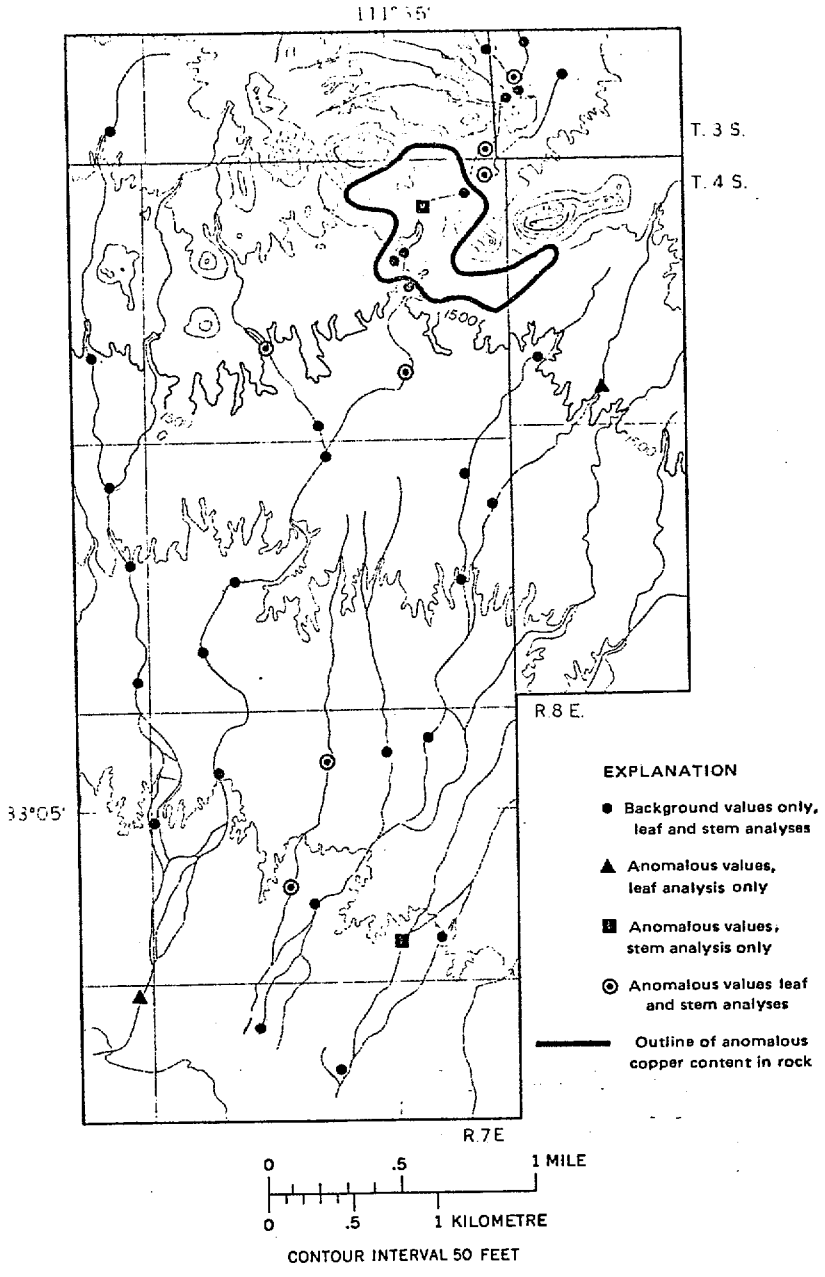


FIGURE 14. — Distribution of molybdenum in mesquite leaf and stem ash, Mineral Butte area.

Zinc. — Zinc does not s
ash of either plant part re
the leaf-stem pairs have a
ash, 42 percent of the pai
the leaf ash, and 10 per
trations of zinc in both pa
zinc (table 2) indicate that
of mesquite stems. Bec
variation, however, thi
significant.

Concentrations of zin
siderably higher than th
case for most plant spec
soils at Mineral Butte ha
they have of zinc.

The map illustrating
ash of mesquite leaves a
exploration standpoint l
can be clearly related to t
of ashed samples of leav
three species discussed
show a good spatial corr
and of zinc anomalies
indicates that mesquite
areas that are enriched
Mineral Butte area the c
mesquite are simply n
concentrations in the
anomalous zinc concen
The zinc anomalies in
suggesting that none c
the known copper d
concentrations in the
normal natural variati
high zinc concentrati
growing near the area
zinc in bedrock and s
Butte area the zinc co
zinc content of the ma

Most of the zinc a
samples of either leave
corroboration of anom

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

July 7, 1961

MEMORANDUM FOR AUTHOR AIRMAN

GEOLOGIC MAPPING
Casa Grande Region
Casa Grande, Arizona

According to your instructions reconnaissance mapping is being extended from the western edge of the Stanfield and Toltec Butte Area to the base of the mountains due west of Casa Grande. The immediately interesting part of this area---the Sacaton Mountains and their southern pediments---includes our Sacaton Prospect and the geophysical traverses there and to the east. Mapping of this area has been completed and the map accompanies this memorandum. The scale used there (1 inch equals ½ mile) is the same as that used by the geophysicists. The remaining part of the Casa Grande Region will be mapped on the usual reconnaissance scale of 1 inch equals 1 mile, and will be reported on when completed.

Sacaton Area

The Sacaton area is rectangular---about 12 miles E-W by 8 miles N-S---and centered on the Casa Grande-Chandler highway which runs due north out of Casa Grande. Its southern boundary is about 3 miles north of town. Along the northern and eastern boundaries the Sacaton Mountains furnish good bedrock outcrops, but south of these mountains bedrock is covered by varying thickness of post-mineral alluvial deposits. West of the Chandler highway the buried pediment is relatively shallow; to the east and south bedrock deepens rapidly.

Most of the rock in the Sacaton Mountains is a medium-grained variety of the Coolidge granite. There are wide textural and compositional variations in this rock, particularly west of the Chandler highway. Additional work may show that some of these varieties are separate intrusives; however, the only presently recognized separate intrusives are as follows: small stocks of diorite; a few areas of coarse-grained granite (Precambrian?); medium-grained alaskite; aplite to porphyry dikes; andesite dikes; and aplite dikes.

Near the southern edge of the area there are outcrops of a metamorphic rock which most closely resembles the Precambrian Pinal schist. In the north central part of the area there are small exposures of quartzite and limestone.

There are no large exposures of intensely altered rocks in the area. Where intensely altered outcrops are found they are either surrounded by, or on the edge of, covered areas. The distribution of these mineralized outcrops suggests the possibility of very extensive alteration and mineralization in the thinly covered pediment of the western and central part of the area.

Memorandum for Kenyon Richard — July 7, 1961
Geologic Mapping - Casa Grande Region

Casa Grande Area

Because of our active interest in the Sacaton Prospect most geologic work to date has been done in that vicinity. Preliminary reconnaissance to the south of the Sacaton found no evidence of Laramide intrusive activity or alteration. To the north Laramide intrusives with occasional alteration are recurrent as far as the reconnaissance has been carried. At Gila Butte, 14 miles north of the Sacaton Prospect, there is weak alteration associated with a granite-schist contact which may be an extension of the Globe-Superior regional mineral trend. To the west only a small part of the area has been examined.

Although this reconnaissance is by no means complete, the absence of definite leads suggests that completion of reconnaissance mapping in the Casa Grande Region might safely be deferred in favor of more urgent projects.

A. G. BLUCHER, JR.

AGB/s
cc: CPPollock
S.Pope
KERichard
WESaegart
JEKinnison

File routed to:

~~TASnedden~~
~~ACHall~~
~~JVDevereux~~

PPC is determined by dividing the estimated O&M costs which will be charged against space-required dependents education (minus tuition and transportation charged against contract education, room and board costs associated with attendance at dormitories or boarding schools, and costs of correspondence courses) by the number of space-required pupils. The pro rata share of the cost of handling tuition collections should also be added, if applicable, and such costs are identifiable. Tuition fees for kindergarten should be one-half of the amount charged pupils in grades one to 12. District Superintendents are authorized to disenroll non-DOD tuition paying students when tuition payments are not made in accordance with the established tuition payment schedule. Payments received will be handled as outlined in AFM 172-1 (AF Manual of Budget Administration).

§ 809c.15 Reimbursements to parents.

(a) Parents will not be reimbursed from appropriated funds for costs that are chargeable to appropriated funds and the annual funding limitation.

(b) No reimbursements will be made by the other military departments. All DOD students will attend Air Force-operated schools on a common-service basis.

By order of the Secretary of the Air Force.

ALEXANDER J. PALENSCAR, Jr.,
Colonel, USAF, Chief, Special Activities Group, Office of The Judge Advocate General.

[F.R. Doc. 70-12587; Filed, Sept. 22, 1970; 8:45 a.m.]

Title 43—PUBLIC LANDS: INTERIOR

Chapter II—Bureau of Land Management, Department of the Interior

APPENDIX—PUBLIC LAND ORDERS

[Public Land Order 4894]

[Arizona 09229-A]

ARIZONA

Partial Revocation of Public Land Order No. 1985

By virtue of the authority vested in the President, and pursuant to Executive Order No. 10355 of May 26, 1952 (17 F.R. 4831), it is ordered as follows:

1. Public Land Order No. 1985 of September 21, 1959, which withdrew the following public lands, is hereby revoked as to the lands described:

GILA AND SALT RIVER MERIDIAN

T. 41 N., R. 12 W.,
Sec. 5, lots 3, 4, S½NW¼;
Sec. 6, lots 1 to 5, inclusive, S½NE¼, SE¼NW¼.
T. 42 N., R. 12 W.,
Sec. 31, SE¼.

The areas described aggregate 638.11 acres in Mohave County.

The lands are situated in the extreme northwestern corner of Mohave County near the Utah State line. The terrain ranges from near level to moderately sloping. Soils are generally deep with a Southern Desert Shrub vegetative cover.

2. This revocation is made in furtherance of State Exchanges under subsections (c) and (d) of section 8 of the Taylor Grazing Act of June 28, 1934, 48 Stat. 1272, as amended, 43 U.S.C. § 315g (1964), by which the offered lands will benefit a Federal land program. Accordingly, the land described in paragraph 1 of this order is hereby classified pursuant to section 7 of said Act, 43 U.S.C. § 315f (1964), as suitable for such exchanges. The land, therefore, will not be subject to other use or disposition under the public land laws in the absence of a modification or revocation of such classification (43 CFR 2232.1-4).

HARRISON LOESCH,
Assistant Secretary of the Interior.

SEPTEMBER 16, 1970.

[F.R. Doc. 70-12613; Filed, Sept. 22, 1970; 8:47 a.m.]

[Public Land Order 4895]

[Arizona 4610]

ARIZONA

Partial Revocation of Reclamation Withdrawal

By virtue of the authority contained in section 3 of the Act of June 17, 1902, 32 Stat. 388, as amended and supplemented, 43 U.S.C. section 416 (1964), it is ordered as follows:

1. The departmental orders of January 31, 1903, September 8, 1903, and June 4, 1930, withdrawing lands for reclamation purposes, are hereby revoked so far as they affect the following described land:

GILA AND SALT RIVER MERIDIAN

T. 13 N., R. 20 W.,
Sec. 14, lot 2.

The area described aggregates approximately 33.83 acres in Mohave County.

The land is located near Lake Havasu City approximately 60 miles southwest of Kingman. Topography is rough and broken. Soils are mostly sand and gravel.

2. At 10 a.m. on October 22, 1970, the land will be open to operation of the public land laws, including the U.S. mining laws, subject to valid existing rights, the provisions of existing classifications and withdrawals, and the requirements of applicable law. All valid applications received at or prior to 10 a.m. on October 22, 1970, shall be considered as simultaneously filed at that time. Those received thereafter shall be considered in the order of filing. The land will be open to applications and offers under the mineral leasing laws.

Inquiries concerning the land should be addressed to the Manager, Land Office, Bureau of Land Management, Phoenix, Ariz.

HARRISON LOESCH,
Assistant Secretary of the Interior.

SEPTEMBER 16, 1970.

[F.R. Doc. 70-12614; Filed, Sept. 22, 1970; 8:47 a.m.]

[Public Land Order 4896]

[Colorado 11036]

COLORADO

Partial Revocation of Stock Driveway Withdrawal

By virtue of the authority contained in section 10 of the Act of December 29, 1916, 39 Stat. 865, as amended, 43 U.S.C. section 300 (1964), it is ordered as follows:

1. The Departmental Order of October 9, 1917, creating Stock Driveway Withdrawal No. 2 (Colorado No. 2), is hereby revoked so far as it affects the following described lands:

RIO GRANDE NATIONAL FOREST

NEW MEXICO PRINCIPAL MERIDIAN, COLORADO

T. 45 N., R. 4 E.,
Sec. 2, lots 1, 2, 3, 4, S½N½;
Sec. 23, S½.
T. 41 N., R. 6 E.,
Sec. 4, N½SE¼.

The areas described aggregate 724.40 acres in Saguache County.

2. At 10 a.m. on October 22, 1970, the lands shall be open to such forms of disposition as may by law be made of national forest lands.

HARRISON LOESCH,
Assistant Secretary of the Interior.

SEPTEMBER 16, 1970.

[F.R. Doc. 70-12615; Filed, Sept. 22, 1970; 8:47 a.m.]

[Public Land Order 4897]

[Idaho 3148]

IDAHO

Partial Revocation of Reclamation Project Withdrawal

By virtue of the authority contained in section 3 of the Act of June 17, 1902, 32 Stat. 388, as amended and supplemented, 43 U.S.C. section 416 (1964), it is ordered as follows:

1. The departmental order dated January 9, 1919, withdrawing lands for the Bruneau Project, is hereby revoked so far as it affects following described land:

BOISE MERIDIAN

T. 10 S., R. 12 E.,
Sec. 8, SW¼SE¼.

The area described contains 40 acres in Owyhee County.

The land is located approximately 11 miles west of Castleford, Idaho. Surface is rolling, soils are fine sandy loams, elevation is approximately 4,080 feet. Vegetation is sagebrush, tumbleweed, and native grasses.

2. At 10 a.m. on October 22, 1970, the land shall be open to operation of the public land laws generally, subject to valid existing rights, the provisions of existing withdrawals, and the requirements of applicable law. All valid applications received at or prior to 10 a.m. on October 22, 1970, shall be considered as simultaneously filed at that time. Those received thereafter shall be considered in the order of filing.

3. The land will be open to location under the United States mining laws at

Mr. Crest
This is some property that Mr Rodney has ready to deal on.

W.W. Grace
COMPLETE REAL ESTATE SERVICE
Grace & Grace Realty - Since 1916

7232 E. 1ST STREET
SCOTTSDALE, AZ. 85251

HOME PHONE 946-9772
PHONE 947-7644

One churn drill hole indicated following values between 250' to 450': 1.45 – 1.52 – 3.12 – 1.82 – 7.60 – 2.75 % of copper.

Price $25,000 1st year
25,000 2nd "
125,000 3rd "
450,000 4th "
2,375,000 5th "

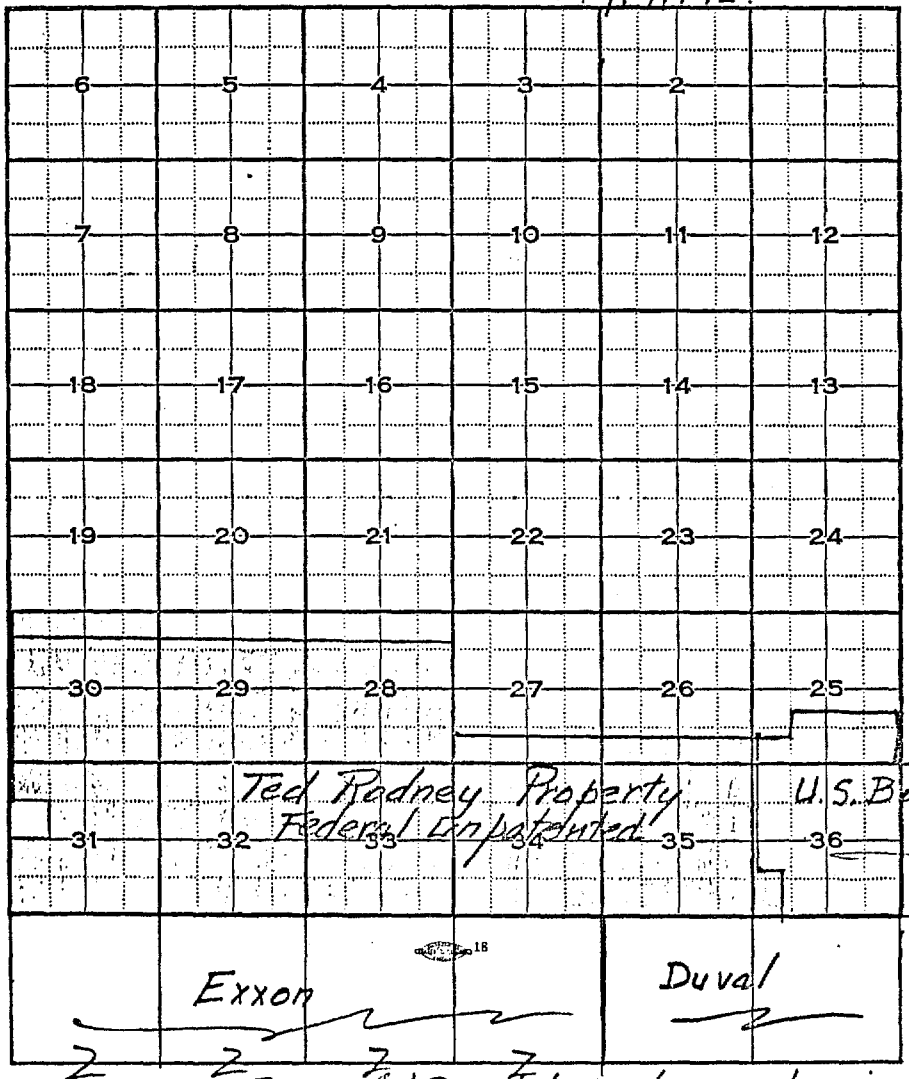
Total Price $3,000,000 on lease option basis.

Shipments To Hayden Smelter in 1930

Tons	Cu %	Gold	Silver	
52	3.00 %	.08	1.24	Most values
52	2.93	.135	.80	is Chrysocolla
49	2.25	.16	.80	
55	2.00	.14	.98	
42	2.10	.12	1.05	
50	1.90	.16	.80	
35	2.70	.17	.86	
46	4.76	.12	1.18	

Township No. 3 S Range No. 7 E

Pinal County, Ariz.



No data WLC

Exxon and Duval have done extensive drilling
Results ?

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

J. H. C.

October 21, 1966

OCT 21 1966

FILE MEMORANDUM

Mineral Butte Prospect
Blackwater Mining District
Pinal County, Arizona

The following information was obtained yesterday in a conversation with Jim Mancusco, geologist, Bear Creek Mining Company.

A portion of the Gila River Indian Reservation including the Blackwater prospect was recently put up for competitive bid for an exclusive prospecting permit. The successful bid in the amount of $76,000 was made by Duval Corporation. Duval had prepared two bids, one in the amount of $76,000 and one for $23,000. Mr. Mancusco had been instructed to attend the proceedings as an observer only. When the Duval representative recognized that a Bear Creek employee was present, he submitted the higher bid. Ironically, there were no other bidders.

A Bear Creek drill hole located on Gray Hill (east extension of Mineral Butte) penetrated a chalcocite zone averaging approximately 0.3% copper. The underlying primary mineralization contained only minor amounts of chalcopyrite. This represents an area of substantial enrichment which is submarginal because of the very low-grade of primary mineralization. Bear Creek drill holes located further to the east intersected pyrite with only trace amounts of copper beneath alluvial cover.

Mr. Mancusco stated that the Bear Creek drilling had indicated a zone of oxide copper mineralization on the reservation in the topographically low area between East Butte and Mineral Butte. He indicated that this oxide copper area was in the vicinity of a diorite intrusive. This is no doubt the intrusive located south of Mineral Butte which Blucher identified as monzonite. Mancusco further indicated that although their drilling was too wide spaced for measurement purposes, the zone of oxide copper mineralization could aggregate as much as 15,000,000 tons. The average grade indicated by their limited drilling was ±0.7% copper--essentially all oxide. Duval personnel had indicated to Mr. Mancusco that they would attempt to develop sufficient reserves to permit a leaching operation.

W. E. Saegart

W. E. SAEGART

WES:pjc
cc: KERichard
JHCourtright

Copy for TAS
7/21/66

W.E.S.
JUL 21 1966

J. E. K.

J. H. C.

AUG 1 1966

AUG 11 1966

J. E. K.

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

July 18, 1966

MR. [redacted] AUG 1 1966
READ AND RETURN
PREPARE ANSWERS ___ HANDLE ___
FILE ✓ INITIALS

Mr. K. E. Richard, Chief Geologist
American Smelting and Refining Company
120 Broadway
New York, New York 10005

GILA RIVER INDIAN RESERVATION
BLACKWATER MINING DISTRICT
PINAL COUNTY, ARIZONA

Dear Sir:

The Bureau of Indian Affairs has announced a competitive sale of exclusive prospecting permits on two tracts of land on the Gila River Indian Reservation. These tracts cover all of the Blackwater alteration zone which is within the Reservation. They are identified on the enclosed map.

A copy of the announcement is also enclosed. The deadline for receipt of sealed bids will be August 15, 1966. The royalty schedule which accompanies the announcement should be of general interest.

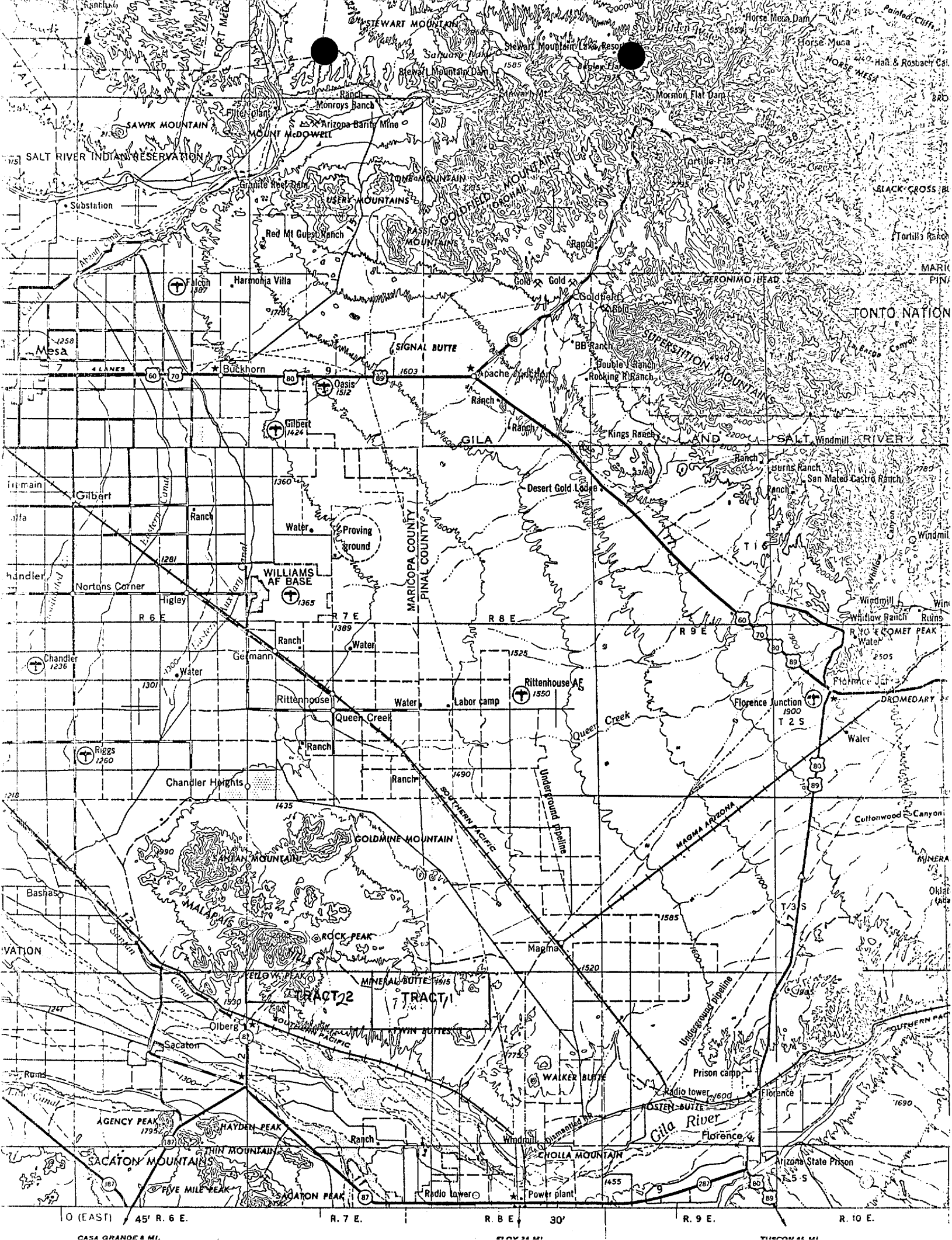
If we had any reason for renewed interest in the Blackwater alteration zone, our primary attention would be directed to Grey Hill and Mineral Butte, both of which are outside the Reservation. The only known target within the two tracts being offered is an area measuring 300' by 900' on the southeast flank of East Butte. You will recall that this area exhibits deep oxidation (±1300' in two old churn drill holes). The size and depth of this particular target do not present an attractive exploration risk. Accordingly, we do not plan to participate in the bidding for either tract.

Very truly yours,

W. E. Saegart

W. E. SAEGART

WES/pjc
Enclosures
cc: JHCourtright, w/ encl.
ACHall, w/o encl.
SIBowditch, w/o encl.


STEWART MOUNTAIN
Stewart Mountain Dam
Stewart Mountain Lake Reservoir
Horse Mesa Dam
Horse Mesa
Mormon Flat Dam
Monroys Ranch
Arizona Barite Mine
SAWIK MOUNTAIN
MOUNT McDOWELL
SALT RIVER INDIAN RESERVATION
Granite Reef Dam
USERY MOUNTAINS
GOLDFIELD MOUNTAINS
Tortilla Flat
Red Mt Guest Ranch
Harmonia Villa
Falcon
Gold
Goldfield
SIGNAL BUTTE
BB Ranch
Double L Ranch
Rocking R Ranch
SUPERSTITION MOUNTAINS
TONTO NATIONAL
Mesa
Buckhorn
Apache Junction
Oasis
Gilbert
GILA AND SALT RIVER
Kings Ranch
Windmill
Burns Ranch
San Mateo Castro Ranch
Desert Gold Lodge
Gilbert
Proving ground
MARICOPA COUNTY
PINAL COUNTY
WILLIAMS AF BASE
Nortons Corner
Higley
Chandler
Germann
Rittenhouse AF
Rittenhouse
Labor camp
Queen Creek
Florence Junction
DROMEDARY
COMET PEAK
Riggs
Chandler Heights
Underground pipeline
SOUTHERN PACIFIC
MAGMA ARIZONA
Cottonwood Canyon
GOLDMINE MOUNTAIN
SAKIAN MOUNTAIN
MALAPAIS
Bashas
ROCK PEAK
YELLOW PEAK
MINERAL BUTTE
TRACT 2
TRACT 1
TWIN BUTTES
Magma
Olberg
Sacaton
Ruins
WALKER BUTTE
Prison camp
Radio tower
Florence
ROSTEN BUTTE
Gila River
AGENCY PEAK
HAYDEN PEAK
THIN MOUNTAIN
SACATON MOUNTAINS
CHOLLA MOUNTAIN
Arizona State Prison
FIVE MILE PEAK
SACATON PEAK
Power plant
T 2 S
T 3 S
T 4 S
T 5 S
R 6 E
R 7 E
R 8 E
R 9 E
R. 6 E.
R. 7 E.
R. 8 E.
R. 9 E.
R. 10 E.
45'
30'

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
Pima Indian Agency
Sacaton, Arizona 85247

Invitation No. 1-67

Date: July 15, 1966

NOTICE OF COMPETITIVE SALE OF EXCLUSIVE PROSPECTING PERMITS WITH OPTION TO LEASE ON GILA RIVER INDIAN RESERVATION

SEALED BIDS will be received until 2:00 p.m. Mountain Standard Time, August 15, 1966, and opened at that time in the office of the Superintendent of the Pima Agency, Sacaton, Arizona, for a mineral prospecting permit on two separate tracts of tribal land of the Gila River Indian Community totaling 10,222.43 acres, more or less. The permits grant an exclusive right to prospect for all minerals other than oil and gas, sand, gravel, building stone, and hydrocarbons with an option to a lease or leases.

The tracts of land are described as follows:

Tract No. 1: Sections 5, 6, 7, and 8, Township 4 South, Range 8 East, and Sections 1, 2, 11, and 12, Township 4 South, Range 7 East, G&SRB&M, Pinal County, Arizona, containing 5649.08 acres, more or less.

Tract No. 2: Sections 3, 4, 5, 6, 8, 9, and 10, Township 4 South, Range 7 East, G&SRB&M, Pinal County, Arizona, containing 4573.35 acres, more or less.

The sale will be conducted under regulations promulgated by the Secretary of the Interior, 25 CFR 171, and Act of May 11, 1938 (52 Stat. 347); 25 U.S.C. 396(a-g). The right is reserved to reject any and all bids, and to disapprove any permits submitted on an accepted bid. Should any bid be rejected or permits disapproved through no fault of the bidder, all deposits shall be returned to the bidder. The bids will be subject to the acceptance of the Gila River Indian Community Council, and approval of the Secretary of the Interior or his authorized representative.

Permits will be sold to the qualified bidder who offers the highest money bonus for each separate tract. Conditional and alternate bids will not be considered. Bids may be delivered in person to the office of the Superintendent, Pima Agency, Sacaton, Arizona, up to the specified time of opening. Telegraph or telephone bids will not be considered. Any bid received after the time specified will not be considered.

Each bid must be accompanied by a certified check, cashier's check, or Postal Money Order, payable to the BUREAU OF INDIAN AFFAIRS, for at least 25 percent of the bonus bid. If a bid is made on behalf of a corporation, the bidding officer must furnish evidence of authority to sign the bid. Deposits from unsuccessful bidders will be returned. In the event two or more bids are in the same amount and such bids are the highest qualified bids, the bidders may be required to draw lots to determine the successful bidder. A bidder must furnish with

his bid on Attachment No. 2, names and addresses of three persons or firms of whom inquiry can be made as to the character, mining experience, and financial standing of the bidder.

The successful bidder on each separate tract will be allowed 30 days from date of notification of award to complete and return to the Superintendent, Pima Agency, Sacaton, Arizona, a properly executed permit, and make payment of the remainder of bonus bid, and filing fee in the amount of $10.00. Upon written request the Superintendent may, in his discretion, extend the time, not to exceed sixty (60) days without written consent of the Community Council, for submitting the completed permit but no extension shall be granted for remitting the balance of moneys due.

The Permittees on each separate tract shall furnish a corporate surety bond, acceptable to the United States, in the amount of $5,000.

The permit on each separate tract will grant an exclusive right for a period of two (2) years from the date of approval by the Secretary of the Interior or his authorized representative to prospect for all minerals except oil and gas, sand, gravel, building stone, and hydrocarbons. The Permittee may exercise his option at any time during this term to a lease or leases on the land embraced in the permit. A lease may not exceed 2,560 acres.

The Permittees shall spend annually for prospecting not less than one dollar ($1.00) per acre.

Leases issued under these permits will be for ten (10) years and so long thereafter as minerals are produced in paying quantities. While any of the leased land is under Federal jurisdiction, the royalty provisions of the lease are subject to adjustment by the Secretary of the Interior or his authorized representative at the end of the first five-(5) year period and each successive ten-(10) year period thereafter, such adjustments being based upon market conditions as supported by evidence from the field. Annual rate of rental will be $1.00 for each acre.

There are attached hereto, and by this reference made a part of this Notice of Sale, a copy of Mineral Prospecting Permit (Exclusive with Option), Form 5-155(b), and Mining Lease Indian Lands (For Minerals other than Oil and Gas), Form 5-159, which shall be used for the execution of a permit or lease on each separate tract. The royalty rates set out in detail in the lease govern and are payable to the Superintendent. Exhibit "A" attached to lease Form 5-159 is by this reference made a part thereof.

Item 2(p) of Permit Form 5-155b is expanded to include aerial photographs and other basic data, such as geological and geophysical maps, charts, or sections prepared on which the detailed and complete written reports are based.

Item 24 shall be added as a condition to lease Form 5-159 and become part of the lease as follows: In the event any expense becomes

necessary in the protection of the lessors interests, the lessee shall pay any and all expenses incurred.

The last sentence of lease Form 5-159, Item 18, ROADS, shall be deleted from the lease form.

Item III(1)(a) of lease Form 5-159 shall be changed to read as follows: To pay, or caused to be paid, to the Superintendent for the use and benefit of the Lessor, at the beginning of each lease year, commencing with the third (3rd) lease year, a minimum royalty of $4.00 per acre; if there is production during the lease year, the advance minimum royalty shall be credited against the actual royalty on production payable during such year. If the lease is surrendered or canceled, no advance royalty paid to Lessor will be refunded.

In addition to the stipulated royalties and rental, the Lessee shall pay fifty dollars ($50) per acre for acreage used for open-pit mining, dumping of waste materials, or construction. This amount shall be paid at the end of the lease year in which the use of the acreage commences. At the termination of the lease all dump or waste materials on the premises shall become the property of the Gila River Indian Community.

Although the exterior boundaries of the areas being advertised have been located by a public land survey, or projections of unsurveyed section, should a more detailed survey be necessary for outlining the leased area, the expense of such detail survey shall be borne by the Lessee.

In addition to all other remedies provided by law, failure of the successful bidder to comply with the terms of the sale will make any deposit made by or due from him subject to forfeiture without further action on the part of the Pima Agency.

All bids must be addressed to the Superintendent, Pima Agency, Sacaton, Arizona 85247, in a plain envelope marked in the lower left hand corner, "Bid - Prospecting Permit, Opening 2:00 p.m., MST, August 15, 1966."

Bidders are requested to submit their quotations on Attachment No. 1. Additional information regarding this permit offering may be obtained from the Pima Agency.

Kendall Cummings
Superintendent

Date: July 15, 1966

PART III (1). ROYALTY. To pay or caused to be paid to the Superintendent, Pima Agency, Sacaton, Arizona, for the use and benefit of the Lessor, a royalty, calculated on a monthly weighted average on the basis of tonnage of the ore mined and milled or delivered to a treatment plant on the net smelter returns as hereinafter defined, and abbreviated as NSR, as follows:

5%	of NSR for ore with NSR (per short ton)	$3.00 or less	
6%	" " " " " " " " "	3.00 to and including	$3.25
7%	" " " " " " " " "	3.25 " " "	3.50
8%	" " " " " " " " "	3.50 " " "	3.75
9%	" " " " " " " " "	3.75 " " "	4.00
10%	" " " " " " " " "	4.00 and up	

"Net smelter return" shall mean the net proceeds (after subtracting freight, hauling, smelter treatment, smelter deductions and all other such charges away from the Lessee's plant) received or to be received for the ore mined (or for concentrates and/or mill products produced by the Lessee therefrom) from the premises when sold to a bona fide purchaser; but should such ores, concentrates and/or mill products be retained by the Lessee, the charges above mentioned shall not exceed those of custom mills or smelters for comparable services. All subsidies shall be added to the metal price in computing NSR.

For Uranium and Associated Minerals: The royalty to be paid or caused to be paid to the Superintendent, Pima Agency, Sacaton, Arizona, for the use and benefit of the Lessor for uranium and associated

minerals shall be negotiated between the Lessor and Lessee and approved by the Secretary following discovery of said minerals in commercial quantities and prior to the production or sale of uranium and associated minerals on or off the leased premises.

PART III (1)(a). ADJUSTMENT OF ROYALTY. Royalty rates will be subject to reasonable adjustment by the Secretary of the Interior or his authorized representative at the end of the first five-year period and each successive 10-year period thereafter based on market conditions as supported by evidence from the field.

PART III (1)(b). EXCAVATION, WASTE, AND CONSTRUCTION AREAS. To pay, or caused to be paid, to the Superintendent for the use and benefit of the lessor, Fifty Dollars ($50) for each acre or part of an acre used for open-pit mining, dumping of waste materials, or permanent construction. This amount shall be paid at the end of the lease year in which the use of the acreage commences.

PART III (1)(c). OWNERSHIP OF WASTE MATERIALS. Upon the cancellation, termination, or expiration of this lease, the alluvium and waste materials on the leased premises shall become the property of the Lessor.

PART III (1)(d). LEACHING. Lessee agrees to pay a ten percent (10%) royalty of net smelter return on amounts realized on all sales of minerals recovered by leaching ores and other materials in place in the leased property, by leaching such materials after they have been mined

or extracted from the leased property, or by leaching the waste material resulting from the treatment of ores from the leased property. Lessee will pay the royalty computed under this section for each calendar month to the Superintendent for the use and benefit of Lessor before the end of the next calendar month, and a statement showing how this royalty was determined will accompany this payment.