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James Doyle Sell Mining Collection

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J. H. C.

AUG 11 1969

AMERICAN SMELTING AND REFINING COMPANY  
Tucson Arizona

July 10, 1969

TO: Mr. W.E. Saegart

FROM: Mr. J.D. Sell

*Kelsey Boltz**S of Prescott*Copper Basin Prospect  
Tiger Mining District  
Yavapai County, Arizona

A new drill hole by Utah Construction Company had a thin (#16 feet) intercept of chalcocite on pyrite and chalcopyrite. Overall values in the hole are lower than the reported average for the deposit but are probably nearly the same as previous drill holes in the immediate area. The previous estimate by Kelsey Boltz of one half billion tons averaging 0.14% copper and 0.017% moly for the deposit does not appear to be modified by the new drill hole information.

No further commitment is warranted at this time.

Mr. H.D. Hand, 2030 E. Speedway-Room 207, Tucson, (ph. 325-8122) has brought to our attention the subject property. This is the same property drilled out by Kelsey Boltz in 1966, a report of which is in the files.

Utah Construction optioned the property from Minerals Trust Corporation (of which Hand and Hale Tognoni have a part) in 1968 and drilled one-60° drill hole to a depth of 1012 feet (or approximately 505 feet below the surface). Boltz holes in the same area were 230 and 291 feet in depth.

The Utah hole (#C-J-1) encountered a chalcocite zone from about 12 to 28 feet (vertically) which averaged 0.39% copper and 0.014% Mo. Elsewhere they geochemed two zones; one at 80-90 feet (incline) ran 735 ppm Cu and 134 ppm Mo with the second at 180-190 feet (incline) running 590 ppm Cu and 14 ppm Mo. The bottom of what was termed "pervasive" sulfides was at 332 feet (incline) (or 166' vertically) while the bottom of "trace amounts of chalcopyrite and pervasive moly" was at 705 feet (incline) (or 350' vertically). The low values in the assayed intervals apparently precluded further assaying.

Copies of the Tognoni report and the assay, geochem, and drill hole location reports of UMC are attached. The IP data was briefly scanned by Wayne Farley. All data secured from Mr. Hand has been returned to him with our thanks.

  
James D. Sell

JDS:ir

cc: JHCourtright ✓

# Mineral Economics Corporation

CONSULTING MINING ENGINEERS AND GEOLOGISTS

1525 WEST NORTHERN AVENUE  
PHOENIX, ARIZONA 85021  
4-2124

HALE C. TOGNONI, P.E. 2048  
MINING AND GEOLOGICAL ENGINEER  
GEORGE-ANN TOGNONI, CARTOGRAPHER

## COPPER BASIN, FORT MISERY, YAVAPAI COUNTY, ARIZONA

June 20, 1969

### ABSTRACT

Copper Basin is an amphitheater-shaped canyon situated on the west slope of the Bradshaw Mountains thirty miles south of Prescott, Arizona and covering an area of nearly four square miles, the center of which lies near the East Quarter Corner of Section 10, T9N, R1W, in Yavapai County, Arizona.

Kelsey Boltz, geologist, conducted a preliminary mapping and drilling program on the property for Coleman Morton of Los Angeles and William D. Witter of New York from July 1, 1966 to October 12, 1966, costing \$53,000.00. Existing claims were relocated to cover completely the mineralized area and to insure adequate operating space.

Boltz concluded: "Data obtained from the project indicates the possibility of the existence of approximately 500,000,000 tons of rock containing 0.14% copper and 0.017% molybdenum." The exposed rocks show disseminated copper and molybdenum mineralization over a large portion of the Basin.

Minerals Trust Corporation, as Trustee, entered into an agreement to purchase Copper Basin on November 28, 1967. In the summer of 1968 Utah Construction and Mining Co. under contract with Minerals Trust improved the road from Castle Hot Springs to the property, did geophysical and geochemical work thereon and drilled one 1012 foot hole on the south side of the property dipping 60° to the south.

Utah's "pulse" I.P. showed variances from 10 to 61 milli-volts chargeability and its resistivity variances were from 500 to 3500 ohms per foot. Utah's drill hole for the first 60 feet was in chalcocite and averaged .37% copper and .014% molybdenum. From 60 feet to 705 feet disseminated chalcopyrite and molybdenum appeared.

## LOCATION AND DESCRIPTION

The Copper Basin property is located in the Silver Mountain Mining District in Yavapai County, Arizona. It lies approximately ten rough road miles south of Crown King, twelve miles north of Castle Hot Springs and thirty miles south of Prescott, Arizona.

Copper Basin is the name given to an amphitheater-shaped canyon situated on the west slope of the Bradshaw Mountains covering an area of nearly four square miles, the center of which lies near the East Quarter Corner of Section 10, T9N, R1W, Gila and Salt River Base and Meridian.

The Basin property occupies portions of Sections 2, 3, 4, 9, 10, 11, 14 and 15, Township 9 North, Range 1 West and consists of the 73 unpatented Jane No. 1 through 73 lode mining claims (approximately 1460 acres) which are recorded in the Yavapai County Recorder's office at Prescott, Arizona in Book 409 at pages 240 through 276, Book 412 at pages 285 through 320 and in Book 412 at pages 248 through 284.

## OWNERSHIP

The Copper Basin property is held by Minerals Trust Corporation, as Trustee, under a Mine Lease and Option Agreement dated November 28, 1967 wherein Robert Krohn, Dave Peters, Billy Lowe and George Rowe are Lessors. Lease terms are \$5,000.00 per year, plus the annual assessment work. All payments apply against an end price of \$500,000.00.

Hand-Fulton Ventures and ORETEK, INC. are beneficiaries under the trust. Hand-Fulton owns a 50% beneficial interest and ORETEK owns a 50% beneficial interest.

## GENERAL GEOLOGY

### I. History

Copper Basin was given its name by soldiers stationed at near by Fort Misery because of copper stained rock appearing in streams that dissect the basin-like area and of the visible chalcopryite seen in the exposed rocks.

George Rowe, Robert Krohn, Billy Lowe and David E. Peters originally located the Travis #1 through #20 lode mining claims in the Basin. These claims were later relocated as Jane No. 1 through No. 73 lode mining claims.

Coleman Morton and William D. Witter had a lease and option agreement from the locators of the Travis claims and as part of that agreement relocated the area covered by the Travis claims with the Jane No. 1 through No. 73 lode mining claims. Under this lease and option agreement Kelsey Boltz conducted a preliminary mapping and drilling program on the property.

Minerals Trust Corporation, as Trustee, entered into its present agreement to purchase Copper Basin on November 28, 1967.

On the 3rd day of June, 1968, Minerals Trust leased Copper Basin to Utah Construction and Mining Company in consideration for an exploration commitment. Utah further improved the road from Castle Hot Springs to the property, did some geophysical and geochemical work thereon, drilled on hole 1012 feet deep on the south side of the property dipping 60° to the south and filed the necessary Affidavit of Labor on the property for 1967-68. Part of Utah's work was done after September 1, 1968 and an Affidavit of Labor was filed on that work for 1968-69.

#### Drilling (Boltz Program)

Core drilling was done by Boyles Brothers, with a Joy Manufacturing Co. screw-feed, skid mounted, wire line rig. Two shifts per day were run.

Plug bit drilling was accomplished by Annesley using an air-track mounted down-hole air rig, manufactured by Halcotrak.

#### Sampling (Boltz)

Cores were pulled and placed in 10 foot, 200 pound test cardboard core boxes, transported to Phoenix, logged, then split. One half was retained for future reference and the other two sent to Hawley and Hawley in Tucson and Arizona Assay Office in Phoenix for copper and molybdenum determinations, and the results tabulated. All rejects were retained and stored for future reference.

Sludge samples were taken each shift and assayed as a check and for reference in the event of low core recovery. Core recovery, however, remained substantially 100%.

Two splits were taken of the air-blown cuttings from the down-hole rig. One split was taken to the Zonia Mine of McAlester Fuel Company for copper and molybdenum determination by X-ray spectrograph and the other split was stored for future reference.

## II. Geology (Boltz)

"The principal host rock of the Basin is a phase of the rock commonly known as the Bradshaw granite. The exposed rocks show disseminated copper and molybdenum mineralization over a large portion of the Basin.

"In the subject area, this rock is megascopically quartz monzonitic in composition and exhibits a flow structure or foliation in the parallel orientation of the biotite crystals. In the approximate center of the Basin the quartz monzonite has been intruded by a diorite porphyry. The surface exposure of this intrusive is elongate having approximate east - west and north - south dimensions of 2000 feet and 800 feet respectively. Mineralization is localized primarily in the intensively fractured quartz monzonite in a 600 to 800-ft. wide zone around the periphery of the diorite porphyry. The diorite porphyry is occasionally mineralized near its contact with the quartz monzonite. Hydrothermal alteration and supergene alteration extend from the diorite porphyry as much as 3000 feet distant.

"The principal metallization occurs as pyrite, chalcopyrite and molybdenite, the pyrite occurring in fractures and commonly as replacements of the biotite. The chalcopyrite and molybdenite occur primarily along quartz-filled fractures.

"Potassic alteration and silicification are those which occur commonly with the metallization. Quartz-sericite alteration, chloritization, and weak pyritization extend considerably beyond the metallized zone.. Only the intense metallization and potassic alteration are shown on Plate 2." (Boltz report)

A "breccia zone in" the Northeast portion of the Basin "received special attention because the first shallow hole in this zone obtained results which were significantly higher than the previous average. (Hole 102A). However, a subsequent deeper core hole failed to substantiate any extension of higher metal content of significance."

"The drilling program was designed to check the metal content of areas within the metallized zone which exhibited the most intense surface expression of mineralization."

The Boltz drilling disclosed in his opinion the "absence of any significant supergene enrichment" and "showed the 'protore' metal content to be singularly consistent" in the limited area drilled "in the range of from 0.07% to 0.24% Copper and from 0.01% to 0.03% Molybdenum" in that same area.

## PROPERTY STATUS

Personnel of Mineral Economics Corporation retained by Minerals Trust Corporation for the benefit of its beneficiaries, are proceeding with the program set forth in the development of the Copper Basin property and for the purpose of completing the assessment work requirements for the 1968-69 Year.

1. Construct a rough road starting at the top of the hill above Fort Misery turnoff and running along the edge of the south side of the north rim of the Basin to connect into the road constructed by Coleman Morton on the northeast corner of the property.
2. Conduct a geochemical survey along the line where the new road will be constructed taking as many samples that can be analyzed within the limits of funds available. Analysis for parts per million (PPM) in Ag, Cu, Pb, Zn and Mo will cost \$5.00 per sample.
3. Layout additional drill sites along this new road.
4. Evaluate drill hole results, geophysical data and geochemical samples obtained from Boltz, Utah Construction and the above geochemical work.

## EXPLORATION AND DEVELOPMENT PROGRAM

### I: Previous Exploration and Development

2,335 feet of drilling was completed on the property under the Boltz program and reported on by him as indicating the possibility of the existence of 500,000,000 tons of .14% copper and .017% molybdenum.

Utah Construction and Mining Co. drilled on 1,012 foot hole on the east side and the top portion of this hole showed .37% copper (chalcocite) for the first 60 feet and chalcopyrite and molybdenum thereafter to the depth of 705 feet.

Utah Construction and Mining Co. also did a considerable amount of geophysics over the property and their survey indicated anomalous sulphides. Utah's "pulse" I.P. showed variances from 10 to 61 milli-volts chargeability and its resistivity variances were from 500 to 3500 ohms per foot.

The Boltz exploration program indicates the existence of a disseminated copper deposit while the Utah program indicates the presence of some secondary chalcocite.

The Utah drill log indicates that they sampled only in the upper 60 feet of that drill hole. These three samples ran .40,

.56 and .16 in copper. The Utah I.P. line appears to have located a number of other highs on it in addition to the one that they drilled.

Exploration and development work to date indicate the following:

1. A disseminated copper and molybdenum deposit exists in the Copper Basin area, the quantity and quality of which is yet to be fully determined.
2. Geochemical and geophysical observations made by Utah Construction indicate more drilling is merited to the north, in addition to holes at greater depth in the central area of the deposit.
3. In the area north and northwest of the drilled area, a considerable amount of quartz-sericite alteration with chloritization and replacement of pyrite by limonite on fractures showing considerable evidence of leaching in the Bradshaw granite can be seen. Some gossan was observed.
4. Bearing the geochemical and geophysical anomalous conditions in mind, it would, therefore, seem that either one of two conclusions should be suggested:
  - a. Mineralization drilled by the Kelsey Boltz program was on the periphery of the mineralized zone and that one could expect these grades to increase at depth and to the north and northwest.
  - b. The second conclusion suggested by the above observations would be that the area to the north and northwest which are covered by a considerable amount of altered rock has not been subject to the rapid erosion of the drilled area. Therefore, the mineralization from the upper portion of the protore could have been leached out to enrich the lower portion at the water table.

## II. Current Exploration

During the summer of 1969 the following development work is programmed to complete 1968-69 assessment work;

1. Construct a rough road starting at the top of the hill above Fort Misery turnoff and running along the edge of the south side of the north rim of the Basin to connect into the road constructed by Coleman Morton on the northeast corner of the property.
2. Conduct a geochemical survey along the line where the new road will be constructed taking as many samples that can be analyzed within the limits of funds available. Analysis for parts per million



(PPM) in Ag, Cu, Pb, Zn and Mo will cost \$5.00 per sample.

3. Layout additional drill sites along this new road.

4. Evaluate drill hole results, geophysical data and geochemical samples obtained from Boltz, Utah Construction and the above geochemical work.

### III. Development Program

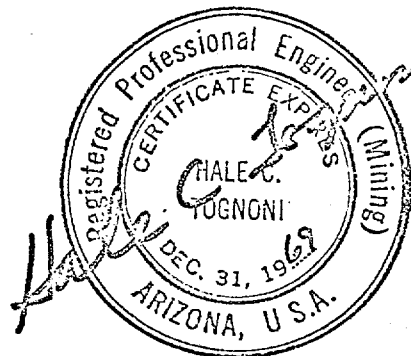
Upon the results of the 1968-69 assessment work being completed, add that information to this summary report. Copies of a report then will be presented to interested mining companies with the expectation of leasing the property to such a company in consideration for performing specified exploration and development work and subsequent production.

If satisfactory lease terms cannot be arranged with third parties, then the beneficiaries of the trust intend to continue with their own program of testing and drilling the area.

### RECLAMATION AND CONSERVATION

The beneficiaries of the Copper Basin Trust contemplate that as the mineral on the property is developed, claims should be patented to secure the title.

The Copper Basin property, if properly developed and mined, under sound reclamation and conservation practices, could result in utilizing the natural advances of the property and thereby improve the land value.



# ROCKY MOUNTAIN GEOCHEMICAL CORPORATION

RENO OFFICE  
1491 EAST 7th STREET  
RENO, NEVADA 89502

Phone 323-3510  
Area Code 702

## CERTIFICATE OF ANALYSES

Date September 30, 1968

Page 1 of 1

Client Utah Construction and Mining Company  
70 Linden Street  
Reno, Nevada

Report on: 2 rock samples

Submitted by: Mr. Taylor

Date Received: September 25, 1968

Analysis: Silver, Copper and Molybdenum

Remarks: Silver and Copper analyses determined by atomic absorption; Molybdenum determined colorimetrically.

Job #68-17-23R

cc: Enclosed (2)  
RMGC - S.L.C.  
File

GJL:1ke

Interval	Sample No.	ppm Silver	ppm Copper	ppm Molybdenum
180.0' - 190.0'	1204	0.3	590	14
80.0' - 90.0'	1205	0.5	735	134

split core samples  
from C-J-1

0.0134% Mo

June Cr., #4123  
Copper Basin Area  
Buckhorn Mtns.  
Navajo Co., Arizona

By George J. Lindenberg  
George J. Lindenberg

All values are reported in parts per million unless specified otherwise. A minus sign (-) is to be read "less than" and a plus sign (+) "greater than." Values in parentheses are estimates. This analytical report is the confidential property of the above mentioned client and for the protection of this client and ourselves we reserve the right to forbid publication or reproduction of this report or any part thereof without written permission.

ND = None Detected

1 ppm = 0.0001%

1 Troy oz. / ton = 34.23 ppm

% Mo x 1.6093 = % Mo<sub>2</sub>

JOE LESTER AND

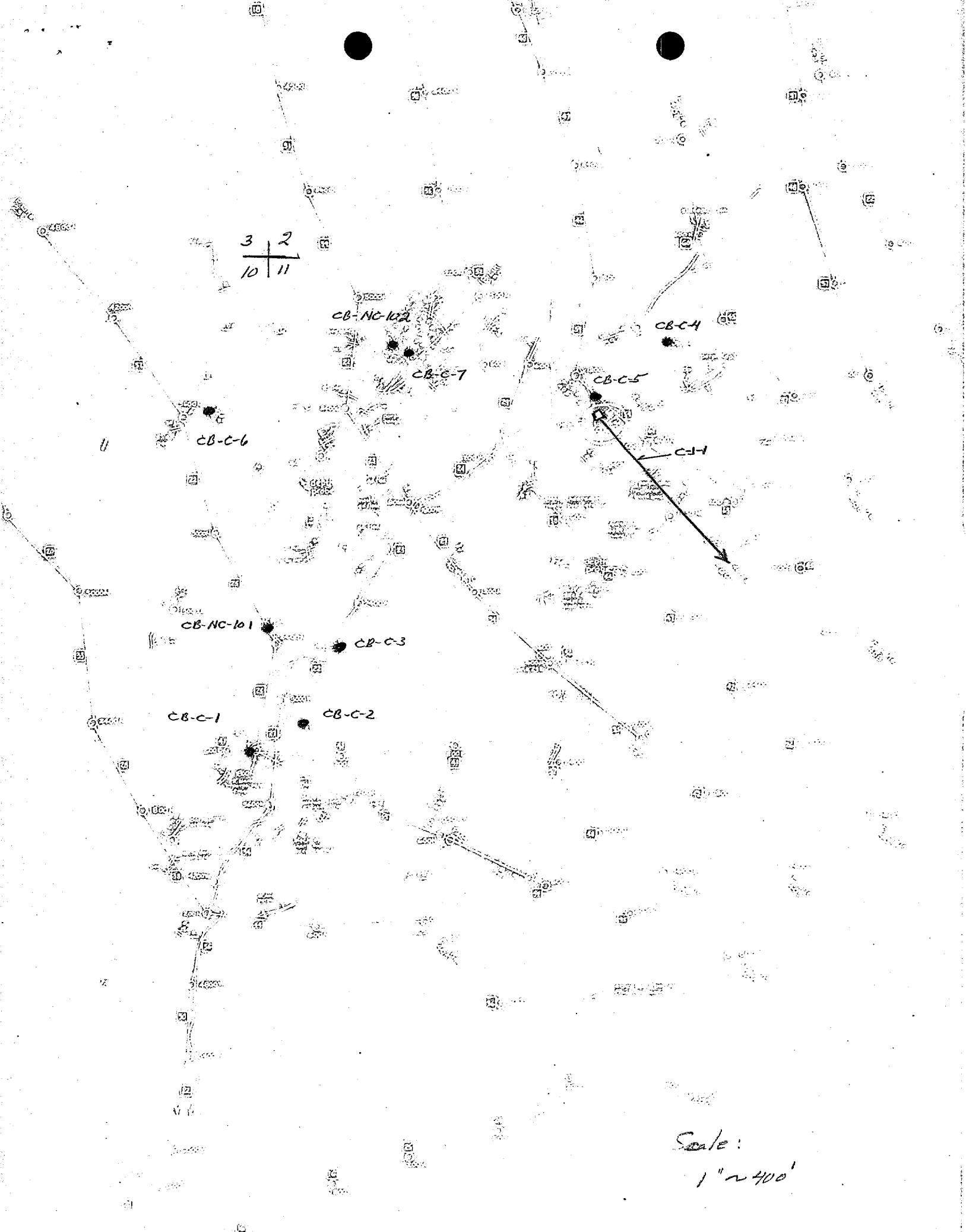
FRANK W. JONES  
Assayer-Chemist

October 13, 1963

Phone  
329-4080

ASSAY CERTIFICATE FOR: Utah Construction Co., Reno, Nev.

NO.	SAMPLE Interval	GOLD oz / TON	SILVER oz / TON	CU %	MO.			
	#1201 28.0' - 40.0'	Tr	0.5	.40	.011			
	1203 40.0' - 51.5'	Tr	0.2	.50	.019			
	1203 51.5' - 60.0'	Tr	0.2	.16	.013			
<p>All from C-J-1          Lone Grp., #4123          Navapai Co., Ariz.</p>								



3 2  
10 11

CB-NC-102

CB-C-7

CB-C-4

CB-C-5

CB-C-6

C-1

CB-NC-101

CB-C-3

CB-C-1

CB-C-2

Scale:  
1" ~ 400'

August 28, 1962

*JFC*  
*Da 25.20.3*

MEMORANDUM FOR MR. KENYON RICHARD

*8/30/62*

Copper Basin Prospect  
Tiger Mining District  
Yavapai County, Arizona

The subject property was brought to our attention when a prospector brought in samples with disseminated sulfide copper and iron to our field office at Casa Grande. The examination required two trips: the first, to arrange for horses and, the second, to actually reach the area. Our field time was also limited since one of the men had to return to his regular job. On both trips I was accompanied by Mr. Jim Myers and Mr. Jack Turnbull. The field work was done on August 26, 1962.

SUMMARY AND RECOMMENDATIONS

A large area of Precambrian granite and gneissic granite is slightly altered and moderately iron-stained. Erosion has stripped away all the leached capping in the steep, rough gulches so that primary sulfides are clearly exposed. The evaporation of intermittent water in the gulches has left streaks of copper stain in many places. A number of specimens, considered to be about average, were taken of the sulfides and these averaged 0.14% copper with a trace of gold and 0.2 oz. silver per ton; molybdenum was detected qualitatively.

I believe that with the primary -- and possibly slightly enriched -- sulfides now well-exposed in the drainage that no better copper content can be expected in the area examined. The possibility, but not probability, exists that better areas may be present elsewhere.

In view of the facts now known I do not recommend that we do any further work, but I have advised Mr. Turnbull that if they can turn up any better mineralization on a large scale that we would re-open the matter.

LOCATION AND ACCESS

The property is located at the south end of the Prescott National Forest, Yavapai County, in an area known as Copper Basin. It is reached by following the paved Black Canyon Highway (State Highway 79) north from Phoenix about 52 miles to the Bumble Bee turn-off. A graded road is followed via Bumble Bee and Cleator to Crown King, a summer recreational area in the pine forests at about 5,000 ft. elevation. From Crown King, fair to poor dirt roads are followed via the Tiger and Oro Belle mines to Fort Misery in Humbag Creek, a total distance from the paved road of 36 1/2 miles. The last four miles from Oro Belle mine took 45 minutes, and the track is passable only with high-center. The details of the topography are shown by the map.

From a place known as Al Francis, about 1 mile south of Fort Misery, we took the trail to Copper Basin. At present some prospectors, who have a number of claims in Copper Basin, are building a Jeep trail into the area, but the track follows a circuitous route in order to stay out of the National Forest.

Elevations range from about 4,000 ft. at the mouth of Copper Basin to 7,450 ft. at Lane Mountain, 2 miles to the north-northeast. The lower elevations are covered with a thick growth of brush and small trees; the pines are confined to elevations above 6,000 ft.

Although no running streams exist, many springs issue from the hill-slopes and some are reported to have water year-around. Precipitation is much greater than in the surrounding desert and undoubtedly many of the roads would be closed for short periods during the winter months.

#### HISTORY AND PRODUCTION

As far back as 1874 gold and silver have been mined from the area around Crown King and in later years some copper, lead, and zinc were shipped from some of the small mines that dot the area. With the many miles of underground workings, Lindgren estimated that up to 1924 the value of the total production was less than \$3,000,000. Relatively little work has been done since then.

Around Copper Basin, however, little exploration has ever been done; a few old location holes were found but nothing more. High on the east side of the Basin Lindgren mentions the Lane mine that is said to explore a silver-bearing vein with quartz and spar. The mint report of 1884 states that 300 tons of ore treated in a 4-stamp mill yielded \$50,000 in gold and silver.

Three men are now beginning to prospect on the east side of Copper Basin and hope to be able to make some small shipments of high-grade silver ore.

#### CLAIMS

Jim Myers of Casa Grande and Jack Turnbull of Coolidge located about 15 mining claims in the fall of 1961, largely on the west side of Copper Basin, but never did the location work. Myers is originally from Florence and has ranched and prospected all his life but is now a truck driver. Turnbull started mining in the Tri-State district about 40 years ago and has been associated with mining ventures from time to time since then. He now has a farm equipment business in Coolidge.

While we were in the field Myers located about six claims. We also found location notices indicating that a Billy W. Lowe has staked at least 11 claims in June, 1962, named the Travis group. Lowe is one of the three men building the Jeep trail and prospecting on the east side of Copper Basin.

#### TERMS

Terms were discussed in a general way with Turnbull. They would be willing to give a purchase option for a period of several years, without any down payment, and a modest payment each year after the first. We would have to see that location and assessment work was done. Such interim payments would apply on purchase price that may be in the order of \$300,000. A 5% royalty on any shipments made during the option period would also apply on purchase price.

Turnbull mentioned to Lowe, whom we met at our camp, that a large mining company may be interested in the area but that both parties would probably have to get together to swing any deal. Lowe, according to Turnbull, was definitely interested.

In view of the results no further discussions of terms was made, however, I did discuss Turnbull by telephone of the results of our assays. I also told him that if they could find up much better mineralization that we would re-consider the area.

#### GEOLOGY

The regional geology has been described by Lindgren in U. S. G. S. Bulletin 782 entitled "The Geology of the Jerome and Bradshaw Mountains Quadrangles, Arizona" published in 1924 and based on field work done in 1922.

The attached enlargement of a portion of the Crown King quadrangle shows the regional features. A north-northeast trending belt of Precambrian volcanic schist extends from about Fort Micer to Mason Peak and the easterly contact is crossed on the trail to Copper Basin. Copper Basin itself is underlain by Precambrian granite and gneissic granite, locally iron-stained. In one small area outcrop of fresh medium gray quartz diorite porphyry were noted; this rock may be younger than Precambrian.

East and west of Copper Basin are rhyolite dikes that are emplaced along faults. Many of the veins are said to be located along these dikes. None was seen at Copper Basin.

#### MINERALIZATION

All mineralization seen was either in granite or gneissic granite. As seen from the distance a large area, perhaps 1,000 ft. wide and several times longer with a general easterly trend of moderate discoloration can be noted. The steep topography -- as much as 900 ft. of vertical relief for 1,000 ft. horizontally -- has allowed rapid erosion to strip away all leached material in the gulches. But these rock outcrops are deceptive as the water-worn surfaces often look like a fresh, unmineralized outcrop. When broken considerable pyrite and, in places, chalcopyrite is readily visible. The granitic rock is also cut by many milky quartz stringers, some up to several inches wide, and these localize the better copper mineralization. Between the stringers, however, minor chalcopyrite is disseminated in the rock.

Pyrite in the more strongly mineralized areas may be as high as 10%, but the average may be closer to 1 to 5%. Alteration otherwise is relatively weak but some quartz and calcite has been developed. Some of the iron stain is probably due to breakdown of feldic minerals.

In places the granitic surfaces are stained by green copper leached out by intermittent springs, transported and re-deposited as a thin surface stain.

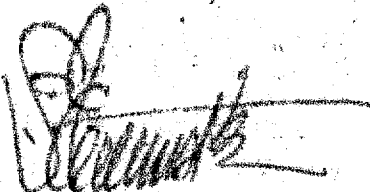
The intervening ridges are capped by overburden in many areas, but the material is well-leached and shows the typical signs of strong original sulfide mineralization. The capping is probably thin; one prospect hole shows it to be less than 10 ft. thick.

#### SAMPLES

Took 2 specimen samples in the gulches when sulfides are exposed, and one from a relatively new prospect pit. The copper assays are less than I had estimated from visual inspection, suggesting that some of the fine-grained bronze mineral thought to be chalcopyrite is actually pyrite. The nine outcrop samples ranged from 0.07% to 0.60% Cu and averaged 0.10% Cu; one sample from the prospect pit assayed 0.18% Cu. A composite assayed a trace of gold and 0.21% Ag per ton; a small amount of molybdenum to be present.

These samples represent pieces broken off at random and do not follow any pattern. The locations were not picked for either high or low grade. The low copper content indicates to me that no large area exists in the gulches and intervening areas that will contain enough copper to be economic. No better grade can be expected in depth as the primary sulfides, possibly slightly enriched, are now clearly exposed. If these samples had averaged say 0.5% copper, then a detailed sampling program could have been recommended.

The samples do not, however, rule out the possibility that other areas of better grade may be found. It seems doubtful, however, as surely more exploration would have been done.



L. P. ENTWISTLE

LPE/kw

Att: Map

cc: CPPollock, w/map

DJ Pope, "



Copper Basin (Togo Dist.)

Sec. 2, 3, 10, 11 T9N, R14W.

(East of Fort Misery, Crown King Quad).

Fals. Aa 25.20.3

Qty. magnetite intruded by diorite porphyry

2000 EW x 800 NS.

Magnetization localized in 400-800 zone periphery to dior. porph.

Py. q. & moly.

Ave of 9 holes 0.137% Cu & 0.017% Mo. { Cu 0.07-0.13%  
Mo. 0.001-0.028

Center of area near E 1/4 corner of Sec. 10, T9N, R14W.

Not on map sheet!

AMERICAN SMELTING AND REFINING COMPANY  
Tucson Arizona

July 10, 1969

TO: Mr. W.E. Saegart

FROM: Mr. J.D. Sell

Copper Basin Prospect  
Tiger Mining District  
Yavapai County, Arizona

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Mr. H.D. Hand, 2030 E. Speedway-Room 207, Tucson, (ph. 325-8122) has brought to our attention the subject property. This is the same property drilled out by Kelsey Boltz in 1966, a report of which is in the files.

Utah Construction optioned the property from Minerals Trust Corporation (of which Hand and Hale Tognoni have a part) in 1968 and drilled one-60° drill hole to a depth of 1012 feet (or approximately 505 feet below the surface). Boltz holes in the same area were 230 and 291 feet in depth.

The Utah hole (#C-J-1) encountered a chalcocite zone from about 12 to 28 feet (vertically) which averaged 0.39% copper and 0.014% Mo. Elsewhere they geochemed two zones; one at 80-90 feet (incline) ran 735 ppm Cu and 134 ppm Mo with the second at 180-190 feet (incline) running 590 ppm Cu and 14 ppm Mo. The bottom of what was termed "pervasive" sulfides was at 332 feet (incline) (or 166' vertically) while the bottom of "trace amounts of chalcopyrite and pervasive moly" was at 705 feet (incline) (or 350' vertically). The low values in the assayed intervals apparently precluded further assaying.

Copies of the Tognoni report and the assay, geochem, and drill hole location reports of UMC are attached. The IP data was briefly scanned by Wayne Farley. All data secured from Mr. Hand has been returned to him with our thanks.

  
James D. SellJDS:ir  
cc: JHCourtright

Aa-25720.3

# Mineral Economics Corporation

CONSULTING MINING ENGINEERS AND GEOLOGISTS

1525 WEST NORTHERN AVENUE  
PHOENIX, ARIZONA 85021  
WI 4-2124

HALE C. TOGNONI, P.E. 2048  
MINING AND GEOLOGICAL ENGINEER  
GEORGE-ANN TOGNONI, CARTOGRAPHER

## COPPER BASIN, FORT MISERY, YAVAPAI COUNTY, ARIZONA

June 20, 1969

### ABSTRACT

Copper Basin is an amphitheater-shaped canyon situated on the west slope of the Bradshaw Mountains thirty miles south of Prescott, Arizona and covering an area of nearly four square miles, the center of which lies near the East Quarter Corner of Section 10, T9N, R1W, in Yavapai County, Arizona.

Kelsey Boltz, geologist, conducted a preliminary mapping and drilling program on the property for Coleman Morton of Los Angeles and William D. Witter of New York from July 1, 1966 to October 12, 1966, costing \$53,000.00. Existing claims were relocated to cover completely the mineralized area and to insure adequate operating space.

Boltz concluded: "Data obtained from the project indicates the possibility of the existence of approximately 500,000,000 tons of rock containing 0.14% copper and 0.17% molybdenum." The exposed rocks show disseminated copper and molybdenum mineralization over a large portion of the Basin.

0.017%

Minerals Trust Corporation, as Trustee, entered into an agreement to purchase Copper Basin on November 28, 1967. In the summer of 1968 Utah Construction and Mining Co. under contract with Minerals Trust improved the road from Castle Hot Springs to the property, did geophysical and geochemical work thereon and drilled one 1012 foot hole on the south side of the property dipping 60° to the south.

Utah's "pulse" I.P. showed variances from 10 to 61 milli-volts chargeability and its resistivity variances were from 500 to 3500 ohms per foot. Utah's drill hole for the first 60 feet was in chalcocite and averaged .37% copper and .014% molybdenum. From 60 feet to 705 feet disseminated chalcopyrite and molybdenum appeared.

## LOCATION AND DESCRIPTION

The Copper Basin property is located in the Silver Mountain Mining District in Yavapai County, Arizona. It lies approximately ten rough road miles south of Crown King, twelve miles north of Castle Hot Springs and thirty miles south of Prescott, Arizona.

Copper Basin is the name given to an amphitheater-shaped canyon situated on the west slope of the Bradshaw Mountains covering an area of nearly four square miles, the center of which lies near the East Quarter Corner of Section 10, T9N, R1W, Gila and Salt River Base and Meridian.

The Basin property occupies portions of Sections 2, 3, 4, 9, 10, 11, 14 and 15, Township 9 North, Range 1 West and consists of the 73 unpatented Jane No. 1 through 73 lode mining claims (approximately 1460 acres) which are recorded in the Yavapai County Recorder's office at Prescott, Arizona in Book 409 at pages 240 through 276, Book 412 at pages 285 through 320 and in Book 412 at pages 248 through 284.

## OWNERSHIP

The Copper Basin property is held by Minerals Trust Corporation, as Trustee, under a Mine Lease and Option Agreement dated November 28, 1967 wherein Robert Krohn, Dave Peters, Billy Lowe and George Rowe are Lessors. Lease terms are \$5,000.00 per year, plus the annual assessment work. All payments apply against an end price of \$500,000.00.

Hand-Fulton Ventures and ORETEK, INC. are beneficiaries under the trust. Hand-Fulton owns a 50% beneficial interest and ORETEK owns a 50% beneficial interest.

## GENERAL GEOLOGY

### I. History

Copper Basin was given its name by soldiers stationed at near by Fort Misery because of copper stained rock appearing in streams that dissect the basin-like area and of the visible chalcopryite seen in the exposed rocks.

George Rowe, Robert Krohn, Billy Lowe and David E. Peters originally located the Travis #1 through #20 lode mining claims in the Basin. These claims were later relocated as Jane No. 1 through No. 73 lode mining claims.

Coleman Morton and William D. Witter had a lease and option agreement from the locators of the Travis claims and as part of that agreement relocated the area covered by the Travis claims with the Jane No. 1 through No. 73 lode mining claims. Under this lease and option agreement Kelsey Boltz conducted a preliminary mapping and drilling program on the property.

Minerals Trust Corporation, as Trustee, entered into its present agreement to purchase Copper Basin on November 28, 1967.

On the 3rd day of June, 1968, Minerals Trust leased Copper Basin to Utah Construction and Mining Company in consideration for an exploration commitment. Utah further improved the road from Castle Hot Springs to the property, did some geophysical and geochemical work thereon, drilled on hole 1012 feet deep on the south side of the property dipping 60° to the south and filed the necessary Affidavit of Labor on the property for 1967-68. Part of Utah's work was done after September 1, 1968 and an Affidavit of Labor was filed on that work for 1968-69.

#### Drilling (Boltz Program)

Core drilling was done by Boyles Brothers, with a Joy Manufacturing Co. screw-feed, skid mounted, wire line rig. Two shifts per day were run.

Plug bit drilling was accomplished by Annesley using an air-track mounted down-hole air rig, manufactured by Halcotrak.

#### Sampling (Boltz)

Cores were pulled and placed in 10 foot, 200 pound test cardboard core boxes, transported to Phoenix, logged, then split. One half was retained for future reference and the other two sent to Hawley and Hawley in Tucson and Arizona Assay Office in Phoenix for copper and molybdenum determinations, and the results tabulated. All rejects were retained and stored for future reference.

Sludge samples were taken each shift and assayed as a check and for reference in the event of low core recovery. Core recovery, however, remained substantially 100%.

Two splits were taken of the air-blown cuttings from the down-hole rig. One split was taken to the Zonia Mine of McAlester Fuel Company for copper and molybdenum determination by X-ray spectrograph and the other split was stored for future reference.

## II. Geology (Boltz)

"The principal host rock of the Basin is a phase of the rock commonly known as the Bradshaw granite. The exposed rocks show disseminated copper and molybdenum mineralization over a large portion of the Basin.

"In the subject area, this rock is megascopically quartz monzonitic in composition and exhibits a flow structure or foliation in the parallel orientation of the biotite crystals. In the approximate center of the Basin the quartz monzonite has been intruded by a diorite porphyry. The surface exposure of this intrusive is elongate having approximate east - west and north - south dimensions of 2000 feet and 800 feet respectively. Mineralization is localized primarily in the intensively fractured quartz monzonite in a 600 to 800-ft. wide zone around the periphery of the diorite porphyry. The diorite porphyry is occasionally mineralized near its contact with the quartz monzonite. Hydrothermal alteration and supergene alteration extend from the diorite porphyry as much as 3000 feet distant.

"The principal metallization occurs as pyrite, chalcopyrite and molybdenite, the pyrite occurring in fractures and commonly as replacements of the biotite. The chalcopyrite and molybdenite occur primarily along quartz-filled fractures.

"Potassic alteration and silicification are those which occur commonly with the metallization. Quartz-sericite alteration, chloritization, and weak pyritization extend considerably beyond the metallized zone.. Only the intense metallization and potassic alteration are shown on Plate 2." (Boltz report)

A "breccia zone in" the Northeast portion of the Basin "received special attention because the first shallow hole in this zone obtained results which were significantly higher than the previous average. (Hole 102A). However, a subsequent deeper core hole failed to substantiate any extension of higher metal content of significance."

"The drilling program was designed to check the metal content of areas within the metallized zone which exhibited the most intense surface expression of mineralization."

The Boltz drilling disclosed in his opinion the "absence of any significant supergene enrichment" and "showed the 'protore' metal content to be singularly consistent" in the limited area drilled "in the range of from 0.07% to 0.24% Copper and from 0.01% to 0.03% Molybdenum" in that same area.

## PROPERTY STATUS

Personnel of Mineral Economics Corporation retained by Minerals Trust Corporation for the benefit of its beneficiaries, are proceeding with the program set forth in the development of the Copper Basin property and for the purpose of completing the assessment work requirements for the 1968-69 Year.

1. Construct a rough road starting at the top of the hill above Fort Misery turnoff and running along the edge of the south side of the north rim of the Basin to connect into the road constructed by Coleman Morton on the northeast corner of the property.
2. Conduct a geochemical survey along the line where the new road will be constructed taking as many samples that can be analyzed within the limits of funds available. Analysis for parts per million (PPM) in Ag, Cu, Pb, Zn and Mo will cost \$5.00 per sample.
3. Layout additional drill sites along this new road.
4. Evaluate drill hole results, geophysical data and geochemical samples obtained from Boltz, Utah Construction and the above geochemical work.

## EXPLORATION AND DEVELOPMENT PROGRAM

### I: Previous Exploration and Development

2,335 feet of drilling was completed on the property under the Boltz program and reported on by him as indicating the possibility of the existence of 500,000,000 tons of .14% copper and .017% molybdenum.

Utah Construction and Mining Co. drilled on 1,012 foot hole on the east side and the top portion of this hole showed .37% copper (chalcocite) for the first 60 feet and chalcopyrite and molybdenum thereafter to the depth of 705 feet.

Utah Construction and Mining Co. also did a considerable amount of geophysics over the property and their survey indicated anomalous sulphides. Utah's "pulse" I.P. showed variances from 10 to 61 milli-volts chargeability and its resistivity variances were from 500 to 3500 ohms per foot.

The Boltz exploration program indicates the existence of a disseminated copper deposit while the Utah program indicates the presence of some secondary chalcocite.

The Utah drill log indicates that they sampled only in the upper 60 feet of that drill hole. These three samples ran .40,

.56 and .16 in copper. The Utah I.P. line appears to have located a number of other highs on it in addition to the one that they drilled.

Exploration and development work to date indicate the following:

1. A disseminated copper and molybdenum deposit exists in the Copper Basin area, the quantity and quality of which is yet to be fully determined.

2. Geochemical and geophysical observations made by Utah Construction indicate more drilling is merited to the north, in addition to holes at greater depth in the central area of the deposit.

3. In the area north and northwest of the drilled area, a considerable amount of quartz-sericite alteration with chloritization and replacement of pyrite by limonite on fractures showing considerable evidence of leaching in the Bradshaw granite can be seen. Some gossan was observed.

4. Bearing the geochemical and geophysical anomalous conditions in mind, it would, therefore, seem that either one of two conclusions should be suggested:

- a. Mineralization drilled by the Kelsey Boltz program was on the periphery of the mineralized zone and that one could expect these grades to increase at depth and to the north and northwest.

- b. The second conclusion suggested by the above observations would be that the area to the north and northwest which are covered by a considerable amount of altered rock has not been subject to the rapid erosion of the drilled area. Therefore, the mineralization from the upper portion of the protore could have been leached out to enrich the lower portion at the water table.

## II. Current Exploration

During the summer of 1969 the following development work is programmed to complete 1968-69 assessment work;

1. Construct a rough road starting at the top of the hill above Fort Misery turnoff and running along the edge of the south side of the north rim of the Basin to connect into the road constructed by Coleman Morton on the northeast corner of the property.

2. Conduct a geochemical survey along the line where the new road will be constructed taking as many samples that can be analyzed within the limits of funds available. Analysis for parts per million



(PPM) in Ag, Cu, Pb, Zn and Mo will cost \$5.00 per sample.

3. Layout additional drill sites along this new road.

4. Evaluate drill hole results, geophysical data and geochemical samples obtained from Boltz, Utah Construction and the above geochemical work.

### III. Development Program

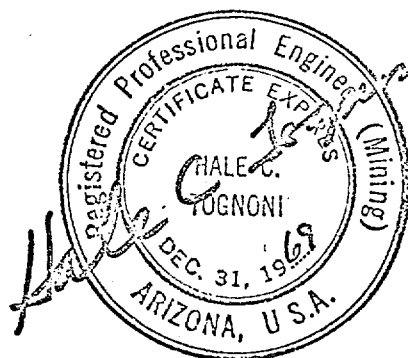
Upon the results of the 1968-69 assessment work being completed, add that information to this summary report. Copies of a report then will be presented to interested mining companies with the expectation of leasing the property to such a company in consideration for performing specified exploration and development work and subsequent production.

If satisfactory lease terms cannot be arranged with third parties, then the beneficiaries of the trust intend to continue with their own program of testing and drilling the area.

### RECLAMATION AND CONSERVATION

The beneficiaries of the Copper Basin Trust contemplate that as the mineral on the property is developed, claims should be patented to secure the title.

The Copper Basin property, if properly developed and mined, under sound reclamation and conservation practices, could result in utilizing the natural advances of the property and thereby improve the land value.



# ROCKY MOUNTAIN GEOCHEMICAL CORPORATION

RENO OFFICE  
1491 EAST 7th STREET  
RENO, NEVADA 89502

Phone 323-8510  
Area Code 702

## CERTIFICATE OF ANALYSES

Date September 30, 1968

Page 1 of 1

Client Utah Construction and Mining Company  
70 Linden Street  
Reno, Nevada

Report on: 2 rock samples

Submitted by: Mr. Taylor

Date Received: September 25, 1968

Analysis: Silver, Copper and Molybdenum

Remarks: Silver and Copper analyses determined by atomic absorption; Molybdenum determined colorimetrically.

Job #68-17-23R

cc: Enclosed (2)  
RMGC - S.L.C.  
File

GJL:lke

Interval	Sample No.	ppm Silver	ppm Copper	ppm Molybdenum
180.0' - 190.0'	1204	0.3	590	14
80.0' - 90.0'	1205	0.5	735	134

0.0134 % Mo

Line Grp., #4123  
Copper Basin Area  
Bodshaw Mtns.  
Navajo Co., Arizona

By George J. Lindenburgh  
George J. Lindenburgh

All values are reported in parts per million unless specified otherwise. A minus sign (-) is to be read "less than" and a plus sign (+) "greater than." Values in parentheses are estimates. This analytical report is the confidential property of the above mentioned client and for the protection of this client and ourselves we reserve the right to forbid publication or reproduction of this report or any part thereof without written permission.

ND = None Detected

1 ppm = 0.0001%

1 Troy oz. / ton = 34.23 ppm

% Mo x 1.6603 = % Mo<sub>2</sub>

## US LETTER AND

20. Nevada

October 15, 1943

Phone  
329-4080

NO.	SAMPLE Interval	GOLD AS / TON	SILVER	CU	MO.	%	%	%
			OZ / TON	%	%			
	#1201 29.0' - 40.0'	TS	0.3	.40	.011			
	1203 40.0' - 51.5'	TS	0.2	.53	.019			
	1203 51.5' - 60.0'	TS	0.2	.16	.012			
<p>All from C-J-1          Lone Grp., #4123          Navapai Co., Ariz.</p>								

3 | 2  
10 | 11

CB-NC-102

CB-C-7

CB-C-4

CB-C-5

C-1-1

CB-C-6

CB-NC-101

CB-C-3

CB-C-1

CB-C-2

Scale  
1" ~ 400'

108.

AMERICAN SMELTING AND REFINING COMPANY  
TUCSON ARIZONA

May 16, 1974

Memorandum to: W. L. Kurtz

From: F. T. Graybeal

Copper Basin property  
Tiger Mining district  
Bradshaw Mtns.  
Yavapai County, Arizona

On May 14, 1974 Mr. H. D. Hand submitted new data obtained from the Humble Oil and Refining Co. exploration program of the subject area. During 1972-73 Humble drilled 13,020 ft. in 5 holes which varied from 2101 to 3108 ft. deep. Drill logs with assays were examined by myself and J. R. King and the core is available for inspection.

The property contains a small porphyry stock which has intruded slightly gneissic Precambrian Bradshaw granite. Alteration and mineralization are most abundant in an arcuate zone which surrounds the porphyry on the west and north sides. Alteration is shown to be widespread in a report by Kelsey Boltz (in ASARCO files); however, as I recall from several trips to the property and examination of the early core, the alteration is mostly confined to thin veins and only amounts to a few volume percent. Alteration minerals often reported on Humble's drill logs include quartz, sericite, orthoclase, biotite, and anhydrite.

Sulfide minerals present include pyrite, chalcopryite, and molybdenite. Humble's logs indicate the sulfides are mostly confined to fractures. Their estimates place total sulfides at 0.5-2 volume percent with pyrite: chalcopryite = 1-5:1. Sulfides are exposed at the surface and supergene enrichment is negligible.

The rock geochemistry map shows well-defined coincident zones of copper (+200 ppm) and molybdenum (+50 ppm) along the west and north sides of the stock in which the more strongly mineralized drill holes are located. Mineralization in the drill holes appears to be relatively uniform within a given rock type. Copper grades are generally higher in the granite and associated andesite dikes than in adjacent porphyry. An andesite dike in CB-1 yielded 180 ft. averaging 0.44% Cu (260-440 ft. depth). The Humble holes were assayed throughout and contain no well-defined vertical increases or decreases in grade.

May 16, 1974

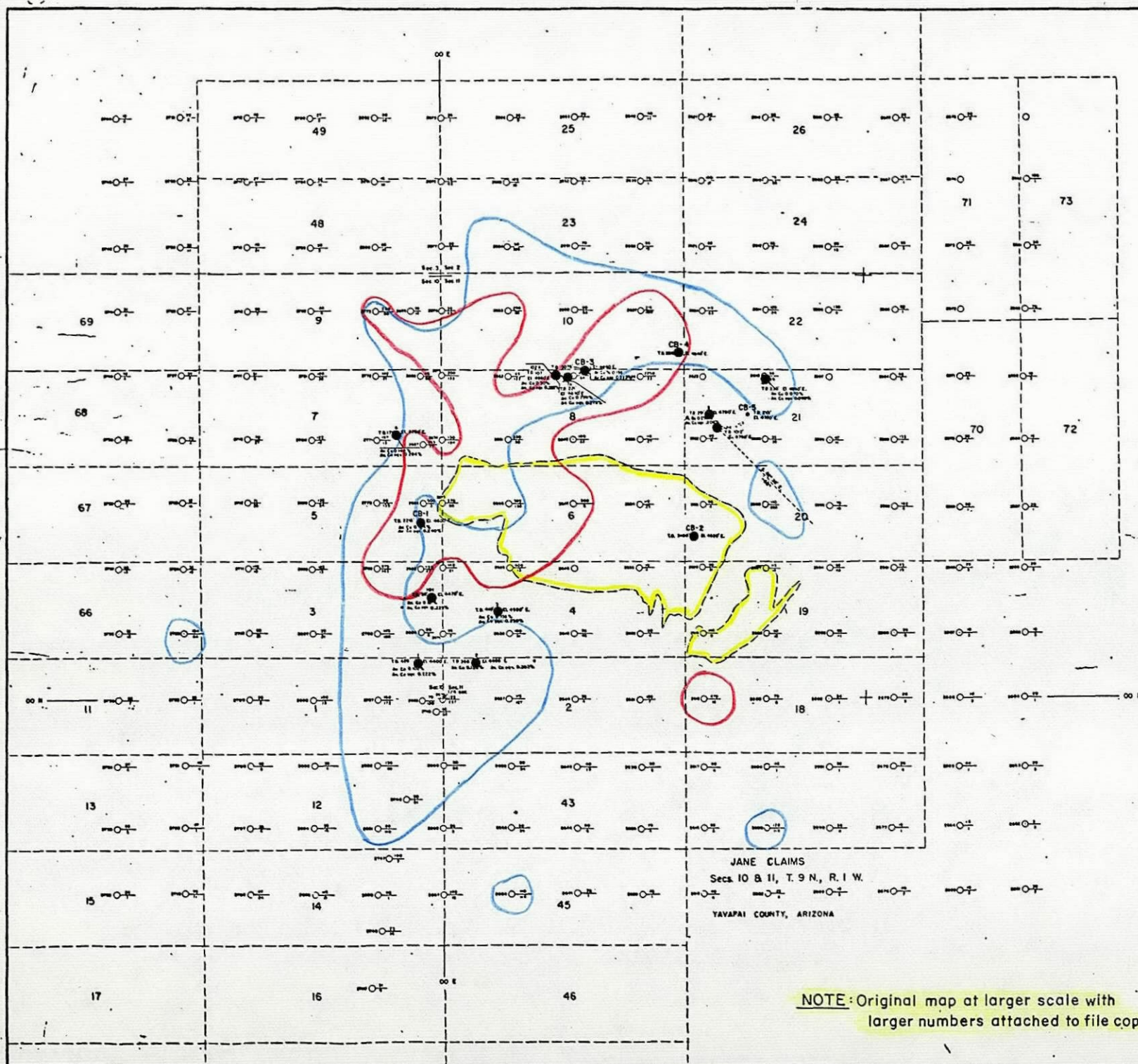
An average (unweighted) of 8 drill holes in this area (1, 2, 3, 6, 7A, 101, CB-1, and CB-3; see attached map) in a zone 3000 ft. by 1500 ft. and 3000 ft. deep suggests a reserve of 1 billion tons averaging 0.16% Cu, 0.031% MoS<sub>2</sub>, and 0.02 oz. Ag (Ag from geochemical composites of CB-1 and 3). Hole CB-3 contained 3076 ft. averaging 0.042% MoS<sub>2</sub>. The distribution of high geochemical values is well-defined and does not suggest the presence of additional untested zones at the surface. The grade of the more strongly mineralized drill holes is uniform and gives no indication of better values at depth. In addition, there are no higher grade zones which might be amenable to smaller scale mining. I conclude that what we see is what we get!

The grades indicated by the present drilling are significantly less than those of the Brenda mine (0.17% Cu, 0.05% MoS<sub>2</sub>) which is barely able to make a profit, even when operated by Canadians. I must therefore conclude that the property will not be economic for the next several centuries or so and is not of interest to ASARCO. However, I recommend that Mr. J. D. Sell review the data so that pertinent facts may be added to his file of the Bradshaw Mtn. porphyry copper occurrences. A quick outcome calculation using a 2:1 stripping ratio and no preproduction stripping would be interesting.

*F. T. Graybeal*  
F. T. Graybeal

FTG:lb  
Attach.

cc: JDSell ✓  
JRKing



NOTE: Original map at larger scale with  
larger numbers attached to file copy.

HUMBLE OIL & REFINING COMPANY  
MINERAL DEPARTMENT  
**COPPER BASIN**  
ROCK CHIP GEOCHEMISTRY

Scale: 1" = 1 mile  
Compiled: 1970  
Revised: 1970  
Revised: 1970

AMERICAN SMELTING AND REFINING COMPANY  
TUCSON ARIZONA

May 14, 1974

MEMORANDUM TO FILE:

COPPER BASIN  
BRADSHAW MOUNTAINS  
WEST FLANK  
PHONE: 296-4272

Mr. Darby Hand asked if ASARCO would be interested in reviewing 13,000' of dia. drill core from the above area. 73 unpatented lode claims.

Recent work of EXXON.

Several hundred feet of core is stored at Hale Tognoni's residence in Phoenix. (split) - higher values. The balance is in a warehouse between Phoenix and Florence.

5 holes 2100' to 3100', average 0.20% cu.

ASARCO reviewed drilling in 1966 on earlier holes to 400'.

Mr. Hand, a Petroleum Geologist, has compiled the log and assay information. He had an appointment to review the data today with Fred T. Graybeal.

*RBC*

R. B. Crist

RBC:vmh