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08/05/87

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES FILE DATA

PRIMARY NAME: BILL TAFT GROUP

ALTERNATE NAMES:

TAFT MINE
LITTLE JANE PROSPECT
STARDUST MINE

YUMA COUNTY MILS NUMBER: 79

LOCATION: TOWNSHIP 2 S RANGE 11 W SECTION 11 QUARTER SW
LATITUDE: N 33DEG 15MIN 54SEC LONGITUDE: W 113DEG 21MIN 47SEC
TOPO MAP NAME: EAGLETAIL MTS - 15 MIN

CURRENT STATUS: UNKNOWN

COMMODITY:

GOLD LODE
STONE DIMENSION

BIBLIOGRAPHY:

KEITH, S.B., 1978, AZBM BULL. 192, P. 151
ADMMR BILL TAFT FILE
AZBM BULL 134, P. 145

STARDUST

YUMA/MARICOPA COUNTIES

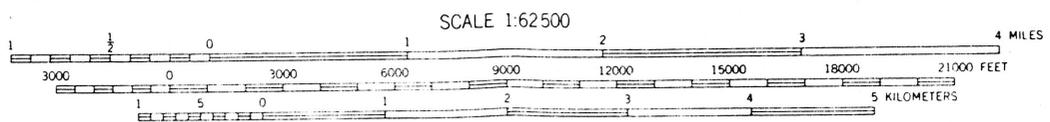
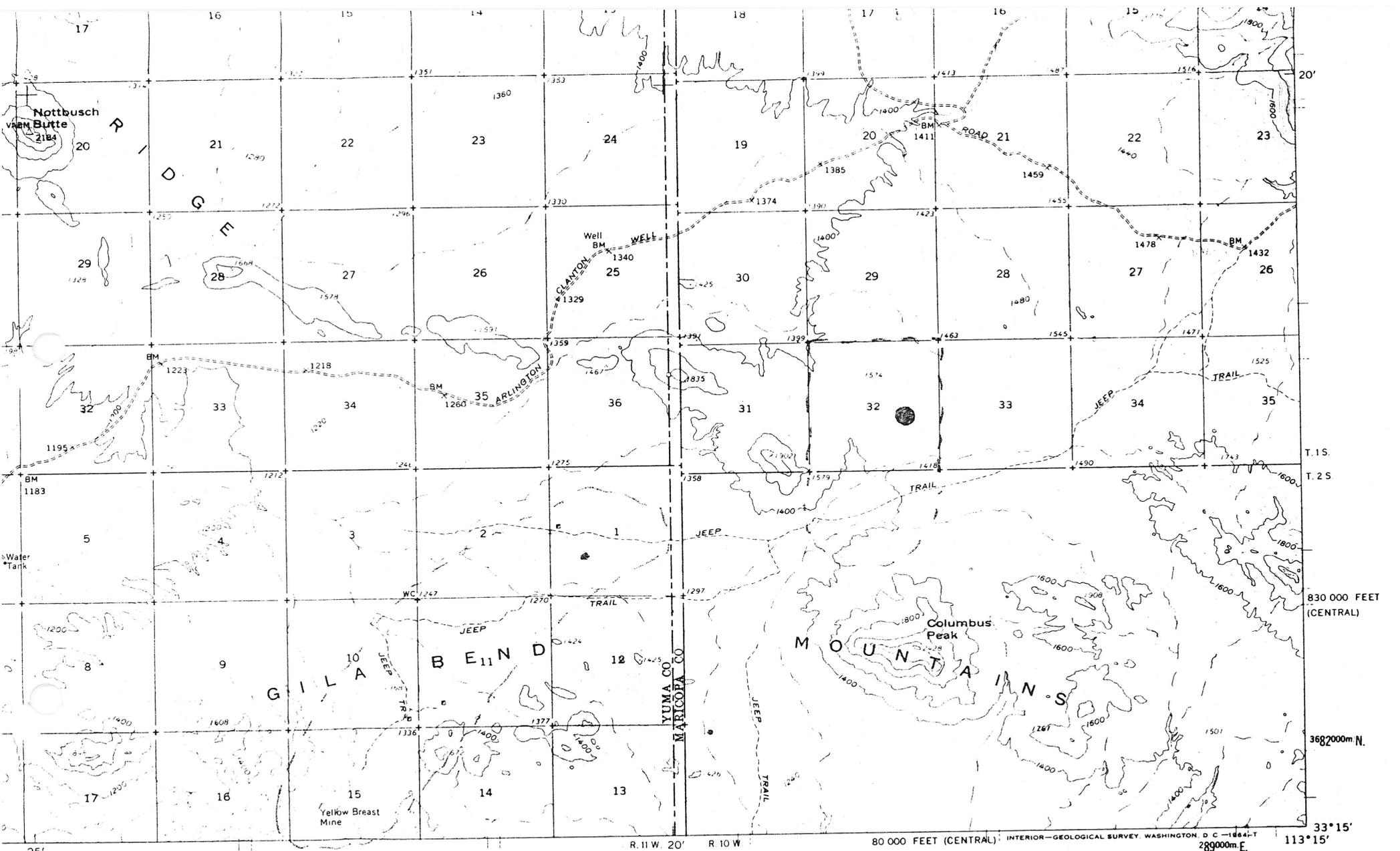
T2S R10 and 11W

Eagletail Mts. Quad (Included in file)

"Geologic Evaluation of the Morgan Property" (Included in file)

This file includes information on the following claims:

Bill Taft Group, AKA Little Jane Prospect; Taft Mine
Lucky Strike
Camp Creek Prospect, AKA Davis Group; King of the West
Belle MacKeever Group
Yellow Breast Prospect
Anozia
H H and T Claims
Black Silver



CONTOUR INTERVAL 40 FEET
 DOTTED LINES REPRESENT 20-FOOT CONTOURS
 DATUM IS MEAN SEA LEVEL



ROAD CLASSIFICATION
 Unimproved dirt

• EAGLETAIL MTS., ARIZ.
 N3315—W11315/15

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
 FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER 25, COLORADO OR WASHINGTON 25, D. C.

RRB WR 9/19/80: Wallace Dunlap, 5002 W. Bethany Home Road, Space 19, Glendale, Arizona 85301, was in for information on crushing, grinding, classifying and tabling of gold ore. He has a small jaw crusher, roll crusher and ball mill mounted on a flatbed. He reported that he was in a loose partnership with George W. Morgan and a third party to operate the Stardust Mine in the Eagle Tail Mtns in Yuma and Maricopa Counties. The assayer-geologist-metallurgist for the project is Howard B. Nicholas, 5807 E. Singletree Street, Apache Junction, Arizona 85220, 982-3048 (Registered Assayer #4678).

George Morgan reported on a number of his properties. The Stardust Mine which may also include the Black Silver, Outlaw and Big M (he was somewhat hasty and obscure when explaining what claim groups were part of what) is being handled for exploration by a Mr. Harold Creamer who is an "Oil and Gas man" in Denver. The property(ies) is in T2S R10 & 11W.

(please note date)

/of Amarillo, Texas

GBG WR 2/7/69: Mr. V. B. West, President of Anozira Mining Company of Buckeye, Arizona. Mr. West said in addition to his Mica claims, he had taken into his new company a group of 30 silver claims. They are located in Sec. 5, T1 and 2S, R10W, Maricopa County, Cortez Butte Area. He also said that he expects to start his open pit mining in April or May 1969.

KAP WR 11/19/82: Discussed a number of precious metal targets with T.O.N. Consultants, 5400 Phoenix N.E. Suite 109, Albuquerque, N.M. 87110. They have a client who has been approached to invest in the Outlaw and Big M properties.

RRB WR 6/3/83 - Jack Moore, geologist with T.O.N. Consultants, 5400 Phoenix NE, Suite 109, Albuquerque, New Mexico 87110, was in to discuss the Stardust file. They are investigating it for a client.

NJN WR 4/18,25/86: George Morgan (c) received my letter in response to his advertised mining properties and reported that following: Mr. Morgan believes he has 5 resource zones identified on the Stardust (f) La Paz Co. He will visit us and provide more detailed information for the files.

R/H.

DATA COVERING THE MORGAN GOLD & SILVER LODE PROPERTY IN WESTERN ARIZONA

| GROUP NO. | CLAIMS | LARGEST DEPOSIT IN GROUP (FT) | | | TONNAGE | GRADE-OPT | | KNOWN STRIKE LENGTH | GOLD OUNCE GROSS |
|-----------|--------|-------------------------------|-----|-----|---------|-----------|-------|---------------------|------------------|
| | | LGTH. | W. | DP. | | Au | Ag | | |
| 1 | 64 | 1000 | 250 | 100 | 250,000 | 0.15 | 1.00 | 4500 ft. | 37,500 |
| 2 | 23 | 500 | 250 | 50 | 260,000 | 0.05 | 5.00+ | 1500 ft. | 13,000 |
| 3 | 20 | 250 | 50 | 150 | 75,000 | 0.18 | 1.00 | 3750 ft. | 13,500 |
| 4 | 19 | 300 | 50 | 120 | 80,000 | 0.16 | 1.00 | 2000 ft. | 12,800 |
| 5 | 7 | 150 | 50 | 15 | 9,000 | 0.15 | 1.00 | 1500 ft. | 1,350 |
| | 133 | | | | 674,000 | | | | 78,150 |

TONNAGE: Calculations are based on 12.5 cubic feet of ore per ton in place.

ORE DEPOSITS: The 5 main ore deposits are located about one mile apart.

SHAFTS & DRIFTS: A total of 19 shafts ranging from 25 to 250 feet deep have been sunk on high-angle faults. 1,000 feet of drifts were driven in shafts.

CONTIGUITY: ALL CLAIMS IN EACH GROUP ARE CONTIGUOUS. GROUPS ARE TIED TOGETHER.

ELEVATION: 1200 to 1600 feet. Terrain is hilly.

TYPE OF DEPOSITS: Hydrothermal, Epithermal and Stockworks.

ROCKS IN AREA: Are a mixture of granitic, metamorphic and volcanic ranging in age from Tertiary to pre Cambrian. Country rock strikes northwesterly.

HOST ROCKS: Are andesite, granodiorite, rhyolite, schist, quartz-latite, quartz and altered limestones.

MINERALIZATION: Occurs in quartz veins, shear zones, disseminated, and brecciated areas and altered limestone.

TESTING: To date the property has been tested by sinking 19 shafts, driving 1000 feet of drifts, taking hundreds of channel, chip, bulk and grab samples, drilling hundreds of one inch holes, four to 10 feet deep in mineralized areas with Cobra rock drills and sampling and assaying the drill cuttings. Several thousand lineal feet of 8 foot wide open cuts thru the overburden to mineralized bedrock were made with D-8 and D-6 Cats. Hundreds of one inch, 4 to 10 foot deep Cobra drill holes were sunk in the exposed mineralized bedrock. Drill cuttings were coned and quartered several times and assayed with good results.

SUBSURFACE GEOPHYSICAL SURVEYS: Subsurface Geophysical electrical surveys were conducted on several claims by the writer and co-owners. The writer is a registered professional electrical engineer. Many good anomalies were found.

FREE-MILLING GOLD: Occurs on several claims. Some is bright visible gold and will run about 910 + fine. Gold assays run as high as 9 opt. Silver chloride ore runs as high as 25 opt. Silver sulfides will assay 300 opt.

OVERBURDEN: Ranges from 0 to 10 feet of non marine detrital material.

OPEN-PIT: Most of the ores can be mined by the open-pit method.

LEACHING: Ores are amenable to heap, pad and vat cyanide leaching methods.

RECOVERY BY LEACHING: Gold = 85 to 90%; Silver 50 to 60%.

WATER: A drilled well for mining and domestic use is located on the property.

ROADS: There are about 20 miles of work roads on the claims, useable all year

CLIMATE: Winters are mild, no snow or ice. Summers are hot. Rain about 7 in.

HISTORY: The property was acquired by the writer and co-owners in the 1950's and 1960's. Some claims were located later as more new mineralization was found. Small quantities of high-grade ore were shipped and sold from some of the claims prior to our ownership. No shipping records are available.

TARGET ZONES: For exploration of gold and Silver, 12 partly tested zones exist on the property for drilling and other exploratory work.

OTHER MINES IN AREA: The writer and co-owners own other mining properties N-W of this one (now under lease). They have a large reserve of drill-indicated gold and silver ore, and are about ready to be mined. The two properties are similar in many respects.

Both properties are located in two of the best mineralized zones in Arizona "The Texas Lineament and the Wasatch-Jerome Crogen". Many large mines have been found in these zones. All 5 major ore deposits are located on multipal-use ELM lands.

Prepared by *George W. Morgan*

Phoenix, Arizona. February 12, 1989.

PRICE & TERMS FOR MORGAN GOLD & SILVER MINING PROPERTY CONSISTING
OF 133 CONTIGUOUS LODE CLAIMS WITH FIVE TESTED ORE DEPOSITS

1. Full purchase price----- \$2,500,000
2. Buyout price ----- \$1,500,000
3. Down payment for use and occupancy of property for first 12-month period. To be paid when agreement is executed.-- \$24,000
4. Minimum monthly rental payments for second 12-month period and thereafter ----- \$3,000/ Mo.
5. A production royalty of 7.5% of net smelter returns is to be paid on all minerals removed from the five existing, tested ore deposits. A production royalty of 5% of net smelter returns is to be paid on all minerals found by Lessees and removed from all other areas of the property.
6. When production royalties in any one month exceeds the minimum monthly rental payment, the minimum monthly rental payment will not be owing to Lessors and may be credited against the production royalty for such month.
7. All payments made to Lessors will be credited to the full purchase price.


George W. Morgan

February 12, 1989

aw + acted 4/12/84 JB

TO: John H. Jett, Director
FROM: Ken A. Phillips, Mineral Resource Engineer

For inclusion in Stardust Mine file.

James ^W Weber, President, ^{NC} Palm Mining Corporation, 113 Calle Olas Altos, N.E., Albuquerque, New Mexico 87110, Ph: (505) 821-9277, reported the firm has acquired a lease on 142 claims and a state section in the Clanton Well area of the Gila Bend Mountains in Yuma and Maricopa County. In particular, work is being done in Secs. 1, 11, 12, 14 & 15, T2S, R11W, Secs. 5 & 6, T2S, R10W and Sec. 32 (State) T1S, R10W. The property project is referred to as the Morgan Property on the Gila Bend Mountains Project. The project area covers seven "old mines" which have been listed in MILS and are written up in various literature. They are:

| County | MILS# | Location | Names | References |
|----------|-------|--------------------|---|--|
| Yuma | 79 | Sec. 11, T2S, R11W | <u>Bill Taft Group, AKA Little Jane Prospect, Taft Mine</u> | ABM Bull. 192, p.151 " " 134, p.151 |
| Yuma | 80 | Sec. 12, T2S R11W | ? <u>Lucky Strike Prospect</u> | ABM Bull. 192, p.151 |
| Yuma | 81 | Sec. 1, T2S R11W | <u>Camp Creek Prospect, AKA Davis Group, King of the West</u> | ABM Bull. 192, p. 15 ABM Bull. 134, p.147 |
| Yuma | 220 | Sec.10, T2S, R11W | <u>Belle MacKeever Group</u> | ABM Bull. 134, p.146 |
| Yuma | 221 | Sec. 15, T2S, R11W | <u>Yellow Breast Prospect</u> | AZ DMR Card |
| Maricopa | | Sec. 31, T1S, R10W | <u>Anozia</u> | AZ DMR file |
| Maricopa | | Sec. 32, T1S, R10W | <u>H Hand T Claims 17 H + T</u> | AZ DMR file |
| Maricopa | | Sec. 5, T2S, R10W | <u>Black Silver</u> | AZ DMR Stardust file |

A copy of a general report on the project was provided for inclusion in the Stardust Mine (file) Yuma-Maricopa Counties. The property was acquired from George W. Morgan. The claims are known as the Black Silver and the Stardust. James A Weber also heads his own consulting firm, T.O.N. Consultants of Albuquerque, New Mexico. Reference to the Morgan Property report should be made on the cards and/or in the file of the old properties listed above. Mr. Weber explained that Palm Mining Corporation has completed geologic mapping, a partial geophysical survey, taken 700 geochemical survey samples and drilled 7 holes. He feels the property has a potential 5 million tons of 0.4 gold and 8.0 silver (tr. oz/ton). Further, it has an unexplored VLF anomaly, a stock like intrusion and a possible massive sulfide target. He would like to joint venture some additional exploration work.

ADDENDUM FOR
"BRIEF DESCRIPTION OF MINING PROPERTY"

The following discoveries and other new developments have been made since the Description Of Mining Property, dated 6-20-78, and Gross Values, dated 6-10-78 were written.

STARDUST GROUP OF CLAIMS: Uranium. Field checks and tests were made recently by the writer to determine the continuity of radioactive mineralization from the point of discovery. A Mt. Sopris model SA-131 Scintillation-counter was used. Surface readings obtained at many uniformly spaced points over a distance of 3000 lineal feet on a granitic rock type ridge were from double to five times the average background count. No drilling has been done to date.

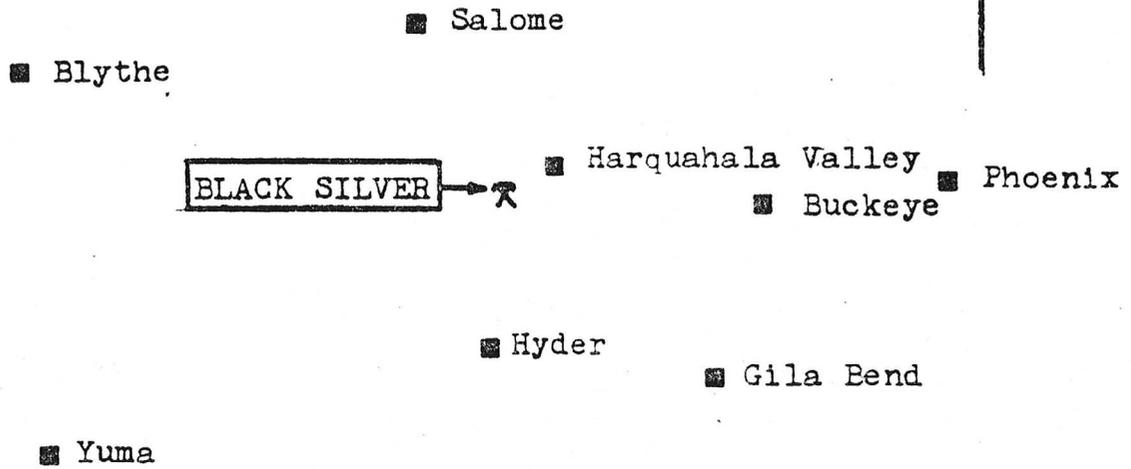
Both ends of this 3000 foot long ridge disappears under alluvial overburden. Scintillator readings taken at points where the overburden covers the ridge, were weaker, but still indicated radiation. Three other locations on the Stardust Group were also found to be radioactive, and readings of from two to four times the average background count were obtained. Gold also occurs in parts of the radioactive areas.

BLACK SILVER GROUP OF CLAIMS: The Black Silver Main ore body (250 X 500 feet was resampled recently and heap-leached tested and assayed by a mining company that is now actively engaged in heap-leaching operations on ores similar to ours. These tests were made to prove that our Gold and Silver ore is amenable to heap-leaching. Their report stated that our ore leached very good.

It also stated that the average value of the Gold in the ore samples tested, assayed 0.11 ounce of Gold per ton. This more than doubles the average of 0.05 ounce per ton for gold that we used for our Gross Value calculations. It increases the Gold value in this ore body from \$ 9.00 to \$ 19.80 per ton; and the Gold and Silver Gross value of the ore body from \$ 14,500,000.00 to \$ 19,900,000.00; and the total gross value of the five ore bodies from \$ 128,416,678.00 to \$ 133,816,678.00.

BIG "M" AND GECANN GROUPS OF CLAIMS: Considerably more Copper, Gold and Silver has been uncovered and found on other claims in these groups. Further exploration work on these new discoveries is continuing.


George W. Morgan. 7-18-78.
Phoenix, Arizona.



LOCATION MAP

of the

BLACK SILVER MINING PROPERTY

Maricopa County, Arizona.

Scale; 1 inch = 28 miles

Prepared by, George W. Morgan
George W. Morgan, P. E.

June 18, 1977

EXHIBIT "A"

MINING PROPERTY

DETAILS OF GROUPS, CLAIMS, LOCATION AND RECORDING DATA.

ALL CLAIMS ARE UNPATENTED AND ARE LODE-TYPE.

CLAIMS ARE LOCATED ABOUT 80 MILES WEST OF PHOENIX, ARIZONA.

STARDUST GROUP OF CLAIMS: Total claims this group---63.

Located in Yuma and Maricopa Counties. Range 11 W. T.2s., Sections 1, 2, 11, & 12; and Range 10 W., T.2s. and Section 6, respectively. This group of claims is recorded at the Yuma County Recorders Office as follows;

| <u>CLAIM NO.</u> | <u>DOCKET</u> | <u>PAGE</u> | <u>TOTALS</u> |
|-------------------------|---------------|----------------------------|---------------|
| 1 | 88 | 258 | 1 |
| 2 thru 12 | 383 | 517 thru 527 Respectively | 11 |
| 13, 17 & 21 | 423 | 241, 242, 243 Respectively | 3 |
| 14, 15, 16, 18, 19 & 20 | 436 | 244 thru 249 Respectively | 6 |
| 22 thru 27 | 436 | 250 thru 255 Respectively | 6 |
| 28 thru 32 | 425 | 645 thru 649 Respectively | 5 |
| 44 thru 48 | 423 | 244 thru 248 Respectively | 5 |
| 33 thru 39 & 43 and 58 | 482 | 250 thru 258 Respectively | 9 |
| 49 thru 57 | 439 | 743 thru 751 Respectively | 9 |

Claims of this group recorded in Maricopa Co. Recorders Office:

| | | | |
|-------------|------|----------------------------|---|
| 40 thru 42 | 6141 | 431, 430, 429 Respectively | 3 |
| 59 & 60 | 586 | 7 and 8 Respectively | 2 |
| 71, 73 & 74 | 8398 | 590 thru 592 Respectively | 3 |

Total claims recorded for this group----- 63

BLACK SILVER GROUP OF CLAIMS: Total claims this group---23.

Located in Maricopa County, R.10 W., T.2S., Sections 5, 6 & 8. This group of claims is recorded at the Maricopa County Recorders Office as follows;

| | | | |
|---------------------------|-------|----------------------------|---|
| 1 (Original) | 1183 | 222 | 1 |
| (Amended) | 5893 | 515 | 1 |
| 2 thru 6 | 5892 | 354 thru 358 Respectively | 5 |
| 9 | 5993 | 534 | 1 |
| 7, 8, 11, 14, 20, 21 & 22 | 6624 | 416 thru 422 Respectively | 7 |
| 10, 12 & 13 | 6141 | 428, 427, 426 Respectively | 3 |
| 24, 28 & 29 | 7629 | 811, 812, 810 Respectively | 3 |
| 30, 31, & 32 | 10601 | 73, 74 & 75 Respectively | 3 |

Total claims recorded for this group----- 23

OUTLAW GROUP OF CLAIMS: Total claims this group---10.

Located in Yuma County; R.11W., T.2S., Sections 10, 11 & 15. This group of claims is recorded at the Yuma Co. Recorders Office as follows;

| | | | |
|----------------------------|-----|---------------------------|---|
| 1 | 334 | 566 | 1 |
| 2, 3, 4, 5, 8, 11, 17 & 27 | 501 | 641 thru 648 Respectively | 8 |
| 30 | 586 | 6 | 1 |

Total claims recorded this group----- 10

BIG "M" GROUP OF CLAIMS: Total claims this group---11.

Located in Yuma County, R.11W., T.2S., Sections 15 & 16. This group of claims is recorded at the Yuma Co. Recorders Office as follows;

| | | | |
|------------------------|-----|---------------------------|---|
| 1 thru 3 and 7 thru 10 | 425 | 650 thru 656 Respectively | 7 |
| 4 & 6 and 11 & 12 | 572 | 43 thru 46 Respectively | 4 |

Total claims recorded this group----- 11

GEOANN GROUP OF CLAIMS: Total claims this group---4.

Located in Yuma County, R.11W., T.2S., Section 15. Recorded at Yuma as follows;

| | | | |
|--------------|-----|---------------------------|---|
| 1, 2, 3, & 4 | 813 | 611 thru 614 Respectively | 4 |
|--------------|-----|---------------------------|---|

TOTALS -----111

George W. Morgan
George W. Morgan 6-30-76

Revised September 29, 1977 By G.W.M.

BRIEF DESCRIPTION OF MINING PROPERTY

This mining property owned by the writer and partners, consists of 111 Gold, Silver and Copper lode-type, full size, unpatented, contiguous claims on BLM lands, located 85 miles West of Phoenix, Arizona near the Maricopa and Yuma County line, in the Eagletail and Gila Bend Mountain Mining districts. The claims are divided into 5 groups which are tied together. Each group has an ore body of considerable value that can be mined at once. The bulk of the ore can be open-pit mined and pad leaching can be employed for the Silver deposit.

BLACK SILVER GROUP: Consists of 23 claims mineralized with Gold, Silver, Lead Copper & Molybdenum. Average values per ton for the main ore body only, consisting of 500,000 indicated tons are; Silver 4 to 5.0 ounces; Gold 0.05 oz; Copper 0.05 % at surface and 0.36 % at the 100 foot level; Molybdenum 40 ppm on surface. The main ore body is a rectangular area 250 by 500 feet on claim No. 1, and although the ore is continuing below the 100 foot level, a conservative depth of 50 feet was used for ore tonnage calculations.

Shattered and brecciated wall rocks of the richer silver bearing veins have undergone strong hydrothermal alteration and carry 8 to 10 ounces of Silver in areas of 10 to 20 feet from the veins. Gold and Copper values are increasing at the 100 foot level. Most of the Silver ore above the water table is in the form of chlorides and other secondary Silver minerals which are amenable to cyanide and other chemical extraction processes. The ore can be open-pit mined. Silver sulfide minerals that assay up to 304.1 ounces were found in a 50 foot shaft on the main ore body. There are two other good ore deposits of Silver, Gold and Copper and many highly mineralized outcroppings on other claims in this group.

Rocks exposed on the mountains, ridges and hills in the area are a mixture of granitic, metamorphic and volcanic rocks that range in age from Tertiary to pre-Cambrian. Overburden varies from 0 to 10 feet. There are two 50 foot shafts on the claims. Reliable engineers and Geologists have stated that a large ore body of Gold and Copper may exist under and adjacent to the main Silver ore body. The main Silver ore deposit is associated with granodiorite. This host rock occurred in large masses and dikes in the rich Tombstone mining district. Granodiorite was of exceptional interest in that district because of its structural relation to Silver ore deposition. It was associated with many of the most productive Silver mines in the Tombstone district where Silver was mined to depths of 800 to 1000 feet.

STAR DUST GROUP: Consists of 63 claims mineralized with Gold, Silver, Copper, Molybdenum and some Uranium. Average values per ton for the 2,000,000 indicated ton main ore body only, are; Gold 0.2 oz; Silver 1.0 oz; Copper 0.9%; Molybdenum, surface assays only 25 ppm; Uranium, a fair showing of Uranium on the surface has been found recently on another claim 1500 feet from the main ore body. We are exploring this now, and the average grade and tonnage is indeterminate at this date. Most of the Copper in the oxidized zone is in the form of malachite, cuprite and chrysocolla and is amenable to simple leaching processes. The bulk of the Gold is free-milling.

Some chalcocite and chalcopyrite mineralization has been found on other claims in this group. The main ore body is a rectangular area 250 by 1000 by 100 feet deep and can be open-pit mined. Good ore is continuing below the 100 foot level. There are several highly mineralized, large brecciated zones on other claims in this group that carry good Gold, Silver and Copper values. These zones have undergone strong hydrothermal alteration. Many highly mineralized outcroppings also occur on other claims. Rock types are; granite-porphry, andesite, rhyolite, altered limestone, Pinal schist, quartz diorite and quartz latite. There are two 100 foot shafts on the main ore body.

Considerable amounts of sericite and chlorite occur on some of the claims. Overburden is from 0 to 10 feet. Based on geologic evidence, mineralization and other factors, we believe these claims have a good potential for tapping a major porphyry copper ore body, in that they are located in the Western center of the Texas Zone, and in the Southwesterly part of the Wasatch-Jerome Zone, zones in which most of the largest open-pit porphyry Copper; and Gold and Silver mines in Arizona have been found.

OUTLAW GROUP: Consists of 10 claims mineralized with Gold, Silver and Copper. Average values per ton for the 55,200 indicated ton main ore body only are; Gold 0.5 oz; Silver 1.0 oz; Copper 0.5 %. The main ore body is a rectangular area 30 by 230 by 100 feet deep. Good ore is continuing far below the 100 foot level. Gold is free-milling and occurs with specular hematite in veins of quartz. Copper occurs as malachite and chrysocolla. Wall rocks of the mineralized veins have been mineralized outward for a good distance by circulating hydrothermal solutions, and carry good values in Gold, Silver and Copper. A good portion of the ore deposit can be open-pit mined. Considerable sericite and chlorite, generally associated with large Copper deposits, occur

on these claims. Rock types are granite-porphry, andesite, altered limestone and Pinal schist. There are several smaller Gold, Silver and Copper deposits, and many highly mineralized outcroppings on other claims in this group. Overburden is from 0 to 10 feet. There are 3 shafts on the claims.

BIG "M" GROUP: Consists of 11 claims mineralized with Gold, Silver & Copper. Average values per ton for the 15,360 indicated ton main ore body only are; Gold 0.5 oz; Silver 1.0 oz; Copper 0.5 %. The main ore body is a rectangular area 8 by 200 by 120 feet deep. Parts of this ore deposit can be open-pit mined. Good ore is continuing below the 120 foot level. Gold is free-milling and occurs in quartz veins with limonite and hematite. Copper occurs as malachite and chrysocolla. Wall rocks of the veins have been highly altered by hydrothermal solutions, and carry good values in Gold, Silver and Copper.

There are several smaller Gold, Silver and Copper ore deposits, and many highly mineralized outcroppings on other claims in this group. Rock types are; rhyolite, andesite, granite, Pinal schist and granodiorite. There are 3 shafts on these claims. Overburden varies from 0 to 8 feet.

GEOANN GROUP: Consists of 4 claims mineralized with Gold, Silver and Copper. Average values per ton for the 1728 indicated ton main ore body only are; Gold 0.75 oz; Silver 1.0 oz; Copper 0.5 %. The main ore body is a rectangular area 12 by 30 by 60 feet deep. Gold is free-milling and occurs with quartz and hematite. Copper occurs as malachite and chrysocolla. Gold in this deposit runs as high as 7.0 ounces per ton. Rock types are; andesite, quartz latite, rhyolite, granite, quartz and schist. There are several other deposits of Gold, Silver and Copper; and many highly mineralized outcroppings on these claims. Overburden ranges from 0 to 10 feet. The claims are on the side of, and in the pediments of a large mountain. They are all highly mineralized and have a good potential for the development of a large Gold and Copper deposit. There is no timber on any of the 5 groups of claims.

ADDITIONAL DATA, GENERAL: All claims are free and clear of any encumbrances. Assessment work is done and recorded. Water is available on the property. Roads are useable all year. All location, corner and center end monuments are up and are properly identified. Average elevation of claims is 1500 feet. Highest elevation in general area is 3300 feet. We have done a considerable amount of exploration & development work on the property over a period of several years, and have built about 35 miles of work and access roads on the claims. Our investment to date is around \$ 300,000.00. The property was originally discovered by a partner's Father around 1930.

The indicated tonnage and grade of the total 2,572,288 tons of ore on the 5 groups of claims, is based on specific measurements and numerous samples made from many drill holes, shafts, drifts, adits, pits, trenches and outcrops; and partly from projections of the ores for a reasonable distance based on geologic evidence. A value of 12.5 cubic feet per ton was used for ore tonnage calculations. Subsurface geophysical surveys were also conducted on certain claims of the Black Silver and Stardust groups.

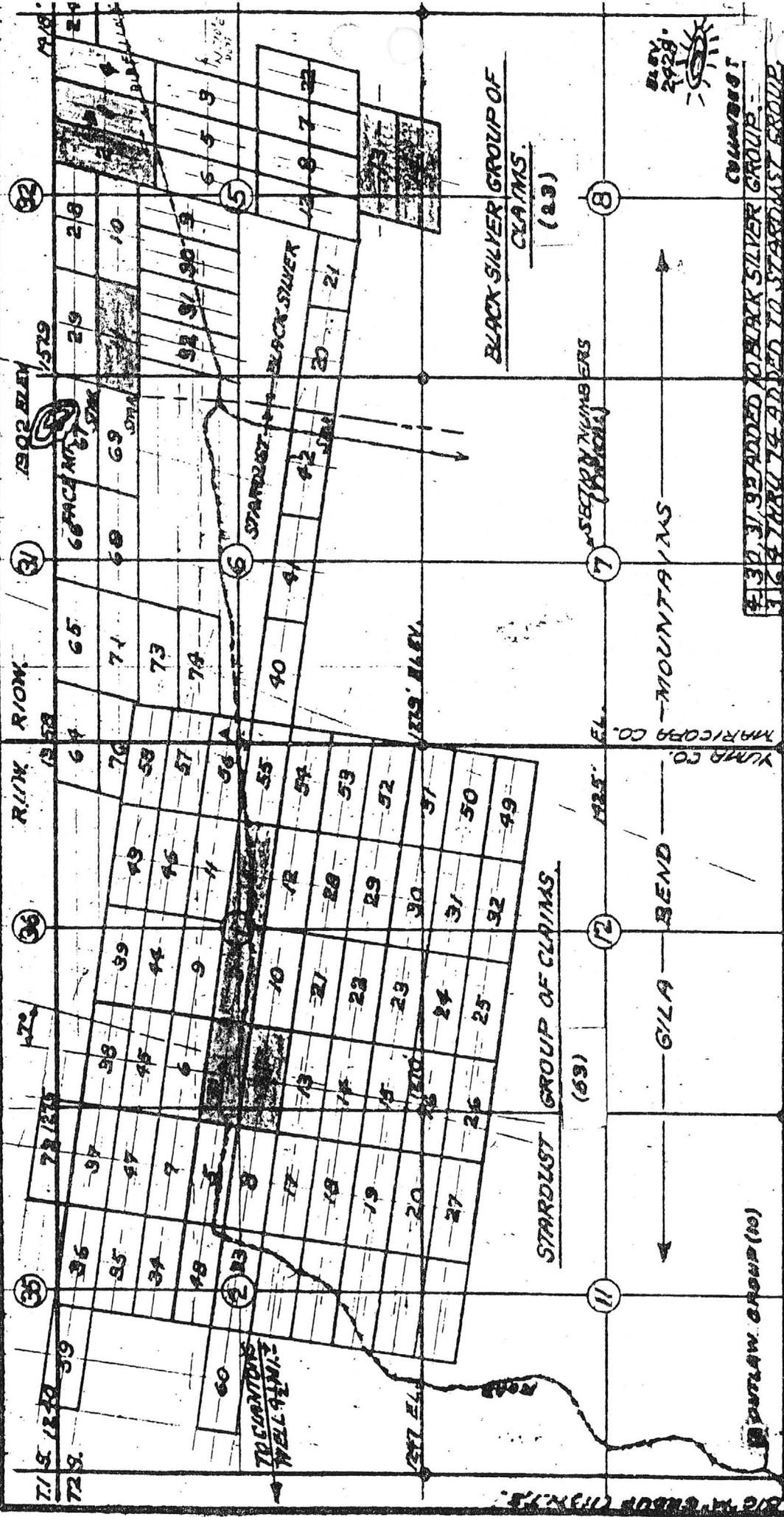
Shaft dumps of the larger ore deposits carry good values in Gold, Silver and Copper, and could yield good profits if properly worked. Reliable Engineers and Geologist have stated that there is a good chance of finding other good and larger ore deposits on the property, that may now be concealed by overburden.

Uranium potential; Extensive exploration for Uranium by many companies is now in progress in Yuma County to the West and North of our property, and Tertiary lake beds exist 5 to 10 miles to the West of us. The general area has had many thermal springs, some of which are radioactive, such as the Gila River bed near Agua Caliente.

Certified assays, maps of the property and other related data are available for review, inspection and copies. This description of our mining property has been revised and updated to include and reflect the results and findings of our exploration and development work to date. It supersedes and voids all previous issues. For gross values of ore on this property, ready to be mined as of 6-10-78 see attached sheet.

Maps that cover the area in which our property is located are; 1. Eagletail Mts. Quadrangle, Arizona. USGS Map N 3315-W11315/15; 1962. 2. USGS Map N1 12-7 Phoenix; 1960. 3. Geologic Map of Yuma County, Arizona. by Arizona Bureau of Mines; 1960.

Prepared by: George W. Morgan
George W. Morgan, P.E. 6-20-78
Phoenix, Arizona.



1. FOR GEOM. MAP (4) - NOTES
 1. FOR CONTOURS & ELEVATIONS - SEE USGS' EAGLE TAIL MOUNTAINS QUADRANGLE ARIZONA MAP N3315-W11315/15, 1962.
 2. FOR GEOLOGY, SEE "GEOLOGIC MAP OF YUMA COUNTY, ARIZ." BY ARIZONA BUREAU OF MINES, U.S. GEO. SURV., ARIZ. 1960.
 3. FOR RELATIVE LOCATION OF STARDUST AND BLACK SILVER MINING PROPERTIES TO OPEN-PIT COPPER MINES, SEE D.W.C. NO. M-2 BY GEORGE W. MORGAN.
 4. REVISED 6-20-77 - G.W.M.

1. 30, 31, 32 ADDED TO BLACK SILVER GROUP.
 2. 59 & 60 ADDED TO STARDUST GROUP.
 3. 24, 28 & 29 ADDED TO BLACK SILVER GROUP.
 4. 64, 74 ADDED TO STARDUST GROUP.
 REVISIONS

STARDUST & BLACK SILVER MINING PROPERTY
 — KEY MAP —
 YUMA & MARICOPA COUNTIES, ARIZONA.
 OWNERS: GEORGE W. & ANNA R. MORGAN, REXFACHE
 PREPARED & DRAWN BY: *George W. Morgan*
 SCALE: 1" = 2 1/2' DATE: 6-24-76 D.W.G.W.M.

Geologic Evaluation of the ~~Morgan~~ Property
Gila Bend Mountains Project
Maricopa and Yuma Counties, Arizona

For Palm Mining Corporation

Submitted by Richard E. Leech

February 23, 1984

Geologic Evaluation of the Morgan Property
Gila Bend Mountains Project
Maricopa and Yuma Counties, Arizona

Introduction

The Gila Bend Mountains Project area is located in Maricopa and Yuma Counties, Arizona, Township 1 and 2 South, Ranges 10 and 11 West, Gila Principal Meridian. Property leased from George W. Morgan consists of approximately 113 unpatented lode claims. There are 11 Big M, 3 GeoAnn, 12 Outlaw, 63 Stardust and 24 Black Silver. In addition, Palm Mining has staked 18 Palm and 11 Illinois claims.

Occurrences of native gold in fissure-vein systems originally lead to extensive prospecting of the area in the early 1930's. Small workings were periodically exploited for the next 4 decades. Unfortunately, most of the work done and the grades reported are still speculative. Early descriptions of the geology in the several shafts; i.e., Outlaw, Stardust, and Yellow Breast, although general, are consistent with the geology mapped by the author. Access to the workings for the purpose of mapping could not be realized during the limited time spent on the properties.

Copper occurring as oxides and carbonates was prospected throughout the area. It apparently did not lead to any further development when precious metals were not encountered.

Basically, all areas exhibiting intense sericitic, alunitic, argillic and silicic alteration have been found and prospected on the surface. Understanding of the complexity of the geologic environment is necessary to discover and exploit any economic mineral deposits which may exist.

Purpose and Scope

Palm Mining became interested in the Gila Bend Mountains area late in 1982 and projected that interest through evaluations at various levels until present. Early work by Palm Mining consisted of wide spread specimen sampling on a very small scale and general reconnaissance geology of the major productive areas.

Broad general mapping of rock types and geophysical surveys followed. By the middle of 1983, drill targets had been selected by these methods. My professional opinion is, these fledgling attempts at geologic evaluation and premature selection of drill targets were wholly unsupportable from a geologic standpoint. Palm Mining, being aware of this fact, has attempted, at this date, to get a reasonable picture of the geology and economic potential that is in fitting with the realities of their fiscal objectives.

Working with Mr. J.A. Weber and Mr. S.E. Hulse in January and February, 1984, an attempt has been made to map the geology in enough detail to give credence to target selection. The data is presented in two forms; geologic mapping (Scale 1" = 600') and lithochemical sampling, in most cases 1" = 100'.

Geophysics are a useful tool in evaluation of drill targets, but they need, in this area, the support of detailed geochemistry and mapping and their interpretations. Approximately 80 to 90 percent of the area is overlain by quaternary alluvium, colluvium and calcrete deposits. Most of the outcrops are of Tertiary volcanics and very few Precambrian rocks. Mineral occurrences are restricted to the Precambrian.

General Geology

Precambrian

Outcroppings in the area are Precambrian(?) gneiss, schists and intrusive rocks of unknown age. Gneissic-granite encountered in Exxon State 14-1, Nw1/4, Se1/4, Sec. 25, T3S, R11W gave a range of 163.7 ± 4 my (K-Ar) and 1080 my (Rb-Sr).

The gneisses are quartz-plagioclase-hornblende and meta-andesitic intensely altered to upper greenschist to lower amphibolite grade metamorphism. Garnet is conspicuously absent. The rocks are derived from calc-alkaline volcanics.

Quartz-plagioclase-hornblende gneiss is minor and only occurs in northern SW16, T2S, R11W; as discontinuous lenses in Sec. 31 and 32 T1S, R10W. This gneiss grades rapidly laterally and vertically in to pelitic and meta-tuffaceous schists. Alteration of the hornblende lathes (1-3mm) to chlorite is almost total giving the rock a dark gray to gray-green appearance. The gneiss is well foliated parallel to relic bedding. Macroscopic determination of mineralogy indicates 10-15% plagioclase as amorphous laminations, silica as quartz 10% and amphiboles to 60%, trace of clinozoisite and epidote locally abundant. Intense silicification of the gneiss is widespread and is probably tertiary.

Granite rocks invade and assimilate gneiss to some extent in the Big M Area and in Section 32 north of the Black Silver Mine. Gneiss survives as small pods of chlorite stringers in these areas. The rock takes on granite texture, but is entirely quartz and chlorite. Often copper oxides occur in areas of granitization.

Schist

Meta-pelitic schist and meta-tuffs are the only types which occur in the mapped area. Generally the schists have altered to sericitic and aluminous clay minerals.

The Yavapi Group of the Prescott Valley to the north contains units in the vicinity of the Iron King Mine which closely resemble the meta-tuffs (sericitic schists) of the Morgan Lease.

The schists are aphanitic and microcrystalline subaqueous volcanic sediments. Hydrothermal alteration in the Precambrian and Tertiary have overprinted any relict textures by multistage silica flooding. The final stage in the Tertiary is the alteration of calcium and silica to epidote and clinozoisite. Silica flooding and sericitization are most intense and proximal to Precambrian quartz vein development. Thin local Precambrian cherty iron formations are enveloped by sericitization. Near the GeoAnn, the sericitization increases west to east and declines rapidly after the occurrence of iron formation.

Usually occurring with meta-pelite are thin discontinuous tan argillaceous rocks. These are siltstones and argillaceous shales. Their relationships to other Precambrian rocks are not known due to poor outcrops and limited extent.

Intrusive Rocks

Quartz diorite of probable Precambrian Age intrudes precambrian schist and gneiss in the north central part of the area near the Stardust Shaft. Diorite is light gray to white depending on the degree of silicification. Feldspars are destroyed as well as mafics being altered to chlorite. Unaltered rock has a composition of 10% biotite, 5-10% hornblende, 40% quartz, 20% plagioclase, 20% orthoclase.

Outcrops indicate the intrusion of diorite as small to medium sized stocks (four miles across) and lacoliths. Cations of basemetals are usually found along the contacts especially where calcic metavolcanics are contacted.

Undifferentiated

A thin(?) quartz-pebble conglomerate; composed of well rounded pebbles and cobbles of milky quartz and white and

dark banded metaquartzite with a groundmass of arkosic silt and cemented with silica; subcrops in three places in section 16. Perhaps this rock can be attributed to the Upper Apache Group of east central Arizona, or is a time equivalent. Not enough data can be gathered for a strict interpretation nor are there any outcrops.

Light gray to buff to dark gray limestone is intercalated with Precambrian schist throughout the mapped area. It is most abundant west of the Outlaw Mine where the Outlaw Mine road and the main access road meet. From this point, it strikes SSW and continues for approximately 1200 feet. At this local tan carbonaceous siltstone is conformable on the east side of the limestone. In fact, the beds appear to be conformable with the schists that surround them. These sediments are cut off to the south by a east-west trending fault.

The limestone is similar to Mesozoic limestones four miles to the west near Clanton Wells. However, on the Morgan Lease it is massive and obtains a thickness of almost 50'. Thin stringers of red to tan chert give it a bedded appearance. Portions of the limestone are brecciated along the hanging wall as are other, small isolated pods of carbonate throughout the area.

These limestones and siltstones are most likely Precambrian (Proterozoic) and were deposited in small basins proximal to a volcanic center in a marine environment. Their present attitude indicates rotation of at least 90° from the original deposition plane.

Mesozoic

Sediments of Mesozoic age do not outcrop in the mapped area; however, near Clanton Wells, there are thin interbedded limestones and carbonaceous sandstones overlain and cut by Tertiary volcanics. These units would have an overall thickness of several hundred feet and were probably eroded from the

mapped area prior to the Tertiary.

One mile east and just south of the Stardust Shaft, a large quartz monzonite intrusion and associated apophyses subcrop. The monzonite is very similar to Precambrian diorite in color and texture. A difference is noted in the increase of orthoclase over plagioclase. Monzonite is mineralized in shears north of the Black Silver.

Tertiary

Overlying Precambrian rocks in the south part of the area in the center of the Gila Bend Mountains is a conglomerate. The unit is composed of Precambrian rock clasts from a few millimeters to a meter in size with a matrix of red friable arkose. Outcrops are mainly confined to arroyos, steep hillsides and fault scarps. Weathering produces a desert pavement of mixed precambrian clasts and red soil development. Interbedded are friable arkose units devoid of any clasts and white zeolitized tertiary volcanic ash.

Lithified granite wash outcrops in Section 31, T1S, R10W below basaltic lavas capping the low mountains in this locality. The granite wash, associated sandstones and the capping volcanics fill an ancient stream channel striking NW from a source southeast of Columbus Peak. The units have been elevated to their present attitude by erosion and normal faulting along the eastern margins of the stream channel.

A thick sequence of volcanics spreads from the Gila Bend Mountains northward for approximately two miles. These acidic volcanics are composed in ascending order of vitrophyre, welded tuff, waterlain tuff, dacitic flows and ash flow tuffs. The vents are in place as rhyolitic, dacite and rhyolite plugs, dikes and small flows. The tuffs and dacites are most widespread.

Crystalline volcanic rocks are microcrystalline and glassy containing only visible hornblende; therefore the composition ranges widely from rhyolite to dacite. A line drawn through the center of Sections 13, 14, 15, 16, 17 and 18 along the trace of Nottbusch Wash cuts the Gila Bend Mountains in half. North of the line are the hills composed of dacite, etc., and south of the line are welded tuffs at least 2000 feet thick. Prevailing wind was probably from the northeast pushing the ejecta to the south of the dacite filled fissures north of the line. Tuffs are not present north of this line.

The Eagletail Mountains are largely the same geologically as the Gila Bend Mountains. Located north and northeast of the Morgan Lease the Eagletails contain the same Tertiary rock types with the addition of 200 feet of very ferruginous volcanic breccia. The Eagletails also represent the eastern limit of a large caldera centered north of the Morgan Lease. The caldera could be more than 20 miles in diameter. Leaching of the volcanic pile (almost completely eroded away) and ferruginous breccia may partially explain the several periods of silicification in reactivated Precambrian shears as well as the abundant iron oxide coating fractures in the mapped area.

Lacking the characteristic breccia as a marker unit, exact correlation of volcanic events is not possible. Periodic regional faulting and local collapse of the local centers further inhibit interpretation. The dacites(?) and associated structures are important to epithermal mineralization and are discussed later.

Structure

Principal folds are all of Precambrian age. The axes trend north-northeast to northeast and dip from 70 degrees, to vertical in the northwest, plunge is north. Foliation is generally parallel to bedding and lamination in the schists, but slightly acute in the gneisses. The folding and

foliation is regional and extends to the Precambrian schists outcropping east of Harquahlala Valley in the low range of mountains dividing it, and the Tonopah Desert. An estimation of fold wavelength in Section 15 is 1500 feet \pm 500 feet. Minor folding accompanies Tertiary faulting on a scale of a few tens of feet.

Faulting was probably continuous through geologic time. Precambrian faults are usually filled with sheared and brecciated milky quartz and/or calcium carbonate. Strike length of these structures does not usually extend beyond a few hundred feet; however, it is likely younger regional faults may occupy or parallel these older structures. Most of these old structures are Proterozoic and tend to parallel fold axes and reflect brittle deformation during folding. Quartz veining clusters along fold axes as well as few small homogenous pegmatites near the Outlaw Mine.

Tertiary faults are roughly normal to the Precambrian fabric and generally are a few hundred to a few thousand feet in length. These faults are filled with tuffaceous sediments and breccia, dacite, hematite breccia and volcanic breccia. Late-stage tertiary faulting of precambrian structures results in additional brecciation; specular hematite and epidote deposition and shearing along grain boundaries.

Alteration and Mineralization

Small deposits of native gold and silver chlorides have been reported from various locations on the Morgan Lease. All occurrences are in basement rocks with the gold in quartz veins and silver from brecciated zones enveloped in quartz monzonite and diorite.

The occurrence of quartz veins along fold axis in Precambrian volcanogenic environments is universal. Proximal to mineralized volcanic centers in subaqueous and subareal environments; i.e., (Kirkland Lake, Canada) calcium rich sediments accumulate and are favorable to disseminated lowgrade auriferous

accumulations, these in turn are altered and gold migrates to prepared fractures and is found today in these quartz filled "veins".

Another explanation is similar to the Yellow Knife District in Canada where quartz lenses are enclosed in carbonate-sericite alteration holds within a chlorite carbonate halo enclosed by chlorite schist: (see figure below)

In this model brecciation and iron mineralization are attributed to Tertiary overprinting and the gold has been moved to a great extent vertically along the altered zone.

A third possible model evolves around that described by R.W. Boyle, 1979, in the Geological Survey of Canada Bulletin No. 280. It involves leaching of a volcanic pile over a metamorphic basement complex. The basement is structurally prepared. The model states:

Late faulting and fracturing of the entire terrain coeval with or followed by propylitization of the volcanic pile: mobilization and migration of SiO_2 from zones of propylitization: contemporaneous mobilization, migration and concentration of gold, silver, base metals, etc., into lodes, the source

of these elements being the rocks of the basement complex as well as the zones of propylitization in places...

If this model is applicable, then sampling of the volcanic plugs and fissures would be justified. And the statement expressed whether we are looking at the "roots" would be justified. The roots of this system, when eroded, are just slightly less favorable than a volcanic hosted lode deposit.

Areas of alunitic and argillic alteration appear as small to large bleached areas in intrusive rocks and thin discontinuous lenses in schist associated with mineralization. Alteration was in three stages 1) during emplacement of Proterozoic diorite, argillic alteration of contact zones with calcic gneiss; 2) during emplacement of Laramide quartz monzonite, alunitic alteration of intrusive monzonite; 3) propylitic alteration of silica attributed to leaching of hot volcanic pile. This last stage overprints the two preceding periods to the extent of largely destroying their characteristics. Detailed petrologic work is needed to unravel the interrelationships. Argillic and propylitic alteration are usually associated with vein and breccia mineralization.

During recent times, leaching by meteoric solutions have zeolitized tuffaceous material near the Big M. This has almost completely masked Tertiary propylitization of the vein system there.

Calderas provide the plumbing and transport system for deposits in the western states. The Gila Bend Mountains and Eagletail Mountains are part of a larger caldera system. Their respective systems do not exhibit resurgence, but they could represent a resurgence phase for the larger system.

Geochemistry

Listed are some of the average gold contents of selected igneous and metamorphic rocks expressed in parts per billion.

| | |
|-------------------------|----------|
| Granites | 3.2 |
| Granodiorites | 4.0 |
| Phyolites and trachites | 5.4 - 12 |
| Diorites | 3.5 |
| Intrusive Basalts | 10. |
| Basalts and Andesites | 6.5 |
| Ultramafic rocks | 9.4 |
| Dacite | 1.1 |
| Gneiss | 1.8 |
| Schist | 5.0 |

Big M Area

The Big M Area is the western one-half and southeastern one-quarter of Section 15, T2S, R115, and contains the Yellow Breast Decline, Ammeter, Hanley Hole and Rats Nest Mines.

The Precambrian basement complex has a more extensive exposure here than anywhere else on the Morgan Lease. Chloritized pelitic schist and sericitic schist are dominant and with andesitic gneiss trend north-northeast and northeast and dip 70° west to vertical. The units are the outcrops of large (1500 feet ± 500 feet) isoclinal folds plunging northward. These metamorphics are derived from subaqueous and subareal volcanic rocks and associated marine sediments. They are andesitic to tuffaceous in composition and texture and have been regionally metamorphosed to greenschist facies. Schists have been in part highly chloritized and sericitized during the Precambrian Tertiary volcanism.

Just south of the Yellow Breast Mine, Tertiary tuffs have been extensively silicified and zeolitized coupled with argillically altered dacite and brecciation have given rise to an excellently prepared area for mineralization. Sporadic anomalous surface lithogeochemical samples are somewhat discouraging; however, the area is relatively untested in the subsurface.

Just north of the mine, a low dacite ridge outcrops along a volcanic fissure. Several anomalous samples in unaltered dacite and highly altered rock are encouraging. Alteration is most intense in the dacite where the access road crossed the structure approximately 900 feet northeast of the adit.

Recommendations and Conclusions

An east-west trending fault zone extending across section 15 traverses the Yellow Breast Mine area. The zone does not

exhibit any alteration except near the mine. Detailed mapping of the zone and extensive geochem sampling yielded a few interesting areas.

Epithermal mineral potential in Tertiary volcanics or Precambrian metamorphics along this structure is good. While sampling of the surface has not been entirely encouraging, the area warrants additional work. Underground mapping and sampling of the Yellow Breast Decline would be easily and cheaply accomplished. This; in itself may indicate one or two core drill holes; however, detailed sampling of the intrusive plugs around the periphery prior to any further disposition would be best.

Due to the extreme alteration and weathering, one should not be completely dissuaded by the lack of surface mineralization. Supergene enrichment may take place at extreme depth (\pm 700 feet).

GeoAnn - Outlaw

This area is geologically very complex considering the relationships of Tertiary volcanics with structure, and Precambrian folds and faulting.

Precambrian schists (mostly sericitic) trending northeast and isoclinally folded to the east and plunging northeast are the basement. These schists contain at least one thin Precambrian iron formation mapped south of the GeoAnn prospect and projected toward the Outlaw Shaft. Close study indicates three fold events: S_1 large (1000 feet) magnitude isoclinal folds trending as mentioned above; S_2 folds are simple with a wavelength ± 50 feet and plunge vertically; the S_3 event is chevron folding along the upper limbs of S_1 folds. Cherty iron formation a few inches in length and 1/4 to 1/2 inch thick is commonly associated with intense chevron folding. Cherty iron formation is stratigraphically below an intensely sericitized schist. Chert bands in the iron formation are from a few feet to 50 feet in length and average 1/2 to one foot in thickness. Quartz veining along strike is common. The carbonate gangue in these veins is largely gone and box structures remain.

Intense faulting along east-west trends and minor, local thrusting in the Tertiary have cut, the largest limestone unit exposed, off to the south and perhaps north. Prospecting has been mostly localized on these east-west faults in carbonate rich Precambrian rocks.

Outcrops around the Outlaw shaft are sparse, making interpretation difficult. The few that can be seen indicate an abrupt change northward of a major east-west trending fault mapped in the southeast corner of the section. Intrusions of rhyodacite and dacite have been emplaced in the fault as well as outcropping parallel to it. These

intrusions mask much of the deformation features. The fault is likely concealed in the mine area. To the north of the fault, crystalline rocks begin to dominate the basement complex. They are quartz monzonite and a "gray porphyritic" rock of unknown age.

In the area, small xenoliths of chloritic gneiss contained in brecciated schist and crystalline rocks are exposed. These are usually mineralized with copper oxides and carbonates.

Three percussion holes were drilled; two west of the Outlaw Shaft and one southeast of the shaft. Slightly anomalous values were obtained from a shear (fault) zone in precambrian rocks in the western holes. Attitudes and petrologic work needed to interpret a geophysical anomaly found previously, cannot be adequately established with the quality of samples obtained. The hole to the southeast, drilled for a volcanic breccia zone intercept, bottomed in volcanics. No inferences could be drawn from these holes.

Conclusions and Recommendations

Mineralization in the Outlaw Shaft is reported to have been quite good for gold values in quartz vein(s). The need to map the workings underground is paramount. As stated, the area is very complex and the workings on the Outlaw and several small adjacent shafts may hold very valuable interpretive data. Secondly, the geophysical survey-net should be expanded to include the area; east and southeast of 00N, 500N, and 1000N lines.

Current data does not warrant further drilling until a more specific target can be established. Widespread geochem samples of volcanics were obtained in the final days of this contract period. Follow up sampling may be warranted if the results are encouraging.

Stardust

Bedrock is very scarce throughout the vicinity of the Stardust Shafts. Colluvium and alluvium of diorite cover most of the surface. Precambrian pelitic schist and gneiss crop out in widely scattered pods comprising two(?) larger xenoliths within diorite (lacoliths?). It has been stated that the Stardust mineralization is in "sheared zones in gneiss invaded by crystalline rocks". Underground mapping and corroboration has not been attempted.

This writer speculates the mineralization is associated with an east-west fault bonding the xenolith containing the Stardust Shafts. The fault trace is not seen on the surface, but slickensided float and drainage patterns indicate a zone of weakness there.

Copper oxide is visible lining fractures in dump material and in small prospect pits in metamorphic pods. Usually the diorite has assimilated chloritized precambrian rocks into small (± 3 feet) clots and stringers. Shearing of the diorite and assimilated rocks is common and usually protore of gold values are present in these circumstances.

Shearing within the xenoliths is roughly parallel to the northeast regional basement trend and east-west. The indication of stereo plots of shears supports the counter-clockwise rotation of the xenolith, approximately 230 degrees.

Geochemical samples comprised mostly of saprolitic soil and alluvium reflect several zinc, lead and silver anomalies east of the Stardust Shafts. Surface geology indicates these represent highly baked aluminous schist, the pods rarely exceeding 200 feet in diameter. Heat from the enclosing diorite was enough to drive out metals from these pelitic rocks and concentrate them along the numerous, thin, limonitic fractures in the pods.

Conclusions

The apparent limited extent of favorable host rocks and induration of metamorphics by diorite indicate a very limited potential for a sufficient tonnage of material to indicate an economic lode deposit. Further evaluation of the underground workings would be beneficial at a later date.

Black Silver - Arizona State Section 32

This area can be divided into two areas; northward along the township line between T1S and T2S, R10W, is State Section 32 and southward is the Black Silver claim group containing a vertical shaft and decline of the Black Silver Mine.

Black Silver

This occurrence is adequately described by A.P. Fawley in a report written under contract in 1974.

"The main mineralized showing on the Black Silver claims is exposed on a low ridge,...'surrounded by alluvium...', and is basically a brecciated shear zone with a vein of (quartz?) silicious rock about 12 inches wide. The country rock is mainly 'monzanitic' and 'granodiorite' which, in the vicinity of the shear zone is shattered, calcified and highly altered" [chloritized] "and in places has the appearance of a volcanic porphyry...

The vein breccia strikes N5°E, 21°30'W in the decline. Mr. Morgan reports from (drilling and underground?) the strike length is at least 450 feet. This author did not have access to supportive data to this hypothesis.

"...Sulphide minerals with high silver content were found in one of the shafts, but most of the silver above the water table (350 feet) is now in the form of chlorides and other secondary minerals. Silver is also present in the brecciated wall rocks on both sides of the vein(?) for up to 20 feet...": (Fawley)

Ground magnetics did not reflect a linear trend to the above mentioned mineralization zone. Assays from several

locations along the mineralization outcrop range from protore to 13 ounces per ton silver. Precussion drilling by a Canadian junior company indicated a thickness of up to 40 feet containing 4 ounces per ton silver in the area. Unfortunately this data is not available.

Approximately 900 feet north of the Black Silver on the north bank of Columbus Wash is a 20 feet deep decline in the same material as the Black Silver Mine, it strikes N55°E, 27°NW. Channel samples taken on both ribs averaged slightly less than one (1) ounce per ton silver and one reported at 7 ounces per ton. A drill hole (PAZ-1) was drilled (summer 1983) slightly (30 feet) northeast from the occurrence and plotting the attitudes of the hole and breccia indicate the hole passed under the zone. Comparing the strike of the Black Silver zone and the above on the geologic map infers an east-west fault underlies Columbus Wash offsetting the zone. Again within 100 feet north of PAZ-1 magnetics indicate another east-west fault in a small alluvial valley.

. . .

In the western 1/2 of the eastern 1/2 of Section 32 lies a low range of hills comprised of intermixed quartz monzanite, diorite and sinuous bands of Precambrian gneiss and schist. Refer to accompanying geologic map.

Quartz monzanite (Mesozoic) is intruded along the NE trending Precambrian metamorphic contacts. Subsequent Laramide propylitic and alunitic alteration of metamorphics and crystalline rocks and again Tertiary propylitic and plus silicic alteration coupled with intense shearing have produced long zones of slightly mineralized silicious breccia. At least one of these zones is 200 feet wide

and 1500 feet long bounding the east side of the hills.

Most of the shears strike NNE to NE and dip approximately 40 to 60 degrees west. All the sheared and brecciated zones have been prospected and at least protore values for silver can be easily obtained with fewer anomalous gold values.

Shearing has taken place in all rock types; but generally follows contacts. Some cross cutting relationships are observed, mainly near the 11500 feet north mapping line at the southern end of the hills. Here the main NE trending breccia zones are cross-cut by east-west shearing thus creating two wide altered areas in monzanite.

The eastern zone contains brecciated white (altered) monzanite cemented by specularite rich silica. White clay gouge zones are contained within the zone as well as central graphite stringer. Silver values increase into the foot-wall eastward. Zinc and lead are also highly anomalous across the zone. A few hundred feet west of this zone is another in gneiss and monzanite, it is highly jasperoidal and contains leached specularite giving the outcrop a red appearance.

The jasperoidal zone was sampled in a road cut along 260 feet of strike, all samples contained near 0.10 percent lead and 180 parts per million to 0.10 percent zinc. Widespread samples in the area show the two zones discussed have large geochem halos.

Conclusions and Recommendations

In addition to the two geochemically and structurally anomalous areas discussed, there are several more areas similar that have not been as completely prospected. They are covered by widely spaced geochemistry that indicates they hold potential.

The probability of epithermal precious metal deposits is great in the Black Silver - Section 32 area. At least three diamond drill holes are needed in Section 32 on the two altered zones discussed to establish subsurface continuity and oriented samples. These should be at least 700 feet deep in order to reach the supergene zone.

At the Black Silver, a large low grade stripable silver deposit could be immediately delineated by an aggressive rotary drilling program.