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*James D. Sell*

CENTRAL ARIZONA GEOLOGICAL SOCIETY

1986 FALL FIELD TRIP

NOVEMBER 15, 1986

BASE AND PRECIOUS METAL MINERALIZATION  
ASSOCIATED WITH LOW-ANGLE VEIN SYSTEMS  
IN THE BLACK CANYON MINING DISTRICT  
YAVAPAI CO. AZ

FIELD TRIP GUIDE

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## INTRODUCTION

The Black Canyon Mining District is located in south-central Yavapai County, Arizona and has produced over \$150,000 of gold, silver, lead and copper. The majority of this production is from a series of properties (Golden Belt, Golden Turkey, Silver Cord, French Lily) that are directly associated with Low-Angle fracture-vein systems. (for detailed descriptions of the various properties see Table 1) These fracture-vein systems are very persistent and appear to be well mineralized. Some of vein systems outcrop over 2-3 miles of strike length and can easily be traced by various surficial and underground workings. Recent work has delineated at least four fracture-vein systems.

These fracture-vein systems cut across the foliation of the Precambrian lithologies that are found in the area. The Precambrian lithologies that are cut by the fracture-vein systems are all thought to be of the Older Precambrian Spud Mountain Volcanic group as mapped by C. Anderson. These units consist of a series of felsic to intermediate volcanic, volcanoclastic and sedimentary units. Interbedded within these units are a series of oxide, sulfide, and carbonate facies exhalites that were probably laid down in extensive but shallow basins. Subsequent to the deposition of these units were several periods of tectonism, metamorphism and deformation. This was followed by a major episode of Precambrian intrusive activity which occurred with the resulting emplacement of the Crazy Basin quartz monzonite. Subsequent to the emplacement of the Crazy Basin quartz monzonite and prior to a period of Tertiary basaltic extrusive activity, the fracture-vein systems were created.

The fracture-vein systems generally strike N-S, NW or NE but all cut across the foliation in the Precambrian units. Some of the fracture-vein systems are quite extensive and dip into each other and create large masses of highly fractured and veined material. Mafic dikes have been noted in association with several of the fracture-vein systems but appear to have been altered and themselves mineralized. In areas of extensive fracturing, the original rock units are variably altered to an argillic-phyllitic assemblage. Well defined vein mineralization occurs in all parts of the altered fracture system. Characteristic, distinct, hanging wall and footwall vein systems are found in association with an altered fracture zone that may vary in thickness from 6" to 10'. The veins appear to have developed in a low-temperature, open-space filling environment with the development of extensive, well-banded, low-temperature, quartz-carbonate-sulphide deposits. Past production from these fracture-vein zones was from the high grade, Au-Ag-Pb-Zn bearing, quartz veins.

Recent work has determined that the mineralization within these fracture-vein systems is not restricted to the quartz veins but extends throughout the zone of fracturing and alteration. The metal content of the various vein systems that outcrop throughout a 3 mile by 5 mile area in the general vicinity of the settlement of Cleator, Arizona is quite variable.

Within at least one of the vein systems, can be seen variations in metal content that may be due to district metal zoning. Alternately, it may be possible to explain the variation in the metal content of the various vein systems by looking at the original metal content of the hosting Precambrian lithologies.

TABLE 1

BLACK CANYON DISTRICT

USBM Production Figures for Selected Low-Angle Vein Properties  
(Descriptions from Arizona Bur. of Mines Bull. 137)

1. Golden Turkey-Au,Ag,Pb,Zn,Cu,Fe (1936-1949) 117,826 tons that produced 55,657 lbs. Cu; 459,979 ozs. Ag, 10,873 ozs. Au, 1,8344,072 lbs. Pb "The mineralization is associated with a series of veins that strike northeastward and ranges in dip from 30 degrees to less than 10 degrees to the SE, occupies a fissure zone that is probably due to thrust faulting. As exposed, the vein ranges from a few inches to more than a foot in width and in places forms a branching lodde several feet wide. The vein fiilling consiists of very coarsely crystalline, milky to clear, glassy quartz together with rather abundant irregular masses and disseminations of pyrite, galena, andd sphalerite. In places, a little chalco pyrite is present, The gold accompanies the sulphides, particularly the pyrite. The vein walls show intense sericitization and silicification and in places contain disseminated metacrysts of practically barren pyrite."

2. Silver Cord-Ag,Au,Pb,Zn,Cu,As (1910-1914,1918,1932,1941,1944-1945,1965,1966,1970) 1,650 tons that produced 57,696 lbs. Cu; 34,091 ozs Ag; 1,329 ozs. Au; 106,690 lbs. Pb; 26,935 lbs. Zn The Silver Cord Vein can be traced through six claims. "It dips south or southeast at an angle of less than 20 degrees. This vein contains both silver and gold, together with some pyrite, galena, and chalcopyrite."

3. Golden Belt-Pb,Cu,Ag,Au (1919,1921-1924,1931-1933,1936,1937, 1938,1941,1961) 33,288 tons that produced 18,702 lbs. Cu; 53,917 ozs. Ag; 6,338 ozs. Au; 349,125 lbs. Pb "The geology of this mine is similar to that of the Golden Turkey...The Golden Belt vein, which strikes approximately N. 60 degrees east and dips from 10 degrees to 23 degrees to the Southeast, occurs within a fissure zone of a probable thrust fault...the vein, as exposed, ranges from a few inches to 3 feet in width and carries from \$5.00 to \$40.00 in gold (at \$20.50/Tr. Oz.) and from 1-10 ozs. silver per ton."

4. French Lily-Pb,Zn,Ag,Au,Cu (1936,1944,1946-1947,1951,1955, 1959) 16,701 tons that produced 93,240 lbs. Cu; 5,278 ozs. Ag; 2,235 ozs. Au "This vein which is about 2 feet wide. dips 30 degrees N...The best ore is said to contain 50% Zn and 1.5 ounces Au/T."

5. Gold Crown-Ag,Pb,Zn,Au,Cu (1928-1931,1933-1935,1940) 655 tons that produced 3,133 lbs. Cu; 16,213 ozs. Ag; 317 ozs. Au; 64,715 lbs. Pb; 2,560 lbs. Zn "This property is on the Silver Cord vein and is noted for its silver-lead production."

## FIELD TRIP GUIDE

ORIGINATION: Mayer, Arizona in the parking lot of the Circle K convenience store.

### MILEAGE:

0.0 CIRCLE K PARKING LOT, LEAVE THE LOT AT 9:30 A.M. AND PROCEED EAST ON STATE ROUTE 69 TOWARDS PHOENIX. To the left as we exit the Circle K parking lot, observe the old smokestack from an uncompleted smelting operation that was to have smelted the ores from the Crown King area. To the left and right are a series of outcrops of Precambrian Yavapai Series Big Bug Group units. We are traveling through a series of metavolcanics and metasedimentary units of intermediate to felsic composition. The sedimentary units form a sequence of pelitic rocks. Also exposed are various exhalite units (oxide and carbonate facies units) and quartz veins that are reported to contain base and precious metal values.

1.0 TURN SHARP RIGHT JUST ACROSS THE STREET FROM THE CATHOLIC CHURCH. THEN, IMMEDIATELY, TURN LEFT ON TO THE DIRT ROAD WHICH WILL BE FOLLOWING THE POWERLINES TO THE SOUTHEAST.

1.6 Off to the right is dump material from the Bluebell Mine which lies several miles to the southwest. This material was brought to the site by an aerial tramway system. The higher grade, copper-bearing material was upgraded by hand sorting and then shipped by rail to the Humboldt Smelter. Continuing along the Mayer-Cordes road; the rocks exposed are Tertiary basaltic rocks of the Hickey Formation. This units form a very thin cover over the Precambrian metavolcanic-metasedimentary complex. Locally, on the ridgeline to the north, can be seen some of the cherty rocks (oxide facies exhalite units) which crop out as resistant remnants of the Precambrian. The Hickey Formation appears to have laid down on an irregular topography with the the thick and is the thickest and best preserved in the paleodrainages.

On the south side of the road and near to the powerline, the basaltic units of the Hickey Formation are thicker and underlay the entire area where the powerlines are.

2.6 View off to the south of outcrops of sheared Precambrian oxide-sulphide facies exhalite units. These units are mineralized and have been recently drilled. This was the location of the Old Wagon Box Mine, an early gold producer. The mineralization is associated with oxidized portions of sheared sulphide pods in oxide facies material.

3.3 Outcrops of Hickey Formation along the road and down into the creekbed. Outcrops of oxide facies cherty material visible off to the right near the powerpole stanchions.

4.3-4.5 Off to the left in the valley are outcrops of Precambrian felsic-andesitic metavolcanics. From here on to the settlement of Cordes we will be going through these metavolcanic sequences that lie within or east of the Shylock Zone of Anderson and Blacet (1972). The thin capping of basalt that crops out in various low-lying valleys, overlies the Shylock Zone in the underlying Precambrian rocks. The Precambrian units within the Shylock Zone are composed of a series of metavolcanic rocks of presently unknown age. The original work of the U.S.G.S. correlated these units with members of the Spud Mountain Volcanics. These correlations are currently in doubt by many workers. These units would be included in the informal Rattlesnake Formation of O'Hara or the Black Canyon Creek Group of P. Anderson.

5.6 On to the right hand side along a series of low hills are a series of shallow workings that have been worked in the past for base and precious metal values associated with quartz vein systems and oxide-sulfide bearing exhalites. Specifically, the production from this area was Pb,Zn,Cu,Ag,Au. This was an area of past interest by Homestake Mining and Billiton.

6.9 We are now on a major outlier of basaltic units of the Hickey Formation. Off to the left are low rolling hills of Precambrian units that contain various base metal prospects in association with cherty rocks and quartz vein systems. Directly ahead is the settlement of Cordes.

8.1 Settlement of Cordes, THE ROAD GOING TO THE LEFT GOES BACK TO I-17 AT THE BLOODY BASIN INTERCHANGE. TAKE THE RIGHT FORK PAST THE OLD GAS STATION, CROSS THE CREEK AND UP THE HILL ON THE CORDES-CLEATOR ROAD.

9.2 TURN OFF TO THE LEFT AND PROCEED TO PARKING AREA FOR STOP 1.

9.3 STOP VEHICLES FOR STOP 1.

## STOP 1

### OVERVIEW OF PRECAMBRIAN LITHOLOGY AND LOW-ANGLE VEIN SYSTEMS

Looking off to the west can be seen the oldest rocks in the area, the Big Bug Group. These units are metavolcanics and metasediments that outcrop in the valley immediately below us, in the hills in the foreground; the valley behind those hills and in the hills and valleys in the background. The rocks in the immediate foreground that make up the low hills below us are for the most part felsic metavolcanics with minor intermediate-mafic units, that are interbedded with pelitic sediments. In the hills in the immediate foreground are outcrops of a series of quartz porphyry units. Beyond these hills in the next basin to the west are a series of sedimentary units that have been named by recent workers as the Cleator Pelites. In the far distance on the hills are the first outcrops of the Iron King Volcanics. These units consist of a series of mafic volcanics with intercalated calcareous sediments and mafic tuffs. Locally, there are some felsic centers that are associated with two of the major ore deposits in the area (the Blue Bell and De Soto deposits). The big hill to the north northwest is a silicified felsic center that is associated with the De Soto, polymetallic, massive sulphide deposit. Off to the northwest would be the Blue Bell, another polymetallic, massive sulphide deposit.

Cutting these rocks to the south in the low, rolling hills is the Bland Granodiorite that has been recently dated at 1720 m.y.b.p. In the far background to the southwest is the major batholithic rock unit of the Crazy Basin Quartz Monzonite. This complex has been recently dated at 1700 m.y.b.p. (Bowrie, S. (1986) All of these units are unconformably overlain by the Tertiary Hickey Formation, light colored, tuffaceous units, Lakebeds and Tertiary gravels.

Directly in the foreground are the drillsites from recent operations of Freeport. They were working in a area of intense quartz-sericite-clay alteration adjacent to and in the footwall of a series Low-Angle structures. (see Figure 1) Throughout this area are a series of shallow working on Low-Angle fracture-vein systems. These prospects were last worked in the 1920's for gold. Values in excess of 1 oz./T. were routinely recovered from these shallow vein deposits.

The Low-Angle veins in this area occupy Low-Angle fracture zones some of which can be seen on Townsend Butte if the light is correct. In the immediate foreground can be seen the dumps and tailings accumulations from the Golden Belt and the Golden Turkey Mines, which mined gold mineralization along two of these, subparallel, flat-lying structures. For the rest of the field trip we will be focusing on these structures that outcrop within the Precambrian units. RETURN TO VEHICLES AND TO INTERSECTION.

9.3 ROAD INTERSECTION. TURN LEFT ON TO THE MAIN CORDES-CLEATOR ROAD.

9.5 Contact with the Precambrian Antelope Hill granodiorite. At this locality the units outcropping are a dioritic phase of the intrusive system.

9.6 Off to the left are a series of quartz veins and shallow workings. There has been some reported Au-Ag from several of these vein systems. The veins are cutting across the stock at various attitudes. In certain areas the veins form areas of nearly stockwork mineralization.

10.9 ROAD INTERSECTION. TAKE THE RIGHT FORK TO CLEATOR AND CROWN KING.

11.8 STOP SIGN. TAKE THE RIGHT FORK TO CLEATOR AND CROWN KING.

12.3 On the right hand side of the road are a series of gold-bearing quartz veins along the strike of the foliation of the Precambrian felsic units. In this specific area are found a series of interbedded pelitic sediments and felsic tuffs.

12.7 ROAD INTERSECTION. FOLLOW MAIN ROAD. A series of prominent quartz outcrops can be seen if you stop at the mailbox and look off to the north and the northwest. Off to the northeast there is a red colored hill which is the outcrop of a folded, oxide facies exhalite unit. The outcropping unit appears to be strongly sheared as well as folded. Off to the northwest are a series of dumps and gossanous outcrops from a series of linear, pyritic, sulphide facies, exhalite units. From the extant file data information, it appears that this prospect was worked primarily for copper and that the shaft workings were quite extensive.

13.0 Off to our left hand side are some dumps of the Golden Eileen-Benleen group. The mineralization is associated with thin, sulphide facies, exhalite units in association with a series of felsic volcanics, volcanoclastics and felsic tuffs. Along the wash to our left can be seen a series of Low-Angle fracture systems that may be related to the Golden Belt fracture-vein system but have not been extensively prospected. Vein mineralization occurs in this area as thin stringer systems.

13.1 BOUNDARY SIGN FOR PRESCOTT NATIONAL FOREST. PROCEED PAST THE CURVE AND PARK THE VEHICLES ALONG THE ROAD ON THE RIGHT SIDE. PROCEED ON FOOT BACK UP THE ROAD TO THE BOUNDARY SIGN AREA. AND STOP 2.

## STOP 2

### OUTCROPS OF LOW-ANGLE FRACTURE-VEIN SYSTEMS

The outcrops here along the road were sampled by Wallaby Enterprises personnel for Quintana Minerals in 1981. Here we have a series of felsic tuffs and felsic flow units with interbedded oxide-sulphide facies exhalites. Samples taken in this general area showed anomalous Au values (.10 -.60 ppm Au/T.).

These units were of interest due to the fact that they were on strike with outcrops of massive and semi-massive sulphide material. It is believed that some of these prospects were worked in the past for precious and base metal.

Moving along the roadcut can be seen a sequence of thinly bedded, and sheared out felsic tuffaceous material with interbedded pods and remobilized? quartz veins. The overall character of the rock is very siliceous with a very definite quartz-sericite-clay alteration assemblage.

Moving along the outcrop can be seen a series of cross-cutting quartz veinlets which may be related to the flat-lying vein systems. However, at this location that are in a near-vertical orientation. These veins could be remobilized out of these very siliceous outcrops.

Moving along the outcrop through a partially covered area we see areas having trace amounts of Fe-Mn staining associated with planes of foliation. The outcrop directly across from the "BE EXTRA CAREFUL WITH FIRE" sign is the top of what we think is the Golden Belt fracture-vein system. At this location can be seen a Low-Angle fracture set that is approximately 4-5 inches wide with a vein filling of 1-2 inches wide at the top of the outcrop. The vein-fracture system breaks off into several "horse-tailing" fracture sets but is best exposed here. It is thought that this vein set is exposed across the road and in the wash of the Golden Eileen-Benleen group. At this location can be seen folded cherty units that probably were originally Precambrian, oxide facies exhalites that have been sheared and folded. The chert units seem to be truncated and faulted off by some of the Low-Angle structures.

At this locality can be seen what is thought to be Precambrian cherty units that are cut by Low-Angle structures with attendant silicification in the immediate vicinity. This would suggest the potential for remobilization of silica into the Low-Angle structures from the siliceous Precambrian units.

At the north end of the outcrop, just before the bridge, is a zone of Low-Angle veining and fracturing that is offset by a high angle fault. RETURN TO THE VEHICLES AND PROCEED ACROSS THE BRIDGE TO STOP 3.

13.5 THE GOLDEN BELT MINE ROAD. TURN LEFT AND PARK YOUR VEHICLES AND CHECK IN WITH THE WATCHMAN.

### STOP 3

#### GOLDEN BELT MINE-LOS ALISOS MINE AREA

IF WE ARE ALLOWED TO GO ON THE GOLDEN BELT MINE, PROCEED PAST THE WATCHMAN'S TRAILER ALONG THE ROAD PAST THE MILL AND DOWN TO THE MAIN, INCLINED WORKINGS OF THE GOLDEN BELT. IF PERMISSION IS NOT FORTHCOMING, THEN PROCEED BACK, ON FOOT, TO THE MAIN ROAD AND THEN UP THE HILL TO THE VARIOUS WORKINGS OF THE LOS ALISOS WORKINGS.

The Golden Belt was one of the largest producers in the district, with over 30,000 tons of recorded production. The workings are extensive and DANGEROUS. PLEASE EXAMINE THE SURFACE OUTCROPS ONLY. Note the variability of veins within the fracture system and the Low-Temperature mode of the mineralization. This is typical of the other properties in the area. Though the Golden Belt was primarily a Au-Ag producer, Cu, Pb & Zn values are found in the vein. (for a detailed description of the deposit see Table 1) As is noted on Figure 1, there several Low-Angle vein systems that outcrop in the vicinity of the Golden Belt workings. These vein systems can be mapped and appear to converge and diverge with and from each other. Potentially, this sort of system could form a mass or stockwork of mineralized fracture systems.

The Los Alisos workings are only known from file data and sampling information but are thought to lie on one of the extensions of the Golden Belt vein systems. Values in excess of 1 oz. Au/T. have been reported from these veins. AFTER VIEWING THE OUTCROPPING VEIN SYSTEMS, RETURN TO THE VEHICLES.

13.6 LEAVE GOLDEN BELT MINE AREA AND TURN LEFT ON TO MAIN ROAD TO CLEATOR.

14.2 Eastern boundary of the Shylock Zone as per Anderson and Blacet (1972). Observe the Iron Formations that come through on the west side of Townsend Butte. They are intricately folded with very steep fold axes. Some of them are actually rootless folds. They extend on both sides of the road and continue throughout the entire belt for about 15 miles to the south and about 8 miles to the north. They probably represent an extensive, shallow water, basin, that contained local, felsic, volcanic centers. Small, thin bodies of well-banded, sulphide facies exhalite material (mainly pyritic) are found occasionally throughout these units.

14.5 St. Johns Mine. These workings are on a series of Low-Angle fracture-vein systems that cut the Precambrian Iron Formations and steeply plunging Fe-Mn rich pods within the cherty exhalite horizons. The mineralization associated with the Low-Angle vein systems is mainly base metal. The property has been described as a Fe-Mn resource by the U.S. Bureau of Mines. In this area the Fe-Mn Iron Formation units are fairly thick (between 50 and 300 feet) and grade up to 25% Fe.

Also in this area are a series of Precambrian meta-andesites which lie on the west side of the belt of felsic metavolcanics that form Townsend Butte.

14.6 Crossing the contact with the Cleator Pelites. These units also contain Low-Angle fracture-vein systems.

15.6 Settlement of Cleator, AZ. PARK VEHICLES IN FRONT OF STORE.

#### STOP 4

#### CLEATOR VEIN SYSTEMS

The Au-bearing vein systems that outcrop in the Cleator area are not well known. It is reported in file data information that the veins that were found in the vicinity of Cleator outcropped on the tops of the hills and that alluvial placer material was recovered from the washes and gullies. The values recovered were sufficient for the property to be patented. In the roadcut in the center of town is exposed a Low-Angle fracture-vein system with associated Fe-Mn staining. WALK ALONG THE ROAD GOING SOUTH OUT OF TOWN TO OUTCROPS OF HIGH AND LOW ANGLE VEIN SYSTEMS. Note the extent and intensity of the veins that outcrop on the apparent dip-slope of the ridges. The extent of the fracture-vein systems can be easily traced by the low temperature quartz float. Note in the roadcuts stockwork fracturing just below the fracture-vein surface. RETURN TO VEHICLES.

15.7 TURN LEFT FROM THE MAIN CROWN KING ROAD JUST PAST THE BUILDINGS OF CLEATOR. THIS ROAD IS FOREST ROAD 101, THUNDERBOLT MINE RD.

16.2 BEAR LEFT AT THE FORK IN THE ROAD, STAY ON ROAD 101 TOWARDS TURKEY CREEK.

16.3 Note all the quartz vein material covering the entire area of the road, the slope on the hillside. This is pretty indicative of Low-Angle and High-Angle vein structures within the area. (see Figure 1 and Aerial Photo 2) Most of the quartz is probably derived from veinlet rather than large vein sources.

17.7 Off to the left are outcrops of oxide facies cherty units with remobilized quartz veins. Locally, these are cut by Low-Angle fracture systems. These outcrops have associated base and precious metal prospects.

17.9 TURN RIGHT AND PROCEED TO PARK AT AREA OF PAST MINING AND MILLING ACTIVITIES.

#### STOP 5

#### UNKNOWN AU WORKINGS ON LOW-ANGLE FRACTURE-VEIN SYSTEM

According to fragmentary information, this location was the site of an ill-fated mining and heap leaching operation. Reconnaissance samples taken from these working indicate that the vein is probably averaging .02 ozs./T. Au. Look around at the workings and the outcropping mineralization. This system may or may not be equivalent to the Silver Cord structure. RETURN TO THE VEHICLES. RETURN TO ROAD 101 AND THEN TAKE AN IMMEDIATE LEFT TO THE ROAD DOWN TO TURKEY CREEK.

18.4 FORK IN THE ROAD. TAKE THE RIGHT FORK DOWN A VERY STEEP HILL. FOUR-WHEEL DRIVE VEHICLES ONLY WILL BE ALLOWED DOWN THIS HILL. The hill in the foreground is composed mainly of pelitic units which are in contact on the far side with metavolcanics. The dark rocks are Mn-Fe stained units that crop out along the fractured contact which is interpreted as being a major fault. The Silver Cord-Gold Crown vein which dips to the southeast down in the creek is exposed on the hillside across the canyon and may be displaced upward or rotated by the fault exposed in the workings.

18.5 Sheared contact between pelitic rocks and metavolcanics. Within the faulted contact zone there is Fe-Mn staining. Thin beds of sulphide-bearing material also occur.

18.6 Limit of shear zone. On the east side are outcrops of unsheared, silicified, metavolcanics with associated Low-Angle and other structures preserved within the unit. Down in the creek the shear zone can be seen as a brecciated and carbonate replaced zone.

CONTINUE DOWN THE HILL TO THE GOLD CROWN MILLSITE AREA AND PARK VEHICLES-LUNCH STOP.

STOP 6

GOLD CROWN MINE AREA

These workings are described as being on the Silver Cord vein. Several mineralized fracture-vein systems can be traced from the Orphan Workings of the Silver Cord to the Gold Crown. It may be that there are several sub-parallel systems that connect and are mineralized. Directly west and above the Gold Crown Millsite, are almost continuous workings on a series of Low-Angle fracture-vein systems. The Gold Crown Workings produced a relatively small tonnage of high grade, Ag-Pb-Au ore. (for further information, see Table 1) The workings on the hill to the west of the millsite were best developed where the Low-Angle structures intersected the High-Angle structures that outcrop along the road that was just traversed. On the east side of Turkey Creek you can see very clearly the fracture-vein systems. These systems have been worked and can be traced for over a mile further down Turkey Creek. These prospects are known to have produced high grade Pb-Ag-Au ore. Some of these workings are quite extensive and several of the drifts were developed to a depth of 200 feet. Outcropping along the south side of the wash opposite the millsite are interesting, amythyst-bearing, quartz eye porphyry units. AFTER FINISHING LUNCH, RETURN TO THE VEHICLES, GO UP THE HILL, AND RETRACE OUR STEPS TO THE TOWN OF CLEATOR.

19.4                   TURN RIGHT ON TO ROUTE 101 AND GO BACK TOWARDS CLEATOR.

20.1                   View off to the northeast of the Gray Goose workings. The Gray Goose was developed on a Low-Angle, gold-bearing, vein system.

21.4                   Cleator, AZ

21.6                   TURN RIGHT ON TO THE CLEATOR-CROWN KING ROAD AND HEAD BACK TOWARDS BUMBLEBEE.

21.8                   Note the Low-Angle Structures coming through on the west side of Townsend Butte.

24.8                   TURN RIGHT ON TO THE ROAD TO THE SILVER CORD. CONTINUE ON THE MAIN ROAD AND THEN BEAR RIGHT AT THE SIGNED ROAD INTERSECTION (NO TRESPASSING). PROCEED TO ROAD INTERSECTION IN PASS AREA AND THEN TAKE THE RIGHT FORK THROUGH THE FOREST SERVICE GATE. (PLEASE CLOSE THE GATE AFTER THE LAST VEHICLE THROUGH) PROCEED TO THE UPPER WORKING AREA AND PUT ON LAMPS AND HARD HATS FOR THE UNDERGROUND TOUR OF THE UPPER WORKINGS.

## STOP 7

### SILVER CORD MINE AREA

THOSE WISHING TO GO UNDERGROUND FOR A TOUR OF THE UPPER WORKINGS AREA MUST HAVE LIGHTS AND A HARDHAT. THOSE THAT WISH TO EXAMINE THE SURFACE EXPOSURES AND WORKINGS MAY DO SO WITH ONE OF THE LEADERS AS A GUIDE.

The Silver Cord Mine was one of the first properties developed in the Black Canyon District and was initially developed for the high grade gold values (greater than 1.0 oz. Au/T.) associated with the Upper Workings. Later development of the Orphan Workings was on the basis of higher grade silver values (15-40 ozs. Ag/T.) associated that portion of the fracture-vein system. (for further information see Table 1) The Low-Angle fracture-vein systems appear to cut across all of the Spud Mountain lithologies that outcrop in the vicinity of the Silver Cord property. Early reports on the property state that the mineralization was often found in association with "basic" dikes within the fracture system. Microdiorite? dikes are found within the Upper Workings but appear to be cut and altered by the Low-Angle mineralization. A mafic unit that appears to be intrusive into the Precambrian lithologies and has been mapped as a diabase dike is also cut by the Low-Angle mineralization.

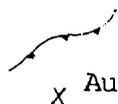
The mineralization occurs within several, sub-parallel, altered, fracture systems. The total width of the fracture-alteration system varies from less than 6" in the "diabase" to over 8' in the more fractured felsic volcanic and pelitic units. Within the fracture-alteration system are usually found several discreet, low-temperature, quartz veins with associated pyrite, galena, chalcopyrite, arsenopyrite, and sphalerite. The prior mining efforts were oriented to extracting the high grade vein material and backfilling the resulting stopes with the lower grade, altered material that is characteristically found between the hanging wall and footwall veins. This altered material contains significant Au-Ag values and may be suitable to heap leaching.

Within the Silver Cord property are three separate and distinct fracture-vein systems that may connect with those outcropping in the Gold Crown area. There are workings on all of the fracture-vein systems and it appears that the veins dip into each other in various areas of the property. Recent sampling of the Orphan and Upper Workings areas tends to confirm that the nature of the mineralization is associated with the rock type that is cut by the Low-Angle fracture-vein system.

END OF THE FIELD TRIP

RETURN ALONG THE INBOUND ROUTE TO MAYER AND PHOENIX

LEGEND FOR FIGURE 1



Low-Angle Fracture Vein System (dashed where inferred)

x Au

Prospect, Mine or Mineral Occurrence with metals recovered



Photolinears



Alteration Zones (quartz-sericite-clay)

PRECAMBRIAN LITHOLOGIES

(after Anderson, C.A. (1967) and Anderson, P. (1977))

CBQm

Crazy Basin quartz monzonite (1706 m.y.b.p.)

Cp

Cleator pelites (may be equivalent to smr or smrh)

qp

Quartz porphyry

smr

Spud Mountain rhyolite

smt

Spud Mountain tuffaceous unit

smc

Spud Mountain chert & slate

sma

Spud Mountain andesite

smb

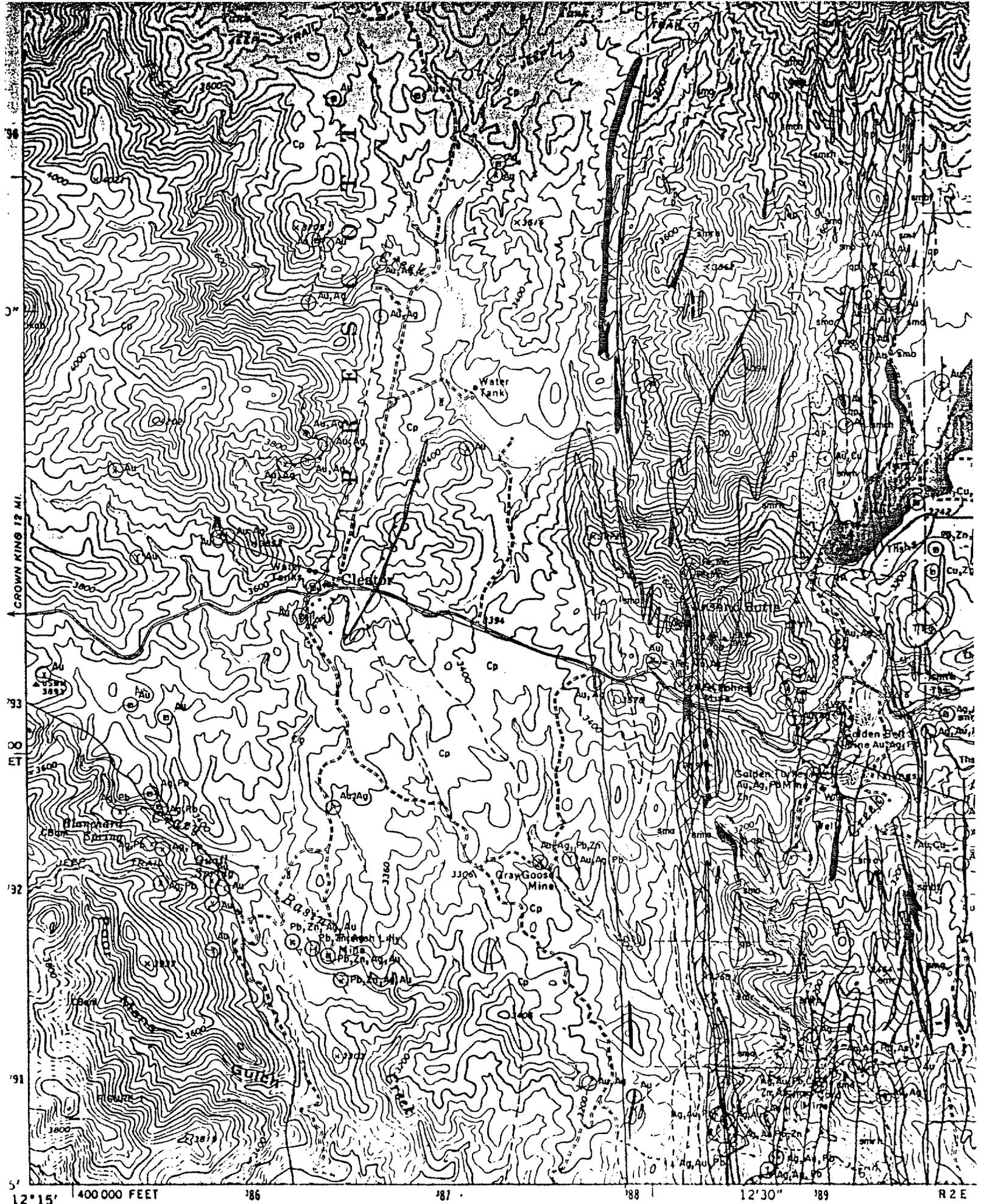
Spud Mountain andesite breccia

smbt

Spud Mountain tuffaceous sediment

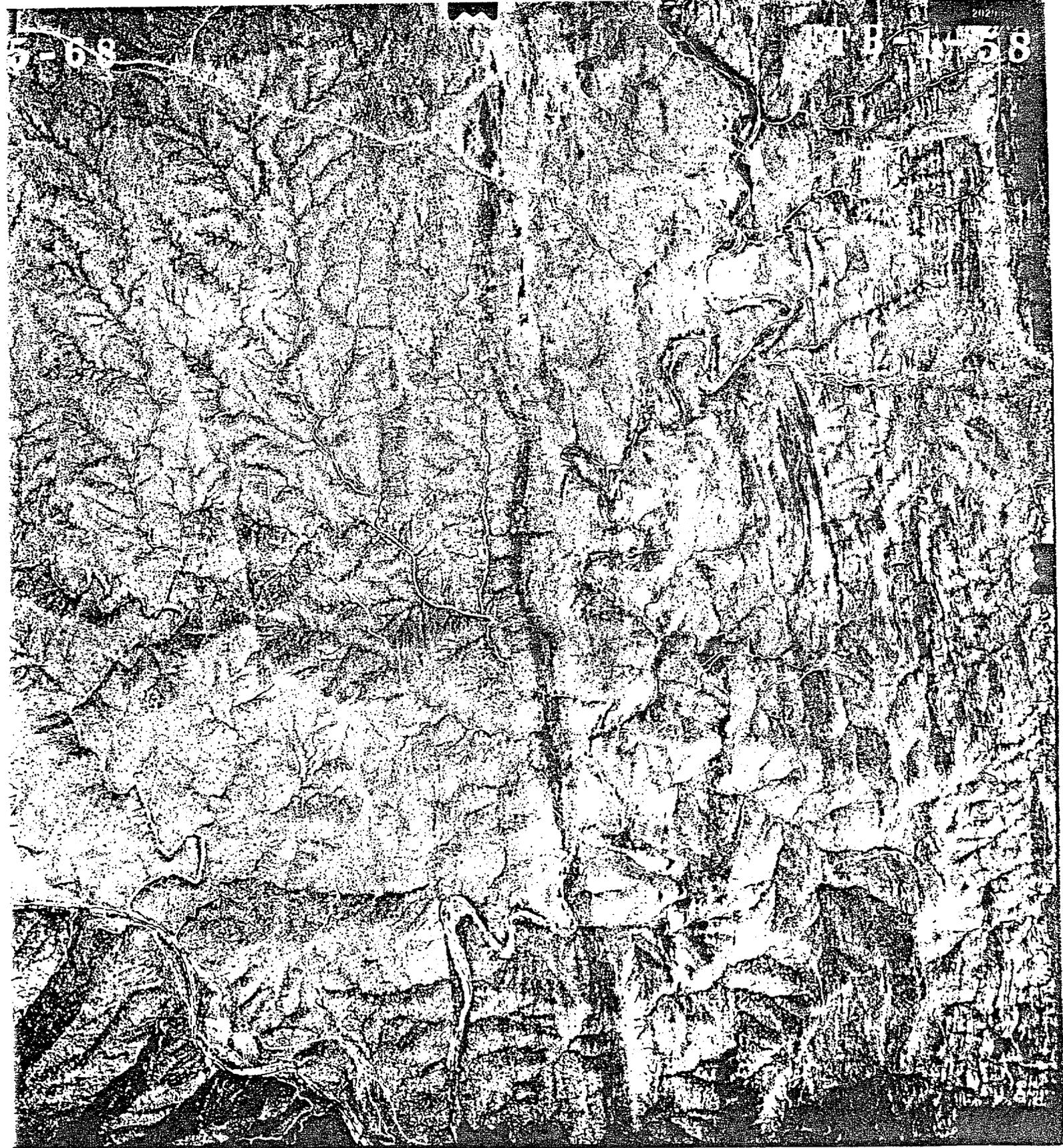
smrh

Spud Mountain rhyolite breccia



Mapped, edited, and published by the Geological Survey

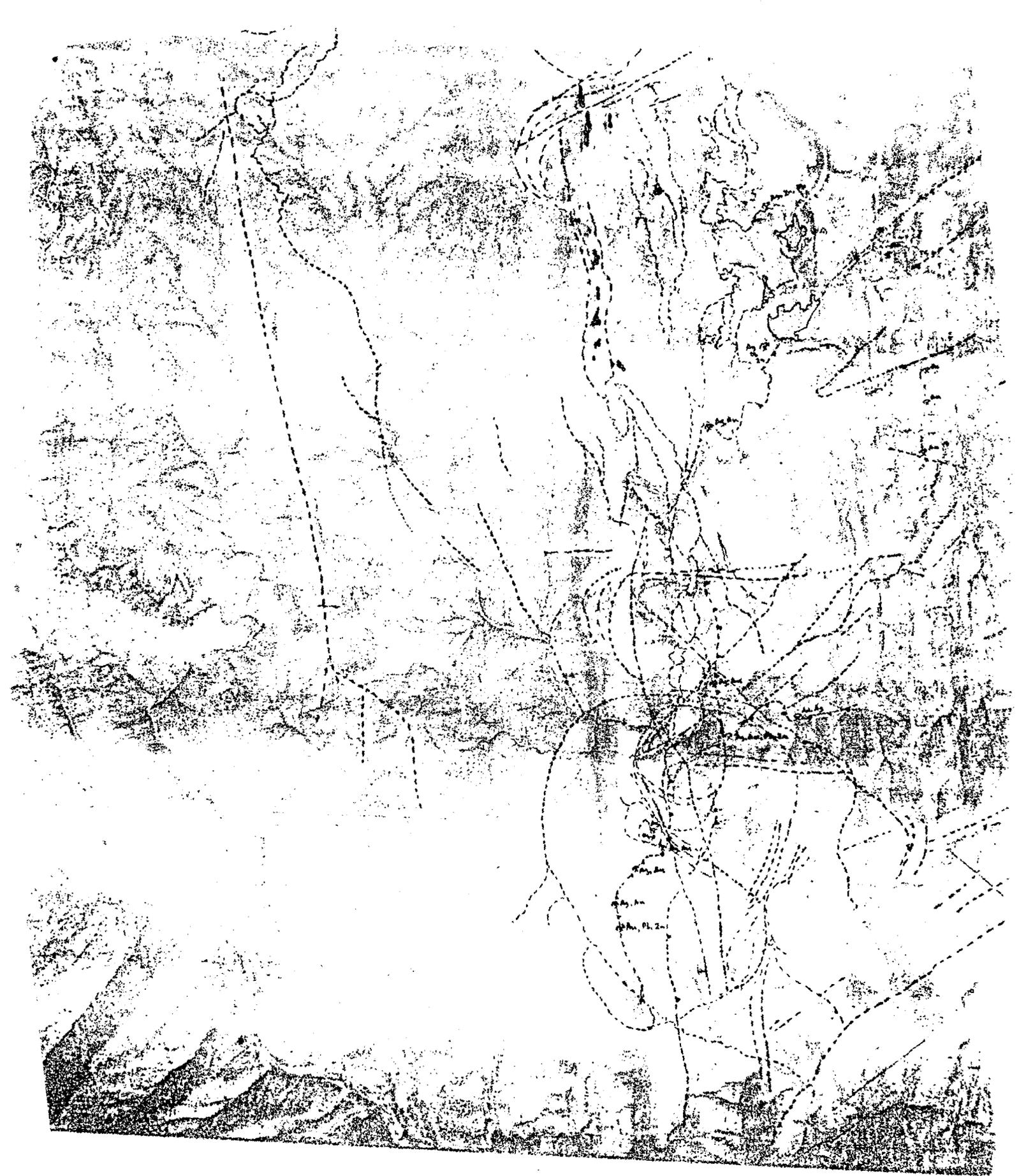
Control by USGS and NOS/NOAA



5-68

212  
B-1458

1458



December 9, 1977

TO: F. T. Graybeal

FROM: J. D. Sell

EM-Mercury Guide  
Massive Sulfides

During the recent AGS Massive Sulfide field trip into the Jerome-Mayer-Bagdad area I talked to a number of geophysicists-geochemists who are working on the problem.

Inspiration, for instance, relies heavily on IP and in the Poland Jct.-Mount Union area has found abundant pyritic zones. (Their scheme is apparently to find conductors, and they think they can define graphitic from pyritic, slap a group of claims around them, plunk a hole in it and if pyrite only is found reduce the claim block to an easily handled figure, even as low as 2-3 claims, and go on to the next.)

Conoco is busy but apparently only mapping vast areas (with probable geochemistry).

Newmont is also out in a strong force and they use a variety of methods including geophysics, geochemistry, and detailed mapping. They use IP to find conductors but then run EM to confirm copper-lead-zinc sulfide along with pyrite. Mercury is the confirming geochemical test, altho the other elements are tested.

Cominco apparently uses the same EM-Mercury combination and believe they have a deposit at depth at the Copper Queen-Binghampton area.

Exxon was very close and little was learned about their apparent discovery at the Kay Copper area.

  
James D. Sell

JDS:1b

JDS

F.T.G.

RECEIVED  
DEC 28 1977  
S. W. U. S. EXPL. DIV.

R. S. Gray  
Manager

December 22, 1977

Memo to: Mr. J.H. Courtright

Mercury as a Guide to  
Volcanogenic Massive Sulphides

As you are aware, mercury and mercury vapour as guides to ore enjoyed a boom in the late 1960's and early 1970's, following the development of techniques for measurement of very minute traces of Hg. The method was successful in detecting mercury halos over a wide variety of deposits, ranging from Pb-Zn deposits in Ireland to porphyry copper deposits in B.C. Mercury contents of young volcanogenic ores such as the Kuroko deposits are quite high, and mercury detection methods are effective exploration tools. As the age of the deposits increases, mercury content decreases. Archean base metal ores contain from 5 to 200 or 300 parts per billion Hg. (W.P. Sears, ClM.Sp. Vol. 11, 1971). Julian Boldy was able to demonstrate a mercury halo in rock samples from the Delbridge mine area at Noranda, but very careful sampling and multiple analyses were required because peak Hg values were only 1.5 times background and absolute values at 1.5 to 2.0 ppb were barely above the limits of detection.

Attempts have been made to use mercury vapour as an exploration tool for volcanogenic deposits, but use of the method has declined in the last several years. In theory, mercury should be present in hydrothermally-derived sulphides, but absent in authigenic sulphides. Rock sampling in the Wawa area has shown that mercury contents of barren pyrite-pyrrhotite iron formations are virtually identical to mercury contents of base metal ores. Thus,

Cont'd Page 2...

mercury may indicate the genetic type of deposit, but it is not a specific indicator for base metals. If contrasts with background are high enough, mercury sampling over EM anomalies should eliminate graphitic conductors and black shales with authigenic pyrite.

Although mercury methods have been more-or-less abandoned on the Canadian Shield, they may have significant applications in other areas. The Jerome deposits are Proterozoic and probably have higher Hg contents than Archean deposits. Residual soils and deep weathering present radically different geochemical conditions to our very young (8,000 year) glacial tills. Basically, the value of mercury sampling must be determined by weighing its usefulness in eliminating graphitic and pyritic shale conductors against its cost. It is not reasonable to expect mercury sampling to discriminate base metal sulphides from barren iron sulphide exhalites.

Yours very truly,



R.S. Gray

RSG:mlc

c.c. F.T. Graybeal ←  
L.D. James  
S.Von Fay

---

Jim - we plan a  
Coast trip on  
Oct. 22nd for a  
week or 10 days.  
Get in touch with me  
early in November.

Bev. C.

ph. 445-3570

310 Robinson Drive  
Prescott, Ariz.-86301  
Oct. 19, 1976

Jim Sell  
AS&R - Tucson

Dear Jim:-

You will remember me for the fiasco at the Silver Crown, and for the effort you made on my Copperland property at the White Tank Mountain area later, where you found that Cominco's Hugh Moore had violated my confidence and staked out claims to the West of my property. Mine down there is now under lease to Kalium Chemical Co., and the Cominco claims in the hands of Bear Creek. I only wish we had contested their claims and that you had obtained the entire area, as it now appears to underlie a full five sections of ground. It may be the biggest deposit in Arizona.

Friday I called and you were out of the office, so talked to Mr. Courtwright, who said he would give you a note to contact me. I wantedd to talk more about my Slate Creek silver property, which you visited once. That tunnel was in such a difficult location that we have not been back to it. Instead, we did our next work at the south end of the claims just after you come onto the ridge out of the Buzzard Roost Wash. This is a much more promising area and so much easier to reach.

By now I have spent considerable money there in running roads off into the canyon and cross-cut tunnels at right angles to the veins indicated on the surface. Several good geologists have thought I had plenty of showing to indicate a strong deposit, which would run deep, and that as it came up to the schist it would branch out toward the surface. This is the way it has developed, our cross-cut tunnels from part way down in the canyon proving to be too shallow. We are encountering the veins (up to 18 feet wide), but the presence of manganese has encouraged leaching in the schist and we are too shallow to find workable ore. Our situation is very much like that at Iron King, where they worked to 3300 feet and quit only because the walls were getting too dangerous.

I read in one of the magazines about your big expenditure and effort in the Couer d'Alene area and thought we might just have as good a mine right here, which would be much easier to develop and much less expensive. Therefore, I wanted you to run up and look it over. We have much more to show now, plus a soil analysis survey, an I.P. (which does not tell you very much in a mica schist) and most recently a magnetic survey James Sorrell. American Selco has been accumulating a considerable area up the mountain above us, and you may remember that there were a number of good producers in our general area during an earlier era.

Sincerely,

*B.W. Copeland*

10-14-76

FROM: J. H. COURTRIGHT

To: J D Sell

phone call from Copeland  
Prescott — has  
some new (exciting)  
information on  
Glate Cr Silver  
prospect —  
I told him you  
would call —  
his phone no. 445-3870



# ASARCO

Exploration Department  
Southwestern United States Division

November 28, 1983

W. C. Canady  
c/o S. Fergeson  
Box 1436  
Bagdad, AZ 86321

Crosby Mine Area  
Eureka District  
Yavapai County, AZ

Dear Mr. Canady:

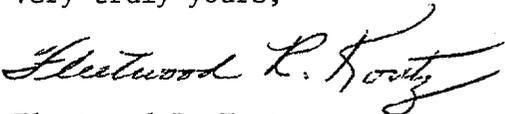
Thank you for returning my call on November 14. As I will be out of town for most of the next 3 weeks this is to remind you to send me copies of the information I requested on your Crosby and other claims near Bagdad. Specifically I need:

- (1) A list of your claims and a map showing their location,
- (2) Copies of assays of the 28 - 200' and 8 - 500' Winkie holes drilled on your property several years ago by California Core Drilling plus a map showing the location of these holes, and
- (3) Any reports on the property including the ones by Mr. Sayers you mentioned.

Copies of the surface assays will not be necessary. As I mentioned to you on the phone I would be happy to xerox this data and return those submitted to me to you to save you the expense of xeroxing.

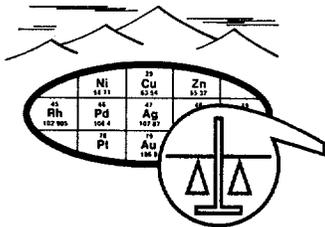
A number of the samples I took contained significant gold and I would like to return to your property in December when you are there and take additional samples over a wider area. I would appreciate it if you could send me the above information within the next 3 weeks. Please thank Mr. Fergeson for the tour of your claims.

Very truly yours,

  
Fleetwood R. Koutz  
Geologist

FRK/cg

cc: JDSell



**SKYLINE LABS, INC.**  
 1775 W. Sahuaro Dr. • P.O. Box 50106  
 Tucson, Arizona 85703  
 (602) 622-4836

REPORT OF ANALYSIS

JOB NO. TAJ 327  
 November 18, 1983  
 PROJECT NO.: CMA  
 SHIPMENT NO. 1  
 CMA 1 TO 14

ASARCO INCORPORATED  
 Attn: Mr. Fleetwood R. Koutz  
 Southwestern Exploration  
 P.O. Box 5747  
 Tucson, Arizona 85703

*Crosby Mine Area  
 Yavapai Co. AZ*

Analysis of 14 Rock Chip Samples

ITEM	SAMPLE NO.	Au (ppm)
1	CMA 1	.07
2	CMA 2	.33
3	CMA 3	<.02
4	CMA 4	<.02
5	CMA 5	2.90
6	CMA 6	>10.00*
7	CMA 7	.59
8	CMA 8	.04
9	CMA 9	9.30
10	CMA 10	6.10
11	CMA 11	<.02
12	CMA 12	>10.00*
13	CMA 13	6.10
14	CMA 14	7.00

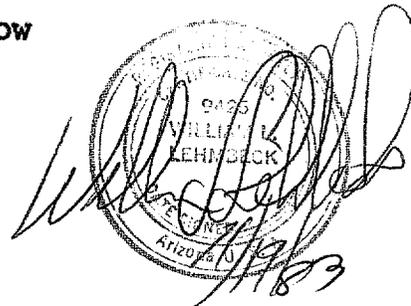
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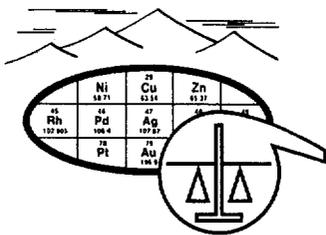
NOV 22 1983

S. W. U. S. EXPL. DIV.

\*NOTE: Fire assay results to follow  
 as TAJ 327-A.

cc: Asarco Incorporated  
 Southwestern Exploration  
 P.O. Box 5747  
 Tucson, Arizona 85703  
 Attn.: Mr. James D. Sell





**SKYLINE LABS, INC.**  
1775 W. Sahuaro Dr. • P.O. Box 50106  
Tucson, Arizona 85703  
(602) 622-4836

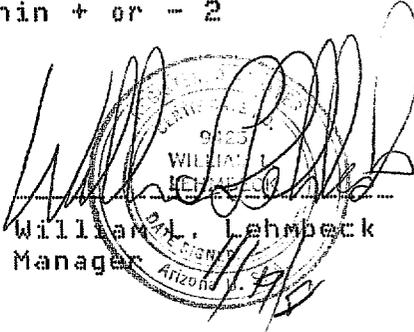
REPORT OF SPECTROGRAPHIC ANALYSIS

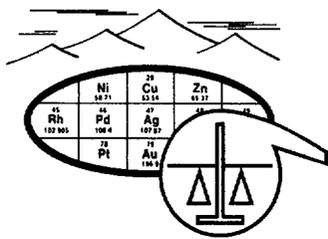
JOB NO. TAJ 327  
November 18, 1983  
PROJECT NO.: CMA  
SHIPMENT NO. 1  
CMA 1 TO 14

ASARCO INCORPORATED  
Attn: Mr. Fleetwood R. Koutz  
Southwestern Exploration  
P.O. Box 5747  
Tucson, Arizona 85703

Analysis of 8 Rock Chip Samples

The attached pages comprise this report of analysis. Values are reported in parts per million (ppm), except where otherwise noted, to the nearest number in the series 1, 1.5, 2, 3, 5, 7, 10, etc. within each order of magnitude. These numbers represent the approximate boundaries and midpoints of arbitrary ranges of concentration differing by the reciprocal of the cube root of ten. The 'accepted' value is considered to be within + or - 1 step of the range reported at the 68 % confidence level and within + or - 2 steps at the 95 % confidence level.

  
William L. Lehbeck  
Manager  
Arizona



# SKYLINE LABS, INC.

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 Tucson, Arizona 85703  
 (602) 622-4836

JOB NO. TAJ 327  
 PAGE 2

ITEM NO.      SAMPLE NO.  
 1 = CMA 1  
 5 = CMA 5  
 7 = CMA 7  
 9 = CMA 9  
 11 = CMA 11  
 12 = CMA 12  
 13 = CMA 13  
 14 = CMA 14

ITEM	1	5	7	9	11	12	13	14
ELEMENT								
Fe	3%	2%	2%	3%	3%	5%	3%	7%
Ca	.2%	.07%	.1%	.03%	.15%	.03%	.1%	.1%
Mg	.7%	.3%	.3%	.15%	.3%	.15%	.3%	.3%
Ag	<1	<1	<1	1	<1	7	2	7
As	<500	<500	<500	<500	<500	<500	<500	<500
B	10	<10	<10	<10	30	<10	<10	<10
Ba	700	300	500	100	500	500	300	500
Be	3	2	2	<2	3	7	<2	<2
Bi	<10	<10	<10	<10	<10	20	<10	30
Cd	<50	<50	<50	<50	<50	<50	<50	<50
Co	<5	<5	<5	<5	5	<5	<5	<5
Cr	100	150	200	300	300	200	200	50
Cu	50	300	20	200	7	1000	300	1500
Ga	15	<10	10	<10	10	10	<10	<10
Ge	<20	<20	<20	<20	<20	<20	<20	<20
La	50	30	50	<20	30	<20	<20	<20
Mn	300	150	200	100	300	150	100	300
Mo	7	15	<2	7	<2	70	<2	70
Nb	<20	<20	<20	<20	<20	<20	<20	<20
Ni	10	5	5	15	7	7	<5	<5
Pb	15	700	30	150	<10	3000	200	7000
Sb	<100	<100	<100	<100	<100	<100	<100	<100
Sc	15	10	10	<10	10	<10	<10	<10
Sn	<10	<10	<10	<10	<10	<10	<10	10
Sr	<100	<100	100	<100	100	<100	<100	<100
Ti	3000	2000	2000	700	3000	2000	3000	1500
V	50	70	20	50	50	70	30	300
W	<50	<50	<50	<50	<50	<50	<50	<50
Y	30	20	30	<10	30	15	20	15
Zn	<200	<200	<200	<200	<200	700	<200	1000
Zr	150	150	100	30	100	70	100	70

70K

JDS

must be  $\frac{Zn}{Au}$  or  $\frac{Pb}{Au}$

Yampai Co. MASSIVE sulfides

ED Dewitt  
TRAK - ALS  
3 MARCH 84

USGS - DENVER

TRAK Submitted to Fern Gross  
From USGS prod. data

production Ar. Grade

	1 m.t.	2 Au $\frac{oz}{t}$	3 Ag $\frac{oz}{t}$	4 Cu%	5 Cu/Au	6 Ag/Au
OLD DICK 1	1.6	.002	0.37	3.2	36,300	186
ZONIA 2	5.6 (op)			0.27		16
HUALAPAI 3	0.161	.004	0.62	2.25	563	146
Vende 4	36.	.043	1.5	4.9	2750	36
Big Bug 5	62.	.074	2.8	0.4	37	36
AGUA FRIA 6	0.61	.006	0.3	3.2	15900	55
Kay 7	0.002	.06	1.07	58		18
Myra 8	1.4	.05	1.2	2.24	1540	24

6-8% Zn remains (Ag)  
(Iron King Recovery not produced grades)

UV mine: Chert-silica horizons 0.1 opt Au 8% Cu Low Ag/Au  
 Massive sulfide .01 - .1 opt Au Interm. Ag/Au  
 Stanniferous Cu-ore .01 opt Au High Ag/Au

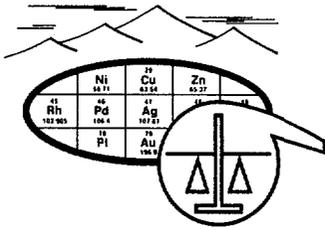
(on top of massive sulfide)  
 ↑ up - stratigraphically and more differentiated (more)

BEST deposits (Au) have most  
 chert-silica horizons

Au has good correlation with Zn and Zn + Cu BUT NOT Cu

- Dewitt says not to look for Au in Old Dick, Hualapai, Aquacina areas - Not enough chert-silica (Iron Fm) horizons
- I would guess that this would apply to massive sulfide-greenstone belts BUT plenty of Au in other environments / Ages in Yampai Co. - Granites, pegmatites, veins - pb + Laramide + mi. tectony.

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Tucson, Arizona 85703  
(602) 622-4836

REPORT OF ANALYSIS

JOB NO. TAJ 327A  
December 27, 1983  
PROJECT NO.: CMA  
SHIPMENT NO. 1  
CMA 1 TO 14

ASARCO INCORPORATED  
Attn: Mr. Fleetwood R. Koutz  
Southwestern Exploration  
P.O. Box 5747  
Tucson, Arizona 85703

*Rocky Mine Area  
Yavapai Co AZ*

Analysis of 2 Pulp Samples

---

ITEM	SAMPLE NO.	FIRE ASSAY	
		Au (oz/t)	Ag (oz/t)
6	CMA 6	.585	<.01
12	CMA 12	.770	<.01

---

cc: Asarco Incorporated  
Southwestern Exploration  
P.O. Box 5747  
Tucson, Arizona 85703  
Attn.: Mr. James D. Sell



November 5, 1984

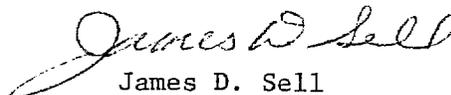
To: A. E. Giesecke

From: J. D. Sell

Petrominex  
Prescott, AZ

A Mr. David Jordt of Petrominex has been in contact with F. T. Graybeal concerning a new technique for integrating large volumes of geochemical data and finding anomalous zones therein. He has apparently done this in the Prescott-Williams AMS data and found areas of interest.

Mr. Jordt will be in the field through Thursday, November 8th. Please contact him and arrange for a possible review while on your way north. Jordt can be contacted at 602-445-3096, Prescott, AZ at any time, and for certain in the late evening after he has returned from the field.

  
James D. Sell

JDS/cg

*DS called 11/4 — AEG will meet him at Prescotttonia Hotel, Prescott,  
on Thursday evening, Nov. 8 for tour et al.*

# ASARCO

JDS - you handle

## Eastern Exploration Division

Delbert D. Harper  
Manager

July 30, 1984

Mr. Bill Kurtz, Manager  
Western Division  
ASARCO Incorporated  
1150 North 7th Avenue  
Tucson, Arizona 85703

Dear Bill:

Enclosed please find several maps showing the location of five placer gold claims in the Bradshaw Mountains in Arizona. Since I know absolutely nothing about the area, I am sending it to you. Perhaps it may pan out (no pun intended) to something. According to the owner, Chester Green, the lode claims are still available. I think what Mr. Green is interested in is a buyout with a royalty attached. Mr. Green is in the independent oil business (drilling and promoting) in Kentucky and Tennessee and this buyout with royalties is the type of agreement he is used to. He sent me a few descriptions of the area which are included.

Hope all is well in Tucson.

Regards,

*Mark A. Miller/gz*

Mark A. Miller  
Geologist

MAM/gz

Enclosures

RECEIVED

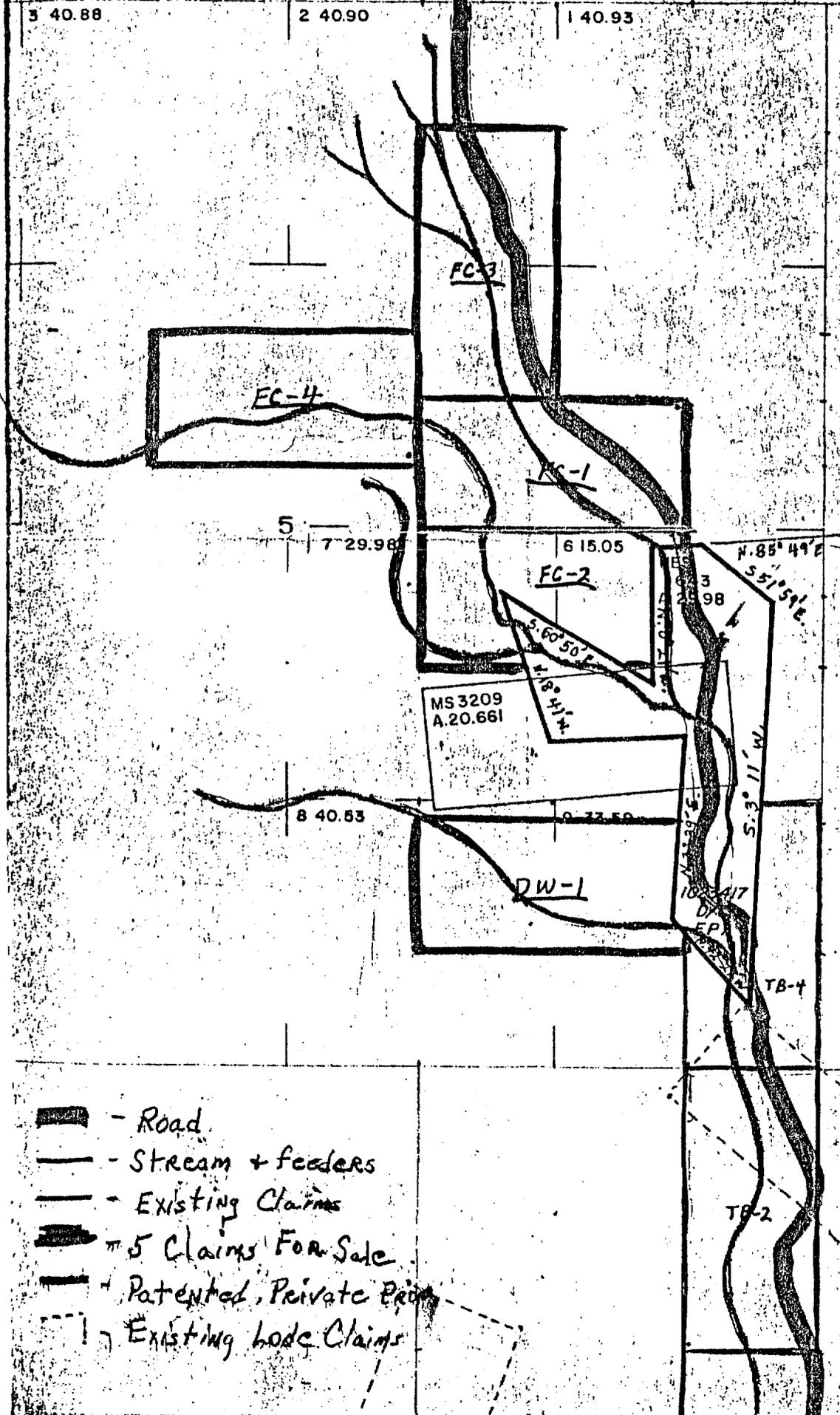
AUG - 2 1984

EXPLORATION DEPARTMENT

EAST OF THE GILA AND SALT RIVER MERIDIAN, A

STA  
LAN

MTP  
SUP

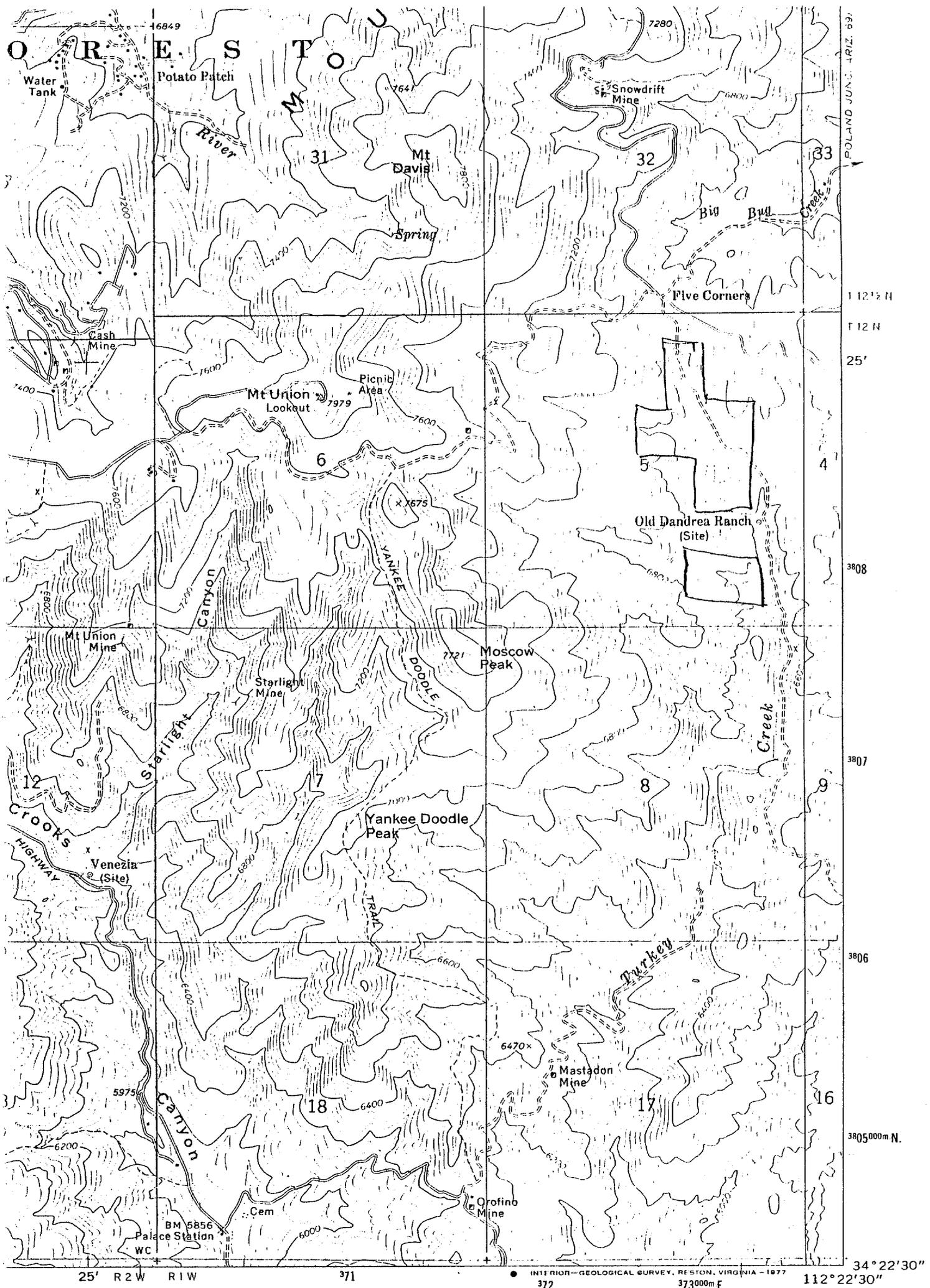


FOR ORDERS  
UNIDENTIFIED  
MINERALS, W  
REFER TO IN

AR 017608 A

All Tp include  
10/21/1899

-  - Road
-  - Stream + feeders
-  - Existing Claims
-  - 5 Claims For Sale
-  - Patented, Private Property
-  - Existing lode Claims



1 MILE



**GROOM CREEK, ARIZ.**  
 NW/4 MT. UNION 15' QUADRANGLE  
 N3422.5-W11222.5/7.5

(BATTLE FLAT)  
 3552 IV SE

## YAVAPAI County

YAVAPAI Co., in the central part of Arizona, ranks first in the state in gold production through 1959.

The production by ounces is as follows

	Yards	Ounces
Prior to 1900	477,703	193,500
1900 to 1934	1,934,447	33,204
1935 to 1959	1,064,000	40,100
U.S. Bureau Mines	Total	266,804

Though mineral deposits were known in this area long before the Civil War, the 1<sup>st</sup> prospectors were Union soldiers with mining experience from California. Placers at Rich Hill were discovered in 1862 and those along Hassayampa & Lynx Creeks were discovered in the Big Bug district in 1870. Claims were located in the Jerome district in 1876.

The northern part of Yavapai Co. is in the plateau region, and the southern part is in the mountain region, which consists of a series of short mountain ranges of the fault-block type that trend north-northwest & are separated by broad valleys filled with fluvial & lacustrine deposits. The mountains consist chiefly of Precambrian metamorphic and igneous rocks, which are intruded locally by stock plugs and dikes of granitic rocks of late Cretaceous or early Tertiary age. Large areas are covered by volcanic rocks of Tertiary and Quaternary age.

The ore deposits, which are in the mountain region, consist of veins & replacement deposits of Precambrian age and veins and replacement deposits of Precambrian age and veins of Mesozoic or early Tertiary age. Placer deposits have also been important.

## Big Bug & Turkey Creek District

The Big Bug & Turkey Creek District, on the northeast slope of the Bradshaw Mts., is about 12-15 miles east-southeast of Prescott. Copper, gold, silver, lead, and zinc are obtained from a variety of ore deposits in the district.

The Kovapai series, which here consists of interlayered sedimentary rocks and volcanic tuffs and breccias, was intruded by a variety of Precambrian granitic rocks - gabbro, diorite, granodiorite, & granite - and by dikes of rhyolite porphyry. Tertiary volcanic rocks younger than the ore deposits locally form a cover.

The said mining claims are located on the head waters of Turkey Creek, which have until recently have been unassailable and due to the relatively high elevation 7,200 ft. were not economically situated for mining years past. Today although this virgin area is very feasible assaying out at .125 to 3.125 ounces per cubic yard of alluvial material (P<sub>100</sub>)

With a cross section 1 yd. deep One Acre equals  $4821.5 \text{ yd}^3$   
 $\times 100 \text{ Acres} = 482,150 \text{ yd}^3 / 100 \text{ Acres}$ . With a more conservative figure 30% =  $144,645 \text{ yd}^3 \times 1 \text{ ounce}$   
= \$57,858,000<sup>00</sup> @ 400<sup>00</sup> ounce

With today's flotation mills and the large capacity of mill run material available several ounces of gold per day can be expected.

From the desk of:

10-26-84

H. G. KREIS

J.D.S.

Horizon Gold's  
Properties

Bob Lunceford of Horizon Gold is sending me data on three properties, all gold prospects. These prospects are listed on the attached sheet.

Since I will be gone for a few weeks, you may want to scan the data to see if it is of immediate interest.

The most interesting property, the Pinion Prospect, sounds like a large area of surface gold enrichment. The question is how deep does it go, 1 foot or 50 feet?

Attachment

H.G.K.

started with → Bob Luncford Senior Geologist | Horizon Gold  
Evergreen Colo.  
Rich Forrest, V.P. | 303-674-2037

Paul Barros looking @ Colo. properties  
Ariz. & So. Calif.

2 props. in Ariz.

Pinion Prospect

Prescott: contact granite-metamorphics. Exxon had property prior to staking by John Watson (Horizon, Presid.)  
0.14 oz/ton Au on surface  
Exxon drilled 20 holes -- roots of Au bearing systems -- and dropped it.  
All Au <sup>in EXXON holes</sup> within first 50' of surface (sounds like surficial enrichment)  
Confirmation sampling done by Horizon Gold  
800,000 tons @ 0.14 oz/ton in first 5' of surface  
Exxon looked in granite rocks but not in metamorphic rocks  
Potential 2 1/2 - 3 million ~~0.08~~ - 0.13 Au  
Sec. 23, 26, 27, 28, 33, 34, 35, 36 T12N, R5W  
3, 4 T11N, R5W

Gold City Prospect

Colorado River: metamorphic Au in chlorite schist and other rocks  
50' wide shear zone; Exxon drilled 3 holes  
10' @ .126 Au = best intercept  
Exxon drilled <sup>one hole</sup> parallel to structure -- still potential  
57 unpat. veins { Sec 23, 24, 25, 26, 35, 36 T4N, R21W  
17 T4N, R20W

1 prop. in Calif

San Bernardino: Co. of Ludlow

Sec 17 T6N R8E  
4 unpat. Lode veins Silver Billion Prospect  
shallow dipping quartz vein

Small Group 3 geol. handmen Pres draft

Corporate Structure

President John Watson CSM, '76  
(Horizon Gold) (was formerly 'Centennial Silver Montana-Colo. area)  
Formerly of Exxon

Public offering -- filing w/ FCC from Huston  
Got 12 properties Consolidated mining (Rich & Bob)  
forming partnership.

# ASARCO

Exploration Department  
Southwestern United States Division

December 12, 1984

Dr. Donald F. Saunders  
President  
Petrominex, Inc.  
4057 Northaven Road  
Dallas, TX 75229

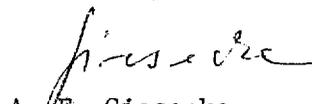
Black Mesa  
Yavapai County, AZ

Dear Dr. Saunders:

After having reviewed the geochemical and geophysical data of the Black Mesa project and after having visited the property, the conclusion has been reached that present metal prices are too low to actively participate in the venture. Hence, we must decline your offer to become involved.

We thank you for bringing up this property to our attention.

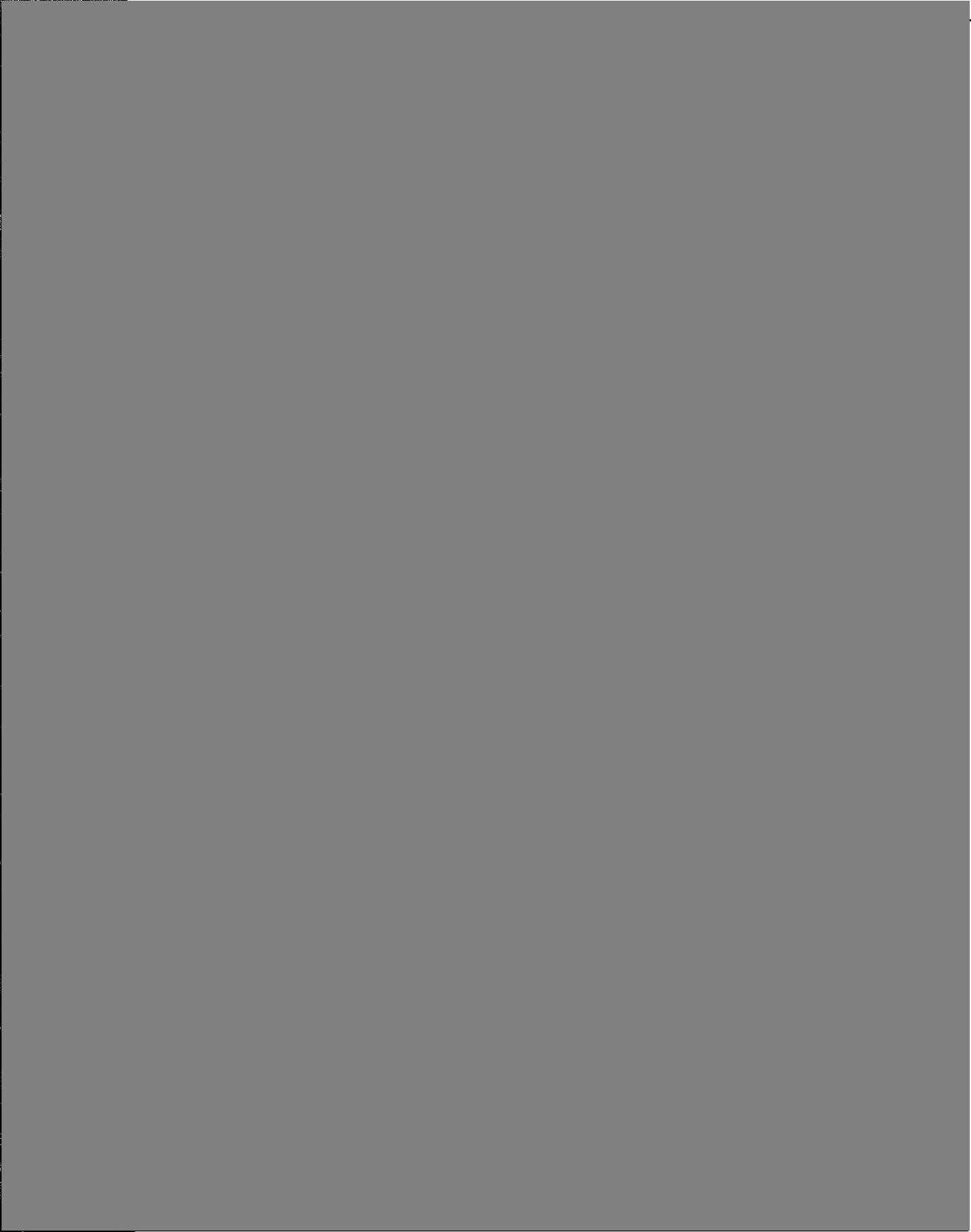
Yours very truly,

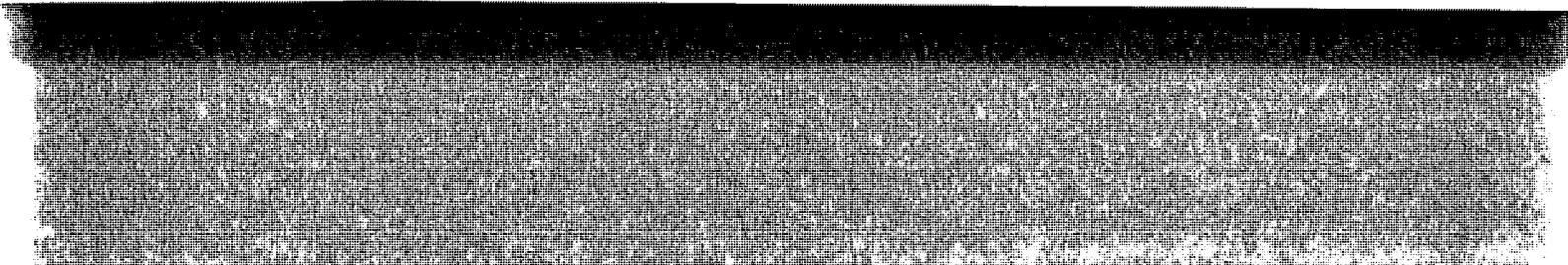


A. E. Giesecke

AEG/cg

cc: JDSe11  
DKJordt  
6825 Greenwich Lane  
Dallas, TX 75230





# ASARCO

Southwestern Exploration Division

JDS

March 7, 1985

To: A. E. Giesecke

From: J. D. Sell

E. L. Poteet Claims  
Sec. 32-33, T9N, R9W  
Aguila District, AZ

*Yavapai Co.*

Mr. Poteet, Farmington, NM, Phone: 505/325-7685, has reported a 3-8 foot wide reddish quartz vein running NW-SE and carrying up to 1/4 opt gold. He believes the wallrock is altered on each side, stained reddish, for some 100 feet.

His posts are some 600 feet N of the SW corner of Section 33. (Section 32 is a state section.)

Access should be on the topo sheets and up a narrow sandy wash in the final stages.

I suggest you stop off on your way north next week and take a look and sample what you need.

JDS:mek

  
James D. Sell

# ASARCO

Southwestern Exploration Division

JDS

September 26, 1985

To: F. R. Koutz

From: J. D. Sell

Gold Bar Area  
Sec. 27, 28, 33, 34  
T9N, R3W  
Yavapai County, AZ

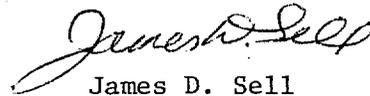
This is your Alvarado Area.

Seems that the small pipes would be difficult to find sufficient tonnage in each one, but perhaps the aggregate would make it. The larger surface plan on say #3 and #6 may be real or due to topography on the 30° plunge of the one known worked pipe.

As you are aware, and mentioned in the one report, the NE porphyry belts, where cut by NW shear-dike zones, are often the loci for better mineralization.

What do you think of the possibilities?

All material to be returned to the Devaults.



James D. Sell

JDS:mek

# ASARCO

JPS  
Southwestern Exploration Division

September 18, 1985

TO: J. D. Sell

FROM: F. R. Koutz

Gladiator-Fairview Mine  
Nor-Quest Resources Ltd.  
Crown King District  
Yavapai Co., AZ

I attach the following promotional information for the files from Nor-Quest. they report the following reserves on some 1100 acres they hold 62.5% interest in with a gross value (@ \$300 Au and \$6 Ag) of \$36 million:

	<u>Tons</u>	<u>Width</u>	<u>Au(opt)</u>	<u>Ag(opt)</u>	<u>Type</u>
Gladiator/War Eagle	81,138	4.6'	0.58	3.72	Proven + Prob.
1985 additional	30,000	?	?	?	"proven"
Fairview	<u>88,000</u>	<u>3.0'</u>	<u>0.50</u>	<u>2.0</u>	"drill indicated"
<u>Total</u>	<u>199,138</u>	<u>-</u>	<u>±0.54</u>	<u>±2.99</u>	

In July they apparently developed two new ore shoots on the south end of the main (300'?) Gladiator level as follows (it is not known if this is part of the "addition proven" above):

	<u>Tons</u>	<u>Width</u>	<u>Au(opt)</u>	<u>Ag(opt)</u>	<u>Type</u>
End S. Drift	11,840	±3.7'	±.32	±6.6	200' of Drift
Middle S. Drift	<u>8,880</u>	<u>±3.7'</u>	<u>±.44</u>	<u>±2.3</u>	150' of Drift
<u>Total</u>	<u>20,720</u>	<u>±3.7'</u>	<u>±.37</u>	<u>±4.8</u>	Drift Sampling

They apparently are putting in a 100 TPD modular mill (sulfide concentrator ?) with production to start late this month on ore block "D" @ 0.96 opt Au and 5.5 opt Ag with average estimated costs (for the bulk reserve) of \$170/oz. Nor-Quest has an operations/exploration office in Mayer (632-9604) which had the property gates closed on the weekend I visited the area in mid-June.

We have Nor-Quest's 8/24/83 Statement of Material Facts in the files including a 10/10/82 Engineering report on the property by Mason Coggin. Production from the War Eagle-Gladiator is 20,800 oz Au and 105,000 oz. Ag (1870-1942) with some 22,000 T @ 0.54 opt Au and 4.8 opt Ag shipped (1937-42). Apparently both oxidized ore and Pb and Zn concentrates were shipped. The Coggin report contains some incomplete data on Noranda's 1980-82 exploration program

including their DDH #3 which hit @ 250' depth 4.5' of 0.90 opt Au, 3.7 opt Ag, 2.0% Pb and 7% Zn. Ore shoots are in N-S 50-70°W dipping narrow silicified fissure veins in andesite and basalt flows of the Iron King Volcanics of the Precambrian Yavapai Schist some 2000' NNE of the Laramide Crown King Granodiorite stock (see USGS GQ 997). U.S. Borax has been drilling on the Haggerty property NNE of the Fairview. It will be interesting to see if Nor-Quest can actually mine their 5/8 of +200,000T of ½ opt Au and develop additional reserves, or are more interested in promotion. I will ask Albert Lamarre, last manager of Noranda-Tucson, what he thinks of the area the next time I talk to him. I will also see if I can get a mine tour the next time I'm in the Prescott area.

FRK:mek



F. R. Koutz

Addendum (Oct. 8, 1985)

A. Lamarre says that this was one of W.D. Payne's last Noranda Projects. Apparently Noranda hit a few spotty "ore" grade intercepts which other drilling failed to extend. He seriously doubts that they have "proven" 200,000 T of ½ opt Au. In response to the card I left with Nor-Quest's watchman in June and the request for information, Bill Sproule (PR Guy) called me up last week and said I should contact the mine manager in Mayer in late October/early November for a tour when they are operating. They will consider Asarco smelters for their concentrates.

*FRK  
8 Oct 85*

# ASARCO

JDS

Exploration Department  
Southwestern United States Division

December 2, 1985

Mr. & Mrs. J. Devault  
Box 1498  
Wickenburg, AZ 85358

Gold Bar Mine Area  
(Constellation)  
Sec. 27,28,33 & 34  
T9N, R3W  
Yavapai County, AZ

Dear Jack and Dorothy:

Attached please find gold and silver assays as I promised you from Sunshine's 7 (1984) rotary drill holes (1320 feet). I composited their 5 foot drill intervals into usually 20 foot lengths. The "ABR" prefix corresponds to their "RDH-85" prefix. As you can see most of the values were fairly low (1 ppm = 0.029 oz. troy/short ton), but as you said they may have drilled in the wrong place.

As I mentioned to you on the phone, the results are not good enough for us to become involved in Gold Bar at this time, but I would like to spend a few days looking over the surrounding area and your other properties this winter when things are less hectic. I will get in touch with you.

Have a Merry Christmas and Happy New Year.

Very truly yours,



Fleetwood R. Koutz  
Geologist

FRK:mek  
Att.

cc: J.D. Sell

December 2, 1985

Note on Asarco Copies

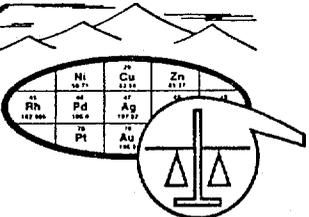
RDH:ABR 1-3 are from "Pipe" #2 plunging N35E 50°, 58° & 65°, respectively, and ABR 4-7 from "Pipe" #3 with holes 4 & 5 or possibly 6 & 7 plunging N20W 80° and 68°, respectively. The collars of the other two holes were caved, hidden or somewhere else. They were correctly drilled to catch the plunge-rake of suspected mineralization within the pipes which show strongly anomalous surface geochems. The "pipes" are silicified outliers along a NE striking ridge (down the road) of a eroded low angle silicified sheet of mineralization. The pipes are at the intersection of WNW striking high angle quartz veinlets with ENE striking foliation (±) of the enclosing granite (also ENE striking hornblende andesite dikes and shears) but the high angle alteration/structure usually dies with depth. The higher values in those holes correspond to heavy hematite or goethite and minor relict pyrite. Although there is some brecciation, these are not breccia pipes (i.e., intrusive, intrusion etc. breccias in the porphyry copper-type systems), but breccia zones where the breccia matrix is about 5% with the 5-15% vugs filled with drusy quartz, pyrite >>chalcopyrite ± Au-Ag. Pipes 4-6 (or 4-8) are essentially non-existent, but consist of weakly silicified areas that contain a few vuggy zones.

The No. 1 "pipe" of course is the Gold Bar Mine itself which plunges 30° WSW. for at least 500' before being faulted off. The Gold Bar Mine produced in excess of 25,000 T @ 0.87 opt Au and has UG drilled "resources" of possibly 40,000 T @ 0.6 opt Au. The tonnage might be increased somewhat down plunge or at lower levels in the zone, but mineralization is very spotty. The Gold Bar Mine mineralization is 600' NW and 250-700 feet below the #2 & #3 pipe outcrops and the decreasing grades at depth in the Sunshine drilling are not encouraging. There are a number of fanned DDH (1960's and before), also in the #2-#3 pipes for which no data are available. Overall the targets in the district are small in spite of high-grades (supergene Au-Ag?).

I will write a fuller report on the Gold Bar area when I have a day, but the district deserves a week's recon. for other targets as it is in the Congress to Lake Pleasant Belt with lots of Au mineralization. Callihan did an extensive geochem sampling program on Devault's ground in August-September and are trying to decide if they should unwater the Gold Bar shaft for additional UG drilling--a real long shot for significantly more tonnage. They have not signed an option yet. A number of Devault's patented and unpatented lode and placer claims with lower apparent potential compared to Gold Bar in the region are tied up with a Canadian group: ACQUEST International Ltd. on a short term option.



F. R. Koutz

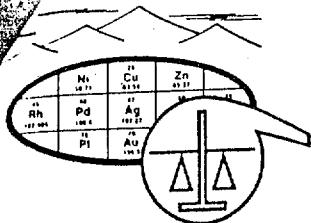

**SKYLINE LABS, INC.**  
 1775 W. Sahuaro Dr. • P.O. Box 50106  
 Tucson, Arizona 85703  
 (602) 622-4836

REPORT OF ANALYSIS

PROJECT NO. \_\_\_\_\_  
 SHIPMENT NO. 1  
 ABR-1: 10-25 TO ABR-7: 230-250  
 PAGE 1 OF 3

Analysis of 67 Drill Cutting Samples

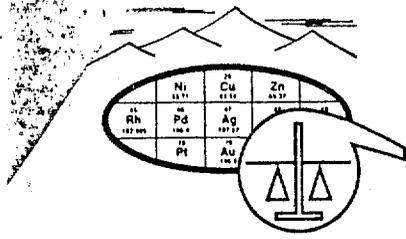
ITEM	SAMPLE NUMBER	Au (ppm)	Ag (ppm)
1	ABR-1: 10-25	.48	.4
2	ABR-1: 25-40	1.00	.6
3	ABR-1: 40-55	.58	.4
4	ABR-1: 55-70	.06	.2
5	ABR-1: 70-85	.08	<.2
6	ABR-1: 85-100	<.02	.2
7	ABR-2: 10-30	.38	.4
8	ABR-2: 30-50	.86	1.0
9	ABR-2: 50-70	1.20	2.8
10	ABR-2: 70-90	.14	.6
11	ABR-2: 90-110	.04	.4
12	ABR-3: 10-30	.44	.8
13	ABR-3: 30-50	1.50	1.0
14	ABR-3: 50-70	.40	.6
15	ABR-3: 70-80	.09	.4
16	ABR-4: 10-30	<.02	<.2
17	ABR-4: 30-50	<.02	.2
18	ABR-4: 50-70	<.02	<.2
19	ABR-4: 70-90	<.02	<.2
20	ABR-4: 90-110	<.02	.2
21	ABR-4: 110-130	<.02	<.2
22	ABR-4: 130-150	<.02	.2
23	ABR-4: 150-170	<.02	.2
24	ABR-4: 170-190	.20	.2
25	ABR-4: 190-205	.46	.6



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 Tucson, Arizona 85703  
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October 21, 1985  
 PAGE 2 OF 3

ITEM	SAMPLE NUMBER	Au (ppm)	Ag (ppm)
26	ABR-4: 205-220	<.02	.2
27	ABR-5: 10-30	<.02	.2
28	ABR-5: 30-50	<.02	.2
29	ABR-5: 50-70	.05	.2
30	ABR-5: 70-90	.16	.2
31	ABR-5: 90-110	.18	.2
32	ABR-5: 110-130	.11	.2
33	ABR-5: 130-145	.07	.2
34	ABR-5: 150-170	.15	.4
35	ABR-5: 170-190	.07	.2
36	ABR-5: 190-210	.17	.8
37	ABR-5: 210-230	.08	.2
38	ABR-5: 230-250	.05	.2
39	ABR-5: 250-270	.07	.2
40	ABR-5: 270-285	.04	.2
41	ABR-5: 285-300	.04	.2
42	ABR-5: 300-310	.02	.2
43	ABR-5: 310-330	.12	.2
44	ABR-6: 10-30	<.02	.2
45	ABR-6: 30-50	.16	.2
46	ABR-6: 50-70	<.02	.2
47	ABR-6: 70-90	.03	.2
48	ABR-6: 90-110	.10	.2
49	ABR-6: 110-130	.23	.2
50	ABR-6: 130-150	.02	.2



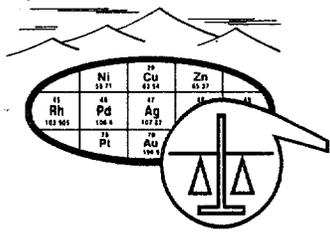
**SKYLINE LABS, INC.**  
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Tucson, Arizona 85703  
(602) 622-4836

October 21, 1985  
PAGE 3 OF 3

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ITEM	SAMPLE NUMBER	Au (ppm)	Ag (ppm)
51	ABR-6: 150-170	.02	.2
52	ABR-6: 170-190	<.02	<.2
53	ABR-6: 190-210	.03	.2
54	ABR-6: 210-230	.03	<.2
55	ABR-7: 10-30	<.02	<.2
56	ABR-7: 30-50	<.02	.2
57	ABR-7: 50-70	<.02	<.2
58	ABR-7: 70-90	.02	.2
59	ABR-7: 90-110	<.02	.2
60	ABR-7: 110-130	<.02	.2
61	ABR-7: 130-150	<.02	.2
62	ABR-7: 150-170	.04	<.2
63	ABR-7: 170-185	<.02	<.2
64	ABR-7: 185-200	2.10	.6
65	ABR-7: 200-220	<.02	<.2
66	ABR-7: 220-230	<.02	<.2
67	ABR-7: 230-250	<.02	.2

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**SKYLINE LABS, INC.**  
 1775 W. Sahuaro Dr. • P.O. Box 50106  
 Tucson, Arizona 85703  
 (602) 622-4836

REPORT OF ANALYSIS

JOB NO. TAJ 452  
 October 21, 1985  
 PROJECT NO.: FRK-85-ABR-RDH  
 SHIPMENT NO. 1  
 ABR-1: 10-25 TO ABR-7: 230-250  
 PAGE 1 OF 3

ASARCO INCORPORATED  
 Attn: Mr. Fleetwood R. Koutz  
 Southwestern Exploration  
 P.O. Box 5747  
 Tucson, Arizona 85703

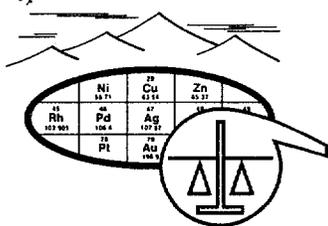
ASARCO Incorporated

OCT 22 1985

Analysis of 67 Drill Cutting Samples

SW Exploration

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8	ABR-2: 30-50	.86	1.0
9	ABR-2: 50-70	1.20	2.8
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11	ABR-2: 90-110	.04	.4
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16	ABR-4: 10-30	<.02	<.2
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18	ABR-4: 50-70	<.02	<.2
19	ABR-4: 70-90	<.02	<.2
20	ABR-4: 90-110	<.02	.2
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23	ABR-4: 150-170	<.02	.2
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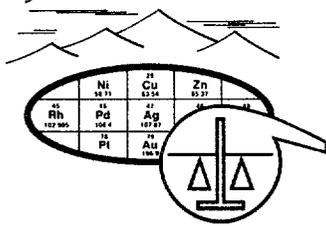
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 PAGE 2 OF 3

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37	ABR-5: 210-230	.08	.2
38	ABR-5: 230-250	.05	.2
39	ABR-5: 250-270	.07	.2
40	ABR-5: 270-285	.04	.2
41	ABR-5: 285-300	.04	.2
42	ABR-5: 300-310	.02	.2
43	ABR-5: 310-330	.12	.2
44	ABR-6: 10-30	<.02	.2
45	ABR-6: 30-50	.16	.2
46	ABR-6: 50-70	<.02	.2
47	ABR-6: 70-90	.03	.2
48	ABR-6: 90-110	.10	.2
49	ABR-6: 110-130	.23	.2
50	ABR-6: 130-150	.02	.2

ASARCO Incorporated

OCT 22 1985

SW Exploration



**SKYLINE LABS, INC.**  
1775 W. Sahuaro Dr. • P.O. Box 50106  
Tucson, Arizona 85703  
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JOB NO. TAJ 452  
October 21, 1985  
PAGE 3 OF 3

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55	ABR-7: 10-30	<.02	<.2
56	ABR-7: 30-50	<.02	.2
57	ABR-7: 50-70	<.02	<.2
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59	ABR-7: 90-110	<.02	.2
60	ABR-7: 110-130	<.02	.2
61	ABR-7: 130-150	<.02	.2
62	ABR-7: 150-170	.04	<.2
63	ABR-7: 170-185	<.02	<.2
64	ABR-7: 185-200	2.10	.6
65	ABR-7: 200-220	<.02	<.2
66	ABR-7: 220-230	<.02	<.2
67	ABR-7: 230-250	<.02	.2

cc: Asarco Incorporated  
Southwestern Exploration  
P.O. Box 5747  
Tucson, Arizona 85703  
Attn.: Mr. James D. Sell  
Ms. Mary Kavanagh

ASARCO Incorporated

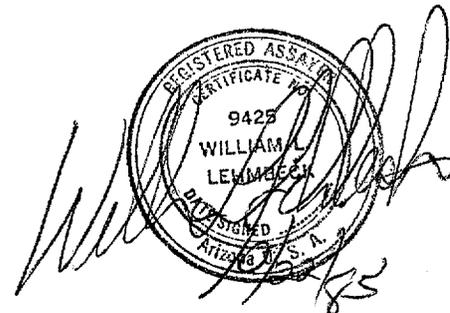
OCT 22 1985

SW Exploration

Charles E. Thompson  
Arizona Registered Assayer No. 9427

William L. Lehmbek  
Arizona Registered Assayer No. 9425

James A. Martin  
Arizona Registered Assayer No. 11122



# ASARCO

JDS

Exploration Department  
Southwestern United States Division  
James D. Sell  
Manager

March 31, 1986

Mr. Richard E. Jensen, Jr., President  
AZ-NM Mineral Processing Corporation  
9119 Rainridge Court NE  
Albuquerque, NM 87111

(505) 745-9298

Dear Mr. Jensen:

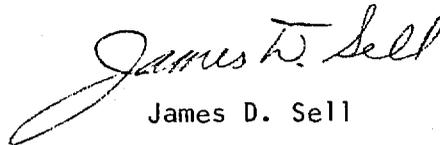
Your packet of material on the Oro Grande mining project in Sec. 24, T8N, R5W, Yavapai County, Arizona, has been received and reviewed.

The relatively low precious metal value are in accordance with values in our archives. However, the platinoid values need to be confirmed and the possible tonnage for further interest.

At the present time I cannot confirm when ASARCO can field review your property and collect confirming samples.

I note that the Mary K. Post excerpts are from a thesis proposal. Did she do the work for your Company? Where was the thesis completed and the degree granted?

Sincerely,

  
James D. Sell

JDS/gb

4/2 They are running a pilot mill and hope to be able to confirm all the values in their submittal, i.e. the platinoids etc.

TIBURON PETROLEUM CORPORATION (TIP-V)

U.S. SUBSIDIARY HAS ENTERED CHAPTER 11 - A second well will be commenced on the 1,920 acre farm-out acreage in the Lodgepole Trend area of Eastern Saskatchewan by 15Jun86. The initial well, the "North Maryfield #3-18", in which the company has a 27.625% NRI (32.5% WI) is anticipated to be a commercially productive well and is shut in awaiting completion while "road bans" are in effect.

The company has employed an oil well completion firm from Midland, Texas, specializing in high-pressure fracing to frac the Lodgepole Trend well. Through employment of these procedures, it is projected that primary recoverable reserves from each well may be increased. The wholly-owned U.S. subsidiary, Tiburon Petroleum Corporation of Texas, has filed a voluntary application under Sub-Chapter 11 to accommodate a proposed re-organization which provides for a positive cash flow and projected earnings from U.S. oil and gas operations based on current oil prices.

The company is negotiating with a successful real estate development company in Toronto, to jointly develop an apartment conversion of some 1,000 units to a minimum-aged health care operation in Phoenix, Arizona, and a shopping center complex in Mississauga, Ontario. It is anticipated that negotiations will be completed within 90 days.

A \$100,000 (Cdn.) exploration programme is planned on the Dawson claims, Yukon. The claims are adjacent to Hunker and Bonanza Creeks placer gold discoveries. The objective of the 1986 exploration programme, the operator of which is the Huges/Lang Group of companies of Vancouver, is to test this theory of epithermal gold mineralization.

RAINEX RESOURCES LTD. (RXR-V)

ARIZONA PROPERTY OPTIONED - Rainex Resources Ltd. has acquired the high grade Summit Silver property including the Swastika Mine property, located in the Peck Mining District, 46 miles from Prescott Yavapai county, Arizona, U.S.A. The purchase price of the property is \$500,000 U.S., payable as to \$250,000 cash; \$2,500 on signing of agreement, \$2,500, 15Apr86; \$2,500, 15May86; \$50,000, 15Jun86 with the balance payable at \$2,500 per month or out of production, to 15Jun88; as to \$250,000 in shs. not to exceed 600,000 shares.

NEWFIELDS MINERALS INC. (NWM-V)

FLOW THROUGH SHARE OFFERING APPROVED - Newfields Minerals Inc. has reported the tax cash flow through share offering has been amended to meet regulatory requirements. The offering is 344,828 flow through shares at \$2.90 each for a total of \$1,000,000. Prior to this share sale there were 3,034,217 Newfields shares issued. Hole #16 at the Kirkland Lake, Ontario gold property, has intersected a 20 foot section of distinct quartz veining plus fine and coarse pyrites associated with the 20 foot interval. (See GCNL No.30, P.3. Feb.18, 1986 for recent drill results.)

Newfields 310 acre claim block is encompassed on 3 sides by 7 mines that to date have produced in excess of 23,000,000 oz. of gold to a depth greater than 8,000 feet.

In early March, the 9th deep diamond drill hole intersected the "3054 Break" 1500 feet from surface. Associated with the intersection was visible gold that, through fire assaying, failed to run. On February 3, 1986 the No.8 hole intersected a 5 foot section of 0.44 oz. of gold per ton. This high grade section is at the northern contact of a 200 foot wide alteration zone which separates the north contact (5 ft. at 0.44 oz. gold/ton) from the south contact where a 3.2 foot intersection at 0.15 oz. of gold per ton has been established.

The deep drilling has encountered a major hydrothermal system made of 2 gold bearing segments separated by several hundreds of feet. In the summer of 1985, Newfields Minerals (25%) and Northern Dynasty Explorations (60%) secured 4 gold prospects (276 claims) in northwestern Ontario. Since then, the OGVJ partners signed an agreement with Westfield Minerals Ltd. which allows Westfield to earn a 50% interest in the prospects by expending \$500,000.00 in exploration prior to January 31, 1987.

Recent news of a major gold discovery in the immediate vicinity of one OGVJ claim block has been announced and has resulted in a major mining company approaching the OGVJ partners. Newfields has also acquired a 30% net profit interest in the Bedivere Lake platinum property in the Thunder Bay Mining Division of Ontario. The Joint Venture partner is Coventry Ventures Inc. of Vancouver, which holds 70% and will commence a \$40,000 program in July.

Some of the more favourable results to date from the Bedivere Lake property include a diamond drill hole completed by Nashua Exploration while exploring for massive nickel-sulphide deposits in 1957. This hole yielded, from 234 ft. to 473 ft., 0.02 oz. platinum per ton and 0.02 oz. palladium per ton. Recent Newfields/Coventry grab samples yielded values as high as 0.30 oz. platinum per ton and 0.30 oz. palladium per ton.

XANARO TECHNOLOGIES INC. (XNT-V)

JOINT VENTURE SALE OF SOFTWARE PACKAGE - Xanaro Technologies Inc. has announced its joint venture partner, "ABILITY" STARTED WELL WITH 2,000 UNIT PURCHASE Migent Software Inc., has received 2,000 orders from dealers and distributors for the Ability software package. The joint venture was completed April 8, 1986 upon acquisition of the Ability software product from a court appointed receiver. Migent has also been contacted by several leading hardware manufacturers regarding the bundling of Ability with their computers. (See GCNL NO.67, April 8, 1986, P.1)

The Ability package was originally developed and marketed by Xanaro prior to financial difficulties which eventually forced the company into receivership. Migent is in charge of marketing the product. Terms of the joint venture are yet to be announced. Xanaro provided the funds to buy the product and inventory from the receiver. Ability is an integrated software package combining capabilities of communication, business graphics, word processing, database and spread sheets.

The joint venture plans to publish in the fall of 1986 an enhanced version of Ability. Migent has estimated sales from June, 1986 to June, 1987 to be \$10,000,000 (U.S.) for Ability. Migent is accepting all customer support calls and is taking orders for immediate shipment of Ability. The current retail price is \$99.95 (U.S. funds). Calls can be placed at (702) 832-3777. Xanaro has negotiated a 400,000 unit private placement at 65¢ each. The 400,000 warrants are to be exercisable at 75¢ each for one year.

FIRST CANADIAN ENERGY CORP. (FEG-V)

CONTRACTS TO BE FILED SOON - First Canadian Energy Corp. president W.F.von Lengerke has reported the company is hopeful that the "filing package" in connection with the HERTER ROTOR, GmbH., Frankfurt, W.Germany and MAVERICK acquisitions will be finalized very soon. (See previous story in GCNL 225(85), p.2).

FOR THE RECORD

SUN GOD RESOURCES LTD. has been renamed INFOTEC INDUSTRIES INC. (ICI-V) with no consolidation of capital and authorized capital has been increased from 10,000,000 to 50,000,000 shares of no par value. Of authorized capital of 50,000,000 shares, 2,833,308 are outstanding including 750,000 in escrow. On 14Apr86, the common shares of Sun God were replaced by the common shares of Infotec. Infotec is a Development Company. Transfer agent is Guaranty Trust Co. NO.72(APRIL 15, 1986) \* GEORGE CROSS NEWS LETTER LTD. \* THIRTY-NINTH YEAR OF PUBLICATION \*

completed by 16Jun86 and by continued expenditures to \$500,000 U.S. over 3 years.

Packard president Julian Baldry and Northern Dynasty president J. Glenn Simpson note that the Midway Hills property comprises 10 square miles of land holdings with established road access. All exploration permits required from U.S. regulatory bodies have been obtained. The drilling will test downward extensions of silver veins that outcrop over a 3-mile central segment of a 7-mile long major detachment fault. Surface samples yielded silver values up to 7.68 ounces per ton with vein widths to 12 feet and no hanging wall exposed. A geological model based on Hecla's Esclante silver mine is supported by known high grade silver deposits that flank Midway Hills to the east and west and exhibit similar mineral characteristics. Of these, the President mine shows vein widths increasing from a few feet on surface to 20 feet at the 200-foot depth. The vein material left in random pillars was sampled by a major mining company and found to contain up to 20 ounces of silver per ton.

Northern Dynasty is an active mining firm that has resumed mining and sprinkling for the 1986 season on a heap leach mine in Nevada (see GCNL81(86)p1). Packard has assembled an inventory of several interesting mineral projects.

PRAIRIE OIL ROYALTIES COMPANY, LTD. (POY-T)

<u>THREE MONTHS ENDED 31 MARCH</u>	<u>1986</u>	<u>1985</u>	Management of Prairie Oil Royalties Company, Ltd. say the
Sales & Other Revenue	\$5,048,000	\$5,795,000	first quarter financial results are not necessarily indicative
Cash Flow	4,357,000	3,700,000	of the company's performance for the rest of 1986 since the
Net Income	1,673,000	1,701,000	impact of declining oil prices was not fully reflected. Average
Per Share	21¢	22¢	daily production of crude oil and natural gas liquids was 1,806

barrels a day, up 269 barrels a day. Average daily production

of natural gas was 10,077,000 cubic feet a day, down 821,000 cubic feet a day.

Prairie Oil Royalties participated in drilling 19 wells in the first quarter of 1986. Seven were completed as oil wells and one as a gas well.

PACIFIC NORTHERN GAS LTD. (PNG.A-V,T)

<u>THREE MONTHS ENDED 31 MARCH</u>	<u>1986</u>	<u>1985</u>	PROFIT SLIPPED 8%
Operating Revenue	\$25,371,626	\$26,872,552	Operating revenues of Pacific Northern Gas Ltd. decreased
Net Income	1,254,612	1,370,960	in the first quarter of 1986 compared with first quarter 1985
Per Common Share *	72¢	80¢	reflecting lower gas sales to the company's forest industry

customers.

\*After preferred share dividends

Comparative financial results for 1985 have been restated

to give effect to the interim rate refund ordered by the B.C. Utilities Commission in its rate decision dated 29Jan86.

CANADIAN NATURAL RESOURCES LIMITED (CNQ-V,T)

BANK DEMANDS A LOAN REPAYMENT - Canadian Natural Resources Limited has received a letter from its principal banker advising that the borrowing base of its oil and gas assets as determined by the bank has decreased to a level of about \$7,000,000 less than the total outstanding loans from that bank. The bank has demanded that the company's loans be paid down by that amount by 28May86.

Management feel that the company will not likely be able to repay sufficient amounts of its obligations to meet the bank's requirements and, therefore, may be forced into default on 28May86. The company is not in default under any other provisions of the loan agreement and is current in its payments. The company will have discussions with the bank to evaluate the situation and attempt to develop a plan for response to the demand for payment.

NOR-QUEST RESOURCES LTD. (NQT-V)

INTEREST WOULD BE RAISED TO 77%. - Raynerd B. Carson, president, announces that Nor-Quest Resources Ltd. has agreed to acquire Gulf Resources Inc.'s 15% interest in the War Eagle Gladiator gold mine in Arizona by issue of 304,000 common shares to Galt Resources Inc., which is wholly owned by James Hugh Blanchard & Co. of Louisiana, U.S.A., subject to regulatory approval. This transaction would raise Nor-Quest's interest in the mine from 62.5% to 77.5%.

Mr. Carson reports that the War Eagle Gladiator mine was recently placed in production at the rate of 100 tons per day. At least 6 years of ore reserves are indicated and show grades of 0.54 oz. gold and 3.7 oz. silver/ton in the War Eagle Gladiator vein system. Three other parallel veins have been established on the property.

NORTH CONTINENTAL OIL & GAS CORPORATION LTD. (NOG-Alberta)

INTERIM REPORT REVIEWED - A. Stuart Cameron, president, has presented an interim report for the 3 months ended 31Mar86. This shows revenue of \$69,798, being \$67,026 gas sales and \$2,772 interest income. Expenses totalled \$34,224, including \$25,244 in royalty payments. No depreciation or depletion was recorded and no provision for income tax was made. Net income was \$35,574. Working capital stood at \$163,922 at 31Mar86.

Mr. Cameron reports that North Continental has acquired 4480 gross acres, 1384 net acres, of prime oil leases in southern Alberta and is seeking to enter into agreements for drilling a few wells this year on these acquisitions.

Mr. Cameron says, "We have signed an authorization for expenditure for Gulf Canada to put another gas well in our Hanna Field on production. We own 16.88% of the project."

+ NO.86(MAY 5, 1986) + OWNED, PUBLISHED AND COPYRIGHTED BY GEORGE CROSS NEWS LETTER LTD.

cc: PGV

JDS - see  
p.1

RECEIVED

JAN 24 1986

EXPLORATION DEPARTMENT

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# George Cross News Letter

*"Reliable Reporting"*

NO.14(1986)  
JANUARY 21, 1986

NO.14(1986)  
JANUARY 21, 1986

WESTERN CANADIAN INVESTMENTS

INTERESTING OFFERS FOR 1986 ARE FORECAST TO REACH \$5,000,000.

### NOR-QUEST RESOURCES LTD. (NQT-V, NQLF-Nasdaq)

**GOLD-SILVER PRODUCTION - R.B. Carson, president of Nor-Quest Resources Ltd., announces the start-up of commercial HAS STARTED IN ARIZONA** production on its underground gold-silver mine near Phoenix, Arizona. The 100 tons per day capacity operation is expected to produce 50 ounces of gold and 350 ounces of silver per day. Six years of ore reserves have been established with many more years of reserves indicated in the main zone and other parallel veins.

Nor-Quest retains 62.5% interest through its wholly-owned subsidiary, Nor-Quest Arizona Inc.; 22.5% is held by a private limited partnership and 15% by Galt Resources Inc., a wholly-owned subsidiary of James U. Blanchard & Co. of Louisiana.

INTERESTING OFFERS FOR 1986 ARE FORECAST TO REACH \$5,000,000.

LA TEKO RESOURCES LTD.(LAO-V) ESPERANZA EXPLORATIONS LTD.(EEP-V)

FIRST FINANCING AGREEMENT HAS EXPIRED WITH - Under the terms of a financing agreement signed in June, 1982, with LA TEKO OWNING 39.6% OF ESPERANZA'S SHARES Esperanza Explorations Ltd., La Teko Resources Ltd., on a staged option basis, has the right to buy 3,450,000 shares of Esperanza for a total of \$5,125,000 before 31Dec85. Purchase of these shares would earn La Teko 50.4% of Esperanza's issued capital.

La Teko, says vice president J.R. Billingsley, P.Eng., has advanced \$2,288,764 pursuant to the agreement for which it has received 2,255,000 shares or 39.6% of Esperanza's issued capital of 5,694,700 shares. Remaining share purchases under the agreement are 145,000 shares at \$1.50 each and 1,050,000 shares at \$2.50 each. La Teko is unable to exercise the remaining option or suggested revisions thereto, to earn the full 50.4% interest and the agreement has expired. Both parties continue to explore possible methods of financing production and further exploration of the Tillicum property near Nakusp, B.C.

During 1985, Esperanza shipped about 2,500 tons of ore from the Heino-Money high grade gold zone to a custom mill. Smelter returns received to date indicate that a substantial profit was made. A complete report on the entire 1985 program is expected from Esperanza following final smelter receipts.

NOR-QUEST RESOURCES LTD.(NQT-V,NQRLF-Nasdaq)

THE ONLY GOLD MINE IN ARIZONA TO START - Nor-Quest Resources Ltd. president Rayner B. Carson, reported on Dec.17,1985 PRODUCTION UNDER CANADIAN OWNERSHIP NOW that the private placement of 500,000 units through Merit Investment Corp.

reported Dec.5,1985, has been increased by 53,570 units to a total of 553,570 units, consisting of one share and one share purchase warrant exercisable within one year and the price had been increased from the original \$1.50 per unit and \$1.75 to exercise the warrants to \$1.68 per unit and \$1.93 to exercise the warrants. All subject to regulatory approvals. Prior to this share sale there were 4,955,308 shares issued and after the sale 5,518,878 shares, but, before exercise of any of the warrants. Proceeds of \$929,997.60 from the units and \$1,068,390.10 from the exercise of 100% of the warrants in one year, are to be used in bringing the Gladiator gold-silver mine into production at 100 tons per day. The plant is in place and the tune up period now underway. Nor-Quest holds a 62.5% interest in the property. A limited Partnership, Nor-Quest Arizona Inc., holds a 22.5% interest in the mine and James U. Blanchard & Co., of Louisiana, through Galt Resource, Inc. holds a 15% interest.

After some delays owing to unusual snow in the mine area, 30 miles south of Prescott, 80 miles north of Phoenix, Yavapai county, Arizona, the underground workings and concentrating plant are scheduled to start processing ore by the end of January. Probable reserves on the Gladiator/War Eagle vein of approximately 110,000 tons grading 0.58 oz.gold/t, 3.72 oz.silver per ton, sufficient for four years operation at current rates, have been established in the mine, over an average mining width of 4.6 feet. A large amount of the initial ore production will come from the D ore block which is higher grade averaging 0.96 oz. gold/t, 5.49 oz.silver/t. Costs are projected at \$170 U.S. per oz. of gold recovered for an operating profit of about \$200,000 U.S. per month. Mine reserves have been established at a larger 320,000 tons grading between 0.3 and 6.2 oz.gold per ton and between 0.6 and 4.9 oz.silver/t, with the structure open to extension along strike and down dip. These reserves are along a 300 foot length of the southern portion of the vein structure which has been traced over a length exceeding 4,000 feet. There are a minimum of four other parallel vein structures on the property including the Fairview vein where drill indicated reserves are 88,000 tons grading 0.50 oz.gold.t, 2.0 oz.silver/t, over a three foot width.

TURNER ENERGY & RESOURCES LTD. (TUN-V)

CHANNEL SAMPLE	FOOTAGE	TURNER ENERGY & RESOURCES LTD. (TUN-V)			KENAR RESOURCES LTD. (KNA-V)			
		OZ.GOLD/T	OZ.SILVER/T	LEAD %	ZINC %	COPPER %	CADMIUM %	GROSS VALUE/T
1 to 5 FT.	5	0.039	50.2	56.0	12.0	0.54	0.075	\$842 Cdn.
5 to 10	5	0.032	19.0	18.0	27.7	0.62	0.189	\$518
10 to 13	3	0.017	29.3	46.4	6.9	0.16	0.045	\$560
13 to 24	11	Limestone, not sampled						
24 to 31	7	0.016	22.6	33.1	16.4	0.06	0.099	\$519
<u>31 to 36</u>	<u>5</u>	<u>0.013</u>	<u>4.22</u>	<u>6.55</u>	<u>13.8</u>	<u>0.06</u>	<u>0.093</u>	<u>\$200</u>
1 to 36	36	0.025	21.94	28.47	16.6	0.19	0.072	\$364

HIGH GRADE MATERIAL VALUED AT \$324/TON - Mikado Resources Ltd. and Turner Energy & Resources Ltd. have agreements to PART OF BIG CLAIM BLOCK JOINT VENTURE hold 70% and 30% interests, respectively, in an extensive block of claims assembled in SE B.C., in the Duncan mountain ranges between the Lardeau River and Duncan Lake, SEE MAP OVERLEAF. James H. Simpson, president, reports that they have granted Kenar the right to earn 50% working interest in certain of the claims at the NE end of the Turner/Mikado block by spending \$300,000 on them over 3 years. The agreement is subject to regulatory approval.

Mr. Simpson also reports that further assays have been received from another group of claims, the Abbot property, in the Turner/Mikado block. Consultant P.J. Santos, P.Eng., states, "This type of mineralization is a typical Kootenay Arc replacement deposit which has substantial ore potential. Kootenay Arc deposits such as the Bluebell (Riondel), Reeves-MacDonald, Pend Oreille, H B and the Duncan mine were in the order of several million tons." Mr. Simpson says not only is the tonnage potential high but so is the grade, as evidenced by Mr. Santos's channel samples which included 5 feet grading 50.2 ounces of silver per ton, 68% combined lead/zinc. The Abbott zone is 36 feet wide. Assays of channel samples cut across a true width of 36 feet are shown in the adjoining table.

NEXUS RESOURCE CORPORATION (NXS-V)

REWARD RESOURCES LTD. (RWR-V)

DRILL TEST STARTED ON OLD - Nexus Resource Corporation and Reward Resources Ltd. have started drilling the King SILVER-COPPER-GOLD PRODUCER Solomon property, 8 km south of Duncan on Vancouver Island, B.C. As operator, Nexus has been informed by MPH Consulting Limited that the first drilling hole has been completed at a depth of about 400 feet. The second hole has been started from the same set up. Nexus can earn 50% interest in the property from Reward by spending \$140,000 by 31Dec86.

The property includes an old mine which was an intermittent producer of silver, copper and gold between 1904 and 1912.

Both companies have offices at 1002-475 Howe St., Vancouver. Nexus' phone is 682-8567 and Reward's is 687-4191.

FOR THE RECORD

GOLD TEXAS RESOURCES LTD. (GTX-V) director Raymond R. Cottrell announces the appointment of A. Murray Sinclair as a director. Mr. Sinclair is an employee of Ramco Capital Corp. and a director of several other public companies.

DOMAN INDUSTRIES LIMITED(DOM-V)

<u>YEAR ENDED 31 DECEMBER</u>	<u>1985</u>	<u>1984</u>
Sales	\$205,943,000	\$187,867,000
Net Earnings (Loss)	5,134,000	(12,527,000)
Cash Flow (Out)	\$7,586,000	\$(7,554,000)

"VERY GOOD YEAR" IS EXPECTED

H.S. Doman, president of Doman Industries Limited of Duncan, B.C., notes that the \$17,661,000 year over year improvement in net earnings and the \$15,140,000 year over year improvement in cash flow from operations are reflections of steps which the company

has taken to reduce costs and to increase productivity. Mr. Doman expects that 1986 will be a very good year for Doman Industries.

CAPILANO RESOURCES INC.(CUZ-V)

ACTIVE EXPLORATION UNDERWAY ON GROUND - Capilano Resources Inc. by a March 1, 1985 contract agreed to purchase a 100% TO NORTH OF ARIZONA OPTIONED PROPERTY interest in the Henrietta gold mine, Yavapai county, Arizona. The vendors are now adverse to the completion of the acquisition by Capilano which intend to proceed with the acquisition, subject to regulatory approval. A 26Feb86 report by K.V. Campbell, consulting engineer, stated that there are two quartz veins; The Henrietta and Invincible veins,...Most ore is from the northerly striking Henrietta vein, 2 to 6 feet wide. The Invincible vein is 2 to 4 feet wide and strikes northeasterly. Sulphide mineralization is gold-bearing pyrite, chalcopyrite, galena and sphalerite in drusy vein quartz. The upper levels of the veins are oxidized and produced the enriched ore mined in the early years.

To the north of the Henrietta Mine is the currently active Stan West property, located in a similar geological environment along veins belonging to the same system as the Henrietta and Invincible veins. Several million tons of ore reserves containing 800,000 oz. of gold and 5 million oz. of silver have been reported at the Stan West mine.

BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

<u>NINE MONTHS ENDED 31 DECEMBER</u>	<u>1985</u>	<u>1984</u>
Revenue, Electric, Domestic	\$1,027,000,000	\$ 964,000,000
Revenue, Electric, Export	218,000,000	117,000,000
Revenue, Gas	287,000,000	271,000,000
Revenue, Rail & Sundry	<u>21,000,000</u>	<u>20,000,000</u>
Total Revenues	\$1,533,000,000	\$1,372,000,000
Cash Flow	254,000,000	71,000,000
Net Income (Loss)	\$36,000,000	428,000,000

GULF TITANIUM LTD.(GUT-V,Nasdaq)

DEVELOPMENT PROGRESS ON MONTANA - W.E.Essery, a director of Gulf Titanium Ltd., reports that results of January's 245 GOLD-SILVER PROJECT IS REVIEWED feet of underground advances on the Cruse-Belmont project in Montana on sub-levels 23, 19, 8, and 4, over a 4 foot mining width, average 1.0 ounce gold and 3.6 ounces silver per ton.

This joint venture of Gulf 49% and AMAX 51% shipped 900 tons of development ore to the ASARCO Smelter in Helena, Montana, from which revenue of more than \$200,000 U.S. is expected. This more than covers the January operational costs of \$110,000 U.S. The development program has been accelerated by the addition of a third underground shift and a second mining engineer.

ACHILLES RESOURCES LTD.(ACL-V)

MINERALIZED HORIZON NOW - Achilles Resources Ltd. has now received further information from Noranda Exploration Company BEING FURTHER TESTED Limited on the drilling program in Estrees Township, Casa-Berardi area, Quebec.

Hole #4 encountered 87 feet of massive sulphides including 68 ft. of visible sub-economic volcanogenic zinc mineralization with values in zinc, copper, silver and gold. This hole has now proven that the conductor being drilled is caused by mineralization in the favorable felsic rock horizon, which hosts mineral deposits in the area. The diamond drill is being moved approximately 200 feet to follow this favorable stratigraphy. Noranda will advise of further developments as the major drill program continues with two diamond drills.

MASCOT GOLD MINES LIMITED(MSG-V,T)

DEBT FUNDING FOR - H.G.Ewanchuk president of Mascot Gold Mines Limited has reported the Nickel Plate project at MINE UNDER NEGOTIATION Hedley, B.C. feasibility study has been based on a daily mill throughput of 1800 tons. Government approval in principle of the Stage I Report is expected imminently.

Negotiations for the financing of the project to bring the mine to the production stage are ongoing, the several proposals for project financing have been received from major banks. It is management's intention to finance the project without any dilution of Mascot shares.

At 1800 tons per day a \$45 million project loan will be required. Studies now underway taking into account the recent 3 million ton addition to ore reserves may suggest a higher optimum throughput rate. Current development plans

TIMING OF DEFORMATION DURING EARLY PROTEROZOIC OROGENY  
IN CENTRAL ARIZONA.

Karl E. Karlstrom\*, Sam Bowring, and Kevin Chamberlain

Combined structural and U-Pb zircon studies in Arizona's Transition Zone suggest that Early Proterozoic (1800-1600 Ma) accretion of continental crust in central Arizona was accomplished by juxtaposition, perhaps over ~100 Ma, of crustal blocks with different tectonic histories. Three such blocks have been identified so far.

(1) A block containing the Ash Creek Group of the Yavapai Series (1800-1740 Ma), the oldest rocks in central Arizona, and the Cherry Quartz Diorite (1740 Ma), records the earliest known ductile deformation in the Yavapai Series (pre-1740 Ma), as shown by northwest-trending foliation and folds in the Ash Creek Group that are cross cut by the 1740 Ma Cherry Quartz Diorite.

(2) A block containing the Big Bug Group of the Yavapai Series and batholithic intrusions has rocks 1755-1695 Ma and was ductilely deformed between 1720 and 1695 Ma, as shown by the pre-tectonic Bland Quartz Diorite (1720 Ma). This ductile deformation may have resulted from oblique convergence of the Ash Creek and Big Bug blocks across the Shylock fault zone.

(3) A block containing the Alder, Red Rock, and Mazatzal Groups and an older sedimentary and igneous "basement" gives ages from 1738 to 1630 Ma. This block was deformed during upper crustal foreland thrusting 1692-1630 Ma. This large block makes up much of the southeastern portion of the Transition Zone and apparently evolved separately and was then thrust northwestward over the previously assembled Yavapai Series blocks as shown by a klippe of Mazatzal Group rocks preserved in Chino Valley and by differences in depth of metamorphism, style and timing of deformations, nature of magmatism and sedimentation, and metalogenic characteristics of the southeastern block compared to the Yavapai Series. The Moore Gulch fault is a major discontinuity that now juxtaposes the Yavapai Series and the southeastern block, but this fault is not the suture since there is overlap of rock packages across it.

Accumulating evidence points toward a uniformitarian model involving assembly of tectonostratigraphic terranes to explain accretion of Proterozoic continental crust in Arizona.

\* = speaker

GEOLOGY OF THE SEDONA 30" X 60" QUADRANGLE,  
YAVAPAI AND COCONINO COUNTIES, ARIZONA.

G. W. Weir\*, G. E. Ulrich, and L. D. Nealey

The Sedona 30" x 60" quadrangle (U.S. Geological Survey Open-File Report 86-164, 1:100,000 scale map) includes parts of three geologic terranes: the Colorado Plateau, the Mormon Mountain volcanic field, and the Transition Zone between the Colorado Plateau and the Basin and Range Provinces. The Colorado Plateau strata include the Permian and Pennsylvanian Supai Formation, the Permian Coconino Sandstone and Kaibab Formation, the Triassic Moenkopi and Chinle Formations, and Tertiary gravels. The Mormon Mountain volcanic field is a series of calc-alkalic rocks ranging in composition from basalt to andesite to dacite to rhyolite. The field contains more than 100 basaltic cinder cones and shield volcanoes, as well as andesitic to rhyolitic lava domes. The Transition Zone strata include: (1) the Tertiary Verde Formation, a complex of lake and stream deposits ranging in composition from limestone to conglomerate; (2) Tertiary basalt flows and tephra, chiefly on House Mountain and in the Black Hills, and rhyolitic tephra in the southern part of the quadrangle; (3) Proterozoic tonalite, granodiorite, and metavolcanic rocks; and (4) scattered Tertiary and Quaternary gravels. The volcanic rocks in the quadrangle range in age from 15 to 3 Ma, as determined by K-Ar methods. The dominant structures in the quadrangle are northwest-trending high-angle faults and the broad Mormon Mountain anticline.

\* = speaker  
(poster session)

Abstr. Symp. SW. Geo. Paleo. 1986  
Mus. North. Ariz., Flagstaff.

JDS

# ASARCO

Exploration Department  
Southwestern United States Division

April 14, 1987

Mr. Joe McFadden  
M&M Mining  
Box 27081  
Prescott Valley, AZ 86312

NYD Claims  
Mohave & Yavapai Cos., AZ

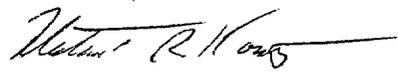
Dear Mr. McFadden:

Thank you for bringing your claims to our attention. As I mentioned on the phone today, the grades are not high enough or the mineralized areas extensive enough for Asarco's interest. The Skyline assay results from the 5 samples I took on March 4 are as follows:

<u>Your Site</u>	<u>Au ppm</u>	<u>Ag ppm</u>	<u>Comment</u>
M&M #1	0.17	<0.2	2' Cut
"	1.14 opt	0.41 opt	high-graded quartz veinlets
#3	0.55	<0.2	6' Cut
#7	0.50	0.2	30' Dump Spoil
S. of #1	0.18	<0.2	60' Grab along ridge.

Please feel free to bring other properties to our attention.

Very truly yours,



Fleetwood R. Koutz  
Geologist

FRK:mek

April 14, 1987

To: J.D. Sell  
From: F.R. Koutz

NYD Claims  
Sec. 29, T14N, R10W  
Mohave & Yavapai Cos., AZ

I attach an Exploration Record Sheet plus field notes and 5 assays on 6 lode claims 3 miles north of "Nothing," AZ, which Joe McFadden of M&M "Mining" (a small Prescott weekend placer group) submitted to R.J. Kupsch with 7 assays ranging from 0.07 - 0.76 opt Au.

The mineralization is along the basal contact of scabs of a low-angle, thin diorite sill with PreCambrian grussy granite and is low-grade, spotty and does not cover an extensive area. The submittal grab samples were obviously high-graded. Mineralization may be localized along high-angle cross fractures. The 3 E-spec. results (for character) with high Co, Cr, Cu, Pb± (Mn, Mo, Ni, Ba, Ti, V) not surprisingly suggest a mafic derivation of mineralization. However, this area has only recently been exhumed from extensive Mid-Late Tertiary ash-flow tuffs to the North.

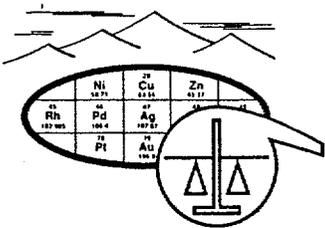
Although this is not my favorite gold environment, there are diorite dike, quartz veinlet swarm, sheared environments in the region which if in the right low-angle altitude and erosional configuration could make a situation that Asarco has been and should continue to be interested in; e.g. Congress to Lake Pleasant Belt (Congress, Octave, Constellation, etc.).

FRK:mek  
Att.: ERS  
Assays TAJ-475, A&B  
Field sheets & submittal info for files  
(new heading)



F. R. Koutz





**SKYLINE LABS, INC.**  
 1775 W. Sahuaro Dr. • P.O. Box 50106  
 Tucson, Arizona 85703  
 (602) 622-4836

REPORT OF ANALYSIS

*Rec'd  
3/11/87  
JML*

JOB NO. TAJ 475  
 March 16, 1987  
 MM-AR-1A TO MM-AR-4  
 RECEIVED 3-6-87  
 PAGE 1 OF 1

ASARCO INCORPORATED  
 Attn: Mr. Fleetwood R. Koutz  
 Southwestern Exploration  
 P.O. Box 5747  
 Tucson, Arizona 85703

Analysis of 5 Rock Chip Samples  
*for CHARACTER/CHECK*

*Locations on "Topographically"  
 Drawings*

ITEM	SAMPLE NUMBER	Au (ppm)	Ag (ppm)
<i>MM#1: 760ft</i>	1 MM-AR-1A Q12-High grade	>10.00	7.2
	2 MM-AR-1B 2' L cut	.17	<.2
	3 MM-AR-2 60' GARD on Ridge	.18	<.2
<i>MM#2: .3340ft</i>	4 MM-AR-3 30' Dump spoil	.50	.2
<i>MM#3: .120ft</i>	5 MM-AR-4 6' Glouy Gr/D6 CONTACT	.55	<.2

*∴ these were all high-graded.*

*11.500T Au  
 1.13500T Au Fire  
 1.4100T Ag Fire  
 30% Q12, 5% GueTh Typ → 6+um  
 T Q12, 5% GueTh - SHERNEO  
 1% Q12 2% GueTh. CONTACT  
 2-3% Q12 4% GueTh shear Dior.  
 5% Q12 4% GueTh 5% SIDERITE*

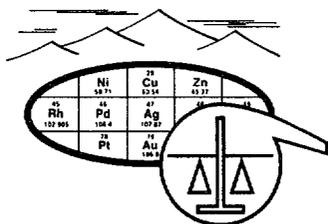
\*NOTE: Greater than normal geochemical range.  
 Please advise if fire assay is needed. *YES*

NOTE: Spectrographic analysis to follow as TAJ475-A.

*- several weeks  
 From  
 DENVER*

cc: Asarco Incorporated  
 Attn.: Mr. James D. Sell  
 Southwestern Exploration  
 P.O. Box 5747  
 Tucson, Arizona 85703

REGISTERED ASSAYER  
 CERTIFICATE NO. 9422  
 WILLIAM L. LEHMBECK  
 Manager  
*3/18/87*



**SKYLINE LABS, INC.**  
1775 W. Sahuaro Dr. • P.O. Box 50106  
Tucson, Arizona 85703  
(602) 622-4836

REPORT OF ANALYSIS

JOB NO. TAJ 475  
March 16, 1987  
MM-AR-1A TO MM-AR-4  
RECEIVED 3-6-87  
PAGE 1 OF 1

ASARCO INCORPORATED  
Attn: Mr. Fleetwood R. Koutz  
Southwestern Exploration  
P.O. Box 5747  
Tucson, Arizona 85703

Analysis of 5 Rock Chip Samples

---

ITEM	SAMPLE NUMBER	Au (ppm)	Ag (ppm)
1	MM-AR-1A	>10.00*	7.2
2	MM-AR-1B	.17	<.2
3	MM-AR-2	.18	<.2
4	MM-AR-3	.50	.2
5	MM-AR-4	.55	<.2

---

\*NOTE: Greater than normal geochemical range.  
Please advise if fire assay is needed.

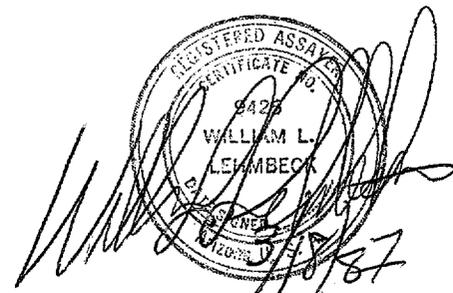
NOTE: Spectrographic analysis to follow as TAJ475-A.

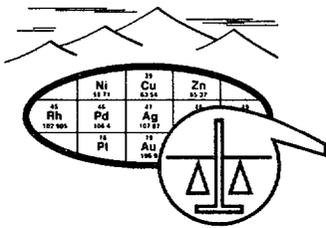
cc: Asarco Incorporated  
Attn.: Mr. James D. Sell  
Southwestern Exploration  
P.O. Box 5747  
Tucson, Arizona 85703

ASARCO Incorporated

MAR 19 1987

SW Exploration





**SKYLINE LABS, INC.**  
1775 W. Sahuaro Dr. • P.O. Box 50106  
Tucson, Arizona 85703  
(602) 622-4836

REPORT OF ANALYSIS

JOB NO. TAJ 475B  
March 31, 1987  
MM-AR-1A TO MM-AR-4  
RECEIVED 3-6-87  
PAGE 1 OF 1

ASARCO INCORPORATED  
Attn: Mr. Fleetwood R. Koutz  
Southwestern Exploration  
P.O. Box 5747  
Tucson, Arizona 85703

Analysis of 1 Pulp Sample

ITEM	SAMPLE NUMBER	FIRE ASSAY	
		Au* (oz/t)	Ag* (oz/t)
1	MM-AR-1A	1.135	.41

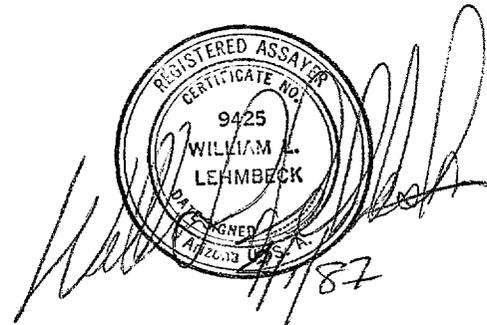
\*NOTE: Analysis based on a one assay-ton sample.

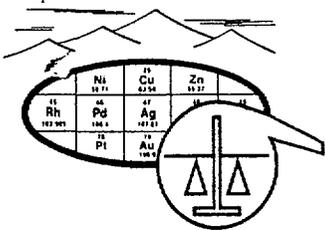
cc: ASARCO INCORPORATED  
Attn: Mr. J. D. Sell  
Southwestern Exploration  
P.O. Box 5747  
Tucson, AZ 85703

ASARCO Incorporated

APR 3 1987

SW Exploration





**SKYLINE LABS, INC.**  
1775 W. Sahuaro Dr. • P.O. Box 50106  
Tucson, Arizona 85703  
(602) 622-4836

REPORT OF SPECTROGRAPHIC ANALYSIS

JOB NO. TAJ 475A  
March 25, 1987  
MM-AR-1A TO MM-AR-4  
RECEIVED 3-6-87

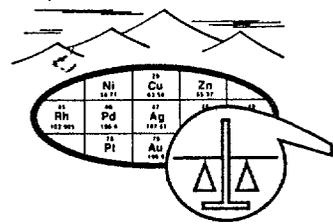
ASARCO INCORPORATED  
Attn: Mr. Fleetwood R. Koutz  
Southwestern Exploration  
P.O. Box 5747  
Tucson, Arizona 85703

Analysis of 3 Pulp Samples

The attached pages comprise this report of analysis. Values are reported in parts per million (ppm), except where otherwise noted, to the nearest number in the series 1, 1.5, 2, 3, 5, 7, 10, etc. within each order of magnitude. These numbers represent the approximate boundaries and midpoints of arbitrary ranges of concentration differing by the reciprocal of the cube root of ten. The 'accepted' value is considered to be within + or - 1 step of the range reported at the 68 % confidence level and within + or - 2 steps at the 95 % confidence level.

REGISTERED ASSAYER  
CERTIFICATE NO.  
9425  
WILLIAM L.  
LEHMBECK  
Arizona Registered Assayer  
Manager  
187

cc: ASARCO INCORPORATED  
Attn: Mr. Jim Sell  
Southwestern Exploration  
P.O. Box 5747  
Tucson, AZ 85703



# SKYLINE LABS, INC.

1775 W. Sahuaro Dr. • P.O. Box 50106  
 Tucson, Arizona 85703  
 (602) 622-4836

JOB NO. TAJ 475A  
 PAGE 2

ITEM NO.      SAMPLE NO.  
 1 = MM-AR-1A  
 4 = MM-AR-3  
 5 = MM-AR-4

ITEM	1	4	5
ELEMENT			
Fe	2%	2%	1.5%
Ca	1%	3%	.2%
Mg	.07%	.2%	.15%
Ag	2	<1	<1
As	<200	<200	<200
B	10	10	10
Ba	200	200	300
Be	<2	<2	<2
Bi	10	<10	<10
Cd	<50	<50	<50
Co	70	50	<5
Cr	150	150	150
Cu	150	150	7
Ga	<10	20	<10
Ge	<20	<20	<20
La	<20	<20	30
Mn	200	1000	200
Mo	1000	15	20
Nb	<20	<20	<20
Ni	70	70	5
Pb	100	50	20
Sb	<100	<100	<100
Sc	<10	10	<10
Sn	<10	<10	<10
Sr	<100	<100	<100
Ti	1500	2000	2000
V	20	50	20
W	<50	<50	<50
Y	<10	<10	30
Zn	<200	<200	<200
Zr	<20	<20	200

M. & M. MINING

P.O. Box 27081  
Prescott Valley, AZ 86312

S.A.A.

FEB 18 1987

S.W. MINING DEPT.

FEB 18 1987

TUCSON

FRK

2/24/87  
I don't  
understand  
msg,  
but this  
is your  
area.

*[Signature]*

OTHER  
papers  
1000T  
.15 Au

Small  
Vende Durango N. of Chino

7 Soft Paper  
VOID

cc: RJKupsch - w/encls. 2/19/87  
SAAnzalone "  
JDSell "  
mck

Cancelled back 2/24/87 =>

February 14, 1987

R.J. Kupsch, VP  
Asarco Inc.  
1150 N. 7th Ave.  
Tucson, AZ 85703  
(602) 792-3010

CK no file - Nothing  
3/3: NOT ON YET "shaker" 1/87  
- NO NEW POSTS FOUND IN FILE! 3/4

-> T.E.C.  
Tom  
Exploration Dept  
should look at plans

Dear Mr. Kupsch:

Please find enclosed assays 1 through 7 and  
a map showing locations of sampling for AU and  
AG.

The location of this property is in west Ariz-  
ona near the town of Bagdad. This property is  
ideal for open pit mining and access to the site  
is very good. No water!

	oot	
	Au	Ag
1	.76	.2
2	.02	<.01
3	.12	.11
4	.24	.18
5	.07	< T sell
6	.382	.11
7	.339	<.01

We are gathering more samples at the present time  
to get a better idea of just how big the ore body  
is on the surface.

With the results we have as of this date, we  
thought your company might find an interest in  
this property. For more information please feel  
free to contact me anytime.

Sincerely  
*Joe McFadden*  
Joe McFadden  
- (602) 772-6661

250' wide

encls

Nothing, AZ

Smaller to N

NO Co claim

ASARCO Incorporated

FEB 19 1987

SW Exploration

old 1281  
claims  
Yavapai  
+  
Muhavee  
Rutherford  
Granite  
MS? Old  
NW

old Co. S. "min"  
SEC 29  
330m. 85

Co claims  
NY 01-6  
SEC 29  
T11N, R10W

called 3/1/87  
from [unclear]

3 N-S claim National  
2 N-S Claims Yavapai  
Not back from [unclear]  
All [unclear] so [unclear]  
Start 73 06 01.

4 miles  
Geophysical  
Quartz? 7/2 min  
4 miles  
1987

VISITED  
3/4/87

# IRON KING ASSAY INC.

Page 1

09-Jan-87

LAB JOB #: MSC01226  
Client name: M & M Mining  
Billing address: PO Box 27081  
Prescott Valley, AZ 86312  
Phone number: 772-6661

No. Samples: 1  
Date Received: 01-07-87  
Submitted by: Joe McFadden

INVOICE ATTACHED

## ANALYTICAL REPORT

Client ID	Lab ID	Fire Assay	
		Au oz/ton	Ag oz/ton
MSC01226			
-----			
N.Y.D.	1226- 1	0.755	0.20



# IRON KING ASSAY INC.

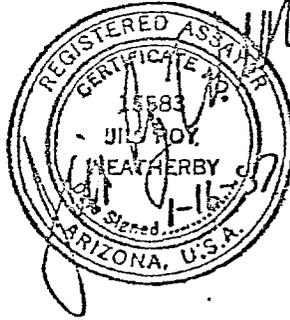
Page 1

16-Jan-87

LAB JOB #: MSC01237  
Client name: M & M Mining  
Billing address: PO Box 27081  
Prescott Valley, AZ 86312  
No. Samples: 1  
Date Received: 01-13-87  
Submitted by: Joe McFadden  
Phone number: INVOICE ATTACHED

## ANALYTICAL REPORT

Client ID	Lab ID	Fire Assay	
		Au oz/ton	Ag oz/ton
MSC01237			
N.Y.D. #2	1237- 1	0.021	<.01



# IRON KING ASSAY INC.

Page 1

09-Feb-87

LAB JOB #: MSC01284  
Client name: M & M Mining No. Samples: 5  
Billing address: PO Box 27081 Date Received: 02-05-87  
Prescott Valley, AZ 86312 Submitted by: Joe McFadden  
Phone number: 772-6661 INVOICE ATTACHED

## ANALYTICAL REPORT

Client ID	Lab ID		Fire Assay	
			Au oz/ton	Ag oz/ton
MSC01284				
N.Y.D. #3	1284-	1	0.120	0.11
N.Y.D. #4	1284-	2	0.241	0.18



# IRON KING ASSAY INC.

Page 1

26-Jan-87

LAB JOB #: MSC01254  
Client name: M & M Mining  
Billing address: PO Box 27081  
Prescott Valley, AZ 86312  
Phone number: 772-6661

No. Samples: 2  
Date Received: 01-23-87  
Submitted by: Joe McFadden

INVOICE ATTACHED

## ANALYTICAL REPORT

Client ID	Lab ID	Fire Assay	
		Au oz/ton	Ag oz/ton
MSC01254			
N.Y.D. #5	1254- 1	0.074	<.01
N.Y.D. #6	1254- 2	0.382	0.11



# IRON KING ASSAY INC.

Page 1

02-Feb-87

LAB JOB #: MSC01266  
Client name: M & M Mining  
Billing address: PO Box 27081  
Prescott Valley, AZ 86312  
Phone number: 772-6661

No. Samples: 1  
Date Received: 01-29-87  
Submitted by: Joe McFadden

INVOICE ATTACHED

## ANALYTICAL REPORT

Client ID	Lab ID	Fire Assay	
		Au oz/ton	Ag oz/ton
MSC01266			
-----			
N.Y.D. #7	1266- 1	0.339	<.01

REGISTERED  
CERTIFICATE  
14315  
ROSELYN G.  
CROOK  
Data Signed 2-2-87  
ARIZ.

*RAG Crook*



1/8/87 in File

14N jobs 29:

US Trustee SW, W2, W4, W6 Golden Flare 1-4 to 10/11/83

(9 Cons: Goldfields 1981/1983 UK Trust 12/20/85 <sup>Case closed</sup>)

1950  
GWD, Flare 1-4

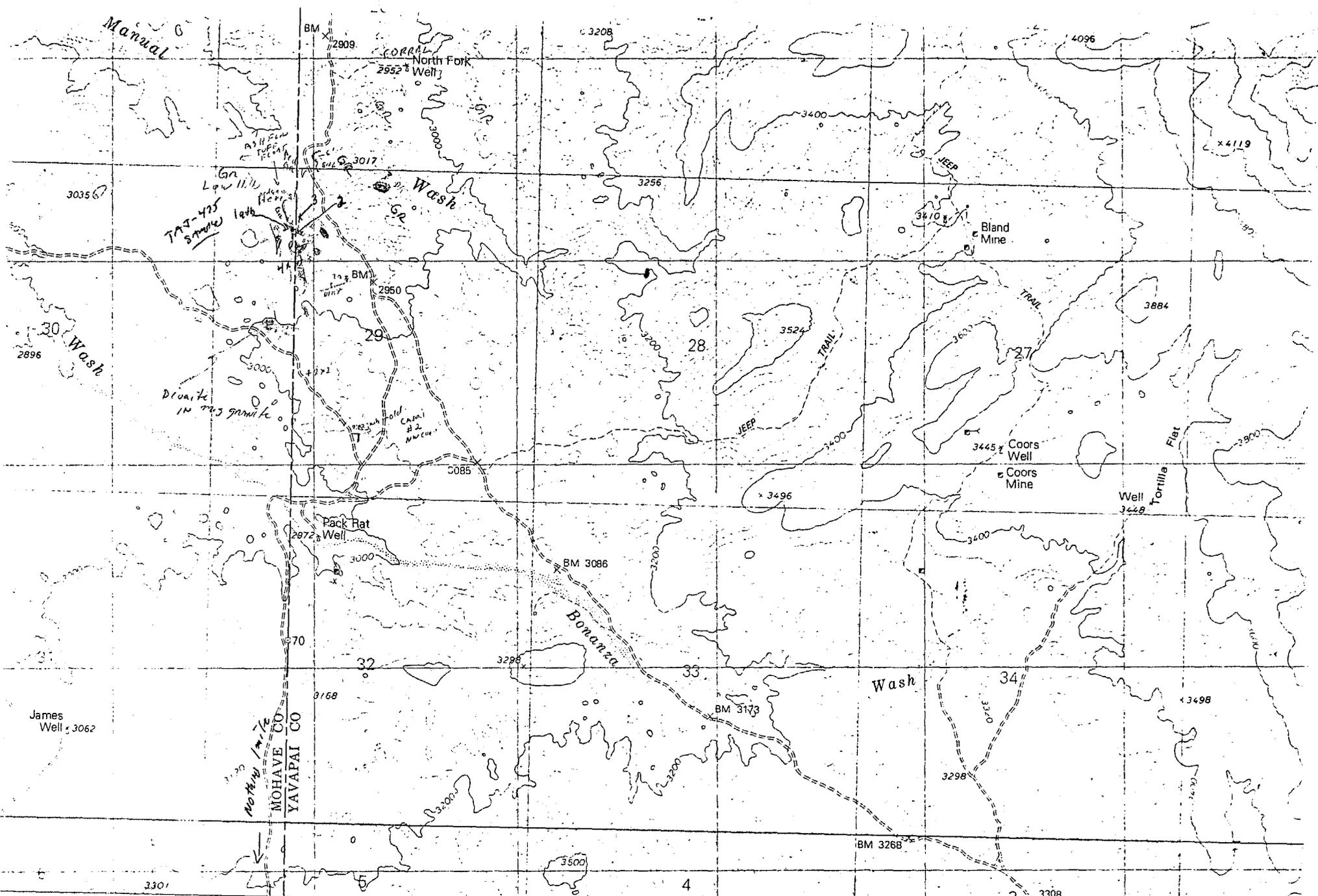
7.5 File  
(SW)

CA 71, H2 Jack (Nappa) 1985 1986 work

SEC 2.7

ENDLOG 1-2; 1986 work

Jack (Nappa) (Cons work)



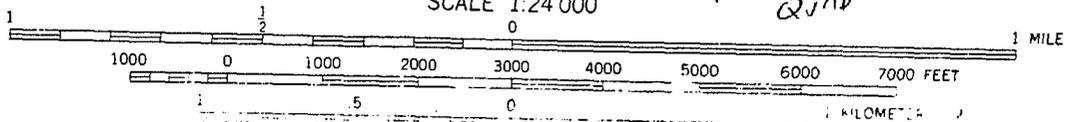
70 000 FEET (CENTRAL)

(ARRASTRA MTN. NE)  
3352 IV NE

SCALE 1:24 000

*Gran/hack mnd  
QIND*

640 000 FEET (WEST)



*1500'  
x 300'  
4,5 114 5*

GN



James Well 3062

30 Wash  
2896

*TAT-475  
50000*

*Diavite  
in the granitic*

*1.25  
MORNING / m. 1/2*

MOHAVE CO  
YAVAPAI CO

BM

2909

BM

2950

BM

3085

3208

3256

3200

3524

JEEP

3496

3298

BM

3173

BM

3268

3298

3200

3308

4096

3884

Well

3228

3498

4419

3900

3200

17'30"

286

287

289

290

29

27

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100

WSA #

2-83

HASSAYAMPA RIVER CANYON

Black Rock District

Oro Grande Mine

Gold Veins, Favorable Geology - Located SW of WSA.

Gold Bar Mine within 1/4 mile of SE WSA boundary, reviewed by FRK 12/2/85. See Report.

Production: 25,000T @ .87 opt Au

Possible underground reserves: 40,000T @ .6 opt Au

Potential exists for small H.G. Deposits ±30,000T

7 Rotary Drill holes by Sunshine Mining Co. in 1984.

Amazon Claims - Permian Resources.

Favorable geology and geochemistry indicative of mineral potential.

Red Bluff Mine area: Favorable geology similar occurrences to above prospects.

Octave District

Located west of WSA.

Alvarado Mine: See FRK report 8/28/85.

Potential for ±400,000T @ .1 opt range

Low angle quartz vein structures.

Octave Mine: Operated by Asarco in 1930's. Closed due to ore reserve depletion.

Octave, Alvarado and Beehive Mines similar geologic occurrences low angle fault/quartz vein structures.

*From Mark Miller  
Original to WDC*

## PROTECTED PLANTS

An interior chaparral community is found along the summit and on upper north slopes of the Harcuvar Mountains. *Mammillaria viridiflora* has been documented from the Smith Peak area and may grow elsewhere in the WSA. Vegetation characteristic of the Sonoran desertscrub biotic community is found at lower elevations with the paloverde-mixed cacti series on the rocky slopes and upper bajadas and the creosotebush-bursage series on the desert plains near the WSA boundary. The area provides potential habitat for the following special-status plant species: *Opuntia wigginsii*, *Pentocereus greggii*, *Selaginella eremophila* and *Colubrina californica* (Table 3-4).

## HASSAYAMPA RIVER CANYON

(AZ-020-083) — 21,900 Acres

### WILDERNESS VALUES

**Location and Boundaries.** The Hassayampa River Canyon WSA is in Yavapai County in central Arizona, eight miles northeast of Wickenburg and 48 miles northwest of Phoenix. The WSA is bounded by roads and state and private land.

**Naturalness.** The WSA is predominantly natural, with the overall human influence in the area considered slight. Present are five vehicle ways (4.0 miles), seven miles of allotment fencing, two corrals, 11 spring developments, two miles of pipeline, a well, two prospects, two inactive mines and a wooden shack, but all are largely obscured by vegetation and rugged terrain.

This area contains eight miles of the ephemeral Hassayampa River and portions of the Weaver Mountains. Through the WSA's southeast portion pass the deep canyon of the Hassayampa River and its side drainages. The WSA's northwest uplands, 3,000 feet higher than the riverbottom area, consist of a chaparral- and juniper-covered plateau. Paloverde and saguaro communities dominate the WSA's plant life at lower elevations.

**Solitude.** Outstanding opportunities for solitude may be found in portions of the WSA. The sinuous river corridor with its many side canyons offers many opportunities for seclusion. The complex topography and thick plant cover of the desert uplands north of the river canyon ensures isolation from the sights and sounds of others in the area. The WSA's highly irregular boundary and shape, resulting from land ownership, may impair opportunities for solitude along the edge of the area and in portions of the river canyon next to private land. Developments and activity seen from these areas detract from a visitor's sense of solitude.

**Primitive and Unconfined Recreation.** The WSA has outstanding opportunities for primitive and unconfined recreation, including backpacking, hiking, camping, horseback riding, and plant and animal viewing. Several elements contribute to these opportunities. The most dramatic features are the Hassayampa River and its canyon. Visitors to the canyon can observe undisturbed riparian habitats while hiking along a desert stream. Terrain and ecological diversity are exceptional for such a relatively small

area. The distinct physiographic zones allow visitors to choose a variety of challenges and observe several biologic zones as they descend 3,000 feet from the unit's highest points to the river. Climbers can scramble up Sam Powell Peak and the Needle.

**Special Features.** Wildlife, plant and scenic features enhance the WSA's wilderness opportunities. Habitats of 16 critical, threatened or rare populations of Arizona wildlife are preserved within the WSA, including 250 acres of riparian habitat and seven miles of aquatic habitat. Two plant species are considered unusual: the flannelbush, which may be proposed as a BLM-sensitive species, and a small group of Arizona cypress in the northern part of the unit. In addition, the Hassayampa River and its deep gorge have long been recognized for their scenic quality.

### MINERAL AND ENERGY RESOURCES

As of May 1986 there were 885 mining claims in this WSA. The southwestern section has had a record of gold and silver production. The northwestern section has produced manganese, barium and lead. The southeastern section produced gold, silver and copper. See Table 3-1 and Map 3-17 for high and moderate mineral potential areas.

There are no known leasable minerals in this WSA and no saleable mineral material. There are no current leases for oil and gas and the potential for petroleum is low to zero. No geothermal resource areas have been identified in the area.

### RECREATION USES

The major activity of choice within the WSA primarily involves recreational 4-wheeling. Four miles of vehicle way and eight miles of the rugged riverbed of the ephemeral Hassayampa River provide access into this area. These jeep trails and riverbed also provide motorized access to various hunting opportunities. The area also attracts horseback riders, an activity popular in the hills surrounding Wickenburg. Wickenburg dude ranches are known to conduct trail rides across the WSA on occasion. The scenic Hassayampa River Canyon, a portion of which lies within the area under wilderness consideration, is the destination of a limited number of birdwatchers and day hikers. Present overall visitor use within the WSA is estimated to be 900 visitor days per year.

### WILDLIFE VALUES

The Hassayampa River Canyon is rich in wildlife species and habitats. Habitats include saguaro-paloverde, mixed thorn scrub, mixed riparian scrub, mesquite-saltcedar, chaparral, lotic and cottonwood-willow riparian. These habitats may support 307 species.

The Hassayampa River Canyon contains more than 250 acres of the riparian habitats and seven miles of aquatic habitat supporting the 14 special-status species listed in Table 3-3 and Map 3-18. A few desert tortoise live throughout the area (fewer than 25 per square mile). Populations of other special-status species are not known.

### CULTURAL RESOURCES

Inadequate information is available on the cultural resources within this WSA and no formal archaeological







# ASARCO

Exploration Department  
Southwestern United States Division

April 29, 1988

Mr. Lorenzo Barton  
P.O. Box 405  
Payson, AZ 85547

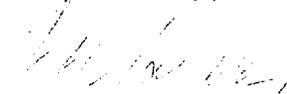
Dear Mr. Barton:

Mr. Sell has passed your letters to me with regard to your prospect. I expect to be passing through northern Arizona, probably some time late next month and would like to see what you have found. I will contact you again when my schedule firms up.

Thank you for your interest in Asarco.

MAM:mek

Respectfully,



Mark A. Miller  
Geologist

cc: J.D. Sell

Mr. Robert Lawson

1/18/89

PO Box 223

Mesa, NV 89422 (winter)

or

418-30 1/2 Road

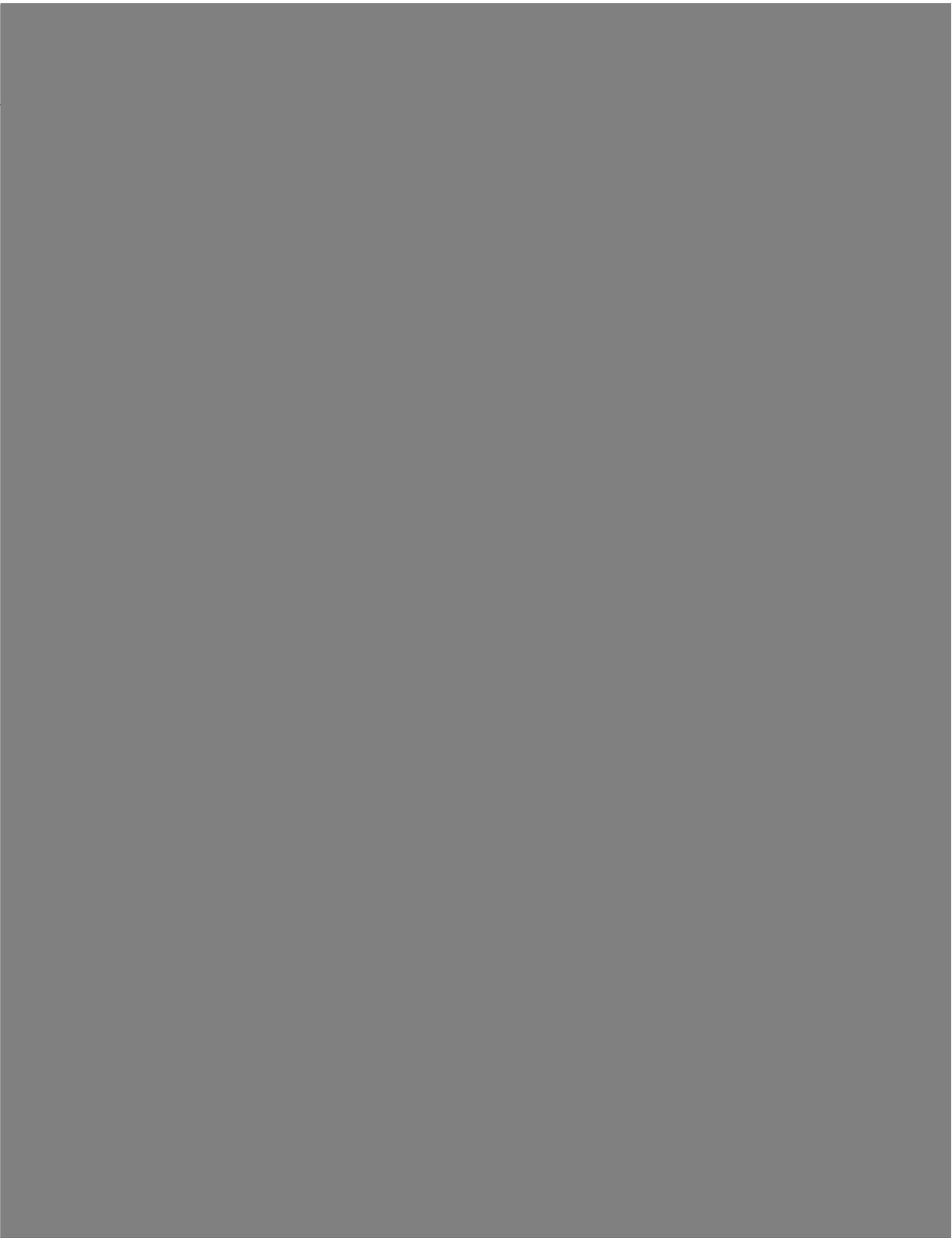
Grand Junction, CO 81504 (summer)

can call sister-in-law in GJ & she'll  
relay message as he calls in ever so often.

Grand Junction, CO

303 / 434 - 6852.

1. Hidden Treasures Claim, Wollapigai Mtns, West, Mohave Co, AZ
2. Combo Claims, Agulita West, Yavapai Co, AZ
3. Gold Bullion Group (S of an ex) Big Horn Mtn, Mohave Co, AZ
4. W.P. Claim Group, E of Hualata, Lencina Co, NM
5. Polaris Claims, Victoria Mtns, Lencina Co, NM.





# ASARCO

Exploration Department  
Southwestern United States Division

January 17, 1989

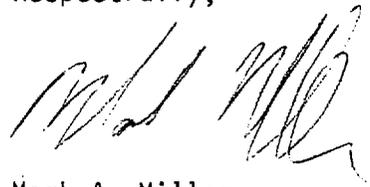
Mr. Randy Karry  
Golden Fleece Enterprise  
3007 E. St. John  
Phoenix, AZ 85032

Dear Mr. Karry:

Thank you for the data you sent regarding your property in Yavapai County, Arizona. After reviewing the data, it appears that the prospects do not meet Asarco's criteria at this time.

Thank you for considering Asarco. We will keep your prospects on file should things change. If you gather additional data on the property, please keep us informed.

Respectfully,



Mark A. Miller  
Geologist

MAM:mek

cc: J.D. Sell

# ASARCO

JDS

Exploration Department  
Southwestern United States Division  
James D. Sell  
Manager

March 17, 1989

Mr. Herbert E. Russell  
Vice President  
Rumico Corporation  
3410 W. Pershing  
Phoenix, AZ 85029

Black Sand Placer  
Congress, AZ

Dear Sir:

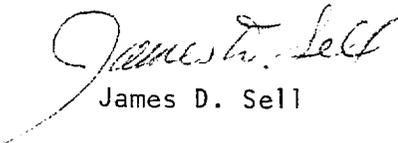
Mr. Michael McClave of the Spokane, WA, office sent down your packet of material on your black sand placer near Congress, Arizona.

Asarco is interested in the gold-silver portion of your black sands and would appreciate reviewing additional data on your project.

Mr. Mark Miller of this office will contact you and arrange for a visit to your operations.

Thank you for your submittal.

Sincerely,

  
James D. Sell

JDS:mek

cc: W.L. Kurtz  
M.A. Miller (w/att. packet  
of material)

February 16, 1990

*Vulture Area*

*Wickenburg, AZ  
Maricopa Co.*

M.A. Miller & J.D. Rasmussen

General Wickenburg Area  
AZ Bureau of Geology  
& Mineral Tech.  
Maricopa-Yavapai Cos., AZ

The Asarco Library has acquired the Open File maps and the published maps of the general Wickenburg area. All the maps are at a scale of 1" = 2000'.

The two map sets of interest are:

- |                 |                                                                                                                                |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------|
| <u>Map 27</u>   | Geologic Map of the Vulture Mountains<br>West-Central AZ, 3 sheets (1989)                                                      |
| <u>OFR-88-9</u> | Geologic Map of the Southeastern Vulture<br>Mountains, West-Central AZ, 1 sheet (1988)<br>(has index of all previous mapping). |

Both map series show alteration-hematite, clay + quartz + alunite, manganocalcite, propylitic alteration, sericitic alteration, etc.

A further publication is the OFR-89-1, Bibliography for Metallic Mineral District in Gila, Maricopa, Pinal, and Yavapai Counties, Arizona, 123 p., 1989.

JDS:mek

*James D. Sell*  
James D. Sell

cc: W.L. Kurtz

p. 14 GSA Cordell's abstracts  
1991

JDS

FILE  
Yarnall  
Area  
AZ

No. 6286

greens

JDS

No. 45522

Page 1



ks of the  
northern  
or) early  
nt of the  
Paleozoic

p. 84 GSA Cordilleran Abstracts. Bradshaw  
1991  
JDS File  
Mtns  
AZ  
No 7560

through Cenozoic  
shortening were a  
and envelopment  
ment system that  
aceous uplift and  
Range accompanie

soil  
anal

faults that range  
reverse dip-slip

# ASARCO

Southwestern Exploration Division

~~JDS~~  
MAM

June 27, 1991

J.D. Sell

Crown Prince  
Yavapai County, AZ

Russel Godwin from Fareham Resources, 604-687-7785, called me regarding the Crown Prince Property located in Yavapai County, Arizona. He described two geochemical anomalies 3000' x 1200' and 1500' x 400'. These anomalies resulted from a sample grid of +600 rock and soil samples. One of their trenches/dozer cuts across the anomaly ran 60' at .12 opt Au. They are looking for a partner for additional work on the property. Russel may send data with a confidentiality agreement.

Mark A. Miller

MAM:mek

Mark: Review the GCNL's for any info on Fareham Resources, & the Crown Prince Property.

JDS.

None Found thru - 1989 -  
1989 -> Present  
Mark

7/2/91-

is this back from today thru 1989 or from + up thru 1989?

# ASARCO

Southwestern Exploration Division

June 27, 1991

J.D. Sell

Crown Prince  
Yavapai County, AZ

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MAM:mek

  
Mark A. Miller

Mark: Review the GCML's for any info on Fareham Resources, & the Crown Prince Property,

JDS.

# ASARCO

Exploration Department  
Southwestern United States Division

December 6, 1990

Mr. George Riddle  
P.O. Box 409  
Wickenburg, AZ 85358

Leviathan Mine  
Yavapai County, AZ

Dear George:

Enclosed is your data package on the Leviathan Mine. At this time, Asarco will not be doing any further work on the property.

I have also enclosed copies of our sampling and assaying for your use.

Good Luck and thank you for considering Asarco.

Respectfully,



Mark A. Miller

MAM:mek  
Enc.

cc: J.D. Sell

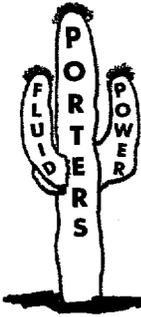
Company has signed two major contracts which will develop some...



11/28/89

JDS

MA Miller - JD Rasmussen



DOUG OBERAN  
SALES MANAGER

**PORTER'S Fluid Power, Inc.**

(602) 269-7931

3054 N. 30th Avenue • Phoenix, Arizona 85017

Put on list of  
things to do!  
Ch files.

home: 4819 W. Royal Palm  
Glendale, AZ 85302  
ph 402 / 934-0634

Has family held group of 48 claims, 10-12 of  
which are patented, with  $\pm$  10 structures  
ranging from 1' to 30' in widths.

Cu-Ag-Au veins.

Unknown if wallrock is mineralized.

Known as: Camp B Mine

Blue Tank Mining District

Constellation Mine Area

Yavapai Co., AZ

out of Wechenburg.

Worked by Great grandfather, grandfather, & father,  
from pre-Statehood to 1944.

Has lots of reports etc., some drilling done.



intersection of 67.4 g/t over 10.5 metres (1.97 oz/ton) Discovery, Central and Santa Fe, to be part of one large

**JOE WILKINS**  
**EXPLORATION CONSULTANT**  
5450 N. KENNEBEC LANE  
TUCSON, ARIZONA 85704  
(602) 887-5376

1

November 3, 1992

Jim Sell  
Asarco Incorporated  
1150 North 7th avenue  
Tucson, Arizona 85705

**Re: Walnut Grove Porphyry Copper Target, Yavapai County, Arizona**

Dear Jim:

I recently staked 18 lode claims over a buried target, generated by mineral trend projections. The target is located under shallow(?) Tertiary cover in unextended-unrotated terrain and may contain a fully preserved chalcocite-enriched porphyry copper deposit. The target is a long shot, but if intact, could contain 100 to 200 million tons of chalcocite enriched ore at a grade of 1 to 2.5 % Cu.

If you are interested in examining the data and the property, please sign the attached confidentiality agreement.

Sincerely

  
Joe Wilkins

Enclosure

**RECEIVED**

NOV 9 1992

EXPLORATION DEPARTMENT

Walnut Grove  
Yavapai Co., Arizona

Joe Wilkins  
Exploration Consultant

FROM: W. L. KURTZ

To: ~~H. Kurtz~~  
~~H. Miller~~

11/9/92

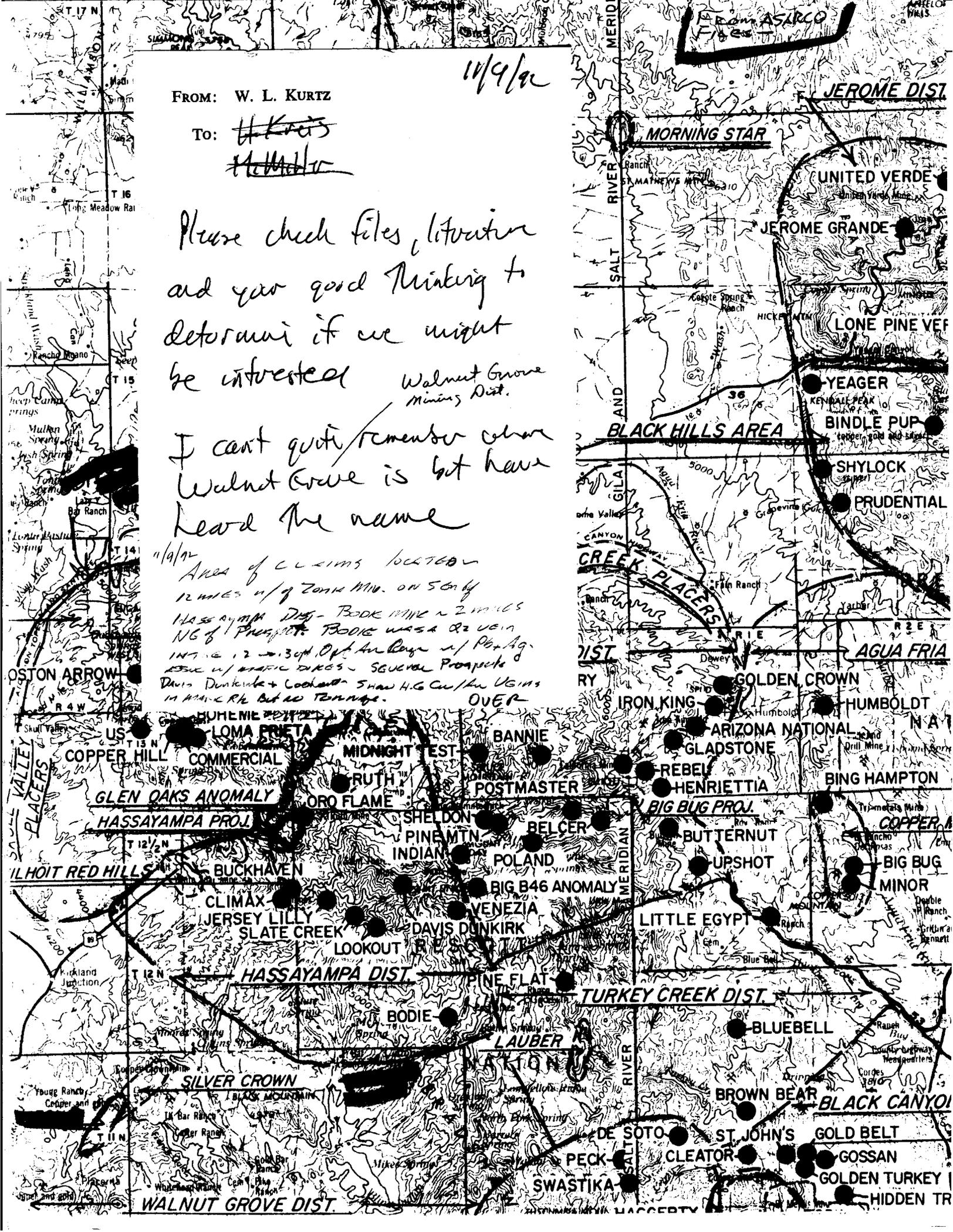
Please check files, literature  
and your good thinking to  
determine if we might  
be interested

Walnut Grove  
Mining Dist.

I can't quite remember where  
Walnut Grove is but have  
heard the name

11/9/92  
Area of claims located  
12 miles N of Tropic Mo. on S60W  
HASSAYAMPA DIST - BODIE MINE ~ 2 miles  
NW of PROSPECT. BODIE was a 22 vein  
INT. 12-1300' Opt. for base of Pb-Ag.  
BODIE w/ BODIE DICES - SEVERAL Prospects  
Davis Dunkirk + Cochran - Show H.G. Cu/Au veins  
in BODIE CRK but no TENNAGE.

From ASIRCO  
Files



November 2, 1992

Jim Sell  
Asarco Incorporated  
1150 North 7th avenue  
Tucson, Arizona 85705

Ref: Confidentiality Agreement

Dear Jim:

You have requested that Joe Wilkins furnish data to Asarco Incorporated hereinafter (Asarco) pertaining to the Walnut Grove Project, located in Section 10, T11N R2W Yavapai County, Arizona(Figure 1).

I. Purpose

The sole purpose of furnishing such information to Asarco is to permit Asarco to assess the information in contemplation of a sale, lease, joint venture or assignment by Joe Wilkins of all or portion of Joe Wilkins' interest in the Project.

II. Confidential Information

A. In consideration of Joe Wilkins furnishing such information, Asarco agrees to hold in confidence and not use or to disclose to any person, except for the sole purpose of evaluating the Project for possible participation in said Project, the following: information relating to exploration, land, mineral rights, geologic data; and any and all analyses, reports, studies. All of the above shall hereinafter be collectively referred to as "Confidential Information"; provided, however, such terms shall not include the following:

- (1) Information that at the time of disclosure in the public domain;
- (2) Information that after disclosed is published or otherwise becomes part of the public domain through no fault of Asarco.
- (3) Information known to Asarco prior to the time of disclosure to Asarco from Joe Wilkins.
- (4) Information disclosed to Asarco by a third party, so long as such disclosure does not violate said third party's duty of confidentiality to Joe Wilkins if any.

B. Asarco acknowledges that unauthorized disclosure of confidential Information may cause significant damage and harm to Joe Wilkins.

III. Area of Interest

If Asarco locates mining claims after the effective date of this Agreement, any part of which is within two (2) miles from the exterior boundaries of the Property (the "Area of Interest") such claims shall become part of the Property upon Joe Wilkins' election to include such claims.

IV. Term of Agreement

This Confidentiality Agreement shall terminate upon execution by Asarco and Joe Wilkins signing an agreement whereunder Asarco acquires an interest from Joe Wilkins in and to the Project. If Asarco and Joe Wilkins fail to enter into such an agreement, Sections I, II, III and IV of this Confidentiality Agreement shall continue in effect until the date two (2) years from the date hereof, whichever later occurs.

Very truly yours

  
Joe Wilkins

Exploration Consultant  
5450 N. Kennebec Lane  
Tucson, Arizona 85704

ACCEPTED BY:

Asarco Incorporated

By: \_\_\_\_\_  
Date: \_\_\_\_\_

Witness: \_\_\_\_\_



November 2, 1992

Jim Sell  
Asarco Incorporated  
1150 North 7th avenue  
Tucson, Arizona 85705

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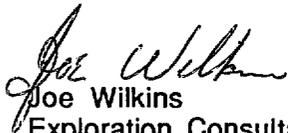
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Very truly yours

  
Joe Wilkins  
Exploration Consultant  
5450 N. Kennebec Lane  
Tucson, Arizona 85704

ACCEPTED BY:

Asarco Incorporated

By: \_\_\_\_\_

Date: \_\_\_\_\_

Witness: \_\_\_\_\_

Joe Wilkins

EXPLORATION CONSULTANT  
GEOGRAPHY & GEOLOGY

W/LK

interested -

Jim Sell

Asarco INC

To Sell  
 Date 10-28 Time 10:57  AM  PM  
**WHILE YOU WERE OUT**  
 M. Don Earl  
 of Wichita  
 Phone 689-5852  
 Area Code Number Extension

TELEPHONED	<input type="checkbox"/>	PLEASE CALL	<input checked="" type="checkbox"/>
CALLED TO SEE YOU	<input type="checkbox"/>	WILL CALL AGAIN	<input type="checkbox"/>
WANTS TO SEE YOU	<input type="checkbox"/>	URGENT	<input type="checkbox"/>

RETURNED YOUR CALL

Message has been  
shipping to  
El Paso

Operator [Signature]

AMPAD EFFICIENCY®

REORDER #23-000

800 tons  
 0.25  
 3-3 1/2 %  
 70+202  
 Potential 100 acres.

putting in decline  
 shipped from trenches

Let Grant  
 Mett  
 Ann Earle

AZ - AU line. Shipping fees.

See 32

T 9A

R 9W

Yavapai

Also has roughly  
 area.

Morgan Beale - Broodlines Mtu

Keystone

USMS Bull 102

500,912 tons ~~at~~ 1892-1917

143,561 oz Au = 0.287 opt

460,228 oz Ag = 0.92 opt

1934-1935

1396.328 tons of crude, bullion & concentrates

4892.96 oz Au recovered = 3.50 opt

161,290.57 oz Ag " = 11.67 opt

embrown out of line  
to produce 1000 oz  
the bullion.

1935-1937 milled

52,272 tons milled

prorated head assay =  $\frac{10,578.309}{52,272} = 0.202$  opt Au

" " " =  $\frac{99,370.26}{52,272} = 1.90$  opt Ag

KC-1 in Grasshopper area.

341-342 = 1' - 0.020

342-346 = 4' - 0.140

344-347 = 1' - 0.020

347-348 = 1' - 0.060

348-349 = 1' - 0.120

349-350 = 1' - 0.140

350-351 = 1' - 0.120

351-352 = 1' - 0.130

$\frac{11'}{11'} = 1.00/11 = 0.169$  opt Au

prob # 8' tree width

KC-2 in Grasshopper Area 600' N 20W from KC-1

Tn Au - Tn Ag

KC-3 Tn Au Tn Ag

midway between KC-1 & KC-2.

KC-4, KC-5, KC-6

No. silver  
KC-7 KC-8

p10 report of Schroder

loss in mill 27%

54

21

31

21

28

25

38

28

23

23

31

29

$$\frac{379}{13} = 29\% \text{ loss}$$

July 1933 - Oct 1935 milled

27,232.42 tons

pro-rated head grade of  
 $5,142,99578 / \text{tons} = 0.2422$   $\times 0.61 = \overset{0.148}{\text{recovered}}$

$= 27,232.42 \times 0.148^{\text{rec.}} =$

$3,137 \text{ oz Au recovered}$   
~~3,137 oz Au~~

Bull 285

June 20, 1991

ASARCO Ins. & Svc. Co.

JUN 21 1991

SW Exploration

J. D. SELL - MANAGER  
ASARCO  
POST OFFICE BOX 5747  
TUCSON, ARIZONA 85703

I am writing in response to your company's interest to evaluate and purchase mining property(s). This was derived from the announcement in the magazine "PAY DIRT".

Our property is located in the Globe/Miami mining district. It has been in my family since 1906. My grandfather purchased patented claims and located the adjoining claims. After the death of my grandfather, my father Anton (Tony) Trojanovich, Jr. carried on.

I would appreciate the opportunity to meet with you to elaborate in depth on the history of these claims and mineral deposits. Also for your consideration of purchase, after inspection of the documents, etc.

Attached is a plat of the claims and where they are located in reference to the Old Dominion Mine in Globe, Arizona.

I will look forward to hearing from you.

Sincerely,



John A. Trojanovich  
Post Office Box 5821  
Tucson, Arizona 85703  
Home Phone: 743-3278  
Work Phone: 628-5180

JAT/lb

File

Attachment:



Date: 7/25/94

From: M. A. McClave

To: Pete Vikre

Looks like Easy Money!

M. A. McClave

019/94

Yavapai Co

J. D. Sell

Any Interest?

*Per [Signature]*

Manager  
Industrial Minerals Division  
ASARCO  
Spokane, WA

07-15-94

Dear Sir:

I am coming into contact with several companies or individuals that have mining properties for sale that may be of interest to your company. At the present here is the discription of some mines that one company is offering:

Area: Arizona. Our mines have approximately \$45,000,000 (\$45 million) known silver reserve at todays price of \$5.29/oz. We are asking only 2% of known reserves as our selling price. Bear in mind that we believe that there are much greater reserves that could be proved by core drilling and development.

*See  
Bradshaw  
Ventures  
Trust  
data*

We also believe SILVER is finally ready to take off and this would be the the right time for a serious investor to take advantage of this offer. We believe that once the unknown reserves are also taped that our mines would yield values that would be virtually unlimited. Therefore we also believe that our asking price of 2% of known values, or \$906,857.14 would be a good bargain for a serious investor.

There are several existing shafts, tunnels, and adits (dug by hand by the old Timers) already on the properties and if these were fully developed they would yield much greater values as stated above. The vein system and structures, as you will see in the geological report we have for you, if you are interested, are well defined, obvious and easy to identify. Assys from sampling are excellent.

If your company is interested, I have a package of information I will send you. Thank you for your time.

Sincerely,

*James M. McClellan*  
J.M. Enterprises  
Rt. 3 Box 33  
Beeville, TX 78102

Note: I was wondering if a Mr Michael A. McClave is still manager of the Industrial division? I sent him information on some properties around June 17, 1988 - and April 19, 1988. He was interested in the properties which belonged to Mr Jack J. Swain of Swain Mining and Manufacturing, 41908 Magnolia Street, Murrieta, California 92362. Mr Swain never did contact me so I was wondering if ASARCO and Mr Swain ever decided to do business with one another or not. If it is possible for you to check back that for and see if ASARCO leased or purchased the SWAIN properties for development, and let me know, I would appreciate it.

Note: I just received information on another property, a GOLD AND SILVER properties that have \$60,000,000 (\$60 Million) known reserves, belonging to the same company that owns the above SILVER properties. I can enclude info. on them along with the information on above properties at your request.

Sincerely:

*Walter Stuart* *It was WALTER STUART, WHO CONTACTED MR MCCLAVE*  
*friend of J.M.E. CONCERNING THE SWAIN PROPERTIES.*

# ASARCO

Northwestern Exploration Division

Michael A. McClave  
Manager

July 25, 1994

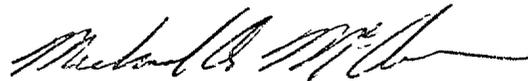
Mr. James A. McClellan  
J. M. Enterprises  
Route 3, Box 33  
Beeville, TX 78102

Dear Mr. McClellan:

Thank you for your letter of July 15, 1994 regarding your silver property in Arizona. I have forwarded it to Mr. Peter Vikre in our Reno office and, if he has an interest in the property, he will contact you directly.

Please tell Walter Stuart that there is no longer an Industrial Minerals Division and that ASARCO and Swain Mining and Manufacturing never made a deal.

Yours truly,



Michael A. McClave

MAM/dt

cc: P. G. Vikre with enclosure

✓ IDS ✓

Mining Journal, London, January 29, 1988



# ASARCO

Exploration Department  
Southwestern United States Division  
James D. Sell  
Manager

July 11, 1990

Mr. Allan R. St. James  
1557 West 60th Avenue  
Vancouver, B.C. V6P 2A4  
Canada

Nemo Property  
Sec. 24, T13N, R1W  
Yavapai County, AZ

Dear Sir:

I thank you for your report on the Nemo property near the Iron King Mine, Yavapai County, Arizona.

At present I would decline doing any exploration at the Nemo property as you have outlined. However, the smelting department is always interested in special flux which might be producible from your zone, and should your future work expose or verify such possibilities, I would reconsider.

Should I be in the area, and Mr. White be available, I would further review the situation.

Thank you for bringing the area and Mr. White's mapping to Asarco's attention.

Sincerely,

*James D. Sell*  
James D. Sell

JDS:mek

cc: W.L. Kurtz  
D.C. White (521 E. Willis St.  
Prescott, AZ 86301)

# ASARCO

JDS

Exploration Department  
Southwestern United States Division  
James D. Sell  
Manager

February 14, 1991

Mr. Allan R. St. James  
1557 West 60th Avenue  
Vancouver, B.C. V6P 2A4  
Canada

Nemo Property  
Sec. 24, T13N, R1W  
Yavapai County, AZ

Dear Allan:

I am returning your original report on the Nemo Property, as you have requested.

Should further work bring out additional data to support a follow-up by Asarco, I would be pleased to receive such information.

Thank you for bringing the Nemo Property to SWED's attention.

Sincerely,

  
James D. Sell

JDS:mek  
Att.

cc: W. L. Kurtz