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level was the lowest level at which any considerable amount of ore was mined. There was a gradual pinching of the ore shoot for several levels above. The vein became narrow and irregular although it maintained its general mineralogical character and gold content.

The Niagra vein is entirely in granite, unaccompanied by basic intrusives. It was productive of commercial ore to a depth of 2,000 feet. It dips to the north at 40° to 50° and contains more quartz than the Congress vein.

The all-granite veins are characterized by more galena and higher silver values than the veins that occur in conjunction with basic intrusive dikes.

The production of the mine, by veins, is as follows:

Vein	Tons
Congress	378,992
Niagra	293,215
Queen of the Hills	20,125
Total	692,332

VULTURE AND BIG HORN DISTRICTS

The Vulture and the Big Horn districts are in northern Maricopa County to the south and southwest of Wickenburg. The Vulture district includes the Vulture Mountains just south of Wickenburg and the Big Horn district includes the Big Horn Mountains and the eastern edge of the Harqua Hala Mountains to the southwest of Wickenburg.

The Vulture and the Big Horn Mountains consist in part of andesite and rhyolite flows on a basement of schist and granite. The veins are mostly in granite and near the granite schist contacts. A number of veins in the volcanic andesites and rhyolites have been prospected, but nearly all of the productive mines have been developed on veins in the granite or schist.

Vulture Mine[7]

Topography and Geology

The Vulture mine is in the Vulture mining district in Maricopa County, 14 miles by road southwest of Wickenburg. It is at the southern edge of the Vulture Mountains at an altitude of about 2,000 feet. At the Vulture mine the country is moderately hilly, but farther to the north it becomes more precipitous and rugged.

The vein system is in a fault zone that strikes roughly east and west and dips to the north at about 45°. The footwall of the vein consists of schist, the laminations of which are roughly parallel to the vein in dip and strike. The hanging wall consists of a dike of granite-porphyry about 80 feet wide.

7/ Wilson, Cunningham, and Butler, work cited. (See footnote 6, p. 157.)

According to descriptions furnished by early observers, the mineralized zone was 80 feet wide and consisted of several veins that ranged in width from 6 to 12 feet and had a total width of 32 feet. The outcrop was very prominent and projected as much as 30 feet above the general level of the adjacent country. This condition favored the open-cut methods of mining that were used extensively by the first operators.

The upper oxidized portions of the vein were characterized by iron oxides that appeared as a stain on the quartz which constituted most of the vein. Some wulfenite was found in the openings of the quartz. Below the oxidized zone the vein minerals, other than quartz, were galena, pyrite, sphalerite, and chalcopyrite. Concentrates ran from $120 to $200 a ton in gold and contained from 12 to 15 percent lead, 8 to 12 percent zinc, and from 1 to 2 percent copper.

History

The property was discovered and staked by Henry Wickenburg and associates late in 1863. During the three years that followed, rich portions of the vein were mined by open-cut methods and treated in an arrastre at the Hassayampa River.

Late in 1866 the Vulture Mining Co. of New York acquired the property and established a camp at the mine and built a 40-stamp amalgamation mill near the present site of Wickenburg. The company operated from 1867 until 1872, during which time approximately $1,850,000 worth of bullion was recovered from ore that ran from $25 to $90 a ton.

From 1872 until 1931 the mine was operated by five different companies. It is estimated that during this time bullion and concentrates worth about $5,000,000 were produced.

In 1927 D. R. Finlayson acquired the property and organized the Vulture Mining and Milling Co. Ore from pillars was treated in a 5-stamp amalgamation mill.

In 1930 and 1931 the United Verde Extension Mining Co. of Jerome became interested in the property and acquired a controlling stock interest in the Vulture Mining and Milling Co. Considerable money was spent in development and diamond drilling. A 500-foot shaft was sunk, and over 1,000 feet of drifting and crosscutting was done in searching for new ore bodies. The results of this work were disappointing and the United Verde Extension Co. withdrew its financial support, although it still retains control of the Vulture Mining and Milling Co.

Since 1931 the property has been worked under lease by D. R. Finlayson and A. B. Peach. Operations consisted of mining pillars and other unmined portions of the vein left by former operators. Mining was mostly by open-cut methods. The ore was first milled in the 10-stamp amalgamation and concentration mill and about 10 tons of concentrates a month were produced. Later,

the mill was altered and the capacity was increased so that tailings could be treated along with the mine ore. A cyanide leaching plant was also added to treat an additional 100 tons of tailings a day.

Hardrock mining was discontinued in 1935. The cyanide leaching plant was taken over by D. R. Finlayson and the concentrating plant by A. B. Peach. At present, both plants are operating on tailings.

The tailings from the upper oxidized levels and those from the lower sulphide levels have been segregated roughly by time and accident. Tailings from the first operations were washed by cloudbursts into an arroyo south of the mine. This material is largely from the upper oxidized levels and is being treated in the cyanide leaching plant operated by Finlayson.

Tailings from later operations were disturbed to a less extent and remain very much as they were when originally deposited. Some of this material is highly oxidized and sticky and has been found to be very difficult to treat either by flotation or cyanide leaching. The less oxidized material from the lower levels is easily accessible and is being treated in the flotation plant operated by Peach.

Finlayson Lease

Water supply.- The water supply is from the Mariona shaft, about 1 mile north of the plant. The water is bailed from the shaft a distance of 480 feet with a single-drum hoist operated by a 55-horsepower gasoline engine. The capacity of the bailing bucket is 300 gallons. The entire needs of the plant of 25,000 gallons a day can easily be bailed in an 8-hour shift. The water is discharged from the bailing bucket into a storage tank of 8,000 gallons capacity. From there it is run through a gravity pipe line 4 inches in diameter at the head and 3 inches in diameter at the end to a storage tank of 12,000 gallons capacity located at the plant.

Mining and transportation.- When the leaching plant was first started in 1935, the old tailings had to be hauled only about a quarter of a mile from the head of the arroyo into which it had been washed by cloudbursts. As the deposits in the upper end of the arroyo became depleted, the distance from the source of supply to the plant became greater. In October 1936 this distance was from 1 to 1-1/4 miles.

The loading was done by scraping the material to the top of a ramp with a horse-drawn fresno and dumping it into a truck. The ramp was moved from one place to another whenever necessity required. The material was loaded and delivered to the leaching plant on a contract basis. The price paid was $6 for filling a treatment tank of 50 ton-capacity or 12 cents a ton. The contractors furnished the labor and horses only. The company owned the truck and furnished the fuel, lubricating oil, truck repairs, etc.

In October 1936, the fresno and the ramp were dispensed with and a 3/8-yard power shovel substituted. The principal reason for making the change

was that too much material was required to make the approaches to the ramp. At the upper end of the arroyo where the deposits were large this objection was not very serious. However, further down where the deposits were thinner, such a large percentage of the available material was required to build approaches that it was considered advisable to change to the power shovel.

The terms of the contract for delivering the material to the leaching plant remain the same under the new set-up, except that the contractors furnish labor only. The truck and the power shovel belong to the lessor, who furnishes gasoline, lubricating oil, and repairs for both.

Two men are required to operate the shovel and the truck in delivering an average of 75 tons of material daily to the leaching plant. The full capacity of the plant is 100 tons a day, but shut-downs bring the average down to about 75 tons a day.

Leaching.- The leaching plant (fig. 15) is on a knoll about 30 feet above the general level of the surrounding country. It consists of 6 treatment tanks, 2 solution tanks, a storage tank, zinc boxes, and pumping equipment for circulating the solution and sluicing out the treatment tanks.

Each treatment tank is 16 feet square, 5 feet 3 inches deep at the back end, and 5 feet 9 inches deep at the front end. The walls are 6 inches thick at the top and 8 inches thick at the bottom. The plant was built in two sections of three tanks each. A mixture of one part concrete, three parts sand and four parts gravel was used without reinforcing. It is said that the tanks cracked at the corners almost as soon as they were filled and the material was made wet for treatment. When the tank is filled, the top is leveled by hand.

A heavy plank floor of 4-inch Oregon fir timber extends about 5 feet over the back end of all of the tanks. This is to facilitate loading the tanks. The loaded truck is backed up to the edge of the floor against a bumper and the load discharged in about the center of the tank.

At the front end of each tank, about 6 inches above the bottom, there are two ports about 1 foot wide by 1-1/2 feet high. These are for flushing out the treated material. After a tank is flushed out the ports are closed with pieces of boiler plate bolted to the outside. The solution is drained from the tanks by a 2-inch pipe at the bottom left-hand corner (looking from front to back) of each tank. This pipe is also used as an outlet for very fine mud that gets through the filter mat of muslin and jute and must be cleaned out whenever the filter mat is replaced. For this purpose, it has not been found entirely satisfactory because it is too small. Mr. Finlayson thinks a 4-inch pipe would be better.

The false bottom (fig. 16) in the tanks consists of 1- by 6-inch flooring bored with 5/8-inch holes and nailed on 2- by 4-inch joists placed at right angles to the slope of the concrete bottom. The joists rest on small blocks of wood about 2 inches thick, to permit the solution to drain to the front end of the tank. Two layers of jute cloth are placed on top of the flooring

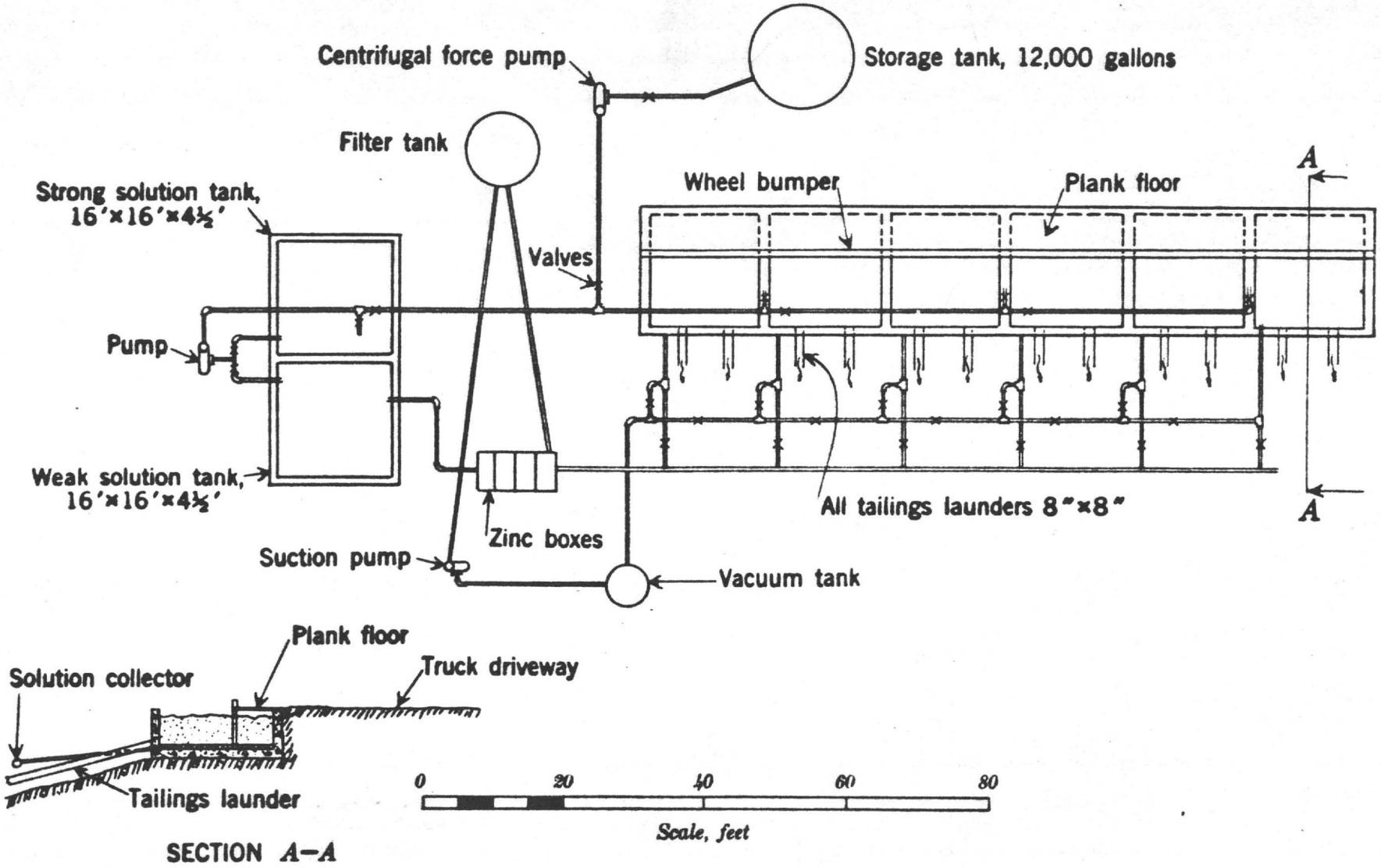


Figure 15.—Plan of Finlayson leaching plant, Vulture, Ariz. Maximum capacity 100 tons a day.

and a good grade of 8-ounce muslin on top of this. The muslin is cut about 6 inches oversize on all four sides, and the edges are corded down between the concrete walls and the floor with a 5/8-inch rope. The cording is held in place by 2- by 2-inch battens nailed to the flooring.

The solution tanks are of concrete construction similar to the treatment tanks. They are 16 by 16 feet square and 54 inches deep and hold 36 tons of water each. One is in open circuit with the zinc boxes while the other is used to store strong solution for treating the ore. A gasoline pump is connected so that solution can be pumped from either tank to the treatment tanks or from the one in open circuit with the zinc boxes to the one in which the strong solution is stored. Cyanide is added ordinarily to the tank in open circuit with the zinc boxes, which is normally the weak-solution tank. After cyanide has been added, the solution is pumped into the strong-solution storage tank, where lime is added.

A suction pump is used for material that is sticky and slimy and slightly impervious to the solution. It is connected to the outlet of each treatment tank and can be used on all tanks simultaneously or for any one alone. There is a vacuum tank between the pump and the main suction line to provide a constant vacuum. The solution is pumped to a solution tank with a canvas bottom, where it is filtered before it goes to the zinc boxes. It is stated that it will pull a vacuum of 16 to 18 inches of water when all tanks are connected. So far, no material was treated that required more than a 5-inch vacuum. The cycle of operation in the leaching process is as follows:

		Hours
1.	Tank is loaded with 50 tons of dry pulp.	
2.	Covered with 18 tons of strong cyanide solution, 2 hours required to cover and 2 hours to saturate, total.....	4
3.	Tapped into circuit and permitted to drain for.....	10
4.	Left to dry and aerate (aeration period)...	8
5.	Covered with weak solution from zinc boxes. As soon as this is out of sight, it is covered with wash water[8] from the storage tank. Weak-solution wash requires about 14 hours and the fresh-water wash about 36 hours, total.....	50
	Total time for treatment.....	72

8/ This is where fresh water is added to the circuit.

It is said that the aeration period is very important and has an appreciable effect upon recovery.

After the wash water works for a while, the solution is tested for cyanide. When the strength is down to 0.4 pound per ton, the tank is cut out

of the circuit and sluiced out. It has been found that the gold in the solution is a function of the cyanide content, and when this is down to 0.4 pound per ton, the solution is practically free of gold.

Solutions and reagents.- The solution for the initial treatment is made up to a strength of 2 to 2-1/2 pounds of cyanide and 1 to 1-1/2 pounds of lime per ton of water. The solution in the weak-solution tank is first tested for cyanide strength and then enough cyanide is added to bring it up to standard strength. After the solution is pumped into the strong-solution tank, it is tested for alkalinity and lime is added accordingly.

The zinc shavings used in the zinc boxes are dipped in lead acetate to keep them from becoming plated with copper.

Tailings disposal.- The treated pulp is sluiced through the ports with a jet of water from a high-pressure nozzle. Pressure is furnished by a high-pressure centrifugal pump, belt-connected to an old automobile engine. The water is taken direct from the 12,000-gallon storage tank at the plant. The job of sluicing out a tank of the treated pulp requires from 8,000 to 10,000 gallons of water and the labor of one man for an hour to an hour and a half.

The spent pulp goes from the ports of the treatment tanks to the tailings pond, through open wooden launders about 8 by 8 inches in cross section and placed at a grade of 5 to 7 percent. The tailings pond is about 400 feet from the plant.

Express and smelting.- The precipitates usually run about $15 a pound. They are shipped by express to the plant of the American Smelting and Refining Co. at Selby, Calif. Gold is paid for at the rate of $33.528665 per ounce and silver at the rate of 76 cents per ounce. There is a sampling and assaying charge of $10 and a reduction charge of $5 for each shipment.

The following is a settlement statement of a small shipment that was made in October 1936:

Weight of precipitates ..... 96 pounds		
Assays:		
Gold - 415.40 ounces per ton at $33.528665		$13,927.81
Silver - 795.85 ounces per ton at 0.77 - 1 or 0.76		574.60
Total value per ton		14,502.41
Value of 96 pounds at $14,502.41 per ton		696.12
Deductions:		
Assaying and sampling	$10.00	
Reducing	5.00	
Express	5.88	
Total	20.88	20.88
Net proceeds -		675.24
To be paid upon receipt of properly executed affidavit which will permit the silver content to be sold to Government		11.70
		663.54

Labor and supplies.- The labor required to operate the plant is as follows:

Mining, 2 men on contract	@	$4.50	1/ $9.00
Plant operators, 1	@	4.50	4.50
Plant operators, 2	@	4.00	8.00
Pumpmen, 1	@	4.00	4.00
Total			25.50

1/ Average for a normal month.

Gasoline consumption is as follows:

	Gallons per day
Truck	12
Water bailing	18
Plant	12
Power shovel	12

Standard grade gasoline is delivered at the plant for 13 cents a gallon, including tax. There is a rebate of 5 cents a gallon on all except that used in the truck.

Metallurgical data.- The following shows the average values in the heads and tails and the values recovered in the precipitates:

Gold in heads, per ton	0.050 ounce	@	$33.53	$1.67
Silver in heads, per ton	.100 ounce	@	.76	.08
Total				1.75
Gold in tails, per ton	.005 ounce	@	33.53	0.17
Silver in tails, per ton	.010 ounce	@	.76	.01
Total				.18
Gold recovered in precipitates, per ton	.045 ounce	@	33.53	1.50
Silver recovered in precipitates, per ton	.090 ounce	@	.76	.07
Total				1.57

Recovery, gold	90 percent
Recovery, silver	90 percent

Costs.- The costs shown here represent the average operating expenses for a month of normal operations. These costs do not include plant depreciation and royalties.

Tons of ore treated, 45 tanks of 50 tons each . . . . 2,250 tons.

Labor:		
Mining and delivery to plant	$270.00	$0.120 per ton
Labor at plant and water supply system	495.00	.220 do.
Assaying	90.00	.040 do.
Compensation ($4.33 per $100)	37.50	.017 do.
Total labor	892.50	.397
Supplies:		
Gasoline	237.00	.105
Lubricating oil	10.00	.004
Cyanide	140.00	.062
Lime	64.00	.028
Precipitating reagents (zinc shavings and lead acetate)	41.80	.019
Total supplies	492.80	.218
General expenses:		
Hauling supplies	15.00	.007
Express, assaying, refining, etc. 2/	42.00	.018
Total general expenses	57.00	.025
Total operating	1,442.30	.640

2/ Does not include $1.47 ounce discount on gold at smelter.

Peach Lease

Water supply.- Water is pumped from a 700-foot drilled well lined with 5-inch casing and about a half mile from the mill. The pump was built from a gear, a pinion, an old engine frame, and some other miscellaneous junk that was picked up in Jerome. It is operated by a 30-horsepower Diesel engine and delivers from 70,000 to 80,000 gallons of water every 24 hours when it works.

Two hundred feet of 1-1/2-inch double-strength pipe and 500 feet of 2-inch wooden shafting are used for pump rods. A great deal of trouble has been experienced because of breakage of the pipe at the sleeves. Whenever this happens the mill must be shut down from one to two days while the pump rods and plunger are being pulled and repaired. A special fishing tool was made for catching the end of the broken rod and the pulling is done with a heavy block and a caterpillar tractor. There is some breakage of the wooden shafts, but on the whole they give more satisfactory service than the double-strength pipe. One and one-fourth-inch diamond drill rods were tried, but they were less satisfactory than the 1-1/2-inch double-strength pipe.

There is a storage tank of 5,000-gallon capacity at the well and one of 50,000-gallon capacity at the mill. A centrifugal pump run from a countershaft from the main pumping engine lifts the water from the tank at the well to the tank at the mill. The water runs by gravity from the second tank into the mill.

Mining.- The tailings are delivered to the mill bin by contract for 20 cents a ton. The contractor furnishes all of the labor, material, and equipment required.

The material is loaded into a truck by a 3/4-yard gasoline shovel, which excavates from a bank from 10 to 12 feet high. The distance to the mill is about 1/4 mile. The truck hauls 5-ton loads. The shovel uses about 30 gallons of gasoline per day and the truck about 10 gallons.

Two men working a split shift furnish all of the labor. One man operates the shovel and drives the truck and the other breaks up the clods and works the material through a grizzly with openings of 5 to 6 inches. A split shift is necessary because the mill bin holds only 75 tons. The work is arranged so as to do as much as possible in the daytime, but the men are subject to call whenever the bin becomes empty.

The bin can be filled in from 2-1/2 to 3 hours while the mill is running. From 8 to 9 hours, or the equivalent of about one shift, is required to supply the 250 to 300 tons a day required by the mill. The truck driver and shovel operator receive $150 a month. The man who works at the bin is paid on a contract basis and makes from $4.50 to $5.00 a day.

The tailings deposit has an average depth of 20 to 25 feet. The upper 10 to 12 feet is from the lower sulphide levels and runs from $2.75 to $3.00 a ton. From 75,000 to 80,000 tons of this material was mined and milled since November 1935. From 65,000 to 75,000 tons remain, or enough to keep the mill going for about 10 months.

The lower part of the deposit consists of a red sticky oxidized material which is said to run $1.80 a ton. It is stated that there is 180,000 tons of this material and that it cannot be treated successfully by flotation. Finlayson states that he tried treating it in the cyanide leaching plant, but it is so sticky that the solution would not percolate through it.

Milling.- The original mill consisted of 10 stamps, some amalgamation plates, and concentrating tables. In 1933 it was remodeled by building a new bin and installing a jaw crusher and a Symons cone crusher. The stamps were removed and a 4- by 8-foot rod mill substituted.

By November 1935 hard-rock mining had been discontinued entirely and the mill was remodeled for treating tailings only. A flotation unit was installed and the crushers, tables, and amalgamation plates were removed.

At present the mill consists of an ore bin of 75-ton capacity, a rod mill, 6 pneumatic flotation cells, and a dewatering and drying plant on the outside. It is operated at a capacity of 250 to 300 tons a day.

Grinding.- The ore is taken from the bin to the rod mill by a belt feeder about 8 feet long. The rod mill is operated at a speed of 30 to 35 r.p.m. Rod and liner wear are very small because of the nature of the material and

the large tonnage that is crowded through. It appears that the liners had not been replaced since the mill started operating on tailings in November 1935. Rod wear is probably less than 1/2 pound per ton of ore milled.

Grinding is very inefficient. The mill does little more than break up large clods that cannot be handled in the flotation cells.

Flotation concentration.- The discharge from the ball mill is run direct to six pneumatic flotation cells. Finished concentrates are taken from each cell and the tails are run to the tailings pond.

Reagent No. 301 is added at the ball-mill feed at the rate of 0.2 pound per ton of ore, and pine oil is added at the head of the flotation cells at the rate of 0.1 pound per ton.

About one ton of water is used for every ton of ore milled, including about 20 percent that is pumped back from the tailings pond.

Typical head, tail, and concentrate assays are as follows:

Heads	.09 ounce gold
Concentrates	1.6 ounces gold, 5 ounces silver, 2 percent copper
Tails	.05 ounce gold

Ratio of concentration = 36.1 to 1
Extraction - gold 44.4 percent.

Low extraction is due to inefficient grinding as well as to the lack of classifier and rougher cells. Jack Garvin, the mill superintendent, states that the large amounts of lime that were used in former milling operations have made the problem more difficult.

Much of the material has been recemented by iron oxide. This is not completely broken up by the ball mill. A great deal of it can be seen when panning the flotation tails. It consists of fine sand in small clods from 1/15 inch to 1/20 inch in diameter. According to Garvin, these clods contain considerable values that cannot be saved because the particles are too large.

Dewatering and drying.- The concentrates are run from the flotation cells to a shallow wooden tank about 3 feet deep by 10 feet wide by 20 feet long. This tank does not furnish sufficient settling area for all the concentrates. Settling is completed partly on the drying floor and partly in shallow concrete pools.

The dewatered concentrates are shoveled from the tank and from the concrete pools onto a wood drying floor, where they are dried by the sun. During the dry summer season it is possible to get the moisture content down to 6 percent, but during the rainy seasons and in winter it is difficult to get it below 8 to 10 percent.

Freight and smelter.- The concentrates are trucked a distance of 115 miles to the United Verde Extension smelter at Clemenceau, Ariz. The trucking rate $4.75 a ton and the treatment charges $5.00 a ton. Metals are paid for according to the following schedule: Gold, $33.50 per ounce for 95 percent; silver, 77 cents per ounce for 90 percent, copper, deduct 8 pounds per ton when less than 5 percent and pay 7.025 cents per pound (copper quoted at 9.56 cents per pound) for the rest.

Labor.- The mill payroll for three shifts is as follows:

1 operator and foreman	@	$6.00	$6.00
2 operators	@	4.50	9.00
7 helpers	@	3.50	24.50
1 mechanic	@	5.00	5.00
1 assayer	@	3.00	3.00
Total			47.50

The helpers see to the drying of the concentrates and do any other manual labor required about the mill. The mechanic takes care of pumps and power-house machinery as well as the mill equipment. The mill operators take care of the power plant, which is housed in the same building as the mill.

One regular pumpman is paid $9.50 a day to take care of the water supply. He sleeps at the well and is on duty 24 hours a day. The assayer does the assaying for both the Peach lease and the Finlayson lease, and also the time-keeping and bookkeeping for the Peach lease.

Power.- Power is furnished by a 55-horsepower single-cylinder Diesel engine. It is connected to the ball mill, flotation cells, and blower by a line shaft and belts. A small generator for lighting is also run from the line shaft.

Fuel-oil consumption is from 35 to 40 gallons per 24 hours, and lubricating-oil consumption about 1 gallon per 24 hours. The total operating cost, exclusive of labor, is about $4 per 24 hours.

Costs.- The following approximate costs for September 1936 were made from information furnished by the mill superintendent and the assayer:

A screen analysis of the stamp discharge showed 100 percent of the material to be minus-40 mesh and 54 percent minus-200 mesh. Water was consumed at the rate of 3 tons per ton of ore when no water was reclaimed. When water was reclaimed from the tailings pond, the consumption was 1.6 tons per ton of ore.

Metallurgical and cost data are not available.

The mill is powered by a 60-horsepower gasoline engine, which is belt-connected to all units by means of countershafts. A compressor of 173 cubic feet capacity also is operated by the engine from a countershaft. In the 5 months during which the mill operated, the compressor was run on day shift only. On night shift the mill operator took care of the engine, but on day shift an extra man was required to take care of the engine and compressor.

Prospects in the Big Horn and Vulture Districts

South Vulture

The South Vulture property is about a mile south of the original Vulture mine. It consists of 10 unpatented claims owned by Mrs. Seidletz of Wickenburg and held under lease and option by the South Vulture Mining Co. Chas. S. Flursheim, of Los Angeles, is the president of the company and is furnishing all the money.

The claims cover a low ridge about 3/4 mile long by 1/4 mile wide and about 150 feet higher than the surrounding plane. The ridge probably is a dike of volcanic eruptives. The most conspicuous rock is a white porphyrytic material very low in density and resembling pumice or scoria.

Development consists of a 1-compartment shaft 120 feet deep timbered with 8- by 8-inch Oregon fir. There are several short adits and small open-cuts that were made by early prospectors, but none of these show much evidence of mineralization.

The shaft is entirely in the white porphyrytic material that is so common at the surface. It is said there is a vein about 10 feet in from the footwall side of the shaft, but there is little or no evidence of it on the surface.

Equipment consists of a small gasoline hoist, a gasoline compressor of 9 cubic feet capacity, and several rock drills. A boarding house and an office had been built recently at the base of the ridge just below the collar of the shaft, and a blacksmith shop and hoist house were in the course of construction. Water for drilling purposes was hauled from the Vulture mine.

In November 1936, 8 men were employed at building and road construction and 4 were working in the shaft.

Red Cloud

The Red Cloud property, consisting of several unpatented claims, is in the Vulture Mountains about 3 miles north of the town of Vulture. The proper belongs to the Red Cloud Mining Co., Hugh Steadman, president, Torrence, Calif. The financing is done by a group of California business men who put up from $15 to $25 a month each.

The country rock consists of andesite and similar volcanic rocks. The vein bears approximately N. 30° E. and is nearly vertical. It varies in width from 4 to 6 feet and appears to be considerably oxidized at a depth of 200 feet, although some iron pyrite is visible. It is said that several samples from the 200-foot level ran as high as $6 to $8 a ton in gold and silver, but in no place in the mine is there enough material of this grade to constitute a commercial ore body, or even make enough for a small shipment.

Development consists of a vertical 2-compartment shaft 300 feet deep, with levels at 85, 200 and 300 feet from the collar. The shaft is timbered with 6- by 6-inch Oregon fir. There is from 75 to 85 feet of drifting on each of the two upper levels and 185 feet of drifting and 120 feet of crosscutting on the 300-foot level.

During the latter part of October 1936 five men were employed in driving the north drift heading of the 200-foot level. Two of these were working underground in the drift heading and three on the surface. Early in November the work was discontinued because of lack of capital. It was planned to resume work as soon as the company could be refinanced.

Equipment consists of a gasoline compressor, a gasoline blower, a gasoline hoist, a hoist and compressor house, a headframe, and several rock drills. The shaft timbering, the headframe, and the hoist and compressor house show a grade of workmanship and a state of maintenance that is rather unusual for a prospect of this kind.

Banker Group of Claims

The Banker group of six unpatented claims is about 11 miles south of Wickenburg and about 1/2 mile east of the Vulture Wickenburg highway. The property is owned by J. B. Price of Wickenburg.

The country rock is granite cut by a series of light-colored porphyry dikes bearing roughly N. 45° W. The vein bears about N. 75° W. and dips about 70° to the north. It cuts across the dikes without interruption and can be traced on the surface for nearly 4,000 feet. At places where it has been exposed by open-cut pits it shows widths ranging from 6 to 12 feet. Quartz is very common and constitutes a major portion of the vein at all places where it is exposed. The most common minerals other than quartz are oxides of iron and manganese, which occupy the fracture planes in the quartz.

The principal development is a shaft about 5 by 8 feet in cross section and 35 feet deep on the dip of the vein. At the bottom of the shaft, a cross-cut round was shot into the hanging wall, exposing 8 feet of vein. The hanging wall of the vein, however, had not been reached.

Channel samples cut in the shaft showed the following results:

Location	Width	Gold	Value
6 feet below collar	2 feet of quartz	0.08	$2.80
12 feet below collar	3 feet of quartz	.04	1.40
2 feet above bottom	4 feet of quartz (foot wall)	.08	2.80
2 feet above bottom	4 feet of quartz (hanging wall)	.08	2.80

There is no equipment, and in November 1936 the property was idle.

Cora

The Cora mine is 11 miles from Wickenburg and about 1/4 mile north of the Blythe Wickenburg highway. There are four unpatented claims owned by J. R. Oneal and C. H. Oneal, of Wickenburg, and Thomas Barett, of Phoenix, all of whom share equally.

The country rock is granite and schist. There are several veins in the schist formation. The main vein bears approximately east and west and dips to the south at about 25°. It is from 1/2 foot to 2-1/2 feet thick and consists essentially of quartz with considerable amounts of iron and manganese oxides.

The main shaft is about 100 feet deep on the dip of the vein and has about 15 feet of drifting to the east from the bottom.

The vein has been prospected at a number of other places on the property by a shallow shaft and open-cut pits.

There is no equipment of any kind on the property. All work was done by hand and much of the ore and waste was carried out of the shafts in sacks on the backs of men; because of the lack of equipment, only a limited amount of work was done during the past two years.

During 1935 two shipments of ore were made. One shipment of 8-1/2 tons ran 0.56 ounce gold and one of 6 tons ran 0.62 ounce gold. The property appears to have possibilities of being developed into a producer of 5 to 10 tons of shipping ore per day. It is idle at present.

Golden Rainbow

The Golden Rainbow consists of eight unpatented claims 15 miles east of Wickenburg and 2-1/2 miles south of Eorepaugh, a loading station on the Santa Fe railroad. The claims are owned by V. A. Brundage of Wickenburg.

The country rock is granite cut by diorite dikes. The vein bears N. 70° E. and dips to the south at about 20°. It consists of about 1 foot of quartz in the footwall of a diorite dike several feet thick.

Development consists of two shafts, one 50 feet deep and the other 57 feet deep. The 50-foot shaft is entirely on the vein and dips to the south at about 20°. The first 26 feet of the other shaft is vertical and is in waste from the collar to where it intersects the vein. From this point it is on the vein for 31 feet to the bottom. The two shafts lack about 8 feet of being connected at the bottom of the 50-foot shaft and the 26-foot level of the other.

The property has been idle for several years. Sometime previous to 1933 a shipment of 26 tons of ore netted $11 a ton at the $20 rate for gold.

EUREKA DISTRICT

The Eureka district is in southwestern Yavapai County. It is bounded by the Santa Maria River on the south, Burro Creek on the northwest, the Mohave County line on the west, and the Santa Fe Railway on the east. Hillside is the shipping point for the mines in the northern part of the district and Congress Junction for those in the southern part.

The McCloud Mountains to the west and northwest of Hillside attain a maximum altitude of 4,900 feet. The country to the west of these mountains is cut by deep canyons made by the Santa Maria River and its tributaries, Burro, Boulder, Yavapai, and Bridle Creeks.

The country rocks consist mostly of granite, gneiss, and schist intruded by dikes and overlain in many places by mica-forming lavas.

Water Supply

The district is blessed with a more plentiful water supply than its sister districts to the south. Aside from the larger streams, water is obtained from springs and shallow wells. Some of the operating mines make enough water for conducting extensive milling operations without reclaiming any.

Hillside Mine

Situation

The Hillside mine is in the Eureka district on the east side of Boulder Creek, 32 miles by road from Hillside, the nearest railroad station; the elevation is 4,200 feet. The property consists of one unpatented and six patented claims.

Topography and Geology

The country rock is mica schist intruded by granite, with narrow pegmatite dikes. The vein is in the schist and strikes N. 15° E. and dips to the west at about 80°. The schistosity of the rock is practically horizontal in the vicinity of the vein. The width of the vein varies from a few inches up to several feet, with an average of about 1-1/2 feet. It consists of massive gray quartz with abundant sulphides of iron and lead and to a smaller extent zinc. The schist wall rock is very soft and heavy. Back filling is required in all of the stopes, and all development headings must be timbered almost as soon as they are opened.

History[10/]

The property was located by John Lawler in 1887. From 1887 until 1892 Lawler did about 7,000 feet of development work, built an 8¼-mile road to Seligman, erected a small stamp mill, and brought the property into production.

In 1892 the property was sold to H. A. Warner, who organized the Seven Stars Gold Mining Co. This company did further development work, erected a new mill, and built a road to Hillside. In 1892 the Warner company failed, and after considerable litigation the property reverted to Lawler. From 1894 until Lawler's death, in 1917, the property was operated only intermittently and mostly by lessees. In 1917 operations ceased entirely and the property remained idle until 1934, when it was purchased by H. S. Williams, the present owner and operator.

From 1887 until 1917 the production of the property was 13,094 tons of ore, from which was extracted 9,329 ounces of gold and 219,918 ounces of silver worth, in all, $296,500, or $22.65 a ton. Since 1934 production has been over a million dollars.

Development

The mine is developed through two adits and a 2-1/2-compartment vertical shaft 400 feet deep, with five levels. Nearly all development, down to and including the fourth level (second in the shaft), was done by former operators. The development below this level, including sinking of the shaft, was done by the present operators. There is about 2,000 feet of drifting on the fifth level, and 1,100 feet of drifting on the sixth. The seventh level was just being started in November 1936. Including the old workings, there is a total of over 13,000 feet of drifting scattered over approximately 2,400 feet of veins.

10/ Wilson, Cunningham, and Butler, work cited, pp. 24-25.

Mining Methods

Mining is by the horizontal cut-and-fill method. The ground is extremely heavy and the greatest precaution is taken to prevent caving. Stoping is done in 50-foot sections taken alternately along the vein. The object of this practice is to confine the squeezing effect of the walls to as small a section as possible. This can be controlled without much difficulty if the stopes are not more than 50 feet long.

The drifts are timbered with 8- by 8-inch drift sets at 5-foot centers and lagged with 2-inch plank. When a stope is started, the top lagging and some of the footwall lagging are removed from the sets where chutes and manways are to be installed. Manways are erected at 50-foot intervals and chutes are 15 to 20 feet apart. Mining is started from the top of the drift timbering as soon as the chutes are completed.

The ore passes and the manways are cribbed with 2-inch plank. This cribbing is framed to standard sizes in the saw mill at the surface and distributed underground as it is needed. An ore pass is generally carried along with each of the manways, the two being built as a unit with a partition between.

As soon as the first cut is completed, a raise is started from the back of the stope about midway between the manways. This is run through to the level above as quickly as possible in order to provide an opening for running fill into the stope. Stoping operations are very seldom delayed, however, on account of the raises not being finished, as the waste from the raise, together with what is sorted from the ore, is enough to keep the stope filled until the raise is completed. The stopes are always kept filled to within 6 or 7 feet of the back.

Drilling is done with stopers. The holes are drilled close together and about 3-1/2 feet deep, so that only about a stick and a half or two sticks of powder is required to a hole. Great caution must be used in shooting, as heavy charges will loosen the walls and cause caving. The back of the stope is kept as level as possible, and generally the whole back is drilled before it is shot. As soon as drilling is completed, the stope is filled to within 3 or 4 feet of the back, leaving just enough room between the top of the fill and the back to permit loading the holes. A floor of 2-inch plank in 5-foot lengths is put down over the full length of the stope before blasting.

After shooting, the ore is shoveled by hand into the ore passes. Each length of plank flooring is taken up as soon as it is uncovered, to provide space for piling the waste that is sorted from the ore.

The ore ranges in width from 2 to 3 feet in the stopes. From 1-1/2 to 2 feet of waste is broken with the ore to permit a convenient working width of 4 to 5 feet. From 40 to 60 percent of the filling is from the overbreak in the stopes; the rest comes from development work. Mining and development work are balanced, so that the waste from development work can be used for filling in the stopes.

A very noticeable feature in all of the mining operations is the great precautions that are taken to prevent caving. It is the practice throughout the mine to drill short holes close together. Powder is used very sparingly, especially in the stopes. Loose ground in the walls or the backs of the stopes is stulled up before it gets a chance to move.

In drifting, a round of 10 to 12 holes is drilled in half a shift. About 2-1/2 sticks of powder are used in each hole to break a 4-foot round. Two men work in a drift heading; the mucker helps the machine man set up, tear down, load and shoot, cleans up any broken material that was left by the previous shift, and puts down temporary track and shoveling sheets. Shooting is done in the middle of the shift. The timbering and most of the mucking are done on the second half of the shift. The machine man does the timbering; permanent track is put down by a trackman. The drifts are kept timbered as close to the face as safe practice dictates, usually less than 50 feet.

Hoisting and Tramming

All tramming is done by hand. A cage in one compartment of the shaft is used for general hoisting. The other compartment is used for sinking. Very little waste is hoisted except when sinking the shaft or starting a new level. The main hoist has two drums, only one of which is used; it is operated by a 75-horsepower motor. The hoist for sinking is at the surface, and all material handled by it is hoisted to the surface, as facilities are lacking for transferring waste from the bucket to the levels so that it can be used for filling in the stopes.

Steel Sharpening and Timber Framing

Steel consumption is very low on account of the softness of the ground. One blacksmith and a helper take care of the steel sharpening and do all other blacksmith work. A carpenter and a helper frame all of the standard-size cribbing and drift sets and do any other incidental carpenter work about the plant. A power saw is used for most of the cutting.

Labor

The mine is operated three shifts a day. Miners are paid $4.00 a day, timbermen $4.50, and muckers $3.50. In November 1936 the mine payroll was as follows:

				Per day
Miners	22	@	$4.00	$88.00
Muckers	49	@	3.50	171.50
Timberman	2	@	4.50	9.00
Hoistmen	6	@	4.50	27.00
Top men and cagers	6	@	3.00	18.00
Total				313.50

GEOTERREX LIMITED
P.O. BOX 1688
TUCSON, ARIZONA 85702

6 December, 1971.

AGREEMENT

This agreement is made as of this 6th day of December, 1971, by and between Bud Brown Enterprises, Incorporated hereinafter called Bud Brown, a United States corporation whose office is at 14439 North 73 Street, Scottsdale, Arizona 85254, and Geoterrex Limited, hereinafter called Geoterrex, a United States corporation whose office is at P.O. Box 1688, Tucson, Arizona 85702.

This agreement will set forth all the terms and conditions under which Geoterrex agrees to undertake and perform induced polarization surveys as directed by Bud Brown in the Wickenburg area of Arizona on certain lands to be designated by Bud Brown.

In consideration of the payments to be made hereunder, and the mutual covenants and agreements hereinafter contained, the parties agree as follows:

A. SPECIFICATIONS

1. The induced polarization program consists of work on lands to be designated by Bud Brown in the Wickenburg area of Arizona. The starting date for the program will be December 7, 1971. The duration of the survey is understood to be in the order of three days.

2. Personnel

Geoterrex will provide one experienced field operator as the party chief and one receiver operator. The program will be under the direct supervision of Wolf Tschaikowsky, geophysicist with Geoterrex, who will be present at the survey site on December 7 to discuss the survey program.

Geoterrex will also provide a transmitter operator and three survey assistants.

3. Equipment

Geoterrex will provide at its own cost the following D.C. pulse-type I.P. equipment.

1 - 15 Kw motor generator set and voltage regulator.
1 - 15 Kw transmitter and power control unit.

geoterrex ltd.

2 - I.P. receivers of the Newmont design, one of which is a spare
Reels and wire as required for the survey
Current electrodes as required
Radios for communication
Miscellaneous ancillary equipment
2 - Vehicles to transport the crew and equipment.

4. Survey Data

It is understood that either (a) or (b) of the following will apply:

(a) Geoterrex will provide field plats of the survey data only, as well as field interpretation. Copies of the field plats will be available as the survey progresses. Final data will be delivered within two weeks of the completion of the field work, or;

(b) Geoterrex will provide copies of the field plats as the survey progresses, as well as field interpretation. Within two months of the completion of the field work Geoterrex will deliver four copies of the final report, this report to include formally draughted plan maps as well as all originals of plans and maps plus the field data cards.

B. PAYMENTS

Survey Charge

The charge for the five man crew, induced polarization equipment and (a) above of Survey Data will be $365.00 per production day. This charge includes subsistence for the crew.

The charge for the five man crew, induced polarization equipment and (b) above of Survey Data will be $415.00 per production day. This charge includes subsistence for the crew.

A daily standby charge of $190.00 will apply on all production days lost due to any and all delays imposed by Bud Brown. This standby charge will also apply on days lost due to inclement weather in excess of the equivalent of two days per week.

On days off and on days lost due to inclement weather, not exceeding the equivalent of two days per week, a charge of $40.00 per day will apply. A day off is applied for every six days of production. This would only apply if the program has six or more production days.

Extras Not Covered By The Survey Charge

(a) Adequate room for the complete crew while engaged by Bud Brown is to be provided by Bud Brown at no charge to Geoterrex, or Geoterrex will provide such accommodation at cost plus 10%.

(b) Geoterrex will supply two vehicles for local transportation, and the cost of these vehicles will be charged to Bud Brown at cost plus 10%. The charge for these vehicles will apply from the time the crew leaves Tucson to mobilize to Wickenburg and will terminate on the arrival of the crew in Tucson on the completion of the survey program.

C. SCHEDULE OF PAYMENTS

The schedule of payments will be as follows:

(a) 75% of the total contract charge due and payable on completion of the field work.

(b) The balance due upon delivery of the final data.

D. GENERAL CONDITIONS

1. Geoterrex or its employees will not disclose information gathered during this survey to unauthorized third parties without prior authorization from Bud Brown, All records and data shall be the sole property of Bud Brown.

2. Geoterrex or its representative will render preliminary opinions on the results of the survey work, if required. However, it is expressly understood that Geoterrex will not be held responsible for any opinions expressed or inferred, other than those contained in a final signed report.

3. Geoterrex will obtain and continue in force adequate Workmen's Compensation for the Geoterrex employees and Employees Liability Insurance, and will provide proof thereof to Bud Brown upon written request.

4. Geoterrex will not be responsible for delays caused by acts of God, wars, riots, weather, equipment breakdown or other acts beyond the reasonable control of Geoterrex, and if such circumstances other than equipment breakdown, render it impossible to complete this contract, Bud Brown agrees to reimburse Geoterrex for any mobilization costs incurred and a pro-rata portion of the survey charges based on the work completed up to the time of the occurrence.

5. Geoterrex will perform and execute all work and services required pursuant to this survey in a proper, careful and workmanlike manner, and will hold Bud Brown harmless from any liability arising from, or connected with, all services provided for herein.

IN WITNESS WHEREOF the parties hereto have executed this agreement as of the day and year first written above.

GEOTERREX LIMITED

By: E.M. Turner

E.M. Turner

Accepted for:

BUD BROWN ENTERPRISES INCORPORATED

By:_____

Date:_____

IN REPLY REFER TO
1601(024)

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

PHOENIX DISTRICT OFFICE
2929 WEST CLARENDON AVENUE
PHOENIX, ARIZONA 85017

July 14, 1981

Dear Interested Citizen:

Open houses have been scheduled at the following locations to receive your questions and comments on the proposed land-use management plan for the "Lower Gila North" planning area:

July 27 WICKENBURG 2:00 p.m to 8:00 p.m.
Banquet Room of the Wickenburg Community Center

July 28 PHOENIX 2:00 p.m. to 8:00 p.m.
Conference Room, Phoenix District Office
2929 West Clarendon Avenue

The Lower Gila North planning area is identified on the attached map and encompasses approximately 1.7 million acres of public lands.

Our recommendations are enclosed for your review. They include proposals for congressional wilderness designation of seven of eleven wilderness study areas in the planning area. Also, we're recommending a plan for intensive management of the more productive range land in the area and plans to protect important wildlife habitat along rivers and streams. The recommendations also address other public land uses as well, including mineral development, off-road vehicle use, other forms of recreation, wild horse and burro management, and the protection of archaeological sites.

We are now beginning to write an environmental impact statement on the effects of grazing by livestock, wildlife, and wild burros in the Lower Gila North area.

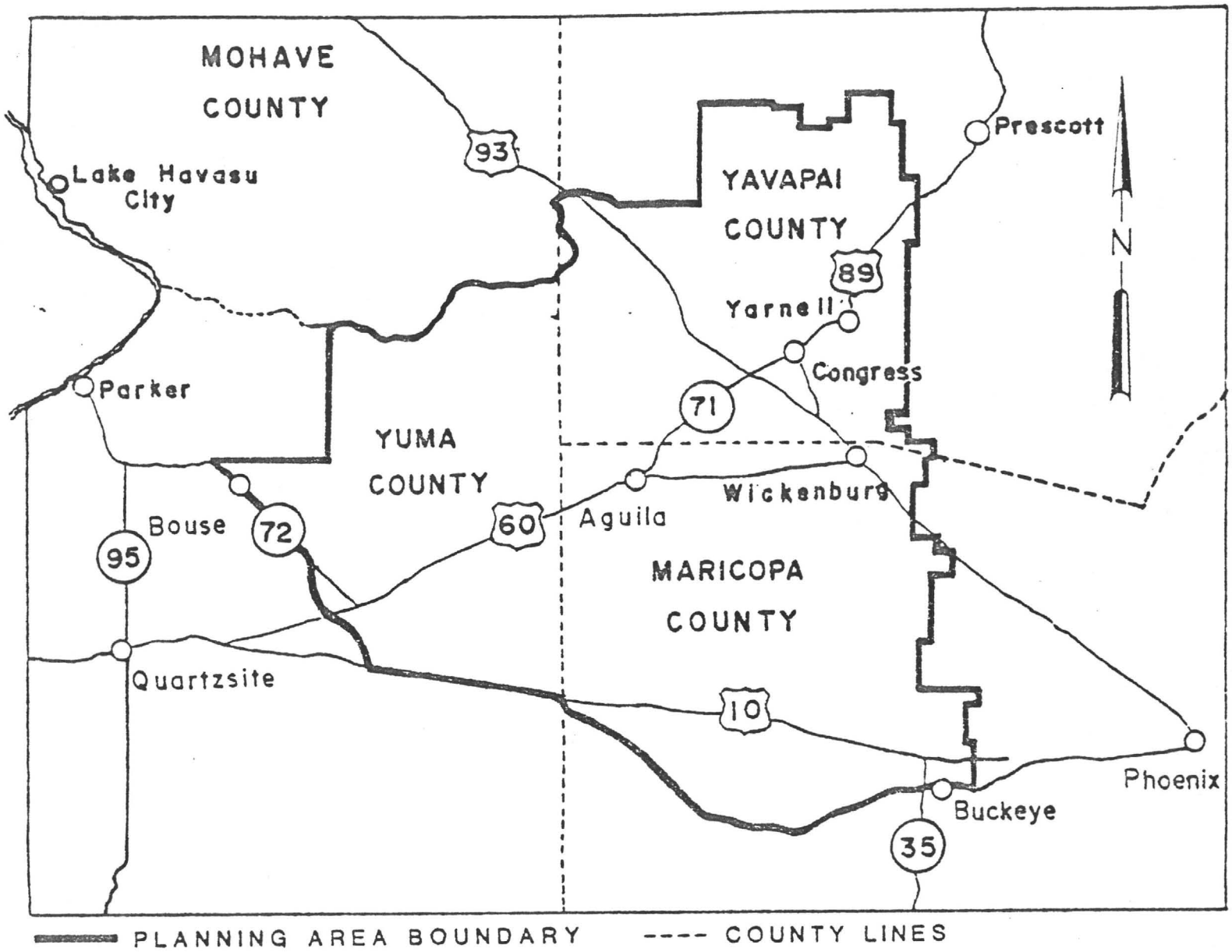
We will be taking public comments at the open houses on the alternatives for grazing management, and on the issues to be addressed in the study.

If you don't have time to drop by sometime during one of the open houses, please feel free to direct your questions to Dean Durfee, at 241-2945.

Thank you for your interest in this land-use planning work.

Sincerely,

Acting District Manager



Location Map

LOWER GILA NORTH PLANNING AREA

Bureau Of Land Management

Phoenix District Office
2929 West Clarendon Avenue
Phoenix, Arizona 85017

LANDS

L-1.1 Dispose of 515 acres in the Bouse area if the proposed coal-fired power plant becomes a reality. Dispose of 2301 acres near Wickenburg to allow for community expansion.

L-2.1 Establish the following utility corridors: 1) Bouse-Salome; 2) Central Arizona Project Granite Reef Aqueduct; 3) Bouse Harcuvar; 4) Little Harquahala; 5) Wendon-Wickenburg; 6) Parker-Liberty; 7) Mead Phoenix; 8) Wickenburg-Yarnell, 9) Palo Verde Devers; 10) Palo Verde Westwing; 11) El Paso Natural Gas.

L-2.2 Establish a utility corridor from the proposed Bouse power plant to the Parker-Liberty corridor.

L-2.3 Allow small utility distribution systems to be developed on an "as needed basis" throughout the planning area.

L-3.1 Establish a communication site on Harquahala Mountain and restrict the development to one or two multi-user buildings.

L-3.2 Allow development of Pete Smith Peak for communication site purposes.

L-4.1 Make 37,266 acres of scattered public lands available for disposal.

L-5.1 Retain land in public ownership near communities throughout the planning area for future public purpose use.

L-6.1 Make suitable public lands in the Butler Valley available for agricultural uses (5,700 acres).

L-7.1 Investigate all lands that have unauthorized uses and take action to correct those situations.

L-7.2 Take prompt action on trespass violations.

L-8.1 Review the Bureau of Reclamation Central Arizona Project withdrawal application.

L-8.2 Review the Army Corps of Engineer's Alamo Lake withdrawal and withdrawl application.

L-8.3 Review the Bureau of Reclamation Hassayampa withdrawal.

MINERALS

M-1.1 Leave the planning area open to mineral leasing except for the proposed Peoples Canyon ACEC (20 acres).

M-2.1 Leave the planning area open to mineral location with the exception of the proposed Peoples Canyon ACEC (20 acres).

M-3.1 Allow development of sites for saleable minerals where they do not conflict with Wilderness Study Areas (WSAs) and proposed Areas of Critical Environmental Concern (ACECs).

M-4.1 Leave the planning area open to geothermal leasing with the exception of the proposed Peoples Canyon ACEC (20 acres).

FOREST PRODUCTS

FP-1.1 Offer native plants that are threatened by construction activities to public institutions and offer for public sale any plants not taken by the public institutions.

FP-2.1 Designate the entire planning area open to firewood collection except for critical wildlife areas.

RANGELAND MANAGEMENT

RM-1.1 Allocate forage on 72 allotments based on the past 5 year's average licensed use (1976-1980) on those allotments. On the remaining 5 allotments in the planning area, unusual circumstances dictate that forage be allocated based on the allotment's current active preference AUMs. Information gathered during the 1979-1980 rangeland inventory will be used to determine the allotments that need special monitoring and/or supervision.

RM-1.2 Implement intensive grazing management that includes a combination of range improvements and grazing systems on 9 allotments containing 408,000 acres of public rangeland.

RM-1.3 Manage 17 allotments comprising 414,000 acres of public rangeland less intensively. Adjust stocking rates to the past 5 year's average licensed use (1976-1980), and establish studies to monitor impacts of continuous livestock grazing on these allotments.

RM-1.4 Manage 51 allotments comprising 543,000 acres of public rangelands nonintensively. Under this classification, livestock will be permitted as currently authorized or the allotment classification may be changed to an ephemeral or seasonal basis. Allotments having acceptable rangeland condition will be monitored at a low intensity. Allotments having unacceptable rangeland condition will receive more intensive monitoring.

RM-1.5 Initiate rangeland development projects to facilitate the implementation of intensive grazing management systems on the allotments to be intensively managed.

RM-1.6 Develop a fire management program in coordination with the rangeland management program that would identify modified suppression areas, intensive control areas, and controlled burn areas.

BURROS

RM-3.1 Maintain a viable burro population of approximately 200 animals in the Alamo Herd Management Area (HMA). Remove burros (300 animals) from the Little Harquahala and Harquahala Herd Management Areas and from the Granite Wash Mountains.

RM-3.2 Maintain free access for wild burros to livestock watering facilities in the Alamo HMA.

RM-3.3 Maintain access to Alamo Lake for the burro herd in the Alamo HMA.

RM-3.4 Designate a wild-burro viewing route in the Alamo HMA with interpretive signs.

RM-3.5 Limit or modify construction of new structures within the Alamo HMA that would restrict burro movement.

FIRE PROTECTION

P-1.1 Develop fire management plans for the planning area that coincide with established resource objectives in the area.

P-1.2 Develop a pre-attack plan to identify roads required for fire access.

WATERSHED

W-1.1 Upon evaluation of existing conditions, maintain, rebuild, or abandon water control structures in the planning area.

W-2.1 Set priorities for road maintenance and improvement in the soil associations that have a high erosion potential.

W-3.1 Construct exclosures around critical habitat for two sensitive plant species (20 acres total).

W-3.2 Monitor known localities of the two BLM sensitive species in the planning area.

W-3.3 Limit ORV use to existing roads, trails, and washes in the sand dune area north of Cunningham Wash.

W-3.4 Implement a grazing system that is compatible with the protection of Fremontodendron californicum in the Weaver Mountains.

W-4.1 Acquire, through direct purchase, those State lands in Peoples Canyon (340 acres), Upper Arrastre Creek (520 acres), and Upper Antelope Creek (300 acres).

W-4.2 On those lands that are not acquired in W-4.1, initiate a cooperative agreement with the State to protect Peoples Canyon, Arrastre Creek, and Antelope Creek.

W-4.3 Construct a 2-acre exclosure in Upper Weaver Creek to protect riparian vegetation.

W-4.5 Implement a grazing system on the north slopes of the Harquahala Mountains that will maintain the pristine condition of the vegetation on approximately 7,000 acres.

W-4.6 Protect the botanical resource values from surface disturbing activities to the maximum extent possible in Peoples Canyon (350 acres), Arrastre Creek (650 acres), Antelope Creek (600 acres), Weaver Creek (150 acres) and Harquahala Mountains (7,000 acres).

W-4.7 Limit ORV use to existing roads and trails in Arrastre Creek (650 acres) and Antelope Creek (600 acres).

W-4.8 Monitor recreation and its effects on riparian vegetation along Arrastre Creek.

W-4.9 Develop a grazing system that would minimize livestock use in the Peoples Canyon, Arrastre Creek, and Antelope Creek significant botanical areas.

W-4.10 Ensure adequate water flows in the springs located on BLM-administered lands in Arrastre Creek, Antelope Creek, Weaver Creek and the Harquahala Mountains through the acquisition of water rights and the cooperation of individual owners.

W-4.11 Designate a one-half mile stetch of Peoples Canyon (20 acres) as an Area of Critical Environmental Concern (ACEC). The following activities are potentially inconsistent with the improvement and protection of this area and will be addressed in the ACEC plan: a) mineral development; b) surface disturbing activities; c) availability of water and excessive water withdrawal from South Peoples Spring; d) recreational use and its effect on vegetation.

W-4.12 Designate Grapevine Springs (50 acres) as an ACEC. The following activities are potentially inconsistent with the improvement and protection of this area and will be addressed in the ACEC plan: a) surface disturbing activities; b) water availability and withdrawals from the springs; c) rights-of-way for water diversion projects; d) livestock and burro access to the spring. Also, use of the immediate spring areas will be limited to compatible recreational, educational, and scientific uses.

W-4.13 Designate the major chaparral basin and areas below it to the east in the Harquahala Mountains as an ACEC (5,000 acres). The following activities are potentially inconsistent with the improvement and protection of this area and will be addressed in the ACEC plan: a) mineral development; b) road building; c) rights-of-way; d) uncontrolled livestock grazing; e) land clearing; f) building of structures.

W-4.14 Designate public lands within the Arrastre Creek significant botanical area as an ACEC (650 acres). The following activities are incompatible with the improvement and protection of the area and will be addressed in the ACEC plan: a) mineral development; b) road building; c) additional rights-of-way; d) uncontrolled livestock grazing; e) land clearing; f) building of structures.

W-4.15 Designate public lands within the Antelope creek significant botanical area as an ACEC (600 acres). The following activities are incompatible with the improvement and protection of the area and will be addressed in the ACEC plan: a) mineral development; b) road building; c) additional rights-of-way; d) uncontrolled livestock grazing; e) land clearing; f) building of structures.

WATERSHED (Cont'd)

W-4.16 Develop a fire management plan for riparian areas within the significant botanical areas.

WILDLIFE

WL-1.1 Provide wildlife safe access and year-round water at 150 livestock waters.

WL-1.2 Develop small and upland game waters in 11 areas.

WL-2.1 Develop 20 cooperative water facilities for big game.

WL-2.2 Reduce competition for cover, water, and space by reducing livestock aggregations and removing all burros at waters in the Big Horn, Granite Wash, and Harquahala Mountains.

WL-2.3 As more forage becomes available, allocate this forage to big game until desirable big game numbers are reached, and decrease browse utilization by 10 percent on 8 allotments.

WL-2.4 Avoid subdividing bighorn sheep lambing areas with fencing and avoid livestock use of lambing areas between January and May.

WL-2.5 Protect bighorn sheep lambing areas and a 2-mile buffer zone (20,000 acres) in the Harquahala Mountains and Little Harquahala Mountains from habitat and behavioral disturbances created by: a) land disposal; b) excess fencing; c) structure building; d) land clearing and wood cutting; e) mining activity between December 15 and April 15 (within the framework of the 3809 regulations); f) ORV use on other than existing roads and trails in the Little Harquahala Mountains; g) road building; h) intense recreational use and development; i) burros use; j) rights-of-way; k) utilization of key browse in excess of 40 percent.

WL-2.6 Establish 55 - 60 percent of the planning areas range sites in good condition or better.

WL-2.7 Cooperate with the AG&FD to reintroduce bighorn sheep in the Black and Weaver Mountains and allocate forage for the reintroduced bighorns.

WL-2.8 Decrease cattle densities in bighorn habitat to relieve competition between bighorn sheep and livestock. Graze domestic sheep as far from bighorn habitat as is practicable to decrease bighorn disease vectors.

WL-2.9 Use browse species as "key species," in developing objectives for activity plans and monitoring allotment management plans.

WILDLIFE (Cont'd)

WL-3.1 Exclude livestock and burros from four dirt tanks in the planning area.

WL-3.2 Prior to spring development, conduct clearances to avoid elimination of endemic snails.

WL-3.3 Protect significant cliffs and a 2-mile zone of influence (18,000 acres), in the Bighorn Mountains and the Vulture Mountains area, from the following activities: a) land disposal; b) excess fencing; c) building of structures; d) land clearing or removal of downed wood or woodcutting; e) reduce or modify mining activities to the extent possible under 3802 and 3809 mining regulations; f) road building; g) intense recreational use or development; h) burro overuse; i) rights-of-way. Especially protect these areas from disturbing human activities between February 1 and May 1 each year.

WL-3.4 Establish cottonwood and willow regeneration around five springs and protect the trees from livestock utilization.

WL-4.1 Establish broadleaf tree reproduction via supplemental plantings of seedlings in existing and potentially suitable riparian habitat (2500 acres).

WL-4.2 Control the season of use and intensity of livestock grazing in riparian areas.

WL-4.3 Protect 11,800 acres of riparian habitat and their associated aquatic habitat (25 miles), in the Bill Williams, Santa Maria, Hassayampa, and Centennial Wash drainages, from destruction and disturbances caused by the the following: a) land disposal; b) building of structures; c) land clearing including woodcutting; d) mining activity to the extent possible under 3802 and 3809 regulations; e) road building; f) intense recreational use; g) burro overuse; h) rights-of-way; i) utilization of key plants in excess of 40 percent and cottonwoods and willows in excess of 20 percent.

WL-4.4 Acquire water rights in specific areas to maintain aquatic wildlife in the planning areas streams.

WL-4.5 Cooperate with the AG&FD to allow for the introduction of Gila suckers, Gila mountain suckers, and roundtail chub into a 6-mile stretch of the canyon below Alamo Lake and a 4-mile stretch of the Bill Williams River.

WL-4.6 Cooperate with the AG&FD to allow for the introduction of Gila topminnows into Grapevine Springs and Peoples Canyon.

WL-4.7 Monitor and identify water pollution sources in the planning area's aquatic habitat and improve conditions to meet Federal and State standards.

WILDLIFE (Cont'd)

WL-4.8 Designate public lands of the Bill Williams and Santa Maria Rivers, including a 1/4-mile buffer zone adjacent to the drainages, and Grapevine Spring and Peoples Canyon (Total 8,200 acres) as an (ACEC). The following activities are potentially inconsistent with the improvement and protection of this area and will be addressed in the ACEC plan: a) mineral development; b) road building; c) wood or litter collection; d) additional rights-of-way; e) building of structures.

WL-4.9 Develop a fire management plan for riparian habitat in the planning area.

WL-5.1 Develop a grazing system that will protect Desert Tortoise populations (20,500 acres) and maintain a good range condition class in the desert tortoise areas.

WL-5.2 Protect Desert and Arizona night lizard habitat (10,000 acres) and Sonoran mountain kingsnake habitat (1,200 acres) by: a) closing the area to surface disturbing activities; b) wood collection; c) Yucca or Nolina removal.

WL-5.3 Expand bald eagle and black hawk habitat by establishing cottonwood riparian corridors and a prey base consisting primarily of fish.

WL-5.4 Expand and improve zone-tailed hawk and Bell's vireo distribution by improving riparian habitat along the Bill Williams, Santa Maria, and Hassayampa Rivers via supplemental tree planting and habitat protection.

WL-6.1 Develop 15 exclosures to monitor the effects of livestock grazing on selected range sites.

WL-6.2 Maintain the existing rangeland condition, where possible, around significant cliffs on allotments not under intensive management to benefit raptor populations.

WL-6.3 Exclude domestic sheep from crucial desert tortoise areas on the Ohaco Allotment between February 1 and June 30.

WL-6.4 Develop fire management plans for riparian, chaparral, desert grassland, and mixed thorn standard habitat sites.

WL-7.1 Designate the major chaparral basin and areas below it to the east in the Harquahala Mountains as an ACEC (5,000 acres). The following activities are potentially inconsistent with the improvement and protection of this area and will be addressed in the ACEC plan: a) mineral development; b) road building; c) wood collection; d) additional rights-of-way; e) building of structures; f) excess fencing.

WILDLIFE (Cont'd)

WL-7.3 Control intensity and season of use by livestock on the Harcuvar and Harquahala Mountains chaparral standard habitat sites (8,500 acres).

WL-7.4 Develop a controlled burn plan to improve open chaparral habitat in the Harcuvar Mountains and if not visually impacting, the Harquahala Mountains (8,500 acres).

WL-8.1 Repair the dike system and develop a well and pump system to maintain water levels in the Upper Centennial Wash wetland.

WL-8.2 Plant cottonwoods and maintain cottonwood-mesquite thickets around the dikes in the Upper Centennial Wash wetland.

WL-8.3 Establish a grazing system that includes a pasture incorporating all three dikes in the Upper Centennial Wash wetland.

WL-8.4 Acquire the section of State land in the Upper Centennial Wash wetland to preserve and maintain the area.

WL-8.5 Monitor the quality of agricultural runoff into the Centennial Wash dike system and correct pollution problems.

CULTURAL RESOURCES

CR-1.1 Reduce or eliminate indirect impacts of land uses on Cultural Resources.

CR-2.1 Identify and evaluate areas with socio-cultural values and reduce potential impacts of other land uses on these resources.

CR-3.1 Conserve a representative sample of each site type for future use.

CR-3.2 Provide for the protection of selected cultural resources that are threatened or deteriorating.

CR-4.1 Allocate cultural resources identified through inventory for scientific value.

RECREATION

R-1.1 Designate Vulture Mine Road from Highway 60 to the Vulture Mine a scenic drive and establish a scenic corridor 1/2 mile on each side of the road.

R-1.2 Establish an interpretive corridor by means of signing between the Stanton-Octave turnoff on Highway 89 to Stanton and Yarnell.

R-1.4 Manage public lands in T. 10 N., R. 4 W., Sec. 26 for their scenic values.

R-1.5 Stabilize and interpret the abandoned cactus garden on Constellation Road, T. 8 N., R. 4 W., Sec. 27.

R-1.6 Identify through signing the Blue Tank Wash where it crosses Constellation Road.

R-1.7 Interpret through signing the history of the old stage stop at Cullings Well.

R-1.8 Manage the public lands in T. 8 N., R. 5 W., Sec. 12 for their scenic values.

R-1.9 Interpret through signing the existing Copper Crown Mining facilities and the surrounding geologic and botanical values.

R-1.10 Designate the Upper Hassayampa River as a scenic area and manage it for its scenic values. Limit ORV use in the canyon to the riverbed.

R-2.1 Establish hiking and horseback riding trails near Wickenburg.

R-3.1 Continue to protect and interpret the Harquahala Peak observatory site.

R-4.1 If the Saddle Mountain WSA is not designated a wilderness area, establish a Saddle Mountain rockhound area.

R-5.1 Designate off-road vehicle use as being limited to existing roads, vehicle trails, and washes in the following areas: a) Hassayampa River; b) Sand Dune area north of Cunningham Wash.

R-5.2 Designate ORV use as being limited to existing roads and vehicle trails in the following areas: 1) Santa Maria River (ACEC area); 2) Bill Williams River (ACEC area); 3) Antelope Creek; 4) Arrastre Creek; 5) Saddle Mountain; 6) Harquahala Basin (ACEC); 7) Little Harquahala Mountains.

RECREATION (Cont'd)

R-5.3 Designate ORV use as closed in the following areas: 1) Peoples Canyon; 2) Grapevine Springs.

R-6.1 Develop a recreation brochure for the planning area.

R-7.1 Obtain legal access on the following roads: 1) Stanton Road to Yarnell; 2) Weaver turnoff to Ghost Town; 3) Vulture Mine Road; 4) Harquahala Mine Road.

R-8.1 Designate the major chaparral basin and areas below it to the east in the Harquahala Mountains as an ACEC (5,000 acres). The following activities are potentially inconsistent with the improvement and protection of this area and will be addressed in the ACEC plan: a) mineral development; b) road building; c) wood collection; d) additional rights-of-way; e) building of structures; f) excess fencing.

R-10.1 Define Class II and IV Visual Management classes.

WILDERNESS

WD-1.1 Recommend 17,600 acres of the 62,300 acre Rawhide Mountains Wilderness Study Area (WSA) as suitable for Wilderness designation.

WD-2.1 Recommend the LGN portion of the Arrastre Mountains WSA (2,200 acres) as unsuitable for Wilderness designation.

WD-3.1 Recommend the 3,480 acre Peoples Canyon WSA as suitable for Wilderness designation.

WD-4.1 Recommend the 47,582 acre Buckskin Mountains WSA as unsuitable for Wilderness designation.

WD-5.1 Recommend the 74,778 acre Harcuvar Mountains WSA as unsuitable for Wilderness designation.

WD-6.1 Recommend the 21,900 acre Hassayampa River Canyon WSA as unsuitable for Wilderness designation.

WD-7.1 Recommend 28,320 acres of the 73,875 acre Harquahala Mountains WSA as suitable for Wilderness designation.

WD-8.1 Recommend 21,500 acres of the 22,337 acre Bighorn Mountains WSA as suitable for Wilderness designation.

WD-9.1 Recommend 5,900 acres of the 67,680 acre Hummingbird Springs WSA as suitable for Wilderness designation.

WILDERNESS (Cont'd)

WD-10.1 Recommend the 5,500 acre Saddle Mountains WSA as suitable for Wilderness designation.

WD-11.1 Recommend 7,700 acres of the 9,665 acre Black Mountains-Ives Peak WSA as suitable for Wilderness designation.

WD-12.1 Recommend the 8,910 acre Tres Alamos WSA as unsuitable for Wilderness designation.

17,600
3 480
28 320
21 500
5900
5500
7700
90,000 Acre
Recommending
be placed into
WILDERNESS

ARIZONA TESTING LABORATORIES
A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
817 WEST MADISON ST. PHOENIX, ARIZONA 85007 PHONE 254-6181

SEMI-QUANTITATIVE SPECTROGRAPHIC ANALYSIS

The emission spectrograph can be used to detect the presence of metallic and semi-metallic elements in ores, alloys, solutions, plants, and in many other materials. Spectrographic procedures offer an inexpensive analysis of the composition of many materials. It is particularly useful in the survey of ores of unknown composition.

Essentially the semi-quantitative spectrographic procedure involves the burning of a standard weight of sample in an electric arc and recording the emitted spectra of the elements present on a photographic film.

Although this method gives valuable information rapidly and inexpensively, several limitations must be kept in mind.

1. Because of the nature of the photographic process we report elements present in concentrations greather than 10% as either "Major" or "Intermediate" Constituents rather than by percent.

2. The accuracy of this method is limited because the wide variety of samples analyzed makes the use of exactly comparable standards impractical. The analyses, with the exception of the rare earth elements, are normally correct within a factor of two. For example, if an element is reported as 0.002%, its actual concentration should lie within the range of 0.001% to 0.004%. For most purposes this accuracy is sufficient; however, this method cannot replace the standard assay methods for the analysis of individual elements present in commercial quantities. For example, if lead were present in an ore at the 2% level, the probable concentration range predicted by the spectrograph (1% to 4%) is not sufficiently accurate to determine the worth of the ore.

This method is not recommended for the assay for precious metals, as the small sample used (10 milligrams) may not include unevenly dispersed pure metals.

The following suggestions are offered as an aid in improving the accuracy and value of the analysis:

1. State metals of particular interest.

2. DO NOT use this Method of analysis as an indication of precious metals, nor as a positive indication of the absence of elements in which you have not expressed particular interest.

ARIZONA TESTING LABORATORIES

A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
817 WEST MADISON ST. PHOENIX, ARIZONA 85007 PHONE 254-6181

	Sensitivity in Usual Samples		Sensitivity in Usual Samples
Aluminum	0.001%	Platinum	0.01%
Antimony	0.1	Potassium	0.5
Arsenic	1.0	Silicon	0.001
Barium	0.1	Silver	0.0005
Beryllium	0.0005	Sodium	0.05
Bismuth	0.005	Strontium	0.01
Boron	0.001	Tantalum	0.5
Cadmium	0.05	Tellurium	0.1
Calcium	0.01	Tin	0.005
Chromium	0.001	Titanium	0.001
Cobalt	0.001	Tungsten	0.4
Columbium	0.1	Vanadium	0.01
Copper	0.001	Yttrium	0.01
Gallium	0.005	Zinc	0.5
Germanium	0.005	Zirconium	0.01
Gold	0.001		
Indium	0.01		
Iron	0.001		
Lead	0.05	**Rare Earths**	
Lithium	0.05		
Magnesium	0.0005	Cerium	0.3
Manganese	0.001	Gadolinium	0.01
Molybdenum	0.005	Lanthanum	0.05
Nickel	0.005	Neodymium	0.1
Palladium	0.005	Praseodymium + Samarium	0.1
Phosphorus	0.5	Ytterbium	0.001

Mercury)
Thorium) The spectrograph is not suitable for determining these elements.
Uranium)

Rare Earths

Factor of 2.

Rare earth elements form a group whose more common members are often detected in minerals, rocks, and soils. In the spectrographic analysis the most common rare earths are sought first. If they are absent it may be assumed that the others are absent too, because the rare earth elements invariably occur as a group. Yttrium, although not classed as a rare earth, occurs with the rare earth group.

MAY 1978

ASSAY SCHEDULE — **ORDINARY SAMPLES**

Ore sample preparation $1.50 per sample.

No preparation charge for pulps.

Gold	~~4.50~~ 5.00	Lithium oxide	$12.00
Silver	4.00	Magnesia	6.00
Gold & Silver (When run at same time)	~~7.00~~ 8.00	Manganese	6.00
Copper	3.50	Mercury	8.00
Lead	5.00	Molybdenum	7.00
Zinc	6.00	Nickel	7.00
Alumina	9.00	Phosphorus	12.00
Antimony	6.00	Platinum & Metals of Platinum Grp.	25.00
Arsenic	20.00	Potassium oxide	9.00
Barium	15.00	Silica	9.00
Bismuth	6.00	Sodium oxide	9.00
Beryllium oxide	25.00	Strontium oxide	8.00
Cadmium	6.00	Sulphur	10.00
Calcium oxide	8.00	Tin	12.00
Chromium	12.00	Titanium	16.00
Cobalt	7.00	Tungsten oxide	15.00
Gypsum	14.00	Vanadium	11.00
Ignition Loss	5.00	Complete Spectrographic Qualitative Analysis of ores	~~13.50~~ 15.00
Iron	6.00		

Geochemical prices on request.

Size of samples: Ore 2 to 5 lbs. Pulp, 4 ozs. or more. Larger and wet samples handled at extra charge.

Mark samples plainly and give written instructions with sample or by letter.

Payment must accompany samples unless credit is arranged. A discount is allowed for cash payment as follows:
10% discount for 2 or more samples for same element.
20% discount for 5 or more samples for same element.

ARIZONA TESTING LABORATORIES

Analytical and Consulting Chemists

817 West Madison • Phoenix, Arizona 85007

Telephone: 254-6181

CONCLUSIONS AND RECOMMENDATIONS. What is known about the geology of this area is, at the very best, sparse. Consequently, it is quite easy to become optimistic about economic potentials at depth. Surface indications in the Wickenburg area are not as spectacular as in adjacent mining districts. This has led many "economic" geologists to write off the area as a high tonnage prospect. This may or may not be the case. In any event, we believe that the data collected up to the present time does warrent further exploration of the property.

The possible courses of action would consist of (1) some further additional IP lines run south of the no.1 prospect in hopes of extending laterally the deep anomaly beneath said prospect; (2) drilling a deep hole (1000 - 1500 ft.) at no. 1 prospect to determine vertical extent of surface mineralization, followed by additional IP lines to the south. The latter alternative is the most favorable, primarily because of the existance of a good anomaly at 1000 - 1500 ft. Estimated cost of such a hole would be in the neighborhood of $5000. If the proposed hole were to show the degree of mineralization as is found on the surface, the value of the property would be greatly enhanced.

Sincerely Yours,

John W. McClure

John W. McClure, Jr.

John W. McClure
1680 Sherrylee Lane
El Dorado, Kansas 67042

John W. McClure, Jr.
Dept. of Geology - UMC
Columbia, Missouri 65201

Arizona Testing Laboratories

Extra copy

815 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

For: Queen Sheba Mines
c/o Mr. Charles May
58 West Edgemont
Phoenix, AZ. 85003

Date: January 18, 1978

Lab. No.: 5956

Received: 1-11-78

Marked: GM-X-1

Submitted by: same

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

ELEMENT	APPROXIMATE PERCENT
Boron	0.01
Silicon	Major Constituent
Aluminum	0.6
Manganese	0.05
Magnesium	0.2
Lead	0.5
Gallium	0.003
Copper	7.0
Iron	7.0
Bismuth	0.01
Calcium	1.0
Zinc	1.0
Titanium	0.006
Silver	0.0005

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Extra Copy

Arizona Testing Laboratories

815 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

For Queen Sheba Mines
Mr. Charles May
58 West Edgemont
Phoenix, Arizona 85003

Date January 13, 1978

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
5956	GM-X-1	0.03					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean

Claude E. McLean, Jr.

Registered Assayer
CERTIFICATE NO.
6258
CLAUDE EUGENE
McLEAN, JR.
Date Signed 1/13/78
ARIZONA, U.S.A.

Arizona Testing Laboratories

815 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

XTRA

For: Queen Sheba Mines
c/o Mr. Charles May
58 West Edgemont
Phoenix, AZ. 85003

Date: January 18, 1978

Lab. No.: 5956

Received: 1-11-78

Marked: GM-X-1

Submitted by: same

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

ELEMENT	APPROXIMATE PERCENT
Boron	0.01
Silicon	Major Constituent
Aluminum	0.6
Manganese	0.05
Magnesium	0.2
Lead	0.5
Gallium	0.003
Copper	7.0
Iron	7.0
Bismuth	0.01
Calcium	1.0
Zinc	1.0
Titanium	0.006
Silver	0.0005

3.5-14%

Gold 0.03 oz/ton

Gold Mine #1

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

HL

XTRA

ARIZONA TESTING LABORATORIES

A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
817 WEST MADISON ST. PHOENIX, ARIZONA 85007 PHONE 254-6181

For Queen Sheba Mines
c/o Charles R May
58 W. Edgemont St
Phoenix, Arizona 85003

Date June 25, 1973

Sample of Ore

Received:

Submitted by: same

ASSAY CERTIFICATE

Gold figured at $ 80.00 per ounce

Silver figured at $ 2.00 per ounce

LAB. NO.	IDENTIFICATION	GOLD		SILVER		PERCENTAGES	
		OZ. PER TON	VALUE	OZ. PER TON	VALUE	Copper	
4717	Left Face North Turner At Base #1	0.03	2.40				
	#2 Off Facing Left Side End of Tunnel	0.07	5.60				
	#3 Left Facing 15	0.09	10.80 7.20				
	#4	0.04	3.20	0.35	0.70	3.00%	

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Claude E. McLean, Jr.

C.O.

C

XTRA

VALLEY ASSAY OFFICE
AND ORE TESTING LABORATORY
MEMORANDUM OF ASSAY

for Harold D. Lang

Tempe, Arizona, Oct. 13, 71

AMPLE NO.	PER TON OF 2000 POUNDS AVOIRDUPOIS								COPPER, OR			LEAD, OR			ZINC, OR			TOTAL	
	GOLD. PLATINUM				SILVER														
	AT $5.00 PER OUNCE				AT $2.00 PER OUNCE				AT 0.50 PER LB.			AT PER LB.			AT PER LB.				
	OZS.	100's	$	Cts	OZS.	100's	$	Cts.	%	$	Cts.	%	$	Cts.	%	$	Cts.	$	Cts.
1-A	0.	04	1	40	1.	20	2	40	6.3	63.	00							66.	80
1-C	0.	03	0	05	0.	90	1	80	14.7	147.	00							149.	85
1-D									41.6	416.	00							416.	00
17									2.4	24.	00							24.	00
MARKS:																			

REGISTERED ASSAYER
CERTIFICATE EXPIRES
L. LEE
BOYER
DEC. 31, 19
ARIZONA, U.S.A.

BY _____
Registered Assayer.

GE $ 22.00 Pd.

#1 Claim

Arizona Testing Laboratories

817 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

For Queen Sheba Mines Date November 14, 1980

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
8741	~~Tunnel 1~~, Sample 1	0.06	Trace				

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E McLean Jr.

Claude E. McLean, Jr.

Registered Assayer CERTIFICATE NO. 0258 CLAUDE EUGENE McLEAN, JR. Date Signed 11/14/80 ARIZONA, U.S.A.

Arizona Testing Laboratories

815 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

For: Queen Sheba Mines

Date: November 12, 1980

Lab. No.: 8741

Received: ---

Marked: Tunnel 1, Sample 2

Submitted by: same

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

ELEMENT	APPROXIMATE PERCENT
Boron	0.008
Silicon	Major Constituent
Aluminum	1.0
Manganese	0.009
Magnesium	0.1
Lead	0.2
Copper	0.2
Iron	5.0
Vanadium	0.004
Zinc	1.0
Titanium	0.04
Silver	0.001

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Arizona Testing Laboratories

817 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

For Queen Sheba Mines Date November 14, 1980

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
8741	Tunnel 1, Sample 1	0.06	Trace				

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E McLean Jr

Claude E. McLean, Jr.

Registered Assayer
CERTIFICATE NO
6258
CLAUDE EUGENE
McLEAN, JR.
Date Signed 11/14/80
ARIZONA U.S.A.

Arizona Testing Laboratories

817 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

For Queen Sheba Mines Date November 7, 1980

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
8624	Entry 1	0.13	0.15	?			
	ALSO SEE SPECTROGRAPH Report.						
	HILL South of E.W Road WHERE WORK Had been done ON No. Side of HILL						

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean

Claude E. McLean, Jr.

Registered Assayer
CERTIFICATE NO. 6258
CLAUDE EUGENE McLEAN, JR.
Date Signed 11/7/80
ARIZONA, U.S.A.

Arizona Testing Laboratories

815 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

For: Queen Sheba Mines

Date: November 5, 1980

Lab. No.: 8624

Received: ----

Marked: Entry 1

Submitted by: same

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

ELEMENT	APPROXIMATE PERCENT
Boron	0.01
Silicon	Major Constituent
Aluminum	Intermediate Constituent
Manganese	0.1
Magnesium	0.6
Lead	1.0
Chromium	0.005
Copper	0.05
Iron	9.0
Beryllium	0.0005
Calcium	1.0
Vanadium	0.005
Sodium	1.0
Zinc	0.5
Titanium	0.2
Silver	0.002
Nickel	0.01

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Claude E. McLean, Jr.

6 LB SAMPLE
REJECTS SAVED

VALLEY ASSAY OFFICE

AND ORE TESTING LABORATORY

MEMORANDUM OF ASSAY

SAMPLE "C"

COMPOSITE SAMPLE TAKEN FROM BOTH THE EAST + WEST WALL OFF THE NORTH TUNNEL. MID-DEPTH OF VEIN.

Made for Queen Sheba Mines Inc. Tempe, Arizona, Dec. 20, 1978

SAMPLE NO.	PER TON OF 2000 POUNDS AVOIRDUPOIS								COPPER, OR			LEAD, OR			ZINC, OR			TOTAL	
	GOLD, ~~PLATINUM~~				SILVER														
	AT		PER OUNCE		AT		PER OUNCE		AT		PER LB.	AT		PER LB.	AT		PER LB.		
	OZS.	100's	$	Cts	OZS.	100's	$	Cts.	%	$	Cts.	%	$	Cts.	%	$	Cts.	$	Cts.
1	0,	37			0.	80													
			FIRE ASSAY																

REMARKS:

REGISTERED ASSAYER
CERTIFICATE EXPIRES
L. LEE BOYER
DEC. 31, 1979
ARIZONA, U.S.A.

NO.

BY L Lee Boyer
Registered Assayer.

CHARGE $ 18.00 Pd.

PRODUCT DEVELOPMENT CHEMICAL ANALYSIS APPLIED RESEARCH

ARC LABORATORIES

Division of Arizona Research Consultants, Inc.

9236 NORTH 10TH AVE. P.O. BOX 9545 602 943-3573

PHOENIX, ARIZONA 85068

Queen Sheba Mines
58 W. Edgemont
Phoenix, Arizona 85003

DATE November 22, 1978

LAB No. 17245 - 54

RESULTS

Lab No.	Description	Gold, oz/T
17245	#1	1.05
17246	#2	0.12
17247	#3	0.01
17248	#4	0.43
17249	#5	0.03
17250	#6	0.35
17251	#7	0.09
17252	#8	0.28
17253	#9	0.02
17254	#10	nil

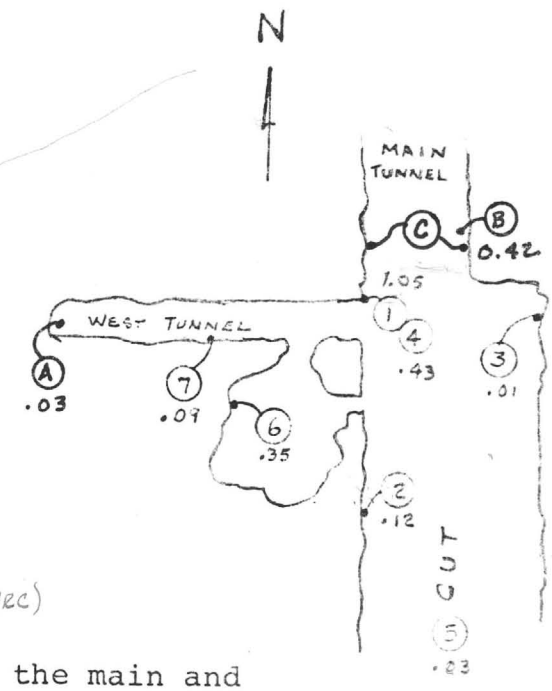
SEE ATTACHED SHEET - Not GM #1 -

GM #1
Atomic Absorption Tests.
#1 Thru #7

Respectfully submitted,
ARC LABORATORIES

John P. Sickafoose, Ph.D.
Technical Director

11-8-78



SAMPLE ASSAY'S AND VALUES
GOLD MINE #1
QUEEN SHEBA MINES, INC.

LAB # 17245 - 54
ATOMIC ABSORPTION TESTS (ARC)

SAMPLE 1 (1.05) — Taken at the intersection of the main and West tunnel, at the 5 ft. depth of the vein.

SAMPLE 2 (0.12) — Taken from the West wall of the cut--the schist area immediately below the ore vein.

SAMPLE 3 (0.01) — Taken from the East side of the main tunnel entrance, and under the upper vein. Just outside the the tunnel entrance area.

SAMPLE 4 (0.43) — Taken from the top part of the ore vein where the main tunnel intersects the West tunnel. Same as sample #1 except this sample taken from the top; whereas sample #1 was taken from the bottom.

SAMPLE 5 (0.03) — Taken from the center of the cut area, about 35 ft. South of the main tunnel entrance, which would be at a higher elevation where the vein had tappered off to just a few inches thick.

SAMPLE 6 (0.35) — Taken from under the feldspar material, in the large room. This was red ore immediately below the feldspar.

SAMPLE 7 (0.09) — Taken from the South wall of the West tunnel, about half way back from the entrance.

SAMPLE 8 (0.28) — Not from Gold Mine 1 area. Taken from a prospect digging about 1/3 mile Southwest of GM #1.

SAMPLE 9 (0.02) — Not from Gold Mine 1 area. Taken from a prospect digging adjacent to sample #8 area. 50 ft. apart.

SAMPLE 10 (nil) — This was an odd sample taken from an area considerably further Southwest of samples 8 & 9, which was just an interesting outcrop and near the road coming in.

Ⓐ = Sample by C. May (1-18-78) Lab* 5956
Silicon a Major Constituent. Gold 0.03 oz/t
Copper 7%

Ⓑ = Sample - Lab* 8481 (1-9-75) Gold 0.42 oz/t

Ⓒ = Boyce Fire Assay (12-20-78)
Composite Sample Au 0.37, Ag 0.80

Arizona Testing Laboratories

815 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

For: Queen Sheba Mines
c/o Mr. Charles May
58 West Edgemont
Phoenix, AZ. 85003

Date: January 18, 1978

Lab. No.: 5956

Received: 1-11-78

Marked: GM-X-1

Submitted by: same

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

ELEMENT	APPROXIMATE PERCENT
Boron	0.01
Silicon	Major Constituent
Aluminum	0.6
Manganese	0.05
Magnesium	0.2
Lead	0.5
Gallium	0.003
Copper	7.0
Iron	7.0
Bismuth	0.01
Calcium	1.0
Zinc	1.0
Titanium	0.006
Silver	0.0005

Gold Mine #1 (Duplicate).

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Arizona Testing Laboratories

815 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

For Queen Sheba Mines
Mr. Charles May
58 West Edgemont
Phoenix, Arizona 85003

Date January 13, 1978

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
5956	GM-X-1	0.03					

GM #1
Far End of
West Tunnel

Respectfully submitted,
ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Registered Assayer
CERTIFICATE NO. 6301
CLAUDE EUGENE McLEAN, JR.
Date Signed 1/13/78
ARIZONA, U.S.A.

.967-3445

9:30 AM SAT 3-8-75

CONCENTRATE TEST

VALLEY ASSAY OFFICE

AND ORE TESTING LABORATORY

MEMORANDUM OF ASSAY

Made for H. D. Long

Tempe, Arizona.....March...6....., 1975..

SAMPLE NO. Table-	PER TON OF 2000 POUNDS AVOIRDUPOIS								COPPER, OR			LEAD, OR			ZINC, OR			TOTAL	
	GOLD, ~~PLATINUM~~				SILVER														
	AT		PER OUNCE		AT		PER OUNCE		AT		PER LB.	AT		PER LB.	AT		PER LB.		
	OZS.	100's	$	Cts	OZS.	100's	$	Cts.	%	$	Cts.	%	$	Cts.	%	$	Cts.	$	Cts.
1	14.	22			0.	95													
2	7.	30			0.	40													
3	0.	85	*																
4	0.	55	*		1.	35													
	22.	92																	
			ACTUAL		RERUN + dbl				CHECKED.										
			#3		0.45	Au													
REMARKS:			#4		0.25	Au													

REGISTERED ASSAYER CERTIFICATE EXPIRES L LEE BOYER DEC. 31, 19 ARIZONA, U.S.A.

NO.

BY L. Lee Boyer
Registered Assayer.

CHARGE $ 28.00 PD.

ATL
ARIZONA TESTING LABORATORIES
A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
817 WEST MADISON ST. PHOENIX, ARIZONA 85007 PHONE 254-6181

For: Queen Sheba Mines

Date: February 11, 1975

Lab. No.: 8756

Received: ---

Marked: See Below

Submitted by: same

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

ELEMENT	APPROXIMATE PERCENT	
	Hole 10, 10'	Hole 8 55'
Boron	0.01	0.01
Silicon	Major Constituent	
Aluminum	0.8	IC*
Manganese	0.6	0.5
Magnesium	0.3	4.0
Lead	0.8	0.1
Gallium	0.005	0.006
Iron	IC*	IC*
Beryllium	---	0.001
Calcium	1.0	2.0
Vanadium	---	0.01
Copper	0.2	0.04
Sodium	---	1.0
Zinc	2.0	---
Titanium	0.03	1.0
Silver	0.001	---
Zirconium	---	0.01
Nickel	0.01	0.01

484 10/78

924 (99.8% Zr)

2.70/sponge Lb

IC* = Intermediate Constituent

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E McLeanJr

Claude E. McLean, Jr.

ARIZONA TESTING LABORATORIES

A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
815 WEST MADISON STREET PHOENIX, ARIZONA 85007 PHONE 254-6181

For Queen Sheba Mines Date February 10, 1975

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
8732	Hole 8, 35'	nil					
	Hole 8, 55'	nil					
	Hole 8, 70'	nil					
	Hole 10, 10'	trace					

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E McLean

Claude E. McLean, Jr.

VALLEY ASSAY OFFICE

AND ORE TESTING LABORATORY

MEMORANDUM OF ASSAY

Made for Harold Dr Lang

Tempe, Arizona ..... Feb. 3 ....., 19 75.

SAMPLE NO.	PER TON OF 2000 POUNDS AVOIRDUPOIS								COPPER, OR			LEAD, OR			ZINC, OR			TOTAL	
	GOLD, PLATINUM				SILVER														
	AT	PER OUNCE			AT	PER OUNCE			AT	PER LB.		AT	PER LB.		AT	PER LB.			
	OZS.	100's	$	Cts	OZS.	100's	$	Cts.	%	$	Cts.	%	$	Cts.	%	$	Cts.	$	Cts.
1	0.	17																	
	This was a surface grab sample from out cropping- Assayer said should get back + Dig !																		
					175														
REMARKS:				X	.17														
					$29 75														

REGISTERED ASSAYER CERTIFICATE EXPIRES DEC. 31, 1975 L. LEE BOYER ARIZONA, U.S.A.

NO. .....

BY L Lee Boyer
Registered Assayer.

CHARGE $ 5.00 Pd.

C. May
Okig

ARIZONA TESTING LABORATORIES

A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
815 WEST MADISON STREET PHOENIX, ARIZONA 85007 PHONE 254-6181

For Queen Sheba Mines
Mr. Charles May

Date January 9, 1975

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
8481	#1 Jan. 1975	0.42					

6-lb Sampling

Gold Mine #1
8' inside Tunnel
on East Side.

Respectfully submitted,
ARIZONA TESTING LABORATORIES

Claude E McLean

Claude E. McLean, Jr.

ARIZONA TESTING LABORATORIES

A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
817 WEST MADISON ST. PHOENIX, ARIZONA 85007 PHONE 254-6181

For: Queen Sheba Mines
14439 North 73rd Street
Scottsdale, Arizona 85260

Date: July 10, 1974

Lab. No.: 7237

Received: 7-9-74

Marked: Hole 4, 65' thru 80'

Submitted by: Mr. Harold D. Lang

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

ELEMENT	APPROXIMATE PERCENT			
	Hole 4: 65'	70'	75'	80'
Boron	0.01	0.005	0.005	0.005
Silicon	Major Constituent----------			
Aluminum	7.0	5.0	5.0	7.0
Manganese	0.4	0.4	0.3	0.4
Magnesium	→ 5.0	→ 3.0	→ 4.0	→ 5.0
Lead	---	0.2	---	---
Gallium	0.005	0.004	0.004	0.003
Copper	0.04	0.04	0.03	0.02
Iron	IC*	10.0	10.0	IC*
Vanacium	0.008	0.007	0.008	0.006
Calcium	2.0	2.0	2.0	2.0
Sodium	6.0	4.0	6.0	4.0
Zinc	---	1.0	---	---
Titanium	0.3	0.2	0.2	0.3
Nickel	0.01	0.005	0.005	0.005
	20.773	25.861	27.552	18.739

75¢/LB

IC* = Intermediate Constituent

FOR JOHN WHITNEY
TO SEE IF ANY CORRELATION WITH IP DATA.

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Atomic ABSORPTION WOULD COST $4/ELEMENT

RECEIVED JUL 11 1974

ARIZONA TESTING LABORATORIES

A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
817 WEST MADISON ST. PHOENIX, ARIZONA 85007 PHONE 254-6181

For Queen Sheba Mines
c/o Charles R May
58 W. Edgemont St
Phoenix, Arizona 85003

Date June 25, 1973

Sample of Ore

Received:

Submitted by: same

ASSAY CERTIFICATE

Gold figured at $ 80.00 per ounce

Silver figured at $ 2.00 per ounce

LAB. NO.	IDENTIFICATION	GOLD		SILVER		PERCENTAGES	
		OZ. PER TON	VALUE	OZ. PER TON	VALUE	Copper	
4717	Left Face North Turner At Base #1	0.03	2.40				
	#2 Off Facing Left Side End of Tunnel	0.07	5.60				
	#3 Left Facing 15	0.09	7.20				
	#4	0.04	3.20	0.35	0.70	3.00%	

"1 CLAIM GRAB SAMPLE ?

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Claude E. McLean, Jr.

C.O.

PRODUCT DEVELOPMENT

APPLIED RESEARCH

ARC LABORATORIES

Division of Arizona Research Consultants, Inc.
9236 NORTH 10TH AVE. PHOENIX, ARIZONA 85021 943-3573

Professional Service Reported To:

Charles May

INVOICE NO. 3181

DATE 12 Jan 72

	DESCRIPTION	UNIT PRICE	AMOUNT
Report 11640-1	2 Gold & Silver		$ 15.00
	2 Copper		10.00
	2 Qualitative Spectrograph		22.00
		Total	$ 47.00

STATEMENT

This professional service statement is due upon presentation. The liability of these laboratories for the services covered by this invoice shall in no event exceed the amount of this invoice.

PRODUCT DEVELOPMENT APPLIED RESEARCH

ARC LABORATORIES

Division of Arizona Research Consultants, Inc.
9236 NORTH 10TH AVE. PHOENIX, ARIZONA 85021 943-3573

FOR: Charles May DATE 12 Jan 72

LAB No. 11640-1

Hole # 1 - combined from 70 ft. + 85 ft. Hole #4 at 50 ft.

RESULTS

	Sample #1	Sample #4
Gold	.01 oz/ton	.01 oz/ton
Silver	.10 oz/ton	.10 oz/ton
Silica	Major constituent	Major constituent
Copper	.01%	.01%
Nickel	.05	.01
Chromium	.02	nil
Aluminum	9.0	5.0
Magnesium	9.0	2.0
Manganese	0.3	0.2
Iron	5.0	6.0
Calcium	9.0	3.0
Potassium	1.0	nil
Sodium	0.4	0.8
Titanium	0.4	0.2
Vanadium	0.01	0.01
Zirconium	0.4	nil
Strontium	0.05	nil
Boron	0.002	2.0

* All values listed below Silica are given in terms of percent.

Respectfully submitted,
ARC LABORATORIES

John T. Long, Jr.

ATL Arizona Testing Laboratories
817 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181
Chemists
Engineers
Geologists

For: Queen of Sheba
Mr. May
1880 East Van Buren
Phoenix, Arizona

Date: December 1, 1971

Lab. No.: 1425

Sample: Ore

Marked: No Mark

Received: 11-30-71

Submitted by: same

#1 CLAIM? SURFACE GRAB SAMPLE

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

ELEMENT	APPROXIMATE PERCENT
Silicon	Major Constituent
Aluminum	3.0
Manganese	0.1
Magnesium	0.4
Lead	2.0
Copper	Intermediate Constituent
Iron	Intermediate Constituent
Bismuth	0.1
Molybdenum	0.005
Calcium	2.0
Zinc	2.0
Titanium	0.004
Silver	0.005

1 COPPER
2 ALUMINUM - 3.0
3 LEAD - 2.0
4 ZINC -

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

VALLEY ASSAY OFFICE

AND ORE TESTING LABORATORY

MEMORANDUM OF ASSAY

de for Harold D. Lang

Tempe, Arizona Oct. 13 19 71

SAMPLE NO. Claim No.	PER TON OF 2000 POUNDS AVOIRDUPOIS								COPPER, OR			LEAD, OR			ZINC, OR			TOTAL	
	GOLD. PLATINUM				SILVER														
	AT 65.00 PER OUNCE				AT 2.00 PER OUNCE				AT 0.50 PER LB.			AT PER LB.			AT PER LB.				
	OZS.	100's	$	Cts	OZS.	100's	$	Cts.	%	$	Cts.	%	$	Cts.	%	$	Cts.	$	Cts.
1-A	0.	04	1	40	1.	20	2	40	6.3	63.	00							66.	80
1-C	0.	03	1	05	0.	90	1	80	14.7	147.	00							149.	85
1-D									41.6	416.	00							416.	00
17									2.4	24.	00							24.	00
REMARKS:																			

REGISTERED ASSAYER
CERTIFICATE EXPIRES
L. LEE
BUYER
DEC. 31, 19 72
ARIZONA, U.S.A.

BY _____
Registered Assayer.

ARGE $ 22.00 Pd.

CHEMICAL ANALYSIS
MECHANICAL TESTING
SPECTRO-CHEM CONSULTING

BUS: 948-6907
RES: 991-4320
AREA CODE: 602

A.S.T. LABORATORIES, INC.
—ATOMIC SPECTROSCOPY & TESTING—

SIEGFRIED BREMER
PRESIDENT

7730 E. REDFIELD RD.
SUITE #4
SCOTTSDALE, AZ 85260

ABORATORIES, INC.

SPECTROSCOPY & TESTING —

UITE #4 • SCOTTSDALE, AZ 85260 • (602) 948-6907

FIED TEST REPORT

2466

DATE: september 2, 1981

CUSTOMER: QUEEN SHEBA MINES

YOUR P.O.: Verbal

JOB NO:

MATERIAL: Ore

HEAT NO:

PART NO:

S/N:

SPECIFICATION:

☐ Metallography ☐ Hardness ☒ Chemistry Semi-quant ☐ _____

Ag	.003 - .01%	1.8 oz./ton Ag (based on .005%)
Al	1. - 5.%	
Au	.001 - .005%	1.1 oz./ton Au (based on .003%)
Cu	.03 - .1%	
Fe	1. - 5.%	
Ni	.005 - .03%	
Pb	.05 - .3%	
pd	*	
Pt	*	
Si	Major	

18.00
440
458.00
/TON

* less than .001% or not detected

Elements listed are either in the metallic or oxide state.

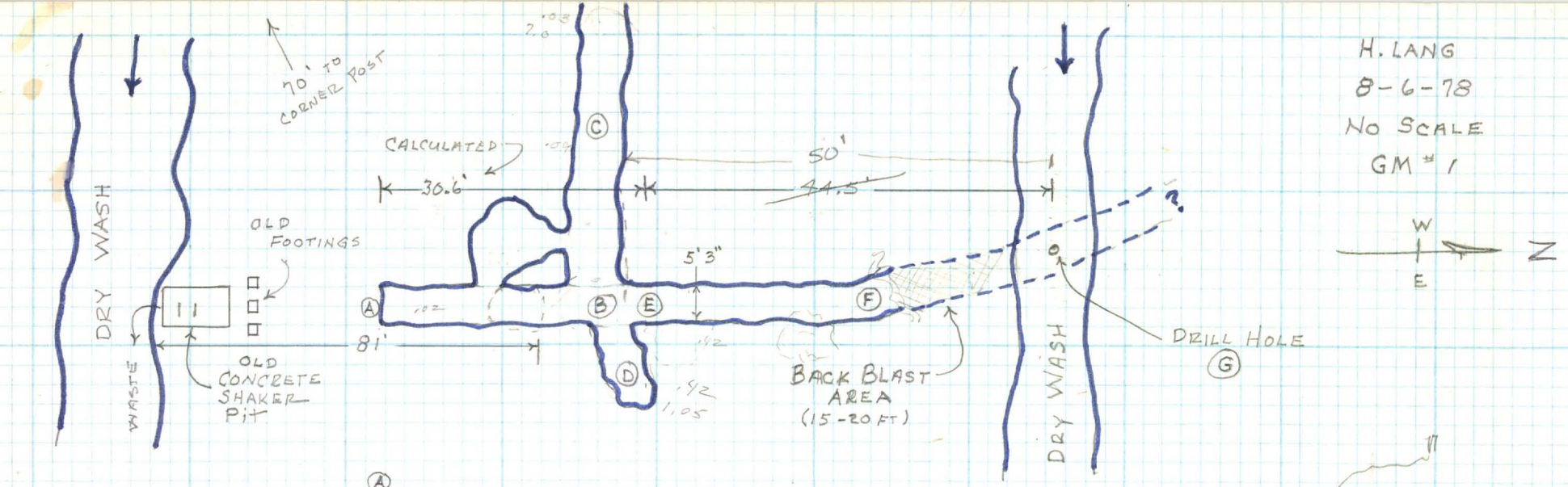
BASED ON RANDOM ORE SAMPLE OF 8 lbs.

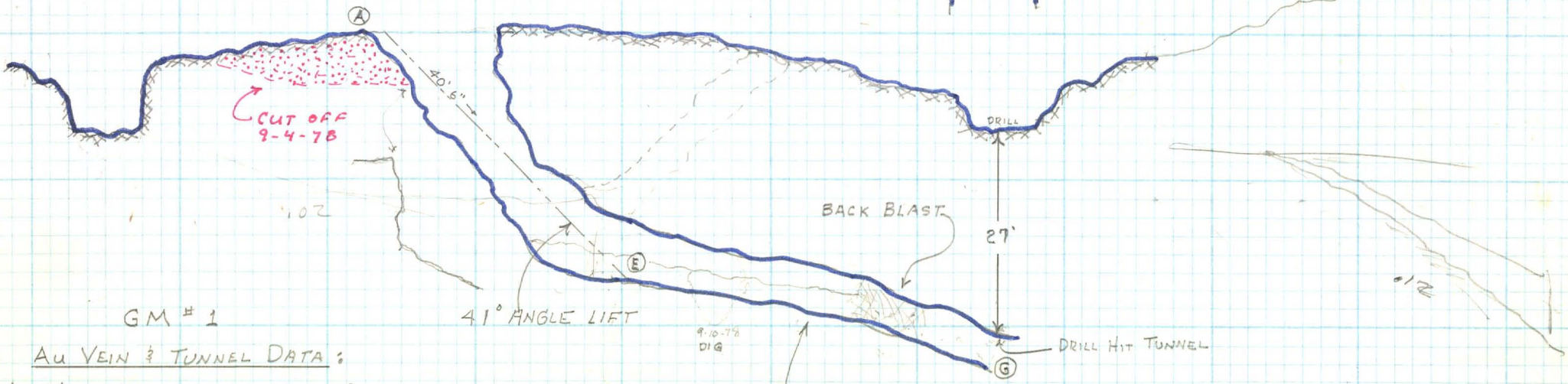
Respectfully submitted

E. Bremer

A.S.T. LABORATORIES, INC.

H. LANG
8-6-78
No Scale
GM # 1



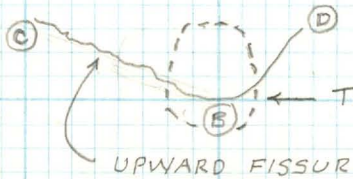


GM # 1

Au Vein & Tunnel Data:

1. Vein declination = 25°.
2. High vein is 3-6" thick.
3. Low vein is 16-36" thick.
4. Spacing between veins is 31" at (E).
5. Tunnel width at (E) = 5'3".
6. Tunnel ceiling (at present) is 4'4" at (E)
7. Loose fill known to be 3' deep on floor at (E), or more.
8. Lift line (A) to (E) is 40' 6" at 41° angle.
9. Horizontal distance (A) to (E) is 30.56' (calculated)
10. " " (E) to (G) is 44' 6".
11. Horizontal vein slope from (C) to (B) is downward.
12. Horizontal slope of vein from (B) to (D) is upward at 39° angle.

Thus:



13. Vein samples at (E) assay 0.42 oz Au.
14. (C) Tunnel about 55' long

8-6-78 ASSUMPTIONS: (GUESSING ON PAPER!)

1. VOLUME OF MATERIALS IN TUNNEL — 5'3" WIDE x 8' HIGH = 42 SQ FT.

2. VOLUME OF Au BEARING ORE IN TUNNEL.

   a. VEIN #1 (UPPER) 5" x 60" = 300 SQ IN. (2 SQ. FT.)
   b. VEIN #2 (LOWER) 24" x 60" = 1440 SQ IN (10 SQ FT.)

THEREFORE: 42 FT^3 WOULD PRODUCE 12 FT^3 OF PROCESSABLE ORE.
OR, 28.57% OF TOTAL MATERIAL EXCAVATED.

THEREFORE: ONE TON OF MATERIAL WOULD PRODUCE FOLLOWING:
ORE ASSAY = 0.42 oz Au/TON.

0.42 x .2857 x 80° RECOVERY = 0.09599 oz Au

0.09599 x "200.00 = "19.20 PER TON.

OTHER ASSUMPTIONS:

MINING COST PER TON of MATERIAL	"8.00	?
CRUSHING & PROCESSING Cost/TON	3.50	?
TOTAL Cost/TON	"11.50	?

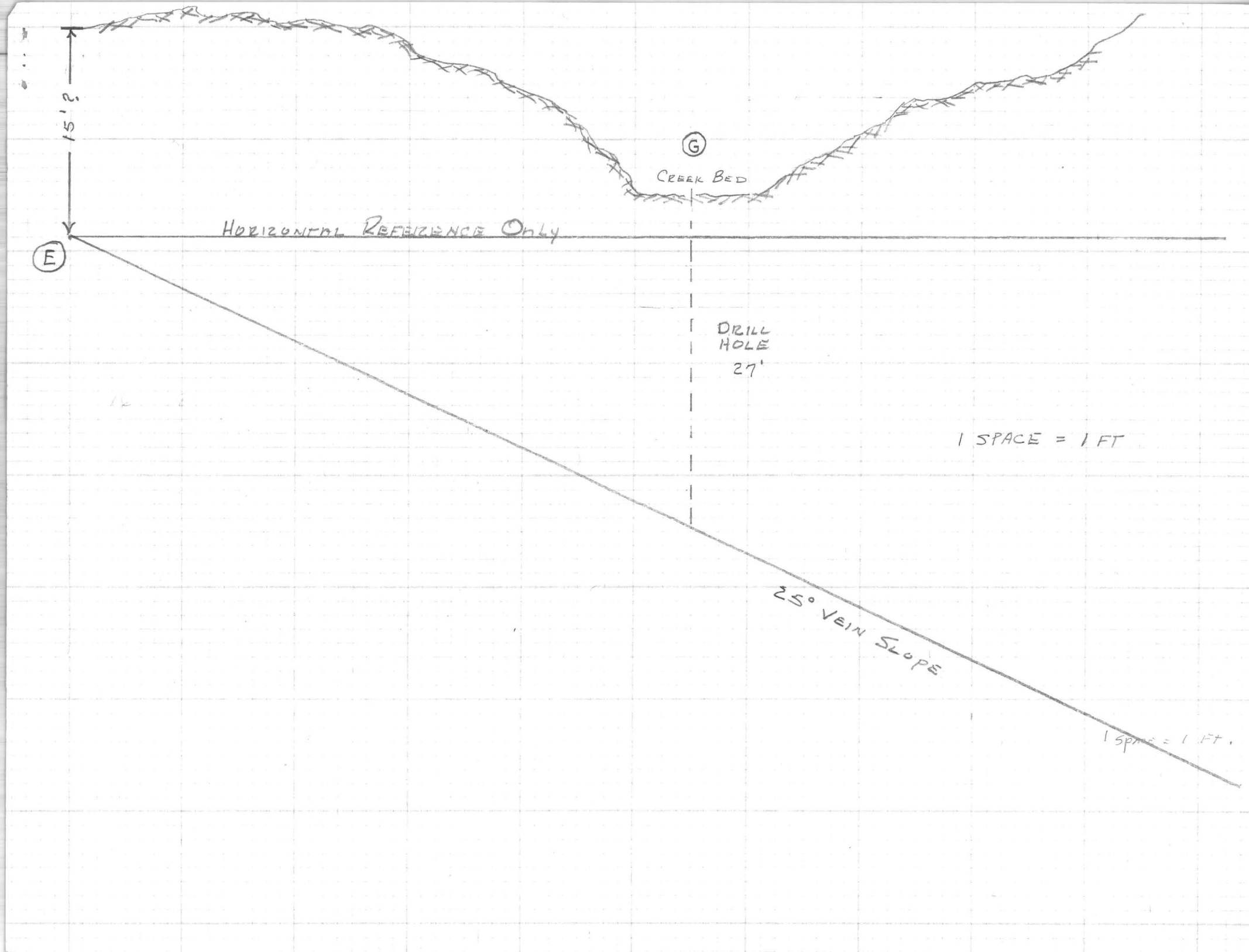
GROSS PROFIT PER TON OF MATERIAL = "7.50 ?

TONS OF MATERIAL PER DAY — ?

10 TON @ 7.50	= "75.00
15 TON	= 112.50
20 TON	= 150.00

CONCLUSIONS!

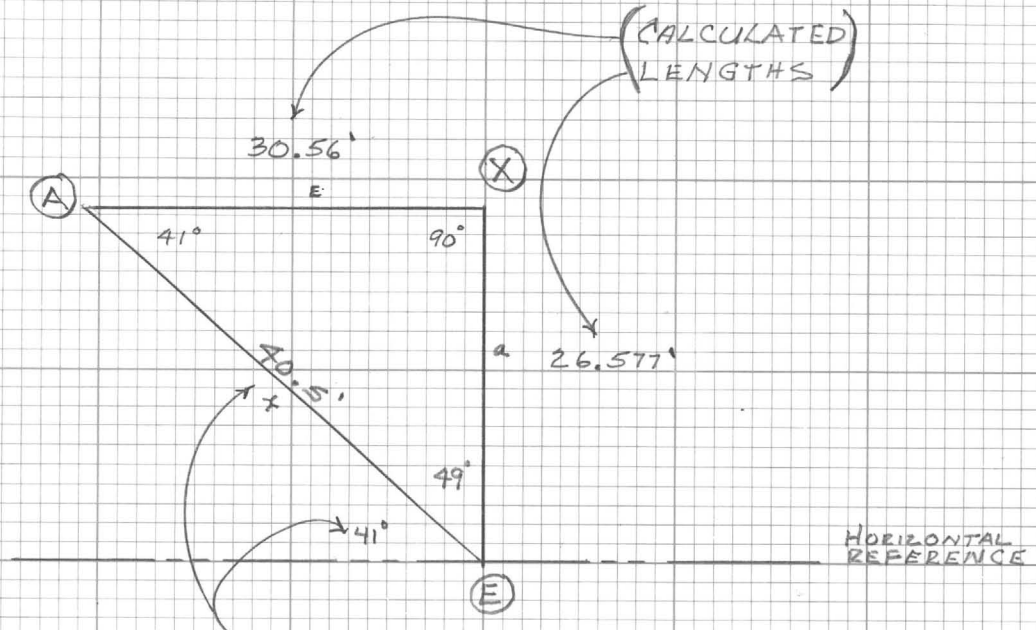
1. A LOT OF GUESSING!
2. ARE COSTS TOO HIGH?
3. WHAT IF ORE WENT TO 1 oz?
4. WHAT IF GOLD WENT TO "300 OR 400"?
5. WHAT IF TUNNEL ONLY 7' HIGH? % THEN BECOMES 32.65 INSTEAD OF 28%
6. WOULD QUANITY BE SUFFICIENT? HOW MUCH - HOW LARGE?
7. CAPITAL OUTLAY REQUIRED? SALVAGE IF UNFEASIBLE?
8. VEIN #2 COULD BE 36" THICK! NUMBERS WOULD CHANGE!
9. LEACHING COULD GO TO 90% RECOVERY OR BETTER — (93%?)


15'?
G
CREEK BED
HORIZONTAL REFERENCE ONLY
E
DRILL HOLE 27'
1 SPACE = 1 FT
25° VEIN SLOPE
1 space = 1 FT.

KNOWN FACTORS

$X = 40.5'$

$\angle E = 49°$



FIND E

$E = (X)(\sin E)$

$E = (40.5)(.75471)$

$E = 30.56$ FT

FIND a

$a = \sqrt{(40.5)^2 - (30.56)^2}$

$a = \sqrt{(1640.25) - (933.91)}$

$a = \sqrt{706.34}$

$a = 26.577$ FT.

CHECK OF WORK

$X = \sqrt{(30.56)^2 + (26.577)^2}$

$X = \sqrt{933.91 + 706.336}$

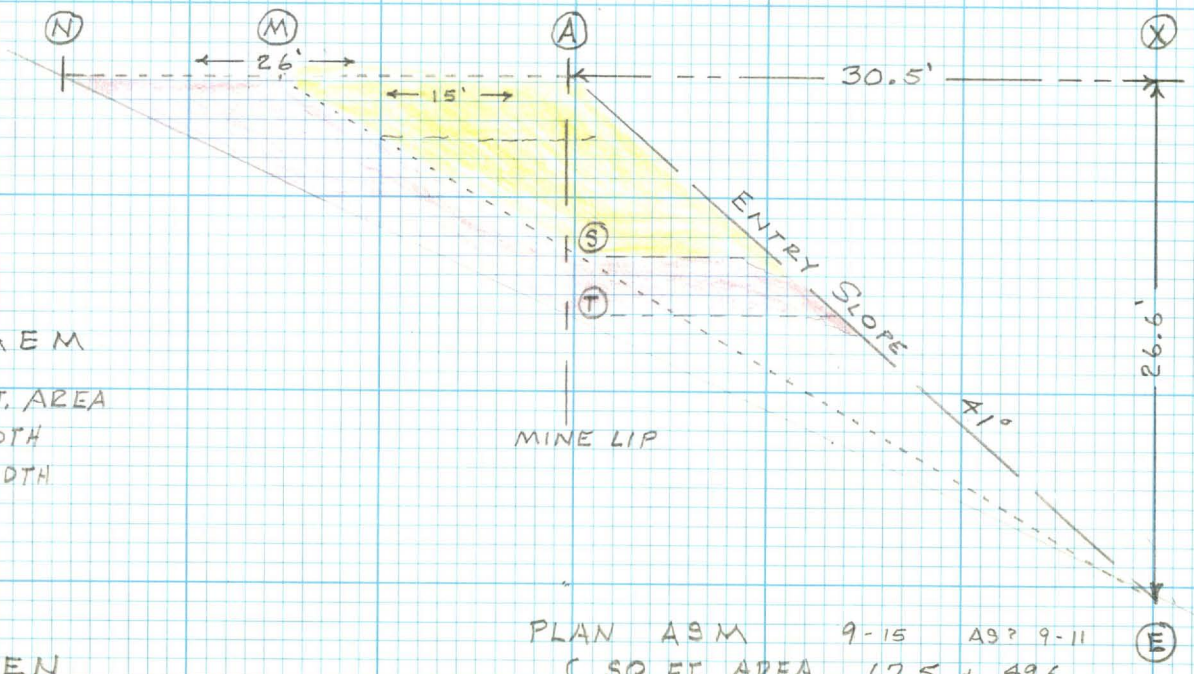
$X = \sqrt{1640.249}$

$X = 40.499$ FT.

CLOSE ENOUGH!

DEMENSION CALCULATIONS

EXCAVATION ESTIMATE 19-50 Yd^3



PLAN AEM

SQ. FT. AREA
3' WIDTH
4' WIDTH

PLAN AEN

SQ. FT. AREA
3' WIDTH
4' WIDTH

PLAN ASM 9-15 AS? 9-11

YELLOW
- SQ. FT. AREA 67.5 + 49.5
- 3' WIDTH 351.0 FT^3 = 13.0 Yd^3
- 4' WIDTH 468.0 " = 17.3 "

PLAN ATN 12.5 × 26 AT? 12.5 - 14

RED
- SQ. FT. AREA 162.5 + 87.5
- 3' WIDTH 750.0 FT^3 = 27.8 Yd^3
- 4' WIDTH 1000.0 " = 37.0 "

Gila Copper Sulphide Co.

sub. of New. Co. of America
Saddle Mtn. Mining Co.
Globe, Ariz. mailing address

640 acres of patented claims

lower basin of Deer Creek
~~Sand~~ Saddle Mtn. Dist.

Pinal County

1917

Sauthof Winkelman

S. Lang
7234 E. Bellevue
Scts, Az. 85257

PHOENIX, AZ 850
PM
16 OCT
1979

Charlie May
58 W. Edgemont
Phoenix, Az. 85003

Harold D. Lang
3500 Granada, Apt. 305
Santa Clara, Calif. 95051

SAN ... CA 951
PM
17 FEB
1979

Mr. & Mrs. Charles R. May
58 W. Edgemont
Phoenix, Arizona 85003
85003

DATE FRI. 13TH - 1979

8	00	5.
	30	
9	00	
	30	ELDEN SECHLER
10	00	
	30	
11	00	
	30	
12	00	
	30	
1	00	
	30	
2	00	
	30	
3	00	
	30	
4	00	
	30	
5	00	
	30	
6	00	
	30	

NOTES 5-29-79

QUEEN SHEBA MINE

1. CLEAN MUD OUT OF TUNNEL AS FAR AS POSSIBLE CHECKING FOR ANY WEAK OR POTENTIALLY DANGEROUS AREAS.

2. BUILD DIKE ABOVE MINE OPENING & OPEN DAM TO ALLOW FLOW OF WATER

3. TIME ALLOWING WE MIGHT SAMPLE VALUES AT BED ROCK IN CREEK BED.

4. AIRPLANE LANDING FOR RAMP & POSSIBLY CREEK BED. WE WOULD PROBABLY WANT TO STORE THE LATTER AT RANCH OR WHEN NOT USING.

ST. LUKE'S HOSPITAL MEDICAL CENTER
Phoenix, Arizona

MESSAGE RECORD

To Chuck | Date 9/20 | Time 4:00 ☐ AM ☑ PM

From Tom Horn | Phone 262-5738

Of

☑ TELEPHONED ☑ PLEASE PHONE
☐ CALLED TO SEE YOU ☐ WILL CALL AGAIN
☐ WANTS TO SEE YOU ☐ RETURNED YOUR CALL

Subject ☐ *Please file*

MESSAGE

Action | Message taken by Carol

Form 460 (8/74) *Please destroy if not a permanent record.*

Aldoril® D30

containing 30 mg HydroDIURIL® (Hydrochlorothiazide, MSD)
and 500 mg ALDOMET® (Methyldopa, MSD)

GILLS
DRILLING

AIR DRILLING + SUPPLY
937-8359
5643 N. 52 AVE
JAY.
BENTLEWITE

6.06
3759

AIR PUMP + SUPPLY

MSD
MERCK SHARP & DOHME

Aldoril® D50

containing 50 mg HydroDIURIL® (Hydrochlorothiazide, MSD)
and 500 mg ALDOMET® (Methyldopa, MSD)

Aldoril® D30

containing 30 mg HydroDIURIL® (Hydrochlorothiazide, MSD)
and 500 mg ALDOMET® (Methyldopa, MSD)

MSD
MERCK SHARP & DOHME

GILLIS DRILLING
HAVE EQUIP. TO DRILL?
SHAFT, ETC.

ARIZ DRILLING & SUPPLY
939-8359
5643 N. 52ND AVE
ASK FOR JIM
PRICE - 6.06
3.59

Aldoril® D50

containing 50 mg HydroDIURIL® (Hydrochlorothiazide, MSD)
and 500 mg ALDOMET® (Methyldopa, MSD)

CHEMICAL ANALYSIS
MECHANICAL TESTING
SPECTRO-CHEM. CONSULTING

BUS: 948-6907
RES: 991-4320
AREA CODE: 602

A.S.T. LABORATORIES, INC.

—ATOMIC SPECTROSCOPY & TESTING—

SIEGFRIED BREMER
PRESIDENT

7730 E. REDFIELD RD.
SUITE #4
SCOTTSDALE, AZ 85260

A.S.T. LABORATORIES, INC.

– ATOMIC SPECTROSCOPY & TESTING –

7730 E. REDFIELD RD. • SUITE #4 • SCOTTSDALE, AZ 85260 • (602) 948-6907

CERTIFIED TEST REPORT

2466

DATE: september 2, 1981

CUSTOMER: QUEEN SHEBA MINES

YOUR P.O.: Verbal

JOB NO:

MATERIAL: Ore

HEAT NO:

PART NO:

S/N:

SPECIFICATION:

☐ Metallography ☐ Hardness ☒ Chemistry Semi-quant ☐ _____

Ag	.003 - .01%	1.8 oz./ton Ag (based on .005%)
Al	1. - 5.%	
Au	.001 - .005%	1.1 oz./ton Au (based on .003%)
Cu	.03 - .1%	
Fe	1. - 5.%	
Ni	.005 - .03%	
Pb	.05 - .3%	
pd	*	
Pt	*	
Si	Major	

* less than .001% or not detected

Elements listed are either in the metallic or oxide state.

Respectfully submitted

A.S.T. LABORATORIES, INC.

A.S.T. LABORATORIES, INC.

– ATOMIC SPECTROSCOPY & TESTING –

7730 E. REDFIELD RD. • SUITE #4 • SCOTTSDALE, AZ 85260 • (602) 948-6907

CERTIFIED TEST REPORT

2466

DATE: september 2, 1981

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YOUR P.O.: Verbal

JOB NO:

MATERIAL: Ore

HEAT NO:

PART NO:

S/N:

SPECIFICATION:

☐ Metallography ☐ Hardness ☒ Chemistry Semi-quant ☐ _____

Ag	.003 - .01%	1.8 oz./ton Ag (based on .005%)
Al	1. - 5.%	
Au	.001 - .005%	1.1 oz./ton Au (based on .003%)
Cu	.03 - .1%	
Fe	1. - 5.%	
Ni	.005 - .03%	
Pb	.05 - .3%	
pd	*	
Pt	*	
Si	Major	

* less than .001% or not detected

Elements listed are either in the metallic or oxide state.

Respectfully submitted

E. Greaves

A.S.T. LABORATORIES, INC.

A.S.T. LABORATORIES, INC.

– ATOMIC SPECTROSCOPY & TESTING –

7730 E. REDFIELD RD. • SUITE # 4 • SCOTTSDALE, AZ 85260 • (602) 948-6907

CERTIFIED TEST REPORT

2466

DATE: september 2, 1981

CUSTOMER: QUEEN SHEBA MINES

YOUR P.O.: Verbal

JOB NO:

MATERIAL: Ore

HEAT NO:

PART NO:

S/N:

SPECIFICATION:

☐ Metallography ☐ Hardness ☒ Chemistry Semi-quant ☐ _____

Ag	.003 - .01%	1.8 oz./ton Ag (based on .005%)
Al	1. - 5.%	
Au	.001 - .005%	1.1 oz./ton Au (based on .003%)
Cu	.03 - .1%	
Fe	1. - 5.%	
Ni	.005 - .03%	
Pb	.05 - .3%	
pd	*	
Pt	*	
Si	Major	

* less than .001% or not detected

Elements listed are either in the metallic or oxide state.

Respectfully submitted

A.S.T. LABORATORIES, INC.

A.S.T. LABORATORIES, INC.

– ATOMIC SPECTROSCOPY & TESTING –
7730 E. REDFIELD RD. • SUITE #4 • SCOTTSDALE, AZ 85260
(602) 948-6907

INVOICE
1879

SOLD TO

QUEEN SHEBA MInes
c/o Charles R. May
58 W. Edgemont
Phoenix, Az. 85003

INVOICE DATE	SHIPPING DATE	CUSTOMER ORDER NO.	TERMS:	REPORT NO.
9-2-81		Verbal		2466

ITEM	QUANTITY ORD'D.	QUANTITY SHIPPED	DESCRIPTION	UNIT PRICE	AMOUNT
	1		Test preparation		$ 15.00
	1		Chemistry (1-10 elements - semi quant)		35.00
					$ 50.00

PAID IN FULL

Credit
C. mmy Account

PLEASE PAY FROM INVOICE
STATEMENTS MAILED ONLY ON REQUEST

ORIGINAL

A.S.T. LABORATORIES, INC.

– ATOMIC SPECTROSCOPY & TESTING –
7730 E. REDFIELD RD. • SUITE #4 • SCOTTSDALE, AZ 85260
(602) 948-6907

INVOICE
1879

SOLD TO

QUEEN SHEBA MInes
c/o Charles R. May
58 W. Edgemont
Phoenix, Az. 85003

INVOICE DATE	SHIPPING DATE	CUSTOMER ORDER NO.	TERMS:	REPORT NO.
9-2-81		Verbal		2466

ITEM	QUANTITY ORD'D.	QUANTITY SHIPPED	DESCRIPTION	UNIT PRICE	AMOUNT
	1		Test preparation		$ 15.00
	1		Chemistry (1-10 elements - semi quant)		35.00
					$ 50.00

PAID IN FULL

PLEASE PAY FROM INVOICE
STATEMENTS MAILED ONLY ON REQUEST

DUPLICATE

INVOICE

Arizona Testing Laboratories

Invoice No. 10362

817 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

In Account With: Queen Sheba Mines
Charles May
58 W Edgemont
Phx - 85003

PURCHASE ORDER •

DATE • November 21, 1979

LAB. NO. • 3107

PLEASE PAY FROM THIS INVOICE • STATEMENT UPON REQUEST

DATE	QUANTITY	ITEMS	UNIT PRICE	AMOUNT
	1	Spectrographic Analysis + sample preparation		$ 17.00

Arizona Testing Laboratories

815 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

For: Queen Sheba Mines

Date: November 21, 1979

Lab. No.: 3107

Received: -----

Marked: Core Sample

Submitted by: same

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

ELEMENT	APPROXIMATE PERCENT
Boron	0.005
Silicon	Major Constituent
Aluminum	10.0
Manganese	0.1
Magnesium	2.0
Lead	0.5
Chromium	0.005
Iron	7.0
Molybdenum	0.005
Calcium	1.0
Vanadium	0.005
Copper	0.02
Sodium	8.0
Titanium	0.2
Silver	0.001
Zirconium	0.01
Nickel	0.01

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

INVOICE

Arizona Testing Laboratories

Invoice No. 10423

817 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

In Account With: Queen Sheba Mines
Mr. Charles May
58 West Edgemont
Phoenix,Arizona 85003

PURCHASE ORDER •

DATE •November 28, 1979

LAB. NO. •3107

PLEASE PAY FROM THIS INVOICE • STATEMENT UPON REQUEST

DATE	QUANTITY	ITEMS	UNIT PRICE	AMOUNT
	1 ea	gold & silver assay on pulped sample		$ 7.00

Paid in full by ch # 10
A Laird
also Invoice No 10362 for $17.00

Arizona Testing Laboratories

817 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

For Queen Sheba Mining
Mr. Charles May
58 West Edgemont
Phoenix, AZ. 85003

Date November 28, 1979

ASSAY CERTIFICATE

LAB NO.	IDENTIFICATION	OZ. PER TON		PERCENTAGES			
		GOLD	SILVER	COPPER			
3107	Core sample GM #1 170 FT Location — Just ACROSS The wash — GM #1	trace	0.40				

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Registered Assayer CERTIFICATE NO. 6258 CLAUDE EUGENE McLEAN, JR. Date Signed 11/28/79 ARIZONA, U.S.A.

Emma Mine Investigation — 11-27-78 (AL)

Emma I Claim 9-28-20 Map Maricopa Co Vulture Dist
Another District also in file.

"Montezuma Mine (File).

Mammoth Black Jack + Constance Craig 52.55 acres
Survey May 1 - 1905

Blk Jack Data: 4×6 Shaft 125'
Drift 200' Long
"2 - Shaft 4×6' × 60' deep
"3 - " 5×6 × 30' "
"5 " 4×6 × 30'
"6 " 4×6 × 20'
"7 " 4×6 × 16'
"8 " 4×6 × 0'

Claim Location + Dates
Mammoth 12-2-1902
Black Jack 4-14-1890
Constance Craig 11-21-1902

Patent date 5-10-1906
Ser # ME 54 Px

Montezuma Mining - (Lead, Ag, Au, Antimony) Emma I Survey # 3014

Arizona Lead Co. (Lead mine + mill) ALFLAGS Survey 9-28-1920
1942 - operating a 50T Concentration Plant
Operator - Daniel + Campbell - Box 213 Wickenburg (1946)
(Dr) Palmer Mine - 5 mile West of Morristown. (1964) — (Dr. Payne Palmer '59).
Several 100 Tons - 20% Sample
Previously Called Montezuma

100,000 Ton Ore on dump. 4-30-42
(George L. Dillard - Wickenburg, Supt)

Sec. 15 + 22 Twp 6N Rg 4 W 3½ miles West of Hassayampa.

Prev. Operation by Aztecs. - Red Color used for dyes.
Spanish Left Large "Glory Hole" — Burros To River - Barges To Gulf & Then Shipped To San Francisco

WW I Ore Shipped + Smelted at
El Paso Tex by Am. Sm. + Ref. Co.

1942 - Operated by Geo Dillard — 64%

Assay Values

#	Mark on Sample	Au	Ag	Cu	Pb %
1	Galena	5/200	4.7		70.7
2	Bottom Shaft #1	9/500	4.0		45.3
3	Iron Stained N Wall	97/200	1.0		
4	Shaft 1 East Side	TR	3.5		39.8

Summary of the geology in the Vulture Mountains
south of Wickenburg, Arizona by John W. Whitney

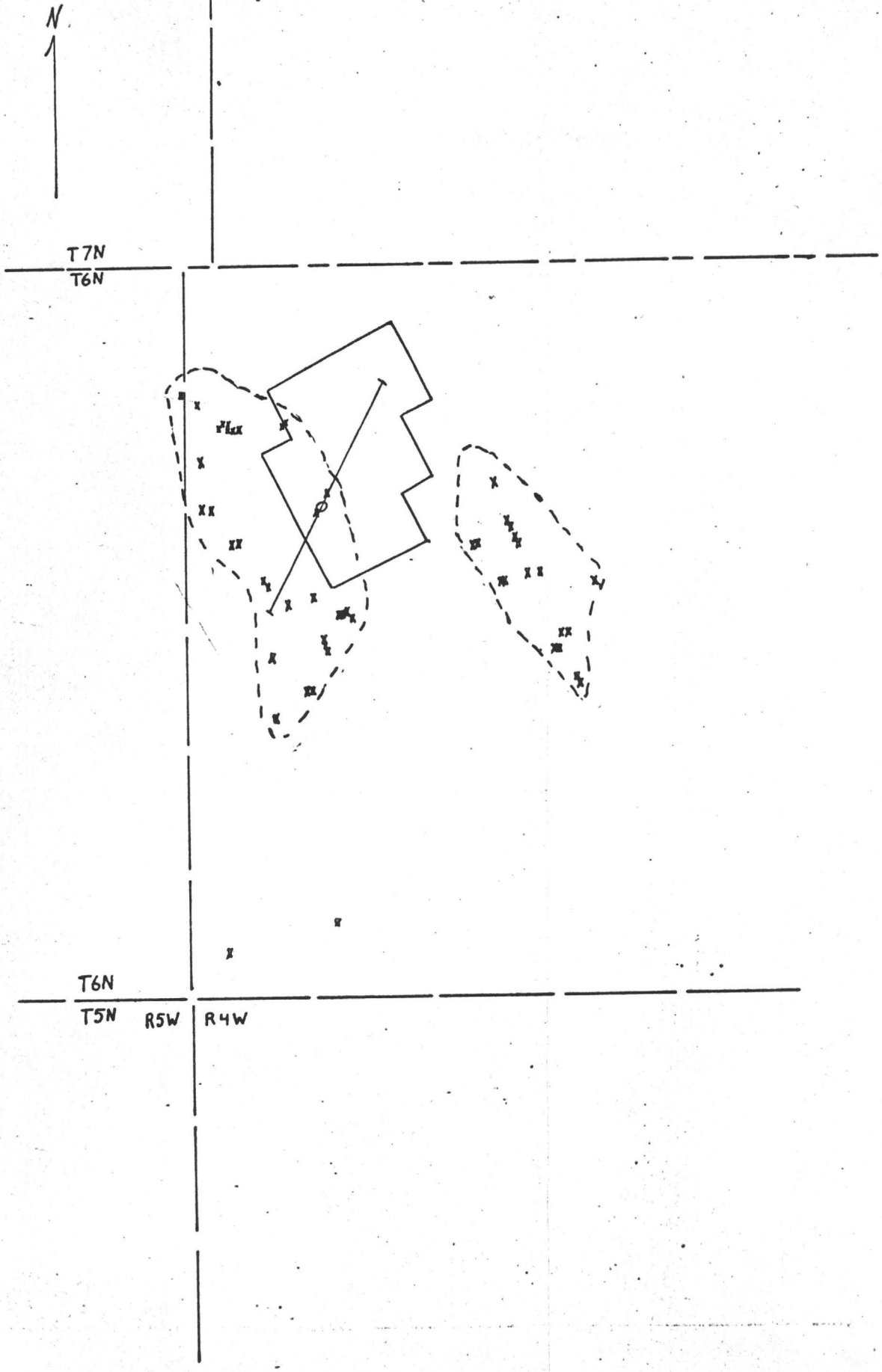
Only the regional geology is dealt with in this report. The geology was taken from the Arizona State Geological Map and from the Geological Map of Maricopa County. No information was available about the structural geology of the Vulture Mountains.

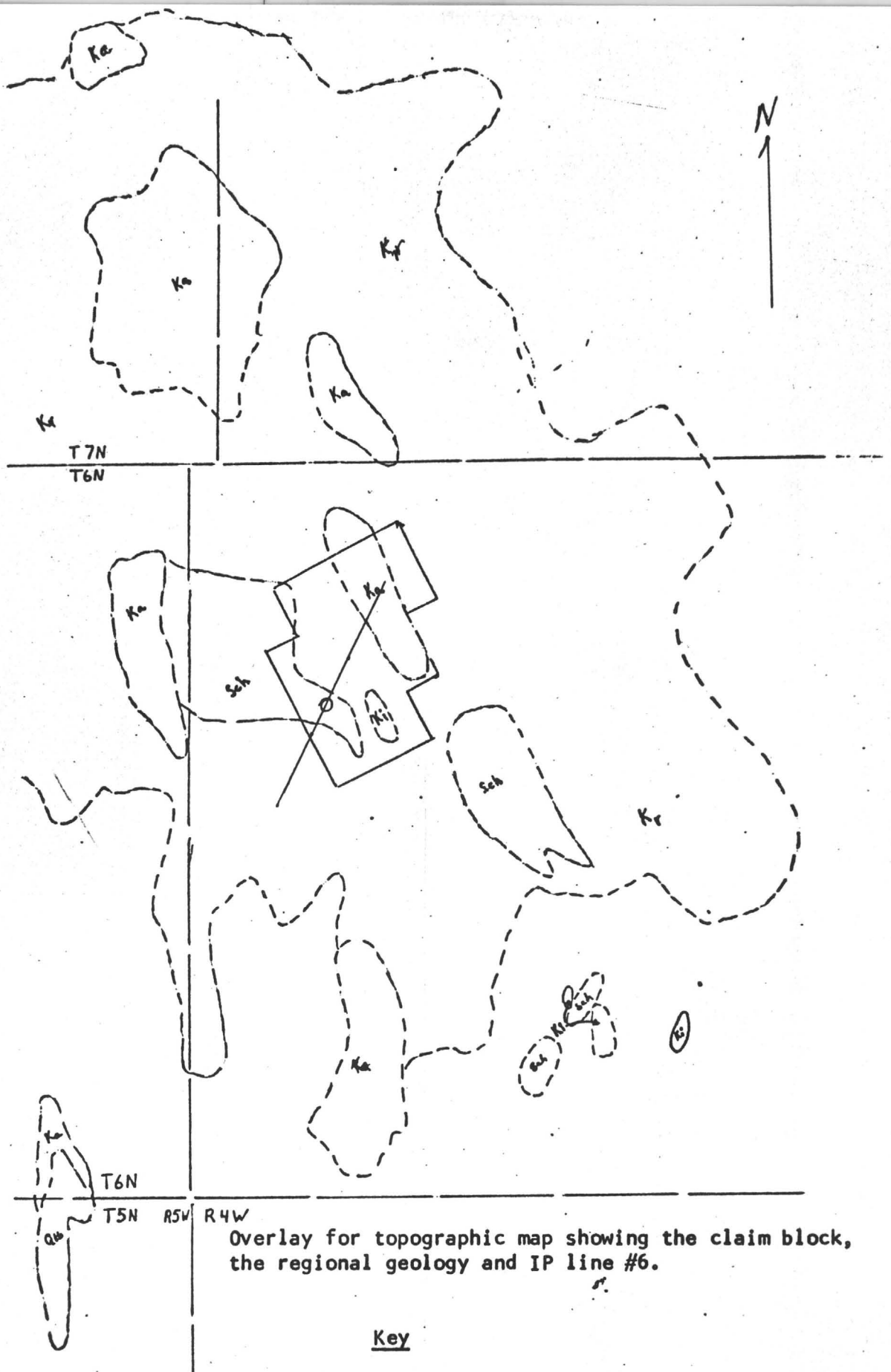
Two distinct rock types occur in the Vulture Mountains. These are Tertiary and Cretaceous volcanic flows, and Precambrian schist rocks. The Tertiary rocks are predominately basalts and are underlain by andesitic and rhyolitic volcanic rocks of Cretaceous age. The volcanics are primarily flow rocks, although there is a small intrusive of similar composition within the claim boundaries. These volcanic rocks are underlain by the Precambrian schist rocks. The schist is exposed through windows where the overlying volcanics have been eroded away.

Mineralization occurred in the Vulture Mountains after the volcanics were deposited. This mineralization may be associated with the intrusive that occurs within the claim boundaries. The underlying schist has apparently been especially susceptible to mineralization because wherever it is exposed there are prospects in it. Although detailed information is not available, it is known that copper, lead, silver and fluorspar occur in nearby prospects and mines. Copper occurs in prospects within and adjacent to the claim group.

It is generally known that in many mining districts in the SW United States mineralized veins often occur directly over and adjacent to deep porphyry copper deposits. It is also known that the Precambrian schist rocks are very good host rocks for copper mineralization. The problem is that of locating the center from which the mineralizing fluids have come and thus the porphyry deposit. One technique for this type of search is the IP survey such as that done by Geoterrex Ltd. The long IP line that was surveyed is shown on the maps and a circle is drawn approximately where a deep anomaly was located. The distribution of prospects, the occurrence of favorable host rocks and the prescence of a nearby intrusive indicate that this anomaly may be significant as an indicator of a deep porphyry type target.

Overlay for topographic map showing the claim block, the distribution of prospects in the surrounding area and IP line #6.





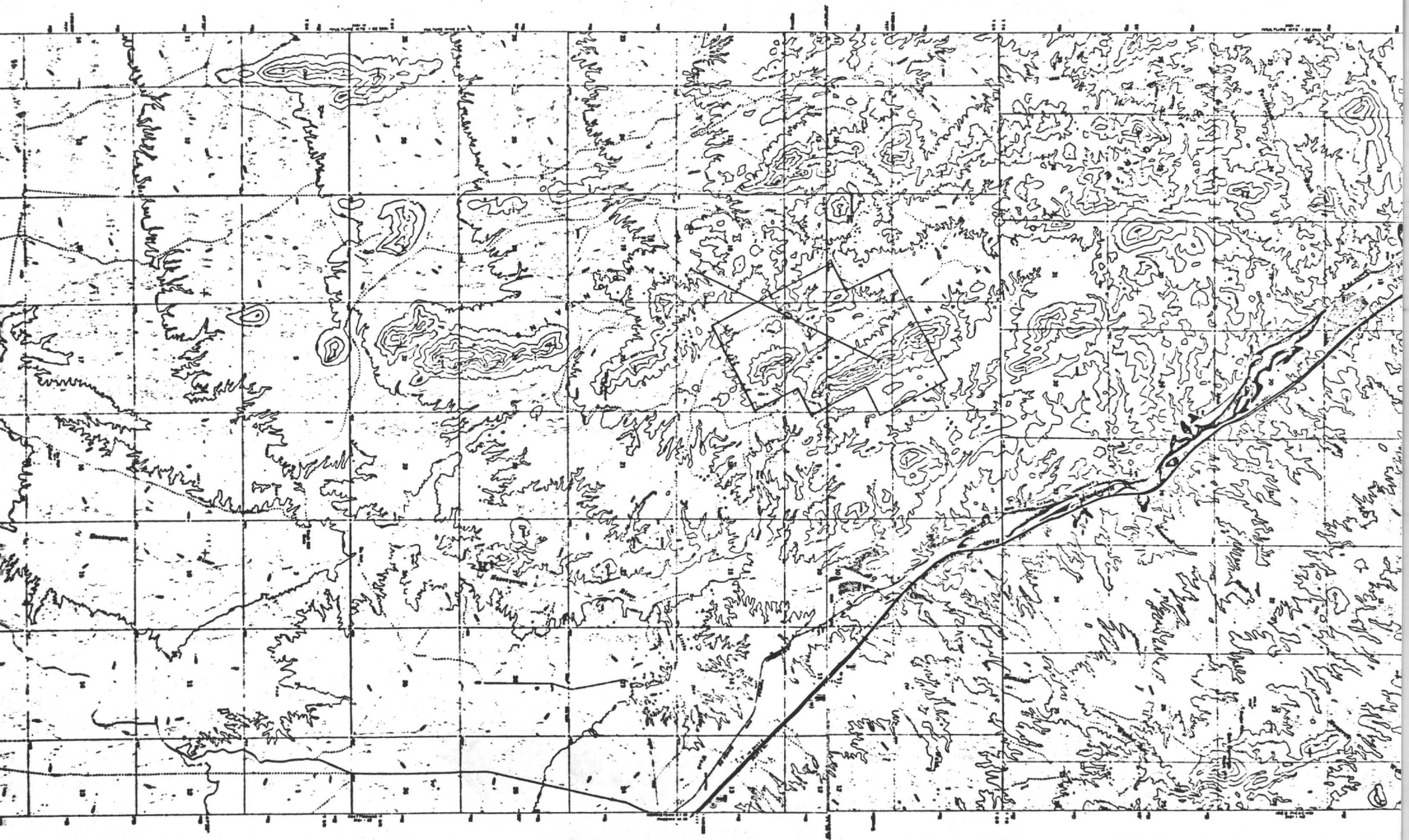
Overlay for topographic map showing the claim block, the regional geology and IP line #6.

Key

- Tertiary
  - Qtb Basalt
- Cretaceous
  - Ki Dikes & Plugs (rhyolitic to andesitic)
  - Ka Andesite - (Possibly Tertiary Andesite flows) - Arizona Highway Geologic Map (1967)
  - Kr Rhyolite
- Precambrian
  - Sch Schist (pE)

From the Arizona State Geologic Map
and the Geologic Map of Maricopa County
All outcrops Approximately Located

Topographic map compiled from the Wickenburg and Wickenburg SW 7.5 min Quadrangle Maps showing location of claim block and IP line #6.



XTRA

ATL Arizona Testing Laboratories
817 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181
Chemists
Engineers
Geologists

For: Queen of Sheba
Mr. May
1890 East Van Buren
Phoenix, Arizona

Date: December 1, 1971

Lab. No.: 1425

Sample: Ore

Marked: No Mark

Received: 11-30-71

Submitted by: same

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

ELEMENT	APPROXIMATE PERCENT
Silicon	Major Constituent
Aluminum	3.0
Manganese	0.1
Magnesium	0.4
Lead	2.0
Copper	Intermediate Constituent
Iron	Intermediate Constituent
Bismuth	0.1
Molybdenum	0.005
Calcium	2.0
Zinc	2.0
Titanium	0.004
Silver	0.005

Surface
Grab Sample
#1 Claim

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E McLeagh

Claude E. McLean, Jr.

ARIZONA TESTING LABORATORIES

A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
817 WEST MADISON ST. PHOENIX, ARIZONA 85007 PHONE 254-6181

For: Queen Sheba Mines
14439 North 73rd Street
Scottsdale, Arizona 85260

Date: July 10, 1974

Lab. No.: 7237

Received: 7-9-74

Marked: Hole 4, 65' thru 80'

Submitted by: Mr. Harold D. Lang

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

ELEMENT		APPROXIMATE PERCENT			
		Hole 4: 65'	70'	75'	80'
.01	Boron	0.01	0.005	0.005	0.005
MC	Silicon	Major Constituent			
IC	Aluminum	7.0	5.0	5.0	7.0
.1	Manganese	0.4	0.4	0.3	0.4
.6	Magnesium	5.0	3.0	4.0	5.0
1.0	Lead	---	0.2	---	---
	Gallium	0.005	0.004	0.004	0.003
.05	Copper	0.04	0.04	0.03	0.02
9%	Iron	IC*	10.0	10.0	IC*
.005	Vanacium	0.008	0.007	0.008	0.006
1.0	Calcium	2.0	2.0	2.0	2.0
1.0	Sodium	6.0	4.0	6.0	4.0
.5	Zinc	---	1.0	---	---
.2	Titanium	0.3	0.2	0.2	0.3
.01	Nickel	0.01	0.005	0.005	0.005
		26.773	25.861	27.552	18.139

IC* = Intermediate Constituent

FOR JOHN WHANEY
TO SEE IF ANY CORRELATION
WITH IP DATA.

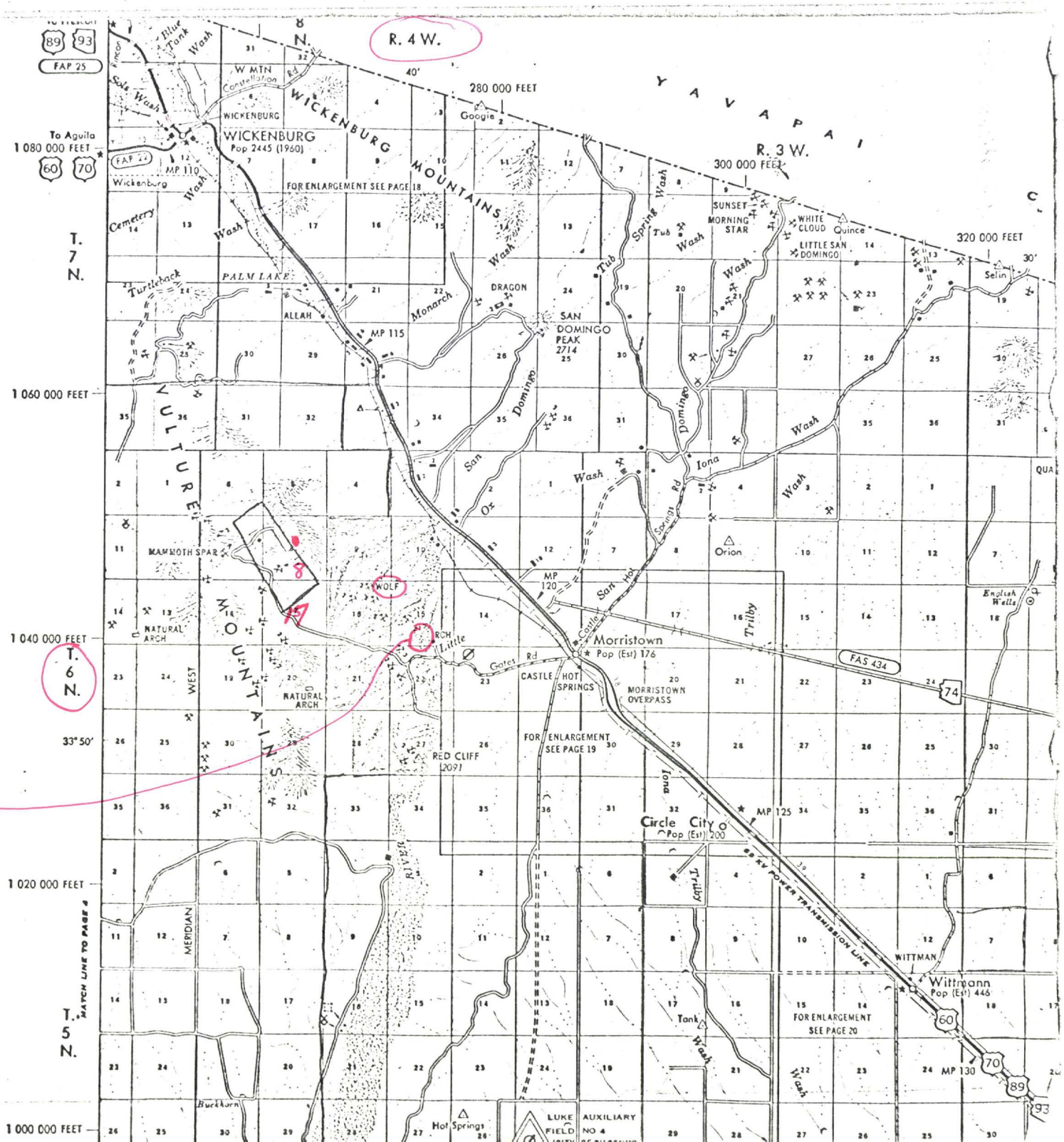
Atomic ABSORPTION
WOULD COST $4/ELEMENT

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

RECEIVED JUL 11 1974


R. 4 W.
R. 3 W.
8 N.
7 N.
6 N.
5 N.
T.
280 000 FEET
300 000 FEET
320 000 FEET
1 080 000 FEET
1 060 000 FEET
1 040 000 FEET
1 020 000 FEET
1 000 000 FEET
33° 50'
YAVAPAI
WICKENBURG MOUNTAINS
VULTURE MOUNTAINS
WICKENBURG
Pop 2445 (1960)
To Aguila
FAP 25
FAP 24
MP 110
MP 115
MP 120
MP 125
MP 130
FOR ENLARGEMENT SEE PAGE 18
FOR ENLARGEMENT SEE PAGE 19
FOR ENLARGEMENT SEE PAGE 20
MATCH LINE TO PAGE 4
Wickenburg
Cemetery
Blue Tank Wash
Sols Wash
W MTN Constellation Rd
Tub Spring Wash
Turtleback
PALM LAKE
ALLAH
Monarch Wash
DRAGON
SAN DOMINGO PEAK 2714
San Domingo Wash
SUNSET
MORNING STAR
WHITE CLOUD
Quince
LITTLE SAN DOMINGO
Selin
San Ox Wash
Iona Wash
Iona Springs Rd
Orion
MAMMOTH SPAR
WOLF
NATURAL ARCH
WEST NATURAL ARCH
Little Castle Rd
Gates Rd
Morristown
Pop (Est) 176
CASTLE HOT SPRINGS
MORRISTOWN OVERPASS
FAS 434
Trilby
English Wells
RED CLIFF 2091
Circle City
Pop (Est) 200
Trilby Tank
AZ POWER TRANSMISSION LINE
WITTMAN
Wittmann
Pop (Est) 446
Hot Springs
LUKE AUXILIARY NO 4
LUKE FIELD SOUTH
Buckhorn
Tank
Wash
MERIDIAN
RIVER
Emma

PRODUCT DEVELOPMENT CHEMICAL ANALYSIS APPLIED RESEARCH

ARC LABORATORIES

Division of Arizona Research Consultants, Inc.

9236 NORTH 10TH AVE. P.O. BOX 9545 602 943-3573

PHOENIX, ARIZONA 85068

XTRA

Queen Sheba Mines
58 W. Edgemont
Phoenix, Arizona 85003

DATE November 22, 1978

LAB No. 17245 - 54

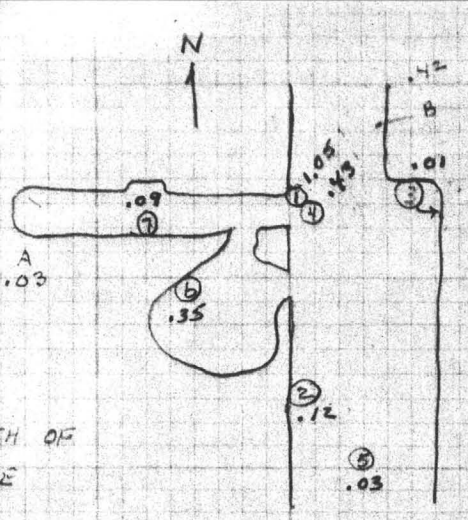
RESULTS

Lab No.	Description	Gold, oz/T
17245	#1	1.05
17246	#2	0.12
17247	#3	0.01
17248	#4	0.43
17249	#5	0.03
17250	#6	0.35
17251	#7	0.09
17252	#8	0.28
17253	#9	0.02
17254	#10	nil

Respectfully submitted,
ARC LABORATORIES

John P. Sickafoose, Ph.D.
Technical Director

11-8-78 ASSAY VALUES IN RED (11-15-78)



SAMPLE #1
1.05
17245 LAB #
5' VEIN DEPTH AT INTERSECTION OF MAIN TUNNEL & WEST TUNNEL. SAMPLED AT LOWER PART OF 5' VEIN.

SAMPLE #2
.12
+1
FROM WEST WALL OF CUT, ABOUT 8' SOUTH OF MAIN TUNNEL. LOWER PART OF VEIN AND THE SCHIST LYING UNDER THE RED VEIN.

SAMPLE #3
.01
FROM EAST SIDE OF MAIN TUNNEL ENTRANCE UNDER THE UPPER VEIN. JUST OUTSIDE MAIN TUNNEL ENTRANCE

SAMPLE #4
.43
FROM TOP PART OF VEIN ON WEST SIDE OF MAIN TUNNEL ENTRANCE. SAME LOCATION AS SAMPLE #1. EXCEPT FROM TOP OF VEIN; WHEREAS, SAMPLE #1 WAS FROM BOTTOM OF VEIN.

SAMPLE #5
.03
Appx 25' South of MAIN TUNNEL ENTRANCE AND CENTER OF THE CUT. This WOULD HAVE BEEN ABOUT 5' BELOW THE ORIGINAL SURFACE.

SAMPLE #6
.35
FROM UNDER FELDSPAR VEIN (RED VEIN under The White)

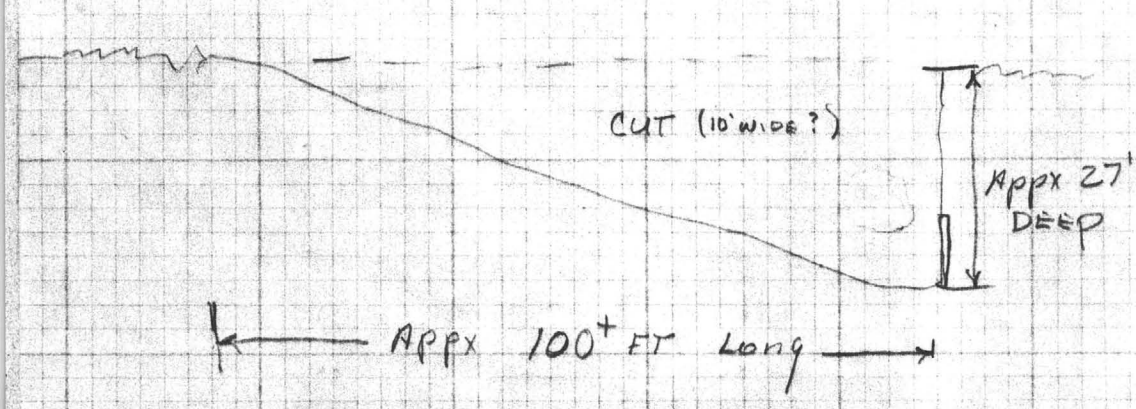
SAMPLE #7
.09
FROM SOUTH SIDE OF WEST TUNNEL - About ½ way BACK.

SAMPLE #8
.28
SAMPLE #9
.02
FROM OTHER SURFACE WORKINGS Southwest of Sm #1 } 2 LOCATIONS
" " " " " " "

SAMPLE #10
NIL
#17254
ODD SAMPLES TAKEN BY D. STEEN, SOUTHWEST OF SAMPLE 8+9 AREA + CLOSE TO ROAD. OUTCROPING ON SW SIDESLOPE. NEAR CACTUS WITH 5 FINGERS. (FAR WEST QUEEN SHEBA CLAIM).

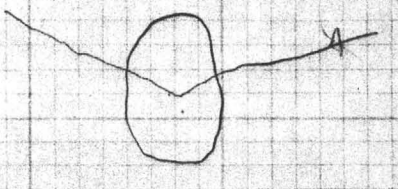
UNMARKED SAMPLE
FELDSPAR FROM Sm #1 (Close + Just ABOVE SAMPLE #6)

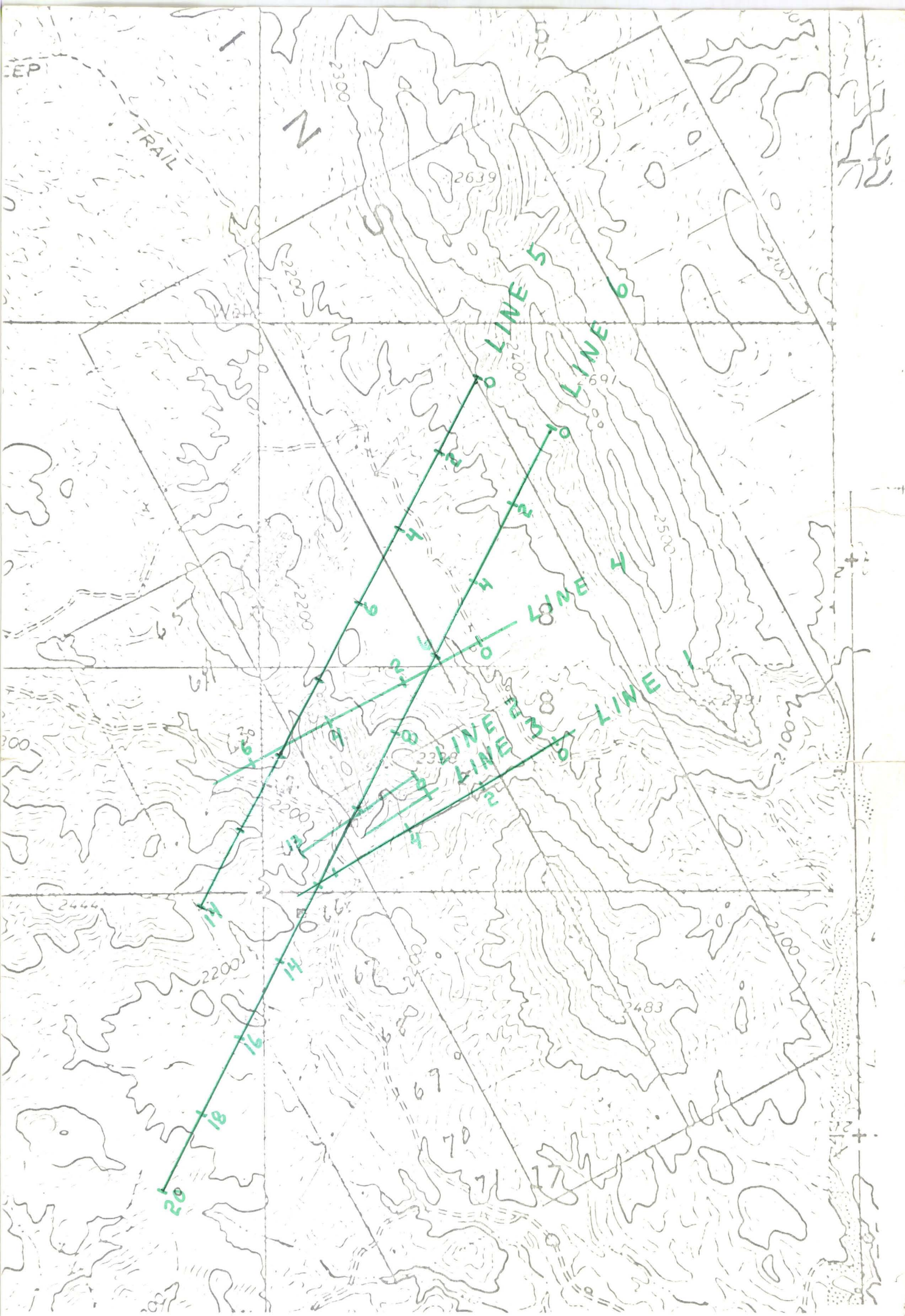
HL + DS (SAMPLERS)



Cut Info

½ BH
½(27)(100) = 1350 SQ FT
= 13500 CU FT
Est. 500 Cu Yds




TRAIL
LINE 5
LINE 6
LINE 7
LINE 2
LINE 3
LINE 1
2639
2483
2444
2200
2300
2500
2100

XTRA

P.O. Box 92
State College, Pa.
16801
July 9, 1974

Mr. Bud Brown
Queen Sheba Mining Corporation
14439 North 73rd Street
Scottsdale, Arizona 85260

Dear Bud,

Enclosed is the geological report and interpretation of all the data presently available on the Queen Sheba claim group. The results are more encouraging than I had originally thought they would be. As a result, I have recommended a course of action that you may want to consider for further work on the claim group.

I do not think that additional magnetometer work would add very much at the present time. I do think, however, that if it can be arranged, a rock chip geochemistry survey, or additional I.P. work would be more useful. You may also wish to submit the additional information to the more encouraging geologists that you and Mr. Long contacted earlier.

I have also prepared a final bill for the geological work, map preparation, and report writing as discussed in the board of director's meeting on June 24. If there are any questions, please call me at (814) 865-0541.

Sincerely,

John W. Whitney

John W. Whitney

JWW/bap
Enclosures
Xerox Copy to John McClure
P.O. Box 2533
South Padre Island, Texas
78578

RECEIVED JUL 11 1974

Geology and Mineralization of the Queen of Sheba Claim Group, Vulture Mountains, Arizona

By John W. Whitney, July 1974

INTRODUCTION

This report presents information gathered by field reconnaissance of the Queen of Sheba mining claims located in the Vulture Mountains about eight miles south of Wickenburg in Maricopa County, Arizona. Field work was performed the last week in June 1974, data reduction and map interpretation were performed during the first week of July 1974. John W. Mc Clure of Eldorado, Kansas performed a magnetometer survey during the same time period. The author did the geologic mapping and interpretated the magnetometer results.

This report integrates work that was done previously with results of the work noted above. It is possible that a deep copper-iron mineral body could occur within the claim boundaries. This deep target is located by the I.P. survey and magnetometer survey and is apparently located in the extension of a North-South fault zone in the center of the claim group. This target area is marked on the geologic map and the magnetometer survey map. Minimum dimensions of the target area are 3000 feet by 1000 feet.

GEOLOGY

Rock Types

Three general rock types are found on the Queen Sheba claim group. These are Precambrian schists, Cretaceous volcanics and Cretaceous (or younger) intrusive rocks. The Precambrian rocks are predominantly mica schists, although interbedded carbonate and siliceous units also occur.

The Precambrian rocks are high-grade metamorphic rocks as indicated by andalusite bearing mica schists and garnet-epidote units. Bedding is still distinguishable and schistosity is parallel to bedding planes. The strike of these rocks in the south part of the claim block is west-northwest; in the north half it changes to a northeasterly direction. These rocks dip steeply to the north.

Two separate sequences of Cretaceous volcanic rocks have been mapped in the Vulture Mountains. These are Cretaceous rhyolite flows and andesite flows of the same age. Within the claim block rhyolite rocks are found on the north-south ridge that is located in the center of the claim block. This ridge has no name, and so it will be called La Firmosa ridge (See Geology Map) after a patented claim located on the ridge. Rhyolitic rocks are also found on a rather sharp hill to the southeast of La Firmosa ridge. This hill will be called La Aguila hill (See Geology Map) after the other patented claim found in the center of the Queen of Sheba claim block. The rhyolite on La Firmosa ridge is a massive red rock that is sometimes porphyritic. This rhyolite was apparently overlain by the rocks that are exposed on La Aguila hill. The rocks on La Aguila hill are more tuffaceous, are vesicular and appear to be similar to siliceous sinter. This unit is layered, or banded and is vesicular with vesicles being partially or completely filled by calcite, manganese, and quartz. The color of this unit varies from creamy white to pink (deep red on weathered surface).

A north-south stream is found on the east side of La Aguila hill. This stream marks the boundary between the rhyolites and the andesites. The andesites are flow rocks of varying composition. Separate flows can be distinguished by differences in texture, composition, and color.

These rocks strike northwest and dip to the northeast. They occur in the eastern one third of the claim block and form the ridge that lies in the eastern edge of the claims.

The intrusive rocks are of two types and have two rather distinct modes of occurrence. The ridges on the southwest quarter of the claim block are cored by dikes. These dikes range from quartz-latite porphyry to rhyolite in composition with rhyolite being the predominant dike rock. These dike rocks occur exclusively in the Precambrian schist, and are not found intruding the volcanic rocks. The other intrusive rock type found on the claim block is a creamy white felsite porphyry. The felsite porphyry intrudes the vesicular rhyolite and the andesite flow rocks. It is found primarily to the east of the number one prospect and on the east flank of La Aguila hill. The felsite porphyry was forcefully emplaced as evidenced by flow banding and brecciation in the vesicular rhyolite where it has been intruded by the felsite porphyry. The felsite porphyry apparently underlies La Aquila hill. It extends to the north as a discontinuous dike along the contact between the andesite and the rhyolite as far north as the east-west road in the northern part of the claim block.

Structure

The Queen of Sheba claim group can be divided into four distinguishable structural blocks. The dike intruded schist rocks west of La Firmosa ridge form one block. A north-south fault separates the schist rocks from the rhyolites of La Firmosa ridge. This fault will be called La Firmosa fault. La Firmosa ridge is truncated on the north by an east-west trending fault that places non-dike-intruded schist rocks in fault contact with the dike intruded schist rocks and with the rhyolite flows. This block is the second distinguishable block. The rhyolite rocks found in the center of the claim group form the third block. They are bounded

by schist rocks on the west and north and by andesites on the east. The contact with the andesites is also a fault contact. The andesites form the fourth distinguishable block on the claim group.

Three identifiable faults occur within the claim group. They are: La Firmosa fault, the east-west fault north of La Firmosa ridge and the fault that places andesites in contact with the rhyolites. Very little can be said about the east-west fault to the north. The fault that places andesites in contact with the rhyolites has served (at least partially) as a zone of weakness for the intrusion of the felsite porphyry rocks. La Firmosa fault is the most interesting. It is weakly mineralized where it is exposed on the surface. It also widens and becomes a fault zone north of the No. 1 prospect on La Firmosa ridge. This fault zone extends about 2/3 the length of the claim block and may be of economic importance.

MAGNETOMETER SURVEY

John W. Mc Clure of Eldorado, Kansas performed a proton magnetometer survey. Interpretation of survey results was made by the author. A magnetic contour map was also prepared and is included as part of this report.

The magnetic survey was designed to map the La Firmosa fault zone. Specular hematite veining occurs along this fault zone and also minor magnetite, thus the fault zone should have a stronger magnetic expression than surrounding rocks. But, the results of the survey are not as easy to interpret as had been hoped.

Three important conclusions can be drawn from the survey however. The schist rocks and the rhyolite are not really distinguishable on the basis of magnetic characteristics. The andesite flow rocks do have a characteristic magnetic expression as can be seen on the magnetic map.

La Firmosa fault zone is characterized by a magnetic high, although it is not very intense.

A magnetic high does occur on the projected lower extension of La Firmosa fault zone west of prospect No. 1. This magnetic high could very likely result from magnetic mineralization at depth. The mineralization in the No. 1 prospect is specular hematite and copper. This zone has been mapped by I.P. as dipping to the southwest. If this is true then the magnetic high probably is associated with mineralization in the fault zone.

I.P. SURVEY

The I.P. Survey was conducted while the author was with Geoterrex, Ltd. in the fall of 1971. Four short east-west I.P. lines were run across the claims both north and south of the No. 1 prospect. These lines were designed to test for shallow sulfide mineralization in the La Firmosa fault zone. Weak indication of such mineralization was found on line 2. A shallow hole was drilled to test this and weak zinc mineralization was found.

Two long lines with 800 foot spacing were run in a north-easterly direction. They were designed to check for sulfides at depth on the property. A weak anomaly was mapped on both lines 5 and 6. The anomaly is deepest and strongest at station 8 on line 5 and at station 14 on line 6. Line 6 crossed the No. 1 prospect on La Firmosa ridge and the I.P. mapped the apparent extension of the mineralized fault zone to depth at station 14 on line 6. The same zone also appears to approach the surface between stations 4 and 6 on line 6. The zone mapped on line 5 is probably the extension of La Firmosa fault zone at depth.

MINERALIZATION

The mineralization on the Queen of Sheba claim group is of two types. The non-dike intruded schist rocks of the northern part of the claim group include a zone of weak gold mineralization. This zone is on a line with what could be the northern extension of La Firmosa fault zone. It is possible that this mineralization could be related to that found along the La Firmosa fault zone.

Mineralization along the La Firmosa fault zone is characterized by three minerals - calcite, quartz, and specular hematite. Weak copper staining also is found in prospects along this fault zone. Hydrothermal alteration is weak to absent, although epidote occurs extensively in the southwest corner of the claim block in the schist rocks. The epidote occurs in an area bounded by La Firmosa fault on the east, and approximately by a line drawn westward from the No. 1 prospect on the north. Station No. 14 on I.P. line number 6 occurs in the center of this area. So, the epidote could result from hydrothermal activity associated with a deep mineralizing source in this part of the claim group.

Surface mineralization is moderate to strong in the No. 1 prospect and in prospects just east and south of this area in the La Firmosa fault zone. The fault zone has been prospected to the south from the No. 1 prospect along La Firmosa ridge to the southern claim boundary. The mineralization is iron, quartz, calcite, and minor copper staining all along this zone. The mineralization is weaker north of the No. 1 prospect and the zone has not been extensively prospected. The northern end of La Firmosa ridge does have several prospects in the fault zone. Here stringers of iron occur and copper staining occurs in the schist along cleavage planes. In all, the mineralized fault zone can be traced for slightly more than a mile on the surface.

Shallow drilling was done for assessment work in 1972. Four holes were located along the fault zone. Holes 1, 3 and 4 encountered altered rocks and holes 3 and 4 encountered heavy iron staining near the bottom (Mc Clure, 1972). Both of these holes were located on the fault zone and so the intersection of heavy iron in the rocks should be considered an important positive result. Especially, if the proposed mineral body is a deep one.

INTERPRETATION

Several significant positive factors result from this study. La Firmosa fault zone runs north-south in the center of the claim group. This fault zone is weakly to moderately mineralized at the surface. The I.P. Survey apparently maps the extension of this fault zone to a depth of approximately 1000 feet. Two deep anomalies occur along this zone. One at Station 14 on line 6 and one at Station 8 on line 5. A magnetic anomaly occurs on a line drawn between these two I.P. stations to the west of the No. 1 prospect. This anomaly probably results from iron mineralization along the fault zone and is probably as deep as the two I.P. anomalies. Shallow drilling encountered heavy iron in the schist in drill holes #3 and #4 on the fault zone. The iron could be associated with a deeper mineralized body located in the fault zone. Epidote that could be a hydrothermal alteration mineral and minor iron, quartz, calcite veining occur in the southwest part of the claim block in the schist rocks. Weak copper mineralization occurs along the La Firmosa fault zone and is most intense at and to the south of the No. 1 prospect.

Insufficient surface evidence is available to determine if a copper ore body occurs on the property. Indirect evidence suggests that such a body could occur. It will more likely be an oxide deposit

than a sulfide deposit if it does occur. The abundant iron veining would also suggest that such a deposit could be high in iron. The absence of an extensive magnetic anomaly makes a large magnetite deposit unlikely although a hematite deposit could occur. An iron-copper deposit is a distinct possibility.

The zone of interest is marked on the geologic map included with this report. It extends at least from Station 8 on I.P. line no. 5 to Station 14 on I.P. line no. 6. It should be tested by drilling and the magnetic anomaly would probably be the best place to start. A recommended strategy for further work is included as part of this report.

RECOMMENDATIONS.

1. The option on the patented claims should be exercized if further work on the claim block is anticipated. The most interesting zone lies just west of and adjacent to these claims and acquisition by a third party could be very disadvantageous.
2. An aerial magnetic survey would probably not be very helpful in evaluating the claim group primarily because of the rock types in the claim group and their magnetic characteristics.
3. Further I.P. work could be done. Long lines similar to Lines 5 and 6 done earlier could be run. They would have to run east west and could provide further definition of the deep extension of the fault zone.
4. The most advantageous course of action would be to drill a hole on the magnetic anomaly west of prospect No. 1.

Recommended Strategy

Exercise the option on the two patented claims. Drill a rotary hole about 200 feet west of where #4 shallow hole was drilled. Rotary at least the first 500 feet collecting a sample every 20 feet. Below 500 feet, core when and if mineralized rock is encountered.

This approach has two purposes: 1. to test both the magnetic and the I.P. Anomalies at depth; and 2. if no mineral deposit, then there may be a chance of developing a water well so that patented claims can be developed as a housing site. Also, rotary drilling is cheaper and faster for this type of exploration. If an ore deposit is encountered or significant mineralization is intercepted, then core drilling can be done. The rock at the suggested drill site is a muscovite schist and so drilling should be fast and easy.

To satisfy the rest of this years' assessment work: contact Skyline Labs to see if they will do a rock-chip geochemistry survey across La Firmosa fault zone. Have the lines centered on La Firmosa fault zone and have them spaced 1,000 feet apart. They should run east-west and should be 1,000 feet long with samples taken every 100 feet. The center line should cross No. 1 prospect. There should be two lines north of No. 1 prospect and two lines south of No. 1 prospect. If there should be enough money available, then additional lines should be put in at 500 feet spacing beginning 500 feet north and 500 feet south of No. 1 prospect.

Address of Skyline Labs Inc.

Skyline Labs Inc.
12090 West 50th Place
Wheat Ridge, Colorado 80033

Phone: (303) 424-7718

Contact Edwin V. Post or Charles E. Thompson

Suggested Drilling Companies

1. Joy Manufacturing Co.
   750 E. Evans Blvd.
   Tucson, Arizona
   Long Distance - 294-2931

2. Boyles Bros. Drilling Co.
   944-1731 or 944-2741

3. Longyear, J. E. Co.
   308 E. Pima
   258-6543

4. Lewis Drilling Co.
   5098 Dobbins Road
   276-2656

Key Words - Rotary Drilling

Road Work - None

Location Preparation - Very little needed

Rock Type - Mica Schist, possibly some quartz veining soft rock

Expected Depth 1-2,000 feet, coring only where deemed necessary.

ARIZONA TESTING LABORATORIES
A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.
817 WEST MADISON ST. PHOENIX, ARIZONA 85007 PHONE 254-6181

For: Queen Sheba Mines
14439 North 73rd Street
Scottsdale, Arizona 85260

Date: July 10, 1974

Lab. No.: 7237

Received: 7-9-74

Marked: Hole 4, 65' thru 80'

Submitted by: Mr. Harold D. Lang

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

ELEMENT	APPROXIMATE PERCENT			
	Hole 4: 65'	70'	75'	80'
Boron	0.01	0.005	0.005	0.005
Silicon	Major Constituent----------			
Aluminum	7.0	5.0	5.0	7.0
Manganese	0.4	0.4	0.3	0.4
Magnesium	5.0	3.0	4.0	5.0
Lead	---	0.2	---	---
Gallium	0.005	0.004	0.004	0.003
Copper	0.04	0.04	0.03	0.02
Iron	IC*	10.0	10.0	IC*
Vanacium	0.008	0.007	0.008	0.006
Calcium	2.0	2.0	2.0	2.0
Sodium	6.0	4.0	6.0	4.0
Zinc	---	1.0	---	---
Titanium	0.3	0.2	0.2	0.3
Nickel	0.01	0.005	0.005	0.005
	20.773	25.861	27.552	18.739

IC* = Intermediate Constituent

FOR JOHN WHITNEY
TO SEE IF ANY CORRELATION WITH IP DATA.

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Atomic ABSORPTION WOULD COST $4/ELEMENT

RECEIVED JUL 11 1974

QUEEN SHEBA

Assay from INSIDE
#1 Gold MINE

1-8-75

.42 oz/TON Gold

@ $170/oz = $71.40

@ $165/oz = $69.30 /TON ORE

@ 315/oz = 132.30 /TON ORE

Steen Copper Claims —

Queen Sheba #2

Copper 3.7%
Gold .05 oz/ton
Silver .55 oz/ton

Queen Sheba #17

Copper 2.5%
Gold .01 oz/ton
Silver .10 oz/ton

Queen Sheba #1

Copper 10.5%
Gold .01 oz/ton
Silver .10 oz/ton

LAB # 11410
7-14-71

ARC LAB 9236 No 10th Ave
John T. Long 943-3573

65 ton Cars to Hayden – about $263.05

Valley Assay Office
1010 Lemon Tempe
967-3445

Cu 3.00
Sil 3.50 } 6.00
Gold 3.00 } 8.00

¼ lb Specimen
3½ - 4 Hours

M. .

7-9-73

C. MAY CALLED REF QUEEN SHEBA

#1 GOLD .03 → .09

#2 GOLD .07
CU 3% WIDE SEAM

MARCH 24, 1977 By H. Lang (Cimag instrument)

Geiger Check of following Samples Produced Nothing of significance! All Readings were No more than Normal Background Readings (0-.04 MH-HR)

1. 26 Samples taken 24' below surface as used for Geochem tests. Samples + claims Tagged on each sack.
2. Claim #1 Samples (Hole #?) From depths of 5' - 10' - 15' - 20'
3. Hole #8 (GM #2) Depths 10' - 15' - 20' - 25' - 30' - 35' - 40' 45' - 50' - 55' - 60' - 65' - 70'
4. Hole #7 (GM #1) From Wash Area.

Also checked about 15 Samples from The Idee Claims in Superstition

Also checked Copper Ore Sample from Mexico Green Door Property

ALL TESTS NEGATIVE!

60 Tests Total

Note: My Watch would Read About 0.3 MH-HR

QUEEN SHEBA QUALITATIVE SPECTROGRAPHIC EXAMINATIONS

	Initials	Date
Prepared By		
Approved By		

(1)	(2)	7-10-74 (3)	7-10-74 (4)	7-10-74 (5)	7-10-74 (6)	2-75 (7)	2-75 (8)	1-72 (9)	1-72 (10)	1-72 (11)	(12)	(13)
	ELEMENT	HOLE 4 65' %	HOLE 4 70' %	HOLE 4 75' %	HOLE 4 80'	HOLE 10 10'	HOLE 8 55'	HOLE 1 60'	HOLE 4 50'	HOLE 1 70 TO 85' COMBINED		
1	BORON	.01	.005	.005	.005	.01	.01		2.0	.002		
2	SILICON	MC	MC	MC	MC	MC	MC		MC	MC		
3	ALUMINUM	7.0	5.0	5.0	7.0	.8	IC		5.0	9.0		
4	MANGANESE	.4	.4	.3	.4	.6	.5	.52	.2	.3		
5	MAGNESIUM (75¢ LB)	5.0	3.0	4.0	5.0	.3	* 4.0		2.0	9.0		
6	LEAD	—	.2	—	—	.8	.1	.028				
7	GALLIUM	.005	.004	.004	.003	.005	.006					
8	COPPER	.04	.04	.03	.02	.2	.04	.058	.01	.01		
9	IRON	IC	10.0	10.0	IC	IC	IC		6.0	5.0		
10	VANADIUM	.008	.007	.008	.006	—						
11	CALCIUM	2.0	2.0	2.0	2.0	1.0	2.0		3.0	9.0		
12	SODIUM	6.0	4.0	6.0	4.0	—	1.0		.8	.4		
13	ZINC	—	1.0	—	—	2.0	—	.28				
14	TITANIUM (2.25 lb)	.3	.2	.2	.3	.03	* 1.0	.099	.2	.4		
15	NICKEL	.01	.005	.005	.005	.01	.01	.011	.01	.05		
16	BER					—	.001					
17	SILVER					.001	—		oz/T .10	oz/T .10		
18	ZIRCONIUM						.01					
19	RUBIDIUM							.019				
20	BARIUM							.13				
21	STRONTIUM							.058	—	.05		
22	ZIRCONIUM							.038	—	.4		
23	COLUMBIUM							.005				
24	YTTRIUM							.007				
25	GOLD								oz/T .01	oz/T .01		
26	VANADIUM						.01		.01	.01		
27	POTASSIUM									1.0		
28	MC = MAJOR CONSTITUENT											
29												
30	IC = INTERMEDIATE CONSTITUENT											
31												

Arizona Testing Laboratories

815 West Madison · Phoenix, Arizona 85007 · Telephone 254-6181

For: Queen Sheba Mines

Date: November 21, 1979

Lab. No.: 3107

Received: -----

Marked: Core Sample

Submitted by: same

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

ELEMENT	APPROXIMATE PERCENT
Boron	0.005
Silicon	Major Constituent
Aluminum	10.0
Manganese	0.1
Magnesium	2.0
Lead	0.5
Chromium	0.005
Iron	7.0
Molybdenum	0.005
Calcium	1.0
Vanadium	0.005
Copper	0.02
Sodium	8.0
Titanium	0.2
Silver	0.001
Zirconium	0.01
Nickel	0.01

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

Arizona Testing Laboratories

817 West Madison Street □ Phoenix, Arizona 85007 □ 602/254-6181

For: Queen Sheba Mine
Charles R. May
58 W. Edgemont
Phoenix, Arizona 85003

Date: March 11, 1983

Lab No.: 0314

Received: 3/10/83

Marked: See Below

Submitted by: Same

REPORT OF QUALITATIVE SPECTROGRAPHIC EXAMINATION

ELEMENT	APPROXIMATE PERCENT	
	Mohave 1	Q.S. 1000
Silicon	2.0	Major Constituent
Boron	0.005	---
Aluminum	0.5	2.0
Lead	0.05	0.1
Magnesium	0.01	0.1
Chromium	0.005	---
Manganese	0.003	0.006
Gallium	0.003	0.003
Copper	0.002	0.003
Iron	Major Constituent	4.0
Vanadium	0.003	0.003
Calcium	0.4	1.0
Yttrium	0.005	---
Ytterbium	0.001	---
Sodium	0.1	0.2
Titanium	0.06	0.1
Silver	0.001	0.0005
Zirconium	0.01	0.01
Nickel	0.01	---
Potassium	---	0.5
Strontium	---	0.05

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Claude E. McLean, Jr.

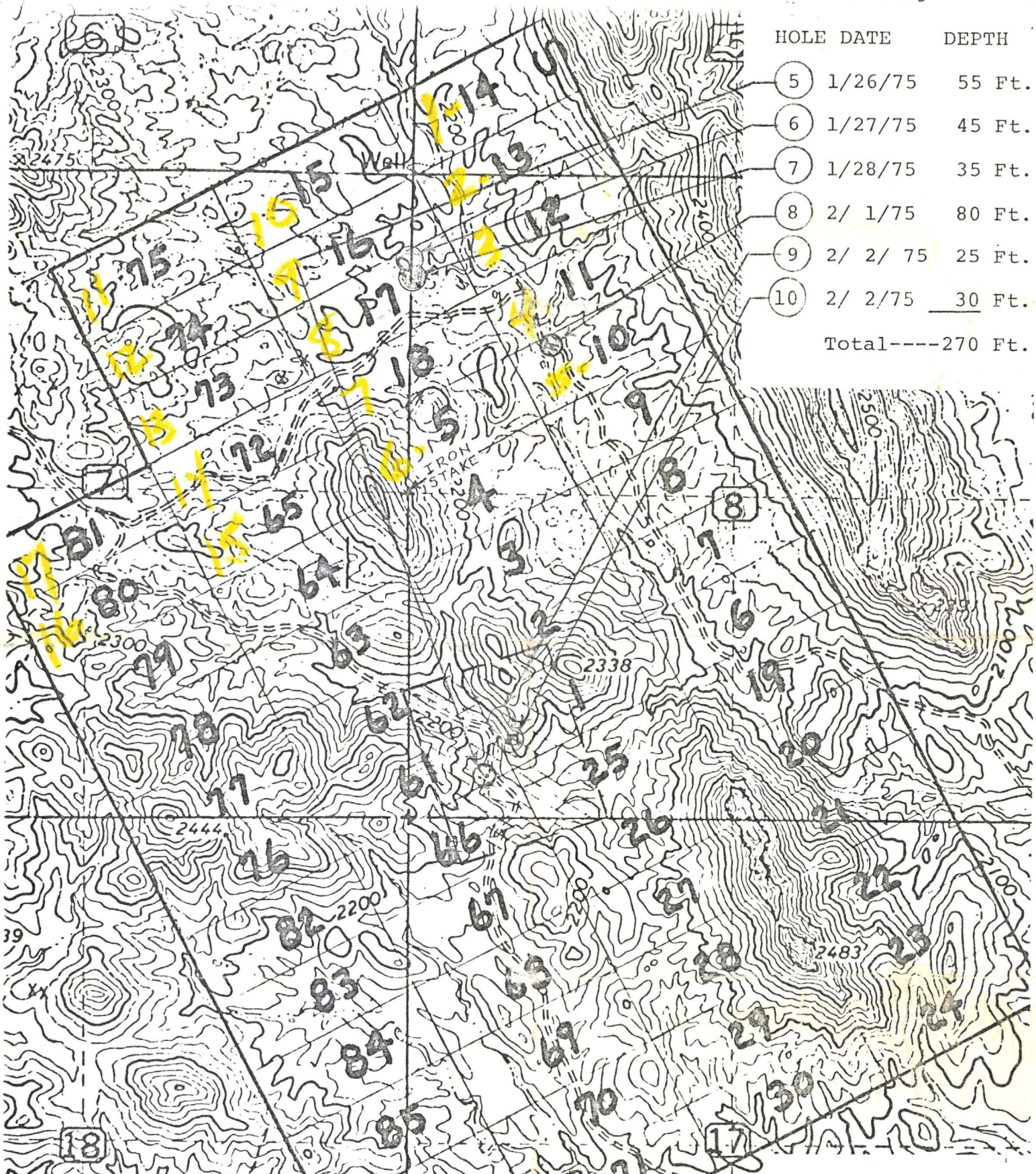
EXHIBIT "A"

ASSESSMENT WORK FOR YEAR ENDING 9-1-75

Work by Richard Steen & Harold Lang

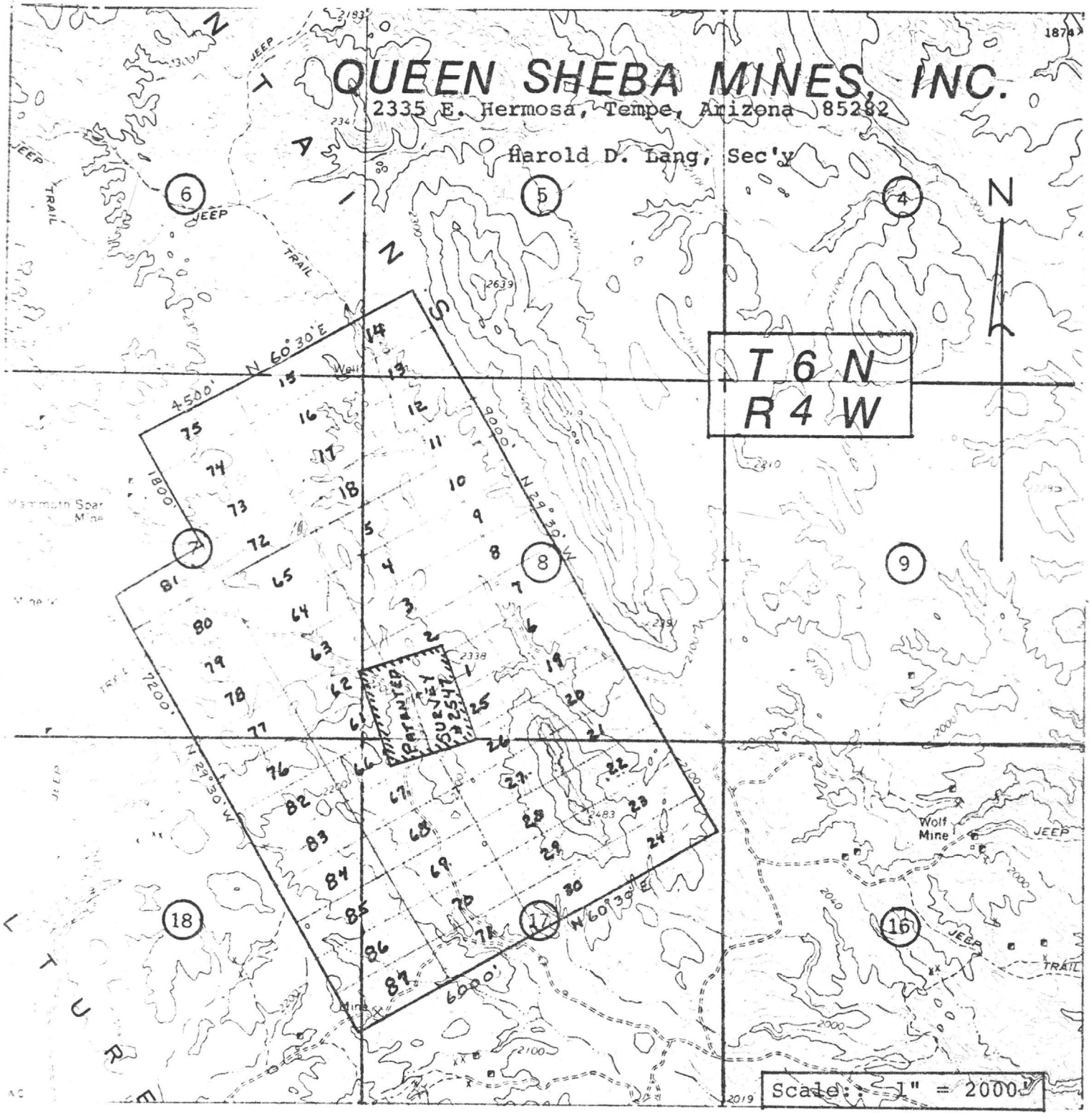
HOLE	DATE	DEPTH
5	1/26/75	55 Ft.
6	1/27/75	45 Ft.
7	1/28/75	35 Ft.
8	2/ 1/75	80 Ft.
9	2/ 2/ 75	25 Ft.
10	2/ 2/75	30 Ft.

Total----270 Ft.



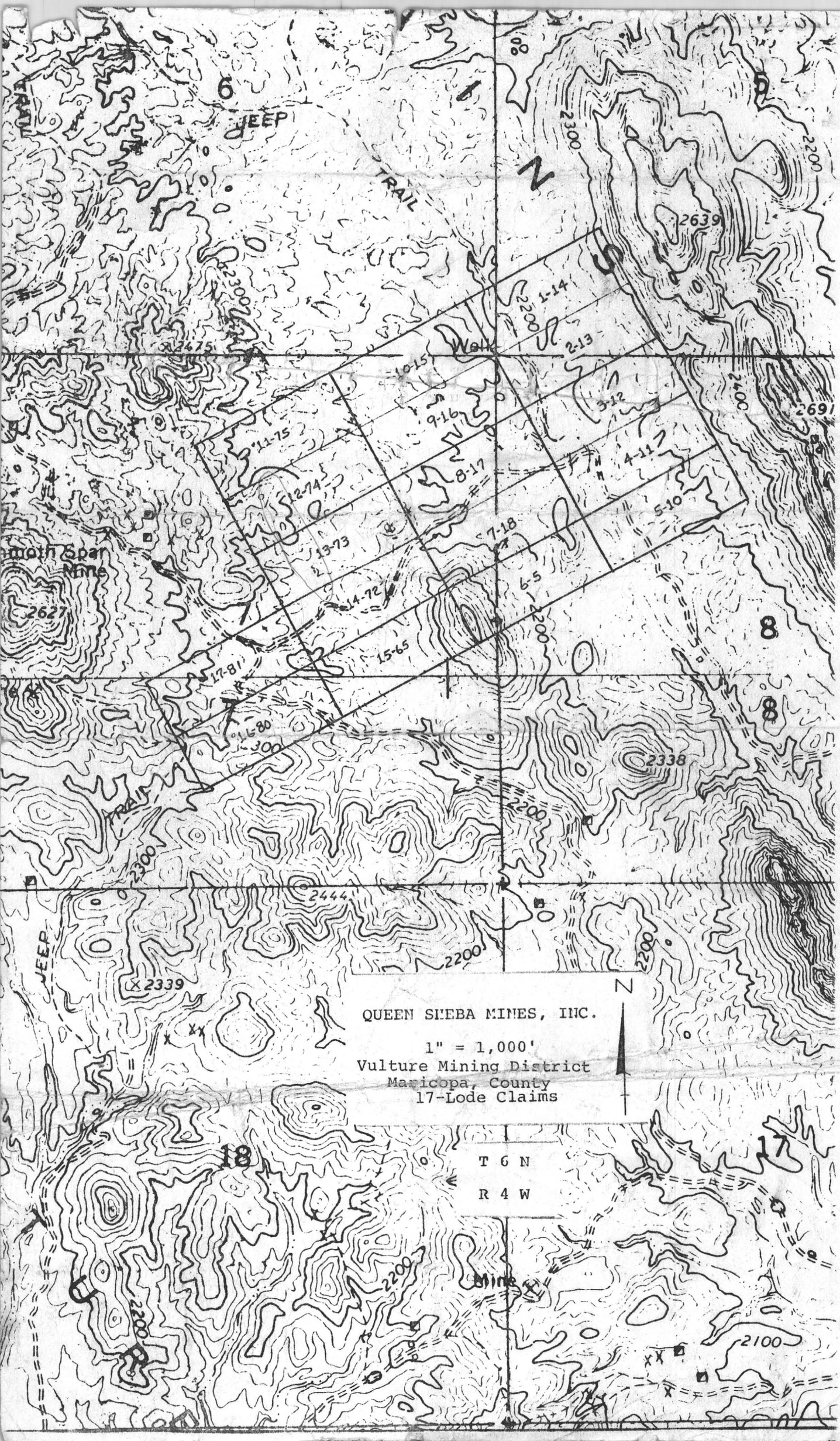
QUEEN SHEBA CLAIMS
(as amended)

9-6-74



VULTURE MINING DISTRICT

RECORDED IN MARICOPA COUNTY, ARIZONA
Docket No. 8994, Pages 323, 325, 327, 339, 341, 369, 375, 377.
Docket No. 9012, Pages 178-181, 183-186, 188.
Docket No. 9098, Pages 580, 581.
Docket No.10829, Pages 1197-1234.


JEEP TRAIL
Well
Mammoth Spar Mine
Mine
JEEP
1-14
2-13
3-12
4-11
5-10
6-5
7-18
8-17
9-16
10-15
11-75
12-74
13-73
14-72
15-65
16-80
17-81
2639
2691
2627
2338
2444
2339
2475
2300
2200
2100
N
QUEEN SHEBA MINES, INC.
1" = 1,000'
Vulture Mining District
Maricopa, County
17-Lode Claims
T 6 N
R 4 W

Magnetic Survey Map - Queen of Sheba Claim Group

By John W. McClure - John W. Whitney June - July 1974

Lines of Equal Total Magnetic Intensity

Contour Interval 100 gammas

Base Station is SW Corner of Claim No. 1

6 5 Section Corners
7 8

La Firmosa Rd

FP LINE 5

FP LINE 6

2500

2300

2338

2444

2200

2339

2483

DRILL SITE

Bonilla Hill