

#### **CONTACT INFORMATION**

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Arizona Department of Mines and Mineral Resources Mining Collection

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## EXHIBIT NO. I

# SILVER CROSS MINE CHECK SAMPLE LOCATIONS AND WIDTHS

SAMPLE NO.	LOCATION	WIDTH
960	X-cut, horizontal channel across face, f1 + 4'	51
961	East drift, Horizontal channel across face, fl + 4'	6'
962	East Drift, S.wall, horizontal channel 20-25'	5"
963	West drift, Horizontal channel across face, fl + 4'	4.5'
964	West drift, S. Wall, Hor. channel 90-95'	5 <b>'</b>
965	West Drift, S. Wall, Hor. channel 50-55	5 <b>'</b>
966	East Drift, N. wall, 0 + 35' Vertical chip	7.4"
967	East Drift, N. wall, 0 + 30' Vertical chip	8.4"
968	East Drift, N. wall, 0 + 25', vertical chip	7.0'
969	East Drift, N. wall, 0 + 20', Vertical chip	5.7'
970	East Drift, N. wall, 0 + 15', Vertical chip	5.2'
971	East Drift, N. Wall, 0 + 10', Vertical chip	5.0'
972	West Drift, South Wall, 0 + 100', Vertical chip	7.0'
973	West Drift, South Wall, 0 + 80', Vertical Chip	7.6'
974	West Drift, South Wall, 0 + 70', Vertical chip	6.7
75	West Drift, South Wall, 0 + 60', Vertical Chip	7.7'
1743	West Drift, South Wall, 0 + 40', Vertical Chip	6.6'
.744	West Drift, South Wall, 0 + 30', Vertical Chip	6.7'
.745	X-Cut, East Wall, 5'10', Horizontal Chip	5 <b>'</b>
746	X-Cut, East Wall, 10-15', Horizontal Chip	5'

### CHECK SAMPLE LOCATIONS AND WIDTHS (CONT'D)

SAMPLE NO.	LOCATION	<u>WIDTH</u>
1747	X-Cut, East Wall, 15-20', Horizontal Chip	5'
1748	X-Cut, East Wall, 20-25', Horizontal Chip	51
1749	X-Cut, West Wall, 25-30', Horizontal Chip	51
1750	X-Cut, West Wall, 30-35', Horizontal Chip	5'
572	X-Cut, West Wall, 35'-40', Horizontal Chip	5'
571	2nd Surface Cut, See Topo Map	10'
570	3rd Surface Cut, See Topo Map	10 '
569	Dozer Cut, See Topo Map	18'
568	1st Surface Cut, See Topo Map	15'

EXHIBIT NO. II Page 2

Sample	Sample GOLD		SILVER		CC	PPER	Combined Au,	Combined Au,
No.	Oz./Ton	Value	Oz./Ton	Value	%	Value	Ag Value	Ag, Cu Value
1745	0.89	133.50	0.70	2.80	0.63	10.08	136.30	146.38
1746	0.78	117.00	0.95	3.80	0.52	8.32	120.80	129.12
1747	0.64	96.00	1.75	7.00	0.31	4.96	103.00	107.96
1748	0.29	43.50	6.20	24.80	0.24	3.84	49.70	53.54
1749	0.06	9.00	0.60	2.40	0.14	2.24	11.40	13.64
1750	0.27	40.50	0.45	1.80	0.46	7.36	42.30	49.66
572	0.43	64.50	0.65	2.60	0.04	0.64	67.10	67.74
571	0.30	45.00	0.40	1,60	0.06	0.96	46.60	47.56
570	. 0	_	0.30	1.20	0.03	0.48	1.20	1.68
569	Tr.		0.50	2.00	0.02	0.32	2.00	4.00
568	0.26	39.00	1.25	5.00	0.15	2.40	44.00	46.40

..... ... ...

## SILVER CROSS MINE

# SAMPLE ASSAY ANALYSIS

A. 1 WEST DRIFT. Based on sampling of muck from drift rounds (Refer to Assay Map)

ample No.	<u>Width</u>	<u>Au oz.</u>	Ag. oz.	W X Au	WXag
155	5'	.02	•48		
154	41	.04	.36		
153	51	.04	.46		
152	5'	.20	.50	1.00	2.50
151	4.	•40	.20	1.60	0.80
150	4'	.405	.30	1.62	1.20
149	4*	.46	.24	1.84	0.96
148	4"	.305	.30	1.22	1.20
147	4'	.42	.48	1.68	1.92
146	41	.25	.35	1.00	4.00
145	4'	.145	.36		
144	41		.30	1.15	2.88
143	5'	.10	.80	<b>0,</b> 50	4.00
142	41	.16	.40	0.64	1.60
141	4'	.40	.30	1.60	1220
140	4!	.345	.98	1.38	3.92
139	41	.42	1.14	1.68	4.56
135	5'	•40	1.40	2.00	7.00
134	5'	.32	0.90	<b>a.</b> 60	4.50
133	51	.30	0.80	1.50	4.00
132	5'	.14	0.80	0.70	4.00
131	5 <b>'</b>	.06	1.50	0.30	7.50
127		.12	0.30	0.60	1.50
Total Drift Distance	88'			23.62	59.24

$$\frac{W \times Au}{W} = 0.268409 \text{ Au Av.} \times \$150 = \$40.26/\text{Ton}$$
 $\frac{W \times Ag}{W} = 0.673 \text{ Ag Av.} \times \$4 = \frac{\$2.69/\text{Ton}}{\$42.95/\text{Ton}}$ 
Total Value Au, Ag \$42.95/Ton

### EXHIBIT NO. IV

A2 - WEST DRIFT - Uneck Samples taken 7-74. Analysis based on values and area of influence between wall samples (Refer to Assay Map)

Sample	A.	Sample			В.	C.	D.
No.	1/2 Dist.	Width	Au Oz.	Ag Oz.	1/2 D X W	1/2 D X W	1/2 D X W
972	5'	7'	.12	0.30	35	4.2	10.5
964	5'	5'	.37	0.30	25	9,25	7.5
973	5'	7.6'	.04	0.15	38	1.52	5.7
974	5'	6.7'	1.17	0.50	33.5	39.195	16.75
975	5'	7.7'	0.39	0.30	38.5	15.015	11.55
965	3.75'	5.01	0.18	0.55	18.75	3.375	10.31
1743	91	6.61	0.02	0.40	59.4	1.888	23.76
Total Distand Along I	:e Drift 70'				248.15	73.74	86.07

 $\frac{B}{A}$  = 6.57 Av. Sample Width

 $\frac{C}{R}$  = .2971 Au Av. X \$150 = \$44.57

 $\frac{D}{B}$  = .3468 Ag Av. X \$4 = 1.387

45.95 Av. Value Au - Ag/Ton
Cu not evaluated

### EXHIBIT NO. V

 $B_1 = CROSSCUT - Assay analysis based on muck samples (nefer to Assay Map)$ 

Sample No.	A. Width	<u>Au Oz.</u>	Ag Oz.	B. <u>WX Au</u>	C. W X Ag
123	5!	.01	.40		
122	5'	.005	.10		
121	41	•008	.29		
120	51				
119	6'	.08	.60		
<b>1</b> 18	4'	.14	.85	0.56	3.4
115	5'	.62	2.20	3.1	11.0
113	51	2.88	1.82	14.4	9.1
110	41	0.42	1.18	1.68	4.72
109	51	0.49	1.30	2.45	6.50
108	51	1.04	1.50	5.20	7.5
107	<u>5•</u>	0.30	0.90	1.50	4.5
Total					
Length	331			28.89	46.72

$$\frac{B}{A}$$
 = 0.875 Au Av. X \$150 = \$131.32/Ton  
 $\frac{C}{A}$  = 1.42 Ag Av. X \$4 =  $\frac{5.66}{Ton}$ 

Total Value/Ton \$136.98

## EXHIBIT NO. VI

 $\underline{B}_2$  -  $\underline{CROSSCUT}$  - SAMPLE ANALYSIS BASED ON CONTINUOUS 5' CHECK SAMPLES ALONG THE WALLS OF THE CROSSCUT (REFER TO ASSAY MAP).

SAMPLE NO.	A. <u>WIDTH</u>	Au. 0z.	Ag. Oz.	<u>W x Au</u>	W x Ag
1745	5'	0.89	0.70	4.45	3.5
1746	51	0.78	0.95	3.9	4.75
1747	51	0.64	1.75	3.2	8.75
1748	51	0.29	6.20	1.45	31.
1749	5'	0.06	0.60	0.3	3.0
1750	75'	0.27	0.45	1.35	2.25
572	<u>5'</u>	0.43	0.65	2.15	3.25
	35'			16.8	56.50

$$\frac{B}{A}$$
 = 0.48 Av. Au x \$150. = \$ 72.00  
 $\frac{C}{A}$  = 1.91 Av. Ag x \$4 =  $\frac{$ 6.45}{$78.45/ton}$ 

C. - EAST DRIFT - SAMPLES TAKEN 7-74. ANALYSIS BASED ON VALUES AND SAMPLE AREA OF INFLUENCE (REFER TO ASSAY MAP).

					<b>A.</b>	В.	C.
SAMPLE NO.	1/2 D	WIDTH	Au	Ag	1/2 D x W	1/2 D x W x Au	1/2 D x W x Ag
961	6.5	6'	.17	1.00	<b>3</b> 9	6.63	39
966	5	7.4'	.16	0.50	37	5.92	18.5
967	5	8.4'	.15	1.55	42	6.3	65.1
968	5	7.0'	.37	2.00	35	12.95	70
969	5	5.7'	.34	1.35	28.5	9.69	38.48
970	5	5.2	.72	0.55	26	18.72	14.3
971	5	5.0	.24	0.15	25	6.00	3.75
	36.5				232.5	66.21	249.13

1/2 D x W 1/2 D	= 6.369 Av. Sample Width	
<u>B</u> A	= .285 oz. Au Av. x \$150 =	\$42.75/ Ton
<u>C</u>	= 1.072 oz. Ag Av. x \$4 =	\$ 4.29/ Ton
	Total Au/Ag Value	\$47.04/ Ton

#### ARIZONA TESTING LABORATORIES

A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC.

817 WEST MADISON ST.

PHOENIX, ARIZONA 85007

PHONE 254-6181

For

Mr. Harvey Smith 6016 North Kachina Lane

Scottsdale, Arizona

Date

July 10, 1974

Sample of

Ore

Received:

7-8-74

Submitted by:

Mr. Gerald Weathers

ASSAY CERTIFICATE

Gold figured at \$ 200.00 per ounce

Silver figured at \$

per ounce

LAB. NO.	IDENTIFICATION	G0	LD	SILVER		PERCENTAGES	
	en e	OZ, PERTON	VALUE	OZ.PERTON	VALUE	COPPER	
7246	960	nil		0.05	\$ 0.25	0.01%	
	961 .	0.17	\$ 34.00	1.00	\$ 5.00	0.04	
	962	0.19	38.00	4.70	23.50	0.44	
	963	0.03	6.00	1.00	5.00	0.60	
	964	0.37	74.00	0.30	1.50	0.66	
	965	0.18	36.00	0.55	2.75	0.10	
	966	0.16	32.00	0.50	2.50	0.18	
	967	0.15	30.00	1.55	7.75	0.36	
	968	0.37	74.00	2.00	10.00	0.32	
	969	0.34	68.00	1.35	6.75	0.31	
	970	0.72	144.00	0.55	2.75	0.14	
	971	0.24	48.00	0.15	0.75	0.06	
	972	0.12	24.00	0.30	1.50	0.17	
	973	0.04	8.00	0.15	0.75	0.04	
	. 974	1.17	234.00	0.50	2.50	0.12	
	975	0.39	78.00	0.30	1.50	0.07	
	1743	0.02	4.00	0.40	2.00	0.03	
	1744	0.01	2.00	0.15	0.75	0.91	
	1745	0.89	178.00	0.70	3.50	0.63	
	1746	0.78	156.00	0.95	4.75	0.52	
	1747	0.64	128.00	1.75	8.75	0.31	

Gerald Weathers, PE 3928 East Meadowbrook Avenue Phoenix, Arizona 85018

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Cloude & M Leanf

Claude E. McLean, Jr.

#### ARIZONA LABORATORIES

A DIVISION OF CLAUDE E. McLEAN & SON LABORATORIES, INC. 817 WEST MADISON ST.

PHOENIX, ARIZONA 85007

PHONE 254-6181

For Mr. Harvey Smith 6016 North Kachina Lane

Date

July 17, 1974

Scottsdale, Arizona

Sample of

Ore

Received:

7-15-74

Submitted by: Mr. Gerald Weathers

ASSAY CERTIFICATE

Gold figured at \$ 200.00

Silver figured at \$

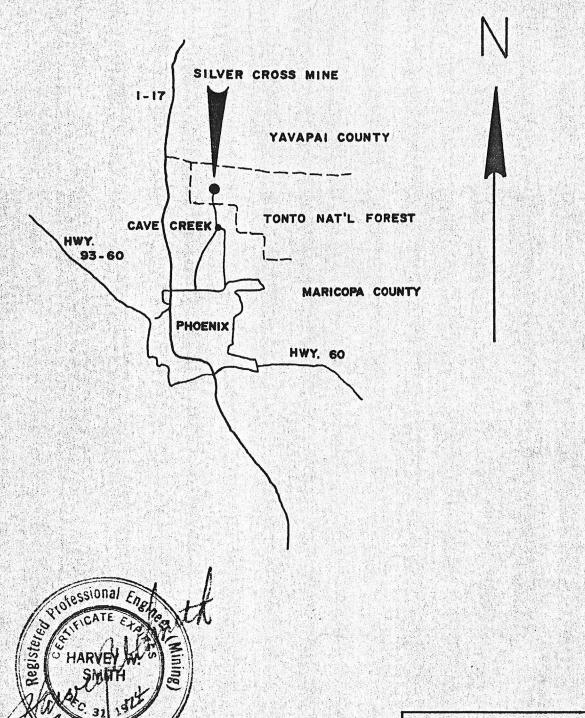
LAB. NO.	IDENTIFICATION	GC	GOLD		SILVER		TAGES
	DENTIFICATION	OZ.PER1ON	VALUE	OZ, PERTO	N VALUE	COPPER	
7316	568 569 570 571 572	0.26 trace nil 0.30 0.43	\$52.00 0 60.00 36.00	1.25 0.50 0.30 0.40 0.65	\$ 6.25 2.50 1.50 2.00 3.25	0.02 0.03 0.06	
	1748 1749 1750	0.29 0.06 0.27	58.00 12.00 57.00	6.20 0.60 0.45	31.00 3.00 2.25	0.14	

Mr. Gerald Weathers, P.E. 3928 East Meadowbrook Phoenix, Arizona

Respectfully submitted,

ARIZONA TESTING LABORATORIES

Cloude EM Leagh Cloude E. McLean, Jr.



MAP NO. 2

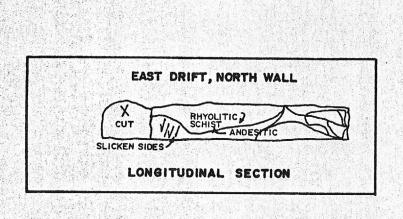
PORTION OF ARIZONA STATE HIGHWAY

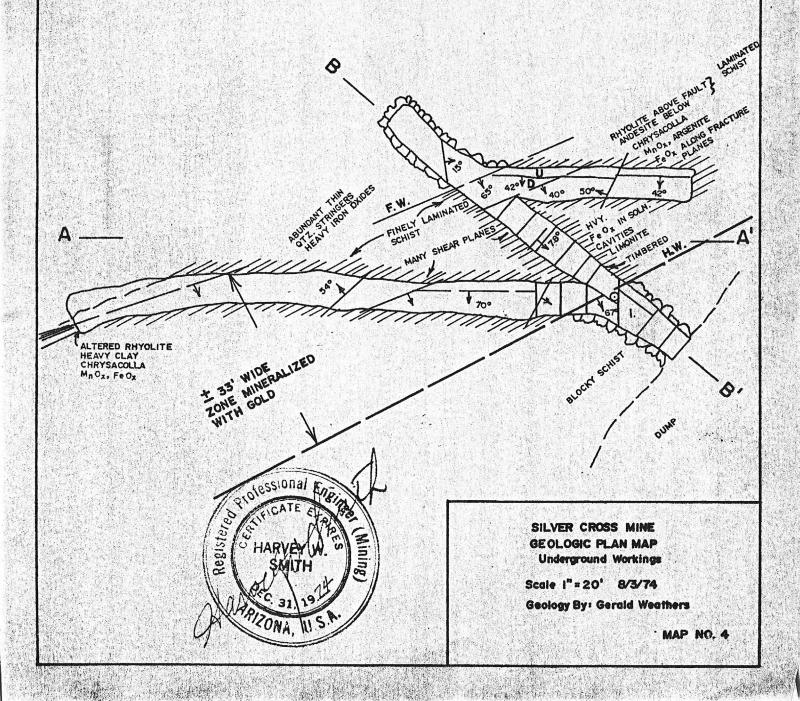
MAP SHOWING LOCATION OF

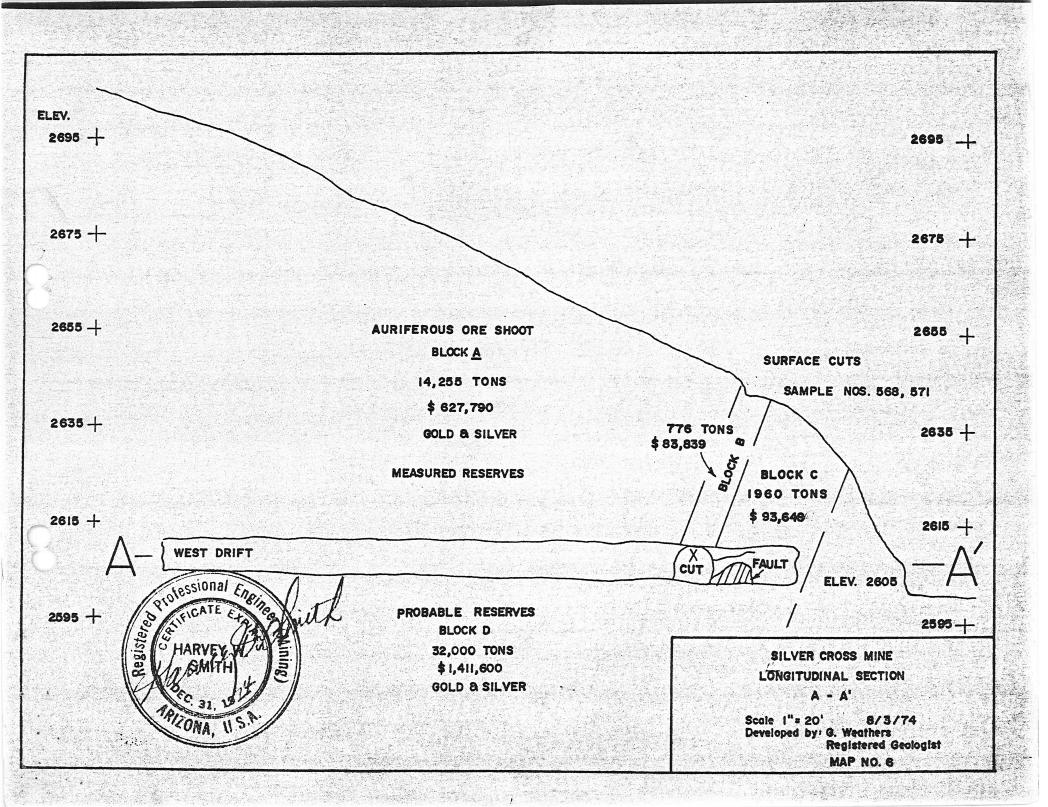
SILVER CROSS MINE

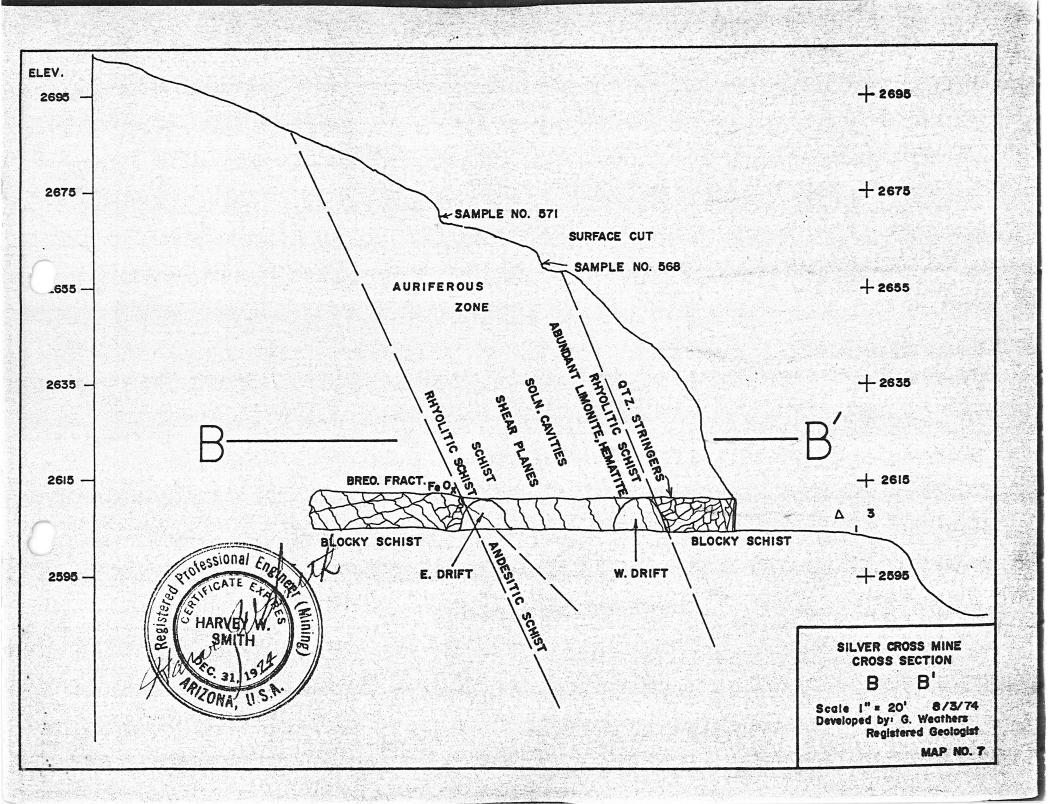
SCALE I\*\* 20 MILES 8/3/74

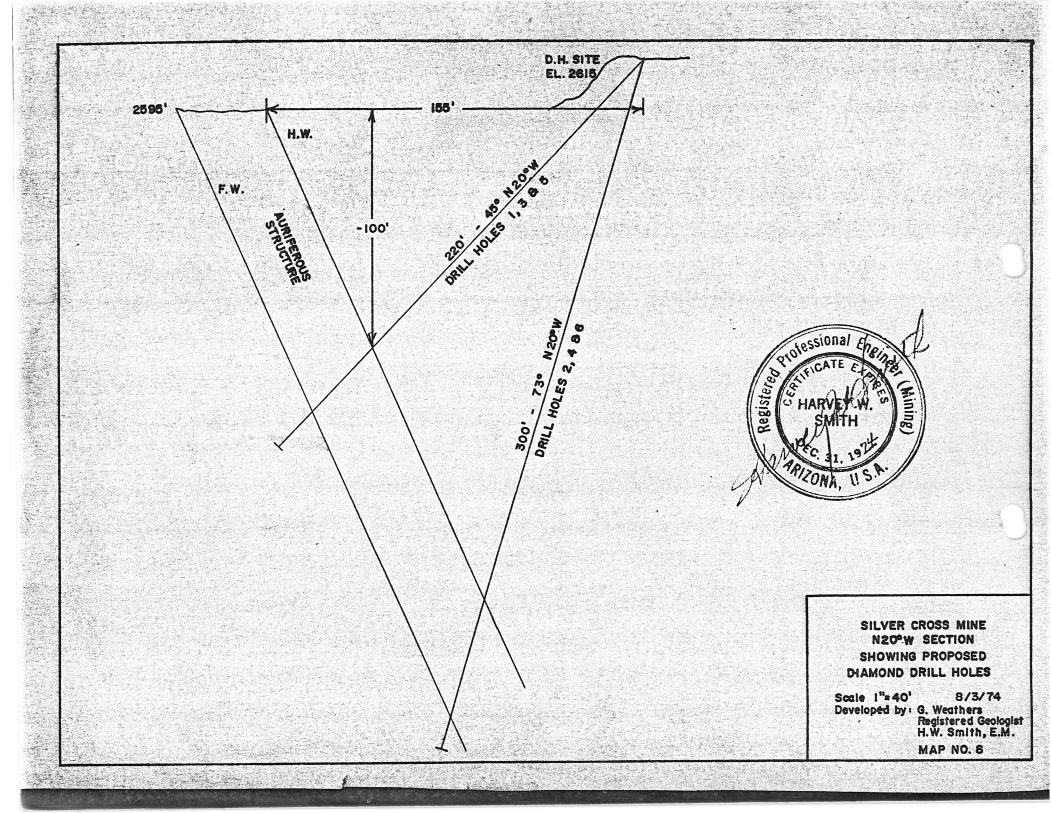
MAP NO. 2















# THE UNIVERSITY OF ARIZONA TUCSON, ARIZONA 85721

ARIZONA BUREAU OF MINES

May 14, 1975

TEL. (602) 884-2733

Gilbert J. Matthews Zone Mineral Examiner U.S. Forest Service 522 North Central Ave., Room 213 Phoenix, Arizona 85004

MAY 13 1975 ZONE UNIT

Dear Sir:

This will report on results of cyanide leaching tests on a sample of low-grade gold-silver ore, marked the Kokaska Composite, delivered to this laboratory April 10, 1975. Analysis of a representative fraction showed 0.34 ounces of gold per ton or ore and 1.80 ounces of silver in the sample as received.

The ore was a very weathered rusty schist. Panning tests revealed the presence of fine free gold.

Test no. 1 was a simulated vat leach by intermittant downward flood percolation of a 20-inch deep bed of ore crushed to maximum particle size of one-half inch. In practice, care would have to be taken to distribute the fines through the bed evenly to reduce plugging or channeling. The percolation rate was approximately 15 inches per minute and slowed only slightly after six days.

The total lime required to maintain the pregnant OFF-solution at a basic pH of 9.5 or higher was 8.5 lbs per ton of ore. Consumption of sodium cyanide amounted to 4.0 lbs per ton of ore in 6 days. Cyanide strength was held at about 1 pound per ton of OFF solution. The two liters of leach solution were recycled over four kilograms of crushed ore four times per day for 6 days. At the end of this time approximately 88 percent of the gold had been extracted and 80 percent of the silver.

In **1**est no. 2,750 grams of the ore was pulverized to minus 100 mesh (85 percent minus 200 mesh) and was agitated at 40 percent solids for 48 hours in a standard rolling bottle leaching test. Lime consumption was 6 lbs per ton and cyanide was 4 lbs. The extraction of gold was 90 percent and silver, 80 percent.

The total charges for leaching tests and assays amount to forty-eight dollars (\$48.00). Please remit payment to the Arizona Bureau of Mines. An invoice is enclosed for your convenience. Thank you.

If there are questions or if we can be of further service please let

Very truly yours, David D. Rabb

David D. Rabb Metallurgist

DDR: jg



# Uni States Department of the terior

IN REPLY REFER TO A-8067 MPA (943)

BUREAU OF LAND MANAGEMENT Arizona State Office 3022 Federal Building Phoenix, Arizona 85025

June 16, 1975

Ms. Francene Kokaska 6801 North 18th Place Phoenix, Arizona 85016

Dear Ms. Kokaska:

Final certificate issued this date under your application A-8067 for mineral patent to the Silver Cross #1 lode mining claim, embracing 20.661 acres in sec. 28, T. 7 N., R. 4 E., GSR Mer., Maricopa County, Arizona, in the Cave Creek Mining District, as shown by Mineral Survey No. 4516 A.

Approval for patenting will be withheld pending receipt of a favorable field report and recommendation.

Sincerely yours,

Glendon E. Collins

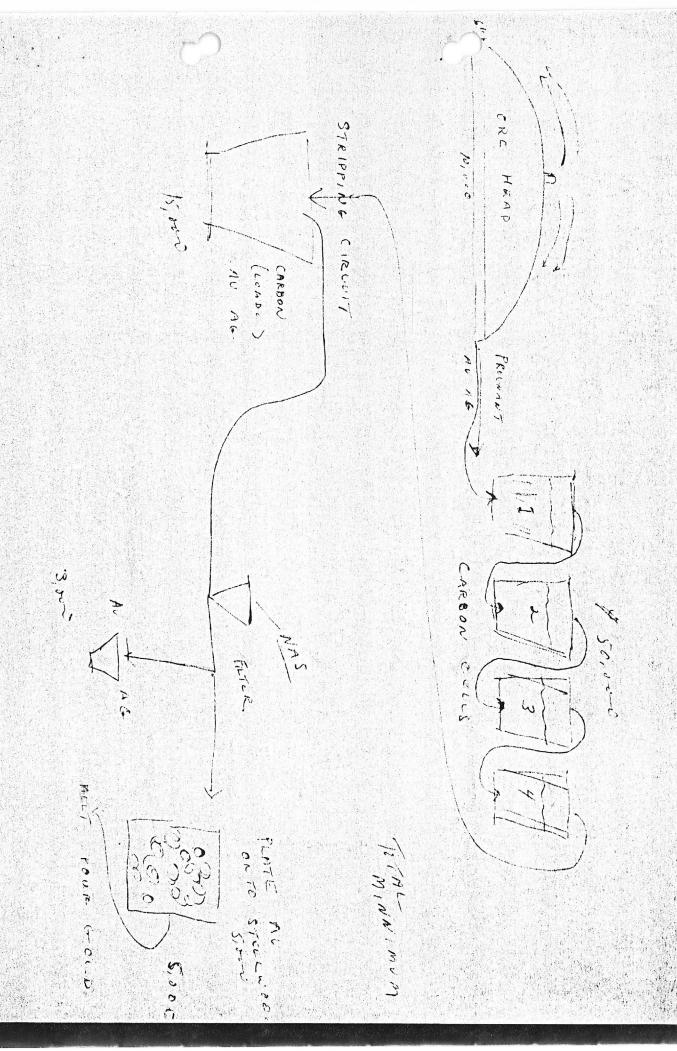
Chief, Div. of Technical Services

ender E. Collins

cc:

Maricopa County Recorder Maricopa County Assessor Parent June 23-15

Revenuel June 23-15



# DEL TIERRA FNOINEERING & MINING CORP

U. S. Mineral Surveys

Mining

Exploration

HARVEY W. SMITH, E.M. President

Registered Mining Engineer U. S. Mineral Surveyor

6016 N. Kachina Lane Scottsdale, Arizona 85253

Tel. 602 948-5517

July 2, 1975

Mr. Gilbert Mathews Mineral Examiner U. S. Forest Service 522 North Central Avenue Phoenix, Arizona 85003



Rocks & War.

Inn Attion Lay

Dear Gil:

Pursuant to our conversation yesterday, I have acquired some cost figures and equipment size estimates for your use in your supplemental report on the Kokaska property.

Concerning a jaw crusher, I believe a  $10 \times 16$  inch will give us ample capacity for the size operation we are presently contemplating. Also, a one cubic yard capacity front end loader will suffice for our needs. Other major pieces of equipment which we might use are a dump truck and compressor.

The following is a list of this equipment, its new price and possible salvage value after two years:

		Salvage
	New Price	Value
10 x 16" jaw crusher (with electric motor)		
(Equipment Sales)	\$15,000	\$10,000
1 cubic yard front end loader (Equipment Sales)	20,000	15,000
Truck, 2-ton, dump (Powell's International)	12,000	6,000
Compressor (125) (Jaquays Min. Equip.)	6,000	3,000
	\$53,000	\$34,000

Now, if we accept your \$75,000 figure for construction of the main plant, and I believe we can do it for considerably less, the additional equipment cost will only be \$19,000 (the difference between the new cost and the salvage value) plus the \$10,000 which you put in for contingencies, it will bring the mill total to \$104,000. Amortized over the tonnage figure that you have projected makes a cost of \$8.95 per ton.

Mr. Gilbert Mathev Page 2 July 2, 1975

One other factor which must also be considered is that the truck loader and compressor costs probably should be partially allocated to mining costs as they undoubtedly will be used in the mine at various times. This would reduce the mill cost per ton, of course.

In your tonnage estimate, as I understand, Stuart Behling projected the ore down dip for only 20 feet. This is an extremely conservative estimate. Quoting from MINING GEOLOGY by Hugh E. McKinstry, published by Prentice-Hall, Incorporated, 1948, page 372:

Certain rules have been used in mine valuation as a basis for calculations that involve probable extension of an individual ore shoot in depth. It is common practice, in estimating the amount of ore that may be counted on with reasonable safety, to assume that the ore will extend downward for a distance at least equal to half the horizontal length of the shoot as exposed on the bottom level. This assumption has some support from actual experience and is a safe guide in the sense that, if applied to a large number of ore bodies in different districts, it will not lead to an over estimate.

In view of Mr. McKinstry's quotation, the projection of the potential ore down dip an additional 35 feet would add considerably to the tonnage estimate by Mr. Behling. This additional tonnage would materially reduce the amortized cost of the mill complex.

A downward revision in your price of gold will be compensated by the increased ore reserve.

I hope this is the information you need for your supplemental report. However, if you have any questions, please feel free to contact me at any time.

Sincerely,

Harvey W. Smith, E.M.

HWS:ebj

\_cc. Francene Kokaska

DEL TIERRA F=1--NEERING & MINING (

U. S. Mineral Surveys

Mining

Exploration

HARVEY W. SMITH, E.M. President Registered Mining Engineer U. S. Mineral Surveyor 6016 N. Kachina Lane Scottsdale, Arizona 85253 Tel. 602 948-5517

October 8, 1975

Mr. Jack Pardee Southwest Region Mining Engineer U. S. Forest Service Department of Agriculture 517 Gold Avenue, S. W. Albuquerque, New Mexico 87102



Dear Jack:

Concerning the cost estimates of the Silver Cross property of Ms. Francene Kokaska, I believe you can substantially reduce them by using the following figures:

I talked with Mr. Tom Plouf, of the Denver Equipment Company. He is the same man with whom Gil Mathews conferred, and he stated, if we used concrete leach vats, the plant cost could be reduced by at least 15%.

In addition to the above, a reconditioned 2-yard, front-end loader will cost about \$9,500. A small crushing unit, 10" x 16", good used, can be obtained for approximately \$3,000. A 2 1/2-ton dump truck, good used, can be obtained for \$3,500.

As you can see, these costs are substantially under Stuart Behling's original estimates. Also, this equipment will also have some resale value if it is no longer required.

In addition, I am sure we could find a used compressor at a comparable reduction in cost.

If you will now use these figures and use a projection depth on the ore zone of at least one-half the strike length, it should show a favorable economic picture in spite of the minimum standard road.

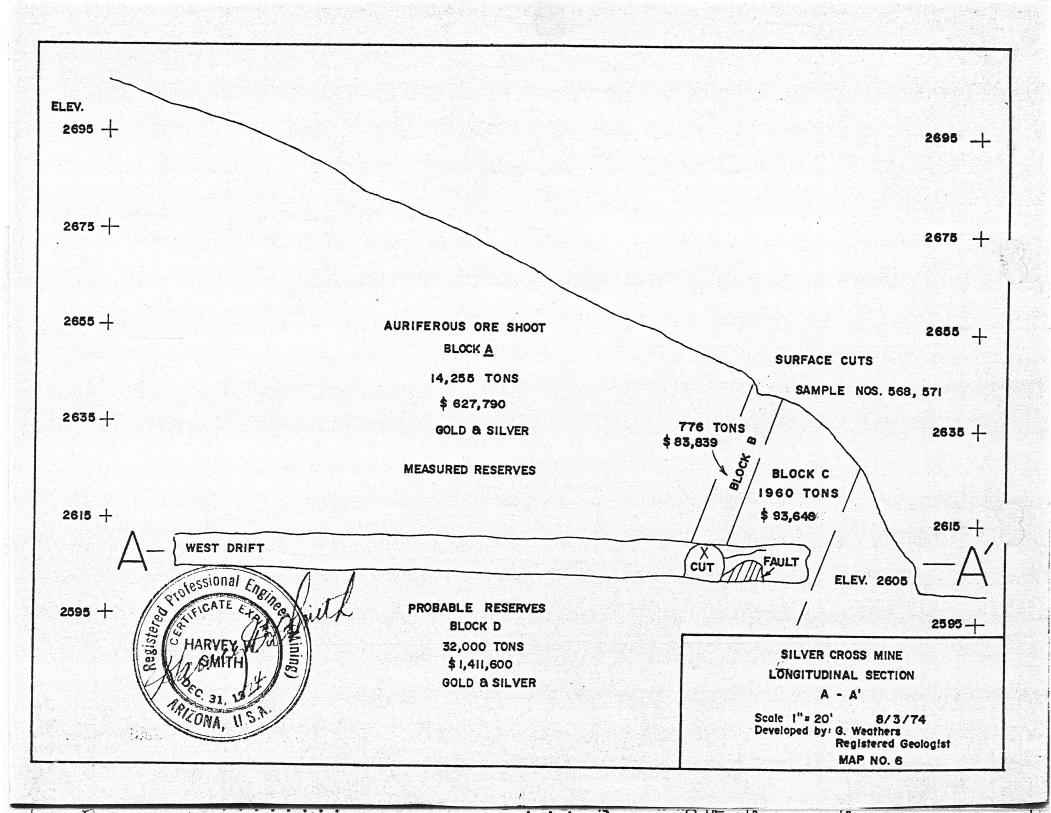
If you have any questions, please call.

Sincerely yours,

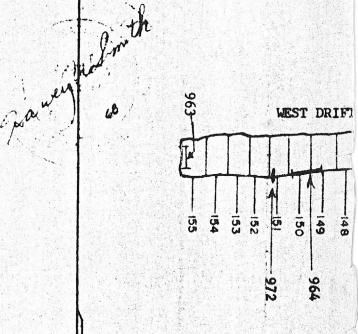
Harvey W. Smith, E.M.

HWS:ebi

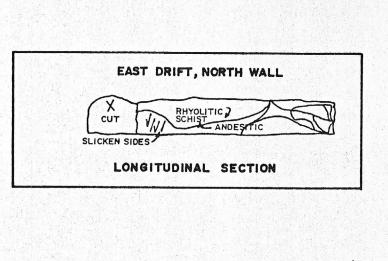
ce: Ms. Francene Kokaska

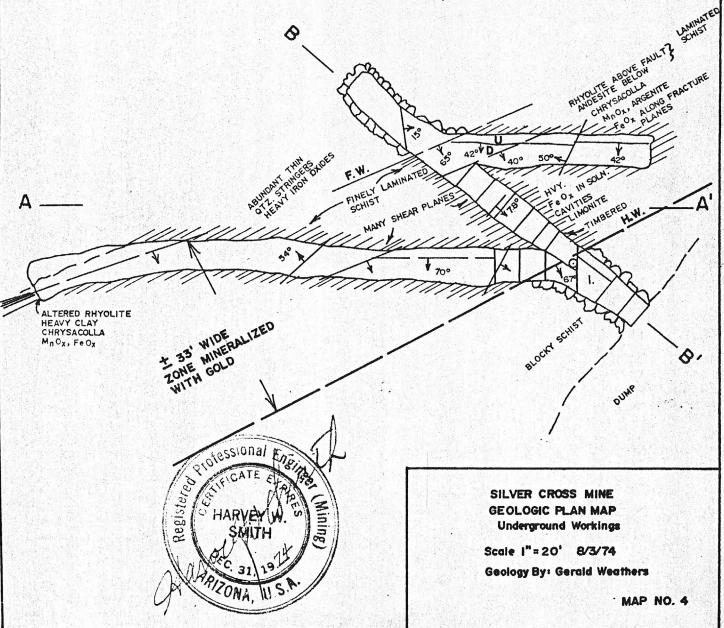


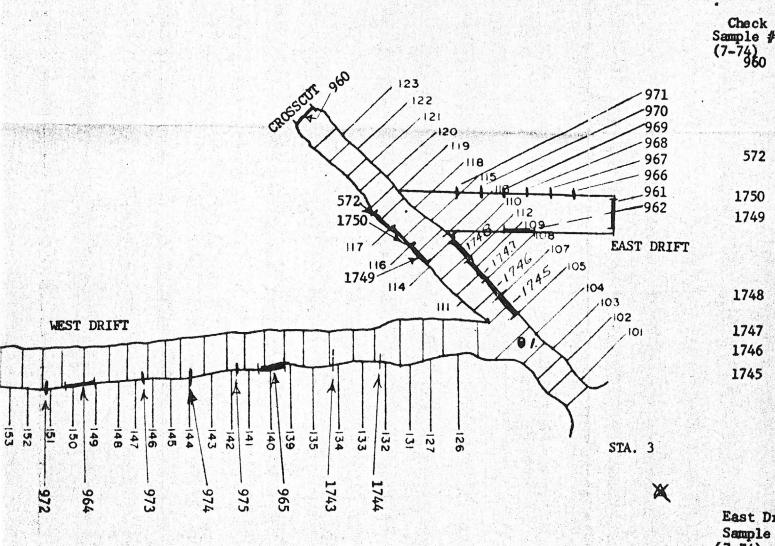
Check Sample (7-74)	#	MPLE 1	WIDTH Ft.	Au ozs/to		Cu %
963	155	4	. 5H	.03	1.00	.60
	154		4	.040	.36	
	153		5	.040	,,46	
972	152 151	/ V	5 .12	200	.30 <sup>50</sup>	.17
964	150 149	<b>E11</b>	4 .37	405	30,30	.66
973	148 147 146 145	7.6V	4 4 4 4	.305 .42 .25	.30 15 <sup>48</sup> .35	.04
974	144	6.7V	4 1.17		.36 50 .80	.12
975	142	7.7V	4 .39	.16	30 <sub>.30</sub>	.07
965	140	5H	4 .18	.345 .42	55 <sup>98</sup>	.10
1743 1744	135 134 133 132	6.6v	.01	.32 .30 .14	1.40 40 <sup>.90</sup> 15 <sup>.80</sup> .80	.03
	131			.06	1,50	
	127			.05	.30	
				.03	.60	



ASS







CLAIM OF FRANCENE KOKASKA ASSAY MAP-SILVER CROSS # I LODE UNDERGROUND WORKINGS-

CAVE CREEK MINING DISTRICT SEC. 28, T. 7 N. R. 4 E., G. 8 S.R.M. MARICOPA COUNTY ARIZONA SCALE I" = 20' FEB. 15, 1968 DRAWN BY: HARVEY W. SMITH, E.M.

REGISTERED MINING ENGINEER U.S. MINERAL SURVEYOR

201

Check

East Drift Sample # (7-74)

# DEPARTMENT OF MINERAL RESOURCES STATE OF ARIZONA

FIELD ENGINEERS REPORT

Mine Heck Claims

Date April 26, 1961

District Cave Creek District, Maricopa County

Engineer Lewis A. Smith

Subject: Conference with P.M. Tabor, Box 302, Cave Creek (partner of Garrett Brown in Tel. Phx. WI 4-7449 Mexico-Pacific Mining Co.)

Owner: 'Noble Heck, Box 302 Cave Creek, Arizona.

Option: to Mexico-Pacific Mining Co., Box 302, Cave Creek

Claims: 30 (unpatented) claims on east slope of Sugar Loaf.

Location: S 28, T 7 N, R 4 E

Metal: Gold

Work: Location pits and three bulldozer benches at one place. The benches are  $\overline{25-30}$  feet high and  $100^\circ$  feet long.

Equipment: R.D. 8 Cat, and portable pilot mill. The mill has a 12" Crusher which crushes to 3/4 inch mesh. This is followed by 5 x 3 foot Marcy ball mill which reduces the 3/4 mesh material to about 200 mesh. A Conditioner is followed by a battery of four Denver 24 inch flotation cells. A  $16 \times 5\frac{1}{2}$  foot Wilfley table is also in the circuit. The plant handles about a ton per 8 hours. Tests so far have recovered 71% of the gold.

The company also has a core diamond drill which is rated to drill to 250 feet. The core will be  $1\frac{1}{4}$  inch. This will explore the outcrop in depth.

Geology: The general area consists of schists intruded by diorite porphyry. The benching cut a vein which is 1 foot wide at the top but which had widened to 40 feet wide on the bottom bench. The vein dips nearly vertically and the strike is roughly northwest-southeast. Due to the deep overburden the vein is not at present traceable along the strike, so that no definite strike has been determined. Mr. E.C. Anderson, consulting geologist, Socorro, New Mexico, is retained to study the area. The vein samples indicate \$15.00 in gold and 2 ounces of silver, with little copper. The principal minerals are quartz and limonite, the latter spreading into the laminae of the schist. The gold is free and apparently is affiliated with the limonite. Some distance further west the pre-Cambrian rocks are capped by lake deposits which in turn are capped by late Tertiary basalt. The pits on the other claims show appreciable gold. One small test car was shipped to Magma and this ran 48 percent silica, \$12.00 gold and some silver. However, this was diluted somewhat by the addition of some jasper to raise the silica content. This is not considered good enough to ship regularly.

Silver Cross Mine K file a

### ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

WATER QUALITY DIVISION - Surface Water Section

### Inter-Office Memorandum

Date:

February 12, 1996

TO:

Roland Williams, EHS II

Surface Water Monitoring Unit, Cubicle #323

FROM:

Charles E. Ohr, CET, EES

Surface Water Field Services Unit

RE:

Referral for Follow-up, Complaint #96-005 Silver Cross Mine on Cave Creek Wash

### **Executive Summary**

On January 12, 1996, I received a complaint (Attachment I) concerning a possible gold mine discharge to the Cave Creek wash at the end of the Spur Cross Road, about 5 miles north of the Town of Cave Creek, in Maricopa County, Arizona. The name of the concerned mine is the Silver Cross Mine (formerly known as the Prospect Mine) and is privately-owned land. The concern is that a possible mine "pregnant" solution or lime solution discharge may have occurred during past rain runoff events and have had toxic effects on the watershed. The Department's Mission Statement provides assurance to the public that there is no environmental or public health hazard present and assures that the site's proper remediation is provided. To that end the Department should demonstrate the "reasonable and prudent" action of determining the characteristics of the liquid and solid waste left on the site by the last occupants of the site. Site remediation should be jointly supervised by the State Mine Inspector and this Department.

The field reconnaissance inspection was scheduled for Friday, January 19, 1996. Unable to contact the mine owners to obtain voluntary site access and not possessing a search warrant, I did not enter the private property. Although no water or soil samples were collected on this reconnaissance inspection, photos and video were exposed, and field observations provide grounds to refer the complaint for further investigation. Fish and wildlife were remarkably more abundant three to five miles downstream of the mine site than in proximity to the mine site. The complaint raises some questions that need to be addressed.

### Attendees

Name	Representing	Position	Phone Number
Chuck Ohr	ADEQ/SWS/FSU	Env. Engr. Spec.	(602) 207-4434
Kirke King	U.S. Fish & Wildlife	Env. Contam. Spec.	(602) 640-2720
Bill Bridge	DFLT*	Concerned Citizen	(602) 488-3313
Kevin Timothy	public interest	Concerned Citizen	(602) 956-6629

<sup>\*</sup>Desert Foothills Land Trust

Internal Memo: Complaint #96-005 Referral

Roland Williams, NPSMU February 12, 1996

### Preliminary to Field Investigation

The complainant had contacted the ADEQ hazardous waste program (WPD) (Attachment II) and the nonpoint monitoring unit (WQD) before contacting the Surface Water Field Services Unit (SWFSU). I contacted or was contacted by the following individuals in the process of developing information relative to the complaint:

Date	Name	Representing	Phone Number
01/16/96 01/17/96 01/17/96 01/17/96 01/18/96 01/18/96 01/18/96 01/18/96 01/31/96 02/12/96	Kevin Timothy Mark Dahlberg Kirke King Emily Garber Roland Williams Bill Hawes Ken Phillips Becky Bartness Robert Mills Patti Fenner	Complainant AZ Game & Fish USF&W Tonto NF, Carefree SWS/NPSMU AZ State Mine Inspector Office AZ Dept. of Mines & Mineral Resources DFLT ADEQ/HazWaste Insp. Unit Tonto NF, Carefree	see above (602) 942-3000 see above (602) 488-3441 (602) 207-4506 (602) 542-5971 (602) 255-3795 (602) 488-8199

In addition, I attempted to contact the owners' representative prior to the field reconnaissance inspection, on January 17th and 18th, to gain voluntary access to the mine property. There was no telephone answer on each occasion. Provided by the Tonto NF and confirmed by the ADM&MR, the listed owner is: Francine Kokoska, 1851 E. Ocotillo, Phoenix, AZ 85016. The phone number: (602) 279-4607. If this is inaccurate or outdated information, one could obtain the current contact by identifying the owner from the county assessor's records. See Attachment III for the legal description of the property.

#### Field Observations

I met Kirke King at 8:30 AM at the ABCO parking lot at Bell Road and Cave Creek Road. He rode with me (I had the only four wheel drive capable of carrying four passengers) to meet the complainant and representatives of the DFLT in Cave Creek prior to driving to the mine site. Its about a two hour drive to cover the approximate five miles to the mine site from the Town of Cave Creek because of the extremely harsh road conditions. Kirke King, Kevin Timothy, and Bill Bridge rode with me to the mine site. Along the way, we stopped at the first two crossings of Spur Cross Road with the Cave Creek Wash to look for fish and aquatic invertebrate species present. At the first crossing, one leopard frog and some 1/4 inch fry were seen in the water. A small number of water bugs and water spiders were noted, but no fingerling-size or adult fish were observed. At the second crossing, no significant wildlife species were noted. Early on the drive, Gamble's Quail were numerous and a variety of birds were noted, perhaps due to local residents setting out feed for the critters. However, the wildlife became more scarce with no quail observed and only a few species of flying birds noted above the first wash crossing. See Kirke King's notes (Appendix IV) for more details of his wildlife observations.

We arrived at the entrance to the mine property about 11 AM and were there about an hour. As mentioned earlier, I did not enter the private property because I had neither permission from the owner's representative nor a search warrant. However, I did walk around the outer fence line to the south and west as far as I could manage, in order to observe site conditions from outside. I asked Kirke King to use my camera to take photos of anything worth-while documenting on site. The photos are attached as part of Attachment I. Two letters from Mr. Bridge, the first dated, January 20, 1996

Internal Memo: Complaint #96-005 Referral

Roland Williams, NPSMU February 12, 1996

(Attachment III) provides map and legal description information. The second dated, January 23, 1996, (Attachment IV) describes his observations during the 01/19/96 field investigation.

Following the field trip, we met with a local high school teacher at the Cactus Shadows High School, Ms. Adrian Gibson, who, Mr. Timothy reported, has been guiding high school students in a field biology class, to collect water quality and macro-invertebrate data on the Cave Creek water shed from Seven Springs to the Town of Cave Creek for the last two years (1994-1995). She shared a two page summary (Attachment V) of the data they have collected to date.

### **Discussion**

Whether the apparent scarcity of fish and wildlife in the Cave Creek water shed immediately downstream of the mine is due to natural or seasonal conditions, or runoff from the Silver Cross Mine, needs to be determined. My observations are of conditions in Cave Creek wash at each of the crossings, along the Spur Cross Road and from outside the perimeter fence of the mine. My field notes and complaint #96-005 are enclosed as Attachment I. The attachments include personal observations made by both Mr. King and Mr. Bridge. Independently, we each came to the same conclusions as a result of making the same observations as we approached the mine, that a more detailed study with water and soil sampling should be made of the mine site. The photos and the Kevin Timothy video (Attachment VI) both show material in the plastic-lined pond and the concrete lined basin that should have been removed from the site after the operation was shut down. Both impoundments have plastic pipe overflows which may discharge to the Cave Creek wash during heavy rainfall events, as the impoundments fill with surface runoff.

On January 23, 1996, the editor of a local Cave Creek newspaper, <u>The Sonoran News</u>, Mr. Don Sorchych, contacted me for a status report of our inspection of January 19, 1996. He had been to the mine site with the complainant earlier and had additional background material for me. He indicated that he had indeed, spoken with the owner's representative, Ms.Kokoska, the evening before and she had told him the mine had last been active in 1989. The activity level was described as only "exploratory" (core drilling). This was confirmed by a separate telephone conversation I had with Ms. Patti Fenner of the Tonto NF on January 24, 1996. Attachment VIII is a copy of the Media Contact form.

On January 30, 1996, I received a copy of a June 1994 study conducted by the Arizona Game & Fish Depaartment with the Tonto National Forest, concerning the native fish habitat along the Cave Creek wash. It is included here as Attachment IX for background information.

### Requests for Information

Representatives for each of the agencies involved with this complaint to date, have said he or she wants to receive a copy of the final report on this complaint investigation. Attachment (VII) to this memo is a copy of the letter received from Ms. Becky Bartness, an attorney and a Board Member of the DFLT, requesting copies of any reports, notices, or other documents prepared or issued by the Department. In addition, to the local Cave Creek newspaper (Sonoran News), the New Times and the other Cave Creek weekly newspaper, and Adrian Gibson, the Cactus Shadows High School science teacher, have all asked to receive a copy of my report. Per instructions from my supervisor, I have not given copies of any of my report to anyone. Rather, I was told you would make the final determination regarding any further Department action on this complaint and the attached materials and any further investigation you do before you release information.

Internal Memo: Complaint #96-005 Referral

Roland Williams, NPSMU February 12, 1996

### Recommendations

I concur with the other participants' comments that further study of the situation would be the prudent action, rather than to ignore an obvious, unsightly and inadequately cleaned mine site with real potential to impact the Cave Creek wash ecosystem. Core samples to bedrock should be taken from the dry material in the impoundments and solution samples should be collected where wet. Of primary concern would be analyses for cyanide, total heavy metals, and  $p^{-\frac{1}{12}}$ . Concurrently, the same parameters would be taken upstream and downstream along with QA/QC samples provided by the lab. Chain-of-custody and standard ADEQ sampling protocols should be followed.

CEO:ceo:696005.MEM Attachments (8)

I. Complaint 96005 with photos

II. HazMat Referral

III. Bill Bridge Letter, 01-20-96

IV. Kirke King Field Notes, 01-19-96

V. Adrian Gibson Class Study

VI. Kevin Timothy Video Tape, 01-19-96 (copy not avail to cc)

VII. Becky Bartness Letter, 01-22-96

VIII Media Contact Form, Sonoran News

IX. June 1994 AZ G&F Cave Creek Study

cc: Harley R. Hiett, P.E., Manager, SWFSU
Jim Matthews, PIO
M. Reza Azizi, Acting Manager, Surface Water Enforcement Unit
CEO RF
Complaint #96005

SWFSURF Wo attachments

Page 2 of 4 state game of fish, BLM Mines ASU Schedule 1 to meet complainent on GOZ 1194 Az Game & Fish, (602) 942-Emily Garber, Touto She coul me Int show number 1-18-96 attempted to contact NA at 10:20 Au like King allet to ven Bloby Bartners 483-8199 Obsert 1-19 File Trip-meet at Cove Creek & Bell Rd, Pel. 9 Am - 11 Am + ransit to mine si

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY Water Quality Division

ADEQ WQD COMPLAINT NO. 96-605

# COMPLAINT / INCIDENT REPORT FORM

(Initial Contact Form to be filled out by employee receiving complaint)

Page 1 of 4

Section File Number

1. PERSON REPORTING INF	ORMATION (COMPLAINA	NO HICACHMENT I	
NAME: Kevin		If complainant wishes to remain anonymous:	
		[ ] transfer call to Section investigator	
25,2 2.0	erde Lana	[] have complainant call investigator (give NAME, #)	
Phoenic	AZ 85016	[ ] offer to mail blank INCIDENT/REPORT FORM to	
1 booking	AE, 23016	complainant for them to fill out and return	
.,		[ ] take information on pages 2 & 3 of form yourself	
TELEPHONE NUMBER (602)	14/ //42	TO CONTRACT AND INVESTMENT TO CO. ( ) NO.	
		IS COMPLAINANT AN EYEWITNESS? [ ] Yes [ ] No	
2. COMPLAINT/INCIDENT IN			
COUNTY:		CITY/AREA:	
COMPLAINTS ON TR		D BY A TRIBAL AUTHORITY ARE REFERRED TO USEPA	
INCIDENT TYPE:		TION OF INCIDENT (continued on back):	
2.11	Cine con	tamination in case creek	
Drinking water:	-		
[] Outage* [] Backflow* [] Contamination*	- wash -	Silver Belle "Formaly	
(*refer immediately to an ADEQ	_known gr	Property ine), He has	
Drinking Water Field Engineer)	+11 11		
g water richa Engineer)	alved to	Hay Mat and norporus mondon	
Illness/death:	- heavy m	stel tacil	
[] Human* [] Animal	2	as all a level or Speed	
[i] Fish []	- 5 me	so, of Cane Creek on Spur	
(*refer immediately to ADHS Office of Risk Assessment)	- Greek Soft	tro Cross Road, Tailoren	
Office of Risk Assessment)	0-0	I linge + cyamile leaching	
Pollution:	Joones and	10 10	
[c] Surface water [ ] Soil	- cement le	ild supoundments	
[] Groundwater [] Air	ONCOING INCIDENTS	Carlos Carlos	
[4 Hazwaste [ ] Solid waste	ONGOING INCIDENT?		
[ ] Abnormal conditions (odor,	Date/Time of onset:	licy last Duration of occurrence:	
color, oil, scum, debris, etc.)	color, oil, scum, debris, etc.)  Landowner:		
Facility related:		/ 1. 2 / / 7	
[ ] Facility-related problem	Potential responsible party na	ame: federal (forest sec)?	
[ ] Illegal discharge	Affiliation:	l'	
	1 minution.		
Other:	Address:		
	Phone:		
3. COMPLAINT/INCIDENT RE	CEIPT INFORMATION		
EMPLOYEE: Chuck	Ohr	PHONE: X 4434 DIV/SEC/UNIT: WQ/SIV/FS	
DATE: /-/z - 96 TIME:	[ ] Letter	[] In person X Telephone	
4. COMPLAINT REFERRED TO	Roland Will	lion DATE /-12-96[] Outside WQD	
		Y UKOLO	

ACCACHMENT L POS

COMPLAINT / INCIDENT REPORT FORM

(Form to be filled out by employee following up on complaint)

Page 3 of 4

ADEQ WQD
COMPLAINT NO.
9/2-005

Section File Number

5.	DESCRIPTION OF POLLUTANT(S)			
	Pollutant(s) observed	Quantity	<b>.</b> y	•

	AND RISK POTENTIAL				
WATERBODY CLASSIFICATION:	HUMAN POPULATION		NON-HUMAN COMMUNITY:		
Groundwater: [ ] Drinking water source	Community setting:		Aquatic life affected:  [ ] Fish species		
source name or well ID	[] Urban area	*			
[ ] Livestock well	[] Rural area				
[ ] Irrigation well [ ] Dry well	[] Recreational area		[ ] Insects		
Surface water	Population density:	÷	Terrestrial life affected:  [ ] Wildlife species		
Drinking water source source name	[ ] Large city (>10,000 residents)				
∏ Flowing stream	[ ] Medium city (5,000-1	0,000)	[ ] Livestock species		
Spring or seep Lake, pond or reservoir	[ ] Small city (1,000-5,00	00)			
[ ] Effluent dominated water [ ] Stream bank or floodplain [ ] Dry wash [ ] Transient settlem			Habitat(s) affected:  Aquatic		
		(no	[ ] Wetland or Marsh [ ] Riparian [ ] Forest [ ] Chaparral [ ] Grassland [ ] High desert [ ] Low desert [ ] Other		
affected watercourse name	Recreation density: Approximate number of swimmers				
Other: [ ] Drinking water - unknown origin					
source name	(other than swimmers)		- Jouer		
p j 1.0 wateroody affected					
7. PROBABLE SOURCE(S) OF POI	LLUTION	× .			
FACILITY-RELATED:		NON-FACILITY RELA	TED:		
[ ] Drinking water system [ ] Public v	vater system	[ ] Construction site			
[ ] Industrial (processing, manufacturing	storage)	[ ] Vegetation removal (grading, clear cutting)			
[ ] Sewage treatment plant [ ] munici	pal [ ] private	[ ] Channelization (floo	d control, erosion control)		
Traditional on-site sewage system		[ ] Recreation			
[ ] septic tank [ ] leach field		[] swimming [] boating [] camping			
[ ] Alternative on-site wastewater system					
[]ET bed [] mound system []a	erobic system		anching [] silviculture		
Transportation (tanker, truck, rail car	)				
	n				
Concentrated animal feeding operation			· -		
☐ Concentrated animal feeding operation  Mine [] active [★ closed]		Private residence			
[ ] Concentrated animal feeding operation  [ Mine [ ] active [ ] closed [ ] Landfill [ ] active [ ] closed		[ ] Private residence [ ] Public property			
Mine [] active [M closed		[ ] Private residence [ ] Public property [ ] Other			
[] Sewage treatment plant [] municipal [] private [] Traditional on-site sewage system         [] septic tank [] leach field [] Alternative on-site wastewater system         [] ET bed [] mound system [] aerobic system [] Transportation (tanker, truck, rail car) [] Concentrated animal feeding operation [Mine [] active [] closed [] Landfill [] active [] closed		[] swimming [] boating [] camping [] Agriculture [] farming [] ranching [] silviculture [] Wildcat dumping on [] public or [] private property [] Sewage sludge dumping [] Private residence			