



CONTACT INFORMATION

Mining Records Curator
Arizona Geological Survey
1520 West Adams St.
Phoenix, AZ 85007
602-771-1601
<http://www.azgs.az.gov>
inquiries@azgs.az.gov

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ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: SILVER CROSS

ALTERNATE NAMES:

BLUEROCK PAT. CLAIM
HECK CLAIMS
PROSPECT MINE

MARICOPA COUNTY MILS NUMBER: 599

LOCATION: TOWNSHIP 7 N RANGE 4 E SECTION 28 QUARTER W2
LATITUDE: N 33DEG 55MIN 22SEC LONGITUDE: W 111DEG 57MIN 13SEC
TOPO MAP NAME: NEW RIVER MESA - 7.5 MIN

CURRENT STATUS: EXP PROSPECT

COMMODITY:

GOLD LODE
SILVER
COPPER

BIBLIOGRAPHY:

ADMMR SILVER CROSS FILE
BLM MINING DISTRICT SHEET
BLM AMC FILE 19403
ADDITIONAL WORKINGS SEC 27,29,32,33 T7N R4E

HECK CLAIMS

MARICOPA COUNTY

Mining World April 1962 p. 39

See: IC 8969 -- Gold and Silver Leaching Practices in the US p. 16

NJN WR 11/14/86: George Tweedy (c) reported that he has been working with Charlie Martin (c) to put the Silver Cross (Heck Claims - file) Maricopa County in production as a heap leach operation again. He will provide further details soon.

NJN WR 1/16/87: In the company of James Bond (c) a visit was made to the Heck Claims (Silver Cross - file) on which a separate report has been written.

NJN WR 5/15/87: James Bond (card) of West Virginia visited and reported that Northern Miner magazine reports that Amca Resources, (card) has placed the Silver Cross (file) Maricopa County into production.

NJN WR 2/5/88: Jim Mott, Deputy Mine Inspector, reported that contrary to reports from the journals that AMCA produced new ore at the Silver Cross (file) Maricopa County, AMCA is not supposed to produce until they clean up the benches at the Silver Cross. To the best of his knowledge, that has not been done, so they should not be mining.

HECK CLAIMS (SILVER CROSS)

MARICOPA COUNTY
Cave Creek District

KAP WR 5/20/83: A visit was made to the Silver Cross Mine (AMCA Minerals) Cave Creek District. The cyanide heap leach operation was down. All rolling equipment is gone. Leach pads, recovery plant (carbon adsorption-stripping-electrowinning) and laboratory are still on site. Robert Brown is the caretaker living at the property. He reported he's been there for over 7 months and the property was shut down before then. He also reported Charles Martin plans to start the operation back once he has things going well at Quartzsite.

KAP WR 10/7/83: Mike Martin of AMCA Minerals (Cave Creek office 488-2660) asked for suggested geophysical consultants for a series of geophysical surveys at the Silver Cross Mine (Heck Claim file). He explained they plan additional exploration at the property. They found some zinc mineralization and are trying to define a model for the deposit.

KAP WR 12/21/84: Made a brief visit to the Silver Cross Mine (Heck Claims-file) Maricopa County. There appears to have been no change or activity since previous visit in May of 1983. Although no one was around, a caretaker lives at the property as evidenced by a house trailer, dogs and chickens.

KAP WR 9/13/85: Mike Martin was in and reported he is going to restart the Silver Cross Mine cyanide heap leaching operation in the Cave Creek District of Maricopa County. See: Heck Claims (file), Maricopa County. He is the son of the president of the previous operating company, Amca Minerals Limited.

KAP WR 10/3/86: Talked with a U. S. Borax official in Los Angeles. They have received a letter by a Mr. Himes trying to raise funds for AMCA Minerals at the Silver Cross Mine, Cave Creek District, Maricopa County (Heck Claims-file).

MINE AND PROSPECT FIELD VISIT DATA SUMMARY

Sheet 1 of 2

COMMODITIES GoldMILS ID No. 599 Date 1/11/87ENGINEER Nyal Niemuth

INFORMATION FROM: _____

PROPERTY SUMMARY

- I. MINE NAME Silver Cross OTHER POSSIBLE NAMES Heck Claims
INCLUDING ANY CLAIM NAMES NOTED _____
- II. LOCATION: T 7N R 4E SEC(S) 28 W2 MINE DISTRICT _____
ELEV. _____ COUNTY Maricopa TOPO QUAD. New River Mesa 7.5
DIRECTIONS as per topo
- MAP ATTACHED yes
- III. ^{Operator} OWNERSHIP: NAME AMCA Resouces Ltd PHONE (604) 688-6521
ADDRESS: 807, 402 W. Pender St., Vancouver V6B 1T5
COMPANY NAME IF ANY: as above
PERTINENT PEOPLE Charles Martin
Owner is still Francene Kokaska, 6801 N. 18 Place, Phoenix, Arizona 85016
- IV. PROPERTY AND HOLDINGS: Silver Cross unpatented claim group
- V. PAST PRODUCTION - NOTED, KNOWN, PROBABLE, UNKNOWN, NONE noted
- VI. CURRENT STATUS: under exploration and heap leach site development
- VII. WORKINGS: Open pit mine, approximately 60' high bench to southwest edge of pit
- VIII. GEOLOGY AND MINERALOGY: DEPOSIT TYPE: disseminated gold
LENGTH: unk WIDTH: unk VEIN STRIKE NA DIP NA
HOST ROCK: Sheared precambrian schists and tertiary intermediate volcanics
ECONOMIC MINERALS: Au
- COMMENTS: Schist is locally bleached, altered, iron stained with -1/8 inch
disseminated hematite after pyrite psuedomorph mineralization, probably
related to unfoliated intrusives in area.
- IX. EQUIPMENT ON SIGHT: TD-20 track crawler, 2 - 3/4 yard loader, compressor
and drill, crushing plant, carbon recovery plant, new leach pad geo textitle
liner, camp trailer

HECK CLAIMS (SILVER CROSS)

Maricopa County
Cave Creek District

KAP WR 9/12/80: Dale Stevenson, P.O. Box 1603, Cave Creek, Arizona 85331, reported he is no longer working as contractor at the Silver Cross Mine, Cave Creek District, Maricopa County. His firm was employed by the owners of the mine to mine and haul ore to the leach pads. He went on to say that the rumors circulating about the operation suggest that \$500,000 was recovered from the first 10,000 tons of ore but he emphasized that this was just a rumor.

KAP WR 12/26/80: In the company of H. Mason Coggin of Coe & Van Loo Consulting Engineers, and Hale Tognoni of Mineral Services Corporation, a visit was made to the Silver Cross Mine, Cave Creek District, Maricopa County. The mine is operated by AMCA Minerals. A separate report will be written.

NJN WR 1/1/82: Ron Leverman interested in visiting the Silver Cross property, Maricopa County, to see if there is any equipment there he could salvage. He reported having a property near the intersection of Deer Valley and Cave Creek Roads, Maricopa County. The name of the property is unknown.

KAP WR 4/9/82: An individual from the Arizona Water Resources Department reported that Amca Minerals was still running a leach operation at the Silver Cross Mine (Heck File) in the Cave Creek District, Maricopa County.

KAP WR 8/6/82: Francean Kokaska reported she is suing Charley Martin and AMCA Minerals over irregularities in the operation of the Silver Cross Mine.

CJH WR 10/8/82: Phone call from Dave Rabb. He wanted what information we have on the Silver Cross Mine, Maricopa County, Section 28, T7N R4E, Cave Creek District. I read the mine file to him.

DO NOT REPRODUCE

HECK CLAIMS (Silver Cross)

MARICOPA COUNTY
CAVE CREEK DIST.

6801 N 18TH PLACE #5016 - TELE 279-4607
Francene Koskaska of Phoenix, now owner. Mr. Tabor and Mr. Heck no longer
have interest.

Property now named Silver Cross.

Note LP 8/1/66

Reference: Mining World, April, 1962, p. 39

HARVEY MATHEWS HAS INVESTIGATED
MCFARLAND & HULLINGER DYVE DRIFT

AUG - 9 - 1977. F. KOSKASKA REPORTED SHE SIGNED 5 year
agreement WITH NORANDA - will deep drill the property
and do assessment work - JHJ

KP WR 6/8/79 - A comment was received that a firm Weekco Exploration has
completed three drill holes on the Silver Cross Mine, Cave Creek District,
Maricopa Co. The property is located in Sec. 28, T7N, R4E, GSRB&M,
New River Mesa, Az., 7 1/2 quadrangle. The deposit is supposedly chiefly
valuable for gold which reportedly runs 0.3 tr. oz/ton across 30 feet of structure.
7/9/79 a.p.

KP/WR 8/7/79 - Bill Groves & Charles Martin of Amca Resources reported they
hope to start pad construction at their Silver Cross Mine. Present plans are for
a contractor to construct cyanide leaching pads and place the first lift of ore on
the pad using a conveyor stacker. Construction is to start in September, 1979.
The mill will produce gold and silver. The leach pad is to be constructed with
a base of river washed (water rounded sand), waterproof nylon sheeting with
additional sand over the nylon. They have a field office in Cave Creek, phone:
488-9326. Amca is also investigating other properties with gold-silver potential.

KP/WR 11/5/79 - A report was received from a confidential, but reliable source,
that at least four (4) diamond drill holes were made on the vein at the Silver Cross
Mine in the Cave Creek District, Maricopa.

MAR 29 1984

HECK CLAIM (A)

START

March 28, 1984

TO: OFFICE OF STATE MINE INSPECTOR

ATTENTION: Mr. James Matt

Dear Mr. Matt:

This letter is to inform you of our plans at the Silver Cross Mine, currently and in the near future.

At present we are fabricating a new crushing and agglomeration plant to reprocess our pad material.

We will also be doing some blasting work in our pit area to clean it out. We will then do some sampling to help determine a decision on whether to widen and bench the pit area to continue mining there.

Thank you,



Michael C. Martin
Manager, Silver Cross Mine

MCM:lp

HECK

ARIZONA DEPARTMENT OF MINERAL RESOURCES
Mineral Building, Fairgrounds
Phoenix, Arizona

1. Information from: Dale "Squeaky" STEVENSON and Mrs. Stevenson
Address: P.O. Box 1603, Cave Creek, Arizona 85331 488-9211 or 488-3051
2. Mine: SILVER CROSS 3. No. of Claims - Patented 1 (in 1975)
Unpatented 99
4. Location: Approx. 7 miles north of Cave Creek on Cave Creek (stream)
5. Sec 28 Tp 7 N Range 4 E 6. Mining District Cave Creek (Maricopa County)
New River Mesa Arizona 7 1/2' U.S.G.S. Quad.
7. Owner: Francene Kokaska
8. Address: 6801 North 18th Place, Phoenix, Arizona 85016
9. Operating Co.: AMCA Industries, Ltd.
10. Address: 105 Fell Avenue, North Vancouver, B.C.
11. President: Charles Martin 12. Gen. Mgr.: _____
13. Principal Metals: Gold, Silver 14. No. Employed: 5 - 11
15. Mill, Type & Capacity: Heap leach with cyanide, carbon absorption.
16. Present Operations: (a) Down (b) Assessment work (c) Exploration
(d) Production (e) Rate 100 tpd.
17. New Work Planned: Mr. Stevenson reported that the second heap of 3000 tons of ore has been mined and is ready to be heaped on the pad.
18. Misc. Notes: Compaction of ore in the heaps may be reducing recovery. Leach solution is ponding on the heaps. The recovery circuit consists of four carbon absorption columns, a sand filter, a cyanide-caustic soda stripping circuit and a gold electro-winning cell. The odor of ammonia was probably from the disassociation of cyanide and hydrolysis of solutions. It was suggested they obtain some assistance from a metallurgical consultant or the U.S. Bureau of Mines at Reno. The leach pad consists of a layer of heavy gauge vinyl or butyl rubber. Leach solution is sprayed with rainbirds but Bagdad wigglers are planned. Ph and cyanide strength are monitored in the on-site lab. Samples for Au and Ag assay are shipped to Phoenix.

Date: May 10, 1980



(Signature) Ken A. Phillips

(Field Engineer)

Heck Claims (File)

INTRODUCTION

On May 18, 1957, a preliminary examination was made of the Silver Cross Claims. These claims were again visited on May 9, 1959 in order to evaluate the additional work that had been done on the property since the first visit. This report is a compilation of information gathered in both of these examinations.

During the course of the first examination the underground workings were mapped and sampled as were several outcrops on other portions of the claims. On the second visit the bulldozer work above the underground workings was mapped and sampled.

LOCATION AND ACCESSIBILITY

The Silver Cross claims are located in section 28, T. 7 N., R. 4 E. unsurveyed, Gila and Salt River Base and Meridian, and are in Maricopa County, Arizona. The claims are approximately six miles due north of Cave Creek, a small settlement approximately thirty miles north of Phoenix. The road from Phoenix to Cave Creek is a blacktop road in good condition. From Cave Creek a county maintained dirt road extends northward for approximately five miles. From this point to the Silver Cross group the road is accessible to all vehicles in good weather or when the creek is not flooding. All of the ore that has been shipped from this property has been hauled over this road in ten ton loads.

It is reported that a two and one-half mile road could be constructed over a new route with not too much difficulty, eliminating the portion of the present road in the bottom of the creek.

PHYSICAL FEATURES

The topography in the area surrounding the claims is that of rather high desert mesas surrounded by rough, steep and highly dissected foothills. The average elevation of the mesas is approximately 4,600 feet with the bottom of Cave Creek near the claims having an elevation of approximately 2,500 Ft. As the Silver Cross claims border on Cave Creek, the elevations range from 2,500 feet to approximately 2,900 feet on the claims.

The vegetation on the property consists of the typical desert flora, cacti sage brush, creosote brush and cottonwood trees along the bottom of Cave Creek. There is a limited continuous flow of water in Cave Creek, either at the surface or just below the surface of the ground, and one of the shafts in the bottom of Cave Creek is a permanent supply. At the time of the last visit to the property the flow in Cave Creek was estimated at greater than 500 gallons per minute. The shaft is probably supplying half of this amount and this water could be used in a milling operation.

DEVELOPMENT

The development work on this property consists of approximately 80 feet of drifting and cross-cutting in one adit, several shallow shafts of unknown depth near the bottom of Cave Creek and approximately 100 feet of bulldozer strapping up the hill from the adit. Appended is a sketch map that shows the outline of the development work with the geology and location of the samples that have been cut. Also attached are copies of ~~the~~ the smelter returns on the ore that has been shipped.

Since the time of the first visit to the property a road has been cut to the portal of the adit and to the bulldozed area above the underground work making the workings readily accessible by truck type vehicles.

GEOLOGY

The regional geology in the area of the Silver Cross claims is that of predominantly pre-Cambrian schists that have been subsequently covered by Tertiary volcanics. The schists have been intruded by dikes ranging in composition from andesite to basalt and by quartz dikes. It is believed that most of the intruded rocks are geologically quite old.

Many of the andesitic and basaltic dikes have been metamorphosed and are schisose.

~~XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~

The Silver Cross claims cover an area of exposed schist that is cut in numerous places by siliceous and andesitic dikes. The andesitic dikes on the claim have been partially silicified and can be termed felsite. The north crosscut in the tunnel has been driven approximately 10 feet into one of the felsite dikes. It is expected that this dike is no more than 20 feet thick at this point. Another altered andesitic dike is exposed in the area of the water-filled pits near the bottom of Cave Creek.

The topography of the area suggests many faults of varying magnitude. Cave Creek Canyon was undoubtedly formed along the trace of a generally north-south trending fault. The canyon adjacent to the tunnel on this property is also believed to be the result of erosion along a fault plane. Several faults of apparent minor magnitude were mapped in the underground workings. It is believed that these faults could have been the channelways along which the andesitic dike and the mineralizing solutions may have traveled. The general trend of the faults mapped is east-west to northeast-southwest and the dips are all to the south. The faults are indicated on the geologic map by the blue lines. The intensity and thickness of the lines indicate the apparent magnitude of the fault.

SAMPLE AND ASSAY DATA

A total of 15 samples were taken for assay during the first visit to the property. Nine of these samples were cut in the underground workings and six were taken on outcrops or on dumps. During the second visit six additional samples were taken. Five were taken along the bulldozer cut above the working and the sixth was a selected sample from near the bottom of the portal of the adit.

D Sample 908 was a horizontal sample taken in the face of the southwest drift from the south wall 2.8 feet toward the north. Assay values silver (1.9) oz.; gold ~~0.3~~ oz.; copper 0.067. 7.1

0.3 (0.14)

E Sample 909 was a 1.8 foot horizontal cut on the same line northward from the end of sample 908. This sample was across a zone of very heavy powdery, red iron oxide material. Assay values, silver (1.6) oz.; gold, (0.26) oz.; copper 0.18.

F Sample 910 was a 4 foot horizontal cut extending northward from the end of sample 909 to the north rib of the southwest drift. Assay values, silver (1.5) oz.; gold, (0.25) oz.; copper 0.06. 0.5

Sample 911 was a 10 foot horizontal cut sample along the west rib of the north cross-cut in the "felsite" dike. Assay values, silver 1.1 oz.; gold, trace; copper, nil.

Sample 912 was an 8-1/2 foot horizontal cut along the northeast rib of the main tunnel across what appeared to be kaolinized and iron stained metamorphosed granitic rock. Assay values, silver 2.2 oz.; gold, 0.15 oz copper 0.12.

Sample 913 was a 5-1/2 foot horizontal chip sample along the east rib of the main tunnel immediately south of the previous sample and cut across a zone of heavy iron oxide. Assay values, silver 1.0 oz.; gold 0.01 oz.; copper 0.06.

G Sample 914 was a 6.3 foot horizontal chip immediately south of 913 along the east rib of the main tunnel, across a greenish colored schist with some yellow iron oxide staining. Assay values, silver (8.3) oz.; gold (0.27) oz.; copper 0.18. 2.1 0.18

H Sample 915 was a 6.3 foot horizontal chip immediately south of 914 along the east rib of the main tunnel across some heavily iron stained schist. Assay values, silver (3.6) oz.; gold (0.24) oz.; copper 0.24.

Sample 916 was a 6.6 foot horizontal chip sample extending southward from the end of sample 915. Assay value, silver 0.5 oz.; gold 0.01 oz.; copper, nil.

Sample 916 was a 6.6 foot horizontal chip sample extending southward from the end of sample 915. assay value, silver 0.5 oz.; gold 0.01 oz.; copper nil.

J Sample 917 was a chip sample from the outcrop approximately 30 feet vertically above the tunnel level and on the same mineralized structure. Assay value, silver (3.4)^{0.2} oz.; gold (0.45)^{0.39} oz.; copper 0.06.

Sample 918 was a 5 foot horizontal chip sample across a siliceous (quartzitic) outcrop at the west end of the lower peak into which the tunnel has been driven. Assay value, silver 0.10 oz.; gold 0.01 oz.; copper trace.

Sample 919 was a chip sample from a heavily iron-stained schist outcrop northwest of the tunnel. This outcrop appears to be along a structure parallel to the mineralized structure in the tunnel. Assay values, silver 0.5 oz.; gold trace; copper 0.06.

Sample 920 was a grab sample from the cross section of the dump below the tunnel workings. Assay values, silver 1.1 oz.; gold 0.28 oz.; copper 0.12..

Sample 921 was a selected grab sample from a black siliceous portion of the siliceous andesite dike near the bottom of Cave Creek. Assay values, silver trace; gold 0.01 oz.; copper 0.31%.

Sample 922 was a grab sample from the dump of one of the small pits into the siliceous andesite near the bottom of Cave Creek. Assay values, silver trace; gold 0.01 oz.; copper 0.18.

Sample 930 was a 11 foot horizontal chip sample taken in the dozer cut across red iron stained schist. Assay values, silver 0.60 oz.; gold 0.99 oz..

C Sample 931 was a 13 foot horizontal chip sample taken in the dozer cut across the bleached sericite schist. Assay values, silver (1.0)^{1.0} oz.; gold (0.56)^{0.30} oz..

B Sample 932 was a 3.6 foot horizontal chip sample in the dozer cut across the heavily iron-stained schist that contains thin silicified stringers. Assay values, silver (0.40)^{0.50} oz.; gold (1.01) oz.^{0.86}

A Sample 933 was a 7 foot horizontal chip sample in the dozer cut across a zone of altered bleached sericite schist that has been weakly stained by the yellow iron oxide. Assay values, silver (4.60)^{0.20} oz.; gold (0.06) oz.^{0.12}

Sample 934 was a 11.6 foot horizontal chip sample in the weakly iron-stained schist near the southwest end of the dozer cut. Assay values, silver 0.20 oz.; gold 0.01 oz..

Sample 935 was a grab sample from the bottom of the cut leading to the portal of the underground workings and consisting of the heavily iron-stained silicified schist material. Assay values, silver 2.90 oz.; gold 0.10 oz..

The samples taken on this property were cut in minable widths and no attempt has been made to select or segregate material of abnormal grade. Assays of the samples taken during these examinations indicate that the mineralization is associated with the iron oxide and siliceous mineralization and they suggest an association of the mineralization to the altered andesitic intrusions. They also indicate that the economic grade mineralization is continuous for approximately 200 feet horizontally and from the surface to a projected depth of approximately 100 feet. The mineralization can be considered to be 15 feet in thickness. With these figures and ore reserve of the developed ore, it can be placed at 200,000 tons using a tonnage factor of 15 cubic feet per ton.

The probable ore reserve can be obtained by increasing the length of the ore zone to 300 feet using the same depth which was 100 feet and doubling the width to 30 feet the ore reserve would then go to 60,000 tons averaging approximately \$ 15.00 per ton. Calculations of these reserves were based on the vein exposed in the present working. No consideration has been given to the possibility of the development of a parallel vein north of the mineralized zone that has been exposed in the workings.

CONCLUSIONS

The amount of development and exploration work that has been completed on this property is insufficient to be able to thoroughly evaluate the property. However, the area that is presently exposed indicates the potentiality of many thousands of tons of mill-grade ore on the Silver Cross Number 1 claim alone. Additional exploration and development work will undoubtedly discover other veins of like material with an equal amount of gold and silver mineralization.

RECOMMENDATIONS

The physical exploration work has progressed to a point where it is now necessary to have a complete geologic map of the claims in order to plan additional exploration and development work. The completed exploration and development has disclosed an ore reserve of sufficient size to make the property worth the expenditure necessary for the completion of a geologic survey. It is postulated that much of the ore can be mined by open-pit method, but without geologic and sample control the grade of the ore can be decreased by silution to such a point that the material mined would not be economic mill-grade ore.

A geologic investigation would also determine the feasibility of exploration and development work on parallel or other veins in the area. This investigation should be done before any additional exploration work is initiated. At the completion of the geologic survey recommendations can be made regarding exploration, development and mining of the ore body.

Robert L. Wells
Consulting Geologist

May 13, 1958

ARC LABORATORIES

Lab. No.	Description	Gold oz/ton	Silver oz/ton	Cu %
5517	Silver Cross No. 1 A-A	0.30	0.6	0.2
5518	Blue Rock No. 2 Vein	trace	0.4	6.1
5519	Blue Rock No. 3	trace	0.5	0.06
5441	Silver Cross Samples A	0.06	4.6	
5442	ditto B	1.01	0.4	
5443	ditto C	0.56	1.0	
5444	ditto D	0.14	1.9	
5445	ditto E	0.26	1.6	
5446	ditto F	0.25	1.5	
5447	ditto G	0.27	8.3	
5448	ditto H	0.24	3.6	
5449	ditto J	0.45	3.4	
5466	ditto K	0.22	0.5	
5467	ditto L	0.82	0.6	
5468	ditto M	0.67	0.8	
5469	ditto N	0.95	1.5	
5470	ditto O	0.26	1.5	
Silver Cross Samples				
5402	Channel Cut, 25'	trace	0.40	
5403	" " 6'	trace	0.20	
5404	" " 7'	0.56	0.20	
5405	" " 12'	0.70	0.60	
5406	" " 11'	0.24	2.00	
Blue Rock Claims				
5407	# 2 open cut	0.01	0.80	0.20
5408	# 3 9' face	0.01	0.60	
5409	# 4 streak	0.01	0.40	
5410	# 5 red dike	0.01	0.20	
5411	# 6 random dike	trace	0.20	
5412	# 7 big dike random	trace	0.40	

ARC LABORATORIES

Lab. No.	Description	Gold oz/ton	Silver oz/ton	Cu %
5353	Silver cross Copper Vein	0.04	0.50	0.22
5354	Silver Cross # 1, 5'	1.02	0.60	
5355	Silver Cross # 2, 10'	0.48	0.80	
5356	Silver Cross # 3, Face	0.44	1.30	
5357	Helen # 1, Mill Feed	0.22	0.30	0.62
5358	Helen # 1, Tailings	0.04	0.20	0.53

UNIVERSITY OF ARIZONA, ORE TESTING SERVICE

ORE TEST 1571

The sample of ore from Noble Hecks mine, Cave Creek, assayed 0.35 oz. gold and 2.45 ozs. silver per ton.

The sample was crushed through 30-mesh and deslimed and the sands tabled. The results are given in the following table:

	Tons per 100 tons of feed	Oz. per ton		Distribution	
		Gold	Silver	Gold	Silver
Heads	100.0	0.29*	2.33*	100.0	100.0
Concentrate	7.2	0.39	12.8	9.8	39.5
Middling	26.3	0.31	2.1	28.4	23.7
Table Tailing	47.0	0.25	1.3	40.8	28.4
Slimes	19.5	0.31	1.0	21.0	8.7

* Calculated

The table concentrate assayed only 0.39 oz. gold and 12.8 oz. silver per ton. The Middling 0.31 oz. gold and 2.1 oz silver and the table tailing 0.25 and 1.3. The slimes were high in gold 0.31 oz. gold and 1.0 oz. silver per ton.

The gold seems to be distributed in all products indicating the ore would have to be tested by flotation.

Yours very truly

G. H. Roseveare
Metallurgist

AMCA INDUSTRIES LTD.

Ste 503 - 509 Richards Street | Phone
Vancouver, B. C., V6B 2Z6 | 688-6521

rec'd 11-79
AP
GW

REPORT TO SHAREHOLDERS OF AMCA INDUSTRIES LTD.

The company has just received from the U. S. Forest Service, complete approval on our plan of operations for the Silver Cross Mine located in the Cave Creek District of the Tonto National Forest. The approval includes the block mining of our ore zone and the leaching of this ore using the new U. S. B. M. process detailed in the U. S. B. M. circular #8770 dated 1978 titled "Processing Gold Ores Using The Heap Leach Carbon Absorption Method".

Our initial operation will be to mine the 23,000 tons of ore blocked out by our engineer and referred to in his report of May 31, 1979. His report states that 23,000 tons is a conservative estimate of tonnage as he only used the widths of the ore zone actually visible in the adits. Our first phase of operations will use the ore zone consisting of 23,000 tons of ore blocked out and whatever other ore may be found to the adit floor level. Further tonnage and grade estimates will be determined when the adit floor has been reached.

In our report of May 31, 1979, "a check channel sample assay across 10' of the ochre zone on the east wall of the adit gave assays of 1.08, 1.67, .63, and .46 oz/T AU and a 20' length along the west adit gave .18 oz/T. The average of these five samples is .80 oz/T AU plus 1.23 oz/T AG". He also states "that these check assays run somewhat higher than projection for the overall ore body". We are enclosing a copy of the assay sheet with this letter and have marked the samples used for the above results.

In a time/cost study of our first and subsequent heaps we have used a figure of \$300 per oz. for Gold and \$8.00 per oz. for Silver. This figure may have to be revised if the present upward trend of these metals continues.

Previous test work on this ore by the University of Arizona, U. S. B. M. Hazen Research Lab. and others have shown a recovery figure of 88% to 93% so our Time/Cost Study has used these figures: 90% recovery of .30 Gold and 1 oz. of Silver.

Using these figures our first 10,000 ton heap with a maximum cost of \$303,581 should show a gross of \$891,000 (90% X 3000 oz. of Gold at \$300 and 90% of 3000 oz. of Silver at \$8.00 per oz.) Our second and subsequent heaps should show a reduced maximum cost of \$225,506 and the same gross of \$891,000

Our cost figures were personally checked with D. W. Kappes E.M., M.S., P.E. of Miller Kappes Co. and the University of Nevada. He has much practical experience in the construction and operation of leach pads in the Southwest and was one of the principal speakers at the United Nations Institute's conference at Jurica, Qro, Mexico, November, 1978. His subject was the Leaching of Small Gold and Silver Deposits. We have used his paper to great advantage in our planning of the Silver Cross project.

It is expected that operations will commence on the property in the next month and we will keep you informed of our progress.

BY ORDER OF THE BOARD OF DIRECTORS

To: Amca Industries Ltd.

REPORT No A29 - 214

PAGE No. 1
503 - 509 Richards Street
Vancouver, B.C.
V6B 2Z6

BONDAR-CLEGG & COMPANY LTD.

DATE: May 18, 1979

CERTIFICATE OF ASSAY

Samples submitted: May 9, 1979
Results completed: May 18, 1979

PROJECT: Silver X Property

I hereby certify that the following are the results of assays made by us upon the herein described ore sample

MARKED	GOLD		SILVER	* wt Crd. wt GRAMS Percent							TOTAL VALUE PER TON (2000 LBS.)
	Ounces per Ton	Value per Ton	Ounces per Ton	Percent	Percent	Percent	Percent	Percent	Percent		
Silver X Property											
# 1 Hematitic Ochre Tails	0.86		1.20	-							
Hematitic Ochre Oversize	1.08 ✓		1.37	-							
Hematitic Ochre Concentrate	1.22		2.13	17.49							
# 2 Limonitic Ochre Tails	0.68		1.11	-							
Limonitic Ochre Oversize	1.67 ✓		1.32	-							
Limonitic Ochre Concentrate	0.51		1.96	26.15							
# 3 ^(a) Manganiteferous Ochre Tails	0.67		1.18	-							
Manganiteferous Ochre Oversize	0.63 ✓		1.43	-							
Manganiteferous Ochre Concentrate	3.10	500 mesh v.g.	1.13	21.14							
Sluice Test Tails	0.51		1.28	-							
Sluice Test Concentrate	0.37		0.69	47.04							
#3(b) Repeat Manganiferous Ochre Tails	0.45		0.69	-							
Oversize	0.46 ✓		0.84	-							
Concentrate	1.51	no fig.	1.32	14.48							
#4 Mike's Ochre Seam West Adit Tails	0.26		1.33	-							
Oversize	0.18 ✓		1.18	-							
Concentrate	0.53		1.99	34.17							

cc; Dr. W. D. Groves

* weight of sample in grams

V.G. = Visible Gold

Registered Assayer, Province of British Columbia

THE SILVER CROSS MINE

Harvey W. Smith, E.M.

THE SILVER CROSS MINE

"A Potential Gold Producer"

by

Harvey W. Smith, E.M.



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DEL TIERRA ENGINEERING & MINING CORP.

U. S. Mineral Surveys

Mining

Exploration

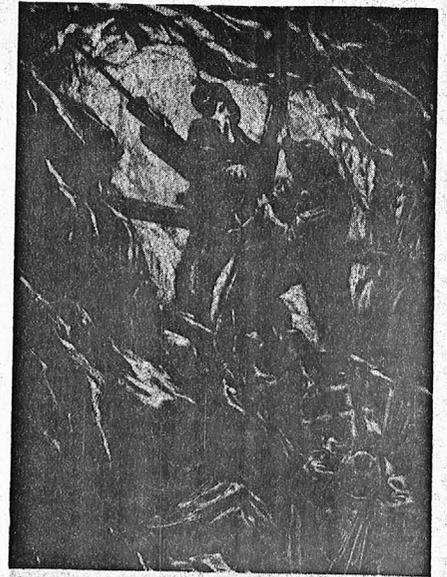
HARVEY W. SMITH, E.M. President

Registered Mining Engineer U. S. Mineral Surveyor

6016 N. Kachina Lane Scottsdale, Arizona 85253

Tel. 602 948-5517

August 6, 1974



Reproduction of the Colby
Rocks - Mine -

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

Dear Mrs. Kokaska:

My report on your Silver Cross Mine follows.

It has been a pleasure working with you. If
I may be of further service, please feel free
to contact me at any time.

Sincerely,

Harvey W. Smith
Harvey W. Smith, E.M.

HWS:ebj

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THE SILVER CROSS MINE

SUMMARY

An extensive geologic mapping and sampling program has revealed the Silver Cross Mine to be a potentially good gold and silver producer. Samples taken by different investigators indicate an ore zone approximately 110 feet long, 33 feet wide, and averaging 45 feet high above the present workings. Approximately 17,000 tons are in this zone, which have an estimated value of \$47 per ton, or \$799,000. Exploration work undoubtedly will expand the foregoing figures. Further work should be done on this property.

INTRODUCTION

This report summarizes the work performed during a field examination of the Silver Cross Mine and adjacent areas made by the writer during the period of June-July, 1974. This examination was made at the request of Mrs. Francene Kokaska, the present owner. The purpose of the investigation was to develop a viable exploration program.

Assisting the writer in making this examination were Gerald Weathers, registered professional geologist, and Kent Miller, geologist and field engineer. A total of ten days was spent mapping the surface topography and geology, the underground workings and geology, and sampling.

Twenty-nine samples were cut, and the assay results are incorporated as a part of this report as well as the values obtained by earlier investigators. Also incorporated as part of this report are 8 maps, Plates I-VIII, showing the location of the mine, a claim map, a surface geologic map and underground workings, geology and sample locations with assay values.

LOCATION

The Silver Cross Mine, consisting of two unpatented federal lode mining claims, is located seven miles north of Cave Creek, Maricopa County, Arizona, in Section 28, Township 7 North, Range 4 East, G&SRM.

This area is known as the Cave Creek Mining District. The mine is situated about one and one-half miles within the Tonto National Forest in low, but rugged, unnamed

mountainous country and about one-quarter mile west of Cave Creek Wash. Elevation of the portal of the mine is approximately 2,600 feet. Sugar Loaf Mountain, about three-fourths of a mile to the southwest, tops out at 3,879 feet. Black Mesa, a little over a mile to the west, has an elevation of 4,698 feet. Skull Mesa, two and one-half miles to the northeast, rises to 4,595 feet. Cave Creek Wash runs water nearly all year and at times, like all washes in Arizona, is quite torrential. Vegetation, of course, is sparse and consists of the usual desert growth--cacti, scrub oak and occasional palo verde and mesquite trees.

Access to the mine is gained via Spur Cross Road (Tonto Forest Service Road No. 48) north from Cave Creek, the nearest settlement. This road is black-topped for the first one mile and then joins an all-weather gravel road which deteriorates to a four-wheel drive only the last quarter mile.

Electric power has been extended to Section 4, Township 6 North, Range 4 East, which places it within two miles of the mine. Water availability at this time is unknown. There is water in Cave Creek Wash, but the rights will have to be negotiated.

All mining supplies are available in Phoenix, Arizona, which is approximately 30 miles to the south. Two railroads are also located in Phoenix--the Santa Fe and the Southern Pacific.

PROPERTY AND OWNERSHIP

The Silver Cross Mine presently consists of two contiguous claims designated Silver Cross #'s 1 and 2. These presently are unpatented, but an application for patent has been filed.

These claims originally were located by Noble Heck in 1956 and relocated again in 1959. He subsequently amended the locations in 1960 to correct description errors. Later, these claims were the subject of litigation and on July 21, 1965, the Superior Court of Arizona awarded these claims to a Sadie Marron. On September 1, 1965, Sadie Marron gave a quitclaim deed for the claims to Francene Kokaska, the present owner. Mrs. Kokaska has maintained her right of possession by the performance of the required annual assessment work.

HISTORY OF OPERATIONS

In 1958, during Mr. Heck's ownership, he made two shipments, totaling approximately 80 tons of ore, to Magma Copper Company in Superior, Arizona. The gold content of the two shipments averaged about 0.4 ounce per ton. Some silver was paid for in one shipment, but there were no payments for copper. Copies of the smelter settlement sheets are included with this report.

In 1967, a small mining firm from Utah began an underground exploration program. They drove a crosscut 85 feet northwesterly through the vein structure. From this, they drove a drift westerly 116 feet and one easterly 43 feet. When these operators became aware that their lease and option were invalid since Noble Heck did not own the claims, they immediately pulled off the property. Heck had represented that he owned the claims. Since that time, only assessment work has been accomplished, which consisted of a preliminary geologic study and some road work.

GEOLOGY

Surface

This area is underlaid by older Precambrian schist varying from rhyolitic to andesitic in composition. A large Cretaceous andesitic intrusive is located a few miles southwest of the property which may have influenced the local structures and mineral placement.

A wide, thinly laminated, micaceous, ferruginous belt of schist trending North 70° East with nearly vertical schistosity occurs above and immediately north of the Silver Cross adit. This belt can be traced southwesterly into an area wherein the overlying lava flows have been disrupted to form a narrow anticlinal structure.

The schist has been faulted and sheared along the planes of schistosity. Later faults trend northerly across the ferruginous belt.

Metamorphosed rhyolite lenses occur at or near the contacts of the ferruginous zone in which the feldspars often are altered to soft clay minerals.

Blocks of quaternary basalt float are strewn along the hillsides northwest of the ferruginous schistose zone as well as in the intervening washes.

A more massive, blocky, light gray schist occurs to the southeast of the ferruginous schist belt starting near the portal of the Silver Cross adit. (Refer to Map No. 3--Geologic Map of the Silver Cross Prospect.)

Underground

A crosscut was driven North 50° West into the ferruginous, thinly laminated schist zone revealing a structure 35 feet wide, trending North 70° East with a well-defined footwall and hanging wall dipping 65° toward the southeast or opposite from the prevailing dip observed in outcrops. The crosscut and west drift in crossing this structure from hanging wall to footwall expose numerous shears along the schistose planes. The shear planes have served as water courses in which there are many narrow iron oxide stained solution cavities.

Slickensides along fault planes in the east drift indicate the southeast block toward the mine portal moved downward at a -70° angle southwesterly.

The schist within the structure is andesitic in composition with soft, altered, rhyolitic schist along the contacts whereas a more massive, blocky schist occurs north and south of the structure.

MINERALIZATION

Copper oxides (chrysacolla), dendritic manganese oxides and black earthy argentite coat or stain the many fracture planes. Gold occurs within the limonite and hematite filled solution cavities and along the iron oxide stained shear planes.

The mineralization is strongest within the structural zone but does continue to the limits of the underground workings where hematite predominates.

ASSAY RESULTS

West Drift

Assays of samples of muck from 4 and 5 foot drift rounds taken by former operators prior to the rise in gold prices average 0.268 ounce Au/ton and 0.673 ounce Ag/ton, or \$42.95/ton for a drift distance of 82 feet. This evaluation is based on Au selling for \$150/ounce and Ag for \$4/ounce.

An attempt was made to cut check samples from the back of the west drift during this examination. However, it was unsuccessful due to the vertical schistosity and loose ground.

Check samples were cut at intervals along the south wall of the west drift and weighed averages calculated based on the area of influence between wall samples. From 30

feet to 100 feet, or a total of 70 feet, the drift averages 0.297 Au and .347 Ag, or \$45.95 per ton. This value compares closely with the \$42.95 per ton value based on muck sampling.

Gold values decrease rapidly near the face of the drift as it gradually crossed through the footwall of the structure. However, the copper and silver values increase, proving the persistence of the mineralization and possibly the persistence of gold southward in the structural zone.

The discrepancy between the lengths of the more highly mineralized zone in the two sample methods is due to the fact that the muck samples were spread over a greater width of the mineralized structure than the wall samples.

Samples were assayed for their copper content, but these assays, although very significant, were not used in calculating values, as it is doubtful that copper in this form is marketable. However, it is very possible that the copper content will become more important and warrant further consideration as the mine is developed.

Crosscut

Assay analysis of the crosscut muck samples taken by former operators average 0.875 Au and 1.42 Ag per ton, or \$136.98 per ton, across a structural width of 33 feet.

Assay analysis of check samples taken during this examination average 0.48 Au and 1.61 Ag per ton, or \$78.44 per ton, across a structural width of 35 feet.

This discrepancy is caused by the necessity of sampling behind lagging and switching from the east crosscut wall to the west crosscut wall to complete the sampling, as the footwall portion of the east crosscut wall has been excavated.

East Drift

No muck sample assay records from the east drift are available.

Samples were cut at intervals along the north wall of the east drift and across its face. Assay analysis of these samples average .285 ounce Au and 1.072 ounce Ag, or \$47.01 per ton. The significant gold-silver values continue beyond the face. However, at this level, it is only about 20 feet further to the surface.

Surface

Samples taken across bulldozer cuts exposing the structure on the hillside above the mine assayed .26 Au and 1.25 Ag (\$44) and .30 Au and 0.40 Ag (\$46), respectively. Other samples taken from surface cuts prove the persistence of the mineralization.

ORE RESERVES

The ore reserve calculations are based on gold selling for \$150 per ounce and silver selling for \$4 per ounce.

Measured Ore Reserves

These reserves are based on the mine sample assay values and the overlying surface sample assay values.

Block A--west drift to crosscut:

85' long x 35' wide x $1/2$ (75' + 40') high + 12^3 per
ton = 14,255 tons

14,255 tons x (.28 oz. Au + .51 oz. Ag) yields \$627,790

Block B--crosscut:

7' long x 35' wide x 38' high = 776 tons

776 tons x (.68 Au + 1.51 Ag) yields \$ 83,839

Block C--east drift:

21' long x 35' wide x $1/2$ (38' + 26') high + 12^3 per
ton = 1,960 tons

1,960 tons x (.29 Au + 1.07 Ag) yields \$ 93,648

Total measured reserves: 16,991 tons at \$47.39 per ton, or \$805,277

Probable Ore Reserves (to be verified by exploration)

The ore shoot shown on the longitudinal Section A-A' occurs in a very strong structure in which the minerals are completely oxidized at the drift levels. It is very probable this zone of oxidation and its contained mineral values continue down dip at least 100 feet.

Block D--probable ore reserves projected 100' down dip
below the drift level

110' long x 100' high x 35' wide + 12³ per ton
= 32,083 tons

Estimated contained Au-Ag value \$44 per ton or \$1,411,600

PROPOSED EXPLORATION PROGRAM AND ITS ESTIMATED COST

Copper oxides are exposed in a discovery pit 1,200 feet northeasterly along strike from the mine workings as well as in the prospect pits west of the mine. Since the mineralization persists within a wide, extensive, strong structure, it is probable the ore continues beyond the mine workings--at depth and possibly in parallel structures within the ferruginous zone northward.

A modest initial exploration program is proposed to expand the reserves in the mine vicinity. It is recommended that this Phase I Exploration Program be followed by increasingly larger exploration and development programs dependent upon their successive successful results and the availability of sufficient capital required to expand the ore reserves, develop the mine and possibly install beneficiation facilities.

Phase I

The initial phase, consisting of six diamond drill holes, is designed to increase the ore reserves to vertical depths of 100 feet and 200 feet, respectively. It is as follows:

1. Improve the last four miles of access road for use by exploration vehicles.
Estimated cost \$ 5,000
Estimated time required 10 days

2. Prepare 3 drill sites, 2 holes to be drilled from each.	Estimated cost		\$ 1,200
	Estimated time required	3 days	
3. Drill 6 diamond drill holes to probe the ore zone 100 feet and 200 feet below the adit level.			
a. Three holes to be drilled 155' S. 20° E. from the H.W., 75' apart along strike at a -45° angle thru ore zone. It is estimated the drill holes, including water haulage, additives, sampling, etc., will cost \$16 per foot.	Estimated cost, 3 holes x 220' each x \$16 per foot		\$10,560
	Estimated time required	25 days	
b. Three holes drilled from same locations at -73° angle to probe ore zone 200' below adit level.	Estimated cost, 3 x 300' x \$16 per foot		\$14,400
	Estimated time required	35 days	
4. Supervision (includes evaluation of results).			\$10,000
5. Contingencies, etc.			<u>\$10,000</u>
	Total working days required	<u>74 days</u>	
	Phase I exploration total cost estimate		<u>\$51,160</u>

(Refer to Map No. 8, Proposed Diamond Drilling Program, and Geologic Map No. 3 for a graphic illustration and locations of the proposed drill holes recommended in the Phase I Exploration Program.)

Phase II

Assuming the Phase I Exploration Program will successfully prove the persistence of the gold-silver ore at depth and along strike, it is recommended it be followed by an expanded program. This program probably will include, but not be limited to, mining-beneficiation feasibility studies, plus exploration, development and mine production programs including construction of an ore haulage road.

Exploration will involve drilling diamond drill holes along strike beyond the Phase I holes.

During this phase, it is recommended the measured ore block above the adit be evaluated by means of percussion drill holes, which also can be used for blast holes. Assays of sampled drill cuttings from these holes should provide sufficient data for ore control during production.

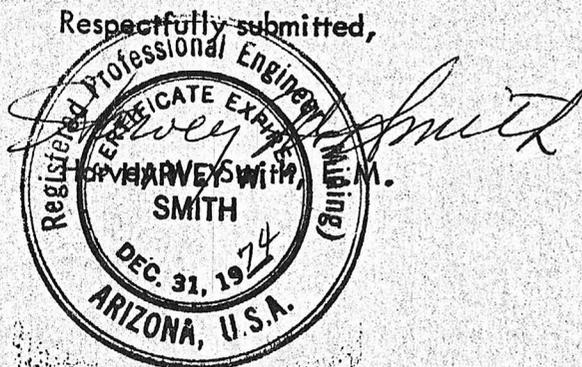
It is estimated the Phase II Program will cost at least \$300,000, dependent upon its scope.

CONCLUSION

In reviewing the foregoing material, it is my opinion the Silver Cross Mine merits an immediate exploration program. Present reserves, mined by open cut methods, could pay the cost of an exploration program. However, additional reserves which justified a beneficiation plant would make the present ore much more profitable to mine.

In conclusion, then, it is my recommendation a drilling program be initiated. Based on the results of this Phase I program, exploration should be continued or a mining program developed.

Respectfully submitted,



HWS:ebj

August 6, 1974