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Strong & Harris  
project



AZCO

*Arizona Copper Campaign*

## THE STRONG & HARRIS PROJECT

### SUMMARY

Located in the Johnson Camp Mining District, Cochise County, Arizona, the property adjoins Arimetco's Johnson Camp mine and SX-EW operation (formerly Cyprus) to the west and south. Over 130 core holes have been drilled to date.

Established geologic resources at the Strong & Harris (S & H) deposit total 50 - 60 million tons of copper/zinc oxide and sulphides containing approximately 750 million pounds of copper, 1 billion pounds of zinc and 12 million ounces of silver (0.62% Cu, 0.78% Zn and 0.20 oz/ton Ag), according to reports by Superior Oil, S & H's former owner. This includes open ended, high-grade zones containing 4.4% copper and 8.6% zinc, plus silver. A more recent calculation by third parties has indicated high-grade zones containing 3.8 million tons of 2.6% copper and 3.6% zinc, plus silver.

The top of the ore-grade mineralization, generally occurs at depths of 100 to 500+ feet, indicating underground mining methods will be required. The methods of recovery and the economics of the project are still to be determined.

### LOCATION/INFRASTRUCTURE

The project is accessible from Interstate-10 by a 4-mile, all weather, gravel road. The property is 8 miles north of the Southern Pacific Railroad.

Adequate power should be available from a line extending into the Arimetco mine, about 2 miles from the center of the property. Tests to date indicate that sufficient process water could be readily and cheaply developed on and adjacent to the property. An adequate supply of skilled labor is available locally from Benson, Willcox and the immediate area.

### PREVIOUS WORK

The deposit was originally staked by Strong & Harris Mining, who put down a number of drill holes that intersected mineralization. In 1967, an option was granted to Continental Materials Corp., with a reassignment to Superior Oil Co. in 1971. Superior undertook an extensive program of drilling, metallurgical testing, engineering and feasibility analysis. Information on 137 diamond drill holes and some of the metallurgy and engineering is available to AZCO.

Because of complex metallurgy, low metal prices and the relatively small size of the high-grade reserves by Superior's standards, the lease was dropped in the late 1970's. Beard Oil leased the property in 1979/80 but did no additional work.

Preliminary, conceptual mine design and engineering was performed by both Superior and Beard, along with some metallurgical test work. These tests demonstrated the potential for successfully working the deposit and pointed out areas for future research.

A large body of data is available, but much additional metallurgical and engineering work is required to determine the viability of the deposit. If viability is established, engineering, permitting and development will be initiated.

### GEOLOGY/ORE RESERVES

The S & H deposit is a skarn/replacement manto type of copper porphyry centered around structural feeder zones in upper Paleozoic sedimentary rocks. Copper/zinc mineralization occurs in silicified and silicated limestones and shales. Pyrite is the most abundant sulphide and is present in hornfels, marbles and skarn. The S & H mineralized zone strikes NNW and is approximately 1 mile long and 1,000 to 1,500 feet wide. Where intersected by drill holes, the ore zone ranges from a few tens of feet to more than 500 feet thick. Grade varies widely. The highest grade mineralization occurs near the top of the central portion of the ore zone and in a lamprophyre intrusion (Peabody Sill) encountered in the southwest portion of the property.

Copper mineralization at S & H can be divided into three zones: an oxide zone, a thick mixed zone, and a sulphide zone. Ore mineralogy of the 100 - 200 feet thick oxide zone consists principally of chrysocolla, copper pitch, tenorite and malachite, chalcocite and several species of zinc oxides (smithsonite, hemimorphite etc). Pyrite, chalcopyrite, sphalerite, chalcocite and bornite are found in the sulphide zone. The mixed zone, 100 to 400 feet thick, occurs at the interface of the oxide and sulphide zones, has minerals from both zones present and exhibits increased quantities of chalcocite. Each zone contains about 1/3 of the ore. Ore associated with the Peabody Sill is almost entirely sulphide. All ore found at the S & H to date has been in the upper Paleozoics. At S & H the lower Paleozoics have not been tested, although this zone is responsible for 75%+ of prior production in the district.

### **Outstanding Royalties**

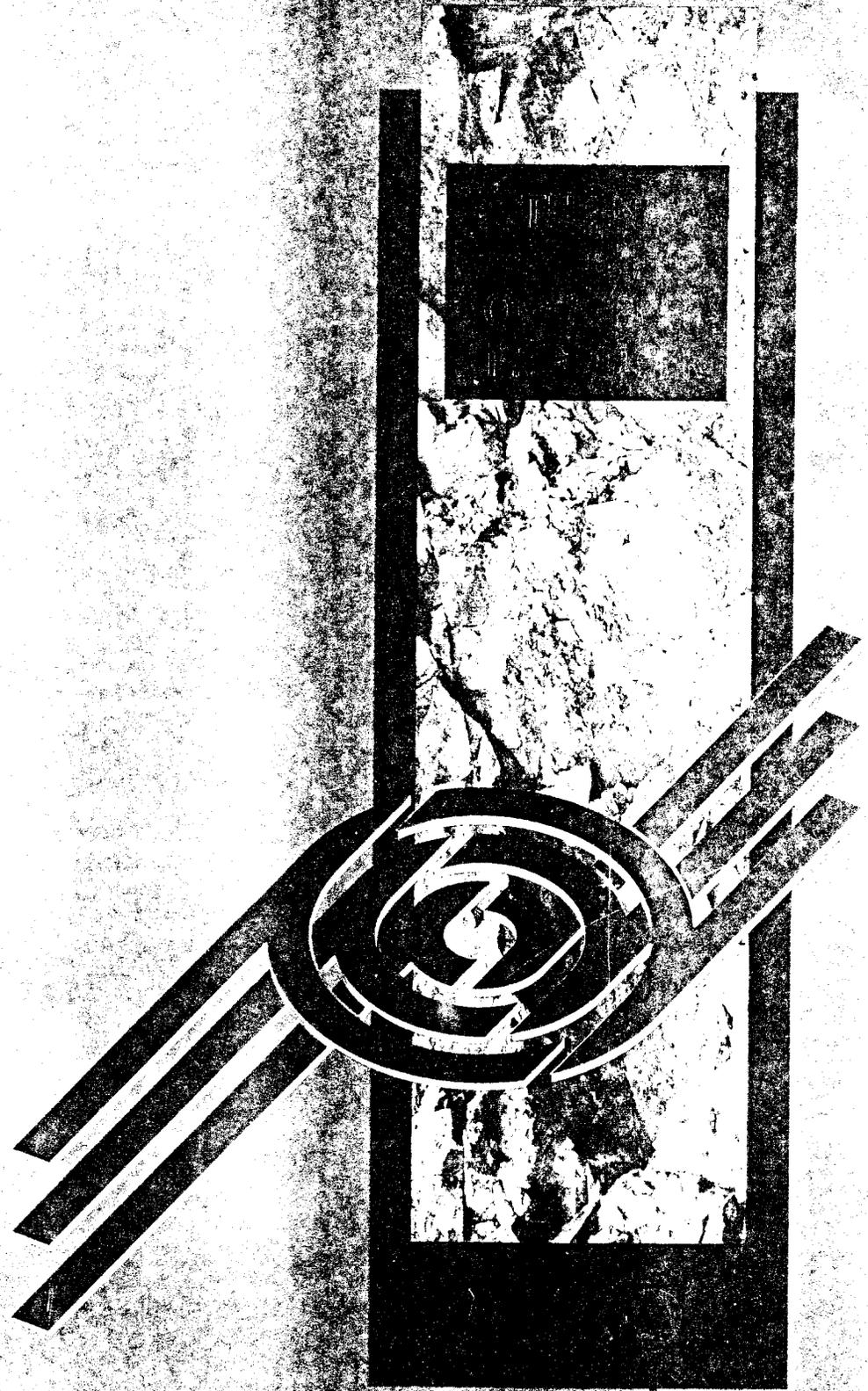
Advance Minimum Royalties are as follows:

- U.S.\$ 45,000 to be paid by January 2nd 1993**
- 55,000 to be paid by January 2nd 1994**
- 55,000 to be paid by January 2nd 1995**
- 55,000 to be paid by January 2nd 1996**
- 100,000 to be paid by January 2nd 1997 and thereafter.**

The above advance royalties to be offset against production royalties and also count toward the \$2.5 million cap on royalties. Base royalty is 3.0% on electrowon copper; 3.5% on cement copper and other chemical precipitates which are not an intermediate product; and 4.4% on all other forms of production.

AZCO may terminate the lease by giving 30 days notice to the owners.

**AZCO does not intend to commence any further exploration and development work in connection with the Strong and Harris Property at this time, beyond those certain expenditures required under the outstanding royalties formula. Such expenditures are not expected to exceed \$80,000 in any one year.**



*The Arizona Copper Company*



## Memorandum

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Bill Scherffius  
Exploration

July 15, 1994

Subject: Strong and Harris Cu-Zn Skarn Deposit, Cochise Co, AZ

Without its proximity to Allen Flat, the Strong and Harris Cu-ZN skarn deposit would not warrant Kennecott's attention. Thus, a brief summary of some of its underlying characteristics will be presented.

Strong and Harris is a Laramide age Cu-Zn skarn whose mineralization has been related to the Texas Canyon stock, two miles to the south. Mineralization is hosted by Pennsylvanian and Permian Horquilla, Earp, and Colina limestone formations. Pre-1980 drilling has placed reserves at 53 MT of 0.6% Cu, 0.72% Zn, and 0.2 opt Ag. Six hi-grade zones are contained in the reserve estimate, the best of which has 1.2 MT at 4.43% Cu, 7.47% Zn, and 0.35-0.5 opt Ag.

The ore mixture of oxide and sulfide is acid consuming and not conducive to SX/EW. Though, tests have shown 75% Cu recovery and 60% Zn by flotation of sulfide material. Oxides are disseminated and fracture filling, where as sulfides occupy a stratabound habit, but are noncontinuous.

The deposit ranges in depth of 50 ft to 800 ft beneath Quaternary alluvium. The general trend is N-NE, dipping easterly. One report has the deposit open in at least one direction (not mentioned which) and possibly two.

The Strong and Harris deposit is just over 3 miles south of RP-2 aeromagnetic anomaly at Allen Flat and 5 miles south of the larger RP-1 mag high. RP-2 has been geophysically modeled as a deep intrusive body, which will be tested by our impending drilling. Encouraging results might present further potential to the south, towards the Strong and Harris deposit. Although not of economic interest to Kennecott, the Strong and Harris deposit's position might present geologic and land interest if Allen Flat's drilling is successful.

Joey Wilkins