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GEOLOGICAL EVALUATION
of the
ANDIES MERCURY PROPERTY
Tempiute District
Lincoln County - Nevada

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of the

ANDIES MERCURY PROPERTY

Tempiute District
Lincoln County, Nevada

INTRODUCTION

The Andies Mine is located in Lincoln County, Nevada on the eastern slope of the Timpahute Range about 18 miles southwest of Tempiute, Nevada. Its approximate location is Section 25, T4S, R55E, although the area is unsurveyed. The property consists of 21 claims and 2 fractions, although most of the investigations were confined to Andies Claims Nos. 5, 6, 7 and 21.

This report summarizes and evaluates results to date of detailed geological and sampling investigations completed by the Mullen-Buckley Uranium Corporation, who are leasing the property from Western Mercury and Uranium Corporation. This work has been completed during the past two months and drilling will soon commence.

HISTORY

Mercury was first discovered in this area in 1919 by Mr. C. A. Anderson, but was not located by him until June, 1955. Western Mercury & Uranium Corporation leased the property in August, 1955 and completed considerable exploration work, consisting of a 30-foot vertical shaft, a 145-foot inclined shaft, 7 trenches, numerous prospect pits and 11 churn drill holes. In February, 1956, two flasks of mercury were produced from the inclined shaft at a small one-ton retort a few miles north. Mullen-Buckley Uranium Corporation subleased the claims in May, 1956 and have been systematically exploring them since June, 1956.

LOCAL GEOLOGY

Stratigraphy

The outcropping sedimentary rocks consist apparently of one formation, a dark gray limestone or limestone breccia, which is usually medium-bedded and occasionally argillaceous or impure. It is probably part of the Cambrian Lyndon limestone. At the west end of the mapped area considerable shale float can be seen but no outcrops.

Above the limestone is a series of andesite flows and above that rhyolite flows. The fresh andesite is a dark purplish gray with well-crystalized biotite quartz and feldspar phenocrysts. The quartz would more properly make the rock a dacite but the term is retained to avoid confusion. The fresh rhyolite is orange-red with round quartz phenocrysts and is very hard and silicified. There may be some interbedding of the two types but the intense alteration has obscured the original nature of the rock types and makes identification difficult. One small basic dike outcrop was seen on the south side of the main hill.

Structure

Folding of the limestones on a small scale is evident although the importance of this, if any, to the ore deposition is not known. Some faulting and brecciation of the limestone can also be seen.

The important structural feature is the myriad faults and fractures in the rhyolite and andesite, which has provided openings for deposition of cinnabar. No definite faults can be traced, as they all seem to be short and disconnected. The main fault zone seems to be across the saddle between the two hills, although the silicified rhyolite capping obscures the faulted, altered volcanics and the zone as seen may be due mainly to the chance exposure by erosion. The gulch on the south side of the hill and running down to camp may be along a major fault with the south side down-dropped. Silicified rhyolite appears to be adjacent to altered volcanics, and the limestones on the west end of the hill show brecciation along the projected fault strike.

Alteration & Mineralization

The amount and intensity of alteration is noteworthy. In the mine area, the feldspars of the andesites and rhyolites are completely kaolinized and sericitized. The rhyolites are now largely white or light pink and the andesites are light tan or

light purple. Considerable pyritization was also seen in the andesite. The capping on the hills consists of unaltered rhyolite, except for the fact that it is completely silicified. The writer is not sure whether this is due to weathering or to hydrothermal alteration.

The mineralization is cinnabar with occasional pyrite and chalcidony or opal as gangue minerals.

There is a definite concentration of cinnabar in the faults and fractures and the grade of mercury seems directly proportional to the intensity of fracturing as well as of alteration. The predominant, mineralized fractures seem to be northeast in strike, although the crushed and fractured nature of the entire zone seems to be the main ore control. No mercury mineralization has been found in the limestone or in the siliceous rhyolite capping. The relative grade of mercury in the rhyolite and andesite is not known. The mineralization is disseminated throughout the altered rhyolite and andesite in varying amounts, thereby making the deposit a possible large tonnage of lower-grade ore.

ECONOMIC FACTORS

Grade

The indicated grade of the deposit appears to warrant a low-cost open pit type of operation. Although the grade and tonnage must yet be determined by drilling, 50 samples cut by the Corbero Mining Company and 113 samples cut by the Mullen-Buckley Uranium Corporation indicate two areas of sufficient grade for an open-pit operation.

The first is the block between the inclined and vertical shafts. For the purposes of this brief report, ore reserve calculations will not be listed but 13,790 tons of ore averaging 5 lbs. of mercury per ton has been calculated. About half of this may be classed as positive and one-half as probable. No projections of greater than 10 feet were made on the outer fringes of the block or below the shafts. The other area is that cut by the long trench on the south side of the deposit. Sixty-four feet along that trench averages 3.8 lbs. of mercury per ton, with sampling at 4 to 5 foot intervals. No tonnage was calculated as there were no other exposures for sampling near the trench.

A grade of about 3.5 lbs. mercury per ton is believed to be necessary for an open pit operation. At the present price of \$255.00 per flask, or \$3.36 per lb., this would make a gross value of \$11.76 per ton. After marketing charges are deducted, a gross value of about \$10.00 per ton before deduction of mining and furnacing charges could be assured. On this basis, the block between the shafts would have a gross value of \$15.00 per ton, or \$206,850.00.

Mining

Mining costs by inexpensive open-pit methods should be \$1.50 - \$2.00 per ton. Very little drilling or blasting should be required. For past blast hole drilling, a fast, inexpensive auger drill was efficiently used. In exploratory work, a backhole shovel was used to dig trenches without the aid of explosives.

Furnacing

A rotary furnace would be necessary for the treatment of the ores as there are no custom facilities in this part of Nevada. The cost of a Gould rotary furnace for 90 - 120 ton capacity would be as follows:

Furnace and condensing system -	\$ 78,650.00
Additional equipment (crusher, conveyors, bins and generator) -	31,500.00
Installation and construction -	<u>35,000.00</u>
	\$145,150.00

The cost of a smaller unit would be correspondingly less. Certain items of additional equipment could be purchased used at a considerable saving. The operating cost of this plant would be \$2.50 to \$3.25 per ton.

Water

Although there are no nearby developed sources of water, adequate supplies should be available from wells in the valley gravels as the area is at an elevation of about 6,000 feet, with considerably more rainfall than normal desert areas. Open-pit mining will require only small amounts of water as little drilling will be necessary. The rotary furnace will require only 2,500 gallons per week to wash down the condenser pipes.

Labor

The nearby Tempiute operations of the Wah Chang Mining Corporation attracts a considerable number of miners to the area.

CONCLUSIONS

- 1- The Andies Mine has definite possibilities for an economic low-grade open-pit mercury operation.
- 2- Based on a comprehensive sampling program, there are now 13,790 tons of ore available, running 5 lbs. mercury to the ton.

Sampling has indicated other promising mineralized zones but drilling will be necessary to determine the tonnage and grade. A grade of about 3.5 lbs. mercury per ton is believed necessary to make an economic operation.

3- Because of the very soft nature of the rock, mining should be very low cost (from \$1.50 to \$2.00 per ton).

4- The exploration possibilities on the remainder of the claim group is excellent as the silicified rhyolite caps the hills, thereby covering the mineralized altered rhyolite below.

RECOMMENDATIONS

1- Drilling should be done to arrive at the grade and tonnage of the known mineralized area. Vertical holes 100 feet in depth should be adequate. (This work has been started by the lessee, the Mullen-Buckley Uranium Corporation.)

2- An evaluation of these results will determine whether the deposit will be economic.

3- Geological studies should be extended to the surrounding area in an effort to locate other mineralized zones which may be obscured by the silicified rhyolite capping.

Respectfully submitted,

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Geological Engineer

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