3950 0709 Robinson

ALTA GOLD'S ROBINSON PROJECT

Introduction

The Robinson Project is located 5 miles west of Ely, Nevada and includes most of the Robinson Mining District. The first claims in the area were located in 1868. Mining of gold-silver-lead-zinc ores was carried out sporadically for the next forty years. In 1906 development of the disseminated copper ores began and by 1978 when the mines closed, nearly 360 million tons of 1% copper ore had been produced, including 2.7 million ounces of by-product gold. In the early 1980's Bear Creek tested several gold occurrences peripheral to the porphyry copper system with limited success. Alta Gold obtained a lease on the gold ore of the district in 1985 and placed the Star Pointer deposit into production in late 1986. Since that time, approximately 150,000 ounces of gold have been produced from the Star Pointer and NW Ruth deposits. In addition to these, ten other mineable deposits have been delineated. The proven-probable-mineable reserves in July 1988 were 612,000 ounces. At the end of 1988 geologic reserves had reached 890,000 ounces. Mine planning is moving most of this into the proven mineable category. Thus geologic reserves plus ounces mined has passed the 1 million ounce mark.

Geology

In detail the geology of the Robinson District is quite complex. In mid-Cretaceous time, Paleozoic miogeosynclinal sediments were deformed into an east-west trending anticline, overturned to the south. The upper limb was displaced to the southwest by imbricate thrusting. An anvil shaped composite quartz monzonite stock, dated at 110 million years, was intruded along the axis of the anticline. The attendant hydrothermal alteration and mineralization formed the Ruth porphyry copper system, including the gold deposits. With the onset of Basin and Range faulting, the upper portions of the system were successively displaced downward to the east by normal faults. A 30 million year old rhyolite body cuts the system and is apparently unrelated to mineralization.

The alteration and mineralization pattern of the system conforms generally to the Lowell and Guilbert porphyry Cu model. In the sedimentary wall rocks anhydrous skarn developed adjacent to potassic alteration in quartz monzonite. Adjacent to hydrous quartz sericite alteration the dominant alteration type is quartz-clay-pyrite. Advanced argillic alteration and retrograde hydrous skarns are present locally.

Gold Mineralization

Gold deposits occur in several characteristic structural and stratigraphic settings. Historically the bulk of the ounces produced (2.7 million oz) were in porphyry copper ore. None of the present gold reserves are of this type.

Much of the early gold production in the district was from the eastern part where significant new reserves have been identified.

The upper Chainman Shale is silty to sandy providing primary permeability. Faulting provided fluid access and secondary permeability to this favorable zone sandwiched between massive Ely limestone and impermeable Chainman black shales. The ore bodies are thus stratabound blankets of silica clay-pyrite ore, now largely oxidized. The Ada, Los Angeles, and Rob Roy deposits are of this type. The contact between the Chainman shale and the underlying Joana Limestone behaves in a similar fashion and the Pilot Knob, Puritan, and Aultman deposits have been found there in jasperoid and siliceous gossans.

The Star Pointer deposit is hosted by fine grained calcareous Rib Hill sandstone. Early fluid phases decalcified the sandstone adjacent to steep feeder faults. A later gold bearing phase produced a linear hydrothermal breccia body surrounded by pervasive silicification, weak clay alteration and minor pyrite. Better gold grade correlates directly with silicification, but the gold is not silica encapsulated, is very finely disseminated and provides a very forgiving ore. Other deposits of this type are JD Hill, Twin Peaks and West Liberty.

The NW Ruth deposit is hosted in a complexly faulted zone in Rib Hill sandstone and Riepe Springs limestone which has been invaded by a multi-phase intrusive breccia. Gold is often coarse (to 0.2 mm) and not directly correlative with silicification. In contrast to the Star Pointer, pyrite and fluorite are locally abundant, and gold occurs in quartz veinlets, banded chalcedony veins, and intrusive breccias as well as in linear pervasively silicified zones. This ore is not as forgiving.

Gold occurrences have been noted in stockworks in hornfels and in pyrrhotitic hydrous skarn and hornfels. Although no significant ore bodies of these types have been developed yet, we anticipate discoveries of these ore types with continued exploration.

Geochemistry

At the Star Pointer ore body, geochemical sampling suggests that gold correlates well with Ag, As, Te and at lower concentrations, with Sb and Tl. Fluorine is also locally abundant. Within the ore zone Pb and Zn values are quite low, but they are highly anomalous peripheral to ore.

In contrast, at the NW Ruth deposit similar correlations exist except that the base metal and toxic metals seem telescoped on top of each other. This is perhaps due to the magmatic influence of intrusive breccias.

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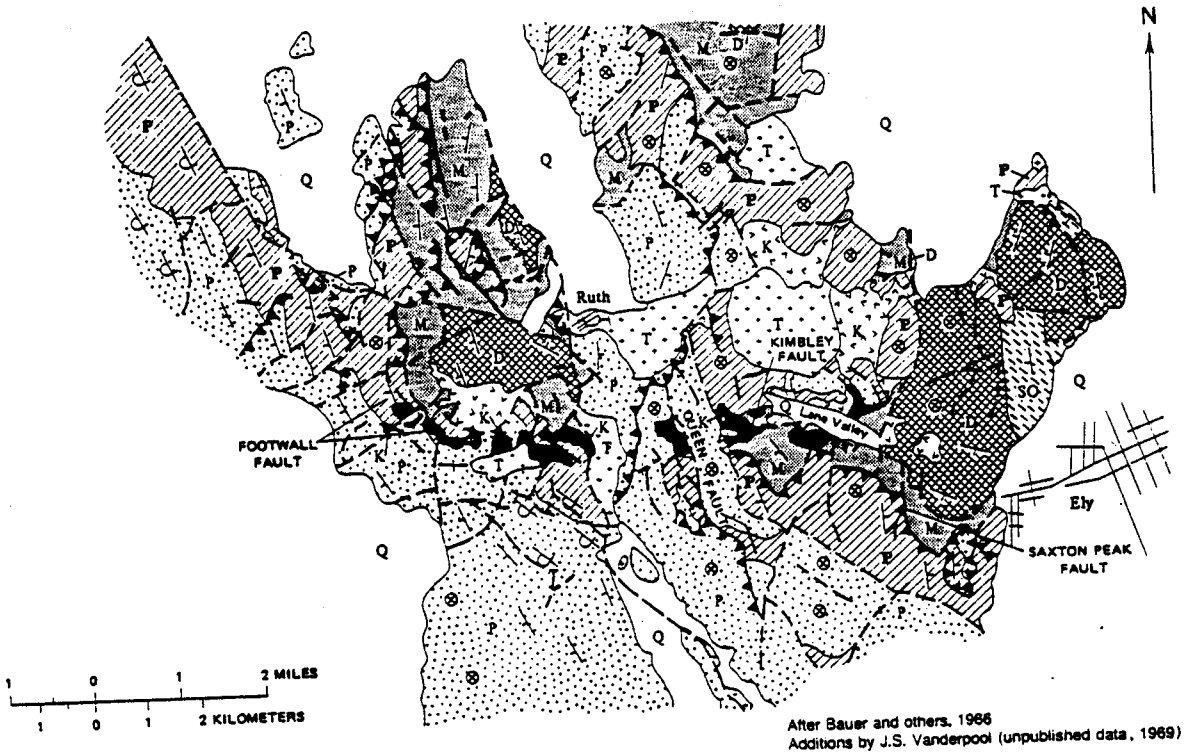

EXPLANATION

- Q — Recent gravels
- T — Tertiary rhyolite
- K — Altered monzonite
- K — Unaltered monzonite
- P — Permian sediments
- P — Pennsylvanian sediments
- M — Mississippian sediments
- D — Devonian sediments
- SO — Silurian-Ordovician sediments
- Contact
- Normal fault
- Thrust fault
- Strike and dip of beds
- Strike and dip of overturned beds
- Shallow dipping beds (<25°)

FIGURE 2. Generalized geologic map of the Robinson mining district.

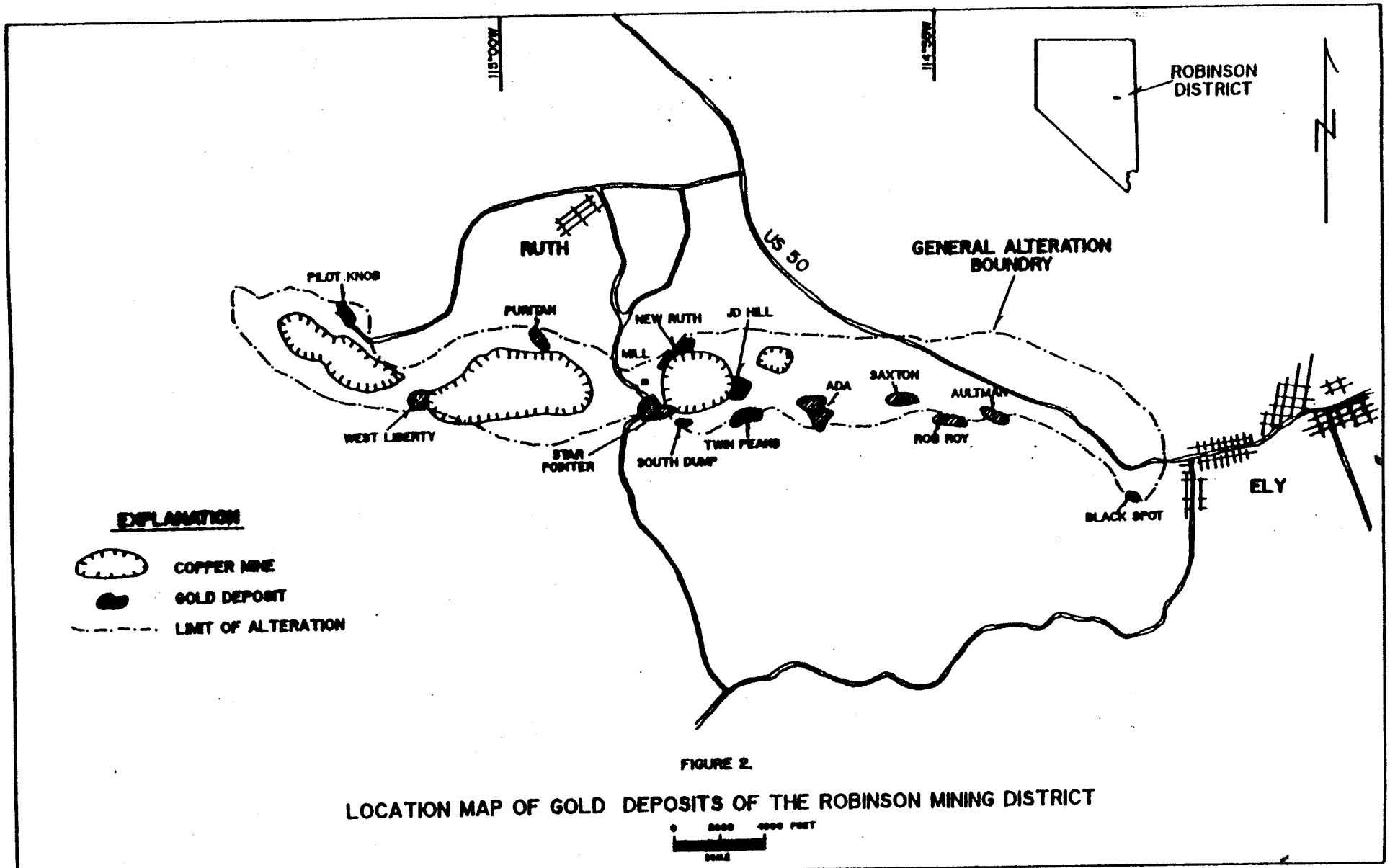

FIGURE 2.

LOCATION MAP OF GOLD DEPOSITS OF THE ROBINSON MINING DISTRICT