ABSTRACT

GEOLOGY AND MINERALIZATION OF THE RABBIT CREEK GOLD DEPOSIT, HUMBOLDT COUNTY, NEVADA

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The Rabbit Creek deposit is located 30 miles northwest of Battle Mountain in the valley floor on the eastern side of the Osgood Mountains. The gold deposit is in Sec. 19, T 39 N, R 43 E, which is an original railroad land-grant section. The deposit is completely covered by valley fill and the geology is known only from drilling, geophysical, and airphoto data. Initial drilling began in July of 1986 with a ten-hole program designed to evaluate the thickness of the alluvium, determine the subsurface lithologies, and to search for mineralization and alteration. Lineament interpretation of high-altitude and low-altitude color aerial photography was used to determine drill hole locations. Drill holes in the western part of Sec. 19 encountered shallower-than-expected bedrock and returned anomalous arsenic, mercury, and gold values, particularly towards the bottom of the holes. Similar encouraging results were obtained from a focused follow-up drilling program (ten holes) in November of 1986. In January of 1987, a 1000' drill-hole encountered deep sulfide mineralization, and a 625' drill-hole encountered shallow oxide mineralization. Further drilling in February and March of 1987 resulted in the discovery of extensive, high-grade sulfide and oxide mineralization. In the course of the project, core drilling has almost totally supplanted reverse circulation drilling due to contamination problems. Current announced reserves are 3.6 million ounces of gold, including 1 million ounces of demonstrated oxide reserves, 200,000 ounces of inferred oxide reserves, 1.3 million ounces of demonstrated sulfide reserves, and 1.1 million ounces of inferred sulfide reserves. Stripping began in March of 1989 and the ore zone should be reached by Spring of 1990.

The gold mineralization at Rabbit Creek is hosted within rocks of Lower Ordovician age. The section at Rabbit Creek, as currently defined, consists of a lower sequence of shale and limestone (often silicified) with abundant basaltic lava flows and sills (the "Main Package") which is overlain by a sequence with a greater abundance of volcanic rocks, especially coarse-grained to fine-grained volcaniclastic rocks of basaltic composition and basaltic lava flows (the "Upper Package").

Paleozoic rocks are folded into a series of northwest-southeast striking asymmetric anticlines and synclines. Axial planes of several folds are either recumbent or overturned to the east. Small-scale low-angle faults were apparently formed along the axial planes and limbs of folds during compressional deformation. The structure is further complicated by high-angle extensional normal faults which typically trend primarily North-South or northwest.

Alteration includes decalcification, argillization, silicification, carbon remobilization, and supergene oxidation.

GEOLOGICAL COMPUTER APPLICATIONS GROUP

The Geological Computer Applications Group (they are looking for a name) will meet on April 26th at a location to be announced. No-host cocktails and hors d'oeuvres will be at 6:00pm with the meeting/technical session at 7:00pm. Gary Raines will speak on Digital Activities of the USGS.

The meeting location will be announced at the GSN meeting April 21st or you may call Jeff Parshley at 786-3225 at Steffen Robertson and Kirsten.

NINTENDO CANCER PATIENT FUND

The fund created to purchase a Nintendo Game System for pediatric cancer patients is about half way to its goal.You may send your contributions to the GSN marked Nintendo Fund.

OTHER MEETINGS

The 1989 annual meeting of the Geological Society of America will be held November 6-9, 1989 in St. Louis, Missouri. For meeting information please call 303-447-2020 or 1-800-GSA-1988.

CLARIFICATION OF ARTICLE IV SECTION 4, GSN CONSTITUTION

The executive committe proposes the following clarification of Article IV section 4, sentence 2, concerning honorary membership.

"Nominations for honorary membership must be approved by the Executive Committee and confirmed by a majority vote of the members at a general meeting."

A vote on this clarification will be taken at the April meeting.

Decalcification and/or argillization are ubiquitous in the ore zones. Decalcification of shales and siltsones results in porous, spongy rocks; decalcification of limestone may result in either porous, spongey, clay-rich rock or in layers of residual clay. Argillization results in sericitization and secondary clay formation in igneous rocks, and clay-enhansive alteration of shales. Silicification is often relatively subtle, resulting in replacement without significant brecciation and preserving subtle original textures. Where silicification has followed decalcification and argillization of interbedded shale and limestone, the resulting rock strongly resembles a bedded chert with clay laminae. Remobilized carbon is typical of sufide ore zones. Decalcification combined with carbon remobilization forms a soft, black, malodorous variety of ore referred to as "gumbo". All oxidation is thought to be supergene at Rabbit Creek.

Several major orebodies are defined at present; from north to south they are the Low Grade Oxide (LGO), Main Sulfide (MS), High Grade Oxide (HGO), the South Extension, the 268 and the 122 zones. The East Central and West Central zones, which contain sulfide mineralization, are located on the east and west sides, respectively, of the property. A North-South cross-section (A-A') through the North Central Zone shows the distribution of the gold mineralization using a 0.01 oz/ton cutoff. Most mineralization is hosted within favorable, decalcified shale and limestone horizons and along small-scale low-angle structural zones associated with recumbent anticlines.

Gold generally occurs as particles of sub-micron size native gold, although larger grains have been observed. The gold-to-silver ratio is high, typical of Carlin-type deposits. Other minerals include orpiment, realgar, cinnabar, native mercury, and stibnite.