

Structural Controls on Carlin-Type Gold Mineralization in the Gold Bar District, Eureka County, Nevada

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Abstract

The Gold Bar district in the southern Roberts Mountains, 48 km northwest of Eureka, Nevada, contains one main deposit (Gold Bar), five satellite deposits, and other resources. Approximately 0.5 Moz of gold have been recovered from a resource of 1,639,000 oz of gold in Carlin-type gold deposits in lower plate, miogeoclinal carbonate rocks below the Roberts Mountains thrust. Host rocks are unit 2 of the Upper Member of the Devonian Denay Formation and the Bartine Member of the McColley Canyon Formation. Spatial and temporal relations between structures and gold mineralization indicate that both pre-Tertiary and Tertiary structures were important controls on gold mineralization. Gold mineralization occurs primarily along high-angle Tertiary normal faults, some of which are reactivated reverse faults of Paleozoic or Mesozoic age. Most deposits are localized at the intersection of northwest- and northeast-striking faults. Alteration includes decalcification, and to a lesser extent, silicification along high-angle faults. Jasperoid (pervasive silicification), which formed along most faults and in some strata-bound zones, accounts for a small portion of the ore in every deposit. In the Gold Canyon deposit, a high-grade jasperoid pipe formed along a Tertiary normal fault which was localized along a zone of overturned fault-propagation folds and thrust faults of Paleozoic or Mesozoic age.

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