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# Geology and Gold Mineralization at the Deep Star Deposit, Eureka County, Nevada

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The Deep Star deposit is a deep, high grade gold resource located along the Carlin Trend in north-central Nevada. The deposit is located 1600 feet north of the Genesis mine and 5000 feet south of the Post-Betze system and straddles the property line between Newmont Gold Company and Barrick Goldstrike Mining Company. Newmont's discovery hole at Deep Star was drilled in mid-1989, and intersected 205 feet at an average grade of 0.941 ounce per ton gold, between 1300 and 1505 feet. Subsequent drilling has outlined a mineralized body containing approximately one million ounces of gold at an average grade of nearly one ounce per ton gold.

Deep Star lies along the Tuscarora Spur, a north-trending antiform composed dominantly of lower plate rocks including the Ordovician Hanson Creek Dolomite, Sulurian-Devonian Roberts Mountains Formation and Devonian Popovich Formation. Locally these rocks are structurally overlain along the Roberts Mountains Thrust Group. The Spur is truncated by the northeast-trending Goldstrike intrusive, a dioritic, Jurassic-Cretaceous stock. Deep Star lies 1000 feet south of the Goldstrike intrusive and along the southern extension of the northwest-trending Post fault system. The deposit is hosted within strongly altered Paleozoic rocks of the lower plate assemblage, and the sedimentary rocks are cut by a myriad of dikes and sills of the Goldstrike intrusive. Emplacement of the intrusive has resulted in contact metamorphism and metasomatism generating a complex package of hornfels, marble, exoskarn and endoskarn. The gold-bearing hydrothermal system was superimposed on this environment at the intrusive-sedimentary rock contact.

The Deep Star deposit occurs within metamorphosed carbonate rocks, sandwiched between two large intrusive bodies. The mineralized zone lies near, but beneath, the carbonate-siliciclastic (Popovich-Vinini) contact, and forms a tabular body striking northwest and dipping moderately to steeply to the northeast. The deposit is overlain by several hundred feet of essentially barren siliciclastic rocks of the Ordovician Vinini Group, and when projected to plan has a surface dimension of less than 250 by 350 feet.

Alteration noted at Deep Star includes propylitization, argillization and silicification. Argillization is the dominant alteration type and occurs as a halo to the mineralized zone, and with quartz through the gold-rich zones. Silica is present in a variety of forms, including replacements, veins, stockworks and breccias, reflecting multiple periods of silicification. Silicification is not simple a quartz flooding, but is found as a quartz-kaolinite-sericite alteration. The deposit has a geochemical signature similar to many Carlin-type systems but with an exceptionally high gold to silver ratio.

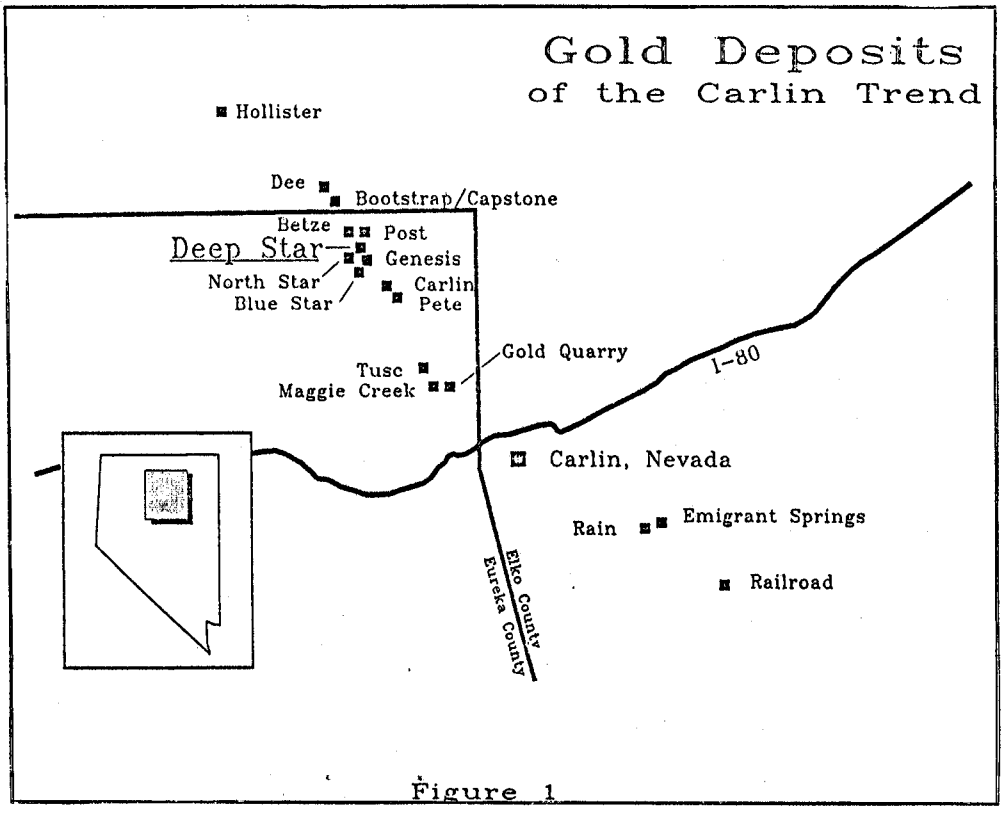


Figure 1

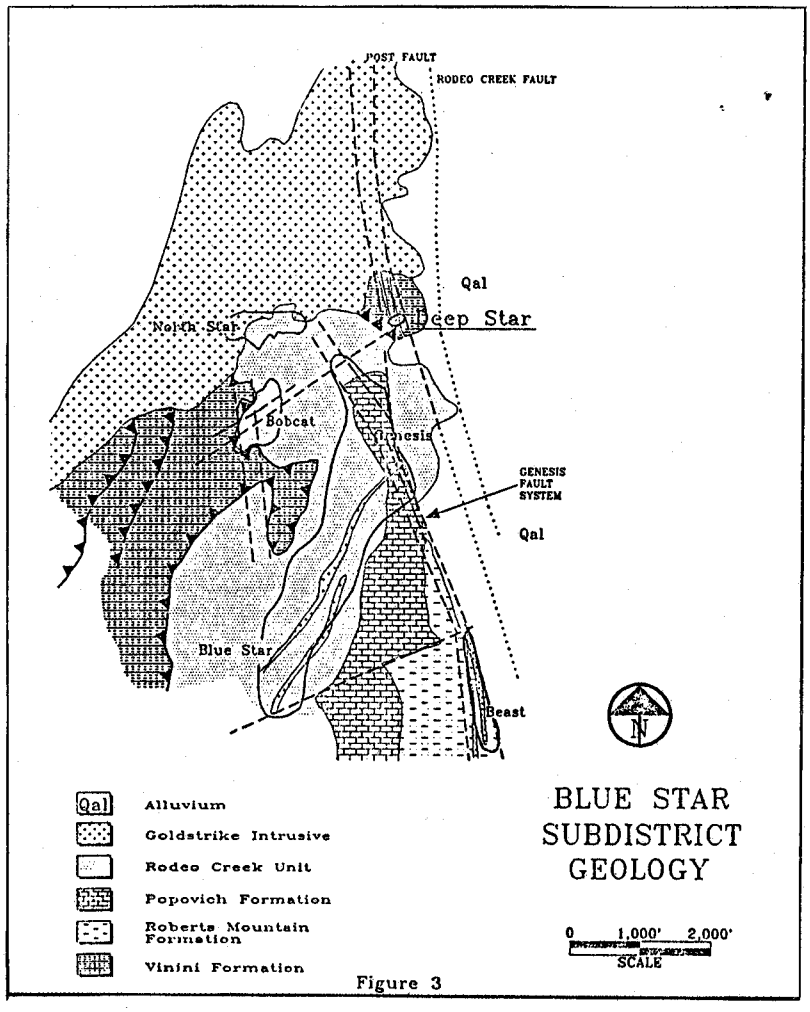


Figure 3

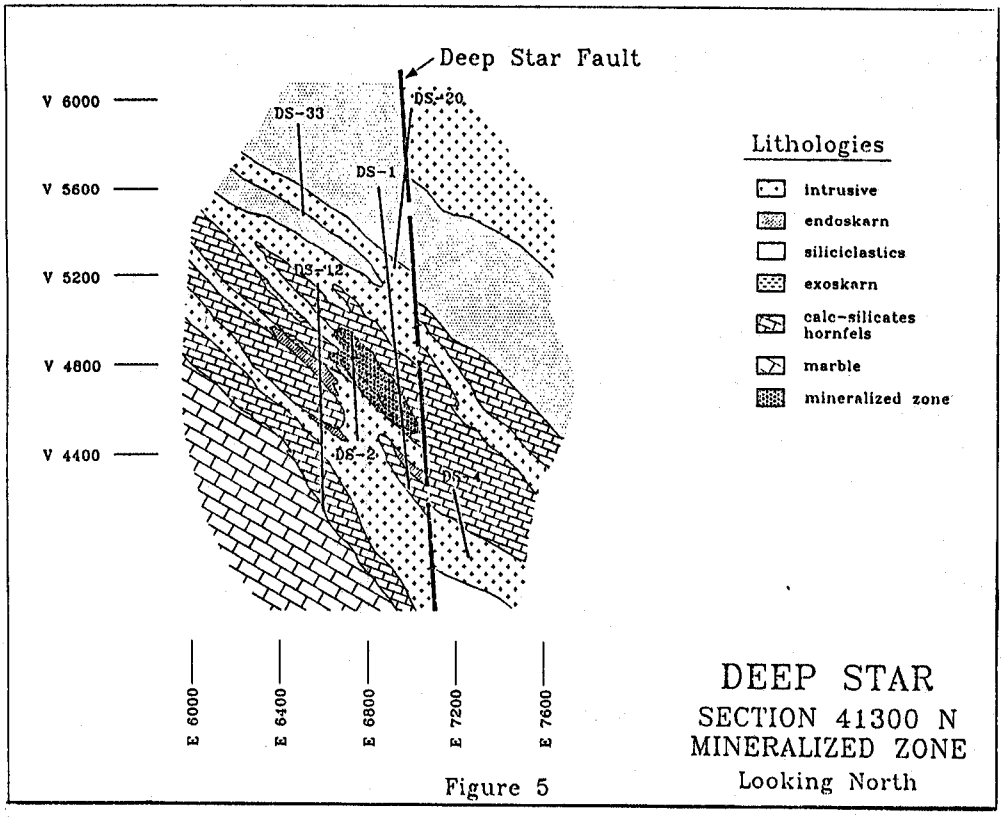


Figure 5