

Controls on gold mineralization in Carlin-type gold deposits: an example from Goldrush, Nevada

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ABSTRACT

Controls on gold mineralization in Carlin-type gold deposits remain enigmatic, with a variety of factors appearing to contribute including host rock permeability, fluid flow pathways, amount of iron in host rocks, and the chemistry of mineralizing fluids. In this study, we present SEM images, quantitative SEM data, whole rock lithogeochemical data and microprobe analyses of auriferous pyrites to unravel controls on gold grades. Our results indicate that sulfidation (i.e. total amount of pyrite) is not the controlling factor on gold grade, and other factors including reactive surface area, and gold concentration within auriferous pyrites play a role in controlling gold grade.