

Spatial distribution and grades of conjugate veins associated with mesothermal saddle reef gold mineralization, The Ovens, Nova Scotia: implications for an open pit resource

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A 228 m long E-W oriented cliff section of continuous exposure along the north shore of Rose Bay, The Ovens, Nova Scotia, was measured along a reference line to determine the locations and attitudes of conjugate, thrust-related and bedding parallel (saddle reef) Au-quartz-sulphide veins within the Cunard Formation, Halifax Group, Meguma Supergroup. Over 1700 veins ranging from less than 1 mm to 173 mm wide were observed. A variety of statistical tests were performed to determine whether these veins are randomly located in space. All results indicate that these veins exhibit a non-random distribution. Studies presently underway are examining the spatial periodicity of the vein locations.

Net lateral dilation accommodated by west dipping conjugate veins does not exhibit a significant trend; however, east dipping conjugate veins become sparser but exhibit more

net dilatancy to the west and down-section toward a basal thrust.

Metallic gold grade results from 0.5 to 3 kg of vein material exhibit a high, positively skewed distribution with concentrations ranging from 0.016 to 60.911 grams per tonne. Using an ideal Poisson grade distribution with identical mean (2.742 grams per tonne), the observed vein width distributions and the observed vein frequency distributions, a Monte Carlo simulation using 5700 1 m³ block realizations was undertaken to produce a hypothetical model for tonnage, grade and dilution curves for this mineralization. Results provide insight into the potential open pit economic feasibility of Au-bearing quartz-sulphide vein saddle reef stockworks associated with anticlines within the Meguma Supergroup.