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**Devil Pike Brook gold occurrence, Silurian Mascarene belt, south-central New Brunswick**

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The Devil Pike Brook occurrence is a gold-bearing quartz-carbonate vein system hosted within a package of greenschist-grade mafic volcanic rocks composed of basalts, pillowed basalt, tuff, and hyaloclastite of the Grant Brook Formation (Mascarene Group), located east of the Saint John River in south-central New Brunswick. Structurally controlled, quartz-carbonate veins are generally north-trending, which is consistent with the localized intense foliation, but oblique to the regional NE structural trend. The occurrence is located approximately 500 m south of the regional northeast-trending, subvertical, transcurrent Taylor Brook Fault that separates the Early Silurian Mascarene Group to the south (including the Long Reach, Grant Brook, and Henderson Brook formations) from the volcano-sedimentary sequences of the Late Cambrian to Early Ordovician Annidale Group to the north. A younger (?) leucogabbroic unit outcrops on the property and potassium feldspar-bearing gabbro can be found throughout the surrounding areas.

Three major drilling campaigns conducted by Fosters Resources between 1994 and 1996 (59 drill holes) have defined three mineralized zones: 'Baxter', '16', and 'Boyd' from north to south, respectively. The Boyd Zone is the most significantly mineralized. Resampling of quartz-carbonate veins in drill core from the Boyd Zone has confirmed gold concentrations in excess of 80 ppm (2 samples of 25 and 30 cm in length). A 15 cm long channel sample across a quartz-carbonate vein exposed at the discovery trench (Baxter Zone) contained 47 ppm gold. Quartz textures observed in polished hand samples include anhedral buck quartz and brecciation (both infill and aggregate), in association with numerous recrystallized quartz veinlets, which are analogous to other greenstone-hosted gold-bearing quartz vein deposits. The gold content appears to be lo-

cally elevated near the brecciated zones, which is also consistent with other mesothermal gold-bearing quartz veins. Associated sulphide minerals identified include abundant pyrite, lesser chalcopyrite and reported minor sphalerite and trace arsenopyrite. Multielement lithochemical logarithmic results on 37 samples (19 samples from 15 drill holes in 3 zones and 18 samples from one outcropping quartz vein) indicate a positive Pearson's product correlation coefficient ( $r$ ) between gold and silver ( $r = 0.88$ ), copper ( $r = 0.83$ ), tellurium ( $r = 0.74$ ), arsenic ( $r = 0.72$ ), and sulphur ( $r = 0.72$ ). Average sulphur and arsenic content in the 15 mineralized samples is approximately 4 wt% and 304 ppm, respectively. The proportions of gold, silver, nickel, copper, zinc, lead, and tin in the Devil Pike Brook occurrence are comparable to other greenstone-hosted, gold-quartz deposits.