

Predictive Distribution of Fault-Fill and Extensional Veins: Example from the Sigma Gold Mine, Abitibi Subprovince, Canada

DAMIEN GABOURY,

*Université du Québec à Chicoutimi, Consortium de Recherche en Exploration Minérale (CONSOREM),
555 boul. de l'Université, Chicoutimi, Québec, Canada G7H 2B1*

ALAIN CARRIER, MICHEL CREVIER, CARL PELLETIER,
McWatters Mining Inc., C.P. 9000, Val d'Or, Québec, Canada J9P 6A5

AND DALE A. SKETCHLEY

Acuity Management Ltd, 15068 Spenser Court, Surrey, British Columbia, Canada V3S 5Z8

Abstract

This paper presents the results of a geometric and structural study aimed at developing a predictive model to account for the distribution of gold-bearing veins at the Sigma gold deposit, Abitibi subprovince, Canada. Results indicate that third-order shear zones define a well-organized system comprising two sets of parallel-striking, moderately to steeply south-dipping curvilinear structures intersecting at constant 15° to 25° angles. Fault-fill veins are better developed within the curved segments of the shear zones that represent large zones of enhanced permeability. Most extensional veins were formed later as tension gashes, mainly distributed along conjugate corridors of low reverse faults, typical of Andersonian-type faulting.