

## KOMATIITE-ASSOCIATED NI-CU-(PGE) SULFIDE DEPOSITS OF CRIXÁS, CENTRAL BRAZIL

1FERREIRA-FILHO, C.F., and 2LESHER, C.M. 1Instituto de Geociências, Universidade de Brasília, Brasília, Brazil; 2Mineral Exploration Research Centre, Laurentian University, Sudbury, Canada.

The Boa Vista komatiite-associated Ni-Cu-(PGE) sulfide deposit was discovered in 1994 by Western Mining Corporation Limited (WMC) in the late Archean Crixás greenstone belt. It is the first Ni-Cu-(PGE) sulfide deposit to be discovered in the Goiás-Tocantins greenstone belt terranes of central Brazil. The deposit occurs within a narrow 7 km-long EW-trending sequence of meta-ultramafic and metabasic rocks. The volcanic sequence has been overprinted by regional ductile deformation and associated greenschist facies metamorphism, but primary volcanic structures and textures occur in low-strain zones. The Mg contents of olivine spinifex-textured komatiites and massive non-cumulate komatiites range between 22 and 29 volatile-free wt. % MgO, indicating that the parental magma was derived by high-degree partial melting of the mantle. The sulfide mineralization is located at the lowest part of an ultramafic sequence overlying a mafic sequence. The thickness of the mineralized horizon is variable, but it is usually less than a few meters thick. Four types of ores are recognized at the deposit (in order of abundance): stringer ores, disseminated ores, massive ores, and matrix ores. The sulfide ore mineralogy consists mainly of pyrrhotite ( 70 vol. %) associated with lesser pentlandite and chalcopyrite, with minor magnetite and sphalerite. The bulk composition of the ore is consistent with a primary magmatic origin for the nickel mineralization. Analyses of sulfide ore recalculated to 100 % are within the range of other Archean komatiite-associated Ni-Cu-(PGE) sulfide deposits (e.g., Kambalda) and appear to have formed at moderately low R factors (magma:sulfide ratios).