

Discovery and Geology of the Sossego Copper-Gold Deposit, Carajás District, Pará State, Brazil

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The Sossego copper-gold deposit, with resources of 355 million tonnes of 1.1% Cu and 0.28 g/t Au, is controlled by Mineração Serra do Sossego, a 50:50 Joint Venture between CVRD and Phelps Dodge. It is located 40 km SW of Parauapebas, Pará, in the municipality of Canãa dos Carajás, near the contact between volcanic rocks of the 2.74-2.6 Ga Grão Pará Group, to the north, and gneisses of the 3.0 Ga Andorinhas basement complex to the south.

Sossego was the site of a gold garimpo that was discovered by local settlers in 1984. The area was covered by CVRD concessions, and CVRD geologists recognized that gold mineralization on Sossego Hill was associated with copper. CVRD put the Sossego concessions up for bid as a gold prospect to interested companies in 1996. Phelps Dodge won the bid and in September 1996 an exploration risk contract was signed between the two companies. Surface mapping and channel sampling of the garimpo workings by Phelps Dodge began in the rainy season of 1997, and returned high copper values. The first two holes drilled by Phelps Dodge, in March 1997, cut high-grade chalcopyrite veins in granophyres beneath Sossego Hill. The third hole was drilled in the Sequeirinho prospect area, 1.5 km to the west of Sossego Hill, and cut high grade breccia-hosted chalcopyrite mineralization where magnetite-actinolite breccias with copper oxides had been mapped and sampled on the surface. As of August 1999 50,000 m of drilling in 115 diamond drill holes define the mineralized zones.