

Namdini Gold Deposit, Upper East Region, Ghana

One of the Largest West African Gold Discoveries in a Decade

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Abstract

Cardinal Resources' Namdini Gold Deposit is the first major gold discovery in Ghana since 2009 with an open pit ore reserve of 5.1 Moz, a strike length of 1.33 km and a width of 350 m. The deposit remains open along strike and at a vertical depth below 840m.

Historically, it was thought that no exposure of gold mineralisation would occur in the Upper East Region of Ghana due to thick younger sedimentary Voltaian lithologies unconformably overlaying the Birimian Greenstones, nonetheless, Namdini was discovered where the younger cover ended with a breakaway in the terrain. Modern-day mineral exploration was initiated after panning of surface soil samples observed coarse gold nuggets. The Namdini Gold Project is located within a Large-Scale Mining Licence granted by the Government of Ghana for an initial 15-year period and is renewable.

Regionally, the Namdini Project occurs in the Paleo-Proterozoic Bole-Nangodi Greenstone Belt, a granite–greenstone terrane which hosts significant gold mineralisation in Ghana and Burkina Faso. Based upon structural observations, the timing of gold mineralisation is late in the first phase of deformation after all host lithologies were in place. The deposit is within an oblique, dextral structure in a regionally extensive deformation zone. Gold is disseminated throughout the three main lithologies of granitoid, metasediments and metavolcanics where it presents predominantly with pyrite in fractures and as discrete grains within the zoned pyrite.

To date, some 700 resource definition drill holes including grade control (110,000 m) and 333 sterilisation drill holes (32,000 m) have been completed with some 150,000 samples submitted to SGS- and Intertek laboratories for independent sample preparation and assay analysis.

The pit optimisation used Feasibility Study (FS) level mining and processing costs, processing recoveries and geotechnical slope angles to determine an optimum pit shell at US\$1,235/oz. An open pit mine design, mining schedule, metallurgical study, process plant design, capital costs, operating costs and financial model were developed and all Modifying Factors were considered. The Ore Reserve estimation process converted approximately 80% of the Measured and Indicated Mineral Resources to Proved and Probable Ore Reserves.

A Proved and Probable Ore Reserve of 138.6 Mt at a grade of 1.13 g/t Au above a cut-off grade of 0.5 g/t Au has been established. The average processed gold recovery over the current Life of Mine design is estimated to be ~83%. No deleterious elements affect the saleability or price of the gold doré produced.