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Technology Options For Processing Complex and Double Refractory Gold Ore

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ABSTRACT

Subsequently exploration drill core samples were prepared and tested in the laboratory to establish if the ore was free milling. The results for the cyanide leach gold recoveries were very poor on a high grade primary sulphide ore of 6.2 g/t Au with no silver. Subsequent mineralogy showed the ore to be a characteristic pyrite, carbonaceous refractory gold ore (double refractory). This was a very disappointing finding but useful in that large amounts of money were not spent drilling a problematic gold ore.

A small scale gravity and flotation test programme was developed to produce a concentrate with the majority of the gold. This also failed with most of the gold remaining in the tailings. At this stage exploration was curtailed until an economic process could be developed. An ICP scan also showed variable levels of antimony.

The Client then requested a Desktop Study be undertaken with minimal laboratory testwork looking at Pressure Oxidation (POX), roasting, ultra-fine grinding, graphite passivation and consideration of any new technologies that might be applicable to this type of ore. The subsequent Study highlighted how difficult these double refractory gold ores are to process and highlighted some recent technology developments may be applicable.