

Low Pressure Injection for Secondary Recovery of Gold in Heaps

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ABSTRACT

Secondary recovery for base and precious metals, involving reagent directed specifically to underleached portions of the heap through injection, is becoming a mature technology to drawdown excess inventory. This excess inventory can be attributed to adverse hydraulic conditions such as compaction or densification of deeper ore from excess overburden pressure. This in turn creates a shallow perched aquifer that captures reagent before it can be effectively used for leaching. Directing the reagent to deeper parts of the pad to overcome the adverse hydraulic conditions is one of the main advantages of secondary recovery and the technology can be divided into low and high pressure regimes. High pressure (i.e., 10-20 bar) is the most common application for gold heaps and requires specialized drilling, a high pressure pumping skid, in-well isolation mechanisms (e.g., packers), and constant attention to ensure safe operations. Low pressure injection, operated at less than 5 bar and uses available line pressure, is a highly simplified system that eliminates many of the operational and safety issues related to high pressure injection. In this paper, we discuss low pressure options for secondary recovery of gold and demonstrate its effectiveness at removing inventory.