

Digital Twin application as Virtual Instruments at Haile Gold Mine

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ABSTRACT

The Haile Gold Mine in South Carolina, USA continues to increase the automation level of their processing plant in order to improve operational stability. In 2018, Haile expanded the application of a Digital Twin concept to provide Virtual Instruments. Haile engaged ANDRITZ to implement Virtual Instruments at their grinding area hydrocyclones and at their tailing thickener underflow pump. These Virtual Instruments provide density values in a traditionally difficult location for reliable slurry density measurement. The Digital Twin is a first-principles IDEAS simulation model, connected in real time to the control system. Results have been promising, with the Virtual Instrument values matching the physical instrument under normal operating conditions, and showing better prediction under upset conditions. Haile now uses the Virtual Instruments as optional process control parameters.