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Lowering Risk in Complex Mineralisation: Application of Mobile Supersucker Development

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ABSTRACT

A high-nugget effect and presence of coarse gold characterises many styles of gold mineralisation. The effective sampling of these deposits is often difficult because of the relatively low concentrations involved and erratic nature of the gold or other minerals. Geometric and/or metallurgical complexities often compound this effect. Underground development, in-fill drilling and bulk sampling/trial mining are generally required to delineate Ore Reserves. Similarly expensive definition strategies often apply to surface mining in complex orebodies of gold and other minerals, including precious stones. Development, particularly winzings is a historical technique that was used to gather geological, grade and metallurgical data during underground and near-surface exploration. It permits access to the mineralised structure below the surface datum to determine viability. Winzings has always been considered an arduous and dangerous task. Modern winzings technology has led to the development of the Mobile Supersucker - essentially a giant vacuum cleaner with underground and surface capabilities. By the elimination of shovel-loaded blasted winze material into a kibble and hoisting, this system permits safe and highly efficient winzings activities, and allows the collection of bulk samples for grade and metallurgical evaluation, as well as access to the mineralisation for geological and geotechnical mapping. Bulk samples from horizontal development have long been collected to help define mineable grade via pilot processing. However, when defining blocks below current development, there has been over-reliance on ineffective 'small sample' drill data. The Mobile Supersucker permits the development of winzes and off-winze sub-levels. These provide critical information to a mine technical team when trying to justify capital to go deeper or commence or deepen an existing open pit.