

SEG 2024 Conference: Sustainable Mineral Exploration and Development

An Assessment of the Grade Control Spacing at QKR Mine and the Effect on Au Grade Estimation

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The Navachab gold mine has three plants, with two plants feeding the third plant. Lower grade materials with average gold grades of Au 0.6 - 1.30g/t are fed to the pre-concentration plant. This plant produces materials with high Au concentration, which are fed to the ARGO plant. The ARGO plant mills the material to finer particle sizes and pumps it to the main CIP plant for leaching. Medium to high grade materials (1.30g/t to ceiling) are fed to the main primary crusher. The crushed materials are stored in a silo going to the SAG mill to be milled to the required size fraction. These materials join the ARGO material and are all leached together. The primary crusher material known as CIP ore, has shown less variance when comparing feed grades to plant reported grades. From January to June 2023, the plant reported grades (Head grades) have been higher than the feed grades. However, from July to October 2023, the head grades have been reporting less than the feed grades. This has prompted the grade control geologist to assess the current drilling pattern, suggesting a reduction in the distance between holes in the X (north) direction from 12.5m to 6.25m. This assessment aimed to confirm the continuity of mineralization in the x direction to delineate ore and waste materials. The grade control drill pattern for the assessment will change to X(north) 6.25m by Y(east) 6.25m, while sampling procedures remain the same. The geologist also agreed to change the pattern to investigate if the current grade control pattern (12.5m by 6.25m) determined by geostatistics analysis is efficient for sparsely distributed ore surrounded by waste, specifically the pre-concentrated ore (PCP), which has recorded for the year 2023 head grades and feed grades discrepancies averaging at 20%.