

The 6-inch Bangka Drill as a sampling tool for auriferous placers in Kelantan: Choo Mun Keong, & Andrew Spykerman, Malaysia Mining Corp., Kuala Lumpur

During a major placer gold exploration programme conducted over the main drainage valleys in central and southern Kelantan, detailed analysis of volume recoveries recorded by the conventional 4-inch Bangka drill, the 6-inch drill and the larger diameter 8-inch over auriferous gravelly horizons were carried out to determine whether the samples recovered by the more portable 4 and 6-inch drills were representative from a sampling point of view. The analysis comprised the determination of sample volume recoveries as well as the percentages of clay, sand and gravel recovered in each section.

Gold distribution within the area prospected, as in other placer

gold deposits, is in general confined to the basal gravelling horizons. The auriferous horizons contain gravels which are commonly within the 2-50 mm size range although clasts up to 60 mm in diameter have been encountered. For accurate determination of the grades of the auriferous gravelly sediments within the boreholes, the samples recovered should be representative and the sand:clay:gravel ratios more or less similar to their in-situ compositions. As the gold colours/flakes are associated with the clayey/sandy matrix, an over-recovery of the finer sediments will lead to over-evaluation and vice versa.

The results of the analysis show that there was a tendency for the 4-inch drill to recover a greater proportion of finer sediments in place of the larger clasts which were pushed out of the holes. With regard to 6-inch and 8-inch drilling, the sand and clay: gravel ratios obtained by 12 6-inch and 12 8-inch holes drilled at close intervals along 2 test lines are rather consistent despite fluctuating overall volume recoveries and that the effective cross-sectional area of the 8-inch drill is 1.8 times larger than that for the 6-inch drill. Sampling by the 6-inch and 8-inch drills is therefore considered to be representative and as a consequence the more portable mechanised 6-inch drill is selected as the standard drilling tool instead of the 8-inch drill which is rather heavy and bulky to handle.

During the final evaluation drilling stage, it would also be prudent to compare ore grades indicated by 6-inch drilling over selected small blocks with those obtained by bulk sampling. Pitting/trenching of the river beds/banks would however be expensive as appropriate equipment and support would be required to cope with the large water inflow and induced caving or flushing of gold bearing matrix into the pits/trenches.
