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## The Elsburg and Mondeor Conglomerates -From Barren to Containing a 100 million ounce Gold Resource

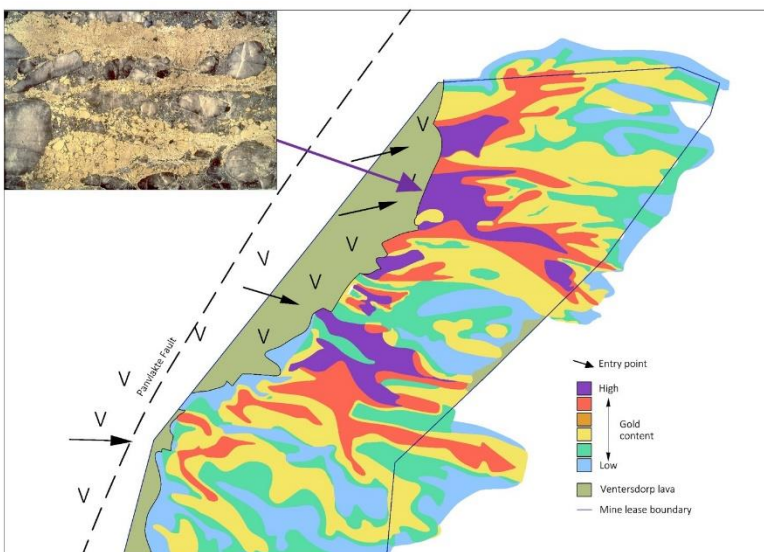
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The Elsburg and Mondeor conglomerates occur in the uppermost formations of the Witwatersrand Supergroup. In the Central Rand type locality south of Johannesburg, large pebble conglomerates form part of an east –west trending quartzitic assemblage and are devoid of gold mineralisation. Traced westwards however these conglomerates swing southward and parallel the major Panvlakte fault which forms the southern margin of the large Witpoortjie graben structure. Here the Middle Elsburg (Composite) Reef becomes pyritic and auriferous and has been the main ore body exploited at the Cooke section of Randfontein Estates Gold Mine. It has also formed an important resource on the Western Areas gold mine. Sedimentary-distributary channels and associated ore shoots with a strong east-west trend formed on a fluvial braid plain. Proximal, original entry points occur to the west and are truncated by the overlying Ventersdorp lava which forms a wedge-shaped trough over the Panvlakte Fault. High gold grades in highly pyritic conglomerates persist for a few hundred metres to over 1km to the east down the palaeoslope with a dramatic increase in the U/Au ratio also taking place towards the distal region of the braid plain. The above features strongly support a sedimentary origin for the gold.

The uppermost Mondeor conglomerate formation forms a multi pulse, mineralised, pyritic, large pebble conglomerate assemblage which also flanks the Panvlakte Fault and also has an east- west trending distributary and pay shoot pattern. Up to 8 important conglomerates layers diverge and become uneconomic to the east in a package attaining a thickness of over 100 m. The conglomerate reefs converge and are high grade towards a proximal area in the west where they are mined as a composite



assemblage in stopes many metres high. The Mondeor conglomerate package is mined at the Western Areas and at the South Deep gold mines. The accumulation of more than 100 million ounces of gold in the Elsburg and Mondeor conglomerates, whether due to a late stage hydrothermal source or a syngenetic placer source, is related to a basin edge controlling structure.

*Figure 1: Well defined west-east payshoot pattern for the Elsburg Composite Reef with proposed fluvial entry points and with inset of highly mineralised, pyritic, large pebble Composite Reef in the proximal part of an oreshoot, Cooke Section of Randfontein Estates.*

