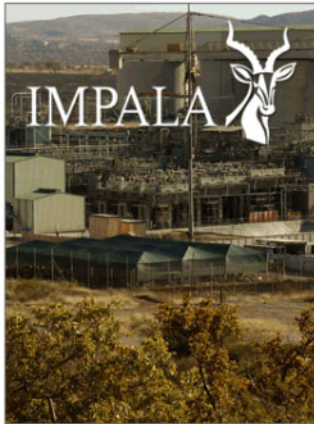


DDT Technical Review



Hans Baasden

1 Dec 2004



DDT



- Stope jigs - observed benefits
 - increased face advance per blast
 - consistent and parallel drilling
 - straight face shape (improves cleaning cycle)
 - new burden control brackets developed for Marula makes face hole marking unnecessary
 - team complement – face length per panel employee stays the same 2.5m per man
 - reduced physical effort by operators
 - less skill required to accurately drill holes
 - implementation at Marula proceeding well



DDT



DDT stope rig



DDT stope rig



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DDT



- ASG JIG observed benefits
 - improved safety - operator removed from face area
 - increased face advance per blast
 - better profiling of the ASG which gives a safer working environment and also minimises dilution
 - consistent and parallel drilling
 - can be used for raises and winzes
 - reduced physical effort by operators
 - less skill required to drill holes
 - mini-bolter also designed to utilise same boom



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ASG Jig



Roofbolters



- Mini-bolters
 - easy installation of roof bolts on the face due to newly designed roof-bolting machine
 - improved safety operator removed from face area (remote drilling)
 - no temporary support installation – work being done under permanent support (roof-bolts)
 - newly designed hydrabolt an easier support method than the fully grouted roof bolt
 - less 200mm poles being transported and installed (60% less poles per centare to be installed)
 - less damage of timber support due to the increased distance between timber support and blasted face

Roofbolters



Roofbolters



- Tripod rig
 - newly developed for cost effective vertical drilling in ASGs, raises/winzes, or any large excavation that requires safe, remote, roofbolt holes
 - uses a standard DDT stope boom mounted on a simple tripod base

Tripod Roofbolter

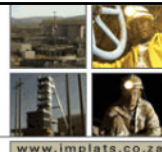


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Roofbolters



- Drill steel for in-stope roof bolting:
 - drill-steels have been developed to enable sub 1.0 metre roof bolting in Merensky and sub 0.8 metre roof bolting for UG2 panels



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New technology - roofbolters drill steel



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