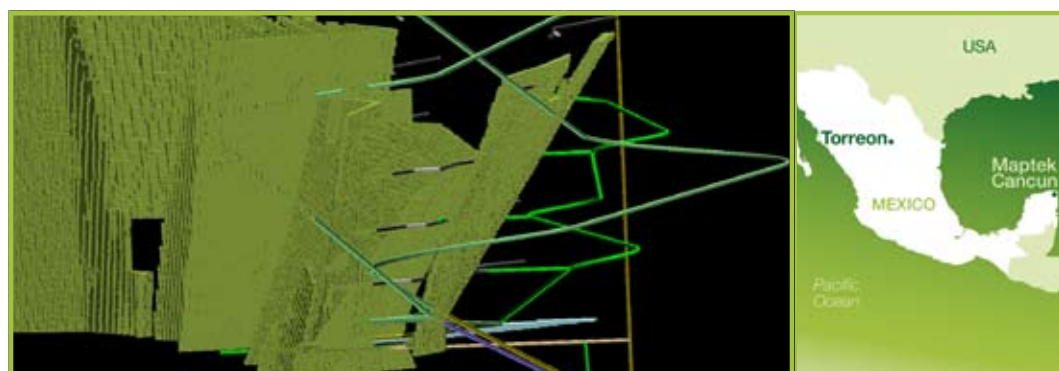


## Stope optimisation for underground gold deposit

In 2006, Mexican company Servicios Industriales Peñoles S.A. de C.V. (SIPSA), approached Maptek™ for help with optimising stope definition at one of their underground projects. The orebody is an extensive vein system whose resources were evaluated using a block model.



Grade shell of mineable blocks and proposed mine design for one sector of future mine

### TESTIMONIAL

'The program produced very good results that have been of great help in designing the mine.'

*Alejandro Contreras  
Project Engineer  
September 2006*

Maptek faced the challenge of providing a solution to help obtain an optimised definition of what was mineable and what was not worth mining, based on user inputs. This led to a solution using Maptek Vulcan™ that flags mineable blocks in the final block model.

Two alternatives for variable types are:

- a mass variable, such as metal content or economic value, OR
- a grade type such as gold grams per ton or zinc percent.

The program controls the extraction by using a variable dilution ratio. This is defined as a minimum allowable variable value for the block to be considered in an optimisation, but also the minimum total value when the block is combined with some user-defined neighbourhood blocks.

Alejandro Contreras, Project Engineer at SIPSA, has been using this Vulcan solution to produce optimised stopes at one of their large vein gold deposits in Mexico.

His project involved obtaining optimised envelopes using a block model with more than 2.5 billion blocks, based on an equivalent grade variable combined with dilution and mining constraints.

The deposit is modelled in Vulcan using exploration drilling; the model is also updated with channel samples collected during the mining process.

After the mineable blocks were flagged, grade shells and other visualisation tools in Vulcan were used to assist with the actual mine design.