

Four-D is an extension of the Three-D program and provides a method of analysing and forecasting the optimal pit for long term projects.

The one thing that is difficult to quantify when designing a pit is the effect of time. Four-D addresses this problem by taking into account future economic changes in the market to determine the longevity of the mine. In this way, miners can predict formerly unknown trends such as what will happen if the price of ore rises or falls. This remarkable feature has made Four-D unique in the world as the only program to assist mining engineers and managers to maximise NPV.

How Four-D works.

Just as in Three-D, you enter all the information you would normally use to design a pit, but here you can go one step further. By entering all the possible economic ratios, you can calculate the best design for each circumstance.

Four-D can provide a nested set of 40-100 optimal pit designs, and examines each with a range of possible economic projections. It then gives you a detailed analysis of quantities, grades, stripping ratios, cash flows and discounted cash flows. Four-D utilises the visualisation tools of your Generalised Mining Package

so you don't have to change the way you work to use the program.

What it can do.

Four-D allows the user to investigate an enormous variety of cut-off, scheduling, scaling and timing options at the touch of a button. It re-creates complex life-of-mine situations, so you can gauge the best possible scenario for any given sequence. It will then highlight potential scheduling problems and



mismatches between the mining and processing capacities. It will also automatically generate multiple pits which will direct the design of push-backs, and can act as a guide to life-of-mine

simulations. Realistic pit slopes can be designed taking into account the complexity of the site and slope constraints and a detailed report is generated on the most economic modelling format. Four-D compares the merits of underground and open cut mining methods and if the appropriate parameters are provided, it will avoid open cut if underground mining proves more profitable. No ore type is too difficult. Whittle Four-D has worked on a variety of minerals such as gold, silver, diamonds, copper, nickel, tin, iron, coal and it can handle multiple ore types with a remarkable degree of accuracy.



HARDWARE PLATFORMS

IBM compatible PCs. The minimum requirement is a PC 386 with 4MB of memory, a maths co-processor and 50MB of free disk space. The preferred specification would be a fast 486DX, or better, 8MB of memory and 100MB of free disk space. The programs will run under DOS and in DOS windows under Windows 3.x, Windows NT, Windows 95 and OS/2.

Unix workstations. In general, workstations have adequate memory and hard disk space so that the above specifications are not relevant. Supported hardware includes: DEC Alpha, DEC Ultrix, HP-UX, SGI Irix, Sun Solaris 1 and Sun Solaris 2.

INTERFACES

Bi-directional interfaces exist between Four-D and DATAMINE, GDM, GEOSTAT, MEDSYSTEM, MICROMINE, MicroMODEL, MineScape/MineStar, PC-MINE, SURPAC and VULCAN. Other interfaces are easy to create because all Whittle input and output files are text files.

Four-D can also export data to: Excel, Lotus 1-2-3, Quattro Pro, Supercalc and other spreadsheets, Caddsmn, Viewpoint and other graphics packages.

CAPABILITIES

- Model size 999 x 999 x 999 blocks • 20 Sub-regions
- 8 Slopes within a sub-region • 25 Rock types
- 25 Processing method/rock-type combinations
- Time variant data • Discount rates
- Capital and time costs • Sales and environmental costs
- Variable mining costs and throughputs
- Variable processing costs, limits and recoveries
- Open pit and underground processes • Spreadsheet output
- English and Spanish interfaces

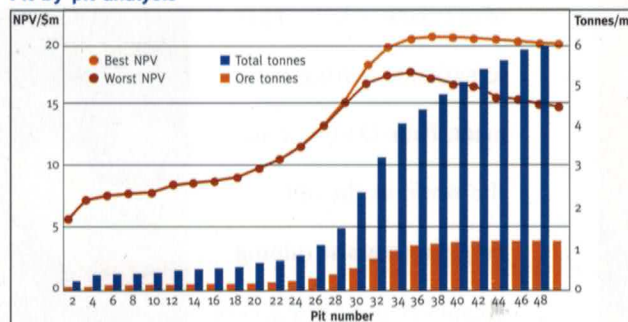
FINANCIAL MODELLING

Four-D is an excellent modelling tool. Its uses include:

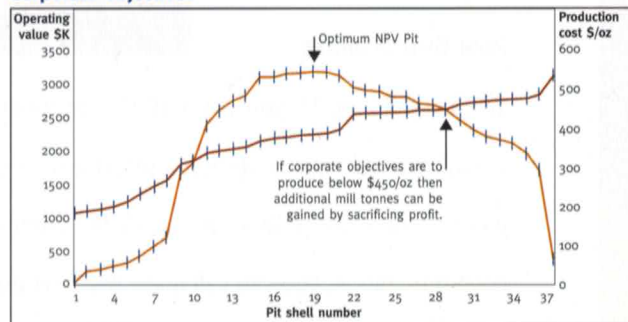
- Quantification of corporate objectives
- Investigation of profitability • Scoping studies
- Plant and mining capacity sizing
- Relocation of plant and infrastructure
- Risk analysis • Sensitivity analysis
- Production planning and scheduling

With the aid of spreadsheet output, all these concepts can be put into graphical form for ease of presentation.

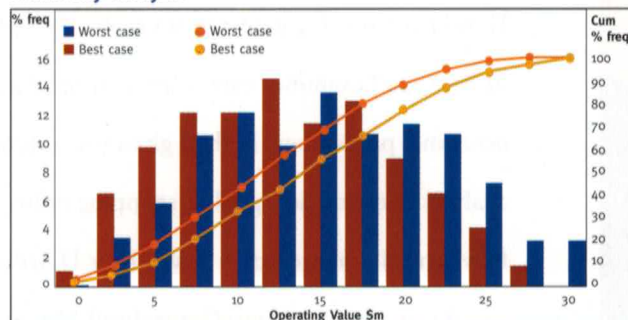
Pit by pit analysis



Corporate objectives



Sensitivity analysis



Whittle Programming Pty Ltd

There are many technical papers and case studies on the use of Whittle software. Request literature from:

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