

Four-X combines the Whittle Four-D method of analysing and forecasting the optimal pit for long term projects with true multi-element optimization capabilities.

Mining is full of complex situations and until now multi-element deposits have always had to be treated as equivalent metal deposits with one metal being the dominant product. Four-X addresses this problem by allowing the user to consider the elements individually without having to create equivalent metal formulations. No element is too difficult. Four-X is valid for the complete range of products from Antimony to Zinc.

How Four-X works.

Using the information assembled during exploration and all possible economic scenarios, Four-X calculates the best pit design for the various circumstances.

In a multi-element situation, it considers all the economic and mining information concerning the individual elements.

Four-X can provide a nested set of 40-100 optimal pit designs and examines each with a range of possible economic projections. It can give detailed analyses of quantities, grades, stripping ratios, cash flows and

discounted cash flows. Four-X 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-X allows the user to investigate an enormous variety of cut-off, scheduling, scaling and timing options. It simulates complex life-of-mine situations, so you can gauge the best possible scenario for any given sequence. It can handle multiple elements and



takes these into account when looking at cut-off, scheduling, scaling and timing options. 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, which it can then adjust for mining width. Realistic pit slopes can be designed taking into account the complexity of the site and slope constraints.

Four-X 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.



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 Pentium, or better, 16MB 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. The programs will run on a variety of Unix workstations.

INTERFACES

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

Whittle provides utilities to merge element information into a common block model. Four-X can also export data to: Excel, Lotus 1-2-3, Quattro Pro, Supercalc and other spreadsheets, Caddsmen, Viewpoint and other graphics packages.

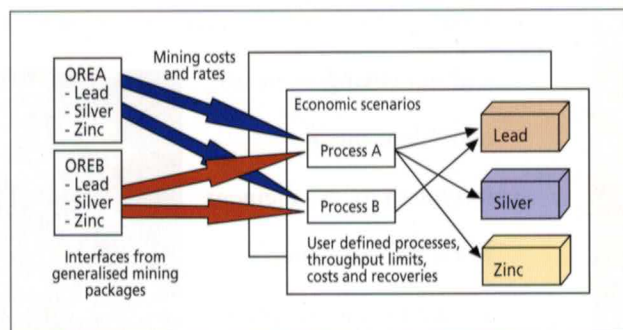
CAPABILITIES

- Model size 999 x 999 x 999 blocks
- 20 Sub-regions
- 8 Slopes within a sub-region
- 10 Elements / products
- 50 Rock types
- 50 Processing-method / rock-type combinations
- Time variant data
- Discount rates
- Capital and time costs
- Variable mining costs and throughputs
- Variable processing costs, limits and recoveries
- Costs dependent on element grades
- Environmental costs by rock type
- Open pit and underground processes
- Spreadsheet output

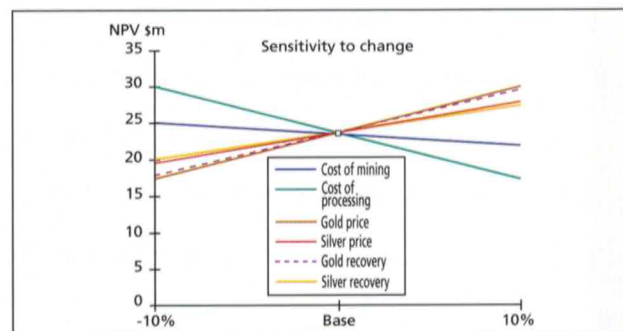
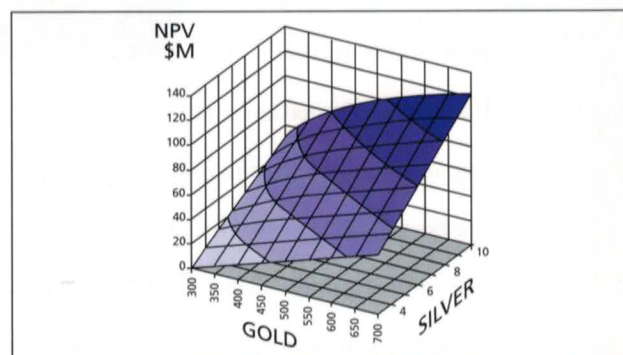
MULTI-ELEMENT FINANCIAL MODELLING

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

- Investigations of profitability
- Reports by element
- Quantification of corporate objectives
- 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.



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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