

## Mineral exploration targeting using AutoCAD as a geographic information system

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Most exploration companies already use AutoCAD as part of their mineral exploration activities for drafting maps and diagrams. Apart from a technical drafting tool, AutoCAD has a wide range of advanced GIS-like capabilities which are rarely used.

Black Pine applies AutoCAD as a geographic information system in creating mineral exploration compilations. AutoCAD offers a practical method of compiling geological information and is fully compatible with other GIS software through AutoCAD's DXF drawing interchange format.

There are four stages in generating a mineral exploration compilation in AutoCAD:

- (1) **Data Collection:** Primary sources of information are obtained from the user in the field and from government. Data types are defined as either graphical or numerical and text. Graphical data, such as topography or geology maps, and numerical and text information such as assays or lake sediment UTM coordinates, may be in a variety of formats including on paper, in digital files (vector or raster), and in spreadsheet or text (ASCII) files.
- (2) **Data Entry:** All data must be entered into AutoCAD and referenced by a common coordinate system, such as a UTM grid. Graphical data can be input by manual digitizing or optical scanning. Numerical and text data are input by creating digital spreadsheet files and saving them in ASCII format. Data can then be entered automatically using AutoLisp - AutoCAD's programming language. Different data sets are placed on separate layers in the AutoCAD drawing file so that the compilation can be manipulated to suit the user.
- (3) **Data Interpretation (Exploration Targeting):** The geological compilation can be visually interpreted using "overlays" of data layers from the AutoCAD file. These can be viewed on the computer monitor or plotted on paper or mylar for analysis. AutoCAD also has a SQL or Structured Query Language extension which can be

used to ask questions about the compilation. For example, the question "What lake sediment anomalies (> 5 ppb Au) overlie conductors or magnetic highs?" can be asked of the compilation. AutoCAD highlights all the applicable lake sediment samples on the screen and these can be plotted or printed as required.

- (4) Data Presentation: Specific layers in the AutoCAD compilation can be selected and plotted for presentation. Layers can also be extracted and exported into other

graphics software, such as CorelDraw. CorelDraw can be used to generate a suite of promotional products such as brochures, press releases, poster displays, slides, transparencies and diagrams for reports, all in full colour.

Small exploration companies rarely have the budget or time to install a GIS for use in mineral exploration. AutoCAD provides an accessible, relatively cheap way of creating digital databases for use in exploration programs - and creates a base from which presentation products can also be made.