

PYTHON MINING CONSULTANTS

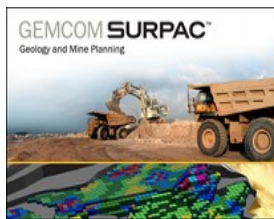


THE PYTHON GROUP

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SURPAC~Diamond Drilling Database Tool



There are many tools in the industry for computer aided diamond drilling, for Python the Surpac drillhole database tool was an obvious choice as it works directly with our existing software.

These tools take the data collected from geologists in the field and assay values from the lab to display a complete and overall view of the drill holes in a 3D environment.

Data collected typically consists of: hole length, hole dip and direction, metal assay values, rock type, specific gravity, etc.

The purpose of drill hole database software is to determine where the orebody is, and to populate a block model with accurate grades and attributes.

For complete article see page 2

Gold Hits \$1200/oz

Gold prices hit over \$1200/oz today (Dec 1 2009), a record high for the precious metal.

Low US dollar values and the rise in investment risk continue to increase the demand for gold.

Predictions have been made for months on when gold would be over \$1200/oz, hailing the price as an “investment milestone”.

The TSX is expected to rise due to the increases in both gold and oil shares.

Special points of interest:

- TOOL'S OF THE TRADE
- GOLD'S IMPACT IN ONTARIO
- SHAYNE'S ACCOMPLISHMENTS

Other News:

- Barrick Gold eliminates all gold hedges to fully expose themselves to the price of gold
- Ocean piracy has become the main industry a town in Somalia. The ransoms provide funding for schools and health care in the area, but raise commodity prices worldwide.

Ontario's Gold Mining History

Gold has influenced Ontario's economy for over a century. Gold has been responsible for the creation of many communities of this province such as Eldorado, Kirkland Lake, Redlake, etc.

Since the discovery of

Redlake in 1926 it has now grown as the gold mining capital of Ontario. Having survived recessions, this community, due to the high volume and grade level has successfully become the richest and largest deposit of gold in

Canada.

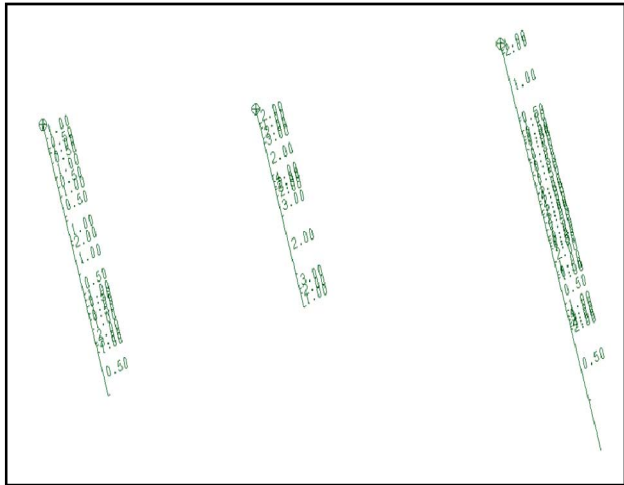
Gold has brought prosperity in Ontario, and



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Surpac Diamond Drill Hole Database Tool



A selection of drillholes with the grade

From Page 1

“Displaying drillholes with grade intervals can help visually determine areas of mineable ore.”

Surpac's database tool uses Microsoft Access, as well as a variety of other database software's, as the data collection programs. A drillhole database can come in many other formats, but need to be converted into a database file before use. Once converted the database needs to be mapped to inform Surpac of the contents of the various columns. Each hole will need data on its collar position, length of hole, direction (azimuth) and dip. Any hole that curves will also need data for each surveyed section. All the grade and attribute data will need to

be split up into intervals along the drillhole. The intervals for different grades and attributes do not necessarily have to be the same. Often the intervals will be split up between changes in rock types as the drill hole passes through different layers of material.

Displaying drillholes with grade intervals can help visually determine areas of mineable ore. For a usable ore body outline, a more detailed examination is necessary using sections cut in different planes. The final result is ideally a very realistic 3d ore shell which closely matches the real world shape underground. This oreshell can then be used for mine design and reporting purposes. Typically before any design can be done, a block model must be created to give more accurate information about the tonnes and grade of ore that is minable. There are features in Surpac's drillhole database tool that assist with transferring data to a block model.

and automatic creation of a Variogram. For this tool to operate Surpac also needs the “Geostatistics” licence. The Variogram will use the composite file as well as a set of input data regarding the orebody in question to create a graph. From this graph the Variogram can be modelled and saved for future use. Modelling is done automatically, but can be adjusted manually. Once the Variogram model is done, creation of a block model can be completed with Surpac's block modelling package.

The drillhole database tool has many other functions, some for analysis of the data and some for modification. In the analysis menu there is an ore/waste discrimination function which allows a drillhole to be separated into ore and waste intervals depending on a cut off grade and a minimum thickness for mining. The dilution/reduction function will add dilution and reductions to the ends of each ore or waste interval for a more realistic final recovery. The final recoverable material function uses the data from the first two analyses to determine how much volume of material is minable and allows a quick look in section view at the expected orebody shape. Reporting ore volume from this analysis may not be as accurate as a block model report, but is a quick way to determine an estimate using just the drill hole

A popular method for converting drill hole data to a block model is by compositing and then estimating. Compositing creates standard intervals in the drillholes, and averages the values of all attributes along those intervals. Once the composite is completed a Variogram can be created and analysed. The database tool has a function to allow quick

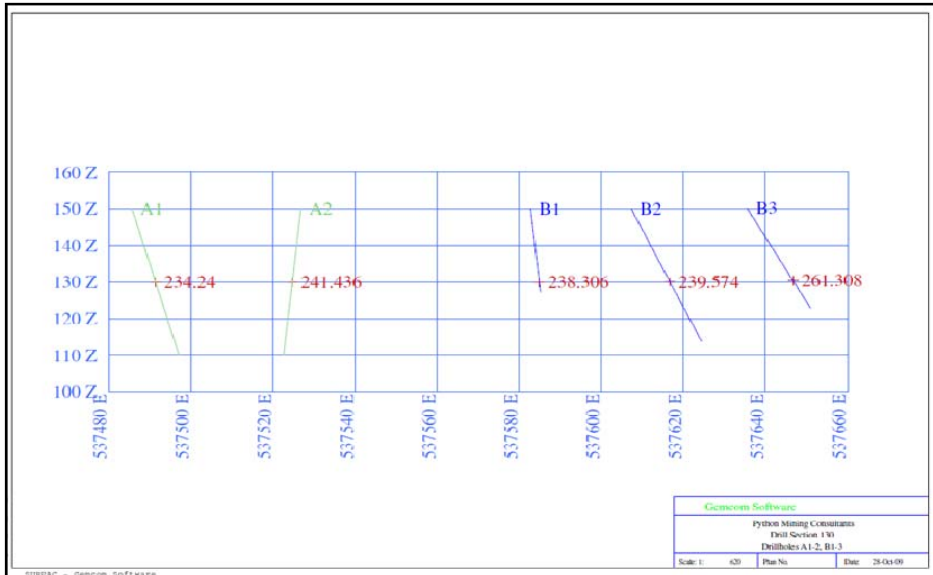
| GEOLOGICAL DATABASE - PROCESSING DATA | | |
|--|--|--|
| DATA ANALYSIS | COMPOSITING DATA | EXTRACTING POINTS |
| Linear Regression | Composite By Grade | Depth to Top/Bottom of Zone |
| Table Statistics | Composite By Geology | Drillhole Layout |
| DRILL HOLE ANALYSIS | Composite By Elevation | Extract Sample Data |
| Ore/Waste Discrimination | Composite Downhole | Extract Samples Within Geology |
| Dilution and Reduction | Composite From End Of Hole | Ore to Waste Ratio |
| Recoverable Product | Composite Multiple Elements | Zone Thickness |
| DATA MANIPULATION | EXTRACTING SECTIONS | DISCRETE SAMPLE TABLES |
| Field Maths | Plan Sections for Calculations | Discrete Samples Vs Time |
| Transform Grid | Plan Sections for Plotting | Extract Discrete Samples |
| Change Bearing | Vertical Sections for Calculations | Discrete Samples Within Time |
| Drill Hole Intersect DTM | Vertical Sections for Plotting | Moving Discrete Samples |
| MANAGEMENT and REPORTS | GRAPHICAL DRILLHOLE DISPLAY | GRAPHICAL SECTIONS |

List of functions available in
Surpac's Drillhole Database
Tool 2

data.

There are many functions in the drillhole database tool that are directly related to plotting. This is understandable as plotting drillholes is one of the most popular uses of the data. The database tool can extract either plans or sections for plotting. Using Surpac's autoplot feature a very professional plot can be created quickly using grids, scale, and a legend of your choice. Labels, measurements and other data contained in the drillholes can also be displayed for plotting if required. The colour of drillhole intervals can be set according to a grid depending on the grades present to allow a cleaner look when plotting. The plans or sections created can also be used for calculations. This will give more detailed information, but may not be usable for plotting due to the size and amount of text.

For more detailed or immediate data than that available through plotting, a series of different reports can be created. Reports can be created that list simply the collar name and position, or can be so detailed that they contain all the information in the database. The reports



Autoplot Results from Drillhole Database Section,

can be created to organize information by grade intervals, sections, drillhole names or any other attribute present. The reports are customizable, and formats can be saved for future use. This can be especially handy when the production of a large set of reports all require the same format. A macros system can also be used to automate any of the processes in Surpac to allow for quick reprocessing of sets of data, Ex: plotting a set of 100 sections.

The drillhole database tool is a useful addition to Surpac's array of functions. It allows manipulation of data, plotting and reporting that are essential to furthering the mine design process. There

are similar programs with many of the same features, but for a Surpac user the time to convert data and the lack of compatibility with other Surpac functions makes them less than ideal. Contrary to that users who do not have Surpac would not be well suited to using this drillhole database software. The choice of drillhole database software will rely heavily on what is currently being used for other aspects of the mine design. Overall this software performs well and should be considered by anyone looking for a drillhole database tool.

References:

- Gemcom's Surpac Screenshot
- Gemcom's Surpac Help Menu

“The drillhole database tool is a useful addition to Surpac’s array of functions.”

History of Gold Mining in Ontario



Early picture of the town Swastika³

“The first official prospect of gold was in 1866 by a man named Marcus Herbert Powell.”

Ontario may not be the first place which pops into mind at the mention of gold mining. While Ontario is not a leader in gold production, it has a rich history of gold mining and prospecting. The first official prospect of gold was in 1866 by a man named Marcus Herbert Powell¹. One year later the Richardson Mine was created and the small community of Eldorado was formed (located between Peterborough and Kingston). The mine soon proved unprofitable and was abandoned, but spurred the exploration of more gold deposits in the area. Soon a number of

mines were developed including; Deloro, Gilmour, Cordova, Feigle, Bannockburn and Golden Fleece.

Deloro mine was developed in 1868, shortly after the Richardson mine and in the same general area. The town of Deloro, Ontario was constructed to supply the mine and shelter the workers. Mining of gold continued until 1903 when poor recoveries and falling prices caused the mill to close. Shortly after the mill and refinery were converted to produce stellite, arsenic, silver and cobalt. These minerals were not mined in Deloro, but instead were shipped from other mines in the area via the railway. This continued until 1961 when the plant was dismantled due to a fall in the market. Tonnes of arsenic were buried in the area to limit the exposure for local citizens. Current environmental science now tells us that buried arsenic can be extremely damaging to the local plants and animals, efforts continue to minimize the risk².

the small railway community it was named after. Mining began in 1911 and continued until 1947, when the lack of ore grade material caused the entire property to shut down¹. Swastika is still a thriving community but now relies on the railroad and tourism to support its citizens. Gold is no longer mined here, but only 8 kilometres to the east lies the Kirkland Lake gold fields.

Kirkland Lake began as a small gold mining town in 1912, but unlike Swastika has continued to prosper in that industry. By the 1930's there were six major gold mines in Kirkland Lake employing a total of 5000 people¹. The town has not grown much since then, and now has a population of 8000 people. Macassa Mine, seen below, lasted the longest of the major gold mines in Kirkland Lake. It produced over 3 million ounces of gold between its opening in 1933 and its shutdown in 1999. In 2001 Kirkland Lake Gold Inc. bought the shutdown properties of 5 old mines and began extensive exploration work. The gold resources found have brought new vitality into a town which may have faced a dwindling economy otherwise³. With Kirkland Lake no longer a major producer of gold in Ontario, the “torch” has been passed to other Northern communities such as Timmins and Red Lake.

Gold prospecting was active in the early 1900's for Northern Ontario in locations such as Swastika and Kirkland Lake. Swastika was one of the first gold mines active in the Temiskaming area, and caused an immediate rise in the population of



Macassa #2 Headframe in Kirkland Lake³

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Timmins began mining gold in the early 1900's similar to the other mining communities mentioned above. Having a population of nearly 50,000 and gold mining opportunities that continue far into the future, Timmins may be the most successful gold mining community in Ontario. Mining is still the largest industry but other businesses such as lumber and tourism have diversified the town's economy. One of the major gold producers, Goldcorp, owns and operated the Porcupine property which consists of Hoyle Pond and Dome mines. This property has produced more than 64 million ounces of gold since it began production in 1910⁴. This property produced 3.8 million tonnes of ore in 2008, much higher than the past 5 years but with a higher operational cost as well. The grades of gold ore are not as good in Timmins as they are in the gold capital of Ontario; Red Lake.

Red Lake is located near the border of Manitoba, 500 kilometres northwest of Thunder Bay. Gold was discovered in Red Lake in 1926, which sparked an inflow of settlers and business to the area. The town quickly grew to a population of over 3000⁵. Mining has continued as the main industry in Red Lake, growing to become the gold capital of Ontario (and Canada). The community has grown to a size of 5000 people, most involved in the mining industry or industries servicing the mines. Red Lake mine is the largest and richest gold mine in Canada, producing 629,200 ounces in 2008 at a cash cost of just \$302/Oz⁴. Mining is expected to continue and prosper in the region far into the future.

Gold mining has been responsible for the creation of many small and large Ontario communities alike. The gold rush of the early 1900's brought prosperity to Ontario regions, especially in the



Vein of gold in the drift wall at Red Lake Mine⁴

North. Gold mining continues to generate revenue for some communities of Ontario, but the scale has diminished since the earlier days. Mining is a cyclic process and we may see a gold rush again in Ontario, but it is more likely that in the near future the focus will be on other metals or industries. Gold mining will remain an important part of Ontario's history and a staple of many communities.

References:

Archaeological and Historic Sites Board of Canada

Deloro Mine Archive – Trent University

Kirkland Lake Town Website
"<http://www.town.kirklandlake.on.ca>"

“Redlake mine is the largest and richest gold mine in Canada, producing 629,200 ounces in 2008 at a cash cost of just \$302/Oz.”

Wardrop CEO: Shayne Smith



Shayne Smith speaking at an Engineers Without Borders Conference 4

“Shayne is an active advocate of the group engineers without borders. Striving to help communities in Africa.”

Wardrop was formed during 1955 in Winnipeg, Manitoba as a small engineering firm. They achieved great success early on and expansion was rapid, with a new office opened the next year in Thunder Bay, Ontario. More offices were opened throughout the 1960's, 1970's and 1980's. By the 1990's the company had diversified and now serviced many industries such as mining, nuclear, environmental and civil¹. The company has grown steadily, to its acquisition by Tetra Tech in January 2009. The merge added Wardrop's 1200 employees to Tetra Tech, bringing their total number of employees to over 10,000². The decision to join Tetra Tech was headed by Wardrop CEO Shayne Smith.

Shayne is a professional engineer, receiving his degree in

mechanical engineering from Waterloo in 1988. Shayne has also taken courses in nuclear engineering and attended various management seminars. Working at Wardrop for over 20 years, Shayne had the experience and skills necessary to become their CEO. Included in Shayne's accomplishments for Wardrop is the upgrade to ISO 9001 status for quality management³. Outside of Wardrop Shayne is an active advocate of the group "Engineers Without Borders". This organization strives to supply clean water, supplies and infrastructure to communities in Africa⁴.

Shayne is also an active member of the business community in Canada. He is the past chair for the board of directors in the Ontario Chamber of Commerce and is a member of the Canadian Chamber of Commerce. Shayne manages to balance the workload of representing the Chamber of Commerce, helping to organize Engineers Without Borders, being CEO of Wardrop, and raising a family.

Shayne has in the past been an

activist for starting a multibillion dollar energy research project in Canada. He was a founding board member of the organization created to encourage energy research in Canada³. Bringing new projects and technology to Canada are the goals of both Shayne and Wardrop. Wardrop Engineering is now part of a multi-national corporation, but still has its roots in Canada. With their CEO Shayne Smith living in Canada (Toronto), Wardrop still operates their organization with Canadian interests in mind.

Wardrop has been recognized in Maclean's Magazine as one of "Canada's Top 100 Employers". Wardrop has also been in the top 20 list for "Best Employers for New Canadians". This is due in part to the management by Shayne Smith, as well as the overall goals the company has maintained since its creation.

References:

~Wardrop Corporate Website "www.wardrop.com"

~Tetra Tech News Release (January 28 2009)



THE PYTHON GROUP

Specializing in Mine Design, Planning,

Python Mining Consultants Inc is a flexible and innovative consulting firm. We are capable of performing a variety of different projects, and we have access to a large pool of specialized professionals. We are an innovative consulting firm, with a keen eye for detail, and we are currently looking to expand our existing client base. Python Mining Consultants Inc (PMC) has over 8 years of mine consulting experience. The company was officially incorporated in 2000, and since commencement has grown to include two offices as well as six full time employees.

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