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CUSTOMER CASE STUDY

Gemcom Surpac ease-of-use enables quick staff training and expanded operations at Capstone Mining

From exploration to production in 3 years

Countries: Mexico, Canada

Objective:
Predict ore positions, better target drilling, calculate resource estimates and support varying skill levels of a global staff by deploying easy-to-use geology and mine planning software.

Approach:
Choose a comprehensive, multilingual Gemcom solution of software and services to increase staff efficiency, competency and understanding of project data.

IT Improvements:

- Flexible, user friendly software suited for all IT experience levels
- Option of purchasing modules to fit mining and staff needs
- Easy integration with other data packages
- Better access to training for staff and more responsive technical support
- Automation of manual processes

Business Benefits:

- 25 percent increase in quarter-to-quarter production levels
- Internationalisation framework: supports staff working in multiple languages
- System usability, allowing fast staff training and skills transfer
- More efficient targeting of exploration and drilling efforts
- Better understanding of ore body and knowledge of measured/indicated resources
- Optimisation of mineral resources
- Assurance of consistent, predictable output
- More time dedicated to strategic projects, due to system functionality and ease of use
- Flexibility and depth of capabilities allows different “what-if” scenarios and reports to be run quickly and easily

CAPSTONE MINING CORP.

“We have standardised on Surpac because it provides the right features for exploration and mining projects, and the capabilities needed to support global staff with differing skills, working in multiple languages. We employed this multilingual platform at our headquarters in Vancouver and at our Spanish-speaking mining operations in Mexico to provide the same level of support to all of our staff.”

— Michelle Stone, Senior Geologist, Capstone Mining Corp.

The Cozamin property is 1,453 hectares in size and easily accessible by a paved road 3.8 kilometres north of Zacatecas City.

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Surpac helps Capstone's Cozamin Mine escalate production levels

Canada-based Capstone Mining Corp. operates the 100-percent owned, underground Cozamin Mine comprising copper, silver, lead and zinc resources in mineral-rich Zacatecas State, Mexico.

Within three years of optioning the polymetallic property, Capstone (www.capstonemining.com) progressed from exploration to production and grew its mine staff from three persons to 350. As part of the Cozamin option, Capstone acquired four other underground silver projects and spun those into Silverstone Resources Corp., a growth-oriented silver mining company generating 100 percent of its revenue from silver production. Capstone owns 22 percent of Silverstone Resources (www.silverstonecorp.com).

After achieving initial production levels of 1,000 tonnes per day (tpd) at Cozamin, Capstone undertook a process plant/mill expansion project to increase annual capacity from 350,000 tonnes to 750,000 tonnes. The company completed construction of its mill expansion on time and under budget, and is now producing 2,200 tpd.

Cozamin is situated on top of the 5.5 km long Mala Noche vein in Zacatecas, Mexico.

User friendly software with an international framework

Profitable, efficient mining depends on staff being able to perform their jobs as effectively as possible. When many personnel speak a different language than the head office and have less experience with mining software, it's important that they have user friendly software that supports their native language, so they can be up and running quickly and fulfilling their responsibilities.

Capstone employed Surpac – the latest version of Gemcom's industry-leading software for ore body evaluation, mine planning and production. In doing so, Capstone provides its staff with powerful, yet easy-to-use functionality in their own language. Another advantage is the company can keep all of its data in one common format, enabling English-speaking staff to review and use the data entered and generated by staff in Mexico and vice versa. The Cozamin staff enjoys being able to switch the software's menu system between English and Spanish. "The multi-language function lets me collaborate easily with our Spanish-speaking personnel in Mexico," says Michelle Stone, Capstone's Senior Geologist. In fact, Surpac's multiple-language attribute promotes fast, smooth skills and knowledge transfer between corporate office and on-site mining personnel.

Entrance of the San Ernesto ramp down to the Mala Noche Cu-Ag-Pb-Zn mineralization.

Mirroring other companies that are expanding and consolidating global operations, Capstone is assessing potential opportunities. Stone comments: "Expanding into other areas won't be an issue now. We have the right software to support a global staff with differing skill sets and outstanding support from Gemcom."

The cornerstone of improved production levels

Surpac is enabling Capstone to realise its production goals as well. Stone, who oversees resource modelling, production reconciliation and quality control for the Cozamin Mine, confirms that its production levels would have been difficult to achieve without Gemcom's software.

"We needed to get some software on-site that could help us with geological modelling to better understand the ore body geometry and get a good picture of what is potentially in the ground. Then, it was a matter of determining how best to extract the ore," Stone notes.

Capstone has a comprehensive Surpac license, which Stone uses, and Gemcom Surpac Xplorpac Edition, which gives Cozamin staff practical tools

Copper, lead and zinc concentrates are produced at Cozamin and shipped overseas from Manzanillo.

"Our Cozamin mine is located in Zacatecas, Mexico, an area bustling with mining and exploration activities. Surpac gives us a competitive edge by speeding up mine planning and project evaluation."

— *Michelle Stone, Senior Geologist, Capstone Mining Corp.*

Vehicle access to the Cozamin mine is through the San Ernesto portal.

In 2007, Capstone completed 25,000m of surface and underground exploration and infill drilling to upgrade and expand its resource base.

Loading out Cu-Ag-Pb-Zn ore from the Cozamin mine.

for drill-hole display, three-dimensional (3-D) graphics and blast design. Silverstone also deployed Surpac and Surpac Xplorpac Edition. As Capstone's mining software standard, Surpac offers a wide range of functional tools, and its modular and easily customisable design gives the company the option of purchasing the components they need now and adding others later. This aspect also reinforced Capstone's decision to standardise on Surpac. "Being able to purchase the modules that are appropriate for our use at this time keeps our software budget under control," Stone says.

A firm foundation for better intelligence

In her work, Stone develops 3-D models of the ore body, updates the models, predicts the location of potentially mineralised trends and calculates resource estimates based on drilling results and underground sampling. During the recent mine expansion, Stone leveraged Surpac to redefine the mine's exploration targets.

"We are using all of the information that we gained from our last round of resource modelling to increase our life of mine and to confirm our change to a different mining method. For example, we recently finished a 25,000-metre drill programme to infill and expand the resources," she says.

Like most mine operators, Capstone faces the challenge of extracting optimal amounts of ore efficiently and economically. Surpac enables Stone to run models of the tonnes and grades in specific areas and thus, evaluate the effectiveness of certain mining methods. In fact, the reports generated from Surpac are prompting a change from a cut-and-fill mine method consisting of 4x4-metre stopes to 30-metre-high, long-hole stopes in parts of the mine. "Surpac helps us see how much material and value we are going to lose or gain by implementing another mining method," says Stone.

More groundwork covered in less time

With respect to ore grade control, Cozamin staff confronted the issue of not being able to display data quickly due to different coordinate systems and special grids that were developed to fit the ore body orientation. "It would look like some parts of the underground mine were rotated and heading off at an odd angle compared to the rest of our data," Stone explains.

Stone integrated the company's mapping data and underground channel samples, which were originally developed manually, into Surpac. Now, the Cozamin team can drag images into Surpac quickly and perform math calculations to convert the images and other data into the right coordinate system. Within minutes, they can create a picture of the ore body or update information.

"Surpac is a huge timesaver," Stone notes. "It gives us the capability to display, check and consolidate data effectively at the touch of a button so that we stay on track with where we think the ore is located. We use the information to alert our staff if it looks like we are drifting at the wrong orientation to the vein."

Cozamin is situated on top of the Mala Noche vein, which has a 5.5-kilometre expand. However, Capstone's current exploration and drilling focuses on a 2-kilometre length of that vein. Excellent possibilities exist for finding additional mineralisation. Capstone believes that comprehensive Surpac tools will help draw out the vein's potential.

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Fundamental, labour-saving features

According to Stone, the macro, reporting and automation functions in Surpac accelerate mine-to-model reconciliation and mineral resource management. Additionally, Surpac's file conversion feature speeds project evaluation. Capstone's data is now housed in Surpac, and AutoCAD mapping data that Cozamin personnel still use interfaces well with Surpac.

"The capability of bringing AutoCAD files and different programmes into Surpac is a nice feature. We can convert exploration and mining data and significantly reduce the time required for project evaluations. It doesn't matter if I am working with grade control data for our polymetallic mine or an Au-Ag exploration project, Surpac enables me to have one software package to do the job," Stone says.

A 'high-powered tool for exploration and mining purposes'

Stone has counted on 3-D modelling software for 10 years; she formerly used Datamine and Vulcan software packages. "When I left Australia and moved back to Canada in mid-2003, I worked for a data management company that used Surpac," she relates. "I was interested in getting Surpac when I came to Capstone because it is not only easy to use, but it is also a high-powered tool for exploration and mining purposes. It is appropriate for different commodities and deposit types."

Since deploying the Gemcom software, Stone has been a devotee, beta testing the latest version and providing input on its plotting capabilities. "Gemcom is progressive and focused on continuous improvement. They want to know what customers think of their products and how to improve them," Stone says.

The keystone for future endeavours

Cozamin personnel, some of whom were inexperienced in information technology, are becoming more proficient with the software and learning to glean the best from it. In the process, they are freeing up time to focus on geology and strategic assignments.

Stone notes: "Surpac does not hurt your brain. It made the transition from paper to the computer easier for our Cozamin staff. Plus, the training and technical support services we get from Gemcom's Vancouver office are fantastic. Gemcom trained our Cozamin staff on-site in Spanish."

Capstone envisions its future full of silver linings. The company plans to complete its first resource estimation at one of its four Silverstone projects. It hopes to deploy more Surpac licenses there and at Cozamin, and the company is considering some other Gemcom mine planning tools for underground development. In addition, Capstone is evaluating other exploration and mining opportunities in Mexico and the Americas.

Capstone Mining Corp. Solutions at a Glance

Primary Applications:

- Gemcom Surpac resource modelling and mine planning system configurations
- Gemcom Surpac Xplorpac Edition
- AutoCAD systems

Gemcom Services:

- On-site training
- On-line tutorials
- Technical support

With the expansion complete 2,200 tpd of ore is hauled up the San Roberto shaft for concentration at the Cozamin mine.

For more information email info@gemcomsoftware.com.

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