

How a low-cost copper producer was able to mine even greater value from its operation.

Being the “flagship” mine of one of the world’s low-cost copper producers might make some managers complacent, but not the vice-president & general manager of this large open pit mine. He believed the time was right to challenge his organization to improve even further. So, to accelerate improvement initiatives already underway, he provided his people additional resources.

After some investigation, he decided to retain the services of USC Consulting Group, a management consulting firm specializing in operating effectiveness. “I chose USCCG because of their excellent reputation in the mining industry and their unique approach to process and operational improvement. They encourage and coach employees to innovate ‘on the line’ and interact with co-workers to find ways to perform value-added tasks more efficiently.”

The USCCG team started its engagement by first meeting with the mine managers to understand the scope and objectives of the current mine site improvement project. They then reviewed all major processes and methodologies during the course of a two-week feasibility study. At the conclusion of this study, USCCG presented the managers with a new game plan for the mine, identifying key items for priority attention, along with an approach for quickly implementing desired changes.

Next, during the implementation phase of the project, USCCG introduced a variety of techniques aimed at involving employees at all levels. Using the classic concepts of Kaizen, total productive maintenance (TPM) and employee involvement prototyping (EIP), the USCCG team focused mine personnel on what they needed to do to gain better control of their operation.

“This was a classic team effort...with USCCG a full-fledged member...which was critically important, since my people had a strong pride and ownership in their efforts to date,” said the vice president & general manager. “USCCG was instrumental in bringing out the best our employees had to offer.”



Key Metrics

Mine cost-per-ton reduced	23.5%
Concentrate grade improved	7.1%
Density control improved	1.3%
Production in tons mined increased	22%

This USCCG-led project produced significant improvements throughout the mine.

As process improvements were implemented, costs dropped and measurable results began to show up in increased productivity, shorter cycle times, higher quality and improved yields. Soon, the improvement estimates established by USCCG during the feasibility study were met and exceeded. New benchmarks were established for milled tons-per-day, tons mined, pounds of copper produced, recovery and concentrate grade. Overall, cost-per-ton dropped over 23%.

Special emphasis was then placed on recovering more copper from milled tonnage. USCCG facilitated, trained and implemented statistical process control (SPC) in the flotation process, which enabled mill control room operators to better understand and keep key processes within the target range, resulting in cleaner densities.

Other opportunities for improvement were uncovered, including how the “dispatch system” was being used. By reviewing the “as is” system through process mapping analysis with the dispatchers, new and enhanced techniques were implemented. These resulted in a more streamlined, better utilized and more effective dispatch process that synchronized the loaders, shovels and trucks in the pit, resulting in increased tonnage of 15% to 25%.

The vice president & general manager attributed this success to USCCG’s unique ability to blend the technical knowledge of in-house personnel with USCCG’s own wealth of process experience in a multitude of industries. “They are experienced hands-on professionals who help focus an entire organization on what is required to operate each day at consistent and predictable levels. They respected our people, worked well together with them and delivered outstanding results.”

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Vice President &
General Manager
Copper Mine



USC Consulting Group

First we make it work. Then we make it last.

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