Gold mine stakes future on ability to sustain continuous improvement process.

This high-grade South American gold mine, already considered among the world's low-cost producers, wanted to further improve the effectiveness of its underground mining and plant operations. The mine is divided into three long vein structures, employs approximately 600 people, and produces about 1,500 tons of ore per day. A contractor responsible for underground production uses the *bench and fill* method as the primary means to recover the ore. This yields higher productivity per exploitation unit and lower exploitation costs because more reserves can be economically mined by lowering the cut-off grade.

Key Metrics

- Increased mill throughput 7-12%
- Improved effective underground equipment utilization 30-50%
- Increased mine productivity 10-15%
- Reduced cost-per-ton 1%

Still, it was believed that the effectiveness of its underground and surface operations could be improved, and the decision was made to turn to an outside professional resource.

"We wanted to institutionalize our culture of continuous improvement by training and equipping our employees to sustain it, despite any unforeseen conditions we may encounter in the future," said the mine's president. "So, we decided to look for a consultant that had a good foundation in the mining industry, a broad range of experience gained from previous successful implementations, and who demonstrated sensitivity to our human resources and cultural issues."

After a thorough review, USC Consulting Group (USCCG), a North American-based operations management firm, was selected from among a pool of other North American and local consultants. USCCG's recommended approach was to serve as consultants to guide the mine's own Project Team through the improvement process. This would entail training and equipping them with the techniques and operations management skill sets they'd need to not only deliver the long-term benefit of lowering direct cost, but, more importantly, establish a knowledge base from which to perpetuate the process. This would allow team members to continue to implement changes within and outside of their areas of responsibility for years to come.

USCCG

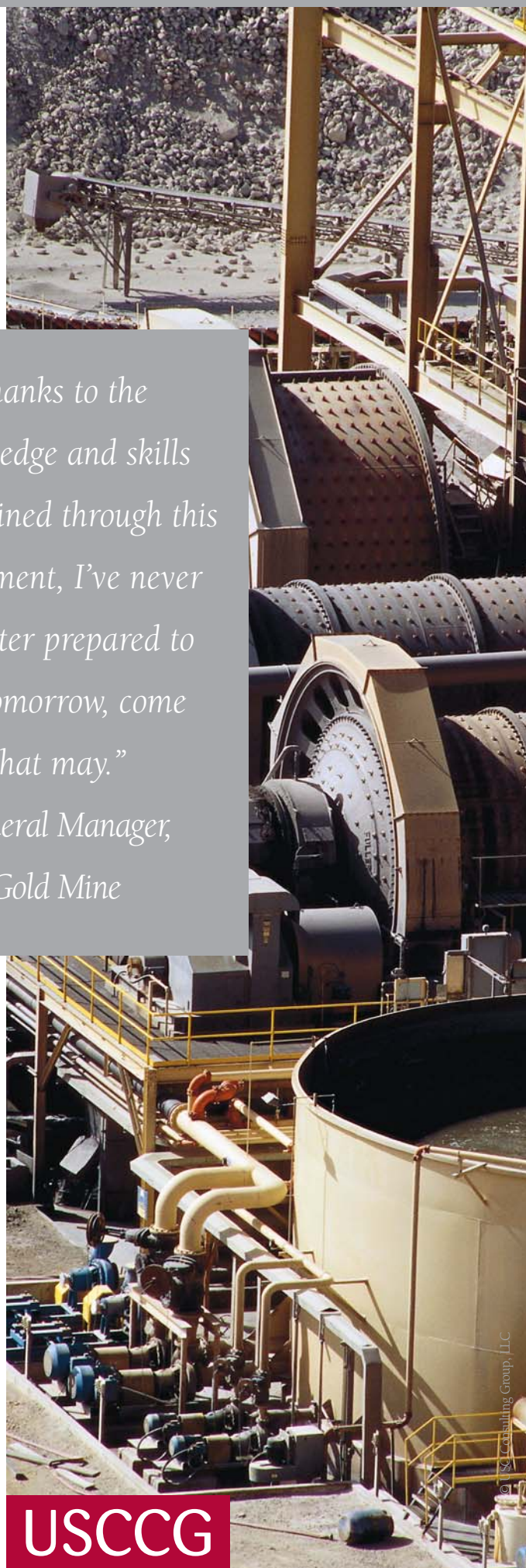
It was determined that the mine, along with its underground contractor, would form a twelve-person project team (nine representing the mine and three representing the contractor) that would be supported by two to three consultants from USCCG. The team leader was selected from the management ranks of the organization to give the project the credibility and focus necessary to meet the desired objectives. Employees from all areas and all levels of both organizations were selected, based on criteria that included basic computer skills, good interpersonal skills, their ability to work as part of a team, and 'good to excellent' performance in previous assignments.

The project got underway using various techniques developed over time by USCCG to expose the process and waste; simplify the process and recover waste; standardize the process; and automate the process where possible. It started by focusing on the variability of existing systems, identifying the causes of variability (and lost time) and, finally, putting a management operating system in place (or modifying the existing one) to measure lost time and track key performance indicators of productivity. This drove a Pareto analysis, which generated action items to create change.

Following this proven blueprint, the team identified opportunities for reducing variability in execution; improving maintenance effectiveness; and, reducing execution cycle times. And, utilizing such tools and techniques as employee involvement prototyping; value stream mapping and analysis; capacity planning, performance metrics review and weekly operating reports; installing visibility management; implementing a comprehensive auditing process to ensure perpetuation of new operating systems, methodologies, etc., continued to expand its knowledge and solidify its base of continuous improvement.

"Thanks to the knowledge and skills we've gained through this engagement, I've never felt better prepared to face tomorrow, come what may."
- General Manager, Gold Mine

Results were impressive. Equipment utilization improved dramatically, leading to increases in productivity and throughput in the underground mining operation. Improvement in maintenance management practices also led to an improvement in mill productivity. Together with a reduction in fees paid to their contractor, the value delivered by the team was projected at $1.2 - $1.6 million annually. Better yet, when asked at the end of the project how confident he felt to deal with an unknowable future, the mine's general manager responded, "Thanks to the knowledge and skills we've gained through this engagement, I've never felt better prepared to face tomorrow, come what may."



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