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## Six Sigma Deployment - Gold Underground Mine

### Situation

Our client, ranked among the top Gold producers in the world, enlisted Implementation Engineers to train in Six Sigma Black Belt their key employees of two of their Mines in Chile. These employees are asked to be “the best of the best” working on chronic issues that are negatively impacting the company’s performance.

### Approach

#### **Champion Training**

Management commitment was one of the program’s critical success factors. That group established the corporate-level goals and targets and determined how the Six Sigma initiative was to be initially focused.

Champions were selected as members of the management team who were responsible for the logistical and business aspects of the Black Belt program. They linked the business objectives to projects selected for the Black Belts. It was the responsibility of the Champions to help identify potential candidates for training and to select projects. In the role of Champion, they were also responsible for the performance of the Black Belt candidates, which required that they monitor performance, project progress, and remove all barriers to successful completion of the project.

The session consisted of two days of training on what Six Sigma is and the roles and responsibilities of a Champion. The session provided the Champions with the knowledge of how their role supports the efforts of the Black Belts, both logistically and organizationally. By the end of the training session, the Champion class selected the projects for the Black Belts to work on during their training.

#### **Black Belt Training**

A Black Belt is a key change agent for the Six Sigma process. These candidates were asked to be “the best of the best” working on chronic issues that were negatively impacting the company’s performance.



Black Belt training consisted of five phases (DMAIC - Define, Measure, Analyze, Improve, and Control). During each phase, the candidate received one week of training followed by three to four weeks of knowledge application on a champion-selected project at the candidates' mine location. During this application period, an Implementation Engineer Master Black Belt visited the candidates at his or her location and conducted a support sessions to make sure the candidates were applying the methodology properly. A candidate worked on the same project throughout the phases. Upon the completion of the training, the Black Belts not only had developed superior problem solving skills that could be applied on problems within their company but has also completed their first project that yielded significant bottom-line savings.

## Results

Financial savings (USD) of the Training Projects as December 2007 (EP & MF refers to different Mine locations):

Area of Savings	Savings (USD)
EP Overdrilling	\$215,000
EP Recovery Increase	\$1,500,000
EP Energy Optimization	\$27,893
EP Water Optimization	TBD
EP Dilution in Benches	\$600,000
EP Mine Equipment Availability	\$35,000
EP UG Mine Traffic	\$135,000
EP Smelting Process	TBD
MF Reduction in Dilution of Rich Solution	\$147,000
MF Gold Recuperation in Flotation	TBD
MF Improve the Mill Performance -	\$4,400,000
MF Increase Capacity & Utilization of Scoops	\$395,000
MF Increase Capacity & Utilization of Boomers	\$415,000
MF Zinc Recuperation	TBD