**A copper producer increases smelting efficiency.**

**Client:**

An international metals company with a copper smelting operation in Southern Africa.

**Challenge:**

The company's main problem was a lack of production. They were required to produce a certain amount of blister copper each day, but consistently struggled to meet that goal. On a good day, the company could produce five charges of blister copper (about 20 blister bars) from about 15 ladles of molten copper, but six charges were always out of reach.

We examined their smelting process and found areas where planning, scheduling and communication could be improved for more effective asset utilization and more efficient production.

**Process:**

We started by bringing plant management together and helped them draw up a schedule detailing what processes should look like on a perfect day. To do this, we invited all managers to a meeting where they could explain what needs to happen at each stage of production and how long it should take. Working together we determined the amount of time each task should take by conducting detailed case studies with the client, and identified which processes were going over their allocation.

With our help the client discovered that poor communication further slowed the challenges already created by the lack of a formal schedule. The company had two separate plants, the Ausmelt and the converters, and two separate control rooms. Often, molten copper from the Ausmelt would sit too long in the aisle and the metal would cool and harden. This created a lot of waste and represented a significant portion of delays and idle time. The ladles needed to be transported more efficiently, but managers had difficulty coordinating these actions in a timely fashion.

Alongside the client we built a more formal and efficient schedule for the company, taking into account start time, activity and the amount of time tasks should take. To kick off the schedule, we worked with managers to make sure it was followed diligently. The company saw instant improvement from sticking to the schedule - reaching the six charge target, and on occasion even seven charges!

**Performance Results:**

* Amount of Copper smelted per day increased by 139 tons.
* Production of blister copper increased by 25%.
* After 11 months the Ausmelt and Converter saw a reduction in reverts of 27,000 tons.
* Adoption of a continuous improvement mindset by the client.

**Conclusion:**

Once the company realized the value of a clearer and easy to use schedule, it built upon the base schedule that was made. They began to focus on eliminating as much idle time as possible and minimizing how much time product sits in the aisle. Regardless of how good the new schedule was, the team stressed to management that they needed to use it as a tool to improve efficiency.

Our client experienced a secondary benefit of our work with them in that reverts also decreased as a result of the ladle spending less time moving between the Ausmelt and the converter.

Toward the end of the project, we assisted in developing a system for the operations staff to repair machinery without interrupting production. By using a pre-start checklist, maintenance and management teams could identify problems before they occur and plan for repair outside of production times. While the company outsourced their maintenance work, we helped them to improve communication between operations and maintenance staff, setting times for when each team could meet every shift to discuss machinery.

A database was also created that consolidated vast, but disparate data points about performance into a central location. The company had a lot of information, but the right information did not necessarily reach the right people, so we helped the client to determine which information was important and created graphs from this database, to provide visual representation of some important KPIs and turn the numbers into actionable tasks.

With continuous improvement being a key component of our work, we helped the client focus on how to follow through with their new processes going forward. We helped them build agendas for weekly management meetings to focus on operational issues and created an action item database to prioritize opportunities for improvement, and then linked these action items with persons, tasks, dates and times.