

# Manufacturing Productivity

## **Problem Statement**

Cost of producing a material was prohibitive, the equipment was capacity limited, and there were a number of minor operational issues. The business was only breaking even. Shutting the line down and exiting the business was being considered.

## **Investigation**

A detailed process map was produced, and the intent of each step in the process was carefully compared to field results. This led to some immediate improvement, as several steps were redundant or ineffective. For example, in-process material was packed, shipped to a warehouse, returned to operation and used, frequently within the same day. A simple diversion saved time, effort and packaging material.

Some parts of the analysis required more detailed examination, including Design of Experiments techniques.

## **Implementation**

Simple changes in procedures resulting in 3 major improvements to the process, and a 50% increase in throughput. Operators and mechanics were consulted throughout this phase. Further changes required qualification at the customer, who reported improved product quality. The final step required a small capital project.

## **Results**

After eliminating the bottlenecks in the system, equipment capacity increased nearly 10 fold. Profitability increased from nearly zero to 60%. Some equipment changes were necessary, and a capital project raised. Payback time on the project was approximately 7 days. As a side effect, many of the operational problems disappeared as the equipment was run closer to design conditions.

## **Critical success factors:**

- Understand the problem
- Understand the process in detail
- Involve and consult the people making the product, and those repairing the equipment
- Consult the customer.
- Take additional measurements and conduct tests where necessary for complete understanding.