



Case Study

Reducing Excess Product Supplied to
Customers – Increasing Savings,
Revenue and Profit

▶ Oman-based steel company

Summary

- **Challenge**
Reduce amount of excess piping supplied to customers.

- **Root Cause**
Inefficient pipe-trimming processes.

- **Output**
Replace current pipe-trimming switchgear with improved alternative.

- **Results**
Annual savings of over \$250k.



› Case Study

Lean six sigma



Reducing Excess Product Supplied to Customers – increasing savings, revenue and profit

Overview

By simply replacing a \$3 switch, our Oman-based steel company client dramatically reduced the amount of excess tube material shipped to their customers with every tube that they produced. As a result of the switch changeover, the average length of excess material, per tube, was reduced from 32mm to just 6mm. The total amount of material saved equated to 2,219 tubes and \$250K in savings.

Define

- › The steel tube supplier wanted to maintain leading industry position.
- › However, the supplier wanted to reduce the length of excess tube supplied to customers, in order to decrease overheads.
- › Through baseline analysis, an optimum target length was established.

Based in Sohar, Oman, where it has an ultra-modern steel plant, our client is one of the Middle East's leading steel tube and structural products manufacturers.

Unable to supply tube lengths shorter than 6 metres, the company supplied slightly longer tubes, with an allowable excess, per tube, of up to 50mm (or .05m); and whilst the customer would accept tube lengths of up to 6.05m, they would only pay for 6 metres of material per tube, with the cost of any additional material being paid for by our client.

So the focus of this entire project was simple - to ensure that each finished length of tubing was as close as possible to 6 metres long. The project team quickly put a project charter together and completed their baseline analysis, which confirmed that there were no defective products being shipped. However, there was an opportunity to reduce the variation in the average length of a shipped tube, which was 6.032m, i.e. each bar contained an average of 32mm of unbilled material. The goal of the project was to reduce this by length by 25mm, reducing the average length from 6.032m to 6.007m.



Measure

- Establish project baseline and set goals and establish reasons for excess tube length
- Use process flow and Cause-and-Effect diagrams to establish around 20 possible causes.

After establishing the project baseline and setting appropriate goals, the team began to determine possible reasons why the average tube length was 6.032m. By working through their process flow diagram, and by using a Cause-and-Effect diagram, the team brainstormed around 20 possible causes.

Analyse

- Rank possible causes in order of likelihood.
- Identify most likely cause (limit switch and PCL unit).

Ranking these possible reasons in order of likelihood, the team quickly decided that excessive tube length was probably caused by the limit switch and the PLC unit in the manufacturing process. They determined that, by changing these two parameters, they could significantly improve their process and ship less free material to their customers.

Improve

- Change \$3 switch and PLC control unit.
- Check success of resultant production process – confirm excess pipe-length reduction.

Following a thorough review of these proposals with their project sponsor, the team set about changing the limit switch and replacing the PLC unit. By taking a random sample of pipes manufactured after these two changes had taken place, the team confirmed that the changes had the desired effect - the pipe length had been reduced from an average length of 6.032m to an average length of 6.006m.

Control

- Monitor new process over given period – confirm consistency of improvements.
- Update Standard Operating Procedure to ensure revised process becomes new standard.
- Assess savings – approx. \$250k per annum.

Over a period of 30 days, the team monitored the new manufacturing process and confirmed that improvements were consistently maintained. They then updated the Standard Operating Procedure, which ensured that the improvements became the new standard manufacturing process. The client's finance team confirmed that, as a result of changes made to the manufacturing process, annual savings on this project were \$250K.

In total, the project took our client just 41 days to complete. By using appropriate data to make their decisions, they tackled the root cause of the problem quickly and efficiently – and they demonstrated that their proposed improvements were sustainable over time.

