What is Chemical Process Control? And why you should care - Return On Investment

Keeping in mind that Instrumentation & Control optimization allows achieving what can be achieved with the equity and the assets invested in the plant. In this issue I present a case where the Return On Investment (ROI) has been stunning:

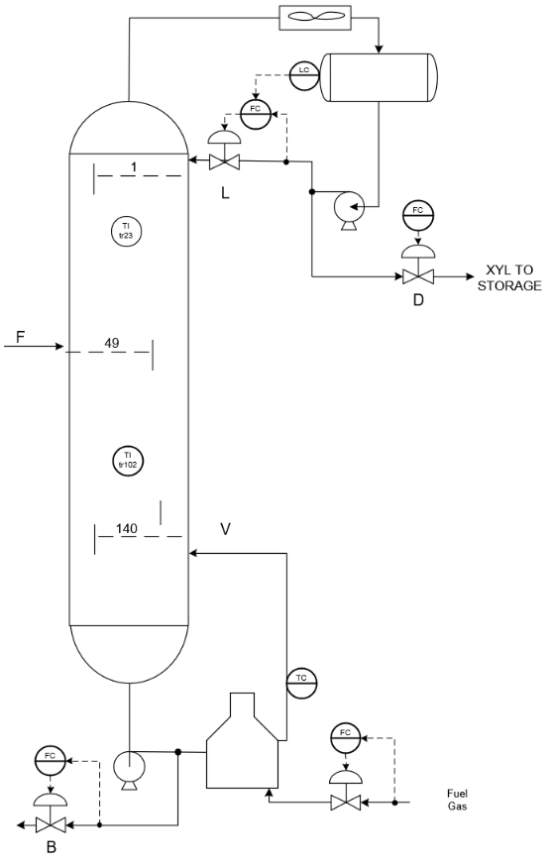

Figure 1

A xylene tower, Figure 1, designed to separate the petrochemical feedstock leaving as distillate product from the ortho-xylene and heavier boilers that go to the gasoline pool.

In the original control strategy, the top composition was not in control and bottom composition control was using the fired heater reboiler Coil Outlet Temperature as composition inference. The reflux drum level was controlled simultaneously by the reflux and the distillate flow by using a reflux ratio set up by the operator.

The process control solution consisted of implementing an optimizing strategy based on the fact that the top product is more valuable than the bottom product.

Impurities in the distillate were increased 40 times bringing them to the limit of the specifications. The additional volume produced at the top, multiplied by the difference in value between the petrochemical feedstock and the gasoline pool grade bottom product, accounts for about 70% of the total benefits. The remaining 30% of the profit is coming from reducing the reflux ratio, which in turn, reduced the fired-heater fuel gas consumption.

The total savings are in excess of 2 million dollars per year, for a ROI in less than a month! The scale of the economic benefits is even more staggering when the savings are calculated over a period of ten years operation of the strategy, and counting (See Figure 2).

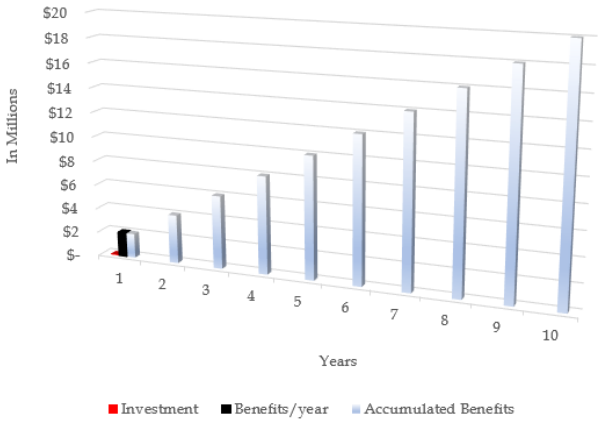

Figure 2 - Actual Process Control Impact – Xylene Tower

Why you should care: The assets required to operate the unit operation are part of the equity already invested in the plant, energy efficiency and yield improvement were within reach, and they are part of one of the economic pillars of any corporate sustainability strategy.

Next: Process Control Value Proposition