

CASE STUDY: Lowering energy costs by controlling steam fluctuations

## Are Your Tunings Refined?

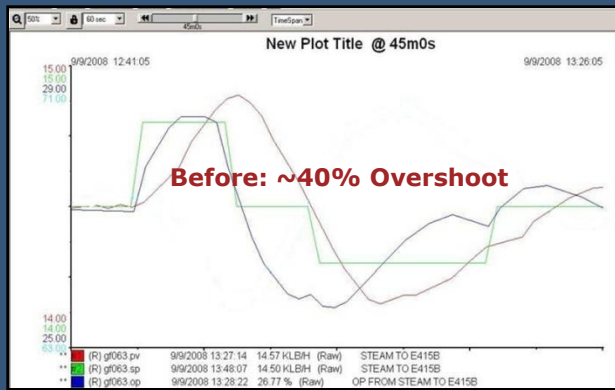
### SUMMARY:

A leading petrochemical company faced a dilemma with power generation at one of their refineries. Oscillation in a critical steam flow loop persisted in spite of relentless efforts to stabilize it. The loop was vital to one of the refinery's distillation columns and its inefficiency was resulting in significant energy loss. Although refinery staff used multiple software tools to assist with diagnosis and optimization, the loop's oscillatory behavior prevented those tools from producing an accurate model of the process and thwarted tuning. Although experience made them skeptical of loop tuning software, refinery staff agreed to trial Control Station's LOOP-PRO Product Suite. Equipped with a patent-pending capability for modeling non-steady state process data, LOOP-PRO quickly produced an accurate process model and optimal tuning parameters. Where other tools fell down, LOOP-PRO stood alone.

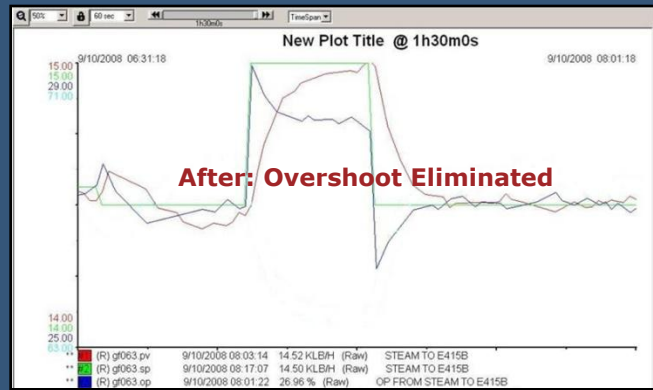
### BENEFITS:

- Control inefficient loops
- Recover lost energy
- Tune complex loops quickly and efficiently
- Save money

INDUSTRY CASE STUDY: OIL & GAS



Oscillations in the refinery's steam flow loop resulted in overshoot of over 40%. The rolling behavior resulted in significant energy loss.



The graphic above shows loop performance using tuning parameters supplied by LOOP-PRO. As is evident, overshoot was eliminated and control dramatically improved.

### CHALLENGE:

Most flow loops are relatively easy to tune as they react quickly to changes in Set Point and clearly reveal a process' true dynamics. However, a particular steam flow loop at the refinery presented unique difficulties due to oscillations in the loop. Significant lag in the loop's response time resulted in equally significant overshoot, and steadying the process proved a challenge. Without access to steady process data, an array of software tuning tools were prevented from providing an accurate diagnosis. All the while, critical plant resources were being wasted at the refinery.

### SOLUTION:

In an effort to improve control over the refinery's PID control loops, refinery staff agreed to trial Control Station's LOOP-PRO software. Equipped with the Company's patent-pending Non-Steady State

(NSS) Modeling Innovation, LOOP-PRO is uniquely suited to diagnosing oscillatory and otherwise challenging process data. The technology did not disappoint.

Staff at the refinery were impressed by the software's ease-of-use. The software's graphics proved highly intuitive, and the NSS Modeling Innovation provided accurate process models – even for their steam flow loop. New tuning parameters supplied by LOOP-PRO immediately steadied and established improved control over each of the loops tested.

Adjustments to the steam flow loop produced annual savings estimated at \$1,500. With 20 identical flow loops at the refinery, staff anticipated a quick \$30,000 in cost savings. With more costly loops throughout the refinery, the refinery's staff was certain of a rapid ROI.

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