Texas Technology Showcase

The GEM Condensate Return System - A Permanent Solution to Mechanical Steam Trap Problems and Inefficiencies

presentation by

Rob Williams

GEM America

Thanks to:

- **Kathey Ferland -** Texas Industries of the Future
- **Sue Phillips** – Texas Technology Showcase
- **Dr Stan Higgins** – North East Process Industry Cluster (NEPIC) –UK
- **Lindsey Bartlett** – British Consulate International Energy Team

What is the function of a steam trap?

To remove condensate at the rate it is being formed whilst preventing loss of live steam

Existing trap types

- Float
- Bucket
- Thermostatic
- Thermodynamic

Common mechanical problems

- Traps fail open
- Traps fail closed
- Cause water hammer
- Inhibit heat transfer

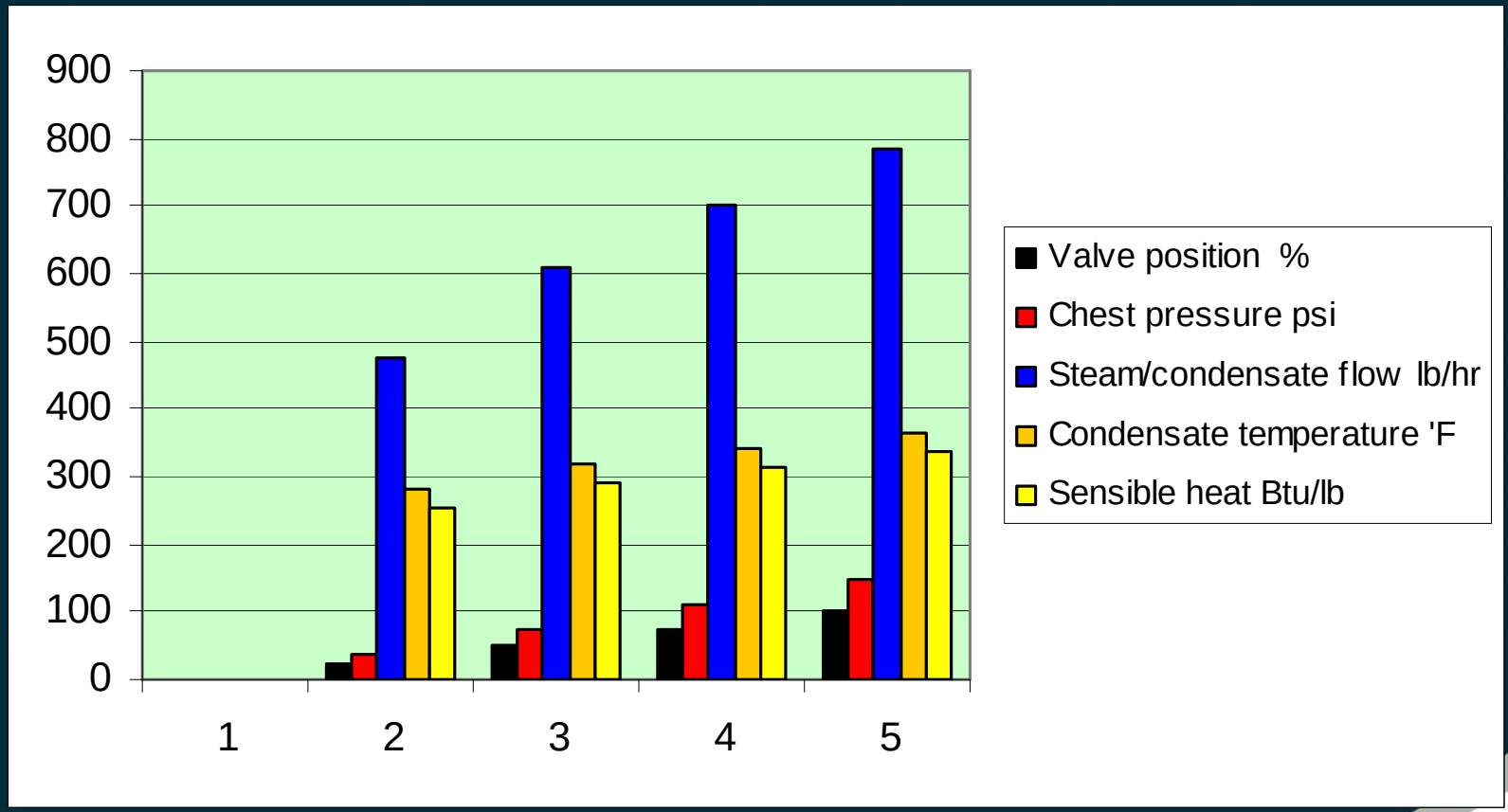
Benefits of the GEM System

- Permanent steam savings 10 -30%
- Low maintenance
- Increased heat transfer
- Reduced water hammer
- Improved control
- Ultimate reliability/productivity

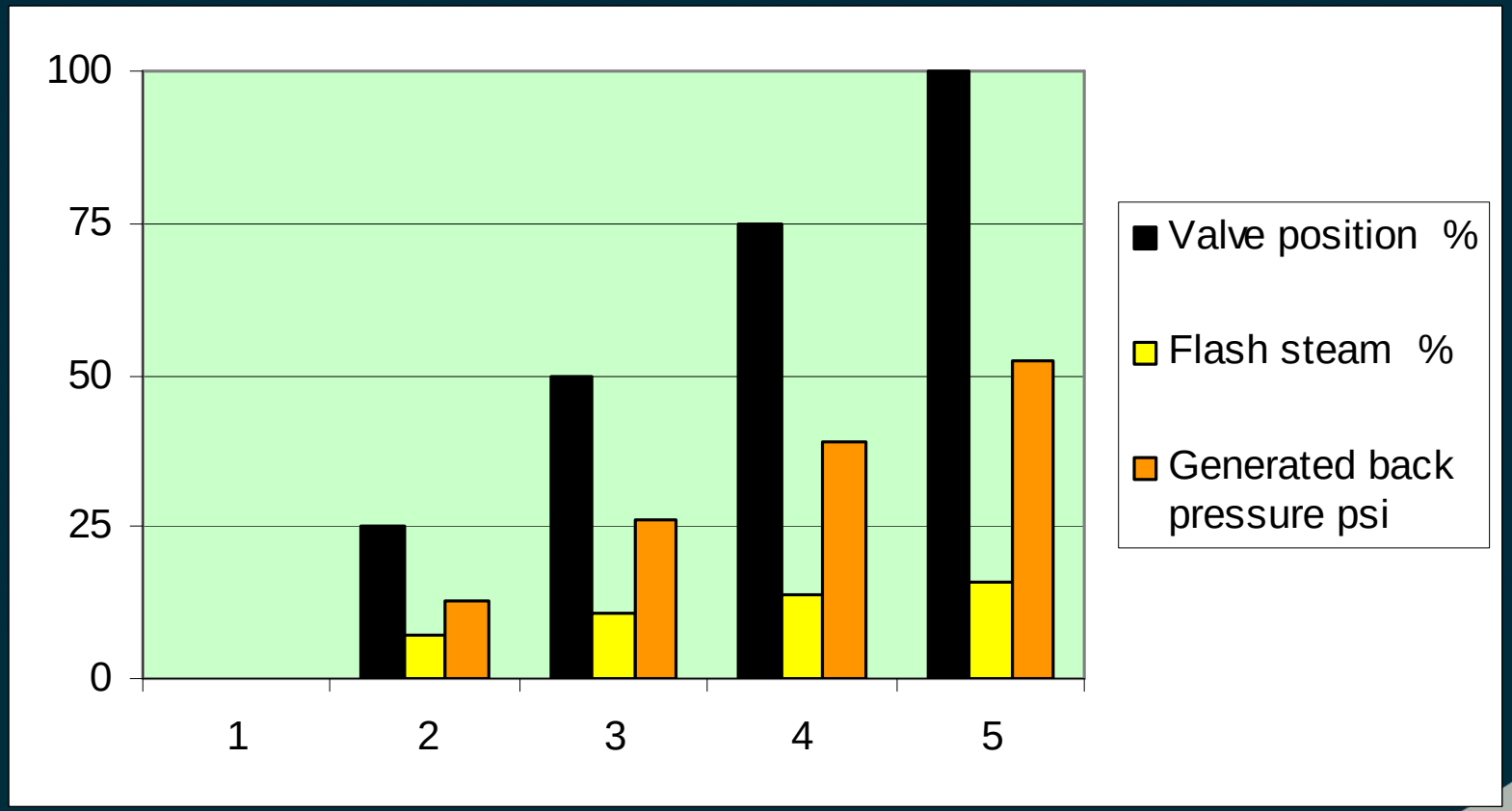
How the GEM Trap works

gemtrap1.html

How the GEM Trap works



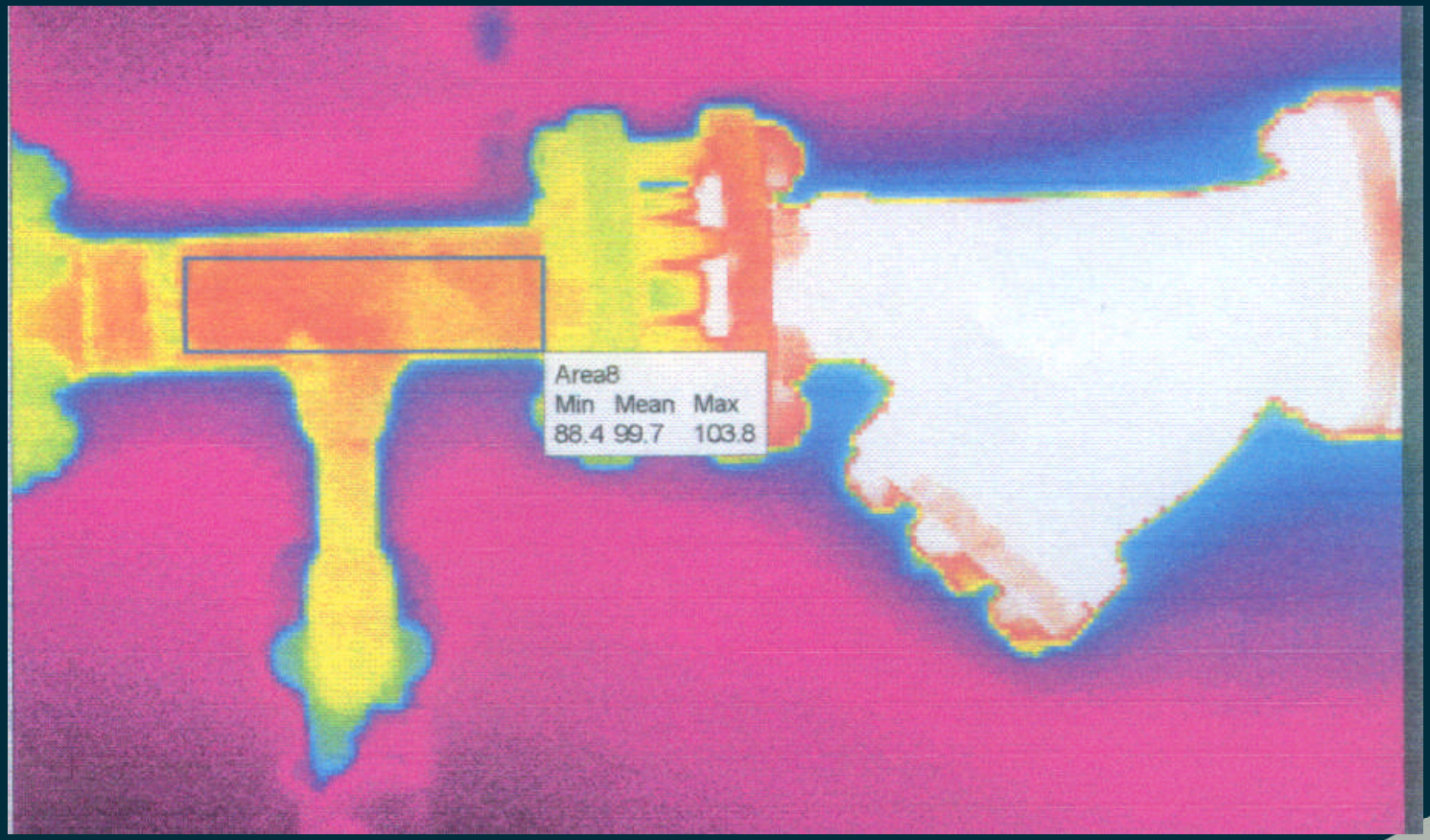
How the GEM Trap works



How the GEM Trap works

gemtrap1.html

Thermographic Image



Project Implementation Case Study

Grupo Idesa

Coatzacoalcos Mexico

Staged Approach

First Stage:

The Sale – use of existing customers as references

Case Study – Ineos Fluor

Application

- Detailed study of operational and costs benefits
- 50 traps installed on various applications

Results

- Reduced steam consumption by 24% on process applications
- 30% reduction on distribution traps

Case Study – Loders & Croklaan

Loders Croklaan reference letter 2.pdf

Diagramm (EN).pdf

Staged Approach

Pre-order:

- Identification of suitable plant
- Surveying and data collection
- Predicted cost/benefit analysis
- Recommendations for system improvements

Staged Approach

Post order:

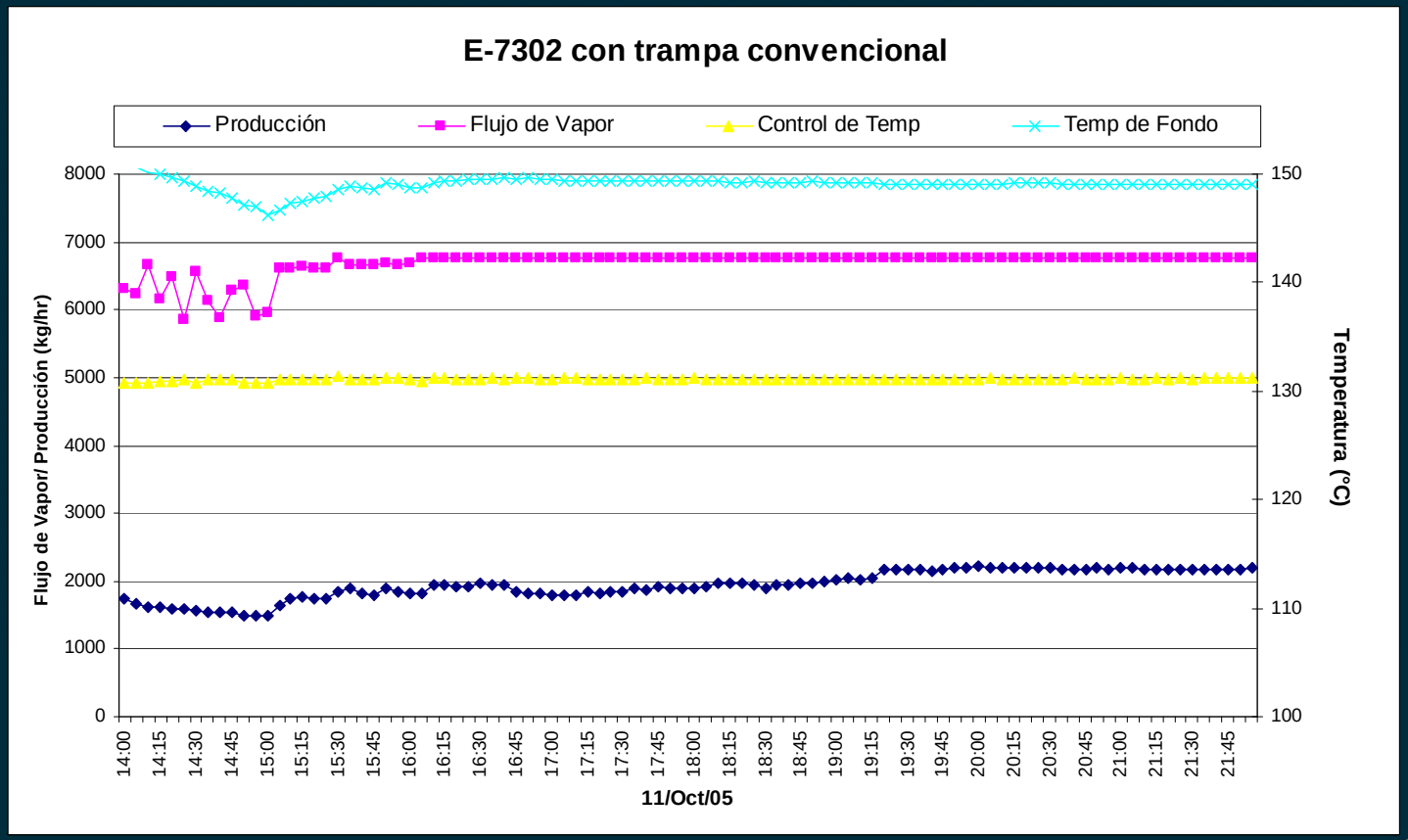
- Confirmation of application specifications
- Detailed installation recommendations
- Checking piping installation drawings
- General delivery management control

Staged Approach

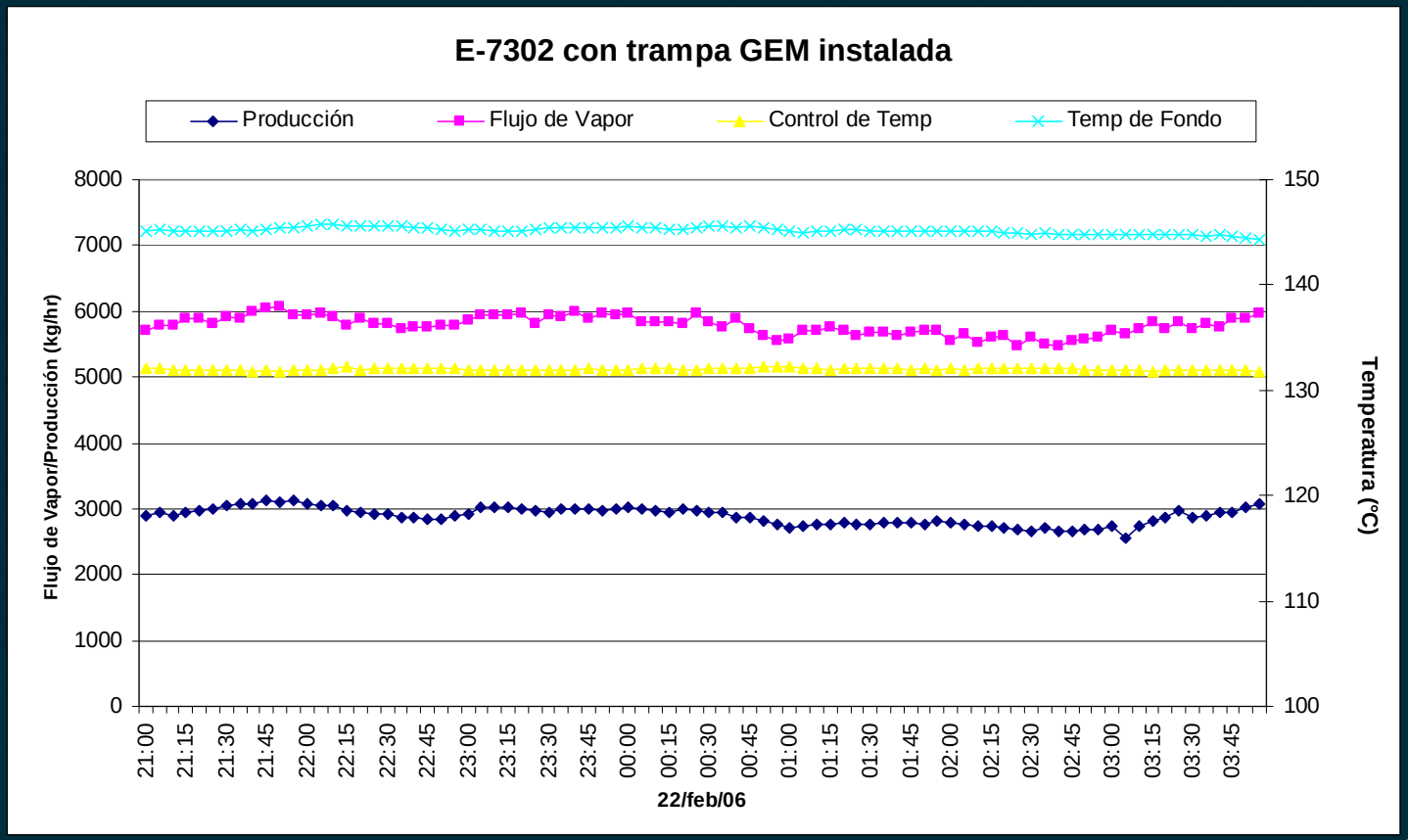
Installation and Commissioning:

- Pre- startup installation checks
- Start up commissioning
- Performance checking
- Data collaboration

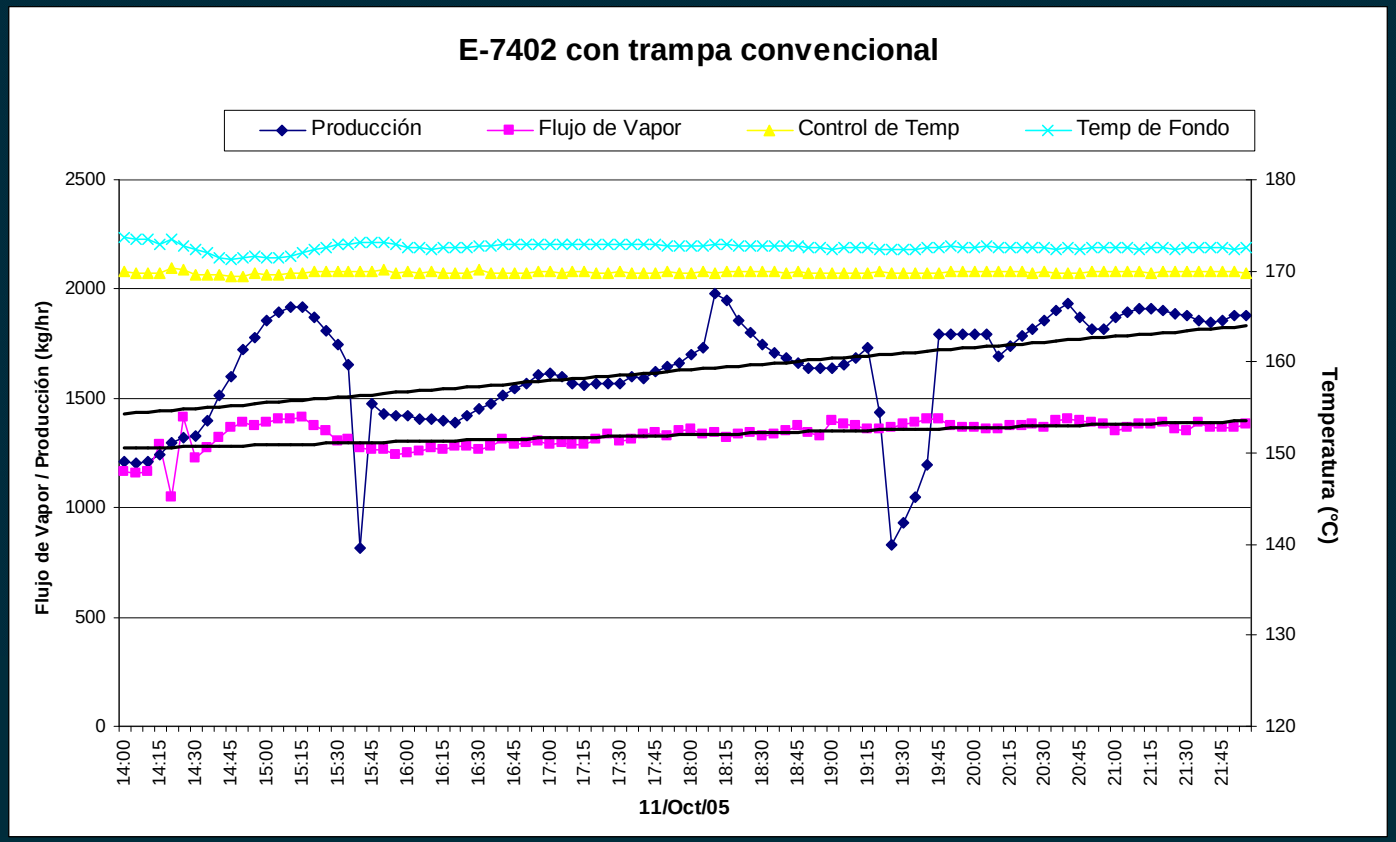
Results – Idesa Aminas Plant data collected before rebuild



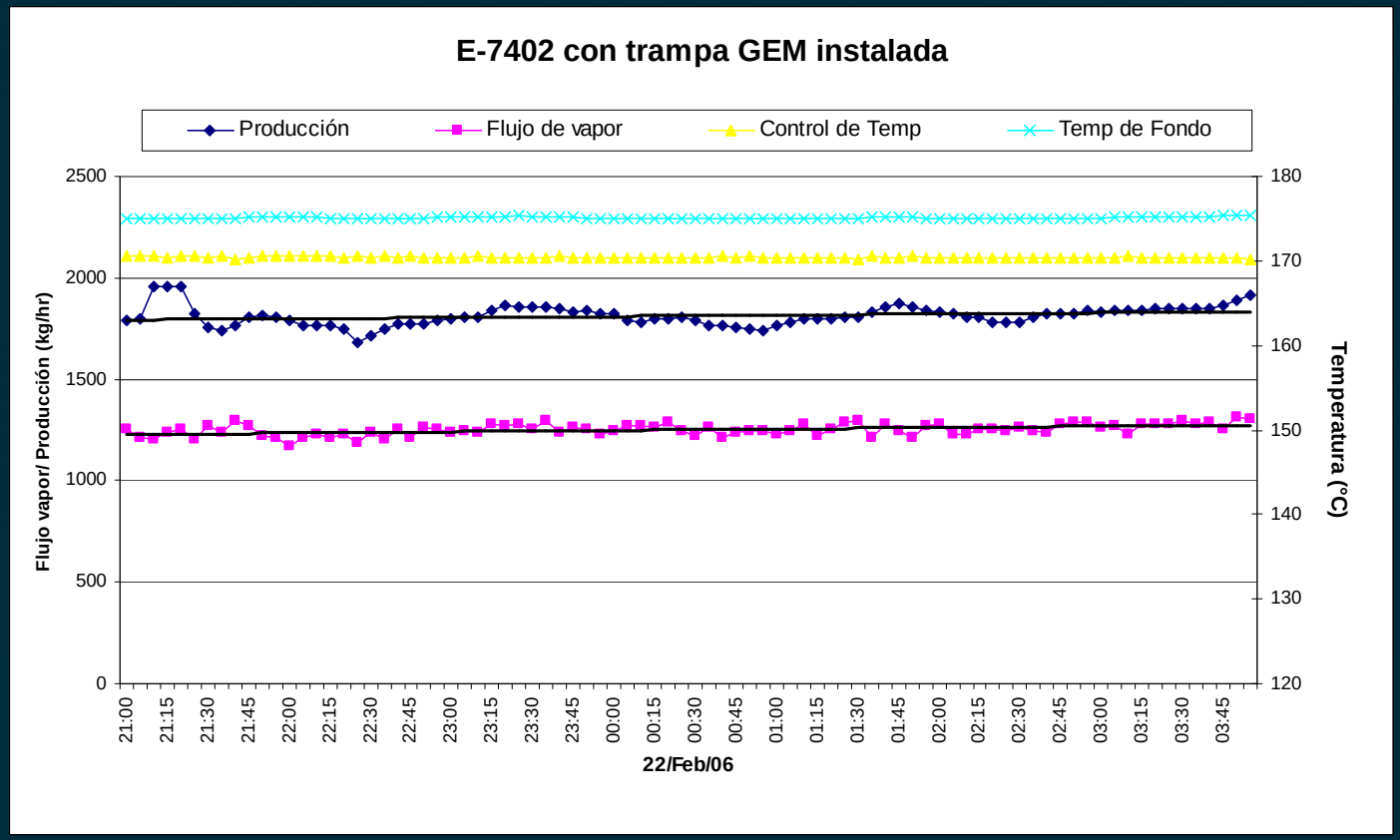
Results – Idesa Aminas Plant data collected after rebuild



Idesa Coatzacoalcos



Idesa Coatzacoalcos



Next Stage

Another project :

Grupo Idesa – Glicoles Plant

Single 4” Ruby to replace existing 4” float trap on 50,000 lb/hr flow

The boss:

The Results

Increase in production - 13%

Increase in relative efficiency – 18%

Annual savings - $800,000US

Approx project cost- £10,000US

Payback – 4 days!

Next stage for Grupo Idesa

Planning to convert all four of the Idesa chemical plants to GEM

Benefits of the GEM System

- Permanent steam savings 10 -30%
- Low maintenance
- Increased heat transfer
- Reduced water hammer
- Improved control
- Ultimate reliability/productivity