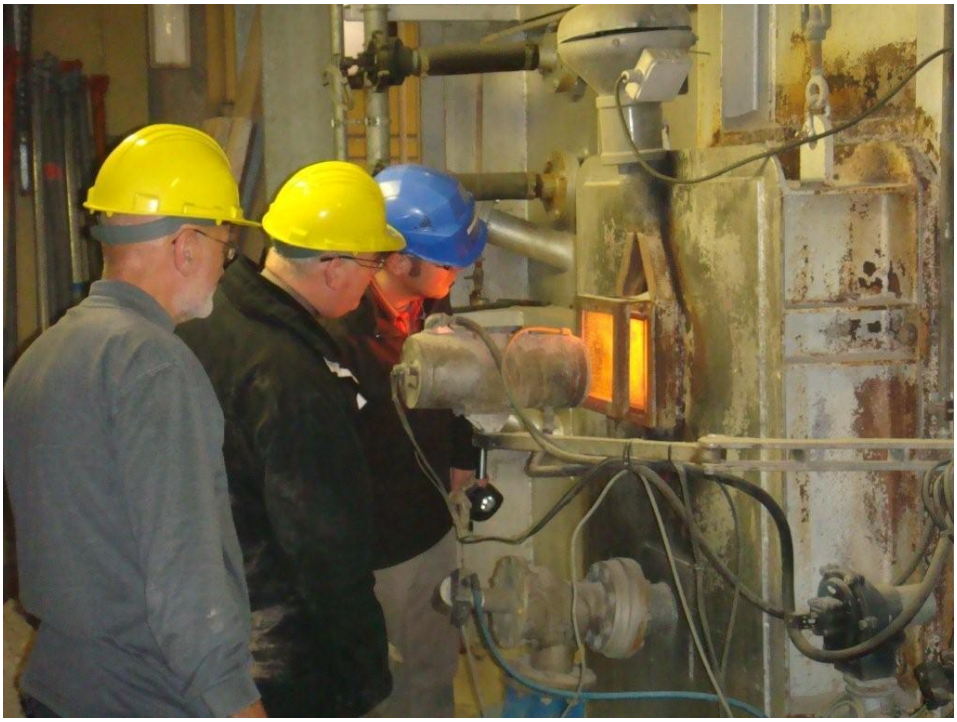
Performance increase in a Waste to Energy plant

Case study: How the IVM optimization project was implemented and the results of it

Introduction

The IVM plant at Eeklo, Belgium, has 2 combustion lines with an annual capacity of 100.000 ton/year. It has been in operation since early 1982. It processes a mix of industrial and household waste from a base of 280.000 inhabitants.



From the IVM WtE Plant in Eeklo, Belgium

Need for improved combustion control

The operation of the plant and the implemented combustion control (from 2001/02) was no longer satisfying and further improvement of equipment seemed not feasible. The plant wanted an operator assistant system which was better than the rigid PID's, which was no black box, which provided understandable rules and how they are used, which had the approval and support of the operators, which could be installed easy and safe on a plant in operation and which had a guaranteed acceptable payback time.

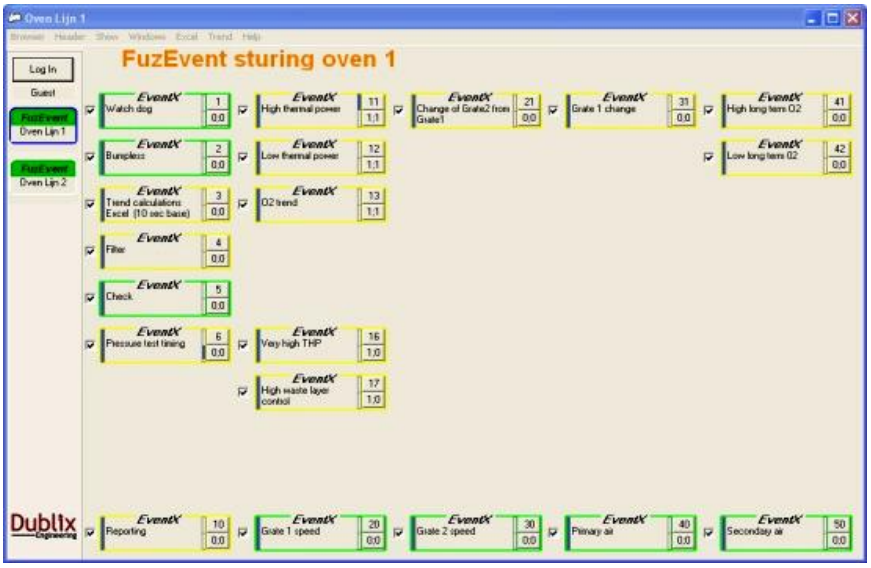
The project

> *It's important to understand that the FuzEvent system is not replacing the operators but assisting them in performing better than average. The system takes advantage of the overview and patience of a machine and eliminates the negative human factors such as being tired, losing focus….*
>
> *Dublix Engineering A/S*

Aug. 2007. The control philosophy with its heuristic and empirical rules is introduced and accepted.

Feb. 2008. Feasibility study in 2 days with a Dublix specialist in the control room, briefing operators, collecting process facts and meeting with IT and SCADA engineers.

May 2008. Implementation of FuzEvent on line 1.



June 2008. Implementation of FuzEvent on line 2.

July 2008. Result evaluation. Thermal power fluctuations (standard deviation) decreased with 47% from 1 to 0.5 MWth. Increase of Thermal Power set point from 17 to 18 MWth. Full bonus to Dublix was agreed.

Oct. 2008. Support and maintenance contract signed.

- *Since FuzEvent installation in 2008 the average annual capacity has increased 5-6000 t (7%) waste*
- *There is full accept from the operators and the system is active more than 99% of the time*

- *The main reason for successful installation is that the system does not require accurate flow measurement on primary and secondary air.*
- *Support burner fuel consumption has decreased 200 t/year*

Production Manager Johan Haegeman