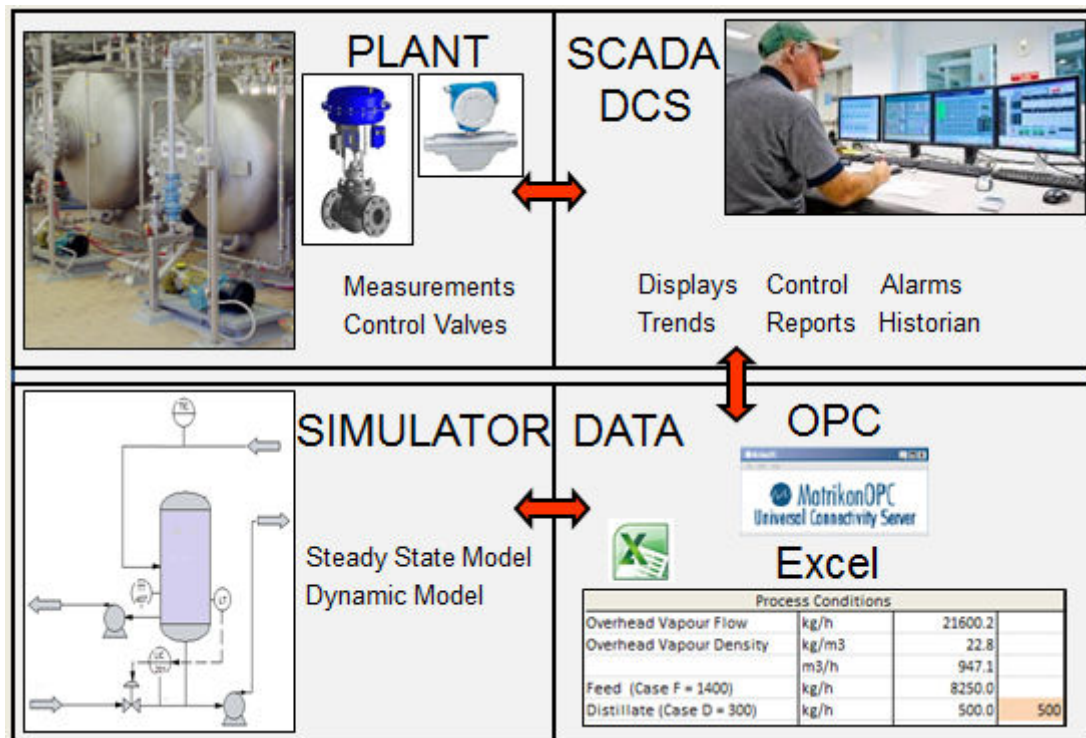


Process Simulators for Risk Assessment and On-line Optimisation

presented by

John E. Edwards, Simulation Consultant at P & I Design Ltd, Teesside, UK

Process simulators are used to primarily predict plant behaviour and performance. If the model of the process is calibrated against actual operating conditions it can be linked, in real time, to the control system using an option of data exchange protocols. This on-line capability can be used for yield and energy optimisation and provides the opportunity to predict unmeasured variables and fluid physical property conditions. On-line simulators can be used for data reconciliation, troubleshooting, equipment condition monitoring, such as heat exchanger fouling, and soft sensor analysis.



Hazard analysis studies frequently identify abnormal operating and equipment fault conditions where it is difficult to predict the consequences. Dynamic simulation provides a powerful tool for analysing "What if scenarios". A case study, using CHEMCAD software, will be presented to demonstrate the technique in which a matrix, of operating conditions and failure modes, is used to stress test the simulation of a process control system.