PROCESSVUE
Alarm Management Without Limits

# Drax Power Station
# Case Study

## ProcessVue improves alarm management and mean-time-to-repair at Drax Power Station

By implementing MAC Solutions' ProcessVue alarm management and printer replacement software at Drax Power Station, Drax engineers now have the ability to easily identify alarm trends and to analyse the causes of any plant upsets, including the sequence of events (SOEs) leading up to a loss of production.

George Eccleston, Lead Control and Instrumentation Engineer at Drax states: “Introducing ProcessVue to the power station has been a gradual process. We have 11 SCADA systems across site. Six of these SCADA systems look after the six steam turbine generators, two are associated with water treatment and common site services, and the remaining three are within our materials handling processes. All of the SCADA systems provide plant operators with real time alarm handling capability. MAC Solutions has supported us every step of the way, adapting and tuning ProcessVue to exactly meet our bespoke requirements.”

George Eccleston works in the Production Department at Drax, which includes a team of control and instrumentation engineers. He adds: “ProcessVue has been absolutely critical in helping us to quickly identify the sequence of events that lead up to a plant upset or loss of production. By adapting ProcessVue to our requirements, MAC Solutions has also helped to de-skill our alarm management processes so that our front-end users can access the information they require quickly and easily. ProcessVue has become indispensable to our operations.”

ProcessVue is a suite of software from MAC Solutions that provides clear, relevant and prioritised information to plant operators, supervisors and managers, enabling them to make better-informed decisions about their processes and plant safety. The software combines the latest communication, data logging and reporting technologies with more than 30 years’ experience in design and implementation of Alarm Management and Printer Replacement software. ProcessVue can be used as a standalone application or to bring together multiple disparate systems onto one common platform.

ProcessVue’s architecture is designed to enable interfacing with almost any control system, bringing all data into a standard configurable format. This allows simple Operator Sequence of Event [SOE] display and high level KPI reporting and analysis.

These disparate systems might include SCADA systems, Distributed Control Systems, emergency shutdown, fire control, buildings management or any system that can output data in an ASCII format. With ProcessVue, all alarm sources are put into a standard, open format so that operators can view the KPIs without the need to write complex code.

**ProcessVue at Drax Power**

Drax Power Station runs on various DCS system linked to eight separate SCADA systems, which handle all process data and more than 70,000 separate alarms. As George Eccleston states: “Prior to implementing ProcessVue, the alarms coming from our SCADA system were very detailed and did not offer a concise message to our process engineers. We therefore wanted software that would better manage the structure of the alarm message by parsing it and then sending the new, reconstructed message out to our SOE web clients.

“It is critical that our IT systems enable us to access process data and alarms quickly and easily. We have literally thousands of events each day that need to be recorded, as well as safety-critical processes that need monitoring and managing in terms of process alarms.

“ProcessVue is one of the key tools enabling root cause analysis of events at the power station, thereby helping us to investigate and report on these events to senior management and other parts of our organisation.”

He continues: “Drax prides itself on maintaining high availability and reliability of the power station. Loss of production time could be costly and we have set ourselves a long term target for managing any reduction in plant availability, excluding planned outages. Knowing that our engineers can rectify any issues that arise as quickly as possible is essential, and since implementing ProcessVue we have significantly improved our mean-time-to-repair critical items of plant and equipment. In addition, we are also benefiting from having complete transparency of information and the fact that our dependency on paper-based systems and reporting has disappeared.”

“If the plant has a trip on a safety-critical system such as the level monitoring of boiler water, this needs to be recorded for audit and reporting purposes. All safety-critical processes at Selby are monitored and recorded using ProcessVue.

“ProcessVue can be interrogated to give all alarm occurrences between, say, 01.00 and 02.00 on that day and then analyse the results. Back in the 1990s, we had around 20 line printers, which ran continuously, churning out alarm reports, which were only ever read if there was a problem. Obviously, reading these types of reports was very time consuming and it was difficult to spot trends or key events in the data, while the technology could also make the whole system unreliable.

“Phase One implementation of Alarm Management at Drax was all about moving towards a paperless system by installing printer replacement software, which we did with MAC Solutions’ help. Phase Two focused on retrieving the data, receiving the alarms and recording this information on a PC-based system. Phase Three was about recognising different types of alarm messages and to sort these into a database using standard Microsoft SQL tools. Then it was about automating these reports and analysing the data.”

MAC Solutions also implemented the ProcessVue Analyser software module at Drax. ProcessVue Analyser is a business intelligence software module, which offers a wide range of high level reporting features, including event reporting, frequency analysis, standing and chattering alarm reporting, operator response times, and customised reporting. The Analyser Web Client enables the presentation of EEMUA alarm-based KPIs through dashboards.

**Software to EEMUA 191 Guidelines**
A properly managed alarm system is now a critical, integral part of any production or process manufacturing facility. Since its establishment in 1991, EEMUA 191 has become the globally accepted standard for good practice alarm management. ProcessVue reporting is based on EEMUA 191 guidelines.

To establish an alarm management system based on these guidelines or to ascertain if a current system is operating effectively and within the guidelines, alarm data must be collected and analysed on a continuous basis. Just collecting this data can be a challenge in itself. Bringing this data into a usable format for control room operators and reporting on this data to Alarm Managers are two critical functions.

Features within ProcessVue include: advanced KPI reporting based on EEMUA 191 guidelines, alarm rationalisation (locating 'bad actors' and 'nuisance alarms'), Sequence of Event and real time display, alarm system benchmarking, alarm and event analysis and alarm and event archiving.

George Eccleston continues: "ProcessVue helps us to identify any nuisance alarms, for example, chattering events, which can then be targeted for rectification or repair, as these can often hide genuine alarms. If the software didn't help to do this, the risk is that key events could be hidden within a nuisance alarm flood or shower. ProcessVue Analyser has enabled us to identify these nuisance alarms, which in turn has reduced alarm load significantly and to shelve those alarms in a practical, logical way."

ProcessVue is also being used by other major UK-based nuclear and energy utility companies. As James Fox, ProcessVue Product Manager at MAC Solutions states: "Companies such as Drax are very keen to improve their alarm management with a view to making more informed decisions about their plant and processes in terms of KPIs and employee health and safety. How a power station manages and reacts to critical process alarms could save plant and even lives and this is where ProcessVue really comes into its own."

# Let’s talk

## We’re here to help


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