



EDF Energy Case Study

ProcessVue helps rationalise process alarms at West Burton B Power Station

By implementing ProcessVue alarm management software from M.A.C. Solutions at its West Burton B gas-fired power station, EDF Energy can now perform accurate process alarm analysis and has taken huge steps in rationalising and reducing alarm loads on operators at the site.



EDF Energy is one of the UK's largest energy companies and a producer of low-carbon electricity. Electricity is produced from its nuclear power stations, wind farms, coal and gas fired power stations and combined heat and power plants.

Based in Nottinghamshire, West Burton B is EDF Energy's only gas-fired power station. The site has three combined cycle gas turbines capable of generating a combined output of 1332MW – sufficient electricity to power around 1.5 million UK homes.

Adrian Bedford, DCS lead at West Burton B power station, is responsible for all plant-level process operations, including Distributed Control Systems, maintenance, engineering and projects. He states: "While the power station was being commissioned, we spent a lot of time looking carefully at each area of the plant and the different process alarms relating to every item of plant equipment. We have thousands of events each day that need recording, as well as safety-critical processes that need monitoring and managing in terms of process alarms. The challenge was that we were averaging well over one million alarms per month, which was difficult to manage."

Alarm Management Best Practice

Since its establishment in 1991, EEMUA 191 has become the globally accepted standard for good practice alarm management. Alarm management software should therefore be 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.

Bedford continues: "As part of an Alarm Improvement Programme we approached M.A.C. Solutions for help, who recommended we implement its ProcessVue Analyser software. This web-based software has helped us to identify bad actors and nuisance alarms and their cause. It has also helped us to understand why we had high alarm loads and what could be done to improve the situation."



ProcessVue Analyser is business intelligence software that offers a wide range of high level reporting features, including frequency analysis, standing and chattering alarm reporting, operator response times and flood analysis. The Analyser Web Client enables the presentation of EEMUA 191 based KPIs through dashboards.

ProcessVue Analyser helps to identify nuisance and chattering alarms, 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,” explains Bedford.

Since implementing ProcessVue Analyser, the software has enabled the site to reduce alarm load significantly. As Bedford states: “When the plant was first being commissioned, we were averaging well over one million alarms per month. A year later, that figure dropped to 350,000 per month. Today, the figure is under 20,000 per month – less than 2 per cent of the original figure.”

M.A.C. Solutions also performed an Alarm System Benchmark/Gap Analysis at West Burton B. Amongst other recommendations, this exercise identified that the site required a dedicated Master Alarm Database that could store and manage the change of process alarm configurations and provide a consistent approach to prioritisation and record the cause, consequence and what the operator should do in the event of any alarm occurring. Over time, this would provide operators with a better understanding and a more complete view of all process alarms, their importance/priority and how to react to each one.

ProcessVue Guardian at West Burton B

West Burton B has since implemented ProcessVue Guardian, which incorporates a Master Alarm Database (MADb), a set of alarm rationalisation tools and comprehensive Management of Change functionality. The software, which is based on SQL with a web-based interface, allows users to create and manage a MADb and to create specific workflows in order to improve team communication and collaboration across a single or multiple plant networks.



The software also provides functionality for producing full audits and change control traceability, as well as full version numbering and 'roll-back' to previous revisions. ProcessVue Guardian can also be used to deploy the new MADb back to plant Distributed Control Systems or other similar control systems.

David Snell, DCS technician at West Burton B comments: "Using Guardian, we can review every single alarm, including its purpose and whether it should even be there at all. Guardian has allowed us to break down the alarm management and rationalisation process into smaller, more manageable subsets or projects, which can then be assigned to individual operators or teams."

Guardian's 'Project' feature allows the user to break down the total number of configured alarms into smaller, more manageable chunks or subsets. For example, thousands of alarms for a plant can be broken down by point type, asset type such as pumps and control valves, and the type of process, or by the individual responsible for that alarm or plant area. This improves workflow and the management of alarms across the plant. Productivity improves, as alarms are dealt with faster and by the appropriate individual. If a change is made to an alarm, this is documented, including why the change has been made, who made it and offers the chance for other members to approve or reject the change, which provides full traceability.

"We now hold weekly Plant Area Review meetings, where we discuss the alarms each team is responsible for, whether they are actually alarms or events, and check on their project progress. Guardian has a feature called a 'Progress Bar' where the users can instantly check their own progress on a project and compare this with other teams. It has become a real motivator for them," adds David Snell.



The aim at West Burton B is to completely populate Guardian with all process alarm data, which can then be downloaded to the DCS, giving operators a complete picture of every single alarm at the site, along with a description of that alarm, a purpose, a consequence (if it is missed), and a corresponding action/operation.

As Adrian Bedford concludes: “ProcessVue Analyser and Guardian have become indispensable to our operations. The software is now fully integrated into our business operations. It is critical that we are able to access process data and alarms quickly and easily. ProcessVue enables us to do this and has been a key tool in enabling us to meet the EEMUA 191 standards and to share alarm and event information with senior management and other parts of our organisation.”



Let's talk

We're here to help

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