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AVR

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AVR Waste Incineration Plant

optimizes its Process with Proficy™ Software

At its Rozenburg and Duiven sites in the Netherlands, AVR incinerates most of the separated combustible domestic waste from areas across the different regions of the country. It is also involved in commercial waste services (from chemical plants, oil sludge, drug processing, pesticide residues, etc.) at Rozenburg.

"Proficy offered storage capabilities for rapid handling of high volumes of data, web access and powerful statistical analyses."

Andre IJdo, Technical Coordinator, AVR, Netherlands

Facing the demands of commercialization, the increasing stringency of government regulations on emissions, and the prospect of its commercial software losing support from the supplier, the company chose open software from GE Intelligent Platforms Proficy suite to meet its requirements. Novotek, the local distributor for GE, took the lead in supporting AVR throughout all stages of the project. AVR solves the waste and environmental problems of industrial companies, publicsector bodies, businesses and the public in the Netherlands. AVR comprises over 50 companies with around 44 sites in the Netherlands, Belgium and Ireland. Management and automation engineers from the commercial and industrial incineration plants at Rozenburg and Duiven carried out a very detailed investigation into who could best support its needs by supplying an all-round solution for the two plants. Following initial contact with 5 potential suppliers near the end of 2004, the feasibility group unanimously chose to follow the route proposed by Novotek.

THE NEED FOR CHANGE

In its domestic waste operations, AVR carries out the full cycle of collection, separation and recycling, incineration and production of electrical energy and demineralised water. In 1994, the plant started a basic data capture process using PLCs. In 1996-97 they introduced a commercial software package that captured more data which could then be processed in Excel. Shift reports could be produced but figures were simply based on average or hourly values, and graphics were very limited. As Andre IJdo, then Head of Process Automation, commented, "It is precisely the peaks and exceptions – rather than the averages

– that a process engineer needs."

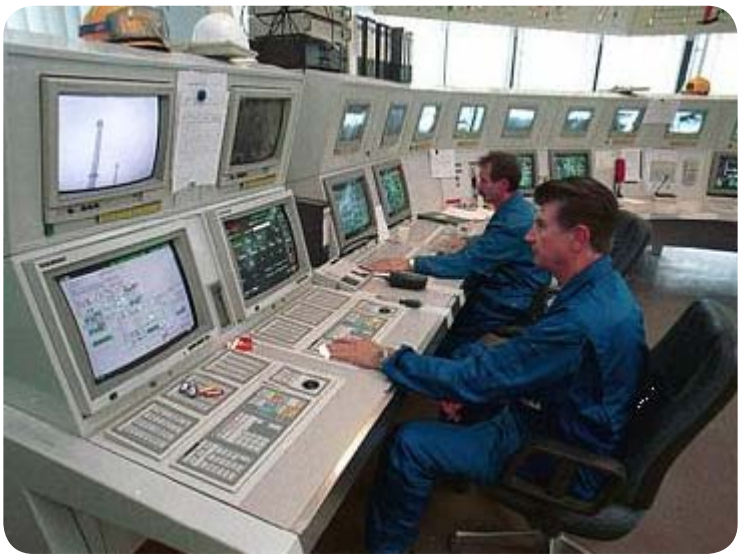
Faced as well with the prospect of the commercial software losing support, in 2004 the process automation group began to look at upgrading their systems. First, they defined in outline terms the functions they wanted from a new automation system. This highlighted the need for the software to have a sophisticated arithmetic and statistical capability and for authorized users to have web access to real time data. Eventually, the selection team unanimously chose the GE Intelligent Platforms Proficy solution recommended by Novotek. Domestic Waste Processing at Rozenburg Domestic collection vehicles enter the site via a weighbridge, empty their load, and are weighed again before leaving the site. The plant handles around 2 million tons of waste per year. Waste from the bunkers is fed to 7 incinerators. The automation system controls the pumping of hot air into the incinerators, and maintains them at high temperatures between 1100 °C and 1400 °C, to ensure combustion without the need for extra fuel input. The waste gradually moves down an inclined plane passing over 7 rotating cylinders. Every ton of waste produces only around half a cup of ash, which is removed for further processing. One of the major problems that affect the efficiency of the incineration process is the inconsistent composition of the waste material. So, if too much or too little heat is generated, operators need to be able to react in a way that optimizes the steam generation process and minimizes the waste emissions.

ELECTRICITY GENERATION

The superheated steam drives 3 turbines, with a fourth on standby for peak periods. The turbines drive generators capable of producing up to between 28 MW and 57 MW. Around 30MW of this power is used internally on the site. The excess, generally around 90-100 MW, is exported to the local grid. IJdo explained the economics:

"Now that we are under pressure to maximize the income from our plants, an in-depth understanding and control of the incineration process becomes even more important. We can earn more from the electricity company if we can guarantee to export a consistent level of power, within a narrow bandwidth, for a given time period.

"This is what the GE Intelligent Platforms software is now enabling us to do. The interaction between the material throughput, the steam generated and the emissions produced, forms a very complex model. By looking back at the database created by Proficy Historian and using the detailed analyses made possible by Proficy Plant Applications, we can understand how to control parameters to maintain a steady generation



of electrical energy. On top of that, we can understand how to produce our electricity at times of peak demand. The software also means that shift, daily, weekly, monthly and quarterly reports can easily be produced, also giving operators and process engineers a much clearer picture of how their actions affect the process."

WEB ACCESSIBLE INFORMATION

Real-Time Information Portal offers advanced analysis, reporting and visualization capabilities. The process engineers now have access to a vast pool of data, all of which is available plant-wide. For example, incineration can be fired at the right time to maximize income from exported electrical energy. Key Performance Indicators (KPIs) containing a mixture of real time graphics, tables and other changing values are accessible to key management. Each user can develop the visualization of the process to meet his own requirements. This capability provides an opportunity for further development at AVR. The Web capability of Proficy Real-Time Information Portal also enables automated ordering of materials and parts. By automatically checking the stock ofmaterials, such as the active coal used in the flue gas filtering process, the software can generate an order in advance of need and issue it via the Internet.

STRINGENT EMISSION TARGETS

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Andre IJdo
Technical Coordinator

"Proficy offered everything we wanted in terms of sophisticated processing of real-time data, storage capabilities for rapid handling of high volumes of data, web access and powerful statistical analyses."

SUMMARY

COMPANY

AVR, The Netherlands

SOLUTIONS

Production Management

- Process monitoring
- Process optimization

PRODUCTS

- Proficy Historian™
- Proficy Portal™
- Proficy Plant Applications™

BENEFITS

- Energy savings
- Preventive maintenance
- Comply regulatory targets
- Central base for reporting

For more information on our smart solutions, please visit our website www.novotek.com