



Nalco Water 3D TRASAR™ Technology for Membranes and Essential Expertise Protect Assets and Assure Production at a Pharmaceutical Plant in Northern Europe

NALCO Water
An Ecolab Company

CASE STUDY - PHARMA

CH-1514E

INTRODUCTION

A major multinational biotechnology company operates a large number of production facilities around the world, manufacturing a range of diagnostic and other healthcare products. The company has been in existence for over 50 years, and now operates in over 160 countries. The company makes a very strong commitment to Corporate Social Responsibility (CSR), including strict adherence to its environmental goals at every manufacturing site. The company ensures that all manufacturing operations are accredited to the Environmental Management Systems standard ISO 14001, and has specific programmes in place to reduce the consumption of natural resources, and the creation of waste. In addition to these ongoing sustainability commitments, legislation is putting increasing pressure on all manufacturing companies. Commercial pressures are ever-present and continue to drive reductions in cost.

BACKGROUND

The company operates a major production plant in northern Europe. Management at the plant are very focused on staff safety, minimisation of resource use, and overall production cost-efficiency. To assure this, the company expects the best on-site expertise from its supplier partners, innovation in new technologies, and improved sustainability performance through better water, energy, and waste management. In particular, management were looking for new ways to better operate a relatively new small cooling water system on site. Although small, the continuous availability and high efficiency of the system were essential to the production operation.

CURRENT SITUATION

The original cooling water system used softened-water makeup from a softening plant on site. The new cooling system was constructed from galvanised metallurgy, and as part of the warranty from the manufacturer, the pH of the system had to be kept below 8 at all times to prevent

corrosion. The control of pH proved challenging because of the relatively high pH of the incoming softened water. A proposal from a local company included the addition of acid to the system to reduce pH. In reviewing the safety performance at the site, the customer wanted to avoid the use of acid if at all possible.

WHAT WERE THE CUSTOMER'S GOALS?

Key Performance Indicators (KPIs) for the customer included:

- Maintain staff safety levels by avoiding acid use in the cooling system
- Ensure warranty conditions for the system are met with a pH <8
- Consistent asset reliability and availability
- Early adoption of new innovations
- Increased automation and monitoring
- On-site support and proactivity
- Outstanding supplier performance

Nalco Water was asked by the customer to identify any new opportunities to achieve the stated KPIs that might now be available with the recent advent of new and advanced treatment and application technologies, but which would not include acid dosing.

ACTION PLAN

Specialist staff from Nalco Water reviewed all aspects of plant operation, to identify areas for improvement which would positively impact upon the customer's stated KPIs. To ensure that the terms of the warranty could be met, acid use avoided, and accurate and continuous performance monitoring put in place, Nalco Water recommended the installation of a new Reverse Osmosis (RO) plant to replace the softener, use of the new Nalco Water 3D TRASAR Technology for Membranes, and the 24/7 monitoring capability of the System Assurance Center. This would change the quality of the incoming water such that a pH <8 could be maintained, assuring protection from corrosion, but without the need for acid dosing.

This preventative maintenance package would provide the level of automated monitoring and control of key parameters, improvements in safety, and protection of the systems on site desired by the customer.

3D TRASAR TECHNOLOGY

3D TRASAR Technology management programmes deliver on-demand control and optimisation of water chemistry, continuously protecting membranes from scaling, fouling, and degradation.



3D TRASAR control system

- Asset protection avoids premature and costly replacement of non-renewable materials.
- Scale and fouling control maximises energy efficiency and minimises CO₂ emissions and their global warming impact.
- Precise control of antiscalant assures optimum consumption: no overfeeding or underfeeding.
- Better water resource management minimises the demand for costly renewable resources, and safeguards public water supplies.

3D TRASAR Technology is used by thousands of corporations around the world to:

- Secure improvements in their environmental and economic performance
- Optimise system efficiency
- Help them to meet their sustainability goals, specifically in the areas of water and energy use reduction.

3D TRASAR technology control systems take account of the inherent variability in system water conditions, protecting membranes from scale and fouling by prediction of problems, and intervening before they occur. The programme controls system chemistry, dosing on-demand, and minimising the amount of materials added to the system, minimising costs without prejudicing system integrity.

System Assurance Center: True 24/7 Protection for customer systems

Nalco Water programmes are focused upon improving the sustainability performance of customer systems, whether through reduced consumption of natural water and energy resources, or reduction in waste and emissions. The System Assurance Center from Nalco Water delivers constant monitoring of systems to support resource management strategies and helps to protect the environment.

Systems Reliability

The System Assurance Center continuously detects and monitors system parameters to ensure that everything is working as it should, and that any unexpected changes are analysed and corrective action recommended. This helps to maintain system integrity and efficiency, production and productivity, and also helps customers to better manage assets, resources and costs.

Management of Risk

The System Assurance Center gives an immediate response to changes in system parameters, issuing alarms where necessary which deliver faster identification of problems, their causes, and the corrective action needed to deal with them.

This gives the peace of mind that comes with knowing that a team of Nalco Water Experts is monitoring water systems 24 hours a day, 7 days a week, 365 days a year. The System Assurance Center is the perfect complement to 3D TRASAR technology water management systems: only Nalco Water ensures the highest level of expertise is always there to monitor and defend its customers' systems.

System Assurance Center

The System Assurance Center operates around the clock to ensure someone is always watching over customer systems and responding to any alarms, even on nights, weekends and holidays. The System Assurance Center will conduct comprehensive checkups to ensure systems are operating in accordance with Nalco Water best practices. Systems are constantly monitored and recommendations are provided for fine-tuning. Immediate alarm response leads to faster problem identification and improved system operations.

Saving water and energy, while making efficient use of chemistry is taken to the next level with The System Assurance Center. Highly trained experts review each system and make recommendations to further optimise the level of control. The System Assurance Center will routinely make recommendations for operational improvements and will also take immediate action on alarms. All Expert Centre professionals hold degrees in chemistry or chemical engineering and have real world experience in water treatment. Eighty years of water treatment expertise drives a comprehensive, on-going training programme, delivering a team of highly trained specialists.

Communications

The System Assurance Center reports provide direct access to system information, on demand. Whether for system conditions today, yesterday or three months ago, reports can be customised to meet specific needs, including where and when they are delivered.

Immediate Alarm Response

Around the clock, the System Assurance Center is on-call to troubleshoot alarms and provide an immediate response. Alarm notifications can be directed to the Nalco Water Salesperson, customer, or both, and offers the flexibility to be sent via e-mail or text message. Alarm notifications include helpful graphs and recommendations to resolve the alarm.

System Assurance Center

The recommendations were accepted by the customer. From the start, system parameters were carefully monitored to identify baseline conditions and current system performance.

RESULTS

Using the new Nalco Water technology, critical parameters on the Reverse Osmosis system, such as the pressure profile, flow profile, and ΔP profile, could be monitored continuously through the System Assurance Center. During continuous online monitoring with the the System Assurance Center, any specific deviations such as salt passage increase, ΔP profile, variation in the ORP, and variation in permeate conductivity, could be immediately communicated to the customer in time so as to allow timely and appropriate corrective action to be taken. The pH of water fed to the cooling system has been consistently maintained at <8 , fulfilling warranty conditions, and allowing the use of acid to be avoided.

CONCLUSION

As a result of the installation of a new Reverse Osmosis plant, the use of the new Nalco Water technology to optimise the performance of the system, the use of the System Assurance Center, together with the 3D TRASAR Technology in place in the cooling system, the overall reliability of the system has been assured. The combination of the Nalco Water problem-solving approach, on-site expertise, and the application of new innovative technology, delivered improvements in performance and production continuity. The customer was now able to monitor and improve the reliability of key strategic assets whilst optimising water use and reducing costs.

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