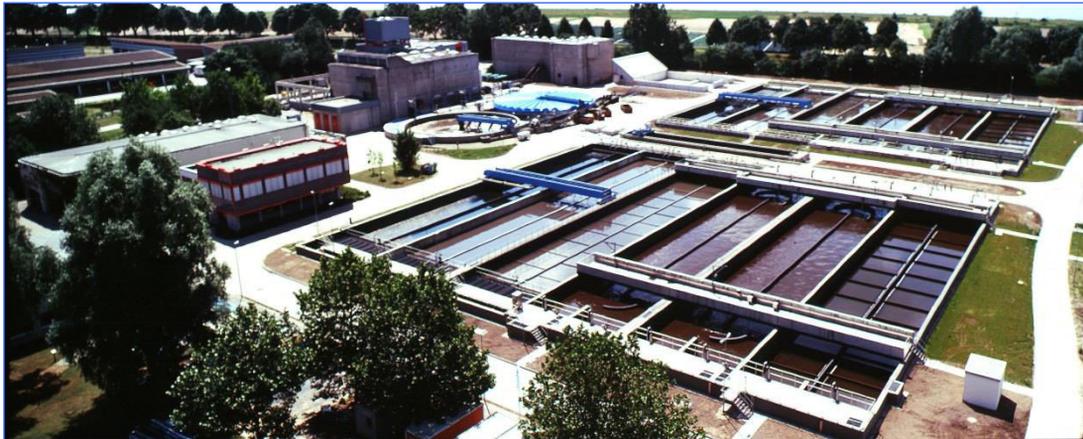


Case Study

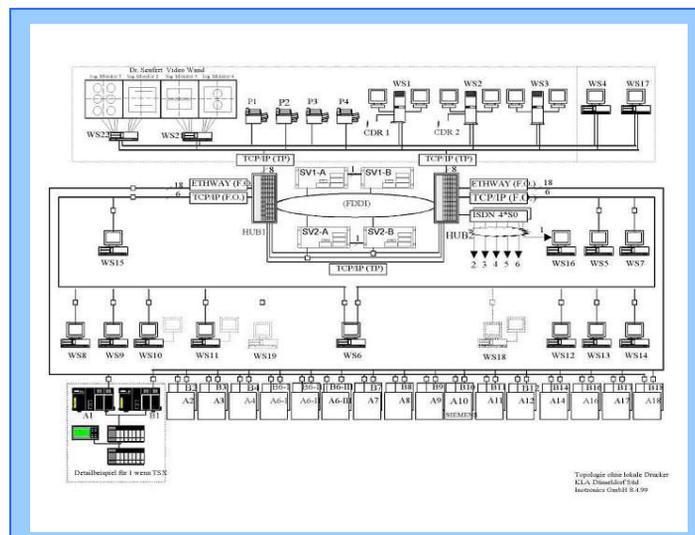
Düsseldorf South Water Treatment Facility, Germany

Filtering contaminants from recycled water

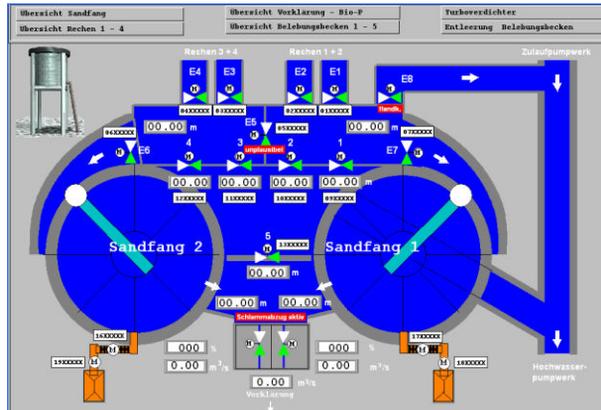


Over the years Germany has become increasingly environmentally conscious. Its anti-pollution policies succeeded into making them one of the cleanest industrial countries in Europe. One law, the Abwasser Technische Verordnung (ATM M-260) Wastewater standard, ruled that the hazardous phosphorous and nitrous compounds and other industrial pollutants be removed from wastewater before recycling.

In 1994 following the legislation, the Düsseldorf South Water Treatment Facility originally built in 1975, began 116M€ renovations.



The first stage of the recycling process combines wastewater with naturally occurring active micro-organisms, so that organic parts of the debris are consumed by the bacteria. The wastewater's nitrogen content undergoes processes that reduce the nitrates and nitrites into nitrogen gas. Since the wastewater's temperature and pH level affect the distribution of ammonia and ammonia ions they are continually monitored. Water must always be a specific temperature, regardless of the season.



Nitrification and denitrification processes are performed simultaneously.

Wastewater swirls through five 23,200 m³ flat, open-air tanks, where each tank is divided into four narrow channels, so that compressed air is blown into the bottom to supply oxygen.

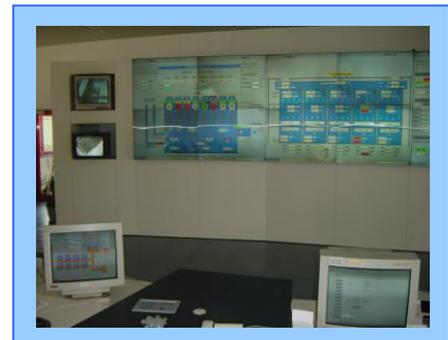
Four large turbines supply compressed air.

Architecture

- ☐ 18 redundant pairs of Schneider Telemecanique PLCs operate in a redundancy network. All controllers have backup PLCs and are all linked to the Control Room by fiber optic cable
- ☐ 20 Operator Workstations are connected to two sets of Pulse Redundant servers. Half the workstations are in the Control Room the others scattered around the facility
- ☐ Two workstations using the built-in Pulse SCADA Solution Multi-Screen Support feature project large images onto the wall of the Control Room, enabling one operator to monitor ten different screens
- ☐ A redundant 100 MHz Ethernet TCP/IP communication network connects all stations to the data servers

The Pulse SCADA Solution is responsible for the following processes:

- ☐ Monitoring all recycling processes
- ☐ Historical data collection into an SQL data server
- ☐ Internet access to the project for authorized users
- ☐ Recipe management
- ☐ Report generation for maintenance information on equipment start/stop and working hours
- ☐ Dynamic interface
- ☐ Historical Trends



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Publications about the project can be found at:

<http://www.manufacturing.net/ctl/article/CA188020>

<http://www.manufacturing.net/ctl/article/CA191092>