

YP Application Note

Groundwater treatment through ultrafiltration

Project

The groundwater treatment in the community of Vaassen is a combination of groundwater draw off wells, the complete purification and infiltration of the clean water back in the ground. All wells are controlled via Profibus® by a PLC that is placed underground in the residential area. This PLC is connected through glass fibre with the PLC at the water treatment plant about 1 km outside the community. A PC with the CARS telemetrical SCADA software is placed at this plant where all set points and process variables can be monitored and changed.

This project shows the versatility of YP Telemetrie bv as they took care of CARS and programmed all PLC's with sophisticated process control and communication through Profibus® and glass fibre cables as well.

Location

Groundwater treatment plant, Vaassen (NL)

The plant purifies groundwater from the community of Vaassen that is situated in the middle of the Netherlands.

Some figures:

- Groundwater : 30 m³/hour
- Residential area: ± 1 km²
- Distance to water treatment plant: ± 1 km

Features

Glass fibre
A glass fibre cable makes it possible to connect the underground PLC to the water treatment plant. This economical solution makes it possible to keep all connections to the wells within the residential area.

YP Telemetrie bv designed the software in the PLC to enable communication with the 25 wells via Profibus® and with the water treatment plant via glass fibre.



Partners

Verhoeve milieu

The project was realized in co-operation with Verhoeve milieu. They were responsible for the whole water treatment plant project and delegated the complete control to YP Telemetrie bv.

Good teamwork between YP Telemetrie bv and Verhoeve milieu made an optimal integration of water treatment process and control software possible.



Features

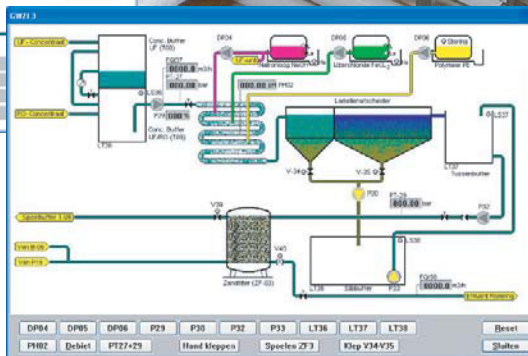
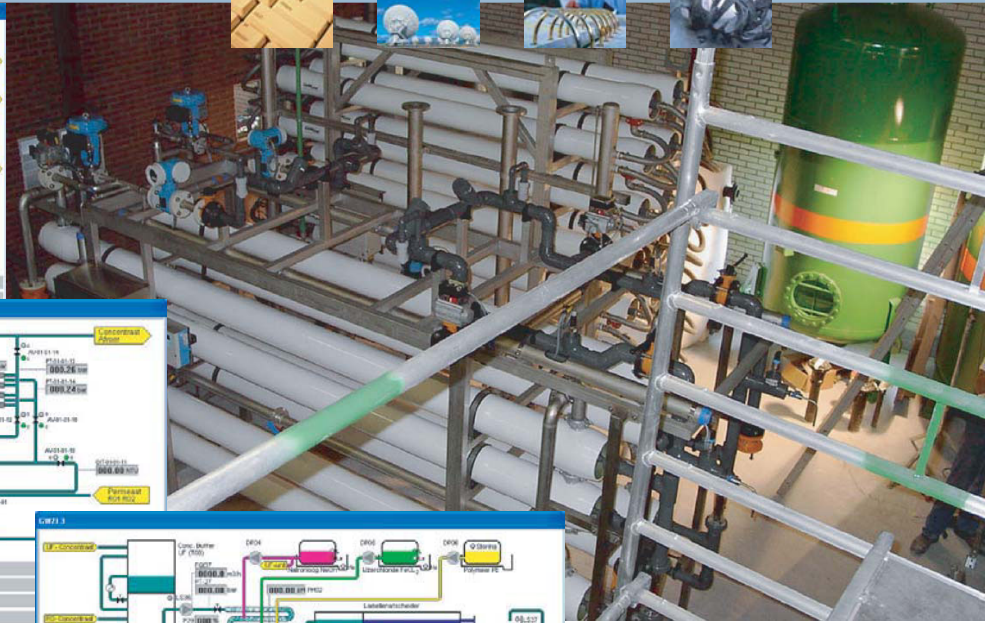
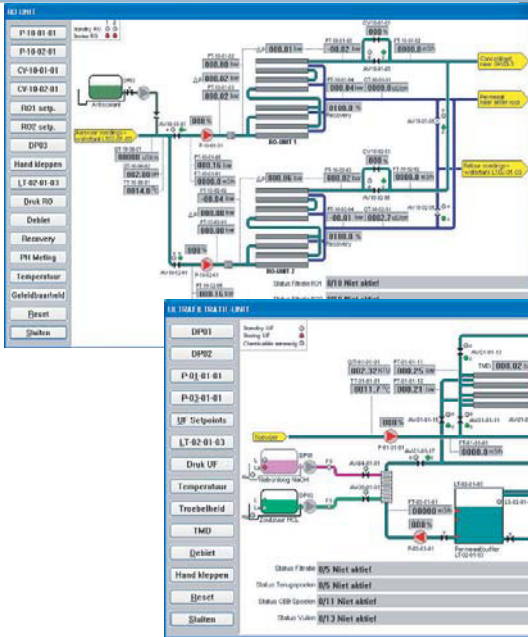
Profibus®

A Profibus® network makes it possible to connect all different groundwater draw off and infiltration wells to one PLC placed underground.

Each well is equipped with a small control cabinet that contains the necessary Profibus® equipment with analogue in- and outputs and a frequency inverter.

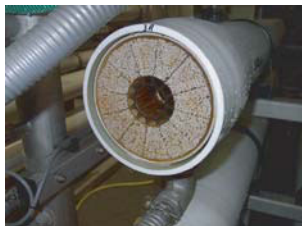
Pump speed settings and measurements of flow are fully adjustable and can be sent from the water treatment plant to each well via Profibus®.

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Purification with Norit

Purification is realized with the use of Ultrafiltration and Reverse Osmosis technologies of Norit.



Measurement values of turbidity, pH, conductivity and pressure are connected to the controller and these values are used for several PID-controllers in the PLC. This makes it possible to use the necessary chemicals in an economical way and guarantees optimal purification. All settings, levels and measurements are accessible with the CARS Main station software.

Summary

Project Features

- Complete Hitachi PLC programming with DENOTE® for Windows
- Communication through Profibus®
- Communication through glass fibre
- Complete process control with use of Norit Ultrafiltration and Reverse Osmosis techniques
- CARS Main station SCADA software

This project shows that YP Telemetrie bv is not only your partner with CARS telementrical software. They also have the qualities to engineer, program and put complete groundwater treatment process in operation.

DENOTE® for Windows

The Hitachi PLC in the residential area underground, and the Hitachi PLC at the water treatment plant are programmed in the programming language DENOTE®.

DENOTE® is an universal Structured Text language that complies with IEC1131-3 and can be used for different brands of PLC. This Structured Text language reduced the time that was needed to put the installation in operation, and makes the program easy to understand now.

