Reference project Nidderau sewage treatment plant

MITSUBISHI ELECTRIC Group

ME-Automation Projects GmbH

Customer:	Stadtwerke Nidderau
Plant:	Nidderau-Windecken sewage plant
Population equivalents:	27 000
Project value:	~ 0.2 million Euro
Project duration:	2003

Description

After an expansion, the Nidderau-Windecken sewage plant has a capacity of 27 000 population equivalents. Wastewater enters the plant via a pumping station with step screen, flows through an aerated sand and grease trap, passes through the biological treatment stage with 2-line activated sludge cascade reactor, and finally reaches two settling tanks. Secondary sludge is thickened in a centrifuge, whilst primary sludge is passed to a pre-thickener.

The methane gas generated in the digester is used to operate the combined heat & power plant. Sewage sludge is treated for the third time in a thickener, and is then passed through a decanting stage before being disposed of. As all plant components are enclosed in housings, a venting system fitted with a biofilter of heather permits practically odourless operation.

In order to ensure economical operation, the plant was equipped with a modern process management system. During assessment of the process management system, data consistency, distributed architecture, and high availability were decisive factors.

ME-Automation Projects, formerly known as KH-Automation Projects, received an order to supply the process management system PMSX®pro. Because the automation level had already been fitted with Simatic S7 PLCs, the new process management system had to be coupled to the existing S7 sequence controllers.

After a period of only six weeks, the sewage plant could be operated and monitored from the central control room. Hereby, the tight schedule was met, and the required functionality was achieved to the customer's full satisfaction. Conversion of the plant was carried out without interrupting normal operation, so that the plant can now be operated either from the central control room or from any of the distributed operating stations.

Hereby, plant personnel is assisted by the comprehensive operating and Help functions of the PMSX®pro process management system. Moreover, plant-wide system programming and configuration is possible from a central engineering workstation.

Technical requirements

Process management and sequence control of entire plant from a central location

Process management of entire plant from a central point

Operation and monitoring of entire plant from distributed operator stations

Operation and monitoring of entire plant by means of mobile operator stations

Integration of existing and fully programmed Siemens S7 automation stations

Data coupling with office network

The PMSX® pro process management system was integrated during normal plant operation, and without retroactive effects

System-wide engineering from a central engineering workplace

Archiving of all relevant measurement values in appropriate compression stages

Availability of all process values for further processing

Transfer of process data to a plant operating log

Mobile workstation for remote access by standby personnel

Scope of delivery

- Process management system PMSX® pro
- Network using switch technology
- Installation & wiring
- Target specifications
- Engineering
- Commissioning
- Trial operation
- Documentation
- Personnel training

Process management characteristics

Process management system	PMSX® pro
Topology	distributed system
Network	optic fiber Ethernet TCP/IP
Automation system	Siemens S7
Data points	about 2 000
Automation stations	4
Operating stations	5
Process servers	1

Excerpt from our reference list

Waste incineration plant Frankfurt

Waste incineration plant Iserlohn

Waste incineration plant Weißenhorn

Wastewater treatment plant Erdinger Moos

Wastewater treatment plant Bad Homburg Ober-Eschbach

Milk production Regensburg

Energy supply center Dresden

Energy supply center Oberhausen

Pellet production plant Offenbach

Biomass CHP plant Wiesbaden

Energy supply center Munich Airport

Waste incineration plant Frankfurt

Drinking water plant Haltern

Sewage network and wastewater treatment plant Hamburg

Pellet production plant Dotternhausen

Wastewater treatment plant Düsseldorf-Nord

Waste incineration plant Frankfurt

Waste incineration plant Hamm

Waste incineration plant Frankfurt

Facility Management Control System Dresden

Facility Management Control System Nijmegen

Tank terminals Rotterdam

Barthel Pauls Söhne AG Biomass CHP plant

Wastewater treatment plant Stuttgart-Mühlhausen

Wastewater treatment plant Nuremberg

Wastewater treatment plant Nidderau

Wastewater treatment plant Landshut

Drinking water plant Friesland

Tank terminal Botlek

Sewage network Wuppertal

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