

DEVELOPMENT OF AN INTEGRATED RTC SYSTEM FOR FULL-SCALE IMPLEMENTATION

Assignment

In order to meet the targets of the European Water Framework Directive (EU, 2000), operation optimization is needed for the total waste water treatment system.

Therefore, the objective of this DBU research project is the development of one important step to an integrated control system.

By controlling the WWTP inflow, all capacities within the system can be efficiently used and combined sewer overflows (CSO) can be reduced.

A prerequisite for an integrated control of sewer and wastewater treatment plant (WWTP) is a capacity driven inflow control to WWTP. This requires reliable information about the current status of WWTP operation and its behaviour on varying hydraulic, COD and nutrient loads. So far most of the proposed control strategies are based on hypothetical modelling studies.

During this research project measuring/disturbance and control variables are determined to control the WWTP inflow. The measurements need to be reliable

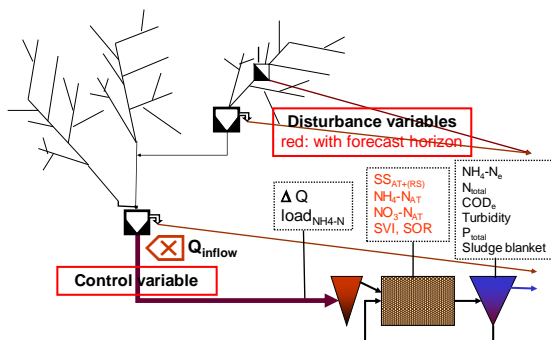
input data to predict the hydraulic situation in the sewer system and on the plant during heavy rain events. In the second project phase control concepts are implemented and tested on the WWTP of Chemnitz. Cooperation partner of the project is the Institute for urban water management at the Technical University of Dresden.



Aerial picture of the WWTP Chemnitz (source: google)

Scope

- Data evaluation of 3 WWTP: identification of appropriate and reliable parameters for the control system
- Preliminary draft of the control system
- Determining correlations between inflow measurements and the suitability of reliable forecast for predicting the process behaviour
- Full scale implementation on the WWTP Chemnitz and monitoring after



Integrated fuzzy based Control Concept, WWTP Chemnitz

Short description

Client German Federal Environmental Foundation (DBU)

Project period 2004/05 & 2007/08

Fee 260 000 €

Characteristics

Integrated simulation with HYSTEM-EXTRAN and Simba/ASM (WWTP)

Design of a control system: WWTP inflow depending on measurements on the plant

Full scale implementation of the integrated control on the WWTP Chemnitz

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