Conceptual design modeling framework

Executive summary

Introduction

The objective of TECHNEAU Work Package 5.4 "Development of a water treatment plant simulator" is to produce a European platform for modelling of drinking water treatment processes. This document - the third deliverable of the project - describes the conceptual design of the modelling platform and an overview of the selected treatment processes and determinands.

Importance

With the treatment plant simulator the user shall be able to trace the fate of pollutants through the system and visualise waste streams. Models describing individual or joint unit processes will be implemented within the framework linking input and output with respect to pertinent process variables. In order to be able to link different treatment processes to each other and to facilitate representation, it is necessary to design a framework for the simulator. The state-of-the-art of existing water treatment simulators was reviewed in the first deliverable (D5.4.1) of this project. The review concluded that OTTER, developed by WRc, Stimela, developed by TU-Delft/DHV and Metrex, developed by the University of Duisburg/IWW were the most appropriate existing platforms to act as a foundation for future development and integration. The second deliverable (D5.4.2) described and discussed the methodology for integration. It was concluded that a prototype of the software would be developed, with WRc taking the lead in the development and technical descriptions of the software, and TU-Delft working on the technical descriptions of models to be incorporated in the prototype.

Approach

The approach of the present deliverable is that first the development approach of the framework is described. Then a description of the different components of the simulator is given and an inventory of relevant determinands and processes is made. Finally, the modeling approach is identified.

Result

The outcome of the deliverable is the proposed lay-out of the treatment plant simulator with representation of input and output and the way of simulation.

More information

The overview and results can be found in deliverable 5.4.3.

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