



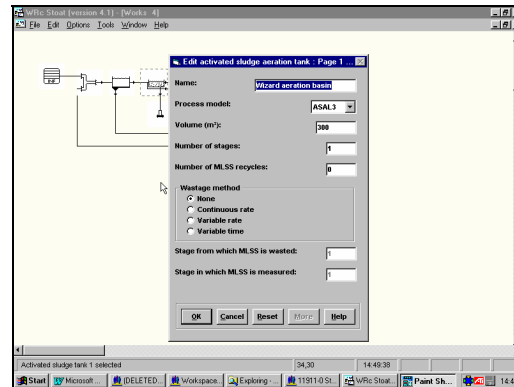
# STOAT – The first choice for wastewater modelling

## STOAT includes models for:

- Storm tanks
- Primary tanks
- Wet wells
- Equalisation tanks
- Activated sludge – including oxidation ditch and N- and P-removal systems
- Sequencing batch reactors
- Compartmented SBRs
- Tower activated sludge systems, e.g. Deep shaft
- Activated sludge settling tanks
- Trickling filters
- Trickling filter settling tanks
- BAFs
- Biological fluidised beds
- RB's
- Submerged biological contactors
- Disinfection
- Chemically assisted sedimentation
- Dissolved air flotation
- Chemical phosphorus removal
- Mesophilic anaerobic sludge digestion
- Thermophilic aerobic sludge digestion
- Sludge incineration
- Direct and indirect sludge drying
- Heat exchangers
- Sludge dewatering
- PID controllers
- Ladder logic controllers
- Instrumentation
- Detention tanks
- Combined sewer overflow
- "Black box" correlation based models
- Sensitivity analysis
- Calibration routines
- Optimisation routines
- Support for user-written models

STOAT has been developed over the past 10 years to simulate treatment processes within wastewater treatment plants. During its development, each process model was validated against performance data from sewage treatment plants. Extensive modelling work has subsequently been undertaken to confirm the validity of individual process models.

The Windows interface allows users to quickly build a plant model and enter the data using simple dialogue boxes. Results can be shown while a simulation is taking place and are stored as data files for subsequent analysis.



A number of typical case studies are summarised below:

### Process Modelling as an Aid to Process Selection

STOAT was used to compare the performance of high rate activated sludge and sequencing batch reactors for the extension of a works which serves 1 million population equivalent, where space is limited. Comparisons were made on the basis of effluent quality, sludge production, effect of increased loads and overall capital and operating costs.

### Optimisation of Works Operation

An operator of a large (1 million pe) treatment works wanted to establish whether an oxygenated activated sludge plant could use air rather than oxygen. STOAT modelling indicated that this was possible, which led to substantial operating cost savings.

### Determination of the Amount of Spare Capacity of a Works

The operation of two linked plants was modelled, and the processes optimised to allow an increase in the amount of tankered waste accepted. As a result, effluent quality has improved, and the client has been able to increase profits by accepting more tankered wastes.

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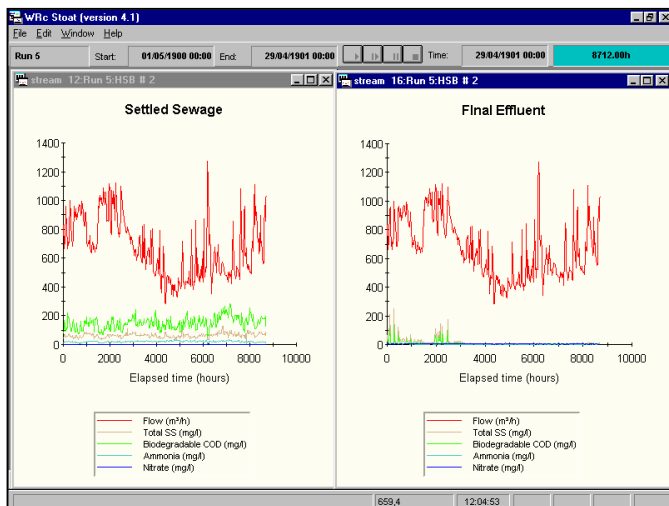
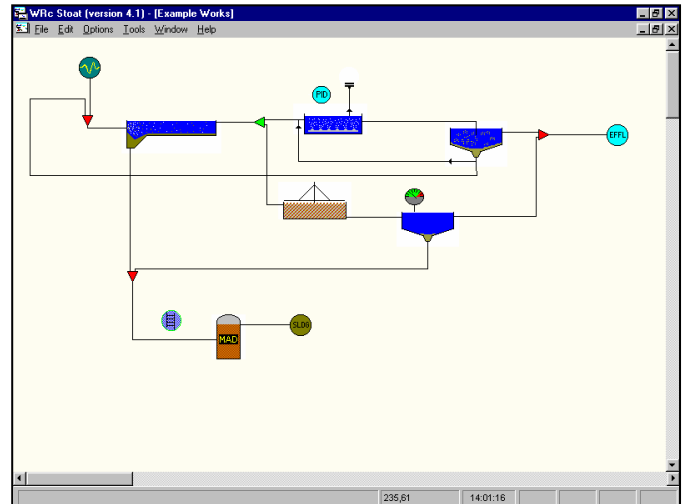
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## Dynamic Modelling of Wastewater Treatment Plants

STOAT is a PC based computer modelling tool designed to dynamically simulate the performance of a wastewater treatment works. The software can be used to simulate individual treatment processes or the whole treatment works, including sludge treatment processes, septic tank imports and recycles. The model enables the user to optimise the response of the works to changes in the influent loads, works capacity or process operating conditions.

### Using STOAT can help you to:

- Improve effluent quality, reducing risk of consent failures
- Reduce capital and operational costs
- Design treatment plants more efficiently
- Optimise treatment plant operation
- Troubleshoot operational problems
- Carry out integrated catchment simulation
- Train staff in best practices



### STOAT contains a range of features which makes it stand out from its competitors, including:

- Models all common treatment processes
- Offers both BOD and COD models
- New models continually being added
- Integrates with leading sewerage and river quality models
- Easy to use, with user friendly interface
- Includes quick build wizard
- Support for batch simulations
- Allows simplified sewer modelling (SIMPOL)
- Easy data transfer to other packages
- Full telephone/e-mail support

Users of STOAT are located all over the world. The software is used by the majority of the UK waster utilities, a range of international consultancies, industrial companies and municipalities in the USA and Europe.

STOAT is part of the WRC family of process models, which also includes OTTER and Plan-It STOAT. Users benefit from a dedicated team of developers and support engineers.