

Pilot study for the microbial treatment of leachate

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Objective: Reduction of the acute fish toxicity the leachate

Location: Landfill Lumpicht, Aue

Client: Association of Waste Management
Southwest Saxony

Beneficiary: Association of Waste Management
Southwest Saxony

Year: 1999 - 2000

Initial Situation: The leachate of the landfill Lumpich is heavy contaminated with ammonium. The water has high fish toxicity because of this considerable concentration and cannot be discharged in the receiving water. Therefore the leachate has to be treated.

Services provided:

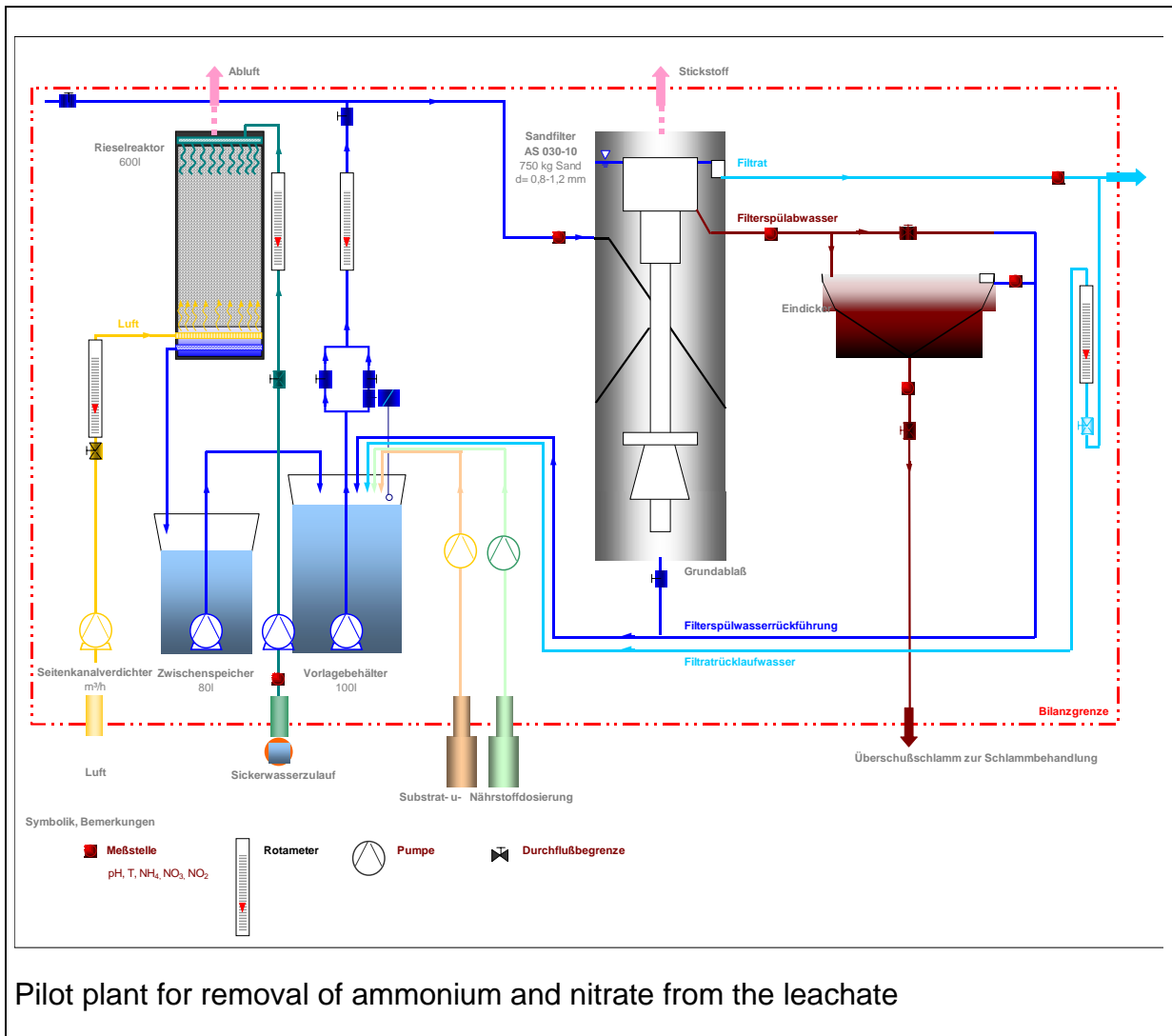
- Determination study resulted that only the high concentration of ammonium causes the toxicity
- Implementation of laboratory test for the minimisation of the concentration of ammonium by microbial processes
- Determination of process parameters, retention time, temperature etc.
- Selection of the suitable C-source
- Determination of fertilisation measures
- Design and installation of a two-stage pilot plant, nitrification (wet-dry filter) and denitrification (dynamic sand filter)
- On-site tests on nitrification of ammonium and denitrification of nitrates

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Pilot plant for removal of ammonium and nitrate from the leachate

Pilot study for the microbial treatment of leachate

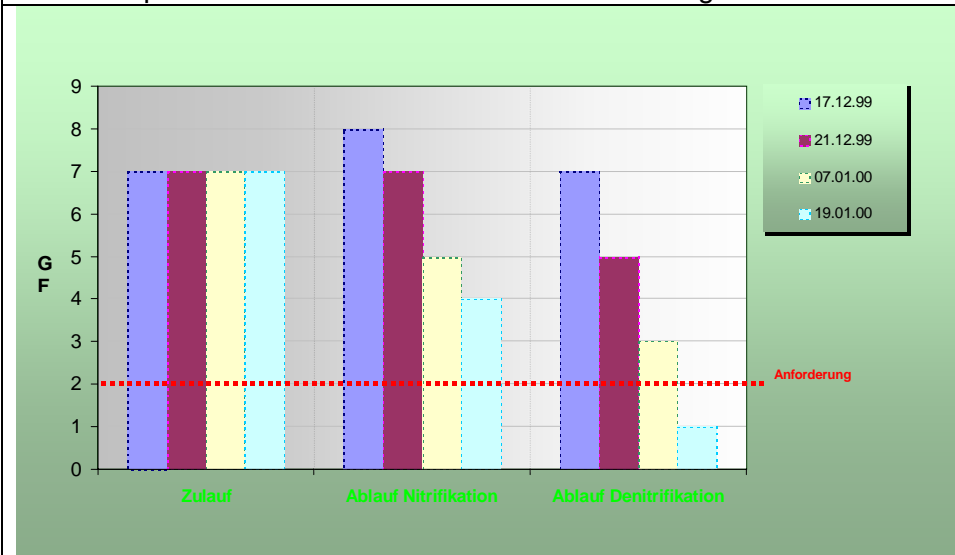
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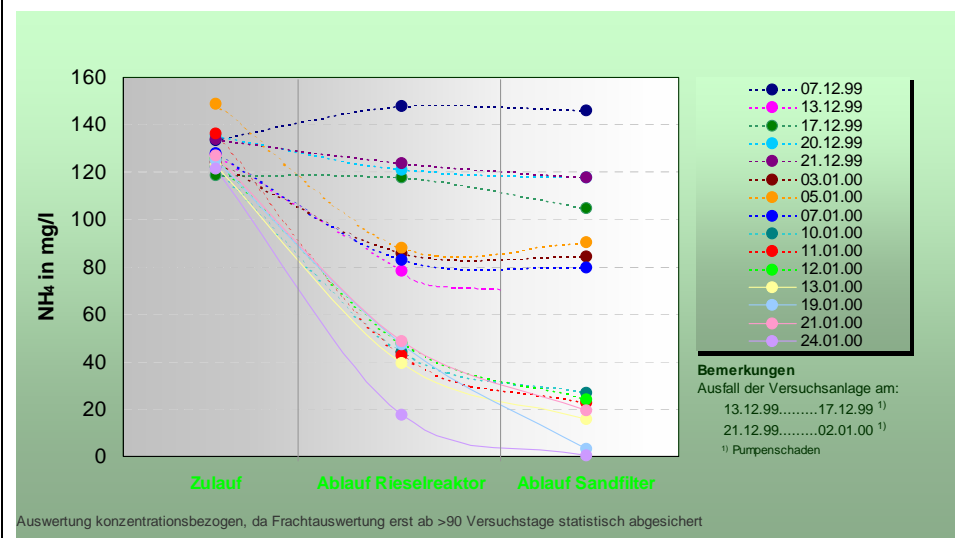
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Results:

- Almost complete degradation of NO₂ during the experimental period
- Technical methanol was applied as a C-source
- Total nitrogen elimination in the low water was more than 70 %
- Target value of fish toxicity of “1” was archived
- Concept of the technical realisation for the existing flow was drawn



Reduction of the fish toxicity during the experimental period



Progression of NH₄ concentration during the experimental period