

Evaluation of Microbial Risk Assessment Techniques and Applications

This investigation reviewed and evaluated methodologies used for microbial risk assessment with respect to their applicability for reclaimed water applications. The investigation was comprised of five primary components: a comprehensive database of articles, reports and books describing microbial risk assessment methodologies was established and reviewed. Risk assessment techniques and models were identified for estimating the public health risk from exposure to microorganisms via reclaimed water applications. Two models were identified for further evaluation: a static (individual based) and a dynamic (population based).

In the third component, the two models were evaluated to differentiate between the conditions under which models predict similar and substantially different estimations of risk. Through numerical simulation, exposure/pathogen combinations were identified when it may be appropriate to use the less complex, static model. Case study risk assessment scenarios demonstrated the model selection process for three realistic, yet hypothetical reclaimed water scenarios.

The fourth component presents a constraint analysis for existing reuse regulations. The constraint analysis is carried out by documenting the existing reuse regulations. The constraint analysis is carried out by documenting the existing regs in three states for landscape irrigation and uses that comparison as a starting point to identify how microbial risk assessment may be useful within the context of existing and potential future water reuse regulations. The investigation concludes by identifying criteria for a computer interface that would allow regulatory and/or municipal agencies/utilities to take advantage of the analysis discussed in the report.

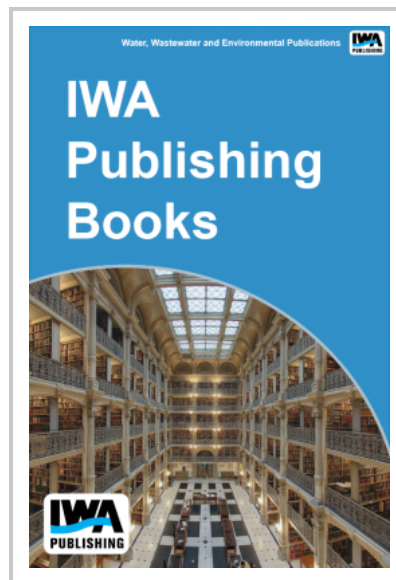


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