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Environmental Compatibility of Closed Landfills – Assessing Future Pollution Hazard

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Municipal solid waste (MSW) landfills need to be managed after closure. This so-called aftercare comprises the treatment and monitoring of residual emissions as well as the maintenance and control of landfill elements. The measures can be terminated when a landfill does not pose a threat to the environment any more. Consequently, the evaluation of landfill environmental compatibility includes an estimation of future pollution hazards as well as an assessment of the vulnerability of the affected environment. An approach to assess future emission rates is presented and discussed in view of long-term environmental compatibility. The suggested method consists a) of a continuous model to predict emissions under the assumption of constant landfill conditions, and b) different scenarios to evaluate the effects of changing conditions within and around the landfill. The model takes into account the actual status of the landfill, hence different methods to gain information about landfill characteristics have to be applied. Finally, assumptions, uncertainties, and limitations of the methodology are dis-cussed, and the need for future research is outlined.

Keywords: Landfill; Emissions; Aftercare; Environmental evaluation; Scenario modelling;