PERFORMANCE OF NORTH AMERICAN BIOREACTOR LANDFILLS

Researchers from the University of Wisconsin–Madison, North Carolina State University, and EPA Office of Research and Development assessed the state-of-the-practice at five North American landfills operating as bioreactors (Bareither et al, 2010). A landfill was considered to be operating as a "bioreactor" in this study if: (1) design and/or operational features were incorporated to facilitate leachate recirculation and/or addition of supplemental liquids; and (2) there was a concerted effort by the landfill owner to accelerate decomposition in some manner.

The study focused on the effectiveness of liners and leachate collection systems, leachate generation rates, leachate recirculation practices and rates. Except in one case, the liner and leachate collection systems at the bioreactor landfills were similar to those used for conventional landfills. Leachate depths generally were maintained within regulatory requirements, even with the highest recirculation rates.

Liner leakage rates at the bioreactor landfills, including those with alternative liner designs employing GCLs, are comparable to leakage rates from conventional landfills. Based on the information gathered in this study, the authors concluded additional liner requirements or features beyond those employed for conventional landfills are not necessary for bioreactor landfills. Thus, the current practice of prohibiting alternative liners (including those employing GCLs) at landfills that recirculate leachate does not appear to be warranted.

References:

Bareither, C.A., Benson, C.H., Barlaz, M.A., Edil, T.B., and Tolaymat, T.M. (2010) "Performance of North American Bioreactor Landfills I: Leachate Hydrology and Waste Settlement", ASCE Journal of Environmental Engineering, Vol. 136, No. 8, August 1, 2010.

TR-275
01/11

800.527.9948 Fax 847.577.5566