

Bioreactor Landfill Questionnaire Results

A correlation analysis of recirculating leachate technologies and soil characteristics.

Timothy J. Murphy and Ann D. Christy

Department of Food, Agricultural and Biological Engineering, 590 Woody Hayes Drive,
The Ohio State University, Columbus, Ohio 43210. Murphy.464@osu.edu.
Telephone: 614-688-3383, Fax 614-292-9448

A Bioreactor Landfill Questionnaire was used to survey the current state of the practice in the United States. Questions focused on many design considerations of recirculating leachate landfills and the operational technologies used to apply, control, and monitor landfill leachate. The following subjects were included: leachate application, containment, collection, storage, and management systems; facility construction; soil (surrounding and cover); and groundwater characteristics. The questionnaire was developed after review of the existing technical literature on bioreactor and re-circulating leachate landfill processes. The questionnaire was reviewed by: the OSU Landfill research group, independent environmental consultants, a sociologist, and waste industry personnel. In addition, the questionnaire was tested at four independent landfills. The final version of the questionnaire was sent to landfill operators; academic researchers, consultants, and contractors who design, study, and install the technologies used in recirculating leachate landfills. A total of 550 questionnaires were sent out to potential respondents, 114 questionnaires were completed and returned, and of those, 35 had operated their facility as a recirculating leachate landfill or had performed research in these areas. Results from the questionnaire were evaluated by correlation analysis to determine whether soil type could serve as a predictor for leachate infiltration success. The Bioreactor Landfill Questionnaire results and ongoing field and laboratory research studies may identify the most appropriate infiltration techniques for specific soil types.