

MINIMIZING LANDFILL SOIL-TO-REFUSE RATIO THROUGH DAILY CELL DESIGN

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ABSTRACT

The objective of this paper is to study the behavior of the soil-to-refuse (S/R) ratio in a landfill, when the size and the geometric dimensions of the daily cell vary over realistic ranges of values. The minimization of the S/R ratio is set up as a simple mathematical programming model for choosing optimum cell geometry parameters. A specific functional relationship is generated relating S/R ratio with cell size. The minimum S/R ratio is a rapidly decreasing function of cell size for sizes of up to 500 tons/day and almost a linear function for cell sizes from 500 to 4000 tons/day. The S/R ratio is also an increasing function of the final density of compacted refuse.