03 Jun 1993, 2:00 pm - 4:00 pm

Discussions and Replies Session 12

C. A. Dougherty
University of Missouri--Rolla

Subijoy Dutta
U.S. Environmental Protection Agency, Washington, D.C.

J. Blayne Kirsch
University of Missouri--Rolla

Clifford Knitter
Golder Construction Services, Inc., Redmond, Washington

DISCUSSIONS AND REPLIES

SESSION XII

Discussion by C. A. Dougherty
Graduate Student, Univ. of MO-Rolla

on
Modified Cover System for Hazardous Waste Landfills in Semi-Arid Areas

Paper No. 12.01

Mr. Dutta has presented an excellent solution to the problems of desiccation of the clay layer during placement and wasted space due to mounding in the construction of RCRA caps for landfills. His alternative design need not be restricted to semi-arid regions, however. The reduction of infiltration and cap height would be beneficial anywhere. Of greatest advantage is that the properties of the manufactured bentonite liner are likely to be more uniform and better understood than the compacted clay. The performance of compacted clay can vary considerably, depending upon the moisture content of the clay and skill of the equipment operators, among other factors. The use of manufactured bentonite liners should be at least considered by anyone designing a landfill cap or similar earth structure.

Discussion by J. Blayne Kirsch
UM-Rolla: Geological
Engineering
Graduate Student
on
Use of Low Plasticity Silt for Soil Liners and Covers

Paper No. 12.02

In southeastern Washington there are 0-100 feet thick loess deposits. Due to the lack of appropriate natural clay sized material, the loess has been evaluated for the use of low hydraulic conductivity liners and covers at MSWLs and a HWL in the region. Loess that contained approximately 13-15%, <5 microns was determined nonplastic and tended to have hydraulic conductivities greater than 1x10-6cm/sec. Similarly, loess with 15-22%, <5 microns was determined to have PI's that ranged from 4-12% and tended to have hydraulic conductivities less than 1x10-6 cm/sec.

The authors provide field verification for evaluating the low laboratory hydraulic conductivity values. The use of sealed double-ring infiltromentes on test fills confirmed the laboratory values. The graphical presentation of percent finer than 5 microns, dry density, percent over optimum moisture, and percent saturation vs log permeability supports the authors' conclusions. The conclusions of low hydraulic conductivity can be achieved with the loess, as long as good CQA practices are consistently employed.

Replies by Subijoy Dutta
U.S. Environmental Protection Agency

on
"Modified Landfill Cover System for Hazardous Waste Landfills in Semi-Arid Areas"
Paper No. 12.01

The issue of the applicability and usefulness of the modified landfill cover system as pointed out in the discussion by Mr. Dougherty is very appropriate and noteworthy. The modified cover system for landfills using the manufactured liners could be quite applicable in areas other than arid or semi-arid. The uniformity of the manufactured liners in providing a very low permeability is a definitive advantage. However, due to the lack of track record on the performance of these modified cover system it can not be universally recommended at this point. It is suggested that a performance monitoring device, such as, the leachate collection system or the pan lysimeter be installed during installation of a modified cover system for landfills. The data collected from these sites will provide highly valuable information on the effectiveness of this modified cover systems. In fact, after proper coordination with regulatory agencies the modified cover system could be installed in any area. If these installations happens to fall in areas of high or medium precipitation, that will provide very useful information about their effectiveness in such areas. Although, the use of the modified cover system may be lucrative to many operators due to its various advantages over the conventional caps, but only after a thorough performance evaluation of the modified system it could be recommended for all sites. So, performance monitoring should be an integral part of any modified cover system installation for a wide application of this modified design.

Replies by Clifford Knitter
Golder Construction Services, Inc.
Redmond, Washington

on
"Use of Low Plasticity Silt for Soil Liners and Covers"

Paper No. 12.02

No response is needed since the discussion is only another abstract of our paper. No additional information is provided by the discusser or clarification requested.