

Stabilization Study of Hazardous Wastes Generated in Himachal Pradesh to Meet the Landfill Criteria

Name of Student : Apoorva Mani (1452692)

Deptt. : Env. civil

Guide : N. K. Verma & Puneet P. Singh Cheema

Mode of Study : F. Time

ABSTRACT

This work consists of a Hazardous Waste Stabilization Study which was carried out in a Treatment, Storage and Disposal Facility (TSDF) in Himachal Pradesh named Shivalik Solid Waste Management Ltd. Hazardous Waste Management is gaining concern in India due to rapid increase in Industrialization and hence increase in generation of Hazardous Wastes by these Industries. The various TSDFs set up in the country on the public-private partnership basis are responsible for receiving the Hazardous Wastes from their respective regions and are also responsible for its storage, effective treatment and ultimate disposal into the landfill. However there is a criteria set up and stated by the CPCB for the wastes which can be directly landfilled. Those Hazardous Wastes which are coming into the TSDF and are not meeting the direct landfill criteria is treated or stabilized by the facility to make it suitable for landfilling. For stabilization of such wastes, some stabilizing materials are used which are able to treat and convert such wastes into manageable forms. The most widely used stabilizing materials which are used in the TSDF are Cement, Lime and Fly Ash. However the choice of the stabilizing materials depends on various factors such as the suitability of a particular stabilizing material for a particular type of waste, the availability of the stabilizing materials, the objectives or the results desired and finally the Economics or cost of the stabilizing material and the stabilization process is also one of the most important factors.

For this stabilization study, Lime, Fly Ash, Bentonite and Polymer were used as stabilizing materials to stabilize three types of Hazardous Wastes generated from three different industrial sectors. This study aims at conducting various stabilization trials on the selected wastes using the selected stabilizing materials, to check the effectiveness of this stabilization study on the wastes with respect to certain parameters and to finally come up with appropriate mixtures and combinations of stabilizing materials which would be best suited for the treatment or stabilization of a particular type of waste. At the end of this study, cost estimation has also been done to estimate the costs of stabilizing agents selected and used in this experiment.