

Optimizing Your Drying Beds Using Geotextile Container Dewatering

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ABSTRACT

Geotextile containers have been used to contain and dewater hydraulically dredged sand from river channels, lakes, and harbors for decades. Technological advances in the use and application of chemical conditioning agents for the expedient separation of solids from water have facilitated the use of geotextile containers for containment, dewatering, and consolidation of water and wastewater treatment residuals. Geotextile container dewatering technology is a high volume, high flow containment option. It provides municipal agencies and contract operators with an efficient on-site, cost effective dewatering option that requires only limited special equipment or permitting, low operations and maintenance costs. With the addition of chemical conditioning agents, excess water drains from the container through the geotextile resulting in filtrate water that can be discharged or returned to the plant. Volume reduction within the container allows for repeated filling of the geotextile container. After the final cycle of filling and dewatering, retained materials continue to consolidate by desiccation because residual water escapes through the geotextile fabric. Excavation of the dried materials and subsequent disposal occur when retained solids meet dryness goals or when land application (or disposal) is practical or permitted. It should also be noted that excavation and disposal may be deferred to a more economically feasible time.

Geotextile containers can be manufactured to fit any drying bed geometry or configuration. As long as the drainage system in the drying bed is capable of handling the filtrate flow from the geotextile container, the drying beds will typically be able to handle significantly more material and will typically result in more effective dewatering. Most drying beds are designed to hold only 1 to 2 feet of conditioned residuals. Depending on the size of geotextile container, the height can be expanded significantly, typically to 6.5 to 8.0 feet. Other advantages of geotextile container dewatering, compared to typical drying bed operation include; effective operations in any weather conditions, potential for increased flow rates to the beds, greater volume reduction and increased solids concentration in the dewatered residual. In most cases, the existing piping to the drying beds can be easily retrofitted to accommodate the geotextile containers. Many wastewater treatment facilities using drying beds also have polymer feed systems that can be used without modification.

This presentation will highlight specific municipal and industrial applications in which geotextile containers have been placed in existing drying beds. Some applications use geotextile containers in drying beds for their primary residuals dewatering, while others have used them only when necessary to dewater and store the residual until land application was allowed.