

T-9.2 SWANA TECHNICAL POLICY

ALTERNATIVE DAILY COVER MATERIALS FOR SANITARY LANDFILLS

I. POLICY

SWANA supports the appropriate use of field proven alternative daily cover materials (ADCs) for sanitary landfills. Such usage should be based on site-specific characteristics of each disposal site and applicable provincial, state or local government rules and regulations. The use of ADCs, as a substitute for compacted soil, should be based upon economic analysis, performance of the ADC material to prevent nuisances and provide protection of human health and environmental quality under specific site conditions and other complementary management practices which achieve comparable results similar to that of soil.

II. DISCUSSION

A. The Value of Daily Cover

In sanitary landfill design and operation, daily cover of six (6) inches [15 centimeters]* of compacted soil has been the standard of practice for well over 30 years. Soil cover continues to be used extensively today. The use of six (6) inches of compacted soil as daily cover was adopted based on the understanding that six (6) inches of compacted soil cover represents the practical minimum depth that can be placed over solid waste to prevent the emergence of adult flies from the landfilled solid waste mass. When implemented properly, this practice achieves a basic objective of protection of human health. Albeit, six (6) inches of compacted soil daily cover also provides several other beneficial functions as follows:

1. Additional vector control - six (6) inches of compacted soil reduces available breeding sites for mosquitoes and discourages solid waste from serving as an attractant to domestic/feral and wild animals.
2. Fire control - six (6) inches of compacted soil reduces the potential for, and movement of, fires within a landfill.
3. Litter control - six (6) inches of compacted soil helps to control blowing litter.
4. Odor control - six (6) inches of compacted soil serves as an odor barrier/or filter for odors emanating from solid waste.
5. Aesthetics - six (6) inches of compacted soil covering at the end of each working day, or more frequently, improves the aesthetics for site users and neighbors. Further, daily cover reinforces the perception of a sanitary landfill as opposed to open dumps.

Run-on/Run-off - six (6) inches of compacted soils serves to reduce the infiltration of storm water run-on into the filled mass of solid waste and helps to increase run-off of precipitation thereby reducing the production of leachate which can be costly to treat and dispose.

B. Further Considerations

Advancements in the field of solid waste management has led to the emergence of daily cover materials other than six (6) inches of compacted soil. These materials include composted green wastes, MSW derived compost, sewage sludge compost, foam, tarps, shredded tires, select processed construction and demolition (C&D) waste, and certain industrial materials to mention a few. The end result is that a wide range of products, materials and operational practices have been introduced as ADCs. The biggest advantage of ADCs is the conservation of airspace.

ADCs can be classified as either waste-derived materials or non-waste-derived materials. Waste-derived materials include ash, auto shredder fluff, MSW derived compost, digested waste, select processed C&D waste, composted green waste, contaminated sediment and soil, composted sewage sludge, and shredded tires. Certain waste derived ADCs can be additional source of revenue for a facility, and some jurisdictions also count this material toward diversion, recycling or beneficial use goals. Most waste ADCs should be tested for hazardous properties prior to using them. It is even more critical to test for hazardous properties if they are not a typical waste stream of the facility and their composition is unknown – for either disposal or ADC use.

Non-waste-derived material can generally be classified into two groups: spray-on materials and re-usable geosynthetic materials or tarps. These types of ADCs use very little or no airspace and in the case of the spray on materials, beneficially reuse latex paint waste. They do however have a financial cost as compared to other revenue generating waste-derived ADCs.

One of the other advantages of using ADCs relates to the management of landfill gas and leachate. Using non-waste derived ADCs means reducing the amount of soil in your landfill. This helps with landfill gas and leachate flow by removing potential barriers to their free movement within the waste. This can result in higher landfill gas flow rates, which in turn may also increase revenue from captured landfill gas. It can also facilitate the flow of leachate through the waste mass to the collection layer, minimizing the potential for leachate seeps that cause operational and regulatory headaches. The use of waste derived compost and sewage sludge compost as ADC has been proven to oxidize methane up to 100%. Therefore, these waste derived ADC materials offer dramatic benefit to the reduction of greenhouse gases as compared to six (6) inches of soil. The use of composts – either waste or non-waste derived, have the capability of absorbing far more moisture than conventional soils thus offering the benefit of storm water control.

Locally available materials, local climatic conditions and site-specific characteristics will guide which ADCs will and will not work at a particular site. It will take a significant amount of experience on the part of a landfill manager to determine whether a particular ADC will work at their specific site. Landfill managers should collect data, meet with regulators, and talk with their peers, and pilot test the use of ADCs before deciding on their use in lieu of traditional compacted soil cover.

Other issues specific to ADCs include:

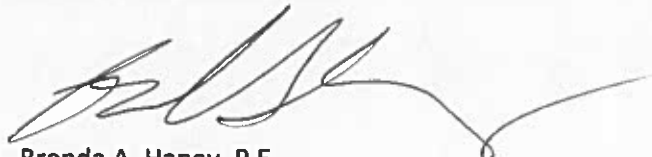
Six inches of compacted soil uses up valuable space in a landfill: Landfills are in the business of utilizing space. Efforts to maximize the use of space should be explored. Arguments are presented that the use of six (6) inches of compacted soil as daily cover consumes up to 20-25 percent of the space in a landfill. Some suggest that six inches of compacted soil daily cover merely fills the voids in the solid waste mass, and when buried with sufficient amounts of solid waste does not significantly reduce the volume available for solid waste. However, solid waste that is adequately compacted to densities in excess of 1400 pounds per cubic yard [830 kilograms per cubic meter] may not have a significant volume of voids. Further, due to the uneven surface of the compacted waste materials, in order to place a competent layer of six (6) inches of soil cover, much more volume of soil is actually required than would be calculated for six (6) inches times the active area.

Soil can be very expensive: When landfill owners/operators do not have sufficient soil on-site for daily cover and must purchase and import cover materials, it can represent significant increased operating costs. Hauling cover from off-site also increases traffic, road wear and tear, increased fuel consumption and increased air emissions. Alternate daily cover materials, which may be less expensive than importing soil to a site, could significantly reduce the overall operating costs for landfill operations.

Design considerations: Today's sanitary landfills are designed and constructed to allow for the collection and/or control of leachate and landfill gas. Impediments to the movement of landfill gas and leachate may affect the intended design or function of the collection and/or control system.

CERTIFIED to be correct and complete statement of the approved policy.

UPDATED and APPROVED by the International Board
on the 4th day of May 2018

A handwritten signature in black ink, appearing to read 'B. Haney', with a long, sweeping horizontal line extending to the right.

Brenda A. Haney, P.E.
International Secretary

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