

The Benefits and Risks Associated with Management Options for Sludge and Septage in Vermont

Management	Benefits	Risks
WWTF = wastewater treatment facility; GHG = greenhouse gas		
Landfill Sludge	<ul style="list-style-type: none"> • Electrical power generation via landfill methane capture • Only disposal option for WWTFs that do not treat sludge to biosolids standards and a contingency option for WWTFs that do 	<ul style="list-style-type: none"> • Increases landfill methane (GHG) emissions • Reduces landfill space capacity • Increased vehicle emissions/GHG from hauling • Increases generation of landfill leachate –disposed at WWTFs where partial treatment increases pollutant loading in discharge to surface waters
Land Application Biosolids & Stabilized Septage	<ul style="list-style-type: none"> • Provides essential macro and micro plant nutrients, i.e., fertilizer • Recycles carbon and nutrients to soil • Builds soil organic matter, increasing soil water holding capacity & flood resiliency while reducing soil erosion potential • Enhances soil microbial population • Sequesters/stores carbon and GHGs in soil • Land restoration tool • Conserves landfill capacity • Requires permit - siting prohibitions, isolation distances, public access and site use restrictions, soil & groundwater monitoring • EQ biosolids: pathogens further reduced to level at which material is no longer regulated 	<ul style="list-style-type: none"> • Potential for nutrient runoff or leaching to water resources (similar to any fertilizer) • Pathogens reduced, not eliminated • Potential for odor complaints • Public perception challenges • Concentration of nutrients on agriculture fields • Emerging contaminants present in material
Septage disposal at WWTF	<ul style="list-style-type: none"> • Provides disposal option (during all seasons) • WWTF's charge receiving fee which offsets operating costs 	<ul style="list-style-type: none"> • WWTFs have limited capacity (organic load) • ~ 30% of WWTFs capable of receiving septage • Increased vehicle emissions/GHG from hauling
Septage land application	<ul style="list-style-type: none"> • Relieves pressure on WWTF treatment capacity (~10-20% of 50 M gallons, annually) • Reduces hauling distances/vehicle emissions • Allowed for residential septage only 	<ul style="list-style-type: none"> • Potential for non-biodegradables to pass screening • Similar risks for all land application

Definitions

Sludge: solids separated during the treatment of municipal wastewater

Biosolids: treated sewage sludge that meets the EPA pollutant and pathogen requirements for land application

Class B: biosolids meeting VT metals limits, pathogens significantly reduced, vector attraction reduced – site restrictions include no crops for human consumption for ~3 years after last biosolids application

EQ: exceptional quality biosolids that meet VT metals limits, pathogens further reduced and vector attraction reduced such that material is not classified as a solid waste and may be marketed and distributed to the public

Septage: partially treated sludge that is accumulated and stored in a septic tank

Stabilized Septage: treated with lime to raise pH and destroy pathogens and reduce vector attraction