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**Sent:** Wednesday, May 01, 2019 10:47 AM  
**To:** Laura Bozarth <LBozarth@leg.state.vt.us>  
**Cc:** Jamieson, Cathy <Cathy.Jamieson@vermont.gov>  
**Subject:** Landfill information

Hello Laura,

Yesterday when I spoke before the committee I needed to provide some additional information about sludge acceptance and design cost.

For the 5 year period from 2013 to 2017, sludge disposal averaged 6% by weight of total disposal. For weight in tons this represents 20,000 to 30,000 tons per year. In 2017, the state disposed of 28,297 tons of sludge, 15,228 tons was from out of state, 13,069 tons was from in state.

This information can be found at the 2017 Diversion and Disposal Report found at:

<https://dec.vermont.gov/sites/dec/files/wmp/SolidWaste/Documents/2017%20Diversion%20and%20Disposal%20Report.pdf>

For the design cost question I spoke with an engineering firm (“firm”) which wished to be anonymous as there are many factors to be considered. To design and prepare an application for a regional landfill at a virgin site would be very expensive, the hydro geology study for the site alone could be a ½ million dollars. The “firm” estimate was about a million dollars, this is a ballpark figure.

I mentioned a study I found from EPA for a landfill in Kentucky in 2014. The EPA estimated that design, construction, operation, and closure of the landfill would be \$750,000 to \$1.2 million per acre. The “firm” thought that was a realistic estimate.

EPA report:

<https://www3.epa.gov/ttnecas1/regdata/EIAs/LandfillsNSPSPProposalEIA.pdf>

Excerpt from report:

#### **2.4.1 Major Cost Components for Landfills**

EPA promulgated Criteria for Municipal Solid Waste Landfills (40 CFR Part 258) under the RCRA on October 9, 1991 (EPA, 2012i). The law requires that non-hazardous MSW be disposed of in specially designed sanitary landfills. The criteria include location restrictions, design and operating standards, groundwater monitoring requirements, corrective actions, financial assurance requirements, landfill gas (LFG) migration controls, closure requirements, and post-closure requirements (EPA, 2012j). It can cost more than \$1 million per acre to construct, operate, and close a landfill in compliance with these regulations (Fitzwater, 2012).

Landfill costs are site specific and vary based on factors such as terrain, soil type, climate, site restrictions, regulatory issues, type and amount of waste disposed, preprocessing, and potential for groundwater contamination. Landfill costs fall into the following categories: site development, construction, equipment purchases, operation, closure, and post-closure.

Site development includes site surveys, engineering and design studies, and permit package fees. Surveys are necessary to determine if a potential site is feasible. Permits are required from local, state, and federal governments. As an example, engineering design and a permit application for an MSW landfill in Kentucky can cost approximately \$750,000 to \$1.2 million (KY SWB, 2012).

Let me know if you have any further questions.

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