February 15, 2017

Mr. Bob Gregory
Texas Disposal Systems

Re: Texas Disposal System's Greenhouse Gas Emissions Estimates

Dear Mr. Gregory:

The purpose of this letter is to provide clarification as to why the greenhouse gas (GHG) emissions reported to the Environmental Protection Agency (EPA) by Texas Disposal Systems (TDS) have been higher than what would actually be generated.

The standard calculation methodologies approved by EPA overestimate the actual GHG emissions for TDS due to assumptions and constants that are built into the formula and do not accurately consider some of the operational measures TDS takes to reduce the generation and release of methane emissions.

For example, default values for degradable organic carbon and decay rate constant are used based on the type of waste that is typically collected and the amount of rainfall that is typically expected. Actual types of waste collected and site specific decay rate are not used, therefore the formula assumes an excessive amount of rainfall infiltration into the waste in place resulting in a conservatively high estimate of landfill gas generated and emitted. Rainfall on the TDS landfill does not infiltrate the waste as would be expected at a typical landfill because of the method TDS utilizes to apply a six-inch thick clay daily cover, keep a small exposed working face, keep the bottom slope away from the fill area, and maintain berms that prevent storm water run-on to the working face or back into the waste. Additionally, TDS strives for dry entombment of the waste by diverting wastes with high moisture content, such as yard waste, liquid, and sludge, from the landfill. Therefore, TDS does not generate the amount of landfill gas as indicated by the EPA formulas. The landfill at TDS generates very low amounts of odor and leachate which serve as a real indicator of the amount of moisture entering the landfill, and in turn the amount of gas being generated.

Another significant element in the EPA calculation methods which lead to an overestimate of emissions is the assumption regarding the landfill gas (LFG) collection system. TDS' landfill gas collection system today covers about 15% of the area with waste in place. The formula assumes that landfill gas from the remaining 85% of the area with waste in place is vented directly to the atmosphere as fugitive emissions. In reality, due to the procedure of maintaining the minimum six-inch thick clay daily cover and much thicker than industry standard intermediate clay soil cover utilized by TDS, much more gas is pulled and captured from areas not directly around the 15% of the area which have gas collection wells.

The other area landfills benefit from the assumption in the EPA formula that LFG emissions are significantly captured and reduced if they have LFG collection systems that covers most of the landfill and then utilize the collected LFG in an electrical generator or flare them. This creates a false impression that TDS is not capturing and controlling a significant amount of the landfill gas being generated by the landfill since the EPA

formula does not take into account TDS' design and operating conditions that limit emissions to a small fraction of the amount calculated by the formula. TDS has reached the regulatory threshold for installing a blanket landfill gas collection system so this discrimination in the EPA formula will be eliminated for TDS in the coming years as a full system will be designed and put into operation.

If you have any questions, please contact me at (512) 596-7929.

Sincerely,
Providence

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