Talking... TRASH

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Photo - Solid Waste Authority of Palm Beach County

New GREEN Leachate Disposal Technology Making Headway in Florida Phyto-Utilization Systems

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The challenges associated with leachate disposal continue to grow on multiple fronts for landfill owners. The industry is experiencing tighter discharge limits from POTWs, costs and liability continue to rise, and the increased use of UV disinfection at WWTPs is causing some leachate streams to being cut off all together.

In response to these and other challenges, environmental professionals have developed a newer, specialized technology called 'Phyto-Utilization.' The approach has already taken root across other parts of the country and is now being considered by multiple landfills in Florida as an alternate option to dispose leachate on site in lieu of other traditional methods. A technical meeting with FDEP in Tallahassee in 2014 and the subsequent permitting activities for a Central Florida landfill have opened the door to the specialized approach in the Sunshine State, where the climate could not be any better.

Full-Scale Phyto-Utilization Leachate Consumption System in Gulf Coast Region

The key distinguishing feature of the GREEN approach is that the plant-based system leverages the natural ability of specially-selected plants to consume leachate through the evaporative process, thereby eliminating the need to haul (or otherwise dispose) leachate. The approach has resulted in a zero-discharge scenario at multiple sites across the country. It is not a 'flow-through' wetland or treat-and-discharge system; there are no membranes, concentrates or by-products to handle; and there is no microbial population to maintain to degrade nutrients. Rather, specially-selected, highly-tolerant plants with a high water and nutrient demand are installed at a landfill and actually utilize the leachate as a resource. Leachate provides moisture to satisfy the high water demand of the plants, and contaminants typically found in leachate act as micro and macro nutrients which in turn fuel fast plant growth. The technology is not a fit for every site, but where found to be a match can be applied on both open and closed landfills, and either on or off of the landfill footprint using patent-protected technology that is protective of groundwater and the environment.

Additional landfills in Florida are also currently considering the technology due to the multiple benefits that result including, but not limited to: cost reduction by 25-50%, reduced carbon footprint due both to significant carbon sequestration by the plants and taking diesel-burning tanker trucks off the road, reduced liability, and reduced truck traffic through communities. Additional uses of the specialized plant include leachate seep mitigation, robust vegetative cover where other plants will not grow, slope stabilization, and erosion control. The approach, which has won multiple national engineering-excellence awards and saved millions of dollars to date, allows landfill owners to extricate themselves from control by POTWs which can change limits, costs, or cut landfills off completely at their sole discretion.

As solid waste professionals continue to seek new ways to be more protective of the environment and to reduce leachate management costs, proven phyto-utilization systems are now available as an alternate approach that is a win for landfill owners, a win for the community, and a win for the environment.