C&D Waste Landfills in Florida: Assessment of True Impact and Exploration of Innovative Control Techniques

Construction and demolition (C&D) waste is produced from any construction or demolition activity and consists of materials including wood, drywall, concrete, roofing shingles, insulation, and various metals like copper, steel and aluminum. This researcher has previously investigated this waste stream extensively. This project attempts to examine the impact of disposal of C&D waste and potential innovative ways to mitigate any impacts. This project focuses on the disposal of C&D waste in C&D landfills, which are not lined in Florida. Precipitation is allowed to enter the landfill and pass through the waste (creating leachate) to the ground again. C&D waste has been thought of as inert in the past, however with new products coming out of use (ex. CCA-treated wood) and other items in the waste stream, there are possibilities for sources of contamination.

This project examines the potential groundwater impact of C&D landfills through a compilation of C&D landfill groundwater monitoring data (C&D landfills are not allowed to elevate compounds in the groundwater surrounding their site), and through modeling the transport of simulated C&D leachate. Also, different soil materials will be tested to see if they mitigate any of the contaminants found in simulated C&D leachate. This project also will examine the gas generation at C&D landfills. The disposal of drywall, which is made of gypsum, has caused H_2S generation ("rotten egg" smell) at several C&D landfills throughout Florida. An experiment was conducted to see how much H_2S would be generated by drywall disposal. To examine the impact on surrounding areas, this rate will then be modeled to see how far this plume of gas will travel. Alternative cover materials (e.g. crushed concrete) that can be placed over C&D waste in landfills will be examined to see if they can mitigate this nuisance gas generation.