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DEVELOPMENT OF DEVICE FOR MEASURING EDC FLUXES IN GROUNDWATER

Gordon Brown*, Michael D. Annable, Joseph J. Delfino, Clayton J. Clark

ABSTRACT: One of the routes of exposure to endocrine disrupting chemicals (EDCs) is through contact with contaminated groundwater. Thus, the development of a method to identify, monitor, and quantify the presence of these chemicals in groundwater is of great value.The passive flux meter (PFM) has been developed and patented at the University of Florida to simultaneously quantify groundwater and organic and inorganic contaminant flux in groundwater. It has been deployed at over 20 chlorinated solvent field sites, but has not been configured and tested for EDCs. This work will interrogate a number of EDCs found in groundwater occurrence studies. Silver impregnated activated carbon (SAC) will be employed as the sorbent for the PFM. Batch and column tests will be performed and a stand alone GC method will be developed and corroborated with GC-MS. Mass balance calculations will determine sorption and extraction efficiency of the SAC media. The large range of Log Kow values of EDCs may require the use of an alternate sorbent as high Log Kow organics have previously proven inefficient to extract from SAC. The development of this device will allow EDC flux detection from point sources and further permit performance assessment of best management practices, septic system amendments, advance wastewater implementation, and any other attempts to change EDC discharges to groundwater resources.

***** Graduate Student, University of Florida, 216 Black Hall, Gainesville, FL 32611, USA, Phone: 352-846-3036, Fax: 352-392-3076, Email: ghbrown@ufl.edu