# QUARTERLY PROGRESS REPORT

June 1, 2014 to August 31, 2014

**PROJECT TITLE:** Assessing Options for On-site Leachate and Groundwater Management Strategies at Florida Landfills

**PRINCIPAL INVESTIGATOR(S): Timothy G. Townsend**

**AFFILIATION: Professor, University of Florida**
**Department of Environmental Engineering Sciences**

**CO-PRINCIPAL INVESTIGATOR(S): Daniel E. Meeroff**

**AFFILIATION: Associate Professor, Florida Atlantic University**
**Department of Civil, Environmental and Geomatics Engineering**

**COMPLETION DATE: November 30, 2014** **PHONE NUMBER:** (352) 392-0846

**PROJECT WEB SITE: http://pages.ees.ufl.edu/townsend/research/hc13/**

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**Work accomplished during this reporting period:**

**Leachate Database**

Roya Daroosh has been obtaining any missing data in the leachate database for all the lined landfills in Florida between the years of 2000 and 2010. In addition to the data, background information was added on the landfills such as what type of waste they accept, whether or not they are active or closed, what year they opened, what year they closed if they are not active, their leachate treatment, etc. Roya has obtained nearly all of the background information on all the lined landfills in Florida.

**Leachate Treatment Tool**

The outline of a treatment cost tool has been developed by James Wally which is being filled in for various treatment methods. Capital and O&M values have been filled in for some of the methods such as SBRs, reverse osmosis, wetland treatment, air-stripping, activated sludge, and etc… Additional non-economic assessment methods have been researched to add part of a lifecycle analysis component to the treatment tool.

**Design options for sub-liner vadose zone air venting**

Jaeshik has been working on the 2-D numerical simulation of vadose zone air venting system using Geostudio (SEEP/W and AIR/W) in terms of the configuration of pipes for blower or suction, and the distance between pipes. As a result, the vadose zone venting system for preventing reducing condition was found to be most effective when the blower and suction pipes were installed in alternating condition and the optimum distance between two pipes was found to be 20 m resulting 120 kg/days of air flux in this numerical simulation. For economic evaluation, the amount of pressure should be optimized in further study.

**Work planned for the next reporting period:**

Continue data compilation and analysis with regard to leachate quality and treatment. Begin modeling of air venting. Hold a TAG meeting in October.

**Metrics:**

| Name | Rank | Department | Professor | Institution |
|---|---|---|---|---|
| Chung, Jae Shik | PhD student | Environmental Engineering | Townsend | University of Florida |
| Daroosh, Roya | ME student | Environmental Engineering | Townsend | University of Florida |
| Monroy Sarmiento, Linda | PhD student | Environmental Engineering | Townsend | University of Florida |
| Wally, James | ME student | Environmental Engineering | Townsend | University of Florida |

TAG Members: Invited TAG members include:

Richard Tedder, Florida Department of Environmental Protection (Tallahassee)

• Gary Bennett, Sarasota County

• Jason Gorrie, Covanta

• Ron Beladi, Neel-Schaffer, Inc.

• John Power, Pasco County

• John Banks, Geosyntec

• Kelsie Oswald, Pinellas County

• Paul Hauck, CDM Smith

• Jay Berry, Waste Management

• Dawn Templin, FDEP NW District

• Gary Debo, Lake County

TAG Meeting: Currently being scheduled for first week of May 2014