QUARTERLY PROGRESS REPORT

September 1, 2014 to November 30, 2014

PROJECT TITLE: Application of New Leaching Protocols for Assessing Beneficial Use of Solid Wastes in Florida

PRINCIPAL INVESTIGATOR(S): Timothy G. Townsend

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

CO-PRINCIPAL INVESTIGATOR(S): Lena Q. Ma

AFFILIATION: Professor, University of Florida
Department of Soil and Water Science

COMPLETION DATE: September 1, 2015 **PHONE NUMBER:** (352) 392-0846

PROJECT WEB SITE: http://pages.ees.ufl.edu/townsend/research/hc14/

Work accomplished during this reporting period:

Assessing Differences Between LEAF Methods and Standard Leaching Tests

To evaluate how LEAF tests can be applied in a beneficial use scenario, it is important to understand how these tests differ from the leaching tests that are currently used in these types of applications (Synthetic Precipitation Leaching Procedure). Five different test parameters were identified that differed from the SPLP (Extraction time, leaching solution, particle size reduction, filter type, liquid to solid ratio). Laboratory tests were developed by Weizhi Cheng and Justin Roessler to assess the relative impact of these parameters, and these tests and were conducted.

Development of Scenario Specific Test Protocols to be Incorporated in Guidance Documents

Dr. Townsend, Michael Hoffmeister, and Justin Roessler developed a series of commonly encountered beneficial use scenarios where it is necessary to use laboratory data to help predict field concentrations. These scenarios will be included in the guidance document deliverable. Methodologies for correlating lab/field data were reviewed from the literature and produced for these beneficial use scenarios. The methodologies used included the use of analytical solutions for diffusion of elements from a monolithic material and the use of mass flux to correlate laboratory column data to field concentrations.

Information Dissemination Activities:

A TAG meeting was held on October 14, 2014. At this meeting the goals of the project were discussed, feedback was received from TAG members, and preliminary results from testing were presented. Both Drs. Townsend and Ma presented test results. Dr. Townsend's students further discussed the applications and interpretation of this data as well as plans for future work. Previous beneficial use assessments were reviewed by the project team. Input was received from TAG members on the types of wastes that could be included in the laboratory component of the project as well as specific input on the deliverables (e.x. videos of LEAF methods being conducted).

Work planned for the next reporting period:

In the next reporting period the team will identify the three materials for LEAF testing with help of the project TAG. Additionally the team will begin to run LEAF tests on these materials, continue to draft deliverables for the guidance document, and evaluate previous beneficial use assessments conducted in the state of Florida.

Metrics:

1. List graduate student or postdoctoral researchers funded by THIS Hinkley Center project

Name	Rank	Department	Professor	Institution
Roessler, Justin	PhD student	Environmental Engineering	Townsend	University of Florida
Weizhi, Cheng	ME student	Environmental Engineering	Townsend	University of Florida
Hofmeister, Michael	ME student	Environmental Engineering	Townsend	University of Florida
Evandro Da Silva	PhD student	Environmental Engineering	Ma	University of Florida
Ky Gress	PhD student	Environmental Engineering	Ma	University of Florida

TAG Members: Invited TAG members include:

Richard Tedder, Florida Department of Environmental Protection (Tallahassee)

• Jason Gorrie, Covanta

• John Power, Pasco County

• Kelsie Oswald, Pinellas County

• Souhail Al-Abed, US EPA-Office of Research and Development, National Risk Management Laboratory

• Robert Stafford, Duke Energy

• Charles Doud, OUC

• Regina Embry, GRU

• Michael Petrovich, HGS Law

• David Dee, Gardener, Bist, Wiener, Wadsworth, Bowden, Bush, Dee, LaVia, and Wright P.A.

TAG meeting: Tag meeting occurred 10/14/14