FAMU – FSU COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL & ENVIRONMENTAL ENGINEERING
2525 Pottsdamer Street
Tallahassee, Florida

**Tag Meeting No. 1**
**Friday, February 18, 2011**
**10:00 – 12:00, Room B202**

# Minutes

**Project Title:** Comparison of Onsite Biological and Physicochemical Systems for the Treatment of Landfill Leachate with High Ammonium Content
**Tag Members:** Lee Martin, Peter Grasel, Michael Watts, Daniel Kuncicky and Michell Smith
**Principle Investigators:** Gang Chen, Amy Chan Hilton, and Clayton Clark
**Funding Agency:** Hinkley Center for Solid and Hazardous Waste Management (In attendance: Tim Vinson)

# Agenda

**1. Project Overview** (Detailed information will be available at http://www.eng.fsu.edu/~gchen/index_files/Page486.htm)

**2. Ammonium removal by magnesium ammonium phosphate (MAP, $MgNH_4PO_4$ $6H_2O$ or struvite) precipitation**

Impact of $NH_4^+/Mg^{2+}/PO_4^{3-}$ molar ratio

Impact of alkalinity

**3. Ammonium removal by anaerobic ammonium oxidation (Anammox)**

Partial nitrification

Impact of alkalinity

**4. Publication plan for this project**

**5. Potential funding sources for the continuation of related research** — NSF/CBET/Environmental Engineering

## 6. Discussion

The TAG members raised the issue of possible organic and inorganic compound adsorption to MAP precipitate. Leachate from different landfills should be compared in terms of conductivity for MAP precipitation.

Another issue is the heavy metal accumulation in MAP precipitate, which may prevent it from being used as a fertilizer. The toxicity issue has been discussed.

The efficiency of the microbial fuel cell has been discussed. Dan recommended we search the website of Navy Research Lab for more information on the improvement of microbial fuel cell efficiency. He also suggested further investigation on biofouling to enhance the microbial fuel cell efficiency.

Besides stoichiometry, TAG members also suggested the impact of temperature on the ammonium removal be investigated, which is especially important for Anammox.

Other issues of solid waste handling including composting, waste separation, etc. have also been discussed.