State University System of Florida
Hinkley Center for Solid and Hazardous Waste Management

PROGRESS REPORT 2

May 8, 2023

TITLE: PFAS in biosolids: Partitioning during wastewater treatment and leaching from Florida biosolids

COMPLETION DATE: August 31, 2023 (anticipated) –

>> **Note: 4 month extension requested until Dec 31, 2023**

Due to the late start of the project, it will be necessary to request a 4-month no-cost extension for the planned end date.

PRINCIPAL INVESTIGATORS:

- Berrin Tansel, Ph.D., P.E., Professor, Civil and Environmental Engineering Department, Florida International University
- Yelena Katsenovich, Senior Research Scientist, Applied Research Center (ARC), Florida International University
- Natalia Soares Quinete, Assistant Professor, Environmental and Bioanalytical Chemistry, Florida International University

During the first quarter of this project, the following activities have been performed:

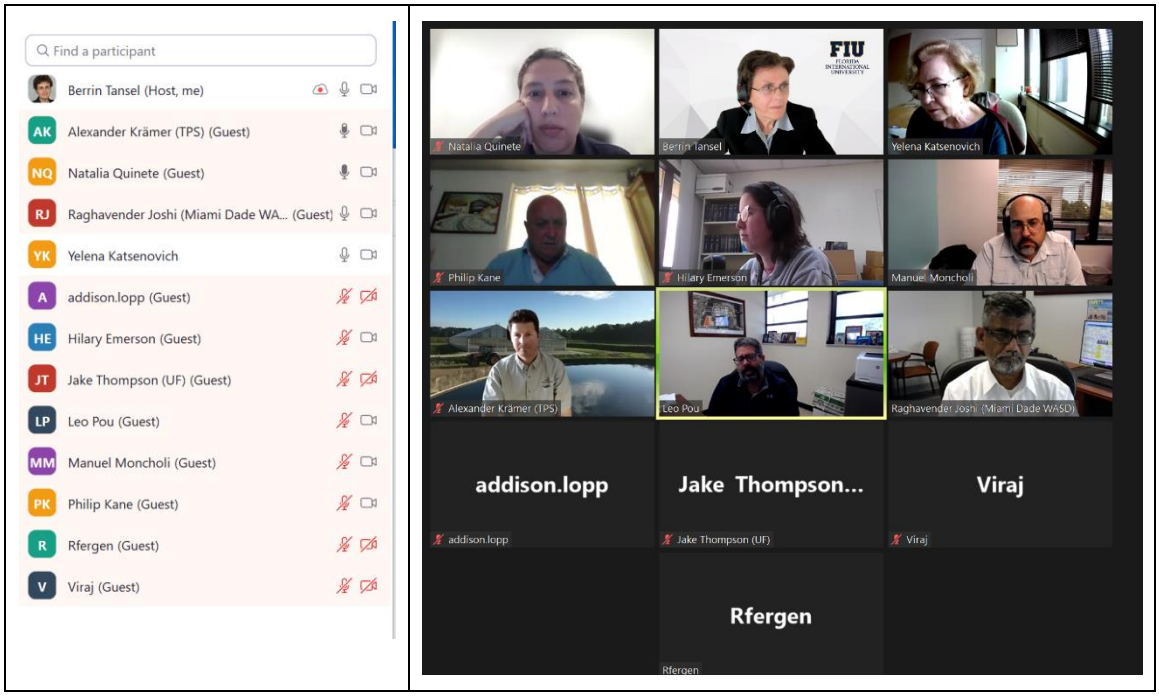
The contract was finalized on December 19, 2023. Therefore, the notice to proceed came 3 months later than the planned project start date of Sept 1, 2022.

During this initial period, the following activities have been performed:

1. The TAG meeting was held on March 20, 2023 via Zoom. During the TAG meeting the following project objectives were presented and discussed by the members:
    - Conduct **sampling of biosolids** after dewatering and drying processes at two Miami-Date wastewater treatment plants (South District and Central District Wastewater Treatment Plants).
    - Analyze biosolids samples for **PFAS content and component profile**; determine the prevalent PFAS compounds.
    - Conduct **leaching experiments** to evaluate the release of PFAS from biosolids under site-specific conditions.
    - Estimate **time dependent solubilization and the release** characteristics of the PFAS homologues from biosolids.

- Further scientific understanding of **PFAS originating from biosolids as a source in the environment**, potential exposure pathways for human health and ecological effects.
- Provide **recommendations** for appropriate testing and land application practices of biosolids in Florida.

The TAG meeting attendees included representatives from Miami-Dade Water and Sewer Department, US EPA, National Labs., representatives from private companies who distribute biosolids, technical experts from Florida Water Environment Federation biosolids group.



During the discussions, biosolids sampling protocol and locations were discussed and agreed.

Additional funding possibilities for students working on the project were discussed. Members agreed that they would be willing to identify additional funds for the research activities.

2. One undergraduate student has been hired and trained in safety procedures and sample handling steps. The paperwork for finalizing the hiring of the second undergraduate have been initiated and is in progress.
3. Regular weekly progress meetings have been taking place with the co-PIs.
4. A project web page has been developed at the following address:

   biosolids.fiu.edu

5. Literature review for PFAS is on-going.
6. Materials for laboratory experiments have been ordered and received.

7. Test plans for leaching experiments, PFAS analyses (expanded for 40 PFAS compounds), and biosolids characterization for (TS, organic content, and protein) have been finalized. Test standards have been received. Test steps have been optimized.

Planned activities for the next 3 months:

1. Continue updating potential TAG members about the progress.
2. Investigate PFAS related data and information as well as biosolids land application practices and potential runoff and partitioning data for biosolids related organic matter.
3. Continue laboratory studies.
4. Continue development of database for compiling and organizing the available data for in-depth analyses.

Planned activities for Quarter 3:

- Continue leaching experiments
- Initiate PFAS fate related simulations.
- Develop abstracts for submittal to biosolids conference.

Months	**Planned Activities**	**Status**
June	• Weekly project update meetings • Conduct leaching experiments	• Continuing • Continuing
July	• Analysis of data from preliminary tests • Conduct leaching experiments • Weekly project update meetings • Conduct PFAS analyses for solid and liquid samples	• Continuing • Continuing • Continuing • Continuing
August	• Weekly project update meeting • Develop modeling methodology for partitioning and leaching of different types of PFAS	• Continuing • Planned