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**Innovation Grant Progress Report**

PROJECT TITLE: *BioElectroChemical Reactor for treating agricultural drainage water (4501-17SP)*

REPORTING PERIOD: April 1 to June 30, 2017

FARMER INNOVATOR: NA

COLLABORATING ORGANIZATION/PERSON: University of Minnesota/Jeffrey Strock

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1.) PROJECT ACTIVITIES COMPLETED DURING THE REPORTING PERIOD. (*Describe project progress specific to goals, objectives, and deliverables identified in your project proposal.*)

***Objective 1.* Select appropriate cathode and anode materials for optimum denitrication for use in objective 2.** A meeting of collaborators was held on September 21st to discuss lab space for conducting the proof of concept experiments, bioreactor treatments, bioreactor design and anode/cathode materials and design.

***Objective 2.* Laboratory column evaluation of electrode material and configurations for their combined biotic and abiotic nitrate and phosphorus removal in previously designed bioreactors.** No work has been done on this objective at this time. A follow-up meeting is planned for early November when research plans will be finalized. Short-term laboratory experiments are planned to be initiated in January 2018.

2.) IDENTIFY ANY SIGNIFICANT FINDINGS AND RESULTS OF THE PROJECT TO DATE. (*There may be none to report at some stages of the project)*

The outcomes of the September meeting resulted in the following outcomes and actionable items.

Two additional collaborators from the UM have joined the team to help advance the project. Sebastian Behrens and Jovan Popovic both from the Department of Civil, Environmental and Geo- Engineering.

1) Acquire lab space in the lab of Dr. Daniel Bond in order to perform the experiements.

2) Bioreactor design: 1 inch PVC columns approximately 12 inches tall. This is to help conserve water for evaluating treatments.

3) Treatments: with electricity and without electricity.

4) "Inoculated" woodchips from a presently working bioreactor in order to reduce the time to "equilibrium"

5) Dr. Gary Feyereisen will design the prototype column which will be built by Dr. Andry Ranaivoson.

6) Dr. Sebastian Behrens and Dr. Jovan Popovic will communicate with the Bond lab and design and fabricate the anodes/cathodes.

3.) CHALLENGES ENCOUNTERED. (*Describe any challenges that you encountered related to project progress specific to goals, objectives, and deliverables identified in the project proposal.*)

NA

4.) EDUCATION AND OUTREACH ACTIVITES. *(Describe any opportunities to engage with farmers, influencers or the media about your project.)*

NA

5.) HOW CAN WE HELP? *(Please let us know how we can improve the experience or assist in your project if possible.)*