**Objective:**
- To study the kinetics of bacterial transport through recharge basin using laboratory scale 2-dimentional model filled with porous media

**Approach:**
- **2-D Model**
  - 24 in x 39 in x 4 in filled with sand.
  - Total Volume of Sand = 3744 in$^3$ 30%
  - Porosity: 2620.8 in$^3$ \(\rightarrow\) 11.35 gal
  - Void Volume: 1123.2 in$^3$ \(\rightarrow\) 4.86 gal
- **Tracer transport** to predict microbial transport behavior
  - Fluorescence
- **Microbial transport**
  - Bacterial Indicator - *E. coli*
  - Viral Indicator - *Bacteriophage P22*
- **Flow conditions**
  - Gravity and forced

**Key Deliverables:**
- Documentation of differences in the transport of bacterial and viral indicators and the risk to the groundwater through recharge practices

**Key Findings:**
- The fluorescein dye travel rate was found to be 0.36 in/hr for the left side, and 0.37 in/hr for the right side
- The fluorescein dye was able to predict the arrival of the bacteria
- The predicted arrival time for the 5 inch port for *E. coli* was 14 hours and 48 minutes for the left side, and 13 hours and 42 minutes for the right side
- Pressure from bottom generated greater bacterial numbers than gravity flow, but the rate was the same

**Budget Requested:**
- No additional budget is requested

**Project Performance:**
- January 2017 – December 2017