Preliminary Report
February 25, 2021
23-NMSU-6D
WERC Environmental Design Contest

Arsenic Removal

Task Plan

Mission Statement:

The goal of this project is to develop a cost-effective arsenic water treatment removal method that could be used in areas with under-developed infrastructure, such as the Colonias in New Mexico.

Proposed Method:

- Sorption will be utilized to remove arsenic species from the water.
- The adsorbent will be biochar or other low-cost materials with a coating (iron- or aluminum-based).
- The adsorbates will include arsenic in the oxyanion forms of arsenite and arsenate.

Analytical Testing Plan

- Synthetic groundwater approximating the composition of the water at the study site will be used for all experiments.
- Multiple batch tests will be performed to compare performance of the different coated sorbents.
- The concentration of arsenic will be measured before and after treatment to quantify the treatment efficiency.
- Test runs will also include column experiments using different sorbents and synthetic groundwater.
- Once the sorbent with the optimal performance is determined, additional test runs will be performed to find optimum operational conditions, such as empty bed contact time and bed life.
- Limited sorbent regeneration experiments will be conducted as well.