

Southeast Houghton Area Recharge Project PFAS Contaminant Transport Modeling

Tucson, Arizona

CLIENT

Tucson Water

HIGHLIGHTS

- Developed and applied contaminant transport model to predict future concentrations of PFAS
- Used MT3D modeling to predict PFAS migration
- Obtained USF permit

Clear Creek Associates developed and applied a contaminant transport model to evaluate the potential impacts of a proposed managed aquifer recharge (MAR) facility, known as the Southeast Houghton Area Recharge Project (SHARP), on groundwater quality. The proposed source water for the project was treated wastewater, which was known to contain low level concentrations of per- and polyfluoroalkyl substances (PFAS); the goal of the model was to predict the future concentrations of PFAS in groundwater as a result of recharging the treated wastewater.

In addition, the model was used to predict the distance that PFAS would migrate in the aquifer, particularly with respect to any nearby potable supply wells.

The transport model was built upon an existing MODFLOW model developed by the Arizona Department of Water Resources, which Clear Creek had used to obtain an Underground Storage Facility (USF) permit. Contaminant transport was simulated using MT3D. A significant obstacle for this effort was the lack of information, at the time, on the transport properties of PFAS. In order to address this obstacle, Clear Creek collaborated with researchers at the University of Arizona, who were leading several studies on this subject. Research to date indicated that PFAS was highly mobile and persistent, and Clear Creek developed the transport model using appropriately conservative inputs.



Credit: USGS