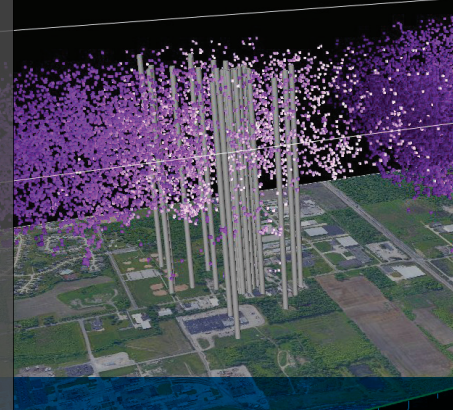# PFAS PREDICT®
GROUNDWATER FATE &
TRANSPORT MODELING

As concerns about the human health and environmental impacts of per- and polyfluoroalkyl substances (PFAS) continue to grow, one area that is becoming more and more important is the ability to determine where these substances are going.

Understanding the behavior of PFAS in groundwater has been identified as a key challenge in developing better knowledge about these chemicals of concern. Battelle has created a tool that aims to help with that understanding.

Our PFAS Predict® program simulates PFAS fate and transport in groundwater with specific inputs for per- and polyfluoroalkyl chemicals typically found in groundwater, aquifer properties, and source release terms related to PFAS.

OUR MODELING EXPERIENCE

Battelle has applied models for projects as common as plume management for petroleum hydrocarbons to topics as advanced as multiple-phase simulation of deep well injection of supercritical carbon dioxide into saline reservoirs. Battelle has worked closely with a number of government agencies and private clients to provide the modeling and visualization required to successfully reach project goals.

Battelle has developed applied groundwater flow and solute transport models to evaluate remedial design configurations, site parameters, and performance monitoring scenarios. Our capabilities range from simple soil leaching models to basin-scale hydrologic models. Battelle utilizes a full suite of public domain programs as well as internally developed computer codes to support environmental needs.

HOW OUR TOOL DIFFERS

The PFAS Predict program is different from similar modeling software because the transport code simulates the mobility of PFAS in groundwater. The program has unique options to scale dispersion processes based on modeling PFAS groundwater plumes.

Our model features:
- Advection
- Dispersion
- Degradation/reactions
- Diffusion
- Sorption (1st & 2nd order, linear, Langmuir, Freundlich)
- Source release options (slug, continuous, disperse, multiple)

The PFAS Predict program is compatible with industry standard MODFLOW groundwater flow models and conceptual site models. However, it is a proprietary program only offered by Battelle for addressing PFAS contamination.

THE PARAMETERS

The input in the modeling process was customized to account for critical parameters related to PFAS groundwater plumes: chemical PFAS properties, pertinent aquifer properties, source zone parameters. This transport model was successfully applied to simulate PFAS plume at site based on total PFAS >1 µg/L in groundwater.

WHAT'S NEXT?

Our PFAS Predict program supports our ongoing work to find solutions for PFAS assessment, site characterization and remediation applications. Services offered by Battelle include remediation system design, evaluation of permeable barrier performance, estimating risk based corrective action levels, determining pump-and-treat capture zones and assessing natural attenuation of groundwater contamination plumes.

BATTELLE

It can be done