

Potential Restoration Methods of Perfluoroalkyl Substances (PFAS) Contaminated Aquifer System

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Abstract:

The U.S. Environmental Protection Agency (EPA) has requested the monitoring of perfluoroalkyl substances (PFAS) in U.S. public water systems to assess their presence in drinking water resources. Among 36,000 water samples, one of Saipan's production wells for drinking water supply recorded the highest concentration of perfluorobutane sulfonic acid (PFOS), at 7,000 ng/L—100 times higher than the health advisory level of 70 ng/L set by the EPA in 2016. In the production well field, a firefighting training center, where aqueous film-forming foam (AFFF) has been frequently used for training, is located. AFFF is regarded as the main source of PFAS contamination; however, the degree of PFAS contamination in the soil and groundwater at this site has not been reported. In this study, the PFAS distribution pattern in the production well field and the groundwater flow pattern were evaluated. Based on the PFAS monitoring results, possible restoration strategies for the site were proposed.

Keywords:

aqueous film-forming foam, aquifer, remediation.