

Characterizing PFAS IDW from Investigative Soil and Groundwater Data

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Background/ Objectives. In spring 2021, during due diligence of a natural gas peaking plant in Wisconsin, it was discovered that second generation aqueous film-forming foam (AFFF) was released on site over time during the testing and certification of the facility's fire suppression system by a third party. The release of PFAS was confirmed by sampling and testing the shallow, potable water supply well and subsequently reporting the release to the regulatory agency. Characterizing the PFAS contamination and data gathering to estimate the cost and timeliness associated with the investigation and remediation of the Site immediately became time sensitive priorities to preserve the deal.

Approach/ Activities. Two phases of soil investigation characterized the Site concurrently with the installation of groundwater monitoring wells. PFAS were established as the sole contaminant of concern for the Site investigation. The first seven groundwater monitoring wells were installed using rotosonic drilling. A deep piezometer well was subsequently installed using mud rotary drilling in the summer of 2021. In winter of 2021, five Westbay® multiport wells were installed using rotosonic drilling with the bottom of each well landing approximately 300 feet below ground surface (ft bgs). PFAS-free drilling water was available at the Site from a demineralized water tank used for plant operations that is supplied from a deep industrial well. Drilling returns and formation water were stored onsite in nine 1,500-gallon polytanks during the warm months and in a 20,000-gallon frac tank in the winter. Predominantly solid materials from drilling were managed in 55-gallon drums. Both on-site treatment and off-site disposal of the aqueous investigation derived waste (IDW) were evaluated. Off-site disposal was selected when the regulatory agency would not expedite the permitting process for on-site treatment and discharge. Transportation and disposal were staged throughout the investigation to meet the storage capacity limitations as IDW was generated.

Results/ Lessons Learned. Over 50,000-gallons of aqueous IDW were generated from drilling and well installation. This water was disposed of at a commercial wastewater treatment facility in Michigan that has an NPDES discharge permit for PFAS. Eighty-eight drums of solid materials were disposed of in a Subtitle C landfill. The waste profiles for the IDW were established and accepted using the analytical data generated from the soil and groundwater investigation without requiring additional sampling and profiling of the frac or polytanks. Additionally, the IDW waste profile was able to be used for the disposal of 1,000 tons of excavated soil and materials at the Site during the implementation of an interim action remedy. Cold conditions determined the storage options for IDW as the season changed to winter and drilling and installing multiport wells proved to be more difficult when temperatures were well below freezing. Installation of additional groundwater monitoring wells will take into account seasonal challenges now that the aggressive timeline for the Site investigation and remediation associated with due diligence for the sale of the facility have been met. The polytanks remain at the Site for the storage of water generated during groundwater sampling and future actions.