Redox Tech

DualSorb™ PFAS Immobilization Pilot

Cape Cod, Massachusetts

- **Equal for All PFAS Compounds:** where activated carbon struggles, DualSorb™ outperforms traditional PFAS sorptive media by binding both short- and long-chain PFAS compounds.
- **Customized Particle Size:** particle sizes from 15 to 300 microns that are optimized for the site geology
- **First field application of DualSorb™:** This pilot test demonstrates that PFAS contamination can be immobilized *in situ*, at depths greater than 115 feet below ground surface.
- **Progressive PFAS Attenuation:** Targeted monitoring wells show up to 82% reduction in PFAS concentration in first 60 days following injection.
- **Reduction to MCL by 115 days post injection:** Projected attenuation rates suggest PFAS concentrations will be below Massachusetts MCL by 115 days post injection.

DualSorb™ – Bimodal PFAS Attenuation Mechanism

DualSorb™ is a patent-pending dual-action media developed by Redox Tech for *in situ* binding of PFAS compounds in soil and groundwater. DualSorb™ combines two proven technologies commonly used in drinking water treatment systems: Adsorptive Carbon (AC), and Ion Exchange Resin (IXR). The PFAS anion is exchanged with a chloride ion on the IXR surface. **Figure 1** shows the primary mechanisms in the two media – adsorption and irreversible ion exchange. The IXR is irreversible under naturally occurring environmental conditions and is robust at capturing short chain PFAS compounds for which AC is inefficient.

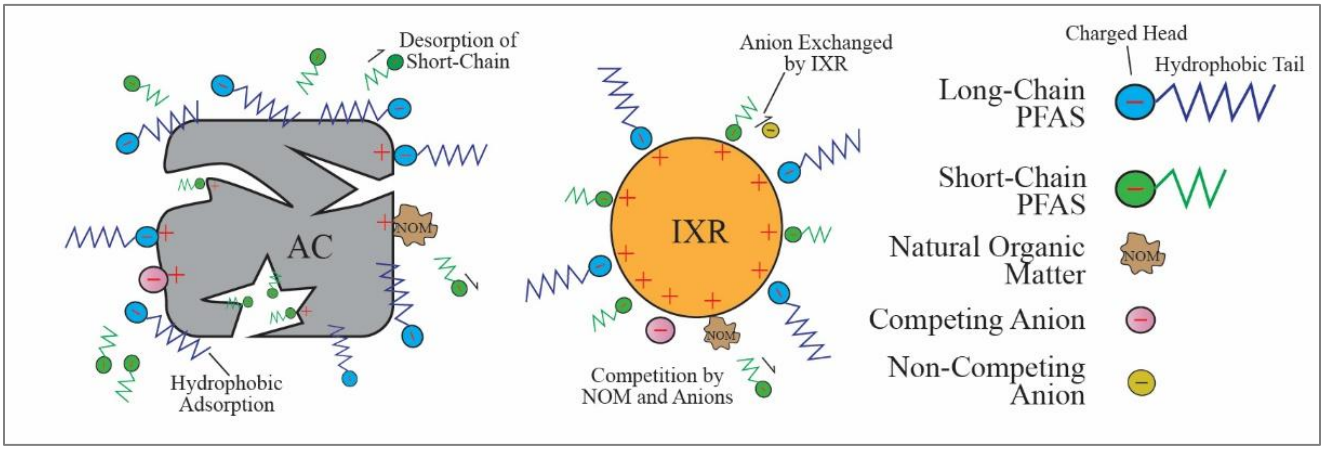

Figure 1. Primary PFAS sorption mechanisms in AC and IXR.

Study Site

After completion of a successful laboratory study, a pilot test was completed in Cape Cod, Massachusetts in a relatively deep glacial outwash aquifer. The aquifer serves as the primary source of drinking water for both private wells and public water systems.

Redox Tech's proprietary Direct Sonic Injection (DSI™) was utilized at six locations upgradient from two performance monitoring wells. DualSorb™ was injected into the subsurface at two- and three- foot vertical intervals to target impacted groundwater from 115 to 130 ft below land surface (bls). **Figure 2** below shows the location of the injection and monitoring points. The injection points were spaced at varying distances from the performance monitoring wells to determine the radius of influence.

Figure 2. Injection and Monitoring Point Locations

PFAS Attenuation & Removal Efficiency

Analytical results from groundwater sampled 11, 16, 38, and 60 days after DualSorb™ injection show progressive PFAS attenuation in both MW-14S and MW-3. Sixty days after the injection, concentrations of the six PFAS compounds regulated by Massachusetts were reduced by 82%. Total PFAS concentrations were 51% and 74% lower than recent pre-injection sample results in the target monitoring wells. Post-injection groundwater samples showed positive removal trends in both monitoring wells. Importantly, removal efficiency was equally consistent among both short- and long-chain PFAS compounds. Full-scale implementation is planned for the second quarter of 2026 and will include source area capping and tighter injection point spacing.

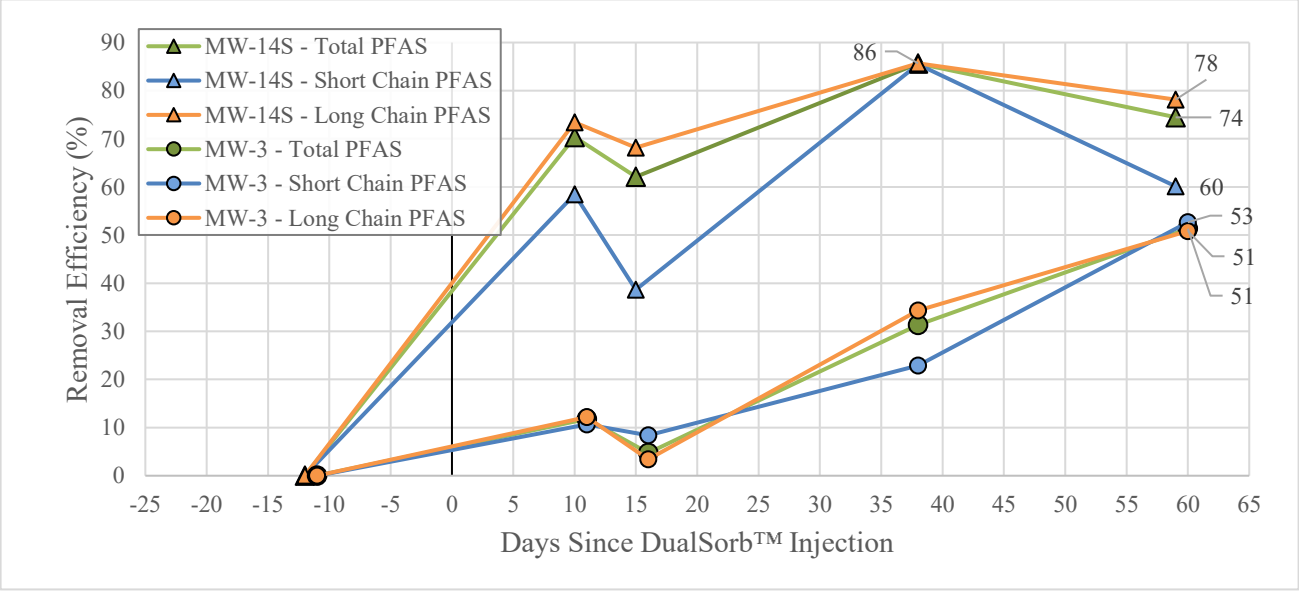

Figure 3. DualSorb™ Performance Results