

PROJECT HIGHLIGHT

DESIGN AND IMPLEMENTATION OF PFAS INJECTION PILOT TEST

At a former metal plating facility, soil and groundwater was contaminated with production waste including hexavalent chromium and PFAS (PFOS, PFHxS). Cascade was brought in to perform a pilot test to demonstrate the feasibility of full scale remediation of groundwater. The pilot test was conducted in the center of the plume consisting of 10 direct push injection locations in the vicinity of 2 newly installed monitoring wells.

LOCATION: Texas

PROJECT: Design, Cascade Chemistries, and Implementation of Pilot Test at Metal Platers

SERVICE: Cascade Chemistries ColloidalChem+ISCR™

To combat the challenging lithology, Cascade utilized our ColloidalChem + ISCR technology for hexavalent chromium reduction and PFAS sequestration - chemistries that include caustic and colloidal carbon activation of sodium dithionite. This combination was selected because the particle sizes achieve better and lower pressure distribution in heterogenous lithology and proven efficiency on site contaminants versus another option of high pressure fracturing of Powdered Activated Carbon and ZVI.

RESULTS

During monitoring events post injection, MCLs were met for hexavalent chromium and PFOS/PFHxS contaminated groundwater within the pilot test area. Rebound concentrations were from upgradient contaminated groundwater entering the treatment area post injection. **Red** is baseline, **Orange** is reductions from baseline, and **Green** is MCLs.

Performance Results:

PFAS DATA (NG/L)		OB-03		OB-4		Cr DATA (ug/L)		OB-03		OB-4	
		PFHxS	PFOS	PFHxS	PFOS			Cr (tot)	Cr (VI)	Cr(tot)	Cr(VI)
9/25/2023	Baseline	110	3100	81	2500	9/25/2023	Baseline	49,000	6,000	83,000	71,000
8/5/2024	18 Days	11	220	0.85	5.6	8/5/2024	18 Days	312	<0.5	11,400	14,000
8/19/2024	32 Days	5.5	110	14	3.8	8/19/2024	32 Days	60.5	<0.5	14,900	17,000
9/16/2024	2 Months	1.8	23	65	140	9/16/2024	2 Months	824.0	1,200	13,900	19,000
% Reduction		98%	99%	20%	94%	% Reduction		98%	80%	83%	73%