



## SITE BACKGROUND

A site located in the southwest United States experienced a hexavalent chromium (Cr VI) release as a result of the manufacturing process. A plume of hexavalent chromium in the subsurface had a depth to perched groundwater of approximately 3.1 meters and a saturated zone of 3.1 meters thick. A treatment area of 30.5 meters by 61.0 meters was proposed using ABC+ (Anaerobic BioChem+). ABC+ created reducing conditions at the site converting water soluble hexavalent chromium to trivalent chromium (Cr III). Trivalent chromium is a relatively insoluble form so successful treatment removes both total chromium and Cr VI from groundwater.

## SITE BACKGROUND

ABC+ was injected at multiple depths through Geoprobe® rods in fifteen (15) locations. Injections took approximately four (4) days in July 2012. Direct push technology (DPT) injection locations are shown in figure 1.

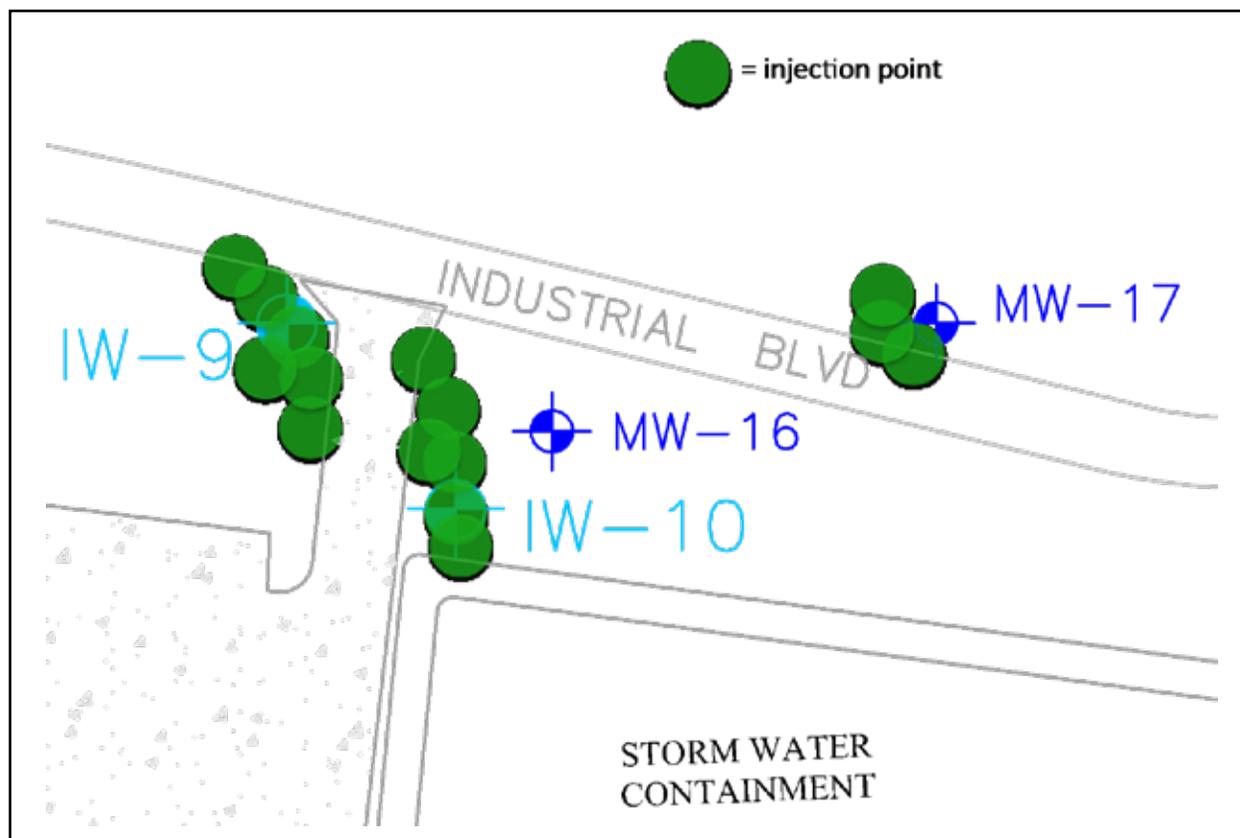


Figure 1: ABC+ Injection Locations



## RESULTS

The initial concentrations of hexavalent chromium were as high as 5.0 mg/L. Hexavalent chromium and total chromium were reduced more than two orders of magnitude in less than three months and continued to decrease at subsequent monitoring events to 0.01 mg/L nine months after injection. Hexavalent chromium, total chromium, and total organic carbon (TOC) results are listed in table I.

Sample Date	MW-16				MW-17		
	Chromium VI (mg/L)	Total Chromium (mg/L)	Total Organic Carbon (mg/L)		Chromium VI (mg/L)	Total Chromium (mg/L)	Total Organic Carbon (mg/L)
2/16/12	5.06	4.92	NA		0.329	0.327	NA
5/17/12	5.93	5.62	2.61		0.417	0.425	4.96
7/24/12 through 7/27/12 ABC+ Injections							
10/17/12	0.02	0.02	154		0.025	< 0.005	134
4/17/13	0.01	0.01	3.74		0.005	< 0.005	2.09

Table I: Results

## SUMMARY

As a result of a manufacturing process, a site in southwest United States had a release of hexavalent chromium with concentrations around 5.0 mg/L. Approximately less than one (1) year post injection of ABC+, concentrations were reduced to approximately 0.01 mg/L.