




## CASE SUMMARY:

### CHLORINATED ETHYLENE SOLVENT TREATMENT IN FORT WORTH, TX

**OVERVIEW** Perchloroethylene (PCE) was detected downgradient of a site responsible for degreasing of mechanical parts. Improper disposal of PCE over several years is the likely source of the contamination. Previously, a large volume liquid injection of permanganate was deployed at the site. This deployment resulted in daylighting of the oxidant in a nearby drainage ditch, causing significant unrest in the local community. This site is a high traffic area, visible to the public, with multiple buried utilities, therefore ruling out excavation options. Remediation of this site is further complicated by tight clay geology.

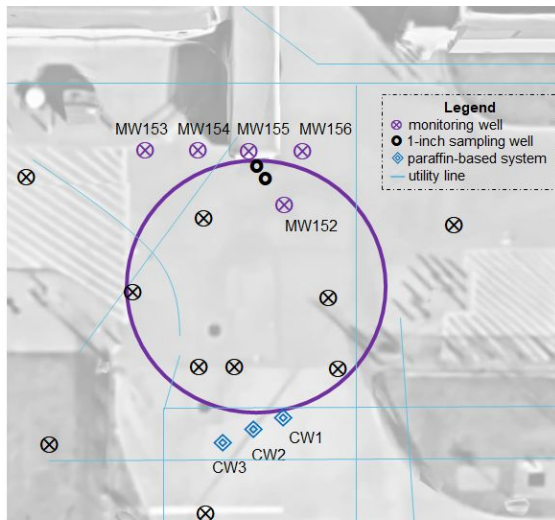
**APPROACH** To address these challenges, the RemRx<sup>TM</sup> technical consulting team worked with site managers to deploy our patented controlled-release formulation, RemRx<sup>TM</sup> CRP permanganate, as a minimalistic approach to ensure continuous degradation of contaminants while avoiding any chance of daylighting. RemRx<sup>TM</sup> CRP-packed canisters were placed at the top of the PCE zone, and natural groundwater flow was used to diffuse the oxidant out into the formation. This provided a low maintenance and low above-ground disruption option for this high-visibility site. Pilot testing aimed to determine the radius of influence (ROI) of RemRx<sup>TM</sup> CRP in the tight clay area and to compare performance to other slow-release methods (e.g., paraffin-based system).

**PRELIMINARY DATA** In February 2019, 80 lbs. of RemRx<sup>TM</sup> CRP were deployed by suspending rechargeable canisters in four 4" wells (MW153, 154, 155, 156) (Figure 1). Controlled release is confirmed by measuring groundwater oxidant concentrations. ROI was measured from GW sampling and soil borings, and determined to be 5 ft (expected for the tight clay geology). Preliminary results indicated greater permanganate release per pound of product as compared to the paraffin-based system (Figure 2). Full deployment will involve DPT of RemRx<sup>TM</sup> CRP in grid pattern to remediate the remaining contaminated zone.

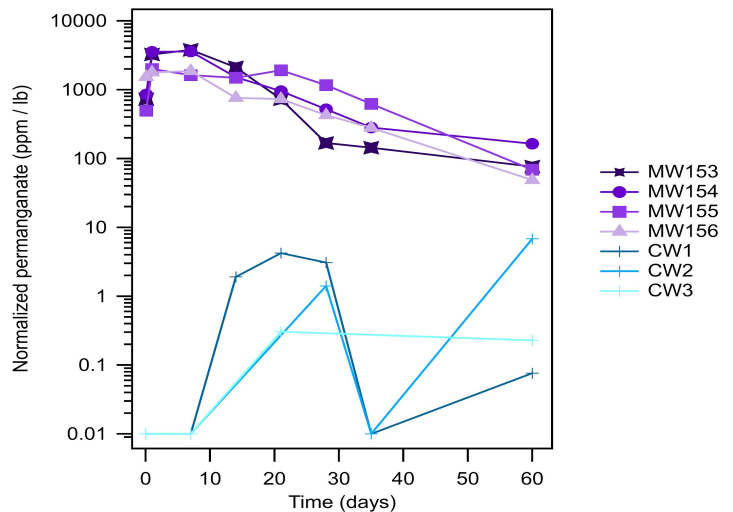


- **RemRx<sup>TM</sup>** manufactures innovative solutions to solve widespread environmental issues, such as groundwater contamination.
- **CRP** is a patented controlled release system that provides a time-release, prescriptive oxidant dosage for sustained delivery into the subsurface with only a single deployment. This extended release provides a constant feed of oxidant to combat natural oxidant demand and back diffusion in order to mitigate rebounding and tailing issues that are common to traditional ISCO treatment methods. Ultimately, this means increased efficiency and decreased total project costs.
- **RemRx<sup>TM</sup> CRP** based treatments utilize a range of oxidants and can be used to remediate chlorinated solvents, petroleum products, and numerous other contaminants of concern.

**RemRx<sup>TM</sup> is actively seeking innovative Remediation Site Managers for pilot and test site deployments. Contact us for more information.**



**Figure 1.** Site map showing location of monitoring wells. RemRx<sup>TM</sup> CRP was deployed in MWs 153-156. Paraffin-based systems were simultaneously deployed in wells CW1-3 (blue diamonds). Sampling wells (1" between MW 155 and MW 152 are used to determine ROI.



**Figure 2.** Concentrations of permanganate released from RemRx<sup>TM</sup> CRP (purple) compared to a paraffin-based system (blue). Concentrations are normalized to the mass of permanganate deployed. RemRx<sup>TM</sup> CRP releases at higher and more sustained concentrations than the paraffin-based system.