

## TerraStryke® ERDENHANCED™

### Residual DNAPL Source Zone Remediation

Simple Additive Delivery Approach; Future Retail Development, Ottawa QC

**TerraStryke®** Products LLC develop and distribute biostimulation additives proven to maximize the performance of your remediation project, expediting contaminant destruction, eliminating rebound, realizing long-term compliance with minimal impacts and **less cost**.

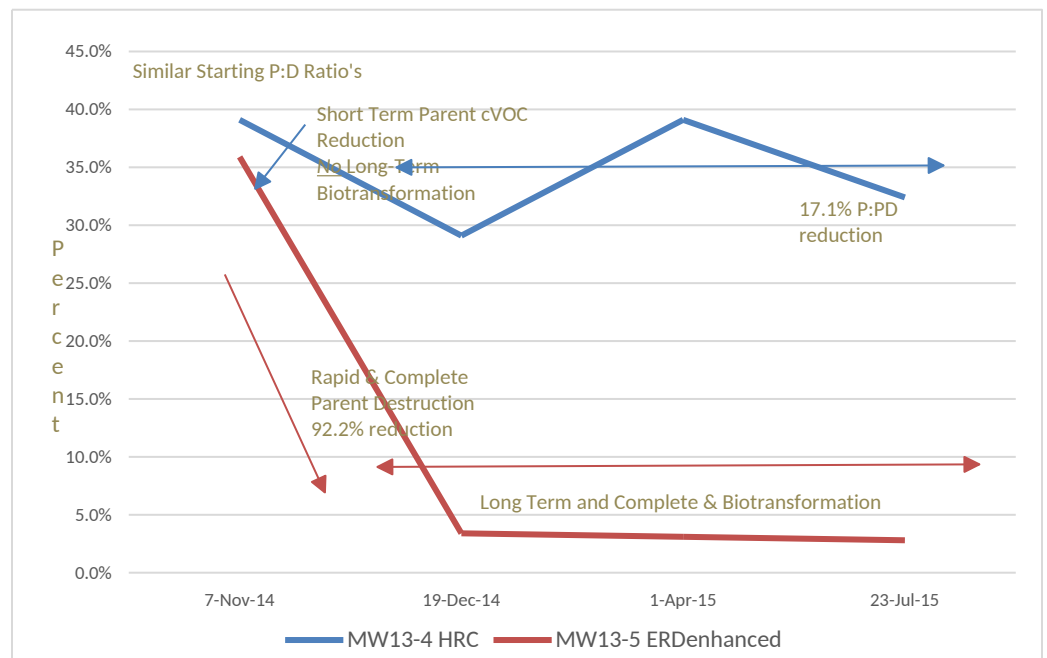
**Site:** Future retail development site contaminated with Trichloroethylene (TCE) in groundwater at dissolved-phase concentrations indicative of residual DNAPL.

**Process:** 9-month evaluation with six monitoring wells amended using additive filled Passive Release Sock (PRS) deployment units; three monitoring wells amended with **ERDENHANCED**, 3 amended with industry standard carbon-based sole electron donor HRC. One well monitored as Control. Groundwater monitoring/sampling was performed with each replacement event.

**Results:** **ERDENHANCED** amended wells realized an average **92.2%↓** reduction in Parent;Parent Daughter ratios and **≈80%↓** reduction in diss.phase concentrations TCE.

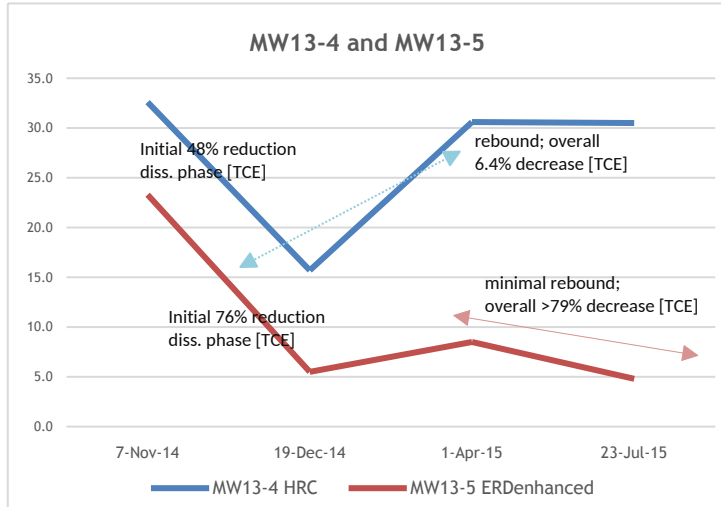
The competing HRC realized **≤17% reduction** in P:PD ratio, **≤7% reduction** in [TCE].

**Conclusions:** **ERDENHANCED** restores the microbial ecosystem to allow indigenous microbial populations to evolve and adapt to existing site conditions and exploit available organic compounds as energy. Increased **destruction**, seen as reductions in P:PD Ratio's, ensure long-term compliance and **complete** contaminant destruction.



The graph above demonstrates the superiority of **ERDENHANCED** in terms of performance, sustainability, and contaminant destruction. Our biostimulation additive allow you to realize site compliance by maximizing your remediation dollar.

After initial deployment both additives facilitated reductions in dissolved-phase concentrations and P:PD Ratio (residual DNAPL mass) realizing 76% reduction (ERDenhanced), 52% (HRC); however, over time concentrations and P:PD Ratios of TCE at the HRC test location returned to baseline conditions. No compliance without repeated deployments and costs. The ERDenhanced amended well realized ≥92% reduction in concentrations of dissolved-phase TCE (vs. 6.4% HRC) and a >95% reduction in the P:PD Ratio over the 9-month evaluation documenting *complete* contaminant destruction!



Baseline Parent:Parent Daughter Ratio similar.  
Dissolved-Phase [TCE]  
32.6 mg/L HRC location.  
23.3 mg/L ERDenhanced

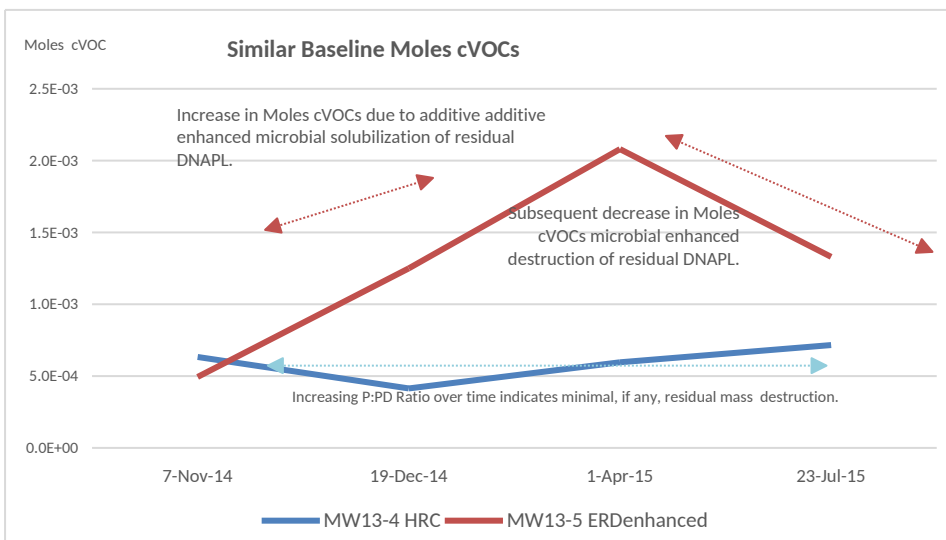
Initially, both amended locations demonstrate enhanced dissolve phase dehalorespiration

HRC amended well cannot maintain dehalorespiration experiencing rebound of Parent [TCE]

Only 6.4% overall reduction in [TCE] during evaluation period.

ERDenhanced realized sustainable reductive dechlorination with:  
80% reduction in [TCE]

ERDenhanced realized >92% decrease in P:PD Ratio  
Complete biotransformation



Increase in moles of cVOCs at the ERDenhanced well indicates expedited solubilization of DNAPL.

Subsequent *reductions* in P:PD Ratio confirm residual DNAPL destruction.

Failure to realize reductions in P:PD *no* effect on DNAPL (competing well).

ERDenhanced supports sustainable and *complete* reductive dechlorination of cVOC contaminants by indigenous microbial populations.

ERDenhanced restores the microbial ecosystem (treatment zone) supporting growth, communication, QSS and the development of biofilm.

### What does this mean to you?

Expedited site compliance by organically eliminating rebound upfront, destroying residual DNAPL and dissolved-phase cVOC contaminants faster, while sequestering Greenhouse gasses; all, with less-impacts, less-effort, and less-cost. TerraStryke® Products LLC develop and distribute biostimulation additives proven to cost-effectively maximize the performance of your remediation project; expediting contaminant destruction while eliminating rebound to realize long-term compliance organically, with minimal impacts, and **less cost**.