

## BOS 200® Achieves No Further Action at Washington State UST Site

### SUMMARY

Trap & Treat® BOS 200® was used to remediate petroleum hydrocarbon impacted groundwater in shallow overburdened soil at a former retail gasoline site in Washington State. BOS 200® was surgically injected to successfully achieve the site cleanup goals. A No Further Action was issued in August 2017.

### CHALLENGES & OBJECTIVES

The site is a retail service station and convenience store. A release was discovered at the site in 1988 associated with the UST systems. Gasoline-range hydrocarbons were detected in soil exceeding the Model Toxic Control Act (MTCA) Method A Cleanup Levels (CULs) from nine (9) to 27 feet below land surface. Soils on-site have been identified as coarse-grained sands and gravels.

### APPROACH

- Based upon historical analytical data, depths between 12 and 27 feet BLS were selectively targeted for treatment.
- The selected technology for the remedial action was Trap & Treat® BOS 200®. Four (4) areas of residual impact received a total of 34 injection points on 7.5-foot triangular-grid spacing. The second round of in-situ BOS 200® injections was conducted near MW-9 on January 12, 2015. The second injection event specified an additional 10 injection points installed in the targeted area. The site met the requirements of Groundwater Model Remedies No. 5 and was issued a No Further Action in August 2017.
- 4,195 lbs BOS 200®, 2,150 lbs gypsum, 15 gallons of bacteria concentrate were

### LOCATION

Centralia, Washington

### CLIENT

Washington State

### SOLUTION

- Data analysis/design (fall 2013)
- Initial Injection of BOS-200® (April 2014)
- 2nd Injection of BOS-200® – (January 2015)
- No Further Action – Washington DOE August 2017

Treatment Areas (total) – 1,145 sq. ft.

Depth to groundwater – 8 to 19 feet BLS

Contaminants – Gasoline-range hydrocarbons and associated constituents

### RESULTS

Gasoline-range hydrocarbons were reduced by ~77% immediately following the initial injection. After a single sampling event spike in TPH-GRO, concentrations then dropped to a historic low (~92% drop). A second injection was conducted near MW9, dissolved concentrations of gasoline-range hydrocarbons and other VOCs remained below Method A CULs for four (4) consecutive quarters of groundwater monitoring post injection.

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