

BOS 200® PRB Application in Difficult Geology

ABSTRACT

An unknown quantity of gasoline was historically released at an active service station. The released gasoline subsequently impacted soil and groundwater at the service area. The wetland area, downgradient of an embankment, has also been impacted by petroleum. A BOS 200® PRB was installed to limit the groundwater mass flux between the source area and the wetlands.

PROJECT TIMELINE

- BOS 200® PRB Pilot Test (June 2015)**
- BOS 200® Full Scale PRB (November 2015)**
- BOS 200® PRB Extension (February 2017)**

APPROACH

- 150 feet long PRB - 88 Injection Points (4 rows of points spaced approximately 7.5 feet apart)
- Due to rubble and blast rock, injection points were pre-drilled using sonic to bedrock interface (ranging from 34 to 57 feet)
- The pre-cleared holes were backfilled with hydrated bentonite to maintain and seal the boreholes
- 45,000 lbs of BOS 200® and 28,500 lbs of supplemental food grade gypsum were installed from 26 feet to top of bedrock.
- Injections were completed top down using direct push through the backfilled hydrated bentonite.
- Three (3) new monitoring wells were installed after the pilot test so that the data would not be biased by the activated carbon.

RESULTS

The PRB has been monitored for over 1,000 days post pilot test (Figure 1). The BTEX mass flux continues to be significantly reduced. The terminal electron acceptor (TEA) concentrations are also being monitored. When the concentrations decrease to background another round of injections may be needed to recharge the TEAs to maintain the biological activity within the PRB.

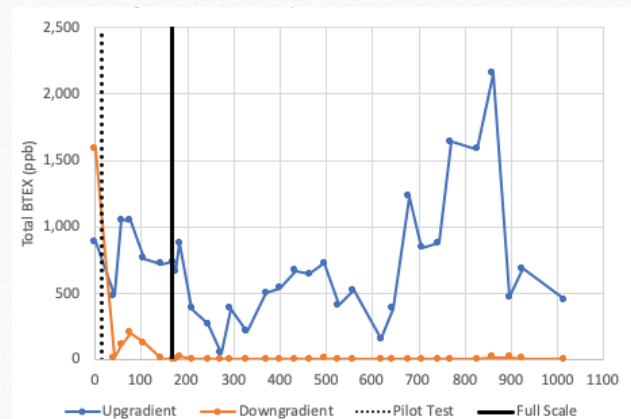


Figure 1. Total BTEX Up and Down Gradient of PRB

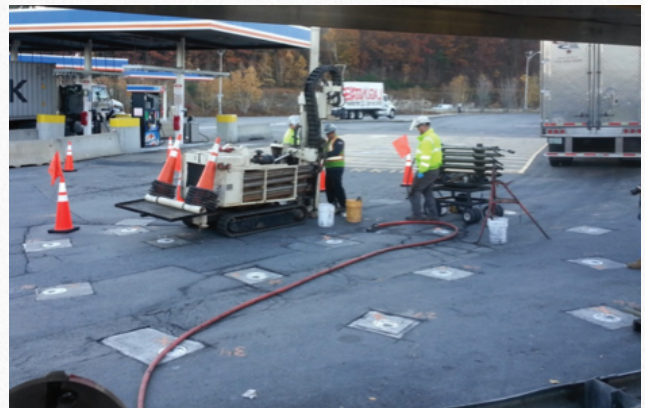


Figure 2. Project photograph showing injection locations