



Clean Globe Environmental

THE DIRECT SPARGE PACKER

The Direct Sparge Packer (DSP) is a technology that Clean Globe Environmental LLC (CGE) has applied to various sites to remediate contaminated soil and groundwater. The technology is applicable to most retail petroleum gasoline stations, dry cleaners, hazardous waste sites, and residential fuel oil spill sites. CGE has documented success reducing concentrations of volatile and biodegradable contaminants from gasoline, diesel fuel, heating oil, jet fuel, and chlorinated solvents.

Through targeted injections, CGE has been successful remediating spill sites while helping clients avoid costly capital purchases. By inserting the DSP into specially designed remediation wells, maximum dosage can be applied directly to the impacted area. Through CGE's process the trained operator can monitor the effectiveness, and make real-time adjustments to optimize the treatment and maximize the cleanup. The DSP may also be applied to existing monitoring wells.

Permanent Air Sparge and Soil Vapor Extraction (AS/SVE) Systems can achieve 70% of removal in just the first 30 to 90 days of operation. After that, the system no longer operates efficiently because adjustments and modifications that may be necessary are



too costly or not practical due to site constraints. The result is money thrown away on years of costly utilities, and O&M. Using the DSP as a follow up or polish to a conventional AS/SVE system is an excellent means to obtaining the ultimate goal of a No-further-Action (NFA) letter.



The DSP provides a practical, inexpensive, adjustable approach to effectively get the job done. Use of the DSP can easily be modified to include enhancements such as nutrient, surfactant, ozone, and chemical injection to targeted areas.

The low profile equipment and setup eliminates disruption to businesses and allows for mobility on site to treat multiple areas on the property in single day.

**FIGURE 1: Gasoline S/S
Brooklyn, NY
BTEX Concentrations**

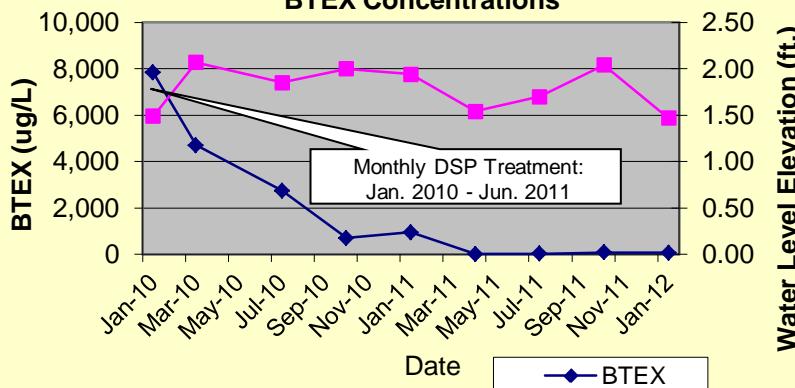


Figure 1: presents groundwater monitoring data from a monitoring well at a retail gasoline service station.

- Monthly remediation events were conducted using portable equipment to inject air into the ground using the DSP.
- A vacuum blower was used to collect vapors from the vadose zone from a nearby monitoring well.
- The results were very positive and the dissolved BTEX in the groundwater was greatly reduced.