



## **Case Study: IL Gas Station**

### **Project Summary**

In-situ biological was applied at a gasoline service station in Eastern, Illinois. The geology consisted of a largely excavated area filled with pea gravel, underlain with a clay layer. The bulk of the contamination was sorbed phase material in this layer as well as the aquifer directly underneath. Contaminants including benzene, toluene, ethyl benzene and xylenes (BTEX) were found in the both of these zones. Another concern was the off-site migration towards an elementary school.

The remedial approach consisted of a synergistic application of in-situ and ex-situ technologies. Three extraction and six infiltration wells were installed throughout the site. These were connected to a PLC controlled FBR/SBR unit which, heated the groundwater to approximately 85 degrees Fahrenheit, discharged into a fluidized biological bed reactor, followed by a two-stage sequential batch reactor, into an effluent tank. This system main purpose was to retract the plume and create a soil washing condition.

This site also utilized a 4-phase in-situ biological injection program. This program targeted the predominant sand between 17-19 feet. IET's liquid petroleum degrader, oxygen sources and nutrient blend were utilized during these phases. This was both to inoculate the site with the necessary pseudomonas as well as to prevent oxygen depletion. These phases were conducted approximately 100 day apart.

### **Outcome**

Over a period of 18 months, the plume on this site has contracted back to the immediate source area, total BTEX concentration have been reduced from as high as 77 mg/l to levels just above detection limits. This site is closed.

“A resource for environmental professionals seeking innovative remedial alternatives.”