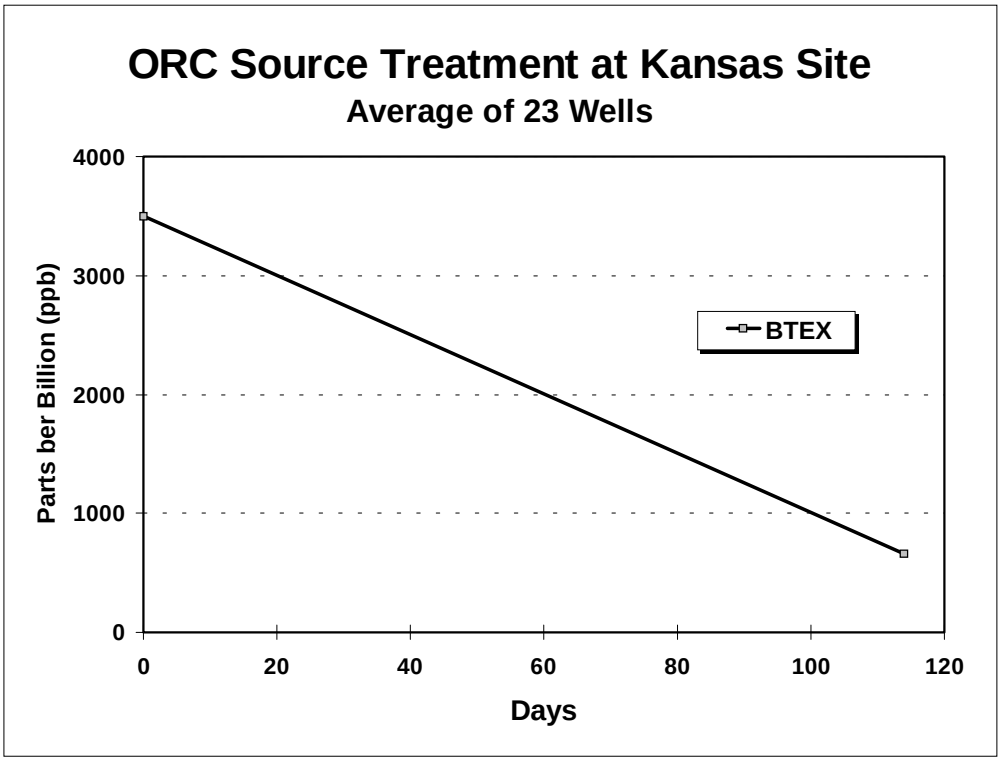
Slurry Injection BTEX Remedation in Kansas

Contaminants	Application Method	Soil Type	Groundwater Velocity
BTEX	Slurry Injection	Sand	0.2 ft/day

One of the most intensively studied source treatment applications using an ORC slurry was carried out in Great Bend, Kansas. The site had releases from two gas stations on adjacent corners that formed a commingled dissolved phase hydrocarbon plume over an area of 500' x 350'. Although initial investigations and testing revealed that an air sparging and SVE system could be installed, there were several drawbacks. In addition to a capital cost of $300,000, there were both physical limitations for the placement of equipment and residential nuisance issues. ORC was chosen to enhance aerobic remediation in the anoxic core of the plume.

The saturated zone, which consisted of medium to coarse grained sand eight feet bgs, was treated with ORC placed by Geoprobe injection techniques. Groundwater was flowing east at a rate of .2 ft/day. Based on calculations of BTEX mass in the core of the plume, 2,325 pounds of ORC were injected into 118 points throughout the site. After three months, the ORC treatment reduced BTEX by 81%, as shown in Figure 1. A visual representation of the clean-up is presented in Figure 2. The cost of this project was $23,600 for ORC plus about $24,000 for implementation. This represents substantial cost savings relative to air sparging capital and O&M.

Figure 1



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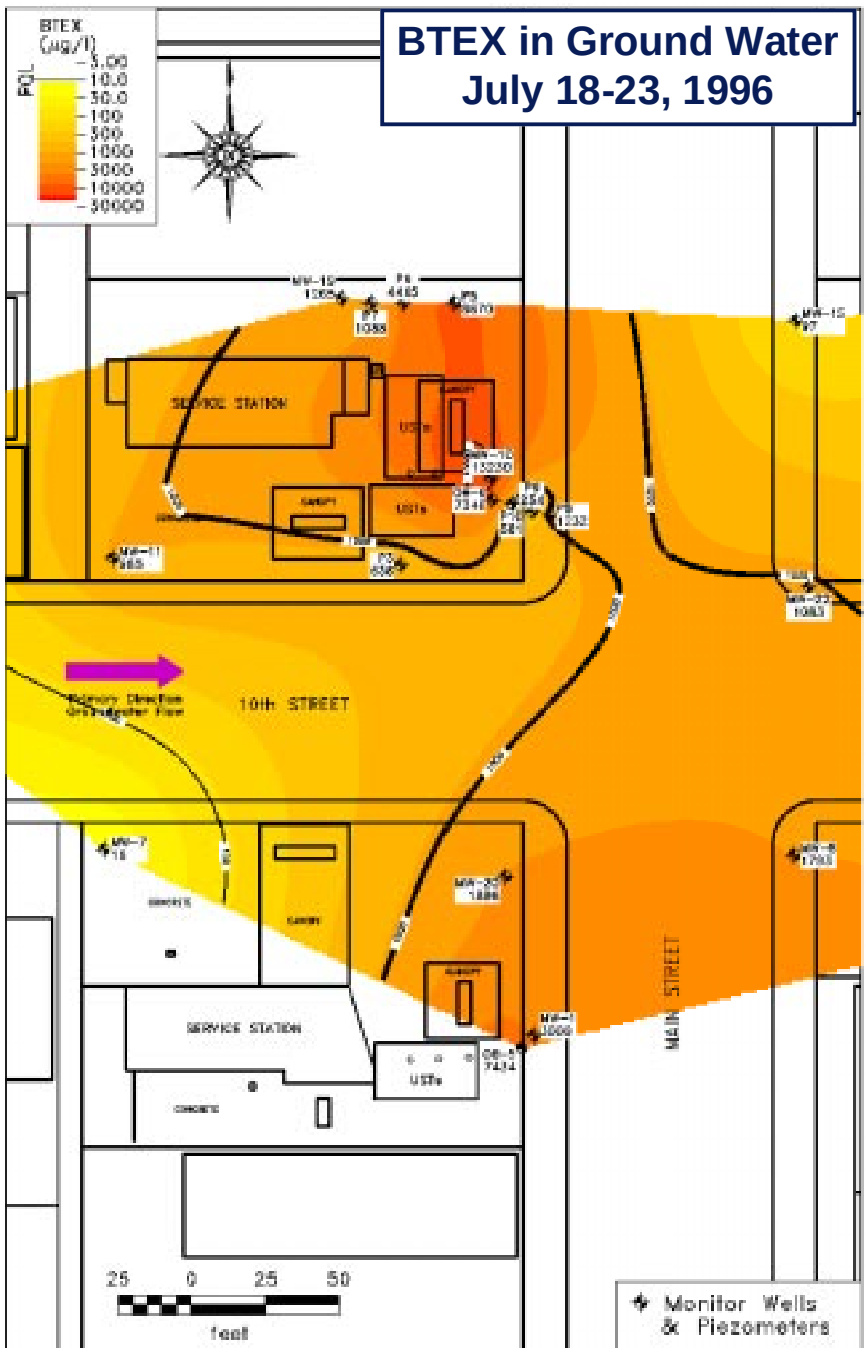
BTEX in Ground Water
July 18-23, 1996
BTEX (µg/l)
PQL
5.00
10.0
50.0
100
500
1000
5000
10000
30000
SERVICE STATION
10th STREET
MAIN STREET
USTs
Primary Direction Groundwater Flow
25 0 25 50
feet
Monitor Wells & Piezometers

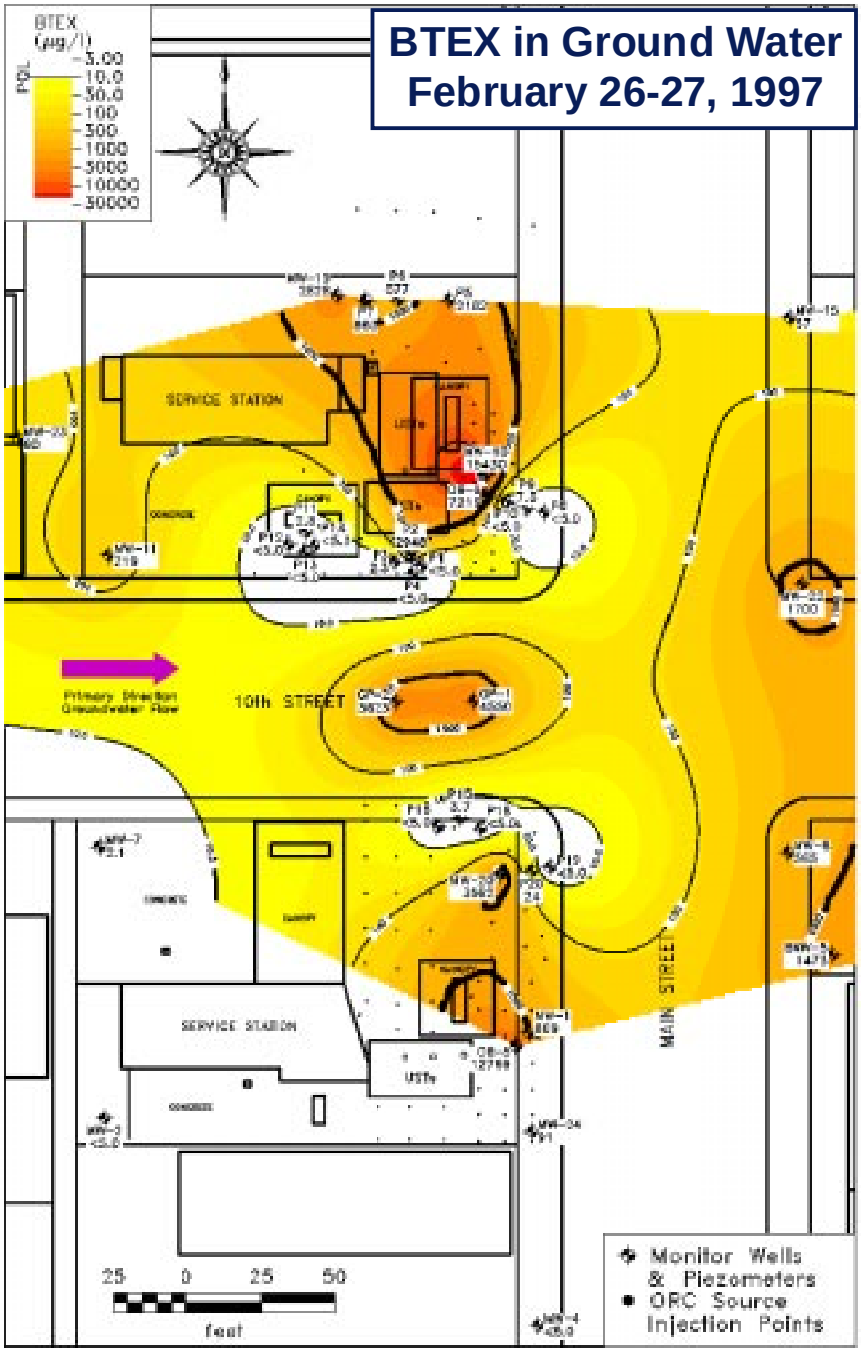
BTEX in Ground Water
February 26-27, 1997
BTEX (µg/l)
PQL
5.00
10.0
50.0
100
500
1000
5000
10000
30000
SERVICE STATION
10th STREET
MAIN STREET
USTs
Primary Direction Groundwater Flow
25 0 25 50
feet
Monitor Wells & Piezometers
ORC Source Injection Points

Figure 2