

## Urban Petrol Station Redevelopment, Trieste, Italy

### Aerobic Bioremediation Treats MtBE and BTEX



#### Summary

Leakages from underground storage tanks (UST) at a former petrol fueling station in Trieste resulted in MtBE and BTEX contamination impacting the groundwater (with concentrations of 260 µg/L and 30 µg/L respectively).

As the site was undergoing redevelopment, remediation was required to reduce contaminant levels to 40 µg/L MtBE and 1 µg/L BTEX.

#### Treatment

The 140 m<sup>2</sup> target area was treated through a campaign comprising of 14 injection points arranged in a 3 m x 3 m grid spacing. ORC-Primer and ORC-Advanced have been applied simultaneously in a single application.

#### Benefits

Once injected into the subsurface, ORC-Advanced provides a controlled release source of oxygen for periods of up to 12 months. Therefore, remedial objectives could be achieved from a single application. ORC-Advanced was applied using Direct-Push injection. This meant there was minimal site disturbance,

- no need for well installation
- no above-ground piping
- no mechanical equipment left on site

After the application, benefits include:

- no operation costs
- no site disturbance affecting the redevelopment works.

Project monitoring is ongoing.

#### Remediation Details

##### Site Type:

Disused Intercity Petrol Fueling Station

##### Project Driver:

Redevelopment

##### Remediation Approach:

Enhanced Bioremediation

##### Technologies:

ORC-Advanced®  
ORC-Primer®

#### Geology

	Bedrock
	Gravel
	Sand
X	Silt
	Clay

#### Medium

X	Groundwater
	Saturated Soil
	Vadose Zone

#### COC

X	Petro HCs
	Petro LNAPL
	Chlorinated VOCs
	Metals

#### COC Concentration Levels:

MtBE - 260 µg/L  
BTEX - 30 µg/L

#### Treatment Depth:

3 m BGL

#### Volume Treated (m<sup>3</sup>):

140 m<sup>2</sup> x 3 m = 420 m<sup>3</sup>

#### Remediation Cost:

€25.000