

IEG Groundwater Circulation Well - Virtual-Permeable Reactive Barrier™

IEG's patented vertical **Groundwater Circulation Well™** (IEG GCW™) technology significantly enhances the ability to effect the simultaneous containment and provide accelerated biodegradation of persistent organic compounds under aerobic, as well as the systematic removal of inorganic contaminants like ammonia, nitrate and heavy metals.

When a GCW™ is situated within the body of a groundwater contamination plume, this creates effective hydraulic control across a large diameter spherical capture zone within the aquifer. The polluted upstream groundwater is systematically captured by the GCW™ and treated in the well and within the aquifer. Due to mass conservation, the same quantity of groundwater is released by the well down-gradient. The natural groundwater flow field is only locally influenced because no groundwater is extracted from the system.

If the width of a plume is larger than the capture zone of a single GCW™, several systems can be arranged in one line perpendicular to or along the length of a groundwater pollution plume. When applied as multiple systems arranged in this way, the capture zone of each well can be interlocked thus transforming the aquifer within this zone into a series of reactive cells. The distance between each system can be determined from site hydrogeological measurements in order to ensure that no groundwater can pass the systems without being caught and treated.

Thus, a line of several GCW's™ represents a **Virtual-Permeable Reactive Barrier™** (IEG's V-PRB™) and no contamination coming from upstream can pass the V-PRB™ without first being treated.

IEG's V-PRB™ systems can be specifically designed and uniquely configured for a particular site to provide accelerated aerobic, enhanced anaerobic, or sequential anaerobic and aerobic reactions facilitating terminal destruction of persistent organics, appropriately coupled with the removal of inorganic constituents where needed. IEG's V-PRB™ technology can simultaneously provide in situ treatment of soil (unsaturated zone) and the aquifer (saturated zone) without removing groundwater from the aquifer.

Given the unique ability to engineer, monitor and control critical operating parameters of IEG's Groundwater Circulation Well™ systems, these have been proven to be the most effective way to distribute liquid-based chemical treatment systems in the subsurface. Consequently, IEG's V-PRB™ technology may be combined with a variety of innovative proprietary chemical remediation systems, to produce significantly enhanced treatability and foreshorten remediation times.

Other significant economic and environmental advantages include:

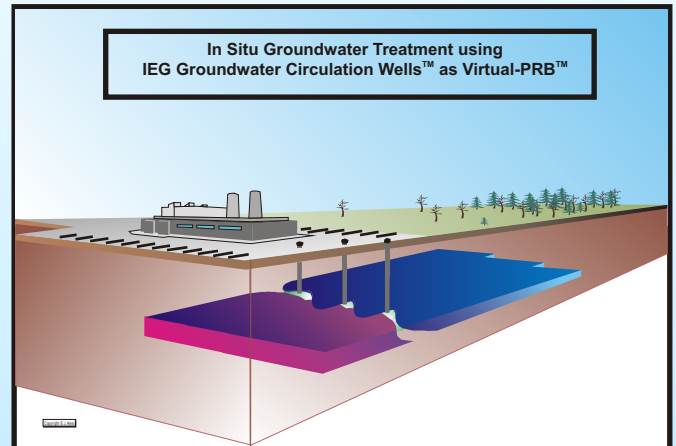
- System treats soil and groundwater simultaneously
- Capable of operating in standard, reverse and closed-loop circulation modes
- Patented in-well pumps uniquely provide engineering controls to ensure effective operation.
- Low operation and maintenance costs.
- Effective technology for control of air:water ratio for regulated in-well physical stripping or groundwater aeration.
- Can be combined with a variety of treatment systems, including zero valent iron and molecular adsorbents
- Easy low impact installation - no barrier wall required, easy to decommission
- More than 30 patents and over 200 scientific publications from 15 years of continued development and GCW™ technology applications.
- More than 450 full-scale systems installed throughout the world.

To discuss your in situ soil and groundwater remediation requirements, or for a free remediation concept and quotation, please contact us.

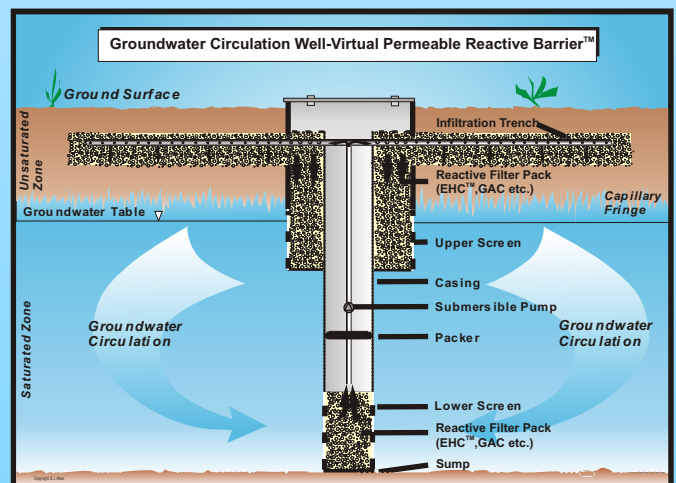
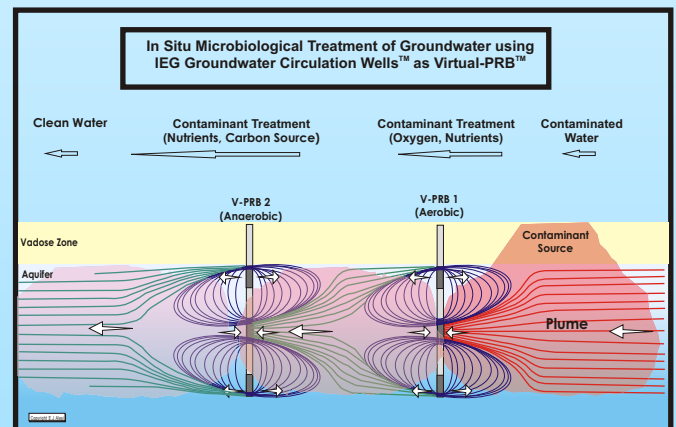


To discuss your in situ soil and groundwater remediation requirements, or for a free remediation concept and quotation, please contact us

Tel.: +44 (0) 7855 957140 • E: enquiries@iegtechnologies.co.uk • W: www.iegtechnologies.co.uk



Proven performance, proven hydraulics, proven results!



- **Patented design - proven engineering**
- **Quicker, Smaller, Smarter, Greener**