

In Situ Remediation Systems

Geotech Plume Eater®

The Geotech Plume Eater® is a patented *in situ* remediation system. Unlike other commercially marketed in-well air strippers or circulation type systems, the Plume Eater's process is unique. When pulling in contaminated groundwater, it strips away the VOCs while oxygenating the treated water before it is re-introduced deep into the formation. This process creates a convection flow whereby groundwater is pulled toward the recovery well rather than pushed away, as compared to other similar types of systems and processes.

FEATURES

- Soils are flushed with oxygenated ground-water
- Pulls from the groundwater surface and re-injects, oxygenated water deep in the formation, creating convection currents
- Accelerates bio-remediation
- Maximum efficiency with minimal power
- No sub-surface moving parts
- Works in a variety of soil types
- No net change in groundwater volume
- Options available for use with other gases
- *In Situ* Technology – No re-injection permits or water treatment extraction required, water never leaves the subsurface.

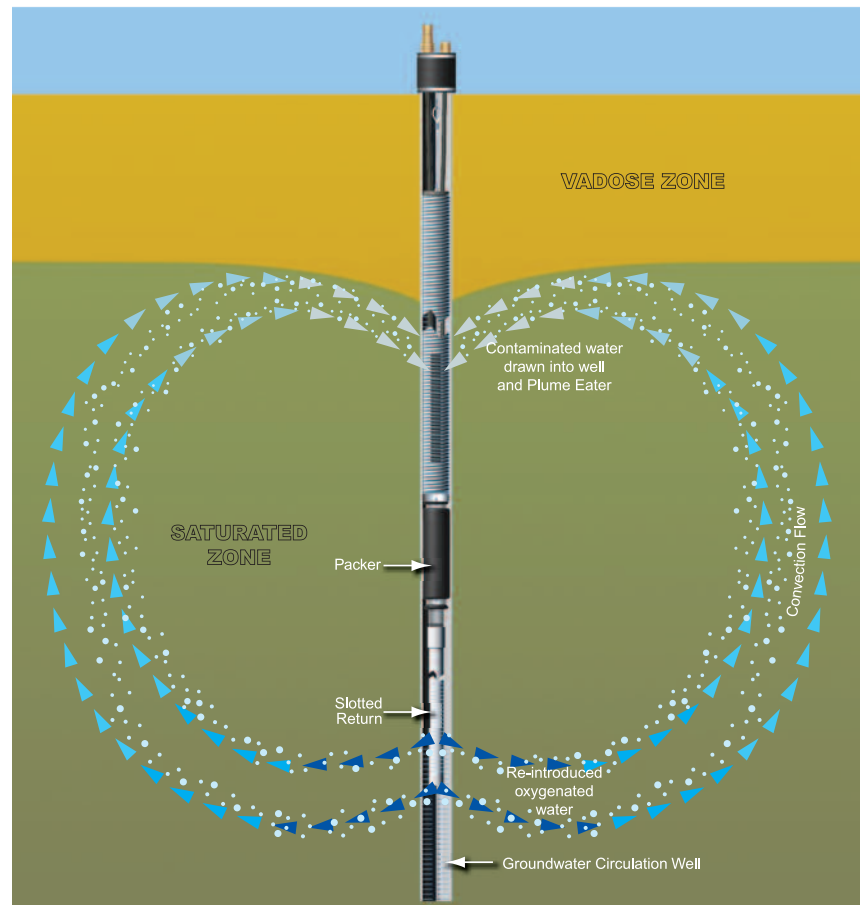
OPERATION

The Plume Eater® creates a circulation pattern in the aquifer by drawing contaminated water into well and through the Plume Eater. The oxygenated water is reintroduced into the aquifer without ever being brought to the surface; throughout the process.

The system uses similar technology as in-well air stripping while emphasizing the enhancement of bio-remediation. The process involves the discharge of extracted vapors into the vadose zone for degradation by naturally occurring microorganisms or removal by soil vapor extraction. Oxygen is supplied to both the saturated zone and the vadose zone to promote and enhance the natural aerobic degradation processes.



Patent 7007759,7077208
Other patents pending.



Geotech Plume Eater® System

CALL GEOTECH TODAY (800) 833-7958

Geotech Environmental Equipment, Inc.

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Geotech Plume Eater®

4" (10 cm)
Geotech
Plume Eater®



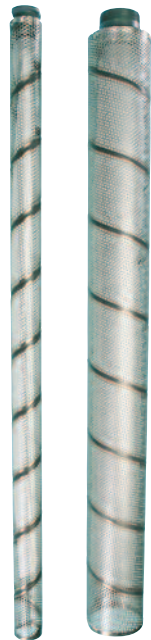
SPECIFICATIONS

	2" Plume Eater®	4" Plume Eater®
Air Requirements:	5-35 PSIG (.34-2.4 bar)	5-35 PSIG (.34-2.4 bar)
Air Requirements (SCFM):	1-5	1-5
Min. Required Submergence:	8 feet (2.4 m)	8 feet (2.4 m)
Max. Outer Housing Depth:	35 feet (10.7 m)	50 feet (15.2 m)
Materials:		
Outer Housing	Flexible, spiral wound, Schedule 40 PVC	
Air Line	Reinforced, chemical resistant gas hose	
Packer Inflation Line	Reinforced, chemical resistant gas hose	
Treated Water Return Line	2" (5 cm) model – Reinforced, chemical resistant gas hose 4" (10 cm) model – Flexible, spiral wound, Schedule 40 PVC	
Packer	#300 stainless steel, Viton®	
Well Cap	PVC, rubber, brass and stainless steel fittings	
Safety Cable	Teflon® coated stainless steel	
Diffuser (Optional)	Porous stainless steel	
Bag Filter Assembly (Optional)	Stainless steel, PVC, Nylon	

OPTIONAL EQUIPMENT



.2µm
and .5µm
Diffusers



2" (5 cm) and
4" (10 cm)
Bag Filter
Assemblies

BENEFITS

Volume Cleaned by Air Stripping

Groundwater carried into the unit by cylindrical convective currents and from the rising bubble cone above discharge point, and surrounding soils flushed by cylindrical convection currents.

Volatilization

Occurs from channels formed in formation and from groundwater transported into unit.

Convection Currents

Pulls from groundwater's surface, towards the unit, and re-injects cleaned oxygenated water, deep under the surface, and away from the unit.

Radius of Influence

Similar design application – 175 feet (53.34 m) (formation permeability dependent).*

Oxygen Mass Transfer Rates

Diffusion from formation air channels into adjacent groundwater, direct transfer from air into groundwater inside unit.

Soil Applicability

High to moderately porous/permeable soils.

Vapor Recovery

Does not require separate vapor extraction system.

Soil Flushing

Continuous groundwater movement.

Diffused Ozone (Optional)

Ozone transferred to soils by continuous flushing with cleaned, ozone saturated groundwater, into cylindrical pattern of convection currents, and by molecular diffusion.

Low Power Use

Greater oxygen transfer efficiencies require significantly less power.

Targetability

Cleans everywhere the flushing convection currents wash the surrounding soils. Recovery and injection trenches, to and from the unit, can focus remediation in distant regions of the plume.

Exempted Re-Injection Standards

As treated water is not elevated above the ground's surface, and no net change in groundwater volume occurs, exempted from re-injection standards by EPA (non-targeted pollutants do not need to be removed).

*A.C. Elmore and L. DeAngelis "Modeling a Groundwater Circulation Well Alternative," Ground Water Monitoring and Remediation, Winter-2004, pg. 66 to 73.

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