

3.3 Permeable Treatment Walls

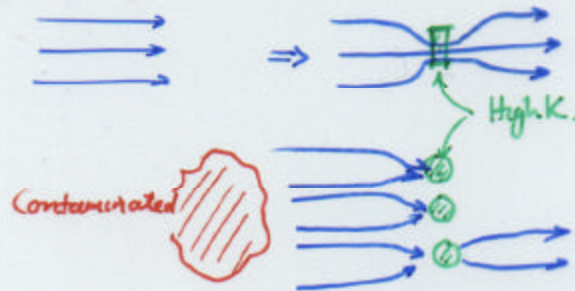
Theory

Installed using conventional slurry wall technology.

Granular backfill with reagents and reactive granular backfill.

- nutrients and bacteria → biodegradation
- redox controls and metal catalysts → metals precipitation and dehalogenation
- organic carbon → denitrification and
- other sorbents

Wall spans plume or diverts flow through wall



Field Implementation

Slurry walls

Large diameter barriers

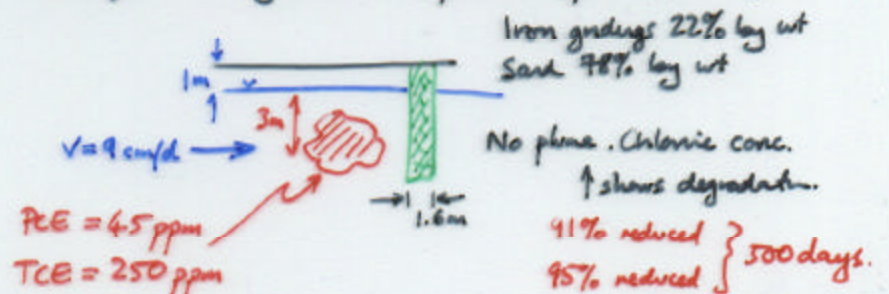
Automatic addition of aqueous/liquid or gaseous amendments.

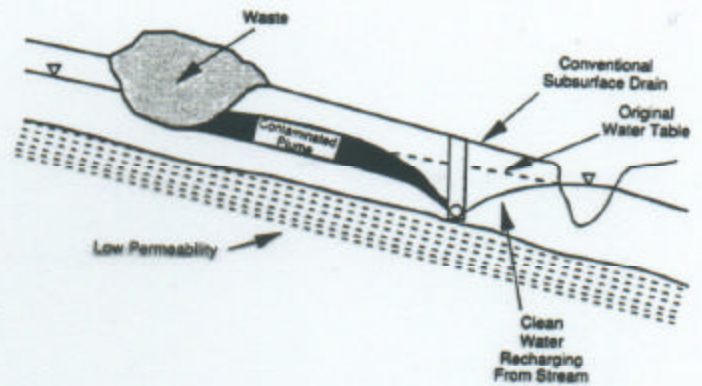
Level of Demonstration

Field tests

Zinc and iron transform halogenated aliphatics (pH dependent)

Pilot test (Borden)





Applicability/Limitations

Treatment of dissolved plume

Amendments must be non-toxic

stationary (non-soluble)

Excessive biogrowth/precipitation may ↓ long term K and effectiveness

eg. No flow through wall.

No access to reagent particle surfaces

If dehalogenation incomplete → may form vinyl chloride

Cost/Availability

Less expensive than pump and treat

Low maintenance solution (zero maintenance?)

WCGE owns patents.

- Fouling and oxidation of iron filings with time → slows effectiveness
- Acoustic stimulation (deep) for removal of surface coating.

Patent © PNNL (Hanford)

1995-96 applications ~ \$375K to \$500K construction.

Ireland/Kansas/N. Carolina/Colorado

- Hydrofract reagent injection

- TCE mainly.