

Electro- (BIO) Reclamation®

(In-Situ) soil & groundwater remediation
based on alternating current(AC)



Thermal or thermal/biological remediation of organic contaminations (chlorinated hydrocarbons, aromatics, PAH) in sand, clay, peat or loamy soil. Cleaning the environment with a multidisciplinary approach: heating up the soil in combination with groundwater extraction and increasing the biological degradation as a well accepted and patented technique.

Electrodes are installed in a form of a hexagon and in the middle an extraction well is installed for groundwater extraction as well as soil vapour extraction. The alternating current is used to heat up the soil (sometimes up to 90 °C).



The alternating current causes:

- A slowly increasing of the soil temperature (about 1 °C/day);
- Strongly enhancing permeability;
- Greatly improved load removal;
- Strong biological degradation as a polishing step.

Electro Reclamation:

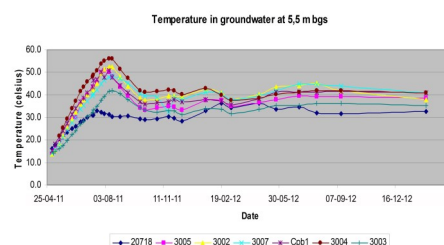
The electric current is induced into the soil by means of electrodes. The distance between electrodes general amounts 2,0 up to 2,5 m. In the middle of the hexagon of electrodes a groundwaterextraction well is installed. The heating up process results in a slowly ascending of the soil temperature with 1 °C/day. For creating distribution of heat groundwaterextraction will take place. By means of this extraction great mass removal occur.

Groundwater can be treated with an groundwater treatment system. Temperature sensors can be installed

to check soil and groundwater temperature on-line. Biological after treatment can be increased by adding nutrients or oxygen.

Site characteristic's:

Technology is applicable for source zones areas in normally less permeable soils as loam, peat and clay. In situ remediation possible to relatively great depths and under buildings.



Scope & Duration:

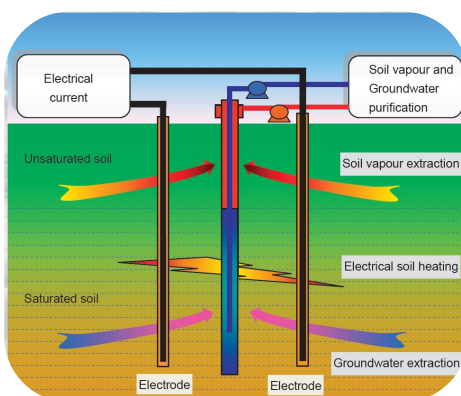
About 1,000 m² of contaminated soil can be treated with the present installations. Duration of the remediation varies from a few months to a few years. After mass removal under higher temperatures phase 2 of biological degradation starts and continue for a few months.

Sustainability:

Relatively sustainable compared with other thermal techniques, units poses a power about 50kW. Health can be renewed by an heath exchanger in the groundwater flow and reused again.

References:

Soil remediation of a volatile organo-chlorine compound contaminated ex-industrial area, Ghent, Belgium.



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