EKOGRID™ Technology

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DESCRIPTION OF THE EKOGRID™ TECHNOLOGY AND HOW IT WAS USED FOR EICLAR WP3 STUDIES

THE EKOGRID™ PROCESS IN NUTSHELL

The **EKOGRID™** Technology can be described as a process that efficiently maximizes the effects of electrokinetic phenomena:
Electroosmosis, Electrophoresis and Electromigration

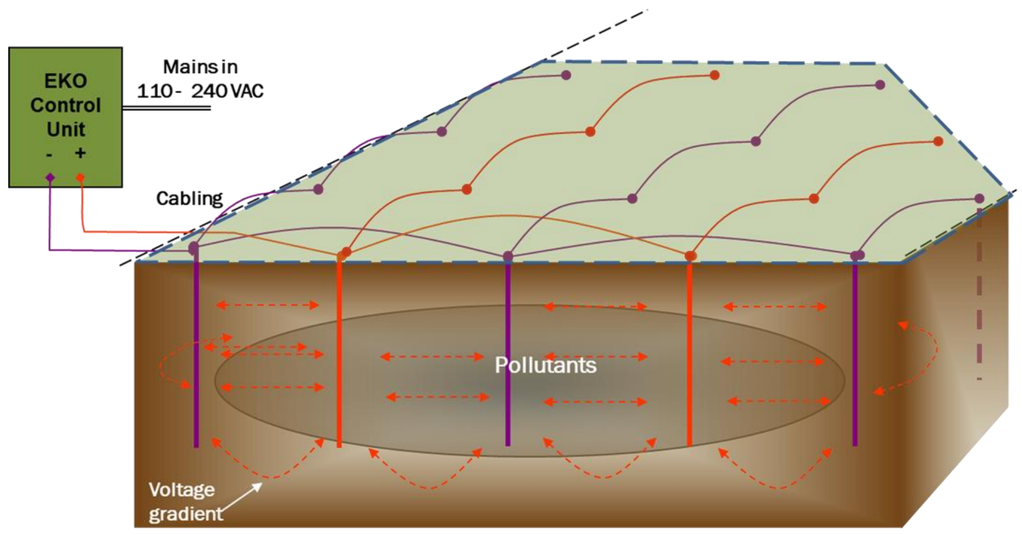
The method is known of the use of **pulsing power supply** generated by bespoke **EKO control unit.**
The short DC pulses, where every other is applied with reversed polarity, activate the entire pore system of the soil matrix to work for us
Electrochemical reactions, which are substantial part of electroosmosis are forming
free radicals, oxygen and changing physicochemical condition of the porewater

The EKOGRID™ System activates the existing **natural bacteria to enhance bioremediation.** Addition/injection of external bacteria is rarely required.
In order to optimize and support the bioprocesses in the soil, injections **of water (irrigation) and nutrients (consumables**) are often needed
EKOGRID™ System creates **oxygen** even very deep in the soil

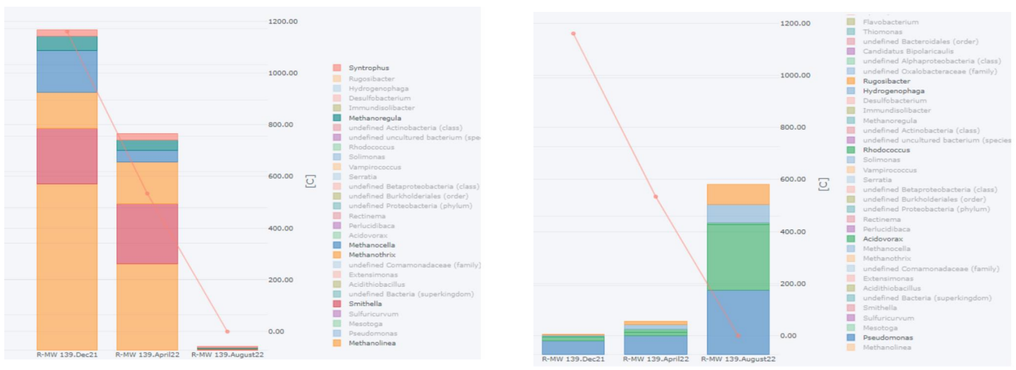
This procedure spreads **the additives** (water and its content) and benefits the entire treatment zone

Schematic EKOGRID™ Installation

The main components of the system are:
- EKO Control Unit
  - Microprocessor controlled power source generating specific pulsing output – patented feature
- Electrodes
  - To push the energy pulses into soil
  - And to trigger the bespoke electrochemical reactions in there
  - Charging and discharging billions of micro capacitors (like batteries) in soil
- Cables
  - Typically relatively thick insulated electric cables
  - To minimize voltage losses (drop)



Graphs from an Italian project – EKOGRID™ activates the aerobic bacteria



Examples of international projects

TPH, BTBE, ETBE
Gas Station, Italy

BTEX, VOC's
Parking Slot, Long Island

Crude Oil Spill
Ogoniland, Nigeria

Crude Oil Drilling Sludge
Ecuador

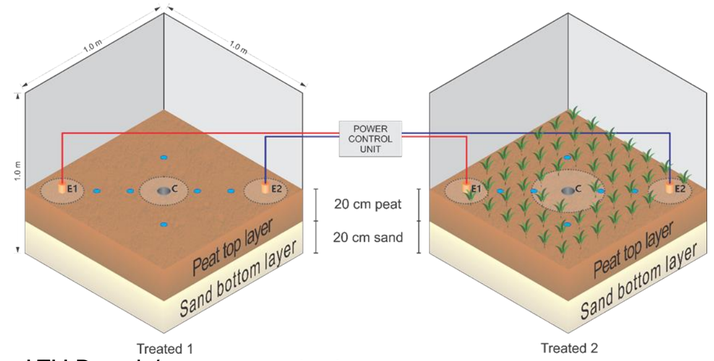
Diesel, PAH
Storm Water Pond, Sweden

Alternative Energy Source
Alberta, Canada

EKOGRID'S ROLE IN WP3 – PHYTOREMEDIATION

- The EKOGRID™ Technology can be integrated to support and enhance many other remediation Technologies, not only to replace them
- In WP3 EKOGRID™ was tested with Phytoremediation and to treat PAH and Arsenic pollution
- The results were very good for both EKOGRID™ Stand Alone and with the plants
- More information can be found in other WP3, LTU and SERPOL reports

Serpol bench test and In Situ sites



LTU Bench/mesocosm tests

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