

99.9999%
Removal of hydrocarbons

MPPE Systems for groundwater treatment & reuse

VWS MPP Systems is a hydrocarbon removal water treatment specialist and a member of the VWS Oil & Gas division of Veolia Water Solutions & Technologies

Groundwater challenges:

- Varying broad complex compositions (aromatics, poly aromatics, halogenated/chlorinated hydrocarbons)
- low effluent levels
- Presence of Ironoxide, humic acids, salts, CaO/MgO
- Remote (unmanned) locations

MPPE:

Simultaneous
>99% removal
Flexible

Robust

Remote control

References

- 70 years accumulated experiences
 - Recognized international companies like Organon/Schering Plough, Akzo Nobel, Stadtwerke Flensburg, Degussa /Evonik Marl, Solvay, Dow/LBC, LMBV Schwarze Pumpe.
- Descriptions of industrial applications are available on request.

Index:

DROs: Diesel Range Organics (C11 – C27) Ar: Aromatics/BTEX
GROs: Gasoline Range Organics (C7 – C10) CHC: Chlorinated hydrocarbons



Schering Plough, Oss, The Netherlands
40m3/h; CHC, Ar, Al



Synthexim, France
3 m3/h, MPPE + biorotor;
Ar, CHC



Dow/LBC Rotterdam
The Netherlands, +
biotreatment, 25 m3/h;
CHC, Ar, Al



Stadtwerke Flensburg,
Germany, 6 m3/h; Ar,
PAHs, Al



LMBV Schwarze Pumpe Germany, 5 MPPE units,
75 m3/h; Ar, Al, PAHs



Oil & Gas
MTBE, BTEX, GROs, DROs
removal > 99%



Ruhrgebiet, Marl
Germany, 120m3/h;
Ar, CHC

For more information about the MPPE Technology please contact:

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MPP SYSTEMS

MPPE systems remove dissolved and dispersed hydrocarbons with efficiencies of 99.9999% removal, down to below ppb level or as specified. This applies to different types of hydrocarbons, e.g.: Aliphatic, Aromatic, Polyaromatic, Halogenated, e.g. chlorinated, bromated.

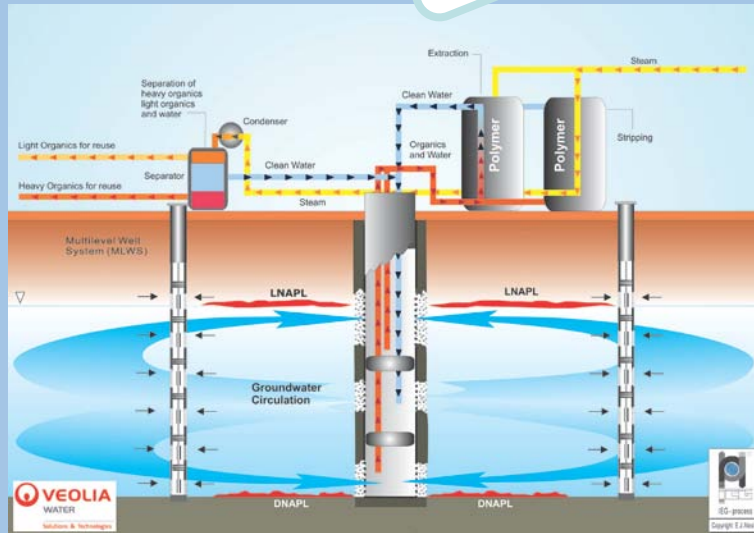
99.9999%
Removal of hydrocarbons

MPPE systems are used for treatment or reuse of:

- Offshore produced water (upstream and downstream in LNG plants)
- Industrial waste water
- Industrial process water
- Groundwater

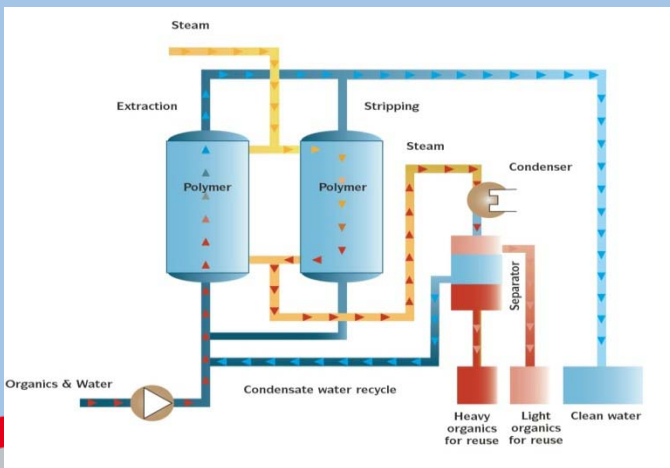
The MPPE Process

Hydrocarbon contaminated water is passed through a column packed with MPPE particles. An extraction liquid immobilized within the polymer matrix removes the hydrocarbons from the water. The purified water then passes out of the column directly for reuse or discharge. Periodical in-situ regeneration of the MPPE particles is accomplished with low pressure steam. The steam volatilizes the hydrocarbons, which are then condensed and separated by gravity. The aqueous condensate is recycled to the system, while the hydrocarbon phase is recovered and may be sold as a product, reused or disposed. The two columns shown, allow continuous operation with simultaneous extraction and regeneration.



DNAPL and LNAPL removal by Solvent or Surfactant Enhanced Aquifer Remediation (SEAR)

- Surfactant or alcohol injection enhances the dissolution of chlorinated hydrocarbons, PAHs, DNAPLs and LNAPLs in water from a few ppm to 10,000-50,000 ppm
- Organics recovered in two weeks equaled eight years of normal pump and treat
- MPPE proven as the ideal separation technology for these extremely high concentrations in surfactant/alcohol water mixtures
- Surfactant/solvent consumptions savings as MPPE enables recirculation and recovery



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