

PETROSOL - the agent
for pipelines cleaning of selected product



CEPS INC.

AQUA PLUS, Ltd.

LIMEK Plus, Ltd.

Chemical cleaning of the crude oil pipeline
DN 700 of LatRosTrans
using PETROSOL method and
consequent waste treatment



INVESTOR



SUPPLIER
(PETROSOL Solution
waste treatment)



**GENERAL
SUPPLIER**



SUPPLIER
(PETROSOL agent
laboratory background)



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Successful application of PETROSOL agent
in the pipeline cleaning project in Latvia in 2011
using the method developed by LIMEK and CEPS Companies



Preparation of PETROSOL
agent - heavy solution

The first part of pipeline was cleaned up
within four days, 4/5 – 7/5/2011 by 110 m³
of PETROSOL agent heavy solution and
2000 m³ diluting and rinsing water were
used for impurities removal.

On the place of pipeline drainage two
reservoirs for liquid wastes capture and
decontamination were built up.



Inside surface of the pipe line

Last rinsing water samples analysis results of
non-polar extractive substances NES (0,56
mg NES/l; 0,42 mg NES/l; 0,26 mg NES/l)
were several times lower than the limited
concentration demanded for NES content in
the last rinsing water (5 mg NES/l).

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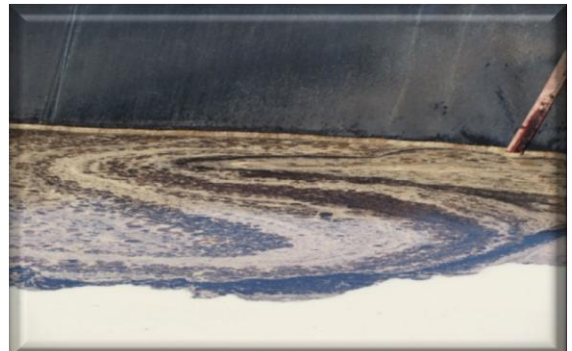
LIMEK Plus, Ltd.



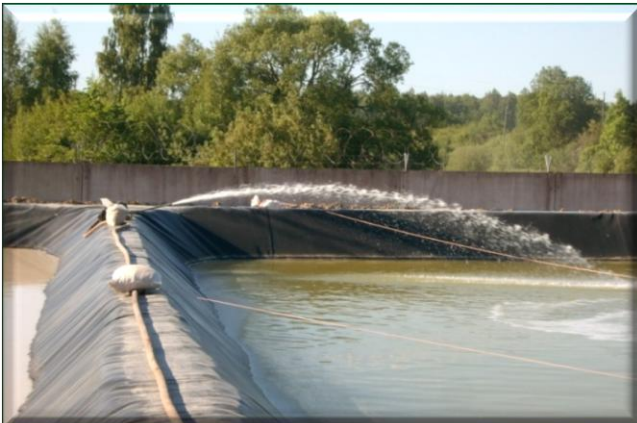
Liquid wastes were treated by chemical demulsification procedure, separation of organic phase and afterwards by bioremediation of organic compounds special bacterial suspension.



Demulsification I



Demulsification II



Microbial suspension application



Laboratory fermentation



Operational fermentation



Limek

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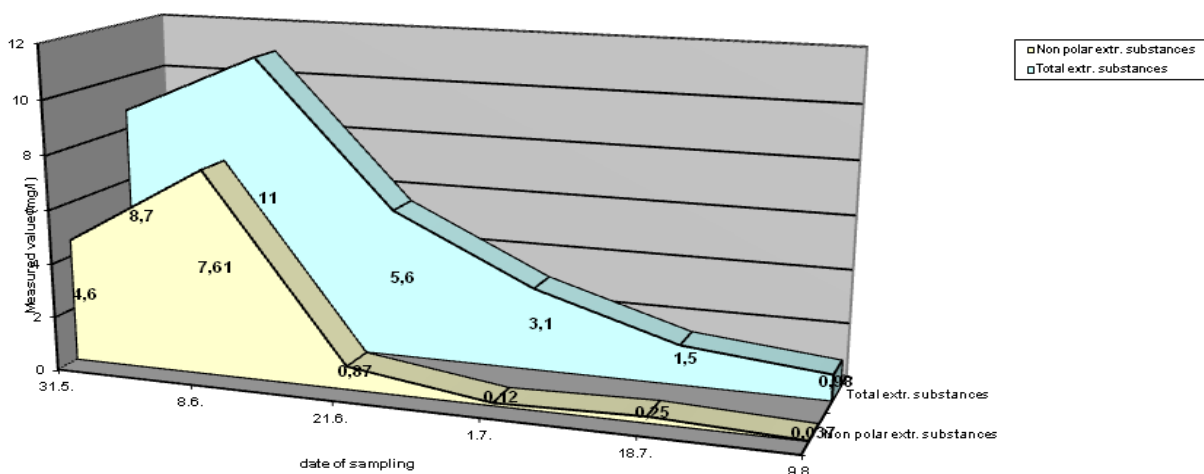
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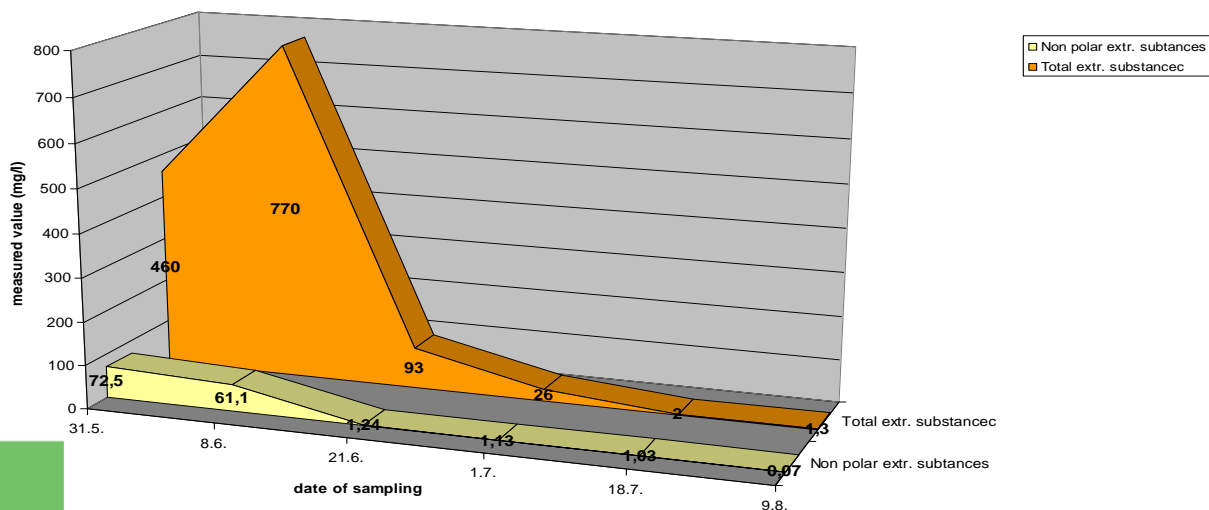


More than 2000 m³ of water contaminated by crude oil were treated in two reservoirs in the DZUKSTE centre by LIMEK Plus Company using bioremediation method developed by specialists from AQUA PLUS Company

DECONTAMINATION PROCESS - WATER RESERVOIR



DECONTAMINATION PROCESS - PETROSOL RESERVOIR



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Final water treatment and phosphorus disposal



In the course of three weeks the method of phosphorus disposal was developed by specialists from AQUA PLUS and successfully tested directly in the DZUKSTE centre by LIMEK Plus team.



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Final water treatment and phosphorus disposal



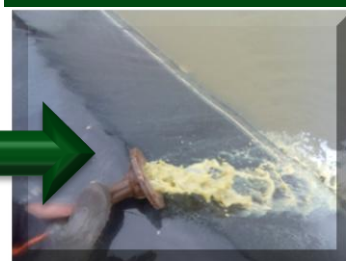
Water pumping from a reservoir
to the steel tank



The whole volume of 2000 m³ of water from both of reservoirs
was treated step by step in the 30 m³ steel tank.



Flocculated residues



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SUMMARY:

- total length of the cleaned pipeline section: 108 km
 - tube diameter of the pipeline: 700 mm
 - total volume of hazardous wastes after PETROSOL cleaning process: 2000 m³
 - total quantity of extracted oil products: 15 tons
 - total volume of bacterial suspension: 80 m³
 - efficiency of biological treatment process: 99,3%
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- total volume of hazardous wastes after biological and chemical treatment processes didn't exceed: 30 m³
(representing 1,7% of total volume)

By using this technology it was possible, thanks to all partners, accomplish the results determined by the effort to minimize the final volume of hazardous wastes.

The above mentioned results enable to consider this technology as an environmental friendly one.

