

# GEOTUBE DEHYDRATING TECHNOLOGY FOR PURIFICATION OF OIL-POLLUTED LIMNETIC BOTTOM SEDIMENTS

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**Abstract** – A geotube dehydrating technology was used to purify limnetic bottom sediments from oil pollution for the first time in the Russian Federation in Western Siberia (Yugra, Khanty-Mansiysk Autonomous District) in 2013. Physicochemical and biological studies of purified soil samples from geotubes revealed decrease in the content of oil products by 80.6%-97.5%, aromatic hydrocarbons by 64.6%-2.5%, and tar-asphaltene fraction by 45.2%-77.1% as compared to the initial polluted samples. Soils from geotubes were found to be enriched in various kinds of microorganisms, including those capable of fixing nitrogen from the air. A 2-fold and 1.5-fold increase was found in concentrations of ammonium nitrogen and soluble phosphates, respectively. Phytotoxicity was not observed in the soils from geotubes, furthermore, a 3-6 fold increase of biological activity was also discovered as compared to the initial oil-polluted limnetic bottom sediments. Consequently, the geotube technology can be successfully applied for cleaning soils from oil pollution, as well as for reducing their phytotoxicity.

*Keywords:* bottom sediments, oil pollution, geotube technology, purification.