

# Cleaning the Komsomolskoe Lake, Siberia using Geotube®



## The Challenge

Komsomolskoe Lake is located in the center of Nizhnevartovsk city. Rainfall as well as drainage of water from the surrounding area, created a lake. In the wake of the sedimentation of organic materials over the years at the site, the water in the lake became contaminated and foul.

In order to improve the ecological conditions of the lake and of the surrounding area, a decision was taken to clean the lake and deepen it.

The cleaning of the lake had to comply with the following requirements:

- ◆ Executing the cleaning process with minimal impact on municipal operations.
- ◆ The project must be completed within a short period of time, due to the particularly short spring - summer season in Western Siberia.
- ◆ Providing a solution to exploit the dewatered material.
- ◆ The work must be simple to carry out.



## The Solution

The project that was planned and executed by the Admir – Russia Company, included dredging the sediments and dewatering the sludge using Geotube® technology.

## The Execution

The lake was cleaned up in a number of stages:

1. Dredging of bottom sediments with a dredger with a discharge rate of 400 cu. m. per hour, into the Geotube® system.



2. Adding polymers and mixing them into the sludge. The addition of polymers causes flocculation facilitates the filtering process.
3. The filtered water flowed through the Geotube® back to the lake without the need for additional treatment.
4. The filled Geotubes has been left in the site for further dewatering during the freezing winter months, after which additional water was expected to be extracted.

## The Results

- ◆ The application of the Geotube® technology enabled meeting the predefined time schedule, without interference in the ecological balance of the lake and while allowing the continuity of municipal operations in the vicinity.
- ◆ In total, over 300,000 cu. m. of organic sludge was dredged from the lake, at a concentration of 5% solids.
- ◆ In accordance with the project plan, the sediments from the bottom of the lake that were dewatered remained on site on the western bank of the lake for further processing, in order to use them (in combination with local materials) to built embankments, lawns etc., in a park that was planned to be built in the area.
- ◆ The cost of the execution was significantly less than the rest of the alternative options.

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## Planning and Execution – Admir Russia, 2011

The DREDGER



The Geotubes in the filling process



The Geotubes remained in place for continued dewatering during the winter

