The Experience of Localizing a Large Source of Oil-Product Contamination of Groundwater

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Protection of groundwater against contamination by oil products (OP) is an actual environmental problem in Russia. In 1994-1998 a large oil-product contaminated area was localized in the Oka River valley near the city of Orel (Central Russia). The contamination area has been formed there for more than 20 years due to a steady leakage of oil products from tanks and pipes of two large oil stations. In 1994 the investigations and mapping were carried out on the given territory. It was established that the contamination area reached at that time 1.8 km^2, the size of the underground oil-product lens – 2.8 $ths.m^3$, the size of contaminated soils - 6.7 $ths.m^3$. The average content of oil products in the groundwater was 8.2 mg/l. The contaminants were threatening to the ground-water intake and sub-aqueously penetrating with the groundwater into the Oka River. The air in the underground engineering constructions constantly showed high concentrations of hydrocarbonous gases: methane content reached 0.4 to 0.9 vol.%.

The remedial actions performed have shortened the contaminated area to 0.6 km^2 and reduced the oil-product concentration to 0.7 mg/l by 1999.

There was liquidated the threat of contamination of the water intake and the Oka River.