

# **TOXIC CHEMICAL POLLUTION OF WATER RESOURCES AS A THREAT TO THE SUSTAINABLE DEVELOPMENT**

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Water pollution by oil and oil products is an additional source in stress to aquatic organism and it has a great impact on wetlands .Oil pollution of water resources has transformed today into a problem of global proportions. Pollutants such as oil are the greatest dangers because it doing a toxic effect on organisms of neuston, pleuston, plankton and benthos.

Nearly 40% of oil products that fall into the water form a stable oil emulsion, the same percent deposit on the bottom and 20% form a surface film. Covering the surface of the water, oil, particularly heavy fraction and emulsion, prevent movement, breathing and nutrition of small aquatic organisms. Oil can stick to the shells of aquatic animals, algae. Many hydrocarbons that penetrate the leaves and stems of plants can disrupt the structure of intracellular membranes that regulate metabolism processes. Oil film has a detrimental effect on organisms, primarily aquatic organisms that are in the early stages of ontogeny. Paraffin often cause a narcotic effects in protozoa. The graph below shows how many millions of gallons of oil each source puts into the oceans worldwide each year (table 1).

Especially we want to highlight the side effects of the products that are developing today to eliminate oil spills on the water surface. So an attempt to deal with the Gulf of Mexico oil pollution by dint of the first synthetic microorganism ended really sadly. Twenty scientist have been able to bring so-called "minimal bacterial genome", named Cynthia bacterium. In 2011 scientists launched Cynthia in the Gulf of Mexico: oil slicks began to lose weight rapidly, and the pollution area began decrease steadily. However, very soon bacterium abandoned oil and switched on living organisms. The result was a mass death of fish off the coast of North Louisiana (over 100

0) . People who bathed in Gulf of Mexico, covered with sores and died in a few days. The bacterium can not be destroyed even by antibiotics and it is the most terrible thing. [1]

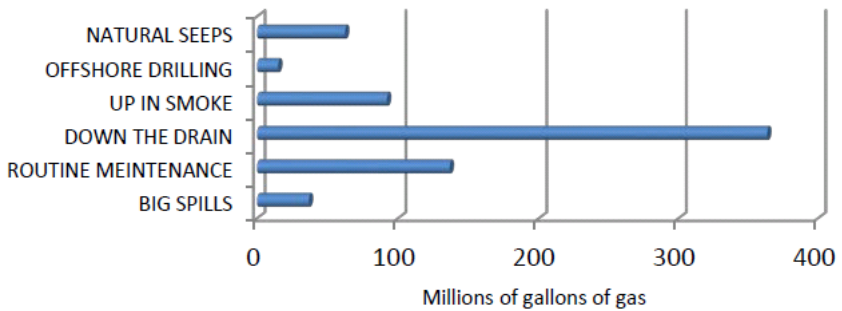


Table 1. The graph that shows how many millions of gallons of oil each source puts into the oceans worldwide each year.

It is urgent today to assess the ecological and economic risks that occur in shale gas production. We know that in 2012 Anglo- Dutch company Shell began production of shale gas in Donetsk and Kharkiv regions. The method of hydraulic fracturing that uses in shale gas productions is a threat of serious, unintended consequences of the negative impact on the quality of surface waters. The first, the chemical mixture that is pumps into the well consists of 596 chemicals, of which 96 are either completely unknown (SAS, TKN, MBAS). This solution contains a corrosion inhibitor, reducer of a friction, stabilizers clays, polymers, biocides , heavy metals like chromium, lead , cadmium , mercury, arsenic. During the fracturing layer chemical solution or even gas may bleed into the soil, what contaminate groundwater and surface water. Hydraulic fracturing leads to a multitude of borehole water dangerous contaminants : benzene, toluene, ethylbenzene, dymetylbenzolu .

Introducing such water in the human body is extremely dangerous diseases such as pancreatic cancer , destruction of red blood cells, abnormalities in the bone marrow, a mutation in embryos and various neurological diseases. Statistics show that every thousandth hammer is alert. consequence of this is groundwater contamination within a radius of 1 km. But the greatest danger of shale gas is to use a large amount of water. For each freaking operation required from4 to 26 thousands cubes of water. In the calculations : for 1000 these wells we will take approximately 468.thousands cubes of water.

So, we consider that it is necessary to conduct 'series of large-scale examinations to establish the risks of shale gas production in Ukraine and in the world.. Uncontrolled water resources pollution by gas, oil and other dangerous substances can lead to the fact

that very soon humanity will have a question about to eat or to drink water because the water will be sorely missed. We sure that the favorable status of aquatic ecosystems should not be lost on the background of economic profit today because it is impossible to implement the project of sustainable development.

References:

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