

ABOUT ENVIRONMENTAL HYDROCARBON POLLUTION DANGER IN ARID CONDITIONS

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Petroleum product and organic waste pollution of grounds and underground waters is particularly dangerous in arid conditions because favorable for both aerobic and anaerobic microflora biocenosis thermostatic conditions occur on the depth more than 1 m all year. As a result, intense formation of methane, carbon oxides, nitrogen, limited and non-limited hydrocarbons (including very toxic) takes place especially when water filtration is slackened. Under these conditions geochemical properties of natural media are changed; pH decreases to 5-6 and less, minerals destroy, polyvalent elements covert into mobile form and accumulate on barriers: the media became corrosion-aggressive to concrete and metals.

Such processes caused two-year closing two Tashkent metro stations. The concrete tubing joints were destroyed; toxic gases penetrated into the stations and poisoned employees. Great efforts were needed to normalize the situation.

Hundreds of thousands tons of petroleum products penetrated into underground waters in one of the regions of Fergana Valley. The water was polluted; gas production occurred as a result of microbiochemical processes over the area of tens square kilometers. Self-ignition of plants and people poisoning were observed. Water concentration of carbon dioxide reached 5-6%, strontium, uranium, aluminum and iron concentration increased essentially.

Polycomponent gas-spectrum mapping helps to study the situation under such conditions. Results of the mapping allow to identify zoning of biochemical gas production, to predict

development of environmental events in subsurface and to develop preventive environmental measures.