عنوان مقاله:

OrganicContaminationofTehrangroundwateranditssources

محل انتشار:

پنجمین کنگره بین المللی مهندسی شیمی (سال: 1386)

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خلاصه مقاله:

Groundwater is one of the most important sources of potable water in Tehran. Up to 50% of water usage in Tehran is compensated by groundwater in drought situation; therefore, the quality of Tehran groundwater is extremely important. Among all groundwater contaminations, organic pollutants, which lead to formation of potentially harmful substances in drinking water treatment process, have seldom been studied in Tehran groundwater. Hence, in this project, after studying of Tehran wells' locations, choosing and sampling the proper ones, the Total Organic Carbon (TOC) content, organic pollution representative, of groundwater samples was determined by TOC Analyzer and high TOC concentration was obtained. According to the TOC results, two main sources of groundwater organic pollution in urban region were assumed: leakage from underground fuel storage tanks in gas stations and municipal wastewater penetration due to lack of wastewater disposal system in Tehran; for finding the most effective ones in Tehran groundwater pollution, not only was the hydro carbonic contamination, representative of gas stations leakage, investigated by Gas Chromatography Mass Spectrometry (GC_Ms) Analyzer but also, the nitrate concentrations of chosen wells, representative of wastewater penetration, were determined by spectrophotometer. Considering to the consistency of TOC and nitrate data and GC_Ms reports, which showed no hydro carbonic pollution in most of the samples, the assumption of groundwater organic contamination from wastewater disposal system in Tehran, was proven. However, in two samples from Yaft Abad and Seid khandan, different behavior was observed. Although they had high TOC content, nitrate concentration in these samples was low; also, GC_Ms reported the presence of Octane and MTBE respectively in these samples. Therefore, it is concluded that there is gasoline leakage from gas stations near these two places. In conclusion, it is declared that the organic pollution source of Tehran groundwater is mainly from its wastewater disposal system, so development and modification of wastewater collection and disposal system for this big city is strongly required.

کلمات کلیدی:

Groundwater, Tehran, TOC, Wastewater disposal system, GC_Ms

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