Abstract The presence of organic compounds in drinking water is well recognized in many developing countries; however, the occurrence of organic contaminants in the groundwater of Saudi Arabia, which is the main source of drinking water in the country, is not well documented.The most relevant compounds in the 71 water samples with respect to highest median and maximum concentrations were 1H–benzotriazole, tris(1–chloro–2– propyl)phosphate (TCPP), methylbenzotriazoles, carbamazepine and its metabolite, DEET, sulfamethoxazole, tris(isobutyl)phosphate (TiBP), tris(2– chloroethyl)phosphate (TCEP), perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), and diclofenac.Trihalomethanes (THMs) were the most frequently detected VOC groups; however, a few compounds, such as methyl tert–butyl ether (MTBE), ethylene dibromide (EDB), and dibromochloropropane (DBCP), had regional or local occurrence patterns.The microorganics such as caffeine, N,N–diethyl–m–toluamide (DEET), bisphenol A, anti–microbial agents, pharmaceuticals, and contaminants including chlorinated solvents and THMs, petroleum hydrocarbons, pesticides, and other industrial compounds were detected in the groundwater.Lapworth et al. (2015) presented the results from a reconnaissance survey of micro–organics (MOs) in Chalk groundwater, which included pharmaceuticals, personal care products, and pesticides and their transformation products across the major Chalk aquifers of England and France.These compounds were found in low concentrations, though some of the compounds like imidacloprid, methiocarb, diclofenac, macrolide antibiotics, ciprofloxacin, EHMC, and BHTwere detected in concentrations in excess of 100 ng/L.Manamsa et al. (2016) reported that different types of micro–organic (MO) compounds used for manufacturing, food production, and healthcare were frequently detected in the aquatic environment.Kerndorff et al. (1992) reported that approximately 1200 organic contaminants have been identified in waste disposal site groundwater in Germany and the USA.Among the various chemical substances present in water, organic compounds were detected to varying degrees in some regions of the world to determine their impact on human health (Friesel 1987; Kerndorff et al. 1992).Twenty domestic drinking water wells were tested by Schaider et al. (2016) in a sand and gravel aquifer in Massachusetts, USA, for 117 organic wastewater compounds.A national comprehensive study was carried out to assess the occurrence of organic compounds in groundwater wells used for drinking water purpose, in different regions of Saudi Arabia.Increasing levels of pollution and salinity of groundwater resources is increasingly affecting the ability to use the scarce water resources available (UN–ESCWA and BGR 2013).In general, the concentrations of these compounds in the samples were below the environmental quality standard (EQS) threshold values except the concentration of PFOS, which exceeded the annual average water EQS limit of 0.65 ng/L along the whole river.Most of the wells containing organic compounds were located in residential, industrial, and agriculture areas.A recent boom in the industrial sector has led to the production of different types of inorganic and organic chemicals resulting in drainage disposal of chemical wastes.The presence of chemicals and other organic pollutants in wastewaters can pollute the groundwater through deep percolation (Solomons and Fryhle 2004).They detected 27 organic wastewater compounds which included 12 pharmaceutical and polyfluoroalkyl compounds, and four organophosphate flame retardants.It can be said that the problem of groundwater contamination with organic compounds in Saudi Arabia is not acute and is manageable at present.The widespread

occurrence of VOCs indicates the vulnerability of many of the US aquifers to low-level VOC contamination.Keywords Groundwater .Organic compounds .Groundwater contamination .