

Mechanisms of arsenic contamination of a surficial aquifer in Turkey

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Abstract Possible sources of extremely high concentrations of arsenic (reaching as high as 561.5 µg/L) in the shallow groundwater of the Simav Plain, Turkey, are studied in order to understand the probable mechanisms of contamination. It has been found that the major source of arsenic in groundwater is arsenic-containing geological formations in and around the plain. However, this arsenic, otherwise-contained in lower strata, is mobilized by the help of geothermal fluid that is present underneath the tectonically active, faulted graben zone. Overexploitation of groundwater in the surficial aquifer is also found to be a factor causing high levels of arsenic in water supply wells. Furthermore, the uncontrolled disposal of the wastes from an abandoned Cu-Pb-Zn mine that also contains lenses of arsenic and antimony, is another mechanism of arsenic contamination in the surface and subsurface waters of the plain. Further research is currently underway to characterize the details of arsenic in the area.