USDA-CSREES 2006 National Water Quality Conference

Regional Assessment of Arsenic in Domestic Wells of Small Communities

Heightened awareness of groundwater contamination by arsenic within the United States has been increasing over the last decade due to the recent discovery of widespread contamination in South Asia. Arsenic enters water supplies from natural deposits in the earth's crust and/or anthropogenic activities. Two oxidation states exist in the natural waters, arsenite (+III) and arsenate (+V), with arsenite being the more toxic of the two. In natural waters (pH range 5.5-8.5) the predominant species are $H_3AsO_3^o$ and $H_2AsO_3^-$ (arsenite) and $H_2AsO_4^-$ and $HAsO_4^{2-}$ (arsenate). In collaboration with the 406 CSREES Water Quality Program, groundwater samples were collected from private and small community wells within 5 western states (Wy, Sd, Mt, Co, & Ut) and analyzed for levels of arsenic that exceeded the MCL of 10 µg/L. Those that did exceed the MCL were then treated with a unique adsorption process to remove the elevated levels of arsenic. The resulting data was then used to create an outreach program with the working partners to establish awareness and address the growing concern of arsenic contamination within many western states.

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