

Water chemistry influence on arsenic removal in New Jersey and Maine private wells

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To improve efficacy of arsenic removal system and reduce arsenic exposure by treated well water, many efforts had been put into American, Asian and other areas where people are suffering from the consequences of high-level arsenic in water. The goal of this project is to figure out water chemistry influence on arsenic removal in Maine and New Jersey private wells. Results were based on datasets of Maine 2006, 2002 and New Jersey 2015 that both had pre- and post-treatment arsenic concentration and water chemistry parameters. Arsenic removal ratio (ratio of pre-treatment arsenic concentration minus post-treatment As concentration over pre-treatment arsenic concentration) was calculated to represent arsenic removal efficacy. And Fe, S speciation ratios were calculated to represent water redox status. Relations between water chemistry parameters and arsenic removal efficacy were plotted to find the influences. Our main findings are: (1) significant difference of pre-treatment and post-treatment and arsenic removal ratio existed between Maine and New Jersey; (2) raw well water containing higher As and Fe showed higher arsenic removal ratio in both Maine and New Jersey; (3) Maine 2002 datasets revealed that raw well water with higher oxidation status had higher arsenic removal efficacy.