

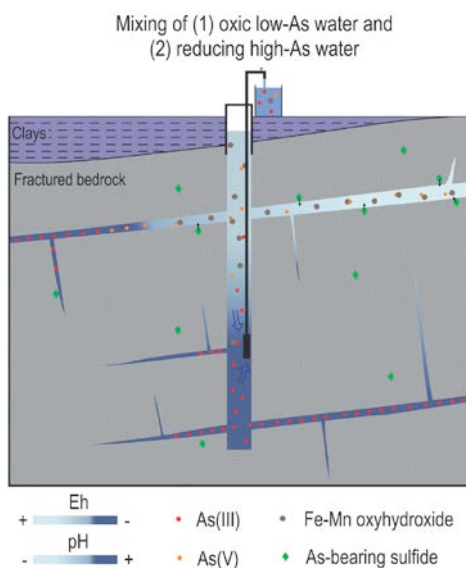
Arsenic speciation in groundwater from a fractured bedrock aquifer in the Canadian shield

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Nineteen domestic bedrock wells were sampled in a mineralized area of the Abitibi-Témiscamingue region (Province of Quebec, Canada). Results reveal that 8 of these wells contain high arsenic (As) concentrations ($> 10 \mu\text{g/l}$). Although As-bearing sulfides oxidation is the primary source of As into groundwater, water chemistry suggests that As concentrations are mainly controlled by reductive dissolution of Fe-Mn oxyhydroxides. Separation of arsenic species using a new field method [1] suggests that toxic arsenite (As(III)) is the dominant As species in groundwater.

Groundwater samples in open borehole are likely to be a mixture between different waters occurring in each contributing fracture [2]. Here, it is proposed that high-As wells are supplied in large part by high-As(III) reducing water occurring in small, deep and poorly connected fractures.



[1] Watts *et al.* (2010) *Environ Geochem Health* **32**, 479-90. [2] Harte *et al.* (2012) *Hydrogeol J* **20**, 1189-1201.