

Field Study on the Disposition of Compounds

At present, there are three field studies where magnesium has been measured. One of the studies also studied free phosphate levels. These studies are summarized below.

University of Waterloo

The following quote is from Dr. Gino Bianchi, the lead author of an ORC-based oxygen barrier study published in GWMR, on his observation pertaining to the very limited migration of magnesium from ORC deposition wells. “It is unlikely that sufficient magnesium would be dissolved to create scaling or reduced permeability problems in the zaquifer. The increase in magnesium during the (3 month long) Borden experiment (a reference to Canadian Forces Base Borden) was very localized; the concentration increased from approximately 5 mg/L (background for the site) to approximately 20 mg/L within 1 m downgradient of the ORC. The magnesium concentration decreased to 5 mg/L, 1.5 m downgradient of the ORC.”

North Carolina State University

Magnesium samples were taken at a number of wells both outside and inside the ORC treatment zone. There was no significant difference in magnesium content for any of the samples with respect to the baseline levels. In fact, magnesium levels remained at between 0.5 and 0.67 mg/L in the ORC source well itself throughout the time it was measured (102 days). The average level in U.S. drinking water is 60 mg/L (in a range of 10 to 100mg/L) and commercial mineral waters actually advertise the presence of percent levels of magnesium.

Phosphate levels were completely unchanged from background after application of ORC. All phosphate levels at the site were below 0.5 mg/L. Even if several mg/L phosphate is being released in proximity to the well, it is apparently consumed rather quickly by the microbes present.