



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2003ND27B

Title: Modeling Groundwater Denitrification by Ferrous Iron Using PHREEQC

Project Type: Research

Focus Categories: Groundwater, Models, Nitrate Contamination

Keywords: Groundwater, Denitrification modeling, PHREEQC model

Start Date: 03/01/2004

End Date: 02/28/2005

Federal Funds: \$15,000

Non-Federal Matching Funds: \$30,001

Congressional District: At large

Principal Investigator:
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Abstract

Efforts by members of the UND denitrification research team show organic carbon and sulfide are active electron donors for denitrification in aquifers in North Dakota and Minnesota. We also believe ferrous iron is an active electron donor; however, the geochemical evidence for ferrous iron is more difficult to interpret. To do so requires advanced computational techniques, such as incorporated in the computer code PHREEQC (Parkhurst and Appelo, 1999) produced by the U.S. Geological Survey. Therefore, our objective is to use PHREEQC in order to gain a more comprehensive understanding of the hydrogeochemical environment that governs denitrification by ferrous iron and associated aquifer reactions.