

The Water Underground

Stretching Supplies



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FRESHWATER SOCIETY

- Who are we?
 - Oldest water-oriented non-profit in the state
- What do we do?
 - One of the very few voices that promotes groundwater policy at the capitol
 - Capacity building and facilitation services
 - Watershed districts
 - Master Water Stewards
 - Community water resilience planning
 - Lake associations
 - Agency and corporate conversations
 - Raise money and awareness

Calendars, Moos speakers



- Invited to testify before the Legislative Water Commission on our report
 - Encouraged conservation efforts
 - Eliminated barriers to water reuse
 - Recognize that in some areas aquifer recharge may be required
 - Should be studied by the State

Recharge

- Enhancing natural recharge is all but banned
- We are promoting managed aquifer recharge.
 Passive
 - Active recharge
- It is time to add these tools to ensure longterm water sustainability



- The 2015 Met Council <u>Master Water Supply</u> <u>Plan</u> projected 2040 groundwater drawdown
- Their ongoing <u>aquifer recharge studies</u> are identifying areas where recharge is geologically feasible.

Jordan Sandstone Recharge Study, USGS

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Jordan Sandstone hosts a deep, bedrock

Admittedly, we know a lot more about

Surficial recharge case study, East Bethel, Anoka County

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injecting water

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Mt. Simon water storage for Albertville, Hanover, St. Michael, and Frankfort

East Bethel is a small town on the Anoka Sandplain west of Lino



Shakopee Mdewakanton Sioux aquifer recharge study

To preserve groundwater availability, the Shakopee Mdewakanton Sioux Community developed a pilot project to establish a protocol for injecting treated wastewater into a buried glacial gravel layer that lies above the principal bedrock aquifer, the Jordan Sandstone. This protocol has not yet been implemented but still can, because the community is a sovereign nation unrestricted by Minnesota rules.

The pilot project included tertiary treatment through a combination of reverse osmosis, ultra violet light, and ozone treatments impacted parties hope to reach a compromise that will allow the community to move forward while retaining their positive relationships.

"The recycling of treated wastewater, especially the possibility of direct or indirect unrestricted end-use, has brought two scientific uncertainties or problems into sharp focus. One uncertainty is the fate of the large number of natural (e.g., hormones) and synthetic chemicals, such as pharmaceuticals and personal care products (PPCPs), flameretardants, and preservatives affecting both human and environmental receptors via a

Existing rules

- Extend wellhead protection rules to protect groundwater recharge areas
- No rules for non-point?
 - This is a way to address that gap
- Non-degradation standard
 - May need to be reinterpreted if improving the quality of water recharging deep aquifers

Managed aquifer recharge

- Secure additional \$\$ for wellhead protection and drinking water supply management areas
- MGS and DNR work to define recharge areas
- Prioritize CWF \$\$ to promote infiltration practices
 - Stormwater
 - Natural bio-filtration
 - Perennial and organic vegetation
- Leverage Federal \$\$ to fund recharge easements
- Study long-term recharge examples

Investigate active recharge

- Measure transport and fate of micropollutants and CEC
- Pursue authority from EPA to oversee injection wells
- Monitor microbial activity in shallow aquifers to assess ability to breakdown pollutants

Reduce, Reuse, Recharge

