

Hello Neighbor:

This mailing is the first in a series that residents of the Linn Sanitary District will receive during 2011. Each mailer will address a different aspect of groundwater and its role in the Geneva Lake area.

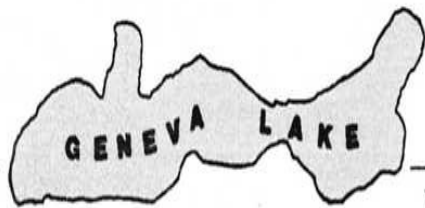
Later this summer, a mailing on testing your private drinking water well will be sent to you. You will have an opportunity to not only learn how to test your well but an opportunity to have it tested. It is our hope that through your gained knowledge you will better understand the role of groundwater, how to protect it and how to test your well as a means of knowing what is in the water you are drinking.

We look forward to working with you on this important project. For more information on the project contact us at glea@genevaonline.com or call 262-245-4532.

**The Linn Sanitary District &
the Geneva Lake Environmental Agency**

**2011 Timeline of Groundwater I & E
Program**

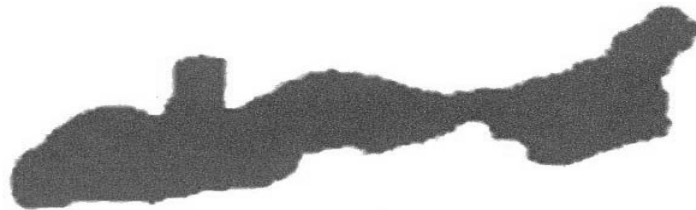
- **January** Program Introduction– LSD newsletter.
- **February** First information sheet mailing.
- **March** Second information sheet mailing.
- **April** Third information sheet mailing.
- **May** Fourth information sheet mailing.
- **June**..... 1st mailing on well testing.
- **July**..... Second mailing of well testing info. Meeting on well testing. Pick up bottles. Well water sampling and testing.
- **August**..... Meeting and mailing on test results. Fifth information sheet mailing.



LINN SANITARY DISTRICT

P.O. BOX 454 • LAKE GENEVA, WI 53147 • 262-245-4532

This Groundwater Information and Education Campaign is brought to you by the combined efforts of the Linn Sanitary District and the Geneva Lake Environmental Agency.



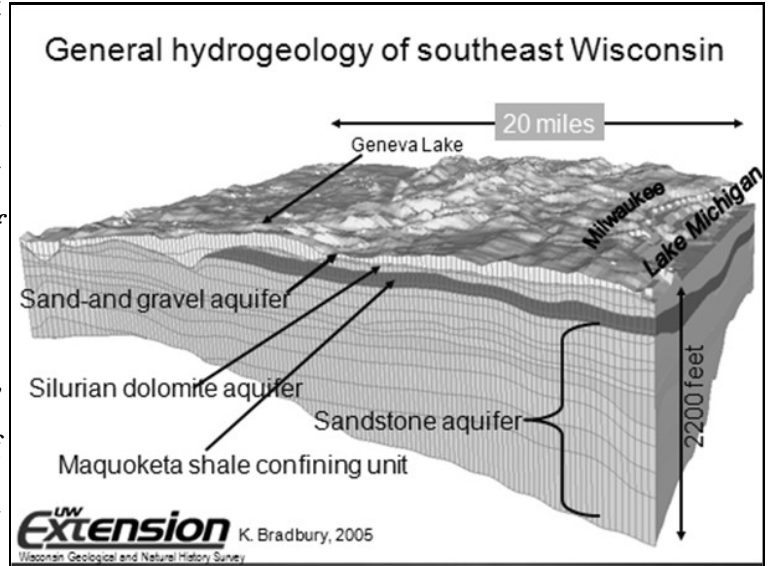
Geneva Lake Environmental Agency

Village of Fontana • City of Lake Geneva • Town of Linn
Town of Walworth • Village of Williams Bay

HYDROGEOLOGY OF THE GENEVA LAKE AREA, OR WHAT IS UNDERGROUND AROUND HERE?

Beneath our feet is the largest concentration of fresh water on the planet. Mixed within the soil and rock of the earth is the collection of the most important resource on the planet Earth - **water**, specifically **groundwater**.

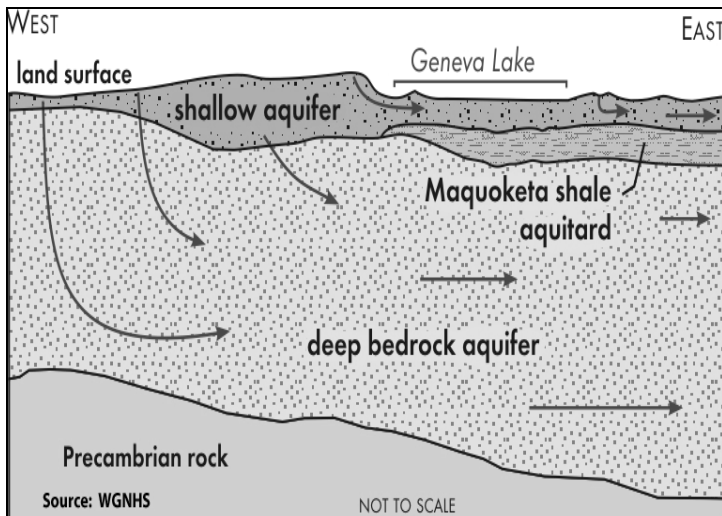
Groundwater is simply water in the ground that fills the spaces or **pores** between rocks and soil particles. Water enters the ground from rains or through groundwater recharge by surface waters. When water enters the soil it moves downward to a **zone of saturation** or **aquifer**. The top of this saturation zone is called the **water table**. Once into the aquifer, groundwater constantly moves from upland **recharge areas** to lowland **discharge areas**. The speed of groundwater movement is dependent upon, size and number of spaces (**porosity**) in the soil or rock, **connectivity** of the open spaces and slope from **recharge** to **discharge** areas. **Groundwater discharge** happens by either pumping or by groundwater discharge to springs, streams or lakes.



Most Geneva Lake area drinking water, whether supplied by municipal or private wells, comes from the ground. Two major **aquifers** supply groundwater in the Geneva Lake area. The shallow **aquifer**, approximately 200 feet or less from the surface, is sand and gravel, left here by the glaciers. Beneath the sand and gravel is found the deep sandstone **aquifer**. Separating these two **aquifers** is a layer of **impervious shale**. The shale restricts interaction between the two aquifers for much of the Geneva Lake area.

The sand and gravel **aquifer** generally supplies good quantities of good quality water. It plays a major role in supplying water to Geneva Lake, its springs and streams. It also supplies water to many drinking wells that are less than 200 feet deep.

Water moves relatively fast in sand and gravel. Because of its proximity to the surface and its large **pores**,



sand and gravel **aquifers** are very susceptible to contamination. Deeper wells in the Geneva Lake area (<200 ft) tap into the deep **aquifer** of limestone or sandstone. This **aquifer** is much tighter and holds less water than most of the sand and gravel. Water moves through the deep **aquifer** slower than in the sand and gravel. Water in the deep **aquifer** is not as susceptible to surface contamination. However, due to the chemistry of this **aquifer**, it can generate some of its own pollutants that can impact water quality.

Glossary of Terms

Aquifer: An area in the ground where all open air spaces between the soil and rocks particles are filled with water.

Connectivity: The degree to which pores in the soil or rock are connected.

Discharge area: An area where groundwater comes to the ground's surface as a spring, creek or surface water.

Groundwater: Water that is found in the spaces or void between rocks and soil particles.

Impervious shale: A rock made of very tightly packed particles that does not let water pass through.

Pores: Air spaces between soil or rock particles.

Recharge area: An area where an groundwater enters the ground and moves downward into the water table.

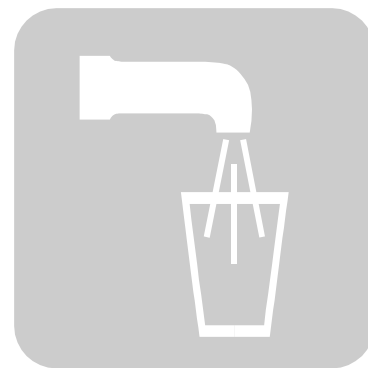
Water table: The top of an aquifer were all the spaces between the soil and rock are filled with water.

Zone of saturation: The area in the ground where the air spaces are filled with water.



Did you know?

- ◆ 99% of the water used in Walworth County comes from groundwater.
- ◆ The average person uses 63 gallons of water per day.
- ◆ A dripping faucet can waste up to 20 gallons of water a day.
- ◆ Groundwater contributes as much as 1/3 of the water that comes into Geneva Lake each year.
- ◆ Geneva Lake's ground watershed is about twice as large as its surface watershed.



Groundwater information to be distributed in 2011
by the Geneva Lake Environmental Agency and the Linn Sanitary District.

- HYDROGEOLOGY OF THE GENEVA LAKE AREA-WHAT IS UNDERGROUND AROUND HERE?
- GROUNDWATER IN THE GENEVA LAKE AREA
- GROUNDWATER AND WHY IT IS IMPORTANT IN THE GENEVA LAKE AREA
- TESTING YOUR DRINKING WATER WELL –WHAT IS IN THE WATER YOU ARE DRINKING?
- PROTECTING GROUNDWATER
- GROUNDWATER IN THE GENEVA LAKE AREA, WALWORTH COUTNY, WISCONSIN

For more information on Groundwater visit:

Central Wisconsin Groundwater Center
<http://www.uwsp.edu/cnr/gndwater/>

Wisconsin Department of Natural Resources (WDNR)
<http://dnr.wi.gov/org/water/dwg/>

United States Geological Survey (USGS)
<http://water.usgs.gov/ogw/>

Wisconsin Geological and Natural History Survey (WGNHS)
<http://www.uwex.edu/wgnhs/>

United States Environmental Protection Agency (USEPA)
<http://www.epa.gov/>

University Of Wisconsin—Extension
<http://www.uwex.edu/>

Geneva Lake Environmental Agency (GLEA)
<http://www.genevaonline.com/~glea/>

Linn Sanitary District (LSD)
<http://www.townoflinn.com/Sanitary.htm>

Wisconsin State Lab of Hygiene (WSLH) for testing
<http://www.slh.wisc.edu>



**PLEASE OPEN AND READ...IMPORTANT INFORMATION ON
GROUNDWATER AND YOUR DRINKING WATER WELL.**

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LINN SANITARY DISTRICT



350 Constance Boulevard, P.O. Box 914, Williams Bay, WI 53191

GENEVA LAKE ENVIRONMENTAL AGENCY