

Water Use in the Utica

The development of the Utica Shale requires oil and natural gas companies to utilize water for hydraulic fracturing. The average hydraulic fracturing job requires between 3 and 5 million gallons of water. While that number may seem like a lot, it is important to keep in mind some facts and perspective.

Precipitation in Ohio

Annual precipitation in Ohio totals **more than 30 trillion gallons**, a quantity that more than adequately recharges the local streams, rivers, lakes and aquifers in our state. In fact, two inches of rainfall in Carroll County yields **13.9 billion gallons of water** deposited on the ground. That's equal to the amount of water needed to hydraulically fracture more than 2,780 wells.

Did You Know?

- » Ohio is covered by 3,967 square miles of water
- » Water users of all types withdraw about 11 billion gallons of water each day from Ohio streams, lakes, and aquifers--more than enough to fill a five square mile swimming pool to a depth of 10 feet
- » Electric generation uses 8.9 billion gallons of water a day in Ohio
- » Rural and public water systems use 1.4 billion gallons daily in Ohio
- » In 2013, Utica Shale developers hydraulically fractured less than one well per day. This would equate to 0.04% of the water withdrawn on a daily basis
- » Conesville Power Plant in Coshocton displaces or evaporates 16.7 million gallons a day
- » The Muskingum River's median flow rate is 4 million gallons per hour and 5.8 billion gallons per a day

Accountability

Permit applications to the Ohio Department of Natural Resources for oil and gas drilling operations must identify the source and estimated volume of groundwater and/or surface water that will be used for each well (e.g., hydraulic fracturing operations), and must specifically state whether the water will be withdrawn from the Lake Erie or Ohio River watersheds.

Recycling of Water

Not only does hydraulic fracturing require significantly less water than many other processes, recycling and reuse of water is increasing across the United States – further reducing the use of freshwater sources and decreasing the natural gas industry's footprint.

How Much Water is 5 Million Gallons?



The amount of water New York City consumes **every 7 minutes**



The amount used by a golf course in **one summer month**



About **1.6 percent** of the amount of water used in car washes every day



Approximately the amount that is emptied **every second** from the Mississippi River into the Gulf of Mexico



Amount of water used for **7.5 acres of corn** in a season



The amount of water that discharges from the Ohio into the Mississippi River **every 2.5 seconds**

Contrary to popular rhetoric, data from Texas, Colorado, and the U.S. Department of Energy show relative water use from oil and natural gas activity – including but not necessarily limited to hydraulic fracturing – is actually quite small in comparison to other water uses.

» **Colorado:**

Agriculture is the largest water user, accounting for approximately 85% of the state’s total water demand. Hydraulic fracturing, however, accounts for **less than 0.1 percent**.

» **New York:**

Regulators have estimated that hydraulic fracturing would increase the state’s total water demand by **less than one quarter of one percent** – 0.24 percent to be exact.

» **Texas:**

The water required every year for oil and gas – in the largest oil and gas producing state in the country – is **less than one percent of the state’s total water use**. The Tarrant Regional Water District, which supplies water for approximately 1.7 million people in the Barnett Shale region of north Texas, stated that oil and gas production activities consumed only 0.54 percent of the total water it sold in 2011.

» **North Dakota:**

The state used 5.4 billion gallons for oil and gas in 2011, a fraction of the state’s overall water use. North Dakota used 37.9 billion gallons of water in 2011 for irrigation alone. That means oil and natural gas development — in the second largest oil producing state in the country – uses approximately **87 percent less water than irrigation**.

» **Pennsylvania:**

The state consumes roughly 3.6 trillion gallons of water annually. According to Accenture Consulting, the shale gas industry uses **less than 0.2%** of that for hydraulic fracturing. According to the Pennsylvania Fish and Game Commission, drilling activities in the Marcellus shale rank below the amounts used for nuclear power generation, agriculture, livestock, irrigation, mining and all other public and domestic use.

» **Oklahoma:**

The Oklahoma Water Resources Board states that many if not most of the permits issued, “including those specified for hydraulic fracturing, range from one to about thirty acre-feet of water. Regular permits issued for public water supply, irrigation, and other large-scale uses often authorize hundreds to thousands of acre-feet annually.” Oil and gas is projected to account for **only 5 percent** of Oklahoma’s total water demand in 2060.

» **U.S. Department of Energy:**

According to a recent report, the water required for hydraulic fracturing in any given region was estimated to be **roughly 0.8 percent** of total demand.

» **Duke University:**

A new study found that developing natural gas from shale actually results in about **35 percent less wastewater than so-called conventional wells**, on a per- unit-of-energy-produced basis.

Do you know how much surface water the MWCD Lakes hold and rain falls in the Utica Shale region each year?

Check out the numbers:

Muskingum Watershed Conservancy District Lakes

(Billion gallons)

- Atwood Lake** | Carroll/Tuscarawas County): 7.69
- Clendening Lake** | Harrison County): 8.64
- Leesville Lake** | Carroll County): 6.35
- Piedmont Lake** | Belmont/Guernsey/Harrison County): 11.25
- Seneca Lake** | Guernsey/Noble County): 14.17
- Tappan Lake** | Harrison County): 11.44

Precipitation Totals In Six Shale Counties

(Billion gallons of precipitation per year)

- Belmont County:** 395.11
- Carroll County:** 263.47
- Harrison County:** 282.00
- Guernsey County:** 367.27
- Noble County:** 281.26
- Monroe County:** 333.93